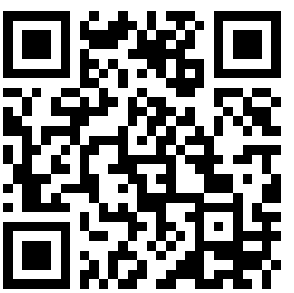

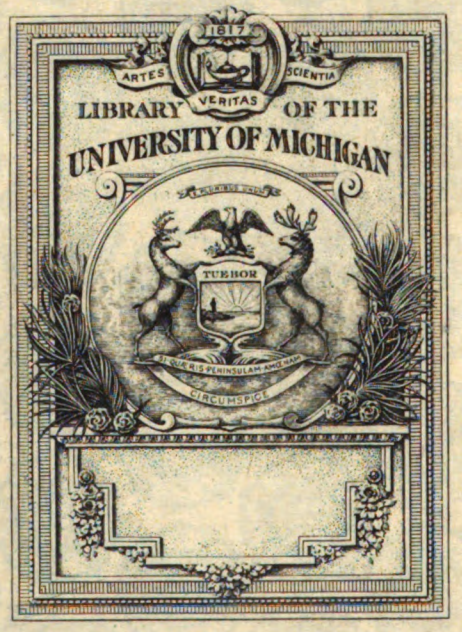

Henry R. Taylor,
January 1890.

THE

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AND

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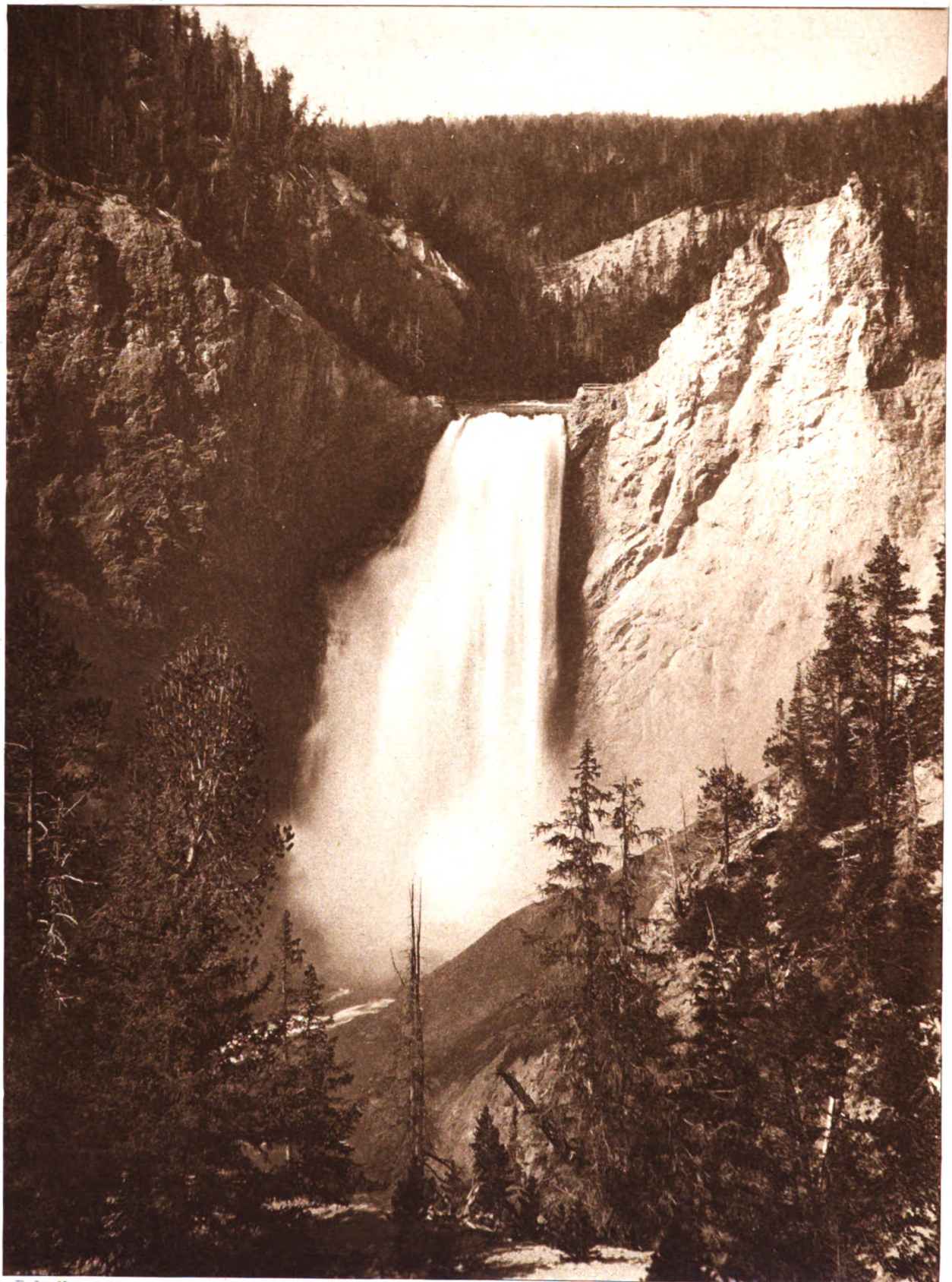
ABBREVIATIONS.

Ed.	Editorials.
Ed. N.	Editorial Notes.
Ed. T.	Editorial Table.
C.	Contributors.
Cp.	Correspondence.
Q. & A.	Queries and Answers.

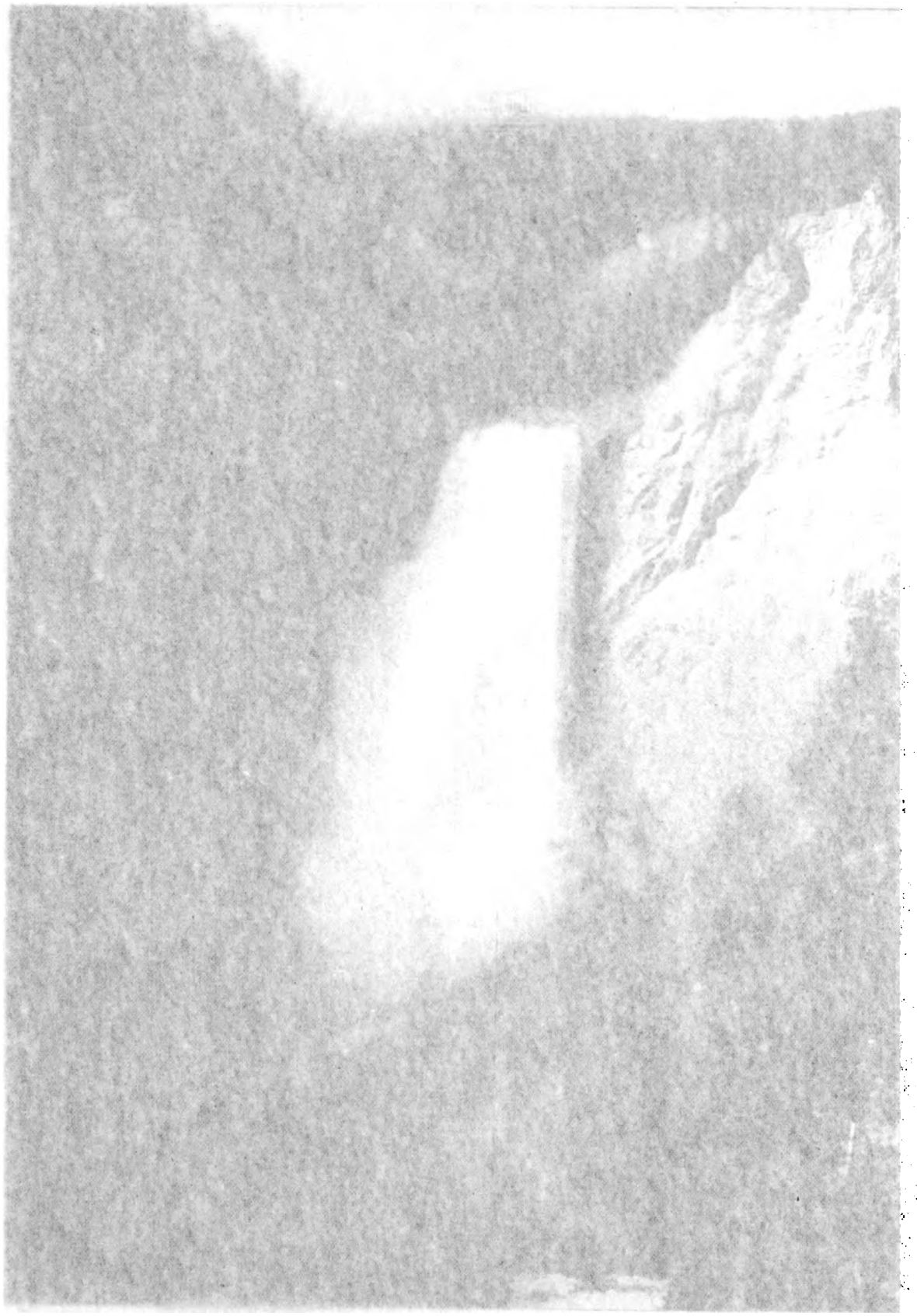
INDEX.



F. JAY HAYNES.

PHOTO. GRAVURE CO. N. Y.

Great Falls of the Yellowstone. 360 feet



THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, JANUARY 4, 1889. No. 381.

WHAT NEXT?

What next? we ask, and is it true
The sunshine falls on nothing new,
As Israel's king declared?
Was ocean ploughed with harnessed fire?
Were nations coupled with a wire?
Did Tarsish telegraph to Tyre?
How Hiram would have stared!
* * * * *
See to my *fiat lux* respond
This little, slumbering, fire-tipped wand;
One touch it bursts in flame.
Steal me a portrait from the sun—
One look—and lo! the picture done!
Are these old tricks, King Solomon,
We lying moderns claim?

From "Before the Curfew."—Holmes.

DEVELOPERS.

WE call the developer good which is capable of bringing forth all excellent qualities in a negative. Good developers exist in countless numbers, and it matters little what their chief factors may be, so long as they produce a good negative. We require of a developer that it makes a negative possessing good printing qualities, clearness in shadows, fine half-tones and middle tints, and a neutral color that will not interfere with printing. A good developer must, moreover, be capable of certain modifications, so that differences in subjects and exposure may be overcome in development, and uniform results be produced.

With ferrous-oxalate many excellent developers have been compounded. For instantaneous work, preceded by a preliminary bath of hyposulphite of soda, or by being modified itself with infinitesimal additions of the same solution, this developer has given most satisfactory results, and on the continent of Europe has always been largely employed and advocated.

Pyrogallol, in its manifold compounds, has served equally well, and while in its combination with ammonia we are inclined to think that finer details and a more pronounced plasticity is obtainable than sometimes seems possible with it in connection with other alkalis, with sodic carbonate we never failed to procure the uniform intensity so much desired by the professional printer, and the frequent absence of which in the gelatine negatives makes him long for the forsaken wet-collodion plate. With potash we all know that the action of pyrogallol is increased, and when properly modified such a developer will produce good printing negatives from plates that have been exposed but a fraction of a second.

Recently hydrochinon has again been recommended as a developing agent, and seems to have gained many friends. Some of the claims made in its behalf, it is true, have been proven false by experiment; but still it possesses many real advantages. As to its durability in compounds, we find that it deteriorates quite as rapidly as pyro. Were hydrochinon in reality what it has been claimed to be—absolutely unaffected by contact with air and the presence of alkalis—we could develop indefinitely with one solution in the same time and with the same result. But this we all know is by no means true, and the developer used once works slower the next time, and is more valuable as a restrainer for over-exposures than as a normal developer. Twenty-four hours is sufficient to change the color of this developer when exposed to air, and there is a consequent decrease of its power as a developing agent. It has further been claimed that hydrochinon allows much greater latitude in the exposure than does any other developer. In our own experience, we have exposed three plates thirty seconds, five minutes, and nine minutes, respectively, and have produced with a pyro-soda developer three negatives almost identical in every respect. So nearly alike, indeed, were they that many were unable to say which had received the longest and which the shortest exposure. Herr Stieglitz recently told us of two plates developed

with ferrous-oxalate, one of which had received forty-five seconds and the other forty-five minutes, and little or no difference was discernible in the results. These are extreme cases, of course, but are merely brought forward to show that what is claimed for hydrochinon is equally, if not more, true, of other and older developing agents. There are some who are uneasy unless they employ a new developer every week. It is largely due to such, we think, that hydrochinon has been pushed forward so much of late.

Pure hydrochinon, so long as it remains uninfluenced by external circumstances, undoubtedly possesses many excellent qualities, among them its uniform action, the ease with which it may be controlled, and the fine color which it gives to a negative, with absolute clearness of shadows. But these excellent results are only obtainable when the developer is in its pure state and at its greatest activity, and to keep it in this state small quantities of meta-bisulphite of potassium have been added with excellent results. We recently experimented with it in connection not only with hydrochinone, but also with pyro, the result of which we give below.

In open beaker-glasses we exposed for ten days the following two solutions:

1. Pyrogallol..... 60 grains
   Water..... 4 ounces
   Meta-bisulphite of potassium..... 22 grains
   Sulphite of soda (crystal)..... 4 drams

No. 1 was of a straw color.

2. Pyrogallol..... 60 grains
   Water..... 4 ounces
   Sulphite of soda (crystal)..... 4 drams

No. 2 commenced to change color in a few hours, and was finally of a port wine color.

A hydrochinon potassa developer, composed as follows, was then experimented with in a similar manner.

a. Hydrochinon..... ¼ ounce
   Sulphite of soda (granulated)..... 1 ounce
   Water..... 16 ounces

b. Carbonate potash..... 1½ ounces
   Water..... 16 ounces

The following solutions were exposed, as the pyro, in glass beakers for ten days.

1. Of *a*..... 2 ounces
   Of *b*..... 2 ounces
   Meta-bisulphite..... 16 grains
2. Of *a*..... 2 ounces
   Of *b*..... 2 ounces

At the expiration of the time the color of the No. 1 solution was a pale yellow; that of No. 2 like coffee without cream.

These results speak for themselves as to the value of meta-bisulphite of potassium as a preserver, without further comment from us.

THE GREAT FALLS OF THE YELLOWSTONE.

Our pictorial supplement this week is one of a series of artistic and characteristic American landscapes. Nothing can be more beautiful in its grandeur than the Great Falls of the Yellowstone; and besides possessing an inherent interest—from the subject which it depicts—our picture this week is a splendid example of an artistic landscape photograph. The photogravure is from a negative by F. Jay Haynes, of Fargo, and is one of a series illustrating the Yellowstone, and published in photogravure by Mr. Haynes.

EDITORIAL NOTES.

While the aristotype has grown in popularity with amateurs of America, Germany and other countries, it seems to have gained little favor with Austrian photographers, who prefer platinum paper to any other. One of their journals recently expressed surprise at this growing popularity of the aristotype in other countries, claiming that it was devoid of artistic beauty, while the platinotype possessed many artistic qualities that placed it far ahead of any other print. It is true that in many respects the platinotype is superior to a print from the same negative upon aristo paper. Nevertheless, there are conveniences in the use of the latter, and a softness of gradation obtained upon it, which justifies its growing popularity among amateurs in this country and abroad. An amateur who has used it extensively for the past two years describes his experience and the *modus operandi* which he employs.

After washing the print in pure water until the drippings are perfectly clear, he tones the paper as follows: Thirty grains of chloride of gold are dissolved in 18 fluid ounces of distilled water, and 7½ drams of double-fused acetate of soda is dissolved in 17½ fluid ounces of water in another bottle. After a thorough washing of the prints they are toned in a solution composed of three parts of the gold, five parts of the acetate solution, and three parts of pure water. Not more than two prints are toned at one time. In a very short time the action of the gold becomes perceptible, the picture begins to turn bluish, then violet, and finally to a deep black. The action of the toning-bath is easily controlled, so that any tone desired may be obtained. For rich blacks the print should be made considerably darker, of course, than for the lighter

and warmer tones. The Liesegang method of toning and fixing in one compound solution is said to be wholly unsuccessful in practice by the author of the foregoing method.

A GOOD example of the American aristotype is published in the "Photographic Times Annual" for 1889. In an early issue of the PHOTOGRAPHIC TIMES we expect to present our readers with a platinotype illustration, in addition to the regular photogravure supplement, from several English and American landscape negatives of surpassing beauty, and printed by Willis & Clements, of Philadelphia, the head-quarters for this method in America.

IN order to prevent chloride of silver gelatine and chloride of silver collodion prints from turning yellow in a compound gold and hypo bath, it has recently been recommended to add very small quantities of nitrate of lead. We have no doubt but that a lead salt added to the hypo will yield white prints, but we are equally confident that the lead will act upon the whole silver deposit of the print (especially if it be slightly in excess), and will thus bleach out the image. An experience of many years has made us cautious when using lead in printing operations. We fear it here quite as much as we do a hypo eliminator.

ALUM.

IT might be interesting to those who believe that alum is capable of clearing out the last traces of hypo from prints and negatives, to learn just how much or little ground there is for their confidence in its sovereign efficacy.

Faith is a good thing, when it is not misplaced; when misplaced, there is some danger of its being mischievous. At other times, it degenerates into absurd and senseless superstitions. Among the latter may be mentioned the remotely-transmitted belief that an old horse-shoe possesses the power of averting misfortune, or that to see the new moon over the right shoulder is a more fortunate circumstance than to see it over the left.

I propose to prove that the popular notion that alum either removes, or facilitates the removal of hypo from paper or gelatine films, from which it must needs be excluded, is no less absurd than the ancient lunar bugaboo or scrap-iron spell.

Fill a test-tube half full of a saturated solution of alum, and to this add an equal quantity of a ten-grain solution of hypo. The mixture will slowly turn milky, and if allowed to stand twenty-four hours only a small precipitate will be formed. Repeat the experiment, using a five-grain solution of hypo instead of a ten. As to be expected, much less turbidity or milkiness will be observed. But with a two and-a-half-grain solution of hypo, the change in the appearance of the transparent mixture is scarcely perceptible, while, *with a one-grain solution of hypo*, no visible change takes place.

Now please observe: With a test that will decompose all the hypo in a given solution, it can be readily shown that one-fourth of a grain of hypo to the ounce will give a distinctly greater precipitate than that given by the ten-grain solution of hypo in alum as above described, while the one-grain solution of hypo (reduced, of course, to a half-grain solution by mixing with an equal bulk of alum solution) gives, with the same test, a milk-white mixture which cannot be seen through. Observe further: That this test produces no visible effect upon the water used, nor upon the alum bath; therefore the precipitates, in the cases mentioned, are due to the hypo.

What, then, becomes of the hypo when added to the alum-bath? The answer is, that in the case of the ten and five-grain solutions, a small quantity is decomposed, precipitating sulphur, while not less than nineteen-twentieths of the whole remain in solution with the alum; while, of the one-grain solution, every particle remains. At least after standing for hours no change is visible, and the test shows the presence of the hypo with as decisive effect as if no alum were present.

Another cirumstance is worthy of notice. In the first two experiments above described, the strong alum solution being first poured into the test-tube, the weaker hypo solution being afterwards added, when the precipitate formed a considerable space at the lower end of the mixture remained clear, showing that the weaker hypo solution does not readily diffuse itself downward through a strong alum bath; whence it may be inferred that if prints partially washed be placed in a strong alum-bath, as recommended, the weak hypo in the prints will soak out of them *less readily* than if no alum were in the water. It remains to be proven that alum does not hinder, rather than hasten, the proper washing of prints.

If I am able to form correct deductions from the facts above stated, they prove: *First*, that as alum and hypo may remain in solution together, the one does not exclude the other, excepting so much as is decomposed. *Second*, the portion decomposed leaves behind, in the print or negative, *free sulphur*, which is an evil impossible to remedy by any subsequent washing, and which will probably result in the destruction of print or negative

in which it is left; its use, therefore, when there is enough hypo present to admit of partial decomposition, is certainly inadmissible. And, *Third*, when the hypo is not present in greater quantity than one grain to the ounce of water, alum will not decompose it at all, and has nothing whatever to do with getting rid of it unless (which is quite probable) it is to perform the pleasant function of retarding that desirable result.

There are many negatives, five years old and less, that already show symptoms of an incurable disease, or, if not incurable, I have not been able to find a permanent remedy. It consists of a kind of breaking out or rash, and is probably caused by hypo or free sulphur left in the film. As I have always, and especially for the last ten or fifteen years, been particular to wash negatives thoroughly, I am inclined to believe that these negatives were placed in the alum-bath (to prevent frilling) too soon, or when there was hypo enough in them to be partially decomposed, free sulphur in the gelatine film being the consequence.

If alum is needed to harden the films of dry-plates or prevent frilling, a fixing-bath composed of both hypo and alum, as recommended by Mr. Cramer, is doubtless one of the best forms in which it may be safely and advantageously used. As an agent for removing hypo from *anything*, it is a delusion and a snare. The sooner this fact is understood the better. *W. H. Sherman.*

ON THE SELECTION OF VIEWS.

Time and distance are essential considerations with the amateur in search of the picturesque. The best points of view are seldom within easy reach, and when, after a toilsome journey, the selected spot is reached, it is a common experience to find that the propitious moment has passed.

Fortunately, however, there is no landscape so tame as not to have its poetic mode under favorable conditions of time and atmosphere. At such times it will reveal a wealth of beauty previously unsuspected. These fleeting moments which clothe the landscape with a transient beauty are as valuable to the artist with the camera as to his brother of the brush and palette.

The hours of early dawn, when all nature wakes refreshed by its night's repose, are golden for the landscape photographer. Then a charm is imparted to the most ordinary distances, and if one has a good foreground, one is reasonably certain of a picture.

Almost anything will serve to impart interest to the foreground; a growth of weeds, a clump of bushes, a mass of vines or roadside flowers, a fallen tree, a pile of rocks, an old stone wall; these are some of the common objects which may be employed to build up a good foreground, and they are not difficult to find. The chief difficulty lies in learning to recognize the beauty of these familiars of our morning walks and their proper place in the composition.

Since the follower of the camera is deprived of the painter's great auxiliary, color, he must depend entirely upon form, light and shadow to secure grace and beauty in his work. Hence he must make of these a most careful study. He must have an eye open to the effects produced by variations in these representative features. He must learn to distinguish the beautiful from the ugly in form; he must acquire the knowledge of effective arrangements of light and shade.

Much of this can be gained from the study of books and the analysis of good pictures. In this way will be laid the foundation of the appreciative and selective knowledge which is a prime essential to success in the presentation of nature. But beyond and above this book knowledge must be placed the loving study of nature. Nature is continually transgressing the canons of art, and her wayward roads are frequently her most charming. Much benefit would be derived by an occasional walk along the country-side without the camera to study nature, not to photograph her. Many beautiful compositions and charming effects will be discovered which might have passed unnoticed had not the mind been bent in this one direction. In this way we come to know and appreciate the beauties of our own surroundings, and no longer feel the need of wandering far afield in search of the picturesque.

Even though we may find no striking views, we shall certainly not fail to happen upon little glimpses which may well fill an occasional page in our albums, and teach us the beauty of the unobtrusive. We must learn to hold a large faith in nature. Not infrequently her simplest offerings, lovingly and appreciatively treated, reward us with a wealth of beauty which surprises and delights us.

The changing seasons of the year bring with them many changes in the familiar landscape. In summer we hardly know our spring-time friend, and when autumn's lavish hand clothes the hill-sides and the valleys in gorgeous robes of scarlet, gold and russet, and Indian summer throws its soft haze over all the landscape, the familiar country-side becomes a revelation and a raphsody.

With plates suited to the work, the amateur finds no lack of beauty, and the closing days of nature's

harvest-time yield well-laden sheaves to him who has the skill to gather them.

The camera makes possible the conquest of a larger world than that which Alexander's sword won for him—a world of peace, and beauty, and grace—whose gates stand always open to him who has the gift of sight and loving appreciation. Without this crowning gift we can do nothing; with it nature is our willing servant, and will serve us well and loyally.

Rev. W. H. Burbank.

A SIMPLE METHOD FOR PRODUCING THE DISSOLVING EFFECT IN LANTERN-SLIDES WITH ONLY ONE OBJECTIVE.

Few amusements are more pleasant, of a winter's evening, than a series of dissolving views from negatives of one's own or one's friends thrown upon a screen by an optical lantern.

In this article I shall endeavor to describe a method for producing a perfect imitation of dissolving effects by the employment of *one lantern only*, and which any one possessed of a fair degree of mechanical skill can readily construct.

Figure 1 shows the dissolver. It is attachable to

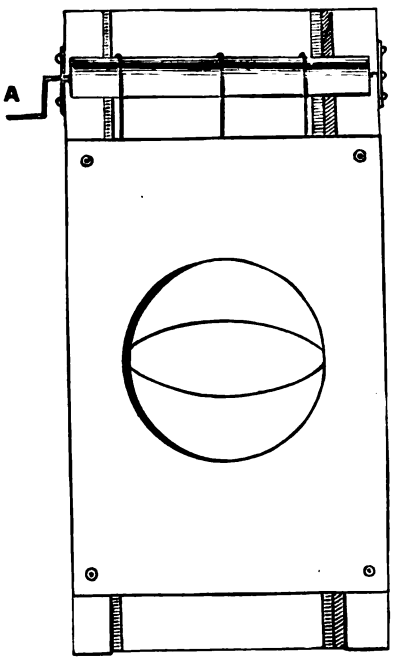
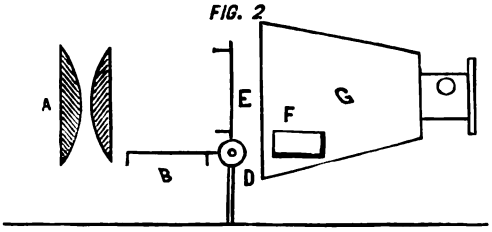


Fig. 1.

the objective of the lantern or can be fastened to its base. By turning the crank A forward (Fig. 1), the ground-glasses with concave edges (A Fig. 3) approach each other and diffuse the light projected on the screen; simultaneously a turn is given forward to the thumb-screw D (Fig. 2), throwing the carrier E containing the slide forward into the cone G (Fig. 2), which raises the slide in carrier B into the position occupied by slide E.

FIG. 2



While this slide is being enjoyed by the audience another slide is placed in carrier E, through slot F in the cone G (Fig. 2), reversing this order for the next view. By referring to Fig. 3 A, the shape of

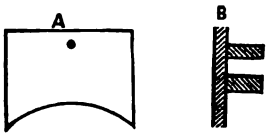


FIG. 3

the ground glasses A (Fig. 3) may be readily ascertained. B is a sectional view of the sliding grooves in which the diffusers A (Fig. 3) open and shut.

If it be desired, an ordinary carrier can be used to hold the slides, but the effect is not quite so good, for at a certain time the picture is entirely off the screen, whereas with this dissolver one picture blends into another with all the softness and delicacy that is obtained with any of the expensive stereopticons.

A. Peebles Smith.

MAKE YOUR OWN PLAIN BACK-GROUNDS.

To assist the beginner, let me tell how he may paint his own back-grounds—the plain ones, at least.

Make a frame, with boards about three inches wide and stretch the cloth upon it after it has been wetted and become almost dry. You need not size the cloth, it is better to paint upon it without such preparation.

A good ground is secured by a suitable shade of kalsomine mixed according to directions accompanying it; or, if you prefer, mix up ivory black with raw umber in a preparation of glue size made by heating the glue dissolved in water, first, however, mixing the dry color in water that it may not be in lumps by the addition of the glue size.

For a lighter one the addition of whiting will temper it to any degree of gray that you may desire. If the color "jells" there is too much glue in it. Add water enough so that it will just escape the jelled condition and it will work much better; it will also keep its moisture better when laid upon the cloth, which will enable you to work and blend the color to your taste in painting a background that has considerable gradations in it.

By these simple methods, and the judicious use of color with the knowledge of drawing, the finest effects are produced both in plain back-grounds and in scenic effects for the stage.

M. H. Albee.

COLLODIO-BROMIDE EMULSIONS.

[Read before the Society of Amateur Photographers of New York].

In bringing this subject to your attention, I am reminded of the fact that it is nearly ten years since I had the pleasure of experimenting with collodio-bromide emulsions, not so much in manufacturing them as in using those put on the market at that time made after the formula of Mr. Henry J. Newton. We then had to prepare our own dry-plates, and give a considerably longer exposure than is now necessary, but we had the satisfaction of obtaining beautifully clear, crisp and dense negatives. There was more latitude in exposure and development than now.

Considerable attention has been given of late to lantern-slide making, and as a few of our members have had difficulty in obtaining good slides on the special gelatine lantern commercial plates, owing to a loss of sensitiveness or fogginess and flatness which does not fully show itself until after the plate is fixed, it occurred to me it might be useful to explain a few formulæ for making and using collodio-bromide emulsions, for the reason that they are rather more convenient for the amateur than the use of the ordinary wet-plate collodion process, since the use of the silver-bath is avoided, and beautiful, crisp slides, full of clear, bright lights, are readily obtained.

In making lantern-slides a slow-washed collodio-bromide emulsion is preferable; one to be had ready-prepared, that gives fine results, is made by Mr. Wm. Brooks, of Reigate, London, and it is what I have been lately experimenting with. The formula for making the emulsion was given by Mr. Brooks to a Mr. Frederick Dunsterville, of Rayapuram, Madras, and what follows will be a description, taken from Mr. Brooks' and Mr. Dunsterville's directions, as reported in the *British Journal of Photography*.

Prepare three separate solutions in ordinary daylight as follows:

PLAIN COLLODION.

Alcohol, methylated	4½ drams
Ether	3½ drams
Gun cotton, high temperature	12 grains

BROMIDE SOLUTION.

Alcohol, methylated	1½ drams
Distilled water	20 minims
Ammonium bromide	13 grains

SILVER SOLUTION.

Distilled water	12 minims
Silver nitrate	20 grains

The most important feature of these solutions is the employment of a suitable kind of pyroxyline or cotton—in this country Hance's is considered the best—then the process is comparatively easy and certain. Make a stock of plain collodion and let it rest for some time, so that all insoluble particles and other impurities may sink to the bottom; tall, narrow bottles are best to store it in. The proportion for a stock solution may be:

Alcohol	22 ounces
Ether	18 ounces
Gun cotton (high temperature)	1 ounce

Referring to the three solutions before mentioned, the bromide should be made by first dissolving the bromide of ammonium in the given quantity of water heated to near the boiling point; then, when cooled to 70 degs. Fahr., the alcohol is added. The water of the silver solution should also be warmed to dissolve the silver easily and rapidly.

To make the emulsion, pour one ounce of the prepared plain collodion into a clean, four-ounce bottle with glass stopper; then add the bromide solution as previously given, shaking well for some minutes; the bottle containing the bromized collodion should then be taken to the dark-room and the silver solution added little by little, shaking well between each addition. It is well to rinse out both the bromide and silver bottles with a little of the collodion to insure the whole of the salts being taken up. The emulsion should then be kept in the dark for about twenty-four hours, shaking well at frequent intervals; and when ready for washing it should be poured into a glass dish, which should be large enough to contain the quantity of emulsion in a mass not thicker than one-eighth of an inch. As the solvents evaporate a skin forms on the surface, which should be broken up occasionally with a silver spoon or ivory paper-knife. When the solvents are completely evaporated the pellicle should be washed in distilled water for half an hour or so, until all the soluble salts have been removed.

The pellicle should then be squeezed in pieces of clean calico until as much as possible of the water is removed, and it can then be dried by moderate heat over a water-bath. The whole of the washing process should be done in a dark-room or at night-time by the light of a candle placed at some distance.

When quite dry the pellicle may be re-dissolved in three-quarters of an ounce of alcohol absolute (0.805) and three-quarters of an ounce of ether

sulphuric pure (0.720), pouring the ether on first, and when all the pellicle is dissolved, the bottle (a four-ounce one) should be well shaken up, and in about twenty minutes to half an hour will be ready to coat plates, after being filtered. It will be a milky-colored solution, resembling somewhat cream in consistency.

The filter for the emulsion may be merely a small funnel with a little tuft of cotton jammed in it, through which a little alcohol should first be run, or, what is better, the first portion of emulsion running through may be returned to the filter. A friend of mine, Mr. A. S. Murray, advises the use of paper filters instead of cotton, for he found particles of the cotton would find their way into the emulsion and cause specks on the plate.

Before coating a large number of plates it is advisable to test the emulsion in the dark-room, to see that it is free from fog by coating a plate; as soon as the film is set wash it in clean water by soaking until all the ether and alcohol are removed, which will be observed as soon as the greasy lines disappear. Then pour over the plate a little developer of full strength, and after letting it remain on the plate for a few minutes, wash well and fix it with a solution of cyanide of potassium.

It should be absolutely free from fog and stains. Stains may be due to the plates not being chemically clean; but if fog is present, a drop or two of an alcoholic solution of iodine added to the emulsion will effect a speedy cure. The emulsion must then be well shaken up again and allowed to rest half an hour before refiltering and coating plates.

Having thus prepared the emulsion, or purchased it already made, the next step is to coat the plates. These must, however, be first cleaned and prepared with a substratum, or edged with a rubber solution or some other substitute to hold the film firmly on to the glass. Mr. Dunsterville recommends soaking them in a dilute nitric acid solution (acid one part, water ten parts); then rinse them in plenty of clean water, drying them with a clean cloth.

They should then be polished on both sides with a cleaning solution (say Tripoli powder mixed with methylated alcohol and a little ammonia), care being taken to wipe off the edges that were clamped in the vise with a clean cloth. They should then be either edged all the way around one-eighth of an inch wide with a rubber solution, or they may be dipped in a hot solution of gelatine (20 grains to 20 ounces of water), and dried with a clean cloth.

Mr. Brooks advises that the plate be cleaned with a piece of clean rag moistened with methylated alcohol, and polished with a clean chamois leather kept for the purpose only. No substratum is recommended. He says, after cleaning the plate, holding it on a pneumatic holder, edge it with a rubber solution (this is to prevent the film from slipping during the after-manipulation). The solution is best applied with a camel's-hair brush cut down almost to a stump, with a piece of wire or a slip of glass tied on the side, projecting below about one-eighth of an inch, to act as a guide.

I followed this method of cleaning, purchasing some new glass. I soaked it in nitric acid and water, then washed it and cleaned it by placing the plate in an ordinary wood-screw vise, pouring on a little alcohol, and polishing with soft paper, called "Joseph paper." I then gave it an edging of the Eastman rubber solution, and coated the plate with the sensitive emulsion.

During development the film loosened from the glass and became entirely detached, which I could not save. The balance of the plates thus coated I edged with the rubber solution a second time, and these films in most cases stood the development and fixing without coming off. Some would loosen slightly at the corners where the edging had not adhered sufficiently. So far, then, as Mr. Brooks' directions relate to the preparation of the plate, they are insufficient, for it is evident the collodion film will not adhere unless the edging solution is applied before and after coating. It was formerly my practice to first flow a substratum of albumen over the plate, then dry, and afterwards flow the collodion; then the film would adhere perfectly. This, I am informed, is now the general practice in the preparation of wet-plates.

Mr. Murray informed me that he prepared a solution of albumen by beating up the white of an egg with an egg-beater, then allowing it to settle for twenty minutes, and re-beating a second time. It is then filtered through a paper filter, a drop or two of ammonia added, and is ready for use. A glass plate that has been well soaked is washed off under the tap slightly and drained. The albumen solution is poured on at one end and gradually flows toward the other, driving what water there is on the plate before it; the surplus is drained off into the bottle. The plate is set up in a rack to dry. After this it is coated with the emulsion, and when again dry is edged with the rubber solution. Thus there is no chance for the film to slip. Several plates may be quickly albumenized and kept ready for use in a grooved box free from dust. Then, when it is desired to prepare plates, they only have to be coated with the emulsion and edged with the rubber solution, which takes very little time; a dozen can easily be coated in twenty minutes.

Dr. J. J. Higgins reçommends the use of gum tolu as an edging solution in place of rubber. It can be obtained at any drug store.

There are, doubtless, many amateurs that never saw a plate coated with collodion. It is very easy when you know how; but there is a slight knack or calculation about it that has to be acquired. Mr. Dunsterville thus clearly describes the process: "After securely fixing a pneumatic holder to the back of the plate, dust the top surface with a flat camel's-hair brush, and pour on the centre of the plate a pool of emulsion that will cover about one-fourth of the whole area. Now tilt the plate slightly so the emulsion will run to the right-hand far corner, then to the left-hand far corner, then to the left-hand near corner, and finally pour off the surplus by the right-hand near corner into the filter. The plate should then be raised to an almost vertical position and rocked vigorously to and fro to prevent marking or lines. When the emulsion is apparently set, and no more drops from the plate, it may be put in a grooved rack to dry spontaneously, or laid upon a flat surface and dried by gentle heat—say 150 degs. Fahr."

Mr. Brooks states that care should be taken to remove any hard particles from the neck of the bottle before coating, and that the plates should be placed an inch and a half apart on the drying rack, which may be set in any suitable cupboard. If they are set closer they will not dry evenly. The plates will dry ordinarily in about two hours.

F. C. Beach.

(*To be continued*).

STORING NEGATIVES.

A SUITABLE room should be provided for the storage of negatives, free from dust and well supplied with shelves for the different-sized plates. On the edge of each shelf place the figures 1 to 0; the distances between the figures depending upon the size of the negatives to be stored on each particular shelf, say, for cabinets on 5x7 plates, seven inches, and for 8x10, ten inches. The negatives should all be properly numbered, and the number and name of each recorded in the register when it is taken. For convenience, the number, name and size of each negative should be transcribed from the register to a transfer-book, and arranged alphabetically.

Now place all the negatives whose number ends with 1, back of 1 on the edge of the shelf. All that ends with 2, back of 2, and so on. The last figure in the number of the negatives determines its position on the shelf. Different size negatives should be placed on different shelves. When a shelf is filled, a card should be attached, showing the number of the first and last negative it contains. One shelf will hold from 250 to 500 negatives.

To find any particular negative, get the number and the figure the number ends with, from the transfer-book, go to the shelf containing that number, look through one small bunch of negatives and—there it is. *J. R. Swain.*

THE PHOTOGRAPH MYSTERY.

THE last object viewed in life is said to be so impressed upon the retina of the eye that it can be photographed therefrom after death. When this theory was first broached, an occasional effort was made to test its accuracy as a means of identifying murderers; and the most extraordinary of the cases form the groundwork of the present story.

A young physician, named Edwin Stone, commenced practice in a certain village not a great way from New York City. He invested all the money he had in the world in a cheap little cottage, which he selected, not for its business advantages, but because it was the very pink of perfection in all other respects. For the fact was, he was engaged to be married as soon as his circumstances would admit. His affianced wife was Ella Thorne, the daughter of the village lawyer; and, poor as Edwin Stone was, he would not have exchanged her silver voice for a golden dower.

To keep up appearances—an indispensable thing in this world—the Doctor was obliged to keep some one to answer the door and make himself generally useful. In accordance with an invariable custom the Doctor got the largest youth he could obtain for the money, and this happened to be a dogged fellow who had such a hang-dog look that he enjoyed the enviable reputation of having "a devil in him." Of course the wages that Seth, as he was called, received from the Doctor were not sufficient to keep body and soul together, and as he wrote an excellent hand, two birds were killed with one stone by Lawyer Thorne's giving him an occasional employment as copyist.

Just at this time a wealthy man of science offered a large sum of money for the best treatise on the subject alluded to at the commencement of this article. Being thoroughly conversant with everything pertaining to the subject, Edwin Stone applied himself to the task like an enthusiast.

The manuscript was finished and sent away, and both Edwin and Ella awaited the result with beating hearts, for the prize offered was sufficient to enable them to marry at once.

At length the momentous period arrived, and the result justified their sanguine expectations; Edwin was declared entitled to the prize, and was duly notified to appear and receive the amount in hard cash.

The two were almost beside themselves with joy, and the day was fixed at once. Edwin lost no time in securing the money, but, like most young doctors, he had no bank account; so on returning home with the amount late at night, he took the precaution to fasten it in a belt about his waist. After dismissing Seth, who was waiting his return, Edwin sat down by his bedroom fire and was soon lost in one of those reveries where everything is *couleur de rose.*

The next morning Seth was on his way to the cottage as usual, when he encountered Lawyer Thorne, who was just starting out for his morning walk.

"I think we are going to have a fine day," said he to Seth.

"It may be," replied the latter; "but it will be a windy one, if that red sky is any sign."

The lawyer had an eye like a lynx, but for the life of him he could not discover the slightest tinge of red in the heavens.

"By the way," said he, "as you have finished all but a page or two of your last job, it will take you but a moment or two to do it now."

Seth was at first disinclined to comply, but he finally went in and sat down with pen in hand, waiting for the ink which the lawyer brought from his desk in the adjoining room.

Before commencing, Seth drew his hand across his eyes, as if to brush off something that blurred his sight, and he had scarcely written the first word before he started up and angrily exclaimed:

"I didn't ask you for red ink!"

The ink was as black as jet, and this being Seth's second optical delusion that morning, the lawyer advised him to defer the copying for a short time. Seth thereupon departed for the doctor's cottage, and shortly afterwards came rushing back to announce that he had found Edwin Stone with a hatchet embedded in his skull.

In consequence of his suspicious conduct at Lawyer Thorne's, Seth was promptly arrested and speedily brought to trial.

Directly after the murder it transpired that the prize for the treatise was offered by a gentleman who knew of the peculiar situation in which Edwin Stone and Ella Thorne were placed; and in offering that prize he accomplished the double purpose of advancing the interests of science and of rendering pecuniary assistance in a delicate way.

Being an enthusiast in regard to the theory upon which poor Stone had written, he determined to reduce it into practice as a means of conviction. He therefore employed one of the most skillful photographers in New York City to photograph the eye of the murdered man, and thus obtain the portrait of the murderer.

On the day of the trial, the photograph so taken was brought into court in a sealed envelope, and after the preliminary proof had been submitted, the photograph was duly exhibited to the jury.

It was the photograph of Ella Thorne!

Every one saw, from the wild excitement that ensued, that it would be useless to prosecute the matter further, and the prisoner was straightway discharged from custody; but, of course, no one was so devoid of reason as to suspect Ella Thorne of any complicity in the crime.

Years passed, and the inhabitants of that village began to lose faith in the proverb that "murder will out," when Ella, who had devoted herself to deeds of charity since that awful period, was summoned to the bedside of Seth, who had been mortally wounded in a drunken brawl. On her arrival, the dying wretch fumbled under the bedclothes for a moment, and she recoiled from him in horror as he produced her own miniature that she had given to Edwin Stone and which was now smeared with blood. Having exhibited this, Seth proceeded with his recital:

"Mine was a nature that could stand any number of kicks, when a single kind word would have been too much for me. But I didn't get it—so let that pass. Edwin Stone was superior to me in everything but in love for you; and when he came between us, like a snake, I resolved to send him to the only place where I could meet him on equal terms. That place was the grave. A dying bed is no place for hypocrisy, and I admit that the money was one incentive to the murder; but when I saw him gazing at this miniature just as I struck him down, I drove the hatchet in an inch or two deeper as I thought of his love for you. I secreted that portrait, with the money, and I want no other man to wear it next to his heart, as I often did at night when there were no curious eyes about; so you are welcome to it, and all the more so, because it has the blood of Edwin Stone upon it. I feel no remorse for what I did, although everything has looked red to me since his blood spurted into my eyes, and even those black clouds in yonder crimson sky look like vultures on a field of blood!"

As he pointed upward he fell back dead; but the mystery connected with the photograph was solved, for the face photographed from the dead man's eye was the one it had viewed in Ella's miniature an instant before it closed forever.—*Yonkers Statesman.*

Notes and News.

AT THE INTERNATIONAL EXHIBITION OF THE AMATEUR PHOTOGRAPHERS' CLUB OF VIENNA, premiums were awarded to the following Americans:

Edward Pickering, of Boston; Alfred Stieglitz, of New York; George B. Wood, of Philadelphia. We notice in the general report, that our friends, H. P. Robinson, Andrew Pringle, Charles Scolik, and Rudolf Spitaler, have been similarly honored.

JUDGE'S REPORT OF THE FIFTY-SEVENTH EXHIBITION OF THE AMERICAN INSTITUTE.—After a full and impartial examination of the photographic materials exhibit, the judges report that "The exhibit of the Scovill Manufacturing Co. is this year an unusually attractive one. They maintain their high reputation for skill and superiority in workmanship. One of the principal objects which attracted the attention of the judges was the new Albion Camera. This is a model of lightness and convenience. It folds up so as to occupy less space than any other camera of its size that we are acquainted with. The three-fold tripod accompanying it is very convenient and has all the requisite firmness for out-door work. The Scovill Detective Camera can be used either with glass plates or a roll-holder, as the operator may desire. The Waterbury Detective Camera, arranged for plates, is undoubtedly the best detective camera in the market for the price.

"We know of no other manufacturers who supply such a variety of cameras of such excellent workmanship.

"The judges recommend the award of a Special Medal.

"The Special Medal awarded." (Signed) Charles Wager, Hull, General Superintendent.

ANOTHER INTERNATIONAL PHOTOGRAPHIC FESTIVAL AND EXHIBITION.—In commemoration of the fiftieth anniversary of the discovery of the photographic negative, there will be held an International Photographic Festival and Exhibition, commencing Tuesday, March 19, 1889, at the Crystal Palace, London. The first photographic negative

was made in the year 1839, and was explained by Mr. Fox-Talbot in a communication to the Royal Society in the same year. Beside various addresses relative to the history and progress of the art during the fifty years that have since elapsed, it is intended (if the idea can be successfully carried out) that the several societies and clubs of Great Britain shall be grouped and photographed. The "Festival and Exhibition" will ultimately be brought to a close with a grand conversazione in the Palace. Steps are being taken to bring the exhibition to the notice of American, Colonial and Continental photographers and manufacturers, with a view to its being of a thoroughly international character. In order to obviate the difficulties in connection with the customs, it has been decided, so far as American exhibitors are concerned, to relax the rule which requires that all pictures shall be framed.

Prints by American artists may therefore be sent per mail, and the Executive will, at their own expense, have the same mounted and displayed upon special screens reserved for that purpose; the only condition being that they shall not be called upon to return the same. Pictures so sent will be equally eligible with others for awards, unless instructions are received from the exhibitors to the contrary. For exhibits under this head no fees will be charged.

Application for entry forms, and for forms of application for space in the Apparatus Division, and all inquiries connected with the Festival and Exhibition, should be addressed to Messrs. S. A. Buchanan Wollaston and John Francis Peasgood, at the Crystal Palace, S.E.

PHOTOGRAPHIC INSTRUCTOR is profusely illustrated. It treats of the whole subject, and is designed to be a guide and source of information to all who pursue the fascinating employment of photography, either for business or pleasure.

To all who are proficient, inexperienced or interested in this extremely interesting subject, this book will be found valuable.—*Saturday Evening Journal, Muscatine, Iowa.*

WHOSE IS THE NEGATIVE?—Mr. Justice North's photograph decision disposes once for all, it may be hoped, of the popular fallacy respecting property in private photographs. Sundry unscrupulous photographers have claimed the right to sell and exhibit photographs of their customers against their will, and although they had been paid for taking them. Efforts to prevent this have been met in the past by legal opinions affirming the legal right of a photographer to do wbat he liked with negatives or impressions from negatives, which confessedly remained his property. The court has now blown this contention to the winds. "The photographer," said Mr. Justice North, "is wholly in the wrong," and he peremptorily enjoined him against both exhibition and sale. The negative belongs to the photographer; the copyright belongs to the person photographed.—*N. Y. Tribune.*

PHOTOGRAPHING THE GERMS OF YELLOW FEVER.—Professor H. J. Detmer, of the Ohio State University, has concluded the task of photographing the germs causing yellow fever that had been sent him by Dr. James E. Reeves, of Chattanooga, Tenn. The professor says this is the first time that yellow fever germs have been found in the tissue, scientists heretofore searching for them in vain. Being asked how the discovery regarding the cause of the yellow fever came to be made, he said:

"Dr. Sternberg, of Johns Hopkins University, for a number of years made exhaustive search for the yellow fever germs. In the last epidemic he made several post mortem examinations at Decatur, Ala. Liver and kidney tissues of two persons, at least, were sent by him to Dr. Reeves, for the purpose of mounting for microscopical purposes. I have several negatives, each of which is good. Some show the bacteria singly, others in masses with the capillaries distended with them."

OBITUARY.—Hull—Suddenly, in this city, on December 28, 1888, Anna Randolph, wife of Charles Wager Hull.

Funeral took place from St. James' Church, on Monday, the 31st inst., at 10 A. M.

PROPER CREDIT.—We are informed by Mr. W. S. Davis, the well-known photographer of Ellenville, N. Y., that the Mosstype view of "Verkeederkill Falls," in the "American Annual for 1889" is from his negative. We are glad to know who is entitled to the credit of such beautiful work, and would have been glad to credit him on the print had we learned of the authorship before going to press.

"THE AMERICAN ANNUAL will sell this year beyond any previous year. The ten copies that came by mail were out of the store in the shortest possible order."

GAYTON A. DOUGLASS.

MISS ADELAIDE SKEEL writes: "Morrison is a Mascot and always brings luck."

THE twelve photographic studies are very pretty, and you have made a lovely selection. The Christmas number of the TIMES is likewise a beauty, and does you great credit all through. * * * Mr. Stillman's pictures are also very fine.

EDWARD L. WILSON, PH.D.

BIND YOUR PRINTS.—The problem which assails most amateurs, after a year or two of work, is that of the best way to care for their prints. This is especially true if there is any thought of economy entering into the question. To buy albums for all the pictures soon involves one in an important outlay. Boxes, it is true, may be constructed to hold them, but all efforts to keep the pictures in regular order, or, I might better say sequence, must be abandoned, unless one is on hand to superintend the examination.

Pictures naturally group themselves; sometimes one wishes to show to friends the result of a day's excursion; sometimes, studies of animals, detailed studies of plants or trees, collections from one locality, etc., and there are a thousand and one reasons for some well determined order by which one print shall follow another.

There are two ways of binding that can readily be followed by any one approving of the scheme. The simpler consists in making groups of about a dozen mounted prints, so rolled that the cards curve in the same way. Purchase several pieces of broad, white tape, and, with some strong liquid glue (I give Le Page's the preference), fasten on the back of each card, on the right hand side, pieces of the tape cut nearly the breadth of the card. One-half of the width of the tape will thus be gummed to the card, the other half left free. Be very careful to make the tape adhere to the edges of the card. This can be done

one evening. The next night, prepare strips of pasteboard, about half an inch wide, and as thick as the card on which the photograph is mounted, and the length of the height of the mount. That is, if you are binding prints from a four by five negative, mounted on cardboard four and a quarter inches wide, your tape and your card strips will be four inches in length, unless your subjects are uprights, when your binding will be done on the longer side.

Each tape is to be pasted carefully to the strips of pasteboard, one after the other, the prints to follow in the desired order, as with a book. One card without print can be pasted on top, as a cover, and on that card lettering indicating the contents of the little book can be added. A piece of black silk pasted over the strips of pasteboard makes a neat finish.

An improvement on this scheme involves more care and trouble, but has very positive advantages. Paste the tape, as described, upon the right hand side of the back of one mounted print, and then cover the whole of that back with glue, and carefully lay another card back to the first, and leave in a press or under heavy books to dry. Then bind as before. The tendency of the cards to warp will thus be overcome, and the collection, when bound, lies very flat, and looks very neatly.

As a result of this system, one can have these little picture-books lying on the library table, for the amusement and entertainment of one's visitors, and the danger of loss or destruction of one's photographic records is thus reduced to a minimum. Try it.—*J. Wells Champney, in Photographic Mosaics for* '89.

Photographic Societies.

COLUMBUS CAMERA CLUB.

ROOM 40, PIONEER BLOCK,
COLUMBUS, O., Dec. 21, 1888.

THE first annual meeting of the Columbus Camera Club was called to order Thursday, December 20th, at 8 P.M., with President Lincoln in the chair and thirteen members present.

The application for membership of Mr. S. C. Bradford was favorably reported by the Executive Committee, and he was elected by ballot.

After the reading of an unusually large number of communications, a vote of thanks was passed to the publishers of THE PHOTOGRAPHIC TIMES, *Anthony's Photographic Bulletin*, and *The Science of Photography*, for kindnesses shown during the past year; also to the Society of Amateur Photographers of New York for reports of their proceedings.

The annual report of the Secretary and Treasurer was read, showing a steady development and advance during the past year in finances, membership, and usefulness.

The President's report followed. It was a clear, concise summary of the progress of the club, with a number of pertinent suggestions for future consideration, the chief of which were: separation of the offices of Secretary and Treasurer; increase of dues from six dollars to eight dollars per year, with quarterly instead of monthly payments; addition to the library of certain standard works on photography.

After the close of the President's report it was moved and seconded "that the offices of Secretary and Treasurer be separated." Motion carried.

The election of officers for the ensuing year resulted as follows: President, Rev. G. W. Lincoln; Vice-President, Geo. L. Graham; Secretary, F. H. Howe; Treasurer, J. N. Bradford; Executive Committee, G. W. Lincoln, Geo. L. Graham, F. H. Howe, J. N. Bradford, W. H. Miller, John Field; Membership Committee, John Field and Geo. L. Graham; House Committee, J. N. Bradford and F. H. Howe.

A short lantern exhibition was given after the election, slides being furnished by Messrs. W. H. Miller, F. H. Howe, and J. N. Bradford.

Frank H. Howe,
Secretary.

Our Editorial Table.

THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC AND PHOTOGRAPHERS' DAILY COMPANION FOR 1889. Edited by J. Traill Taylor.

It would be interesting to compare this twenty-ninth volume of the "Almanac," an advance copy of which is at hand, with the first, if they could be put on exhibition somewhere, or a *fac simile* of the earlier could be sent with each copy of the later. From a calendar of a few leaves, vest-pocket size, to the formidable tome of 884 pages is a pretty large step.

Of these pages some 488 are nominally reading matter, and the balance advertisements, though if the portion of the nominally reading pages that are invaded by the ugly, though doubtless profitable, advertisements were summed up, the figures would be somewhat altered. But, in any case, it is a big showing and a big shilling's worth.

The location of the contents index, and the index to advertisers, is indicated on the first page of cover, which is an improvement over last year's issue, in which one had to flounder helplessly in an endeavor to find any kind of index.

The text itself consists of 174 articles from 167 contributors, covering many subjects, and including some valuable researches and suggestions. In addition to the editor's excellent and comprehensive leader on "Iron Printing," we notice, on a casual inspection, as other articles of real value, "Collodion Emulsion Notes," by W. B. Bolton; "Notes on Enlargements," by H. Valentine Knaggs; "Spectrum Photography with Rowland's Concave Diffraction Gratings," by Lieut.-Col. J. Waterhouse, and "Action of Soluble Bromides on the Latent Image," by Dr. Hill Norris.

The illustrations are rather meagre, consisting of only some twenty-five diagrams, and cuts from the advertising columns of the *Journal*, in addition to a very muddy "Specimen Photoprint" among the advertising pages, and the frontispiece portrait of the Princess Victoria of Teck, on Fry's Argentotype paper. In this the gradations are soft and the tone pleasing, but in the copy received the effect is marred by pin-hole spots, both light and dark.

The list of English societies is extensive, but that of American societies needs revision. The Boston Camera Club has succeeded the Boston Society of Amateur Photographers, and the Pioneer Club of Brooklyn has been *non est* for years.

The usual formulæ and tables are repeated without apparent change.

Of the foreign year-books, the almanac of Edward Liesegang, Dusseldorf, as usual, is the first to make its appearance on this side the water. The little volume appears in its familiar style of type and binding, and, indeed, is not entirely new as to the matter it contains. Dr. Julius Schnauss' essay on the "Chemical Processes in Photography" is perhaps one of the most valuable contributions in the book. "Local Intensification," by Joseph Bourier, is the title of an article which treats specifically of a subject completely detailed in the current, "American Annual of Photography," by Carl Schiendl. Other contributions, like those by Stieglitz and Boissonas, have been published before. The frontispiece, a portrait of Dr. Edward L. Wilson, after the well-known negative by Solomon, and printed from a worn cliché, is, in the American slang of the day, rather *castaneous*. The usual calendar, receipts and formulæ, complete the book.

"Die Bromsiller Gelatine," by Dr. Paul Liesegang, Dussendorf, like the other text-books on photography, written by this distinguished author, is a comprehensive and instructive summary of the important branch of which it treats. All the details of emulsion-making, coating, developing, reducing and intensifying, receive intelligent and equal treatment. Reversed and stripping plates, enlargements on Eastman bromide paper, orthochromatic methods, are also treated of in this book. We should like to see a good translation of this little manual put upon the American market for the benefit of our English-speaking and reading photographers.

From Sam C. Partridge, dealer in photographic supplies, San Francisco, Cal., we have received our first calendar for 1889. It is original and appropriate. A circular silver print from a Kodak negative decorates the card on which the square calendar leaves are fastened, and the card is further ornamented with cuts of an appropriate character.

With the compliments of Captain William Imlah, of Quebec, we have received a bromide print from a negative, copied from a Christmas card drawing, that is original in design and excellent in execution. The holiday greetings which accompany the card are appreciated and reciprocated. We are always glad to hear from our friend, Captain Imlah.

From Ernst Sulzberger, Director of the Dresden United Photographic Paper Manufactory, we have received again the acceptable and substantial New Year's greeting, which comes to us each year from him, in the form of a beautiful and delicious "tree cake." The subject is worthy of a negative, and our readers should see the result, were it not mistaken kindness to show them a picture of something beyond their reach, and the original of which, like some other originals, is so much more than the reproduction.

Record of Photographic Patents.

395,234. Process of Making Pictures. David Isaacson, Providence, R. I.

Queries and Answers.

1 No name writes: "I have a Waterbury C Lens, No. 187, purchased from you. It will cover an 8x10 plate, sharp, with the small stop, but unless the light is very strong there will be a dark spot in the centre of the negative, about the size of a twenty-five cent piece, so I have to use the second stop, then it is all right. The inside of the tube is all right, no bright spots, the camera is light-tight. Seems to me there is something wrong in the glass."

1 The dark spot is a "ghost." Your lens should make a sharp picture with stop $\frac{f}{8}$; if you use a still smaller stop, the image of the stop will be reflected upon the plate, and cause the effect complained of.

2 N. M. writes: "Having seen some prints toned with platinum, which I liked very much, and being desirous to make some myself, I obtained some platinic chloride in solution, and proceeded as follows: To one ounce of the platinum solution I added four ounces of water, and enough sodium bi-carbonate to make bath alkaline. Placed print in this bath, and such a revelation—the print gradually faded, until nothing but the blank paper remained. Was the bath too strong; or else did I not set about in the proper way?"

2 The bath is probably too strong. After neutralizing you should acidify slightly with nitric acid.

See "American Annual of Photography for 1889," pages 57 and 119.

Here is a formula, said to work very well:

Platinum chloride	2½ grains
Distilled water	20 ounces

Saturated carefully with carbonate of soda, then add

Borax	1½ drams
Oxalic acid	20 grains

Previously dissolved in the smallest possible quantity of water, and 30 minims of formic acid.

Print quite deep, wash in water, tone by constantly agitating, and fix as usual. A few drops of ammonia in the hypo is recommended.

3 One in Difficulty inquires: "Will you kindly tell me, through the columns of your paper, what causes the albumen to become soft and rub off of prints during fixing and washing? I use a bath of about 50 grains, N. P. A. paper—bath slightly alkaline. The trouble does not often occur until in the fixing-bath, and then only in cool weather.

3 This softening of the albumen film occurs mainly in cold weather. Remedy: Print under glass protection in a warm room. If the silver-bath is alkaline, the film will soften too. Be careful to keep it exactly neutral.

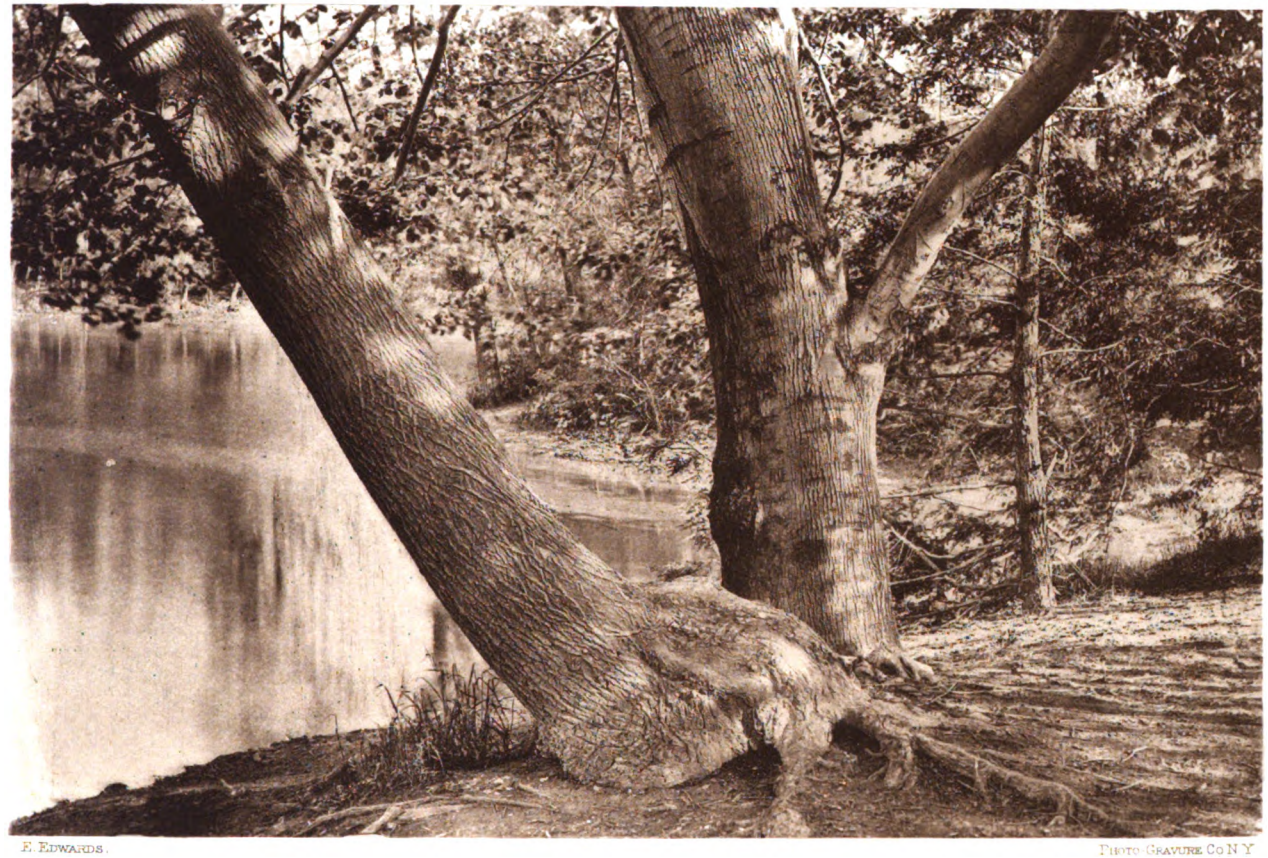
4 Hydrochinon asks: Suppose you were using hydrochinon for a developer, and in correct exposure you got too much contrast. What would you do? And, suppose you did not get contrast enough, what would you do?

4 We recommend the use of hydrochinon developer in two solutions. See "American Annual of Photography" for 1889, Standard Formula, No. 60, page 266.

5 James N. P. wants to know how to print clouds in landscapes with bare sky.

5 *Answer.*—First make some cloud negatives in different illumination, then read Lesson No. X. of the "Photographic Instructor," page 71, where you will find all the information required.

PHOTOGRAPHIC TIMES. (A).



F. EDWARDS.

PHOTO-GRAVURE CO N.Y.

BY THE RIVER.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, JANUARY 11, 1889. No. 382.

BY THE RIVER.

OUR frontispiece this week is another landscape, but one of a different class from that of the "Great Falls of the Yellowstone," which embellished the preceding issue. "By the River" is one of those simple bits of nature which everywhere abound, and which lend themselves so readily to the picture-making possibilities of the landscapist's camera. They are all the more charming because of their simplicity, and yield the greatest satisfaction, reproduced in a photograph, when other more pretentious and more difficult landscapes fail to give an adequate pleasure. This particular spot was selected by Mr. Ernest Edwards, President of the Photogravure Company which reproduced it, and was transferred in all its unassuming beauty to one of his faithful films, on a pleasant afternoon in the early summer of the old year, when the writer was enjoying an afternoon's release from editorial duties with him in Prospect Park, Brooklyn. Many other equally as charming bits were secured in this picturesque park that afternoon, a few of which we may later reproduce for the benefit of our readers. But we must not neglect, in our illustrations, that other nature—which is human.

HYDROCHINON DEVELOPERS.

THE experiments recently made by Dr. Eder and Hans Lenhardt with hydrochinon developers and the proportionate amount of sulphite of soda or carbonate of potash which is necessary to effect a proper activity and durability, are of more than ordinary interest to the advocates of this developing agent.

Of the eight developing compounds which were experimented with, composed with either soda or potash, a decided preference is given to those containing potash, since with the soda salt the resulting negatives were invariably weaker and of inferior printing qualities, other things being equal, than when potash was used. So far as we have been able to learn from these experiments, sulphite of soda is a necessary factor in every hydrochinon developer. Without it the solution is always subject to change of color.

Another series of experiments, and with different kinds of plates, resulted in much the same way—always in favor of potash. With the hydrochinon-potassa developer a perceptible increase of sensitiveness was observed over that when the soda was used; indeed, its activity was not only equal to that of the ferrous-oxalate developer, but quite up to that of pyro-soda. The formula upon which the experimenters finally settled as being the best one, all things considered, is as follows:

a.	Hydrochinon	2½ drams
	Sulphite soda (crystals)	1½ ounces
	Water	14 ounces
b.	Carbonate potash	5 drams
	Water	7 ounces

For normal exposures, two parts of the hydrochinon solution with one part of potash solution will suffice, development requiring from four to eight minutes. Reversing the proportions and allowing one part of hydrochinon to two parts of the alkali, development proceeds more rapidly, of course, resulting in brilliant and vigorous negatives; and similar results are obtained when equal parts of the solutions are used. The similarity of Dr. Eder's formula with that of No. 60, given in the "American Annual of Photography for 1889," under the name of Chautauqua Hydrochinon Developer, will be noticed at once, as they are, indeed, almost identical.

With some plates a gray fog develops when hydrochinon is used; but as this fog is scarcely visible after the plate has been fixed, it is quite harmless, and does not affect the printing qualities of the negative. Plates that have been developed with strong hydrochinon and potash, when but slightly washed will be covered with a tough deposit when placed in a pure or a combined alum and hypo bath.

To make the new developer as efficient as it was

at first claimed it would be, and as it deserves to be, the one-solution idea should be abandoned at once. Hydrochinon solutions, when pure water is used, or in combination with alkalis, will deteriorate in a short time. Merely the contact with surrounding air, which frequently lifting the stopper brings about, will be sufficient to effect this deterioration, and the decomposition is most rapid, of course, when alkali is present, even in well-stoppered bottles.

Fortunately, for hydrochinon, the meta-bisulphate of potassium has proved itself to be as energetic a preserver here as it is for pyro. If from 30 to 45 grains of it are added to 120 grains of hydrochinon in aqueous solution, the compound may be exposed to air, in open vessels, for a number of days without changing to a deeper shade than a light straw-color, and without deterioration of its developing activity.

EDITORIAL NOTES.

THE annoyance of delay in publication during the past two or three weeks; although, of course, unavoidable on account of the new arrangements which our departure made necessary, and the consequent change of routine, together with the increased pressure of things which always comes at this season of the year; was reduced to its minimum by the appreciative letters which we received from our readers. These letters are especially gratifying to us, in that they show how greatly the TIMES is missed when not received on the regular day of publication. Those who had written in disappointment on not receiving promptly the HOLIDAY NUMBER, took the pains to write a second time on its receipt, expressing their appreciation of that number, and, indeed, of the new departure which it signalized. We have space for but a few extracts from these appreciative letters :—

"A Happy New Year to you, and a prosperous one to the TIMES in its charming new cover. The TIMES will now lead all the field."

REV. W. H. BURBANK, Brunswick, Maine.

"Allow me to congratulate you on your Christmas TIMES. It is superb. The cover is in the best of taste, also. May success, commensurate with your enterprise, attend the TIMES."

S. R. STODDARD, Glens Falls, N. Y.

"The Christmas number of the TIMES is a beauty."

LUCY E. KEELER, Literary Editor *Fremont* (O.) *Journal.*

"I must say that you have surpassed yourselves and all previous issues. It (the HOLIDAY NUMBER) is simply a grand copy."

M. R. COLEMAN, Cayuga Lake, N. Y.

"The Christmas number of the TIMES was an elegant issue. * * * Your 'Photographic Instructor' with us begins to receive the attention it deserves, and is asked for now very often."

GAYTON A. DOUGLASS, Chicago, Ill.

"I FIND something in THE TIMES every week that helps me much. It is a splendid journal for photographers."

C. H. SHEPHERD, Melville Village, N. H.

"YOUR HOLIDAY NUMBER was exceedingly interesting and artistic."

SAMUEL MERRILL, of *The Globe*, Boston.

Now that the holidays are over and our arrangements for the new year definitely settled, the TIMES may be expected to be received by its subscribers as regularly each week as heretofore. We are started on a new year with enlarged facilities and increased expectations. The promptness and heartiness of the support which has been accorded by our readers has more than justified our publishers in their new departure. This is encouraging to all, and breeds a confidence that promises the greatest success.

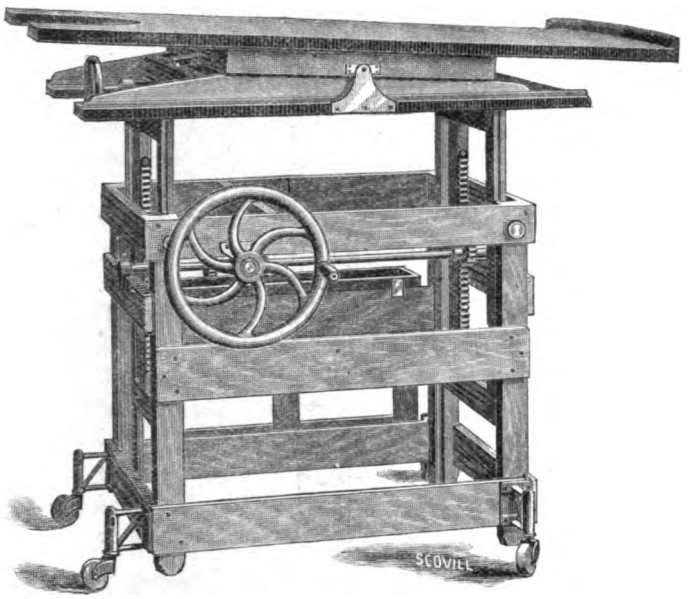
In regard to the illustrations which will embellish the TIMES from week to week, we may now say, in addition to what has already been said, that beside the work of professional and amateur photographers in the various fields mentioned, we shall take pains to secure notable products of the photographic professional's studio, that those of our readers who are interested in portraiture, from a professional and educational standpoint, may have their share of the art instruction which these illustrations will furnish; and all our professional readers are invited to submit examples of their best studio work for selection for illustration in the "PHOTOGRAPHIC TIMES."

IN regard to the durability of emulsion plates when rendered color-sensitive, of which we spoke in a note some time ago, we may now add that eosine and erythrosine bath-plates, when prepared according to the method frequently described in these columns, have stood well for from thirty to forty days—durable enough for all practical purposes. With pure cyanine, so sensitive for red, a decomposition or fogging of the plate occurs often very soon after preparing the plate, and it is advisable to use them without delay. Plates to be orthochromatized with this particular dye should be of pure bromide silver emulsion.

Cyanine added to eosine or erythrosine keeps better, but not quite so well as plates prepared with either of these dyes in unmixed solutions.

FOR a long time the studio cameras manufac-

tured by the American Optical Company have been acknowledged to be unrivaled, not only in this country, but also in England and on the continent; but until the present time this company did not manufacture a camera stand large enough and strong enough for the larger sizes. They have now placed upon the market, however, an adjustable stand, which, being fully equal to the cameras in design and workmanship, deserves a mention in these columns. It is called the Elite Studio Stand, and is so arranged that the operator can change its elevation or inclination with the greatest ease and celerity without removing his head from under the focusing cloth.



Moreover, it is the only stand suitable for holding the 17x20 or 18x22 American Optical Company studio cameras with their extreme length of platform. The cut gives a good general idea of this improved studio stand.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.

CHEMICALS EMPLOYED IN PHOTOGRAPHY—(CONTINUED.)

CADMIUM.

Symbol, Cd. Combining weight, 112.

This metal was discovered in 1817. It is usually found combined with zinc in the various ores of the latter metal, and for this reason zinc is a common impurity in the commercial salts of cadmium. Cadmium is a white lustrous metal, resembling tin. It is attacked by the stronger acids. Zinc precipitates metallic cadmium from any solution containing it. In photography powdered cadmium is sometimes used to remove free iodine from collodion.

CADMIUM BROMIDE.

Formula, $CdBr_2+4H_2O$. Combining weight, $272 + 72 = 344$.

Prepared by digesting powdered metallic cadmium with bromine and water. By evaporating the solution, needle-shaped crystals of $CdBr_2$ combined with four equivalents of water, are obtained. By heating carefully in a porcelain crucible the water of crystallization may be removed.

Owing to the stability of this salt, and its solubility in collodion, alcohol, and ether, it has been much used as a source of the bromine which is required for the production of silver bromide—the sensitive compound now so universally employed in photography.

CADMIUM IODIDE.

Formula, CdI_2: Combining weight, 366.

Prepared by digesting the powdered metal with iodine and water. By evaporating the solution cadmium iodide is obtained in flat, pearly crystals. It is soluble in water, and is also one of the few iodides which are soluble in alcohol. For the latter reason it is largely used in photography, for the purpose of iodizing the collodion used in the wet process.

CALCIUM BROMIDE.

Formula, $CaBr_2$: Combining weight, 200.

Obtained in silky needles when hydrobromic acid is passed into an aqueous solution of calcium hydrate (slaked lime), and the liquid evaporated. Its properties are similar to those of calcium chloride.

CALCIUM CHLORIDE.

Formula, $CaCl_2+6H_2O$: Combining weight, $111+108=219$.

Prepared by dissolving marble (calcium carbonate) in hydrochloric acid; also obtained as a bye-product in the manufacture of ammonia and potassium chlorate.

Calcium chloride forms large transparent crystals, which are extremely soluble in water, producing great cold, and deliquesce when exposed to the air. It is also freely soluble in alcohol. By a strong heat the water of crystallization can be driven off, and the pure anhydrous salt remains as a white or colorless mass. In this state it greedily absorbs water, and is much used for drying gases and liquids. For the latter purpose, it is best to place lumps of the anhydrous fused salt in the liquid. Of course, only liquids in which calcium chloride is not soluble can be dried in this way.

Gases are usually dried by passing them through tubes full of small lumps of the white salt. The air in the box used for drying gelatine plates can be dried by keeping a metal box filled with calcium chloride at the bottom of the box.

Calcium Iodide.

Formula, CaI_2: Combining weight, 294.

Prepared by dissolving calcium carbonate in hydriodic acid. In its properties it resembles calcium chloride. When heated in air it parts with the whole of its iodine, and forms calcium oxide.

Calcium Oxide (Quicklime.)

Formula, CaO: Combining weight, 56.

Ordinary "quicklime" is prepared by heating carbonate of lime (limestone) in kilns, the heat driving off the carbonic acid gas

$CaCO_3$	—	CaO	+	CO_2
Carbonate of lime.		Quicklime.		Carbonic acid gas.

Quicklime rapidly absorbs moisture from the air, and crumbles away; hence it should be kept in well-stoppered bottles. Cylinders of hard quicklime heated by an oxy-hydrogen flame are used as a source of light in the oxy-hydrogen lantern.

Camphor.

Formula, $C_{10}H_{16}O_6$: Combining weight, 152.

Camphor is obtained by steaming the wood of the *camphor laurel*, a tree which grows in China and Japan. It is a white or colorless crystalline solid of penetrating odor, only slightly soluble in water, but soluble in alcohol and ether. Camphor is also soluble in turpentine, and the solution, mixed with a little emery, is very useful in grinding glass stoppers into the necks of bottles so as to secure a perfect fit, or for grinding glass for any purpose. It is very tough, but can readily be pounded up when mixed with a little of any of the liquids which dissolve it. It is used as a preservative, keeping off the attacks of insects and bacteria, and so preventing solutions of gelatine, albumen, etc., from becoming mouldy.

The addition of a little camphor (a piece about the size of a nut to each pint) to the oil used in magic lanterns, is found to increase the brilliancy and whiteness of the light.

Canada Balsam.

Canada balsam is a resinous substance containing much essential oil, which causes it to be soft and viscous. It exudes from incisions made in the stem of a species of pine-tree (*Pinus balsamæ*), which grows abundantly in Canada. From its liquid and colorless sticky nature, it is much used by opticians for cementing together the components of achromatic lenses. Some samples, after long exposure to light, turn yellow, while others crack and show the "colors of thin plates," causing a fear that the lens is damaged. When this is the case the lens should be removed from its brass mount and soaked in warm turpentine, which will dissolve the cement. The ordinary Canada balsam of commerce is of a yellowish hue, but it can be decolorized by exposing the yellow balsam in clear white glass bottles to sunlight.

Canada balsam dissolved in benzole renders paper translucent.

Caoutchouc.

Caoutchouc, more familiarly known as India-rubber, is the solidified juice which exudes from certain tropical plants. When protected from air and light (as by being kept in water in a dark place) it undergoes no change, but under ordinary conditions it absorbs oxygen from the air, and becomes rotten and inelastic in the course of a few months.

Freshly-cut edges of caoutchouc adhere firmly when brought into contact, and it is invaluable in the laboratory for the construction of tubing, etc. Washed ether, chloroform, carbon-bisulphide, coal-naphtha, and rectified oil of turpentine are all able to dissolve caoutchouc. It is insoluble in alcohol. When cooutchouc is heated with 2 or 3 per cent. of sulphur, the compound known as vulcanized India-rubber is formed. If the percentage of sulphur be increased to 12 or 15, the heated mixture becomes hard, black, and horny, and is known as ebonite or vulcanite.

Gutta-percha is the hardened juice of a tree which grows in Singapore, Borneo, etc. Its properties are similar to those of caoutchouc.

W. Jerome Harrison.

(*To be continued.*)

TRIFLES LIGHT AS AIR.

I once had a friend who conceived the idea of learning photography, and came to me to be taught it. I went through all the programme with him, and having purchased for him a camera of the most approved pattern, and put the plates into his three double holders in my own dark-room, sent him out to his first day's experience as an amateur. The occasion was a pic-nic, to which had been invited a young lady who was his ideal, and the place was the vicinity of a villa on the Thames, not a hundred miles from London. As he wished to be sure of his pictures, it was agreed that he would not risk his first independent effort to the uncertainty of his own dark-room, but would bring them back to me to be developed. He did so. It was

in the days when the rapid collodio-bromide emulsion plates were just brought out, and when, with an exposure of about ten seconds with the full aperture of a rapid rectilinear lens, we could get a good picture. The first plate was a puzzle. When the developer had been on it for a few seconds (for I had no patience with the slow school of operators who took twenty minutes to each plate), I distinguished plainly three bands across the plate—one dark in the middle and two light at bottom and top. These bands were softened into each other by the most imperceptible gradations until intensity had been reached, but no object could be distinguished. The borders were clear, so that it was not a case of fogging in development; but I concluded, and so informed my impatient friend, that he must have accidentally exposed his plate to diffused light in the holder. He groaned, thinking of the copies of these photographs he had promised to his companions on the pic-nic, and I took up plate No. 2. Precisely the same result! I lost myself in wonderment and reflection. "Did you take these from a boat?" I finally hazarded, not being able to think of any other solution, but not imagining I had hit the true one. "Why, yes!" said he; "wasn't that right?" He had simply put his tripod into a boat moored to the shore, and with a small stop had exposed three minutes on the villa and his friends on the shore. He was a sharp business man, and has since learned a good many things more important than photography; but in that particular branch of human attainments, I never heard that he did anything more. He has retired on a fortune, and can keep a photographer, if he is so disposed; but I could not in conscience encourage him to proceed with his experiments in person.

A little later I had a request from a lady—an extremely clever woman in her way—to qualify her for taking her own photographs. I ordered her camera, a dozen rapid plates, rapid rectilinear lens, etc., etc., and fitted her up a nice dark-room. We pottered about and took a good many views, which I developed and which were very satisfactory; and then she went on developing her own plates very satisfactorily, and I left her an accomplished photographer and an enthusiastic one. Some time after I returned to scene of her labors, and found her in despair over a view she had tried in vain to take, and which she had set her heart on having a photograph of. It was a wood scene with a heavy shade of green trees, and though she had spoiled dozens of plates, she had never got anything but fog. I inquired what exposure she had given, and she replied, "Just what you told me—three minutes with the small stop." I found that it required twenty minutes with a stop two sizes larger. This was an insoluble puzzle. "How am I ever to know?" said she.

Another friend who got further into his practice took up wet-plate work, to the intense disgust of his wife, who never forgave me for my initiation of her husband in the black art. His clothes were blotched with nitrate of silver, and the floor of the back hall, which gave access to the door-yard from the cupboard where he had established his nitrate-bath, was beyond all scrubbing, and he was obliged to compromise on cleaning it himself with cyanide of potassium, when the occasion demanded; though I fear that the true history must tell that she got less sensitive to the condition of that floor, when she found that it led to the baby being taken every week of his progress, and she finally got to be what I must consider slovenly in the photographic view of dirt. If the baby was not photographed at least once a week, she took the initiative in getting out the camera. One day I went over to see my friend (it was not the day for the baby), and he announced a discovery. To understand the importance of this discovery one must have worked in the wet plate a good deal. My friend hadn't worked it out; he had only discovered it. It was this: "If," he said, "you expose a plate, and find before development that it is not a success, all you have to do is to wash away all the nitrate of silver and dip it again in the bath, and you have the plate as good as new. Don't you see?" No; I didn't see. "Why," said my friend, "you see that without the free silver there is no image on the film; that is proved if you wash a plate and then try to develop the image; so if you wash away the nitrate the haloid recovers its original condition and is impressable if you expose it anew with the free nitrate added again. Don't you see?" "Suppose you try it," I said; "that will settle the question." "We will do it at once," he replied; and so we did. Of course, any one who has experimented a good deal in wet-plate photography has tried the experiment of washing a plate before development; and thus far there was nothing strange; but we made a short exposure of the plate on an out-door subject, and then washed it thoroughly; after which we put it back in the bath, and after draining well, exposed it on another subject and took it into the dark-room for development. We brought out very successfully both subjects, and settled the question, by ascertaining that the latent image of the first exposure survived the washing and came out as distinctly as the second. It took several experiences of this kind to cure him of the habit, which I see is indulged in by a good

many amateurs, of announcing important discoveries on *a priori* grounds; and then, if any one will try them, of claiming the credit. Neither he nor they could understand that a fool may ask a question which a wise man alone can answer, but that the invention or discovery only belongs to the man who worked it out.

And simple a thing as photography is, in its main principles, I have found very clever people who could never get it into their skulls that the process was purely one of decomposition of chemical substances, and that it was a question of time and law. How many people have we all, who indulge in it, found, who, when they hear us talk of instantaneous photography, desire to be taken instanneously in their libraries, with all their favorite bric-a-brac about them, and when told that the light is not sufficient, reply, "But I thought it was instantaneous," being people who are fooled with words. I was one day focusing my camera in an eastern city where the photographer is not so common as in a sea-side resort, when a friend, the representative of one of the European powers, passed by, and I invited him to put his head under the focusing cloth and see how nicely the subject came. He started back in surprise, saying, "But I did not know you had got to photographing in color. Why these colors are as natural as life." And after a moment a man appeared crossing the field of view at which he started again, exclaiming, "Why, here's a man walking in the photograph!" I did not half succeed in convincing him that the image on the ground-glass was an illusion, and he went away shaking his head as if he had got a bee in his bonnet and couldn't get it out. I never quite succeeded in making him understand that he had not seen a photograph in colors.

At the other extreme of human intelligence is the common phenomenon in the populace of semi-civilized countries where the photograph is considered a kind of murder, and the people avoid it as they would a pestilence. They think that it takes away their life. We have heard lately of the Coreans, who imagined that the photographers had stolen children to grind them up into photographic chemicals; but in races that have at one time been at the head of human civilization, I have found almost as gross superstition, and there are parts of Italy where the peasant would no more allow his photograph to be taken than he would allow his blood to be drawn out. I went out the other day on the piazza, here, and tried to put my Waterbury in operation, but the peasant models who make a living by sitting to the painters, ran like sheep when they saw the camera turned toward them, and some of the most courageous shook their fists in my face, with menaces of severe treatment if I dared to photograph them.

I am inclined to put down as of an equal foolishness the quest of photography in colors. Human judgment seems on the whole a thing of very little weight, and the capacity of the human brain to admit an absolutely new idea extremely limited. A man who is capable of rigid and unbiased reasoning is a phenomenon I do not believe I have ever met, and if I have met one, he was too wise to waste his reasoning on me, for I am not one of that degree of human development, and am not so sure of myself as to deny that I was not sometime goverened by a prejudice when I imagined at the time that I was reasoning. And I rarely take up a manual, or a number of a photographic journal, without finding that some one has been mistaking the motes of dust in the sun for sunlight, or the prejudices we entertain, for reasons. The simplest application of common-sense to any of the cases of delusion I have noted in the preceding lines would have dissipated the error, but it has to be learned by most people that common-sense is the most uncommon thing in human experience.

W. J. Stillman.

COLLODIO-BROMIDE EMULSION.

(*Continued from page* 8).

Coming to the matter of exposure, we find a great difference between these plates and the regular gelatine lantern plates. I should say they were from ten to twenty times slower, as, for example, in reducing by the camera. I used a Bausch & Lomb Universal lens with nearly full aperture, and gave an exposure of six minutes at 3 P.M., with a fairly dense negative backed by a clear sky. In developing I found the plate was very much under-exposed. I then made another exposure of twelve minutes on the same negative, the latter being illuminated by sunlight at 10 A.M., and obtained a fair slide, which, though I used a very weak developer, came out rapidly, in fact, was considerably over-exposed. Probably six minutes in sunlight, and perhaps four, would have been enough.

I would have given about a minute's exposure on the same negative, using the same lens, stopped down to $\frac{f}{60}$, upon an ordinary lantern-slide gelatine plate. Mr. Brooks advises an exposure in the camera from one to ten minutes or more, using a quarter-plate portrait lens of short focus at nearly full aperture. A long full exposure gives warm tones, which can be changed to other colors by

toning-baths, but a short exposure gives cold tones, which cannot be altered by subsequent treatment. In the tropics, where the light is stronger, Mr. Dunsterville reduces a 6½x4¾ negative to 3½ inches square, using a Ross Rap. Sym. lens at full aperture, and a clear sky as background, at an exposure varying from two to six minutes. This emulsion is therefore better adapted for printing slides by contact than for reducing, though the latter can be done easily enough if one has the time to spare. In contact work the exposure varies from one to six seconds to diffused daylight, or from two to four minutes one foot away from a 6-foot fish-tail gas jet, or the burning, about eighteen inches from the printing-frame, of one inch in length of ordinary magnesium ribbon, held in a pair of plyers. During the exposure the magnesium must be moved around in front of the frame, to insure even illumination of every portion of the negative. I tried the experiment of burning eighteen inches of magnesium in front of the negative. When I removed the plate, to my surprise a faint image of the picture was imprinted on it, which I successfully developed out by weakening the developer. Mr. Murray tells me he has brought such an image out by simply flowing the plate with the ordinary pyro solution. Sufficient ammonia was liberated from the plate to accelerate the action of the pyro.

Too much care cannot be exercised in handling these plates, as the surface is much more delicate than the gelatine plate. The negative must be carefully dusted with a flat camel's-hair brush, and then the plate must be laid directly on the negative in the printing-frame, taking care that while fastening the springs no sliding or rubbing action takes place.

The springs may be considerably lightly than is usual. The least movement of the plate over the surface of the negative is apt to cause scratches.

The developer advocated as the best is alkaline pyro. According to Mr. Brooks it is prepared as follows :

SOLUTION P.

Pyrogallic acid	96 grains
Absolute alcohol	1 ounce

SOLUTION A.

Saturated solution of carbonate ammonia	4 ounces
Potassium bromide	1 dram
Soda acetate	2 drams
Water	12 ounces

The carbonate of ammonia for the solution should be fresh and hard, and smell strongly of ammonia, otherwise it is of no account.

Four ounces of the salt are broken up and put in a twenty-four ounce bottle, and eighteen ounces of cold water poured on it. The bottle is well corked, preferably with a rubber cork, and is then vigorously shaken. In twelve hours the water should be found to be completely saturated with ammonia, and in prime condition, and if kept in a dark place will last for several weeks.

On mixing the developer take of

Solution A	3 drams
Solution P	5 to 10 drops

It will be noticed that solution P has a strength of twelve grains of pyro to the dram, so that ten drops, equivalent to ten minims, would represent two grains of pyro. The amount of solution P is very important ; if the negative is very intense, two or three drops will be found ample, and will give harmony, but the development will be somewhat slow; in extreme cases the developer may be diluted to twice or thrice its bulk with water. With an ordinary negative the full amount of solution P may be used.

A glass dish is best to develop in, so Mr. Brooks advises, but I find it very easy to develop by holding the plate at one corner, or by a pneumatic holder, or manipulator, and pouring on and off the developer, having a tray underneath to catch any that may spill over. After exposure, pour over the plate from a bottle common alcohol three parts, water one part, and allow it to soak on the film for about half a minute, then immerse in a tray of clean water to soak out the alcohol. When the water blends with the film pour off and apply the developer as previously stated. If properly exposed, the image soon makes its appearance, and gradually, but surely, gains in intensity.

Mr. Dunsterville uses the same pyro solution, but substitutes for Mr Brooks' alkaline, or A solution, the following, calling it No. 2 solution.

No. 2.

Carbonate of ammonia	60 grains
Potassium bromide	5 grains
Acetate of soda	10 grains
Distilled water	3 ounces

Or, instead of these, the following :

1 A.

Pyrogallic acid	1 ounce
Sulphite of soda	4 ounces
Distilled water	9 ounces

Make faintly acid with citric acid.

2 A.

Liquor ammonia	1 ounce
Potassium bromide	2 ounces
Distilled water	9 ounces

Using

Solution P, he takes	15 minims
Carbonate ammonia solution	2 drams
Water	2 drams

Or, instead :

1 A.....40 minims
(equal to 4 grains of pyro)
2 A.....10 minims
Water..... 8 drams

If the plate is fully exposed, the developer may be diluted with another dram or two of water. When there is any sign of a veil coming over the high lights at once wash off the developer and fix the plate, which takes place in less than half a minute, with a solution of cyanide of potassium, strength twenty grains to each ounce of water ; and wash well by placing the plate in a large dish of clean water for about a quarter of an hour.

The potassium cyanide, as is well known, is a most deadly poison (two grains being a fatal dose) and it is not necessary to keep the dish containing this solution in the dark-room. If the plate is well washed after developing, it may be safely taken outside the dark-room and dropped into the fixing solution, or the latter may be poured upon it and off, the plate being held by a pneumatic holder.

In this connection I may as well state that hypo will fix just as well as cyanide, only it takes longer, and also requires more time to eliminate it from the film by washing. Mr. Newton advises fixing with a solution of four ounces of hyposulphite soda dissolved in sixteen ounces of water.

My experience with the carbonate of ammonia developer was rather unsatisfactory. I mixed the solution according to Mr. Brooks' directions ; it had a strong odor of ammonia, which I presumed was the alkali intended to bring out the picture, but somehow it failed, and it was only by great patience and perseverance that I succeeded at all. Mixing it as directed, and pouring on and off the plate, it took at least five minutes before the faint show of an image appeared, and by constantly working over the plate I managed to secure a slide in about twenty minutes, somewhat over-dense in the shadows, which I regarded was due to too slow development.

I mixed up half an ounce of dried carbonate of soda, not the ordinary crystals, in ten ounces of water, and applied two or three drops to the same developer, when used on another plate, and to my gratification the image appeared rapidly, and acquired the requisite density and brilliancy in the time I thought it ought to. Remembering that I used to employ the soda on Mr. Newton's plates long ago, and meeting Dr. Higgins, who also advised it, I have ascertained that it is much better than ammonia, and puts the relation of exposure to developer on a solid basis. We have no fickle alkali like ammonia, but a certain fixed alkali, which may be relied upon to act as you expect it should, every time. Mr. Newton advises using the pyro dry. I obtain just the same results in slide-making by using it preserved in solution with sulphurous acid and sulphite of soda. It prevents the developer from getting muddy, which it is sure to do if you are compelled to prolong the development. I believe the only person suggesting the use of hydrochinon on these plates is Capt. Abney, in his work on "Photography with Emulsions." I have tried it, and think, if anything, it works quicker than pyro, and produces equally good results.

Therefore, for Brooks' emulsion, I can recommend the following developers :

STOCK SOLUTION No. 1.

Carbonate sodium (dried). .....280 grains
Sodium acetate.....120 grains
Potassium bromide... .....120 grains
Water..... 10 ounces

No. 2.

Sulphurous acid and sulphite soda, pyro solution after my formula based on the strength of forty-eight grains of pyro to the ounce, or any other pyro solution based on the same strength.

To develop a slightly over-exposed plate add twenty minims of the pyro (No. 2 solution, and the same amount also of No. 1), then fill the graduate with water until the whole measures half an ounce.

You thus have a dilute developer to begin with. The image will appear in a few seconds (probably ten) after the developer is applied, and will be finished in about a minute, or, perhaps, three. Then the image is examined by transmitted light, and when the desired density is reached the developer is poured off and the plate washed under a gentle stream of water for a few seconds, just enough to clear it of the developer. If the water runs too strong it is apt to split the film and carry it off the plate. *F. C. Beach.*

(*To be continued*).

A CONVENIENT WAY OF USING A YELLOW SCREEN WHEN PHOTOGRAPHING COLORED OBJECTS.

[Written for the American Annual of Photography and Photographic Times Almanac for 1888.]

IT is not my intention to enter at length into the various phases of working orthochromatic plates or to gainsay their undoubted advantage over ordinary plates for the photographing of paintings, etc. My object in writing this short contribution to "The American Annual," is to bring before its readers a very convenient way of attaching the col-

ored screen to the lens, so necessary when using these colored sensitive plates.

Recently, I have been doing a good deal in the way of copying paintings, and have used colored screens both in front and behind the lens, but neither of such means have given me such good results as placing the yellow screen on the metal diaphragm of the lens.

First as to the best medium for using as a screen, I fancy I have got the best results by using a solution of turmeric in collodion.

Next, how is it best to apply the screen to the stop or diaphragm.

Happening one day to be on my way to photograph some paintings, I dropped accidentally into one of our local opticians, and it so happened that, on the counter before me lay a box of micro cover glasses of exquisite color and thinness, the largest size among them being some one inch in diameter. The thought just struck me, how suitable these would be to make yellow screens with, but how can they be used in the lens? Just then the idea struck me to produce my stop. This was the work of a moment. Gummed on the stop, the diaphragm would not enter the slot. So I just turned into the back shop and got a workman to place my ¾ inch stop on his lathe and turn out only just a nice rebate around the aperture into which the micro glass cover sits so nicely.

The micro glasses were then coated, and when going to work the smallest modicum of gum on the rebate holds them as tight as need be. I have done excellent work with these little micro cover glasses, coated and used as above described, only mind and focus with the screen in the lens. Try this.

T. N. Armstrong.

Correspondence.

BRUNSWICK CYANOTYPE BOARD.

To the Editor of the PHOTOGRAPHIC TIMES:

Dear Sir: I little thought, when I sent my last batch of "Chips" to the TIMES, that my offer to supply the cardboard which I use in making blue prints would bring me such an avalanche of orders. But, such is the circulation of the TIMES, that almost every mail brings me orders from every section of the country. Many of my correspondents ask me to send them the board ready-sensitized, and quite a number wish to have it put on the market. This I have decided to do, and have made arrangements which will enable me to fill all orders promptly, at the prices given in the advertisement in this issue of the TIMES. Permit me to add that the small margin of profit will simply pay the sensitizer for the trouble of doing the work. When so requested, a sample print will be enclosed with the sensitized sheets. In order to distinguish it, the name of Brunswick Cyanotype Board has been given to this make. As this arrangement has been made solely for the accommodation of amateurs, it is hoped that this announcement will be received in the spirit in which it is made.

Very truly yours,

BRUNSWICK, ME. *Rev. W. H. Burbank.*

Notes and News.

FÉNYKÉPÉTZEI LAPOK, a well-edited photographic journal, written in the Magyar language, has ceased to exist for want of support.

THE CORRECT NAME, according to modern nomenclature, of meta-bisulphide would be "anhydrosulphite."

OBITUARY.—J. De Witt Brinkerhoff, one of the old-time photographers of New York, died, Wednesday, January 2d, at the home of his son, in Morrisania, aged seventy-six. Mr. Brinkerhoff was born in Bloomfield. N. J. In 1848, he was proprietor of a gallery in this city where he did a good business. He photographed successively at White Street and Broadway, near the old St. Nicholas Hotel, and Broadway and Thirteenth Street. His last gallery was at Fordham Street, Morrisania. For the past few years he has been out of the business. Mr. Brinkerhoff was a friend of Mr. Edward Anthony and invented several things of value to the profession.

PHOTOGRAPHY AT THE FRANKLIN INSTITUTE.—We notice from the programme of the Franklin Institute, Philadelphia, for 1889, that Francis H. Himes, of Dickinson College, Carlisle, Pa., will lecture on "Amateur Photography," February 11th. From private source, we understand that on this occasion the learned professor, himself an enthusiastic amateur and instructor in photography, will speak, in connection with his subject, of education in the art science, dwelling particularly upon the School of Photography connected with the Chautauqua University. We are sure that this lecture will well repay any one the trouble of attending to hear it.

GENERAL HARRISON'S NEW PICTURES.—It is said that the new pictures of General Harrison, from negatives recently taken in Indianapolis, and now on display in the photograph show-windows on Pennsylvania Avenue, Washington, give the general a much more aged appearance than previous photographs. His ample gray beard makes him look as though the flood of years had suddenly struck him since the anxieties of the campaign.

BEAUTY PAYS HIGH.—Stars, like Bernhardt and Anderson, popular beauties like Langtry and Potter, says the *New York Sun*, not only are photographed free of charge, but receive a generous amount from artists for the privilege of photographing them. Sarony paid Bernhardt and Langtry each $1,500 for the sittings they gave him, and has some kind of special contract with Mary Anderson, by which he has the exclusive right to photograph her in New York. Maud Branscombe has received $500 for sittings, and other actresses have received greater or less remuneration, according to the demand for their pictures.

HANDS FOR PHOTOGRAPHING.—"It takes a perfect hand to be photographed, and not one in ten thousand is suitable," says a New York photographer. "It must be sup-

ple, slender and graceful, with tapering, slender fingers, and a row of dimples across the back. The first hand worth reproducing I found ten years ago, and I didn't find another for five years that I cared to bother with. For the last six months quite a craze has sprung up for hand photography, and people with the ugliest kind of hands come and present them to me for subjects, just as actresses of no standing will present themselves for pictures, expecting photographers to take them free of cost, and get their profits out of their sales, when no one would buy them anyway. Of course I photograph all the hands people are willing to pay for, and necks, and busts, and shoulders, without any face, but the pictures are very expensive, much more than pictures of faces, and it is only the ladies of upper sweldom who indulge in them."

THE DURATION OF LIGHTNING FLASHES.—It is well known that the lightning flash, or the spark between the terminals of an influence machine, exists for so short an interval of time as to be beyond measurement by any ordinary means. But notwithstanding the acceptance of this knowledge, the peculiarities of some of the flashes photographed have been supposed to be due to the camera, or to the sensitive plate, being at the time in a state of vibration. To test this line of thought Mr. James Wimshurst, according to *Engineering*, has made a dark-slide for his camera in which is fitted a train of clockwork carrying a disk, upon which is an arrangement for holding the sensitive plate. When all is complete for photographing a flash the clockwork is wound up, the sensitive plate then rapidly acquires great velocity, which at the maximum reaches 2,500 revolutions per minute, and with the plate rotating at this speed the spark is photographed. A photograph taken under these circumstances in no way indicates movement in a sensitive plate, for the photograph throughout its length is as sharp and as clear as though the plate had been at rest. The experiment is interesting, for it not only shows the infinitely short existence of the spark, but it also shows that chemical change in the sensitive film takes place in an equally minute interval of time.

GALLIC ACID PROCESS (SHAWCROSS' DIRECT POSITIVE; BLACK LINES ON A WHITE GROUND).—With this process direct positive copies are obtained, and has therefore a considerable advantage over others and similar methods. The reagents employed are inexpensive, and the process is comparatively simple. A gallo-tannate of iron is formed by the combination of gallic or tannic acid with a ferric salt; and this latter salt, on exposure to light, is converted into the ferrous state. The part of the paper preserved from light, not being changed by actinism into the ferrous state, is ready to combine immediately with the gallic acid on immersion in a suitable solvent, such as water. The sensitizing solution consists of 150 parts of gelatine, 60 parts of ferric sulphate, 94 parts of sodic chloride, 18.8 parts of hydrogen tartrate, 150 parts of ferric chloride, and 1,100 parts of water. The solution should be uniformly spread over the surface of the paper by means of a roller pad or flat brush (the roller pad being preferable), and the paper dried in the dark. It should then be dusted over with finely powdered gallic or tannic acid; and the powder should then be thoroughly rubbed on the paper until it is brought into contact with every part of the sensitive surface. It is now ready for use. As soon as the yellowish color of the paper is converted into white, the exposure is complete. The lines of the drawing will appear in the initial yellow color until the print is immersed in the developing bath of water, when the yellow lines will at once be converted into a dark color approaching to black. If exposed too long, the yellow lines of the drawing will entirely disappear. The prints should be thoroughly washed in two relays of water, the surface of the print being carefully rubbed over with a stiff brush while submerged in the water of the bath. The more thorough the washing, the better is the print; as, although the print may appear white after the first washing, subsequent exposure to sunlight will probably show disagreeable discolorations in the white surface. Lines may be altered, or stains removed, by using a one per cent. solution of hydric sulphate. When a more rapidly sensitizing solution is required, either glucose or dextrine may be substituted for the gelatine, which will give a violet or purple hue to the reproduced lines on the sun-copy. Blue lines can be produced by substituting potassic ferrocyanide for the gallic acid; red lines by substituting potassic sulphocyanide for the gallic acid; and green lines with catechu The author strongly recommends the use of this process, which is the invention of Mr. Shawcross, of the Water Engineer's Office, Liverpool; for it does not require an acid solution for development; the exposure may be determined by simple examination; it gives a direct positive, and practically black copy; colored tracings may be reproduced, as it reproduces half tones; and the copy is in ink (gallo-tannate of iron), and is permanent.—*Scientific American*.

"'THE PHOTOGRAPHIC INSTRUCTOR' is undoubtedly the best work on photography ever published."—*J. R. Swain.*

ECONOMY IS WEALTH.—It is a fact that only about 5 per cent. of the gold and silver used in producing a photograph remains on the finished picture; the balance is lost, and in giving below a few short and simple methods of saving and reducing photographic wastes and residues, we believe we confer a favor upon some of the fraternity.

OLD BATHS, AND THE WASHING OF THE PRINTS,

should be precipitated with ordinary salt, thereby forming chloride of silver. Add the salt gradually, stirring up the solution, until it forms no longer a precipitate, which you may easily determine by taking a sample of it in a tumbler or white bottle, holding it up to the light when adding a little salt. Don't add too much, as an excess will redissolve the chloride. When the silver is all down, pour in a little acid, either nitric, sulphuric or muriatic, which will clear the solution; allow it to stand for about twenty-four hours, then draw off your clear water, and you have the chloride on the bottom of the vessel.

THE HYPO OR FIXING SOLUTION IS VERY RICH.

It should be precipitated with sulphuret of potassium, previously dissolved in water, also adding it as long as it will form a precipitate. The latter when down may be thrown on a plain muslin filter to allow the water to drain off. Such a filter may be readily constructed by taking a piece of common unbleached muslin, say a yard square, tying loops to the four corners, and hanging it up on sticks.

A good many photographers are in the habit of precipitating their washing solutions with metallic zinc expanded

in sheets therein. The action of zinc, however, is slow, and must be accelerated by accidifying the solution. Now it frequently happens that the fixing solution is allowed to run into the same vessel, and, the hypo being an alkali, suspends the action of the zinc. In the course of time a deposit out of the water is formed, but the happy proprietors of the "mud" are sadly disappointed in its value, as it is sometimes even so poor as not to pay for the trouble of refining.

ALL PRINTS SHOULD BE TRIMMED BEFORE TONING,

as it saves gold, and besides toned paper is of hardly any value. Keep the untoned clippings and filters clean by themselves; do not throw sweepings, pieces of glass and spoiled ferrotype plates among them, as their bulk only decreases the real value. If you wish to burn the paper, have your stove cleaned of cinders and ashes, and proceed slowly, for a good draft will carry many particles of silver through the flue.

Your toning solution throw down with sulphate of iron, but be sure and have the solution "acid," as otherwise the iron will be precipitated, and your gold goes where the "woodbine twineth". *Save your developer and collodion skins;* they will also amount to something in the course of time.

We have likewise found that the wood of barrels which contained waste solutions for a number of years, was quite impregnated with silver, some barrels yielding as many as thirty ounces of metal; so when yours are unfit for further use, you know what to do with them.

Last, but not least, do not send small lots of waste to be refined, but wait until you have a reasonable quantity, for expenses and charges are then comparatively less.

Chas. Cooper & Co.

Photographic Societies.

NEW ORLEANS CAMERA CLUB.

ON the evening of December 28th, this club held its sixth annual lantern-slide exhibition. A local paper describes the entertainment as follows:

After the usual colored slide of "Welcome" had been thrown on the screen, the lecturer, Mr. W. W. Crane, proceeded to explain that the first slides were to be of English scenery, and were the gifts of numerous British camera clubs.

Then appeared in rapid succession views of ruined abbeys, historical buildings, pastoral scenes, and pictures of the streets of London; the audience being transported from the busy city life to the quiet glens of Wales and the scenes made famous by song and story—the wild Scottish border, where Sir Walter Scott laid the foundations of his thrilling novels and inspiring verses.

After passing over the ocean, the city of Chicago was shown, and the famous Salt creek near there, where disappointed politicians are supposed to wend their weary way.

Following appeared the grand canons and towering mountains of California, interspersed with bits of local color, and ancient monuments of Mexico, built by the Aztecs before the Spanish conquest.

Many of the American views were taken by a lady of Chicago, and are fine samples of what a woman can do in a photographic way.

With their new lantern and a large correspondence with other clubs, the Camera Club expect to give many more exhibitions during the winter, and they are fortunate who receive an invitation to them.

Mr. Crane, the lecturer, explained the exhibition extremely well, considering the short time given him to familiarize himself with the slides.

Our Editorial Table.

THE INDISPENSABLE HAND-BOOK TO THE "OPTICAL LANTERN," compiled and edited by Walter D. Welford and Henry Sturmey, makes its appearance at our "Table." It professes to be a complete cyclopædia on optical lanterns, slides, and accessory apparatus. It is profusely illustrated, and is not less valuable for the catalogue of slides and advertisements which it contains at the end of the book. It also includes a valuable article on "Conduct on the Platform," by our friend, Andrew Pringle. It is published by Iliffe & Son, 98 Fleet Street, London, E. C., and sells for half-a-crown.

WE have received a copy of "Legal News," illustrated with some blocks made by Judge Bradwell, of Chicago, who is also a well-known amateur photographer. Though the Judge is an elderly man, in his photographic studies and experiments he is as enthusiastic as a boy, and is constantly improving the methods and processes in the charming art to which he devotes much of his leisure time.

FROM Bartholemew & Peckham, successors to Bliss, Bartholemew & Co., 18 Spruce Street, New York, we have received a collection of very fine specimens of photo-chemical engravings. The collection contains reproductions from pen-and-ink drawings, from wood-cuts and lithographic prints, from drawings from photographs, from original pen-and-ink drawings, from lithographic prints and crayons, of various subjects, pictorial, commercial, type, music, etc. But the finest of all is a colored plate printed from photo-engraved plates in several tints. The entire collection makes a valuable and attractive *souvenir*.

From Frederick K. Morrill, of Chicago, we have received two photographs that are well selected and executed, one, a view near Lake Geneva, Wis., is made on an orthochromatic plate, and possesses some pleasing features. The other, a Chicago river view, made with a detective camera, has a fine atmospheric effect.

Mr. Morrill writes: "I use a St. Louis camera, Voigtländer Euryscope lens, Prosch shutter, and Carbutt plates. and the four make a combination that is equal to anything in the photographic line. I read the 'American Annual of Photography' and PHOTOGRAPHIC TIMES regularly, and find in them many things of interest."

FROM R. M. Bigger, of Frankfort Springs, Pa., we have received a 5x8 upright photograph made with a Waterbury outfit on a Carbutt B Plate. It is of a waterfall in a deep and dark ravine; and the exposure, so Mr. Bigger writes, was made on a dark day, and required seventy-five seconds.

It certainly reflects much credit both on the photographer and the apparatus which he used.

FROM L. M. Prince & Bro., manufacturers and importers of photographic apparatus, and the Ohio agents for Blair's cameras, we have received an album illustrating Cincinnati, which consists of a dozen or more views in and about this enterprising city of the West. We should like to see, among the other views, a picture of the Messrs. Prince & Bro.'s own establishment, at 148 West 4th Street.

A COPY of the "New York Charities Directory for 1889" has come to hand. It contains a descriptive catalogue and alphabetical analysis of the charitable and benevolent societies of New York, and is bound in a durable and attractive manner. Published by the Charity Organization Society of the City of New York, and compiled under the direction of Mr. George P. Rowell.

WE have received, with a letter, from Giacomo Brogi, some excellent 6½x8½ views of the finest photographic establishment, as regards appointments, we have yet seen.

"I opened on the 4th of November my new gallery, which combines all the comforts and elegancies which can be desired." * * * Signor Brogi writes: * * * "From examining these photographs you will be able to form some idea of the comforts and artistic arrangements of my establishment * * * I have large collections of views and reproductions of the masterpieces of Italy, which are sold at retail in No. 1 Via Tornabuoni, and wholesale at 79 Corso del Tintore, Rome. I have a branch establishment in Naples—No. 19 Chitamone—and I allow a discount to dealers."

We can only add that if all the work done by Signor Brogi is equal to the specimens which he sends us, it is certainly worth any one's while to investigate.

As usual, at this time of year, a batch of calendars comes to our table. One of the best is that in the form of a little book, which issues from the Albertype Company, 58 and 60 Reade Street, New York. It contains specimens of various kinds of printing, from famous pictures, and is very pretty.

The Philadelphia *Public Ledger* send their annual almanac, containing, as it does, a mass of useful information, in addition to the calendar for 1889. No care nor expense seem to have been spared in making it perfectly trustworthy.

Reimers & Katz, dealers in photographic and artists' materials, 406 Milwaukee Street, Milwaukee, Wis., send a calendar of a new design, in the shape of a fan, with a colored picture printed on its face.

From R. Broude & Co., 242 Fifth Avenue, Pittsburgh, Pa., we receive a Happy New Year's greeting on a neat card.

The American Bank-Note Company, as may be expected, send something very well executed, in the form of a calendar, printed in various tints, of a convenient size and shape.

A small card calendar comes to us from Semon Bache & Co., Greenwich Street, New York City, with the compliments of the season.

Queries and Answers.

6 W. M. A. makes lantern-slides, and has attempted to work with wet-collodion plates. He asks for information. 1. With the silver bath, prepared, as he thinks, strictly according to the formula, the plates are full of holes after being sensitized, not the orthodox pin-hole, but variously shaped holes, increasing in magnitude in proportion to the time the plate has remained in the bath. He fears the bath is over-charged with iodide of silver. 2. Collodion negatives fixed in hypo may come from the bath perfectly clear and transparent, but when cyanide of potassium is used, they are invariably full of streaks or stains of bluish-green color.

6 *Answer.*—1. To judge from the description of these holes, we are inclined to think the silver-bath is not strong enough in iodide of silver. Nitrate of silver dissolves, to a great extent, the iodide of silver. As regards this solubility, it is of high importance to keep the bath properly balanced. If an iodized collodion film is immersed in a pure nitrate bath, the iodide of silver will be dissolved by the nitrate as quickly as it is formed. For this reason collodion operators plunge collodionized plates in a newly prepared silver-bath, and repeat it till, in a reasonable time, the nitrate will no longer attack the iodide, and the desired balance has been established. 2. The cyanide solution is too strong. If in the proportion of 1 : 20 it is strong enough. If an iron-developed plate is not thoroughly washed before being fixed in cyanide, the bluish-green precipitate will occur.

7 M. B., OF DETROIT, asks: What is the object of adding citric acid to the pyro developer?

7 *Answer*—It prevents pyro from decomposing, and acts as a powerful restrainer.

8 PHOTO, OF NEW HAVEN, inquires: What would be the effect if a plate was very thickly coated with emulsion? Would a thick film prevent halation?

8 *Answer.*—1. In the first place, it is an unnecessary waste of material, and the thick film will lead to misjudging the proper development. It would also require much longer time to fix the plate. From four to five fluid drams of emulsion is quite sufficient to cover an 8x10 plate. 2. Very likely it would, to some extent.

9 A says Dr. Eder first proposed hydrochinon as a developer, but B thinks the credit is due to Audra. Which is right?

9 *Answer.*—In looking over older photographic journals we find hydrochinon was mentioned by Capt. Abney in the *Photographic News*, 1880, XXIV., page 345; but, if our memory serves us correctly, Mons. Audra proposed it at least two years before Abney spoke of it.

10 A. P. C. asks: Why is bromide of potassium preferred in gelatine emulsion-making over other bromides? Why does zinc or cadmium serve here as well as said to do in collodion emulsion?

10 *Answer.*—Zinc or cadmium coagulate the gelatine, or at least affect its setting power. Ammonium-bromide is very deliquescent, and is not as stable as the potassium salt. Heating it to about 90 deg. or 100 deg. Fahr. causes a decomposition into ammonia, which evaporates, and hydro-bromic acid, which eventually may act very injuriously to the emulsion.

W.B.POST, PHOTO. PHOTO-GRAVURE CO. N.Y.

A STUDY FROM LIFE.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, JANUARY 18, 1889. No. 383.

TO A FACE BELOVED.

I LOOK upon a face as fair
As ever made a lip of heaven
Falter amid its music-prayer ;
The first-lit star of summer even
Springs not so softly on the eye
Nor grows with watching half so bright,
Nor, 'mid its sisters of the sky,
So seems of heaven the dearest light.
Men murmur when that face is seen ;
My youth's angelic dream was of that look and mein.

N. P. Willis.

OUR NEW PUBLISHERS.

IT will be seen from the new imprint on the cover of this issue of the PHOTOGRAPHIC TIMES, that our publishers are no longer the Scovill Manufacturing Company, but instead—The Photographic Times Publishing Association. This change of publishers has been contemplated for some time, but not until recently did circumstances make its consummation possible.

The Photographic Department of the Scovill Manufacturing Company is now an independent corporation under the name of The Scovill & Adams Company, with W. Irving Adams—of the Scovill Manufacturing Company—as President. The new company has purchased the entire plant of the photographic department of the Scovill Manufacturing Company, including the factory at New Haven, the American Optical Company's factory at New York, all patents, etc., and will continue the business as heretofore at the old salesrooms, 423 Broome Street.

The Photographic Times Publishing Association will have complete control of THE PHOTOGRAPHIC TIMES, and as an independent publication our journal will serve the interests of the photographic fraternity in its improved form and circumstances more zealously than ever before.

The editorial management will be the same as heretofore, and the place of publication will be the same. The Scovill & Adams Company will be the general selling agents of the publication.

Words are cheap, but actions speak for themselves! What THE TIMES is, our readers know! What it will be, rests largely with the support which they give. We will only say at this time, that the marked step in advance which our journal made at the beginning of the New Year, will not be retraced under the order of our new publishers, and that with the hearty co-operation of our old friends and that of the many new ones who are constantly coming to our support, THE PHOTOGRAPHIC TIMES will continue to grow and improve. Our prospect was never brighter.

A fuller account of the changes with our former publishers, with a brief history of the Photographic Department which has led up to the organization of the present Scovill & Adams Company, will be published in a later issue.

"A STUDY FROM LIFE."

THE charming figure composition which embellishes this issue of the PHOTOGRAPHIC TIMES is a picture that attracted considerable attention in the recent exhibition of members of the Society of Amateur Photographers of New York. It is from a negative by W. B. Post, an amateur of this city ; and while fully exposed, is rather thin for producing the best results in photogravure. In order to make the best effects in a copper-plate photo-engraving a negative should be full of detail, and possess, beside, a fair amount of intensity. We speak of this now and at this place for the benefit of those especially who may be making negatives for reproduction in photogravure. "A Study from Life" is a fine example of portraiture out-of-doors. The charm of this picture is largely due, of course, to the beauty of the original, but there is a lesson in it for all in the posing of the figure and the management of the accessories.

EDITORIAL NOTES.

It has long been understood that only neutral oxalate of potassium, absolutely free from chlorides, is fit for use in a ferrous-oxalate developer. It has been claimed that an alkaline oxalate is not effective in bringing out the half-tones and middle tints, and that when a chloride is present, the resulting negatives are inevitably hard and glassy. This is true; but these faults in an oxalate developer may be utilized in reproduction photography when it is an object to copy black lines upon a white ground, and to render distinctly in a positive copy the state of opacity or transparency which exists in a negative. By adding chloride of potassium to the ferrous-oxalate developer, highly brilliant transparencies may be made, and the process seems certainly to be worthy of experiment in the making of lantern-slides. Thus it is that what is a defect in a developer, or agent, for one purpose is a positive advantage for some other.

One reason why hydrochinon in solution (and for that matter, pyrogallol also), even when prepared with sulphite of soda, is so frequently seen to deteriorate, is probably due to want of purity in the preserving salt. The sulphite of soda of commerce often contains very little sulphurous acid. Even the pure article, which is said to contain from 90 to 95 per cent. of sulphite, will oxidize gradually, and eventually become sulphate. Sunlight seems to hasten oxidation. To preserve pyrogallol and hydrochinon in solution most effectually with sulphite of soda, particular attention should be given to the purity of the preserving salt. When it is in distinct crystals free from efflorescent parts, and without sign of deliquesence, it may be safely relied upon to act effectually as a preservative.

Fred E. Keay, a scholar of the Chautauqua School of Photography, has succeeded in toning blue prints to a very beautiful dark green. By allowing the print to remain for a longer time in his toning-bath, he obtains darker colors up to a deep chocolate brown. His bath is composed of

Borax	3 drams
Water	6½ ounces

He adds enough sulphuric acid to turn litmus paper, and then neutralizes with ammonia. Finally 25 grains of crude catechu are dissolved in the solution. The well-washed print is immersed in the toning-bath until the desired color is obtained, which may require from five to ten minutes, as the case may be. After toning, the prints appear to have better half-tones than as blue prints they possessed. The experiments were made with commercial cyanotype paper that was probably decomposed to some extent, and therefore not as sensitive as it is when fresh. It is probable that when freshly prepared blue paper is used, the whites will be of greater purity than in the samples shown us. The green color of these specimens, however, is very pleasant, and quite suitable for certain landscapes.

To prevent "sweating" of skylight glasses on the inside during the cold weather, rub them with a sponge or rag saturated with glycerine. This has been tried of late with very good success, and will prove valuable to our professional readers during the winter, especially those living in the colder parts of the country.

Hyposulphite of soda in granular or exsiccated form, on account of its reduced weight and greater concentration, is much preferred on the continent in the paper manufactories and bleacheries to that in the crystallized form. So far as we know, hypo in this form has not yet been introduced in the photographer's laboratory in this country, and any one intending to use it should remember that it crystallizes with 36.6 per cent. of water. Hence only two ounces of it should be used in preparing a fixing-bath when the formula prescribes three ounces of the ordinary crystallized salt.

The following method for rendering silvered albumen paper more durable has been recommended by several European journals:

Dissolve fifteen drams nitrate of silver in twenty-four ounces of distilled water and add one dram of carbonate of soda. Shake well, and then dissolve two and a half drams of citric acid in this solution, and filter. The albumen paper is floated on this solution for three minutes. The paper seems to keep much better after this floating, and prints just as well. It should be fumed, however, in the vapors of ammonia before printing, and washed in alkaline water before it is toned.

Aristotype paper is gaining favor among the photo-micrographists, by reason of the finer details which it preserves than are possible to save on ordinary albumen paper. Photo-micrographic negatives have given entire satisfaction in prints upon this chloride of silver collodion paper, and it is quite as easy to manipulate, will yield almost any tone, and certainly deserves the widening popularity which it is gaining every day.

THOUGHTS ON OUR ART.

THERE are some who assert that there is and can be no art in photography; there are others who claim that photography is capable of the highest flights in art. I believe that both parties are wrong, and that both parties gravely wrong photography. The first party wrongs photography by injustice and mendacity, the second by over-zeal and claiming too much.

Not long ago I had occasion to answer definitely and categorically the question, "On what grounds do you claim for photography the position of an art?" Though I hold an opinion very strong and firmly rooted by long and gradual growth, I found it by no means easy to express my opinions definitely, connectedly and logically; but my reply embodied some of the following arguments.

Photography has much in common with the acknowledged graphic arts; the art of conception is as open to the photographer as to the painter or sculptor; in execution photography is seriously trammelled, but its difficulties ought not to be taken as defects. The photographer can conceive a picture, arrange its details in his mind, determine the expression of the whole and of each part; settle its composition and chiaroscuro, just as well as the painter; but the photographer can not by any means so easily give his conception a visible graphic existence. This, however, does not, or ought not to, impugn the character of the photographer as an artist; in fact it ought to raise the efforts of the photographer higher in our estimation. Practically speaking, the photographer must have his whole picture in the desired aspect, each part and the whole with the desired expression, before his lens at one time; the painter can and does do his work bit by bit, one model, one accessory at a time; or he may paint the generalities of a view at one time and add the expression at another. This increases the comparative difficulty, but poes not damage the character of photography as an art.

We constantly hear even those acknowledged as artists saying one photograph is more artistic, or "shows more taste," than another. Comparison cannot hold where there is no existence. That is to say, if there were no art existing in photography we could not compare the art of one photograph with that of another. And even if we had no such evidence from acknowledged artists we have it from universal opinion. Every year we have one or another photograph which is universally admired as a picture, and we can only attribute this public acceptation as sure proof that the conception of the photographer has found its way into the minds — often near into the hearts—of the spectators; in other words that there is art in the photograph. It will not do for anyone to glaze over the matter by saying that "nearly artistic" would be a better phrase; if the very thinnest edge of the wedge of admission gets in the entire wedge must follow. At the present moment there is on the walls of our Camera Club a collection of many photographs by one man; this man has for his subjects travelled very little afield; he seems to have found his pictures ready made at his door in a little fishing village; simplicity marks every scene, every day life alone is portrayed, no grandeur of Nature has been attempted, no striking beauty of human form; yet to my own consummate astonishment I found the collection one of the most pleasing sights of my life. I expected from any "one man exhibition" a monotony of conception, a great variety of execution, some good, some bad; yet, though technically many of the works might be ranked low enough, still the effect of the whole, and of nearly every particular picture, is, to me, at least, simply charming. And what does this mean? It means that there is at least one man of artistic nature in our ranks; that there is one man capable of treating varied subjects variously, but always artistically; that, in short, art is possible to photography. As I hope to procure some of these works for the pages of this journal, and to criticise them in my humble way, I shall not enter into detail on them now.

One often wonders what are the precise arguments, and what the precise position of those who assert that nothing photographic can be artistic, or even of those who doubt whether there can be any real art in even the best photography. Some, we know, take this ground: that photography cannot idealize, must depict exactly what is before the lens. What they mean is: Photography cannot lie. In a certain broad sense photography cannot lie; in every sense art is truthful. If ever art depicts what we know cannot or could not possibly exist it lies, and is no longer fine art; and we shrewdly suspect that it was this very abuse of art that led to the objectionable signification sometimes attached to the word "art" when we mean by it "fraud" or "prevarication." But there is no law to prevent a graphic art collecting existing beauties from various sources and placing them all in one picture, or even in one object in a picture. A very early phase in art was when artists painted and chiselled demigods embodying all that the artists knew of the beautiful, from whatever sources. It was by no means impossible, or even preposterous, to imagine that one figure might em-

body all the excellencies imparted to demigod representations by the artists; but if the artists had given their demigods extra legs or arms, or added wings or tails to them, the falsehood would have been apparent and the art gone. What are the most famous sculptures, be they Venuses or Adonises, but compositions made up of the best parts of various women and men in actual existence? These representations were of demigods or gods, and did not profess to be portraits of any living person; but when later art became so prostituted that figures little less perfect in form were put forth as portraits of the patrons of art, the whole fabric of art smashed into pieces, its followers fell into disrepute, its power for good disappeared, it became a mere "fashion" and a liar, and the art of that era is not now ever called fine art.

When we come to the delineation of objects existing entirely in our imagination, so far as their shapes are concerned, art has wider limits, but still it has limits. An artist has a considerable amount of latitude as to how he shall portray Satan or an angel. He may give Satan a tail or claws, and he may give the angel wings, but this is about the most he can do; he dare not give Satan four tails, nor the angel a tail at all, because we have not imagined his Majesty with more than one tail, and our idea of an angel is that of a being with no tail. So here again art must be true to our ideas at least.

Now while fine art must be truthful to our preconceived ideas, I think that idealization is the highest flight of fine art; I think that it is necessary, in order to produce the highest class of picture, to *collect* details, aspects and expressions, and to join them into one *ensemble*; and this photography cannot do except in the very simplest subjects, if even there. So, while I claim for photography that it may be to a certain extent a fine art, I dare not and do not assert that it can in its present state take a position in the rank of the highest fine art.

More will be required to elaborate and make clear my ideas of art, but the rest must stand over for future papers.

Andrew Pringle.

INSTANTANEOUS EXPOSURES IN PHOTO-MICROGRAPHY.

In pursuing, for several years, a systematic study of the minute life in our potable waters, I have frequently found that the ability to make instantaneous photographs of micro-organisms would add greatly to our knowledge of their life history. The chief difficulty in such work is to produce an illuminating beam of sufficient intensity to enable one to make the photographs with moderately high powers. The present design is an attempt to furnish a handy method of making such exposures, and its points will be readily understood by reference to the drawing in connection with the following description: Referring to the cut, H is the body of the camera, carrying the appliances for adjustment of the amplifier as well as the horizontal prism tubes, all fully described in my paper "On the Use of the Amplifier." A is the stage, and E K a horizontal rod attached to the base of the stage, and made to revolve about a center, K, which lies in the plane of the stage. C is an ordinary photographic view lens with a diaphragm shutter worked by a compression bulb, so mounted as to bring its center at the same height as the center of the stage. The stand supporting C is also attached to the rod E, so that when oblique light is desired the movement of the two together produces the required result easily and quickly. The photographic lens C, which I have used, is a Bausch and Lomb Universal, the focal length of which, for parallel rays, is about seven and one-half inches. B is a bull's-eye lens so placed in relation to C as to be just beyond the point of focus. In this position B has the effect of rendering the condensed rays from C parallel, and we have as the result of this combination of lenses all the rays of direct sunlight which fall upon the area of the back lens of C, condensed upon an area of less than one-quarter of an inch at A. The result is that a sufficiently strong beam is produced to render instantaneous exposures not only possible but easy, even with moderately high powers.

D is a mirror mounted also upon E, to be used in the ordinary manner, if desired.

In making instantaneous exposures with this apparatus, the best position of the lenses C and B is found by first directing a beam of parallel rays of direct sunlight upon the back lens of C by use of the plane mirrors F and G; C and B are then slid back and forth until the disc of condensed light through B is seen clear cut and perfectly white upon a slip of transparent white paper placed upon the slide-carrier of A. If oblique light is required for any purpose it may be obtained by revolving E and C around K as a center until the desired degree of obliquity is attained. Having found the best position of C and B, and completed the other necessary arrangements of the light, the shutter of C is closed and the slide containing the object to be photographed placed upon the stage A. After finding a satisfactory field, and making the other necessary adjustments, a focusing-cloth, supported

upon wire frames (not shown in the cut), is thrown over the whole apparatus, thereby cutting off all extraneous light After placing the cloth shield the operator should definitely determine that no obstruction to the passage of the condensed beam has been caused by improper placing of the focusing-cloth. Having found everything in working order, the exposure is made by a simple compression of the bulb L, as every one who has used a shutter will readily understand.

The method of attaching the photographic lens C to the upright stand supporting it is such as to permit of its ready detachment, so that C can be removed, when needed for use as a photographic view lens, without loss of time.

In many cases it will be desirable to interpose a cell of water between C and B, in order to intercept the heat rays, and the mounting for such a cell is precisely similar to that of D upon E, as shown.

The advantages derived from such an arrangement are:

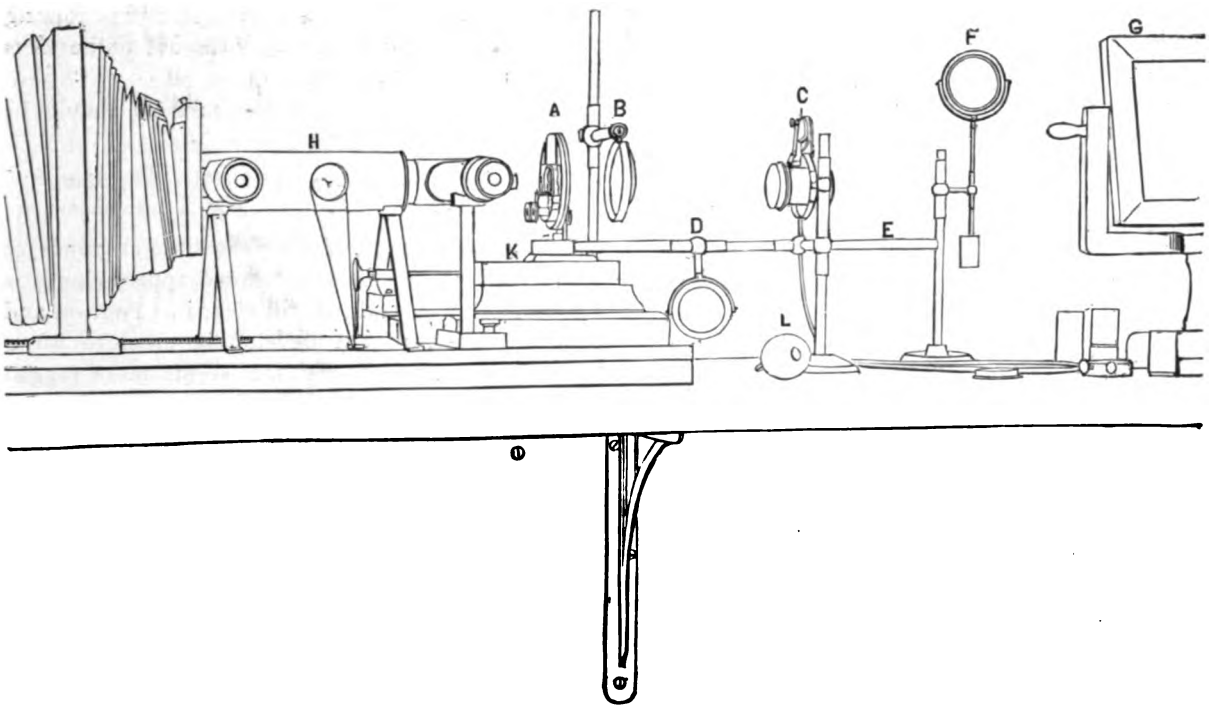
1. The thorough control of the intensity of the light derived from the use of the lenses C and B, and the fairly perfect achromatism resulting therefrom.

2. The ease and precision with which the relative positions of C and B may be changed, and the consequent comparative simplicity of the manipulations.

3. Although I do not usually urge cheapness as a merit in photo-micrographic work, I may safely do so in this case. I assume, however, that one desiring to make use of such an apparatus already has an ordinary photographic view lens. The mounting of it in the manner shown in the illustration is inexpensive, as everything used is ordinary stock with opticians. The mounting here illustrated was constructed by the Bausch & Lomb Optical Company especially to meet the conditions of use with the professional photo-camera.

If, however, one has not got a photographic view lens, and does not care to purchase one, a simple achromatic lens may be mounted with the shutter at less expense than the photographic view lens, and substantially the same results obtained.

George W. Rafter.



NOTES FROM EXPERIENCE.

BY A PROFESSIONAL.

In galleries where there is no regular system of water-works, negatives are very apt to be slighted in washing, which results in soda stains, and crystals of hypo forming in the film after the lapse of a few months. To avoid this, I have made a washing machine out of a pail—a butter tub, or something similar would do—and about two inches from the top made a hole, and inserted a piece of lead pipe, which I bent, syphon fashion, letting the pipe inside of the pail touch the bottom, and outside end letting it project three inches below the bottom of the pail. I fill the pail to within an inch of the turn of syphon, and place my negative in pail, and by

pouring in a little water, start syphon running, thus changing water without handling negatives, giving them a thorough good washing.

When I bought the gallery I am in now the negatives were stored alphabetically on shelves, and I found it a great inconvenience to go over some two or three hundred negatives to find the one I wanted, and then find it, very often, scratched. I now store my negatives away in old plate boxes, putting ten in a box, and have an alphabetically indexed book, in which I place the names and number of the negative. Of course I put a piece of paper between each negative to keep them from scratching, and a label on edge from one to ten, or eleven to twenty, and so on. I can store many negatives in this way in a small space, as they lay close together, and can be stored on edge on the shelves, label out, and, when wanted, can be got at immediately in a sound condition, no scratches or retouching rubbed off, but ready for the printer without any repairs.

I had the misfortunate to get four of my backgrounds badly damaged by water from leaky gallery, and laid them aside as useless. I took a sprinkling can one morning, and laid my background flat on the floor, and sprinkled it thoroughly with water, holding sprinkler high, where the stains were, so that the water would come down with some force, and having put on two pails of water, I then took hold of background frame, and flowed the water back and forth over the ground, and stood up to dry. When dry, the stains were gone, with the exception of one very strong stain, and that was nearly invisible. It don't show in a negative, so that my ground is as good as new. Of course, after finding the experiment successful, I served the other three likewise, with the same good results.

COLLODIO-BROMIDE EMULSION.

(*Continued from page* 20.)

THEN comes the fixing in less than half a minute with the cyanide, which is most rapid, leaving the high lights beautifully clear and the dense portions exactly as you saw them before fixing. The cyanide is quickly washed out under the tap or by soaking the plate in water. In a few minutes the plate may be dried by heat over a lamp or near a stove, then varnished, and it is ready to mount. Here there are two important advantages over gelatine, the non-over-fixing-out of the dark portions and the rapid drying. If the developer works slow and the image appears to be slightly under-exposed simply add a few drops at a time at short intervals of the No. 1 solution, until the details appear to come out sufficiently.

I rather prefer the hydrochinon to the pyro because it keeps better, and you can use the same developer over again. It appears to give the plate equally as good a color as pyro.

I mix a solution as follows :

Hydrochinon C. P.....	15 grains
Sodium sulphite C. P.....	40 grains
Distilled water.....	1 ounce

Put one and a half drams of the above into the graduate, add twenty minims of the No. 1 or soda solution, and fill with water until it measures four drams ; then apply to the plate.

This process is especially useful in making slides from negatives having thin skys ; when it is found that the sky of a slide is veiled or fogged, it may be readily removed by the use of an alcoholic solution of iodine.

Mr. Brooks states that the solution should be be prepared as follows :

Iodine.....	20 grains
Alcohol..	1 ounce

Drop a few drops of the above into an ounce of of water. If the solution should appear cloudy a little more water added will clear it. Pour on and off the plate from a developing measure for a minute or so, and if one place seems more fogged than another, pour on and off that part, the high lights will assume an opalescent appearance. When this has taken place, wash well under the tap, and again pour over the cyanide solution.

The image will then clear up and the fog will be removed from the high lights. This manipulation can be repeated until the desired effect is obtained.

If properly exposed and developed the slide should have a brown tone by transmitted light. Mr. Dunsterville gives the following for toning and strengthening, which I have not had time to try :

To tone the transparency take

Platinum tetrachloride.....	1 grain
Nitric acid..... ...	1 minim
Water.....	4 ounces

and immerse the plate. Watch carefully, as the toning proceeds very rapidly. As soon as the wished-for color is produced, take the plate out at once and wash well and quickly. Should the toning have gone too far, the warm color may be restored by flowing again over the plate the alkaline developing solution and the toning done over again more carefully. Should the picture appear too thin after toning, it may easily be intensified to any degree by the following solution :

Pyrogallic acid....30 grains Citric acid.....30 grains Alum.....30 grains Distilled water...15 ounces	}	To each dram of this add two or three drops of a 20-grain solution of silver nitrate.

Should the picture appear too dense after toning it may be reduced by flowing again over it the cyanide fixing solution.

I may remark further, that these plates can be developed with a weak ferrous-oxalate developer, restrained with bromide of potassium, as easily as gelatine plates. I have been thus explicit as regards details, in order that any amateur wishing to make these beautiful pictures may have a practical guide that is reliable, and I trust some of our members will try working the process.

It is well known that the perfection of the collodio-bromide process in this country was largely due to the exhaustive experiments carried on by Mr. Henry J. Newton, and I have deemed it but just to him and all American workers to include in this paper his formula for an unwashed collodio-bromide emulsion, as now given to me by Mr. O. G. Mason, of Bellevue Hospital, whom, as some of you may know, is still using Mr. Newton's formula. The collodion is prepared as follows :

Alcohol, Ether, } Equal quantities.
Pyroxyline (gun-cotton) six grains to each ounce of alcohol and ether used.

Compounded as follows :

Put the alcohol in a bottle of sufficient capacity, then add to each ounce sixteen grains of bromide of cadmium, then add to each ounce twelve grains pyroxyline, and, lastly, add as much pure concentrated sulphuric ether as alcohol used. Let the collodion thus made stand several days, to ripen and settle.

To silver the emulsion, prepare for each ounce twelve and a half grains nitrate of silver crystals, by pulverizing in a mortar, put it in a flask or bottle, and add for each two grains of silver one drop of water, and apply gentle heat, preferably over a water bath, until dissolved.

Then add to this dissolved silver four drops nitric acid for each ounce of emulsion to be made, and, while the mixture is yet warm, not over 100 degs. Fahr., add it to the proper amount of bromized collodion, as previously given. Let the whole stand six hours, then add to each ounce of bromized and silvered emulsion one grain of tannic acid.

At the end of six hours for clear, brilliant work (or twelve to eighteen hours, for a more sensitive plate), after adding the tannic acid, add for each ounce of emulsion three grains of finely-pulverized chloride of calcium, and shake the mixture until the calcium is dissolved.

The emulsion improves by age and frequent shaking. He says nothing about the developer, but I presume he employs the soda and pyro developer, always recommended by Mr. Newton.

Mr. L. C. Laudy, of the American Museum of Natural History, Central Park, New York, a well-known worker in the collodion processes, has, at my request, kindly given me a formula which he obtained from Mr. Newton, and which, he says, at the time it was used, they kept secret.

He says they regarded Mr. Newton, in those days, as the "shining light" in this country on collodion emulsions. The formula is very practical, and gave beautiful results, and all looked for a great future in collodion emulsions, until one day gelatine emulsions appeared and the glory of the beautiful collodio-emulsion departed. The following are the particulars as given by Mr. Laudy :

For Newton's emulsions, use Hance's delicate cream cotton.

BROMIDE EMULSION.

Formula for One Ounce.

Silver nitrate.....18 grains to the ounce

First dissolve in ten drops of water, then add five drops nitric acid for each ounce of solution ; then add half an ounce of alcohol in which is dissolved twelve grains bromide cadmium, then add six grains of cotton, shake well and add half an ounce of ether ; let it stand twelve hours, then add four grains chloride calcium.

BROMIDE IODIDE EMULSION.

Formula for Two Ounces.

Silver nitrate (crystals).....30 grains

Dissolve in twenty drops of warm water, then add ten drops nitric acid.

Alcohol..... 1 ounce
Bromide cadmium.....18 grains
Iodide ammonium..... .... 2 grains

When these are dissolved add

Cotton .....12 grains

Then add the silver solution and shake well, then add one ounce of ether and let it stand twenty-four hours, then add eight grains of chloride cobalt, dissolved in a little alcohol. If the iodide is not used, let the amount of silver be twenty-eight grains and add the chloride cobalt after the emulsion has stood for sixteen or eighteen hours. Plates thus made with this emulsion may be at once exposed in the camera, after coating, and be developed with the following developer :

Make a saturated solution of neutral oxalate of

potash in water, then add to each ounce fifteen grains of pulverized proto-sulphate of iron, and, lastly, just enough citric acid to the solution to turn litmus paper red.

But if the plates are to be preserved in a dry state, they should be put in a special solution made as follows, and called

JAPAN TEA PRESERVATIVE.

Saturated solution Japan tea in alcohol	1 ounce
Water	16 ounces

The tea solution is prepared by soaking one ounce of Japan tea in six ounces of alcohol, let it stand until a strong tincture of tea is made, then add one ounce of the tincture to sixteen ounces of water. Or, better, make a saturated tincture of tea in alcohol, and add two or three drops to each ounce of bromide emulsion.

After coating, simply wash the plates in one or two changes of water, until the oily lines disappear, and rear up to dry.

To make the plate more sensitive, when it is desired to expose it in the camera while wet, flow over the surface the following accelerator:

Water	12 ounces
Sal soda	180 grains
Bromide of ammonium	8 grains

Mr. Laudy has also sent me a copy of Mr. Newton's printed directions concerning the use and manipulations of the plates. His developer, called a stock solution is prepared as follows:

Water	10 ounces
Yellow prussiate potash	1 ounce
Carbonate of soda	100 grains
Bromide of ammonium	15 grains

After exposure the plate is washed under the tap a few moments to remove the preservative, then the developer, consisting of half an ounce of the above solution, to which four grains of dry pyro has been added, is poured on. The image soon appears, and the development is accelerated by the air, by frequently pouring the developer off and on. If more intensity is desired, add to the developer a little more pyro. Fix in hypo solution, one ounce of hypo to four of water. Give the plate a good washing and set up to dry; when dry varnish the plate to protect the film.

F. C. Beach.

(*To be continued*).

Notes and News.

THE P. A. OF A.—The executive meeting of the P. A. of A. will be held on January 17th, at the Revere House, Boston.

NEW CHEMICAL LABORATORY AT CORNELL.—It is reported $80,000 has been appropriated for building a chemical laboratory for Cornell University at Ithaca, N. Y.

PHOTOGRAPHY AT A MEETING OF ELECTRICAL ENGINEERS.—At the thirty-first annual meeting of the American Institute of Electrical Engineers, which was held at the College of the City of New York, Tuesday evening, January 8th, Mr. E. G. Acheson read a highly instructive and interesting paper entitled, "Lightning Arresters, and the Photographic Study of Self-Induction." He gave numerous illustrations and experiments.

"AFTER THE THEATRE," from the negative by Mons. Flammang, by magnesium light, which made its appearance in the current "American Annual of Photography," has not only attracted wide attention from the technical excellence of the negative used, the composition, etc., but also by the process of reproduction. In reply to the inquiries which we have received regarding the latter, we are pleased to say that the plate was reproduced by the Photo-Electrotype Engraving Company, No. 20 Cliff Street, New York City.

J. TRAILL TAYLOR.—We learn from private source that our old friend, J. Traill Taylor, formerly editor of the PHOTOGRAPHIC TIMES, has completed his quarter century in "journalistic harness." May he complete many more years of usefulness, is our sincere wish.

OBITUARY.—Joseph Menzen, an experienced operator and careful retoucher of the old schhol, died January 8th, after a painful and lingering illness. He leaves a wife, a large family, and many warm friends to mourn their loss.

O. C. BENJAMIN, an old-time daguerreotypist, of Newark, N. J., showing signs of insanity, has been taken to an asylum where he can be properly cared for. The weakness of this old photographer's mind will be regretted by his many friends.

ILLUSTRATED LECTURES ON "FAMOUS PLACES."—The Rev. W. H. Burbank, now of Brunswick, Me., announces a course of illustrated lectures of travel, in aid of the Public Library at Brunswick.

Nothing can exceed the realism of these lectures, in which, by the aid of the powerful oxyhydrogen light, the scenes described in the lectures are depicted on a twenty-four foot screen.

The spectator becomes a part of the scene, and is for the time transported to distant lands.

The library is in need of funds, and it is hoped that this well-meant effort to aid a worthy cause will meet with generous support.

The course includes "The Holy Land," "Egypt and the Nile," "Spain," "Venice," and "Belgium."

PHOTOGRAPHING THE SOLAR ECLIPSE.—Reports from California regarding the photographs of the late solar eclipse are beginning to come in. Prof. Pickering, of Harvard College, with four others from the same university, and a large number of local assistants, obtained over fifty photographs, it is said, during the eclipse, at San Francisco. Fourteen telescopes and cameras were employed, and eight spectroscopes, besides miscellaneous apparatus. The first con-

tact was lost through clouds, but the other three were observed for a duration of 118 seconds. Eight were secured with thirteen-inch telescopes, giving images of two inches in diameter. Before the enlargement, seven observations were made with photometer. The corona was similar to those of 1868 and 1878, but showed much more than the latter. It was an exceptionally fine corona, extending usually on one side to two solar diameters. A striking character was two forked wings of light. The polar rays were well defined and considerably shorter.

At Cloverdale the eclipse was observed and photographed by members of the Pacific Coast Amateur Photographic Association. A party from the Lick Observatory were also busy, and many photographs were secured. The latest advices from the astronomical parties in California confirm the reports that success attended most of the observers. One party is reported to have secured one hundred and eighty-seven photographs, another fifty, another twenty-five, and another nine. These photographs were taken with different objects in view. Some were made to catch the corona, some to catch any inter-Mercurial planets that might be wandering about near the sun, some to determine the spectrum of the corona. As most of the negatives obtained were good, it is expected that when they are developed and a careful study of them has been made, much may be added to our knowledge both of the sun itself and of its immediate surroundings.

THE HOLIDAY NUMBER.—THE PHOTOGRAPHIC TIMES, for December 21st, is a Christmas Number. It appears in a neat, new cover, and is beautifully illustrated, and contains matter devoted to the photographer's art in all its branches.—*New Bedford Evening Standard.*

THE PHOTOGRAPHIC TIMES issued a Christmas Number, in token of some promised improvements for the coming year. Illustrations are to be more frequent than heretofore, and in the number just mentioned there are two photogravures, and a plate by Kurtz's process after some detective-camera views made in Italy by Mr. W. J. Stillman.—*Nation.*

THE Christmas number of THE PHOTOGRAPHIC TIMES surpasses any of its former numbers in the excellence of its contents and the beauty of its illustrations. The frontispiece, "From Dawn to Sunset," is a charming scene of home-life. "Niagara in Winter," a photogravure, is a beautiful work of art. The page of illustrated instantaneous studies in Italy is of itself a delightful study.—*Painsville* (Ohio) *Telegraph.*

THE Christmas issue of THE PHOTOGRAPHIC TIMES is an elegant number. It contains twice its usual number of pages, and has a handsome new cover. Three plates adorn the number. They display an exquisite photogravure, "From Dawn to Sunset," after a negative taken by H. P. Robinson, of England; one of "Niagara in Winter;" a page of fine wood-engravings after instantaneous studies made in Italy by W. J. Stillman. Several woodcuts and diagrams are scattered through the text. The articles are "Retrospective" by the editor, "How to Copy Manuscript," and "Detect Forgeries by Photography," "The Chemistry of Photography," "An Early American Notice of the Daguerreotype," "The Brook," (contributed by the Rev. W. H. Burbank), "England Through an American Lens," "Carbon Printing for Amateurs," "Toning Albumen Paper," "Bleaching Blue-Prints," "More Haste Less Speed," and ever so many more. It is the most valuable number the TIMES' publishers have ever issued.—*Fremont Journal.*

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

THE annual meeting of the Society was held Wednesday evening, January 2d, 1889, the President, Mr. Frederic Graff, in the chair.

The annual report of the Treasurer was presented and ordered to be filed.

The Executive Committee made their annual report, reciting the principal events of interest in the history of the Society for the past year.

One of their first duties had been to arrange for the removal from the former cramped quarters of the Society to the new room now occupied, where the first meeting, with an attendance of seventy, was held on April 4th.

The average attendance, for the ten stated meetings during the year, was forty-six.

A list of books and journals added to the library was submitted.

In the early part of the year (January 11th) a public lantern exhibition was held. Technically the display was certainly a very successful one, and resulted profitably to the Society.

Under the management of the American Lantern-Slide Interchange, slides have been received for exhibition from New York, Pittsburgh. Louisville and New Orleans, Philadelphia Amateur Photographic Club, St. Louis, Chicago and Cincinnati.

The annual distribution of presentation prints took place last fall.

Reference was made to the sudden death, on June 13th, of Mr. S. Fisher Corlies, a most genial and popular member, who had long served the Society as Treasurer, doing it, as he did all things, well and thoroughly.

The active and life membership, December 31st, was reported as 182.

During the year thirty-six new members had been elected. There had been five resignations and one death, making a net increase of thirty members.

The Joint Exhibition Committee announced that arrangements had been made for holding the Third Annual Joint Exhibition at the Pennsylvania Academy of the Fine Arts during the two weeks beginning April 8th. Probably three or four evenings would be devoted to the display of lantern-slides. Circulars with full particulars would be issued about January 15th.

Mr. Wm. H. Rau, for the American Lantern-Slide Interchange, announced that slides from Louisville and New Orleans would be shown at the Conversational Meeting, January 16th.

The Committee on Membership reported the election of the following active members:

Eckley B. Coxe, Jr., Percy S. Marcellus, James W. Torrey, Winfield S. Clow, H. A. North, Charles M. Cresson, M.D., Herbert Harker, George a Dunning, Theodore H. Lüders, George McClellan, M.D., Walter H. Brand.

The Election for Officers and Committees for 1889 resulted as follows:

President, Frederic Graff.

Vice-Presidents, John G. Bullock, Joseph H. Burroughs.

Secretary, Robert S. Redfield.

Treasurer, Samuel M. Fox.

Executive Committee, Dr. Herbert M. Howe, Dr. Ellerslie Wallace, William A. Dripps.

Excursion Committee, Samuel Sartain, John Carbutt, W. D. H. Wilson.

Committee on Membership, Henry T. Coates, John Bartlett, George Vaux, Jr., David Pepper, Edward W. Keene, Joseph H. Burroughs, Dr. Charles L. Mitchell, Frank Bement, W. H. Walmsley.

Committee on Revision of Minutes and Articles for Publication, John C. Browne, John G. Bullock, Robert S. Redfield.

Committee on Lantern-Slides, Edmund Stirling, Frank Bement, William H. Rau.

The President in accepting the chair for the year 1889, made some appropriate remarks that were respectfully listened to with interest by all.

Mr. Edmund Stirling presented as supplementary to Mr. Child's recent gift, a book entitled "Animal Locomotion," "The Muybridge Work at the University of Pennsylvania; the Method and the Result," which was accepted with a vote of thanks.

Mr. Bartlett exhibited several photographs which were interesting from a historical point of view, the property of Mr. Julius F. Sachse, of Philadelphia. They were the work of Mr. Langenheim, one of the pioneers in American photography, and antedated the days of collodion. The impressions, which date about 1850, were made from silver albumen glass negatives upon plain paper, without toning, and represented a portrait of Mr. Langenheim, one of President Filmore, a view of the treasury building at Washington, and what seemed to be an instantaneous view of Niagara Falls with natural clouds. The first attempts at negative retouching were apparent, and the importance of the process indicated by the signatures of the retoucher appearing on the prints. Adjourned.

SYRACUSE CAMERA CLUB.

At the regular annual meeting of the club held Friday evening, January 4th, the following officers were elected for the ensuing year:

Arthur P. Yates, President; Amos Padgham, Vice-President; Wallace Dickson, Secretary; Charles R. Jones, Treasurer.

Regular meetings of the club will be held every Friday evening, at the club-rooms, 72 South Salina Street.

Correspondence is solicited.

Wallace Dickson,
Secretary.

P. O. Box 129.

BOSTON CAMERA CLUB.

The meeting of this club, held on the evening of December 31st, was devoted to lantern slides, the contributors being Messrs. Briggs and Wilder, whose slides were much admired by the large gathering present.

A few slides, colored by a lady artist of Boston, were shown, two of them especially good, giving promise of new possibilities in gelatine work.

E. F. Wilder, Secretary.

THE LYNN CAMERA CLUB.

The annual election of the officers of this club was held at its meeting, January 1, 1889. The officers for the year 1889 are as follows: President, W. H. Drew; Vice-President, J. E. Randall; Secretary, J. W. Gibboney; Treasurer, E. F. Bacheller; Librarian, E. L. Rogers; Executive Committee (for two years), W. H. Russell.

J. W. Gibboney,
Secretary.

THE NEW YORK CAMERA CLUB.

Saturday evening, January 5th, the first regular meeting of this club was held at No. 12 West 31st Street, the temporary club room, and in spite of the very heavy storm there was a large attendance.

The meeting was opened by President Daniel P. Read, who, in giving a brief history of the club, stated that it was organized November 16th, 1888, with 16 members, and has now 43 active members and 12 non-resident.

Mr. Read then introduced Mr. H. J. Newton, who spoke on "A Comparison of the Gelatine and Collodion Processes." Mr. Newton then gave a brief talk on collodion processes.

Dr. H. G. Piffard then read a paper on orthochromatic photography. The paper was illustrated by slides from the Doctor's negatives, which in the comparison of various color values was a valuable help to the audience. Dr. Piffard has confined his experiments almost entirely to bathed plates and showed some decidedly fine results. He stated, however, that these bathed plates were possessed of very uncertain keeping qualities, and that the best plate he had found was the Carbutt orthochromatic, which, if used with a screen, produced most exquisite results in landscapes, being far superior, in his judgment, to any of the foreign make. Dr. Piffard had used the same sheet of colors in experimenting with all the plates, so that direct comparisons could be made. He had also had an estimate made of the light-values of this sheet of colors, and when the results were all thrown upon the screen together it was noted that the Carbutt plate, used with a yellow screen, *came the nearest of all to the estimate of the light-values* of the colors photographed.

Among those present were Mr. Laudy, Mr. Gardiner, Mr. Carbutt, Mr. Newton, O. G. Mason, Geo. Rockwood, Mr. H. M. Baldwin, J. V. Black, W. T. Colbron, F. M. Cheeseman, M.D., R. M. Fuller, M.D., S. B. Pomeroy, Miss Gillender, Miss Martin, Mrs. Colbron, Mrs. Willard Parker, Mrs. John Thorn, Jr., W. B. Post, J. E. Schermerhorn, Mr. Simpson, Mr. Franklin Harper, J. H. Wainwright, T. T. Eckert, Jr., L. C. Ivory, C. V. King, A. B. Johnson, and many others.

Evening dress was observed, and the meeting was nothing if not a pronounced success.

E. W. N.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

The Committee on Papers and Publications sends us the following report:

The winter season of the society, began at the regular meeting on December 11, 1888, promises to be quite an active one; the meetings have been largely attended, and subjects of present interest discussed. On the date above

mentioned papers were read on "Collodio-Bromide Emulsions," (followed by a practical demonstration) by F. C. Beach, "Development by Separate Solutions," by David Bachrach, Jr., of Baltimore, Md., and on "Observations on Substances Feebly Sensitive to Light," by J. W. Osborn. There was also exhibited two new detective cameras, one being "Steinheils," and the other one after his own design, by Dr. J. J. Higgins. The chemical committee made an interesting report on "Preservatives for Silver Paper, Hydrochinon, and the various Flash-light Compounds." Several donations were mentioned. Wilson's Mosaics for 1889, was presented by Dr. Higgins. Several new Voightlander landscape lenses, with specimen negatives, were exhibited by Benj. French & Co., of Boston, and sample prints on leatherized salted papers, made by John R. Clemons, of Philadelphia, were shown. A number of new persons were named as having been recently elected members, and a letter was read from Mr. H. V. Parsell, donating to the society his extra membership certificates, which were accepted with an enthusiastic vote of thanks. At the close of the meeting Mr. Beach threw on the screen a few slides made by the collodio-bromide process, also a few brought by Mr. H. J. Newton and Dr. J. J. Higgins; they were quite effective in showing what clear high-lights can be obtained by this process.

The informal exhibition of prints, numbering nearly six hundred, at the rooms of the society, beginning on November 30, and terminating on December 19, attracted a large number of visitor, and proved of great value to the members. A few of the pictures were greatly admired by the Russian artist, Verestschagin.

On the evening of December 19, 1888, Mr. F. C. Beach entertained the members with a special lantern exhibition illustrating "A Carriage Drive from Stratford to Putney," including also an illustration of the moving of a large frame house, from "Wheeler's Mills" down the Housatonic River to Bridgeport, Conn, a distance of some fifteen miles by water. Mr. Beach explained the views, criticising their defects, while Mr. J. Wells Champney spoke of their artistic merits. Following his views were about twenty-five miscellaneous slides by different members. Mr. Beach made the negatives and slides at odd times during the summer months. The idea was quite an interesting one, and may lead others to illustrate special subjects. Mr. Simpson and Mr. Cobb worked the lantern.

On Friday evening of December 23, 1888, the regular monthly lantern-slide exhibition occurred and attracted an overflowing audience. It included slides contributed to the American Interchange by the Louisville, Ky., and New Orleans Camera Clubs, and about fifty slides of our own members. Many of the New Orleans views were very interesting, and embraced quite a variety of subjects. Mr. A. L. Simpson and Mr. Chas. Simpson of the society had some superior slides. Mr. Chas. Simpson's "Before and After the Plunge," being specially striking, his latter view was of a lot of bathers floating around in the water in amusing and grotesque positions. The lantern was operated by Messrs. Beach & Cobb.

The first regular meeting of 1889, was held on the evening of January 8, and was largely attended, several ladies being among the audience.

It embraced a very interesting resumé of the opinions of about forty prominent amateurs throughout the country as arranged and formulated by Mr. H. T. Duffield on "The Detective Camera; How to Use It; Its Defects, and What Improvements Can be Made." Mr. Duffield had sent out about 150 inquiries. His paper embodying the opinions of well-known men was quite instructive, and brought out a variety of ideas that could not be collected in any other way.

Preference was made by many for a camera that was adapted to carry films, and did away with plate-holders and the drawing of slides; others thought the shutter should be between the lenses to secure even illumination, while many seemed to think it was very essential to have a ready means of measuring the rapidity of the shutter. A majority were in favor of a finder.

About fifteen different patterns or models of detective cameras were placed on exhibition, among them was a new one shown by Mr. Plimpton.

The remainder of the evening was taken up in some remarks on "Developers and the Development of Extremely Rapid Plates," by Mr. A. Peebles Smith. He advocated starting development with pyro and soda until the details were well out, and then transferring the plate to a solution of hydrochinon alone, where it would rapidly gain in density, and come out clear and brilliant. He preferred the separate solution plan of development.

Following Mr. Smith was an interesting demonstration of the platinotype process, by Mr. A. C. Wilmerding.

Mr. Grisdale explained his method of cutting out different varieties of lantern-slide mats by the use of brass forms; he used in an ordinary printing-frame and a wheel cutter. Resolutions of respect to the memory of Edward Anthony and C. Smith Lee were unanimously passed, and announcements made that a space of nine by thirteen feet had been secured for exhibits of the society at the coming Universal Paris Exposition. Mr. David Williams is to act as chairman of a committee to take charge of them. The third annual Joint Exhibition will occur in Philadelphia for two weeks, commencing April 8th next. A special lantern-slide exhibition illustrating the open air statuary of New York is to be given on January 18, by Mr. Chas. Simpson, and the regular exhibition on January 25 will include the Philadelphia Amateur Photographers' Club slides, and several by our own members. On January 31, a commemorative meeting, celebrating the birth of photography will be held, as in 1839, on that date, Fox Talbot first published his method of making negatives on paper.

Our Editorial Table.

"Der Deutscher Photographen Kalendar für 1889," edited by Karl Scheier, appears as usual in its neat and handy form, and filled with useful references for the practical photographer. It does not contain any original contributed articles, but does include a very well written and arranged summary of photographic progress during the year 1888. Standard formulæ and useful information are much augmented and improved. The list of members belonging to German, Austrian and Swiss Photographic Societies is quite perfect, and general photographic statistics are reported in detail with accuracy. The book is illustrated with a Lichtdruck after an instantaneous negative by Wilhelm Dreesen, of Flensburg, and a photo copper-plate engraving by Obernetter.

We have received from the Chicago and North-Western

Railroad Company one of their calendars, entitled, "Who's Afraid?" and which takes its name from the excellent child-group, reproduced from a photographic negative, which embellishes the support. The picture shows three children on the beach, wading. The frightened mother, who is evidently near though not seen, has cautioned her little ones not to venture too far, and the youngest and smallest one, with clothes pinned up, facing the beholder, is exclaiming, "Who's Afraid!"

FROM Albert L. Butler, dealer in photographic materials at Hartford, Conn., we have received a neat calendar with the donor's compliments.

WE have received three very good prints from Kodak negatives, but with them no word to indicate from whom they come. The negatives were made at sea on board a steamer, and are good in nearly every particular. We should be glad to hear from the friend who has sent us these excellent Kodak photographs.

WE have received from Mr. John Carbutt four 6½x8½ prints from negitives on his flexible films. Three of the negatives were made by Mr. Charles Wager Hull, Superintendent of the American Institute, and are interiors of the immense Fair building during the exhibition this year. They are in themselves the highest testimonials that could be given to the films, but on the back of the mounts Mr. Carbutt has reproduced the letter which Mr. Hull wrote him regarding them, and which may be seen in the advertising pages of this Journal.

THE publishers of the *St. Louis and Canadian Photographer* send us a neatly bound copy of their sixth volume. With a good index, it makes a valuable photographic book for reference.

WITH the compliments of O. Pierre Havens, of Jacksonville, Florida, we receive a humorous composition entitled "The Refugee's Return." Though not strictly original in design, the composition is very cleverly managed and executed.

WE have received a 4x5 photograph from J. W. Sanborn —a young amateur, of Lockport, N. Y.—of the waterfall between the Suspension Bridge and Lewiston, N. Y., on the Niagara River, two hundred feet below the falls. It is a beautiful spot, and in this instance well photographed. We shall be glad to hear from our friend again.

Queries and Answers.

11 ECONOMY.—What is the best way of cleaning waste gelatine plates or refused negatives, if one wants to use the glass again?

11 *Answer.*—Soak the plates, if they are not varnished, in a solution of sulphuric acid 1:4, and then wash with pure water. If they are varnished, soak them first in a tolerably strong and hot soda solution, and then in the acid baths.

12 HISTORICUS asks: Who was the first in the United States to make commercial gelatine emulsion plates, and who were the first professional photographers to use them?

12 *Answer.*—1. THE PHOTOGRAPHIC TIMES of January, 1881, has the first advertisement for American-made gelatine plates, those of Carbutt, Eastman, and Cramer and Norden. Editorially, dry-plates had been spoken of before by all American journals. In the March number we find a report by Mr. William T. Brigham, expressing high satisfaction with several dozen of Carbutt 6½x8½ plates he had taken to the Hawaiian Islands more than a year previous. As no report of other American plates can be found in contemporaneous journals, we infer that Mr. Carbutt was the first to make them commercially in this country. 2. Mr. George Rockwood was probably the first to introduce gelatine plates in his professional studio, but he was immediately followed by Wm. Kurtz and Theo. Gubelmann. In New York, at least, others adopted the new method much later.

13 AMBROTYPE inquires: For what purpose is sugar recommended for some ferrotype developers?

13 *Answer.*—To produce a finer deposit of the reduced metallic silver, and to make it appear whiter on the most developed parts of the picture.

14 MISS AMELIA R. writes: Will you kindly inform me how I can make reversed negatives to print from a wood-engraver's block?

14 *Answer.*—By copying through the glass plate, after focus has been properly adjusted, by means of a mirror or prism attached to the objective; or, what is probably the most practical thing to do, to print from the reversed side of an American or ivory film, provided the latter is thin enough to make a sharp print.

15 OMAHA writes: "Pyro developer in two solutions has in many formulæ sulphite of soda in the alkali solution. Why?"

15 We reply: There is not the remotest necessity of sulphite in the alkaline solution. The purpose of sulphite is to prevent pyro from oxidation when in solution. When a proper amount of sulphite is added to the so-called "No. 1" solution, there is no need to add any to the "No. 2" solution. An excessive amount of sulphite will restrain development, but wil. not better preserve the pyro. If enough sulphite has been added to the pyro solution, and a similar amount to the alkali, the activity of the developer when mixed must naturally be much reduced.

16 GALLERY wants to know: "What will prevent the sweating of the glass of a skylight window?"

16 This question has been asked frequently of late. We answer again: Rub the glasses lightly, but perfectly, with a sponge or rag, moistened with glycerine.

17 M. LOBENSTEIN writes: Can you or any of your readers inform me what ingredients are used to mix a color for a neutral-tone background?

17 Whiting, a little lampblack, and a little Venetian red, rubbed finely in a mortar and mixed with tolerably strong glue water. By altering the proportions of black and red you can obtain any desired tone of color. Apply the color when warm with a whitewash brush upon unbleached sheeting stretched upon a frame.

18 KINGSTON: "What stop should be used with single achromatic lenses for landscape work?"

18 $\frac{F}{30}$, or thereabouts, is quite sufficient.

Poet and Peasant.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, JANUARY 25, 1889. No. 384.

"POET AND PEASANT."

Our photogravure illustration this week is from the well-known engraving. It has a valuable lesson to teach landscape photographers, especially in regard to the introduction of figures in a natural scene. Nothing can be better in its way than this pastoral landscape, and there is nothing in the picture that a photographer could not make with his camera.

TONING BROMIDE PRINTS.

SELLER'S uranium intensifying solution with ferri-cyanide of potassium (the red prussiate of commerce), has of late been considerably used for toning bromide of silver prints to an agreeable brown or sepia color. The process is by no means difficult, and good results may easily be obtained even by the inexperienced.

An ordinarily fixed and washed bromide print is first immersed in a two per cent. solution of sulphuric acid, then washed, and finally toned. The toning-bath consists of two separate solutions—one composed of one part of nitrate of uranium in ninety-nine parts of water, and the other of two parts of ferri-cyanide of potassium in ninety-eight parts of water. These solutions are then mixed in equal proportions as required for toning.

To obtain an uniform color all over the print, the toning should not be hurried. It is even advisable to dilute the mixed toning solution with an equal volume of pure water, in order to retard its action somewhat. When the desired tone is acquired the print may be removed from the toning-bath, thoroughly rinsed in pure water, and then immersed in a weak solution of alum (1 to 20) to which a few drops of sulphuric acid have been added. The acid clears up the whites in case they should have been discolored at all in the toning process.

Both of the toning solutions being sensitive to light, they should be kept in the dark when not in use. To prepare the ferri-cyanide of potassium solution only the brightest and clearest crystals of the red prussiate salt should be dissolved. A yellow, powdery substance frequently adheres to this salt; it is the ferri-cyanide which has been reduced by the action of light from the ferric salt, and, when present in the solution, offers serious obstacles to the toning process.

When extremely warm tones are desired, the bromide prints should not be made much darker than they are ultimately desired to be, because, while the toning process goes on, intensification also progresses simultaneously.

When transferotypes are to be toned, the process must be accomplished after the paper support has been stripped from the gelatine film. The soft, gelatine substratum of the transferotype paper becomes very hard under the action of the ferri-cyanide of potassium, so that stripping would be impossible if not effected before the toning is completed.

The action of this bath on bromide prints is based upon the same principles as those which underlie the intensification of negatives by similar solutions. The finely-divided silver of the deposit largely reduces the ferri-cyanide, resulting generally in ferro-cyanide and pure silver. When nitrate of uranium is present, the insoluble ferro-cyanide of uranium is formed, which is a salt of a chocolate-brown color, and this it is, deposited upon the image, that makes the color of the print.

Any hyposulphite of soda remaining in the film tends to produce a yellowish-brown color with muddy whites, so that a dilute solution of sulphuric acid is necessary to destroy the hypo when it is present. Eliminating the hypo with the hypochlorites prevents the image from taking the brown color evenly, and makes the toning quite difficult. The presence of iron in any state of oxidation must also be carefully avoided, as the slightest trace of either a ferrous or ferric salt gives a blue color to the image.

A simple way of producing almost as pleasant tones as the two solutions, previously mentioned,

effect, is to use one ounce of Hall's intensifier (which is a compound of similar constitution to the two toning solutions), with twenty ounces of water. Proceed with the toning, as before described, and be careful not to print too deeply the bromide prints previously to toning.

EDITORIAL NOTES.

IN the editorial last week on "Our New Publishers," a fuller account of the growth in the photographic business which led to the organization of the new corporation—The Scovill & Adams Company—was promised. In this issue, therefore, a brief sketch of the photographic business is given in the department devoted to Commercial Intelligence. In behalf of our new publishers—The Photographic Times Publishing Association—we will say, while acknowledging the cordial letters of congratulation and encouragement which have been received, that the wishes expressed for a continued career of usefulness in the service of the fraternity are fully appreciated both by editors and publishers. To be of the most service, it is true that a journal should be absolutely independent; and THE PHOTOGRAPHIC TIMES desires and intends to be of service to every one connected with photography in this country.

THE demand for the first issue of THE PHOTOGRAPHIC TIMES for 1889—January 4th—was so immediate and large that the edition was quickly exhausted. Fortunately, however, in this instance, the form had not been destroyed, so that a second edition could be printed, and we are now glad to announce, for the benefit of all those who have not been able to receive a copy of this issue, that the second edition is ready, and they may now complete their file. The issues of January 11th and 18th are nearly exhausted, so that those who want their volume complete from January 1st had better order at once. A second edition of these numbers will not be issued.

DR. BANNOW has found that nitrate of silver is the most sensitive test for discovering traces of hyposulphite of soda in paper or gelatine film. When the wash-water drained from a negative or print is heated, and a few drops of silver solution are added to it, a black precipitate will be formed if only one ten-thousandth part of hypo be present. As little as one five-hundred-thousandth part of hypo will make itself manifest when this test is applied, by a decidedly yellow color, which will increase in intensity as the solution is raised in temperature. The experiments made in this direction are very interesting. When a freshly-fixed plate is immersed in a pure water bath, and the water renewed at intervals of ten minutes, no precipitate will occur with a nitrate of silver test after the eighth or ninth change. When, however, the first washing in pure water is substituted by immersion into a ten per cent. solution of common salt, the second washing in pure water, while showing the presence of chloride of soda, on applying the test, will reveal scarcely any hypo. The third washing, when the common salt has been used, seems to eliminate the hypo to perfection. From these experiments we conclude that common salt is a very good hypo eliminator. Were it not that chloride of sodium affects the solidity of a gelatine film very considerably, this method would be very much better than it is, and would probably have been adopted long ago, for it is by no means new.

ERYTHROSINE silver, in combination with bromide of silver emulsion, has been found to be less sensitive than the corresponding eosine compounds. Erythrosine pure, however, is a better sensitizer with bromide of silver gelatine emulsion than is eosine. When silver is combined with either of these dyes, the effect is not so good as when they are used pure.

THE *Wochenblatt* recommends the following method for removing silver stains from gelatine negatives: One part of sulpho-cyanate of ammonium in sixteen parts of water, mixed in equal proportions, and poured over the stained negative before it has been varnished. As soon as the stains disappear the negative is washed in a chrome-alum solution.

PICTURES OF THE MONTH.

THE editor, with a large faith in the patience of his readers, announces the continuance of this department during the coming year, and lest I should be tempted to forget my pleasant task, he has prevailed upon the publishers of the TIMES to furnish a high grade illustration with each issue, in order that precept may be enforced by example. This will greatly simplify my task, as these illustrations will furnish the larger part of the material for these articles.

The new departure of the TIMES will be welcomed by all of its old readers, and will win to it hosts of new ones.

The *Christmas* issue contains some notable illustrations, of which the photogravure of Robinson's "From Dawn to Sunset" easily holds the first place. Those who have heard of this wonderful

picture—the winner of many prizes—will be glad of this opportunity to analyze and study. It is what all great pictures are, extremely simple in arrangement. A cottage interior, a wide-mouthed fireplace, a few chairs, a table or two, a cradle, the aged grandsire, the mother, and the child—these are the accessories from which Robinson has built up a picture as truly great in its way as Wilbur's "Blind Fiddler," which is made so much of in one of Robinson's helpful books. But given these accessories, would you and I have made of them the picture Robinson has? I think not. Such a skillful massing and contrast of light and shade, such perfect balance of line and tone is granted only to the favored few. After long and careful study of the picture, I can find nothing that I would wish to have changed. I did object to the somewhat awkward position of the hand of the mother, but a certain member of my household, who has had large experiance in such matters, says that she is patting the little fellow to sleep. He is evidently fresh from his bath, as witness the bowl and other appurtenances of baby's toilet in the chair. Without wishing to seem overwise, I suspect that the cake of soap plays an important part in the economy of the picture as forming a sort of connecting link between the whiteness of the mother's garb and the more sombre tone of grandsire's apparel. The only criticism I would make upon the picture is that, in some way, the old man seems to usurp more than his share of attention. The baby and the mother we dismiss with a glance, but the figure of the old man wins and holds our attention. It is a strong picture, and one which we are glad to know was produced by photography.

The photogravure of Mr. Dumont's "Niagara in Winter" probably does the original full justice, and displays skillful treatment of a difficult subject. Pictorially, there is not much to be said of the picture. Niagara is too grand to receive anything like fair treatment in a photograph. The picture is interesting, but it lacks picturesqueness, a quality which is abundantly present in Mr. Stillman's "Instantaneous Studies in Italy," the scene in the hay-field being a gem, in its way. The sloping hillside, the partly loaded train, and the action of the figures combining to form a picture not a mere presentment of the objects in the field of the lens. The same may be said of the other pictures of the series, which show the trained eye of the artist who knows what effective grouping is, and has patience to wait for it. These bits are samples of what instantaneous work should be, and of what it too frequently is not.

The issue of Dec. 28th contains a fine photogravure of Normann's painting of "Savage Rock," a view of a Norwegian fjord dominated by a beetling mass of rock, with a little hamlet nestling at its base by the water's edge As an example of effective composition nothing could be finer. But let not the photographer who essays a similar scene forget to give balance and solidity to his picture by introducing a point of support on the left of the view, as Normann has done here in the low ledges of rocks projecting from the water. Without these the picture would fall to pieces. Of course, any other dark object, such as a boat, or a floating log, or a clump of water plants would answer the purpose of balancing the towering mass on the right.

The number for January 4th is embellished by a photogravure of the Great Falls of the Yellowstone, from a negative by Haynes, an exceedingly good representation of a very difficult subject, and one which the average photographer will do well not to attempt if he values his own peace of mind. It is Robinson, I think, who tells us that the sublime lies outside the range of photography, a statement which few will care to dispute. No one who has seen the Great Falls or Niagara would feel that anything like justice was done to them by photography, but when one turns to the picturesque little bit given in the issue of January 11th, "By the River," one sees at once that here photography is at its best. What but lens and sensitive plate could so perfectly reproduce tangled foliage, and twisted bark and reflection-haunted water? One does not like to fault so fair a "counterfeit presentment" as this of Mr. Edwards'; still I think the picture would have been improved pictorially had the camera been moved a trifle to the left, bringing the trees more to the right of the centre, and showing a broader glimpse of the water. With this criticism the picture may pass for perfect.

Turning from the TIMES with the wish for a full measure of success in its efforts to keep well abreast of recent advances in photography, we open the pages of another time-honored favorite, known for a quarter of a century to the photographic world as *The Philadelphia Photographer*, henceforth to be called *Wilson's Photographic Magazine*. For a frontispiece we find a charming genre study of a bare-footed, sunny-faced urchin, seated on—presumably—a grass mat, with a knowing-looking terrier at his feet. We have seen nothing better than this for many a day, and we commend it to those who have the appliances for such, extending to the veteran editor the same kindly greeting he makes to his numerous readers—"We wish you a 'Happy New Year.'"

Those who have not procured a copy of the De-

cember issue of *Sun and Shade*, should do so at once and study its charming pictures of child life. Seldom has such an array of pictures of childhood's innocency been included within the covers of a single magazine. Beginning with the "Madonna della Sedia," of Raphael, we have Morris' "Shadow of the Cross," Correggio's "Gruppo di Putti," Brown's "Castles in Spain," Lowden's "Critics," one of Wood's always pleasing studies, and many others. In some respects the most striking picture of the whole series is the colored study called "The Golden Age," from a negative by Rockwood, printed in colors by a new process, which evidently marks a distinct step in advance in colored work Nor should the "Il Penseroso," of Fitz Guerin, be forgotten, noticeable for its delicate conception and masterly treatment.

With such masterpieces of reproduction to be had at so nominal a price, there can be no excuse save crass ignorance or obstinate refusal to profit by opportunity, for crude and inartistic work.

Faults of technical manipulation may be pardoned; failure to put some trace, at least, of artistic perception and feeling into our work, stamps us as unable or unwilling to profit by our opportunities. May the new year now opening out before us be marked by as great an advance in artistic photography as it doubtless will in the mechanical and technical departments.

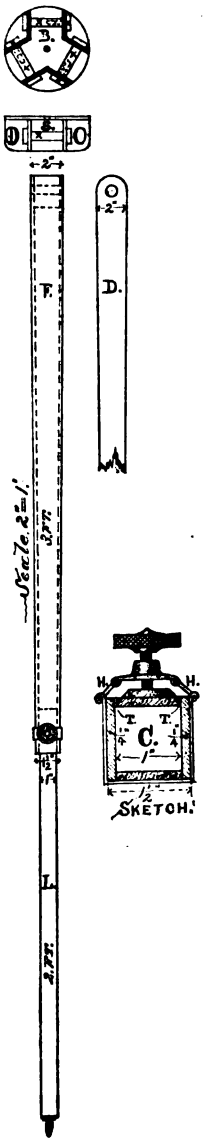
W. H. Burbank.

A LIGHT SLIDING TRIPOD THAT IS STRONG AND RIGID.

I NOTICE in the "American Annual of Photography" for 1888 that N. W. Starbird, Jr., "thinks there is a chance for some one to get up a light sliding tripod which shall be *really* rigid," and "that he has never seen one." My experience with camera tripods has been the same; but I am long familiar with a really rigid tripod, having run out many miles of railroad and other lines with an instrument mounted upon a rigid tripod, viz., an engineer's transit or theodolite. Tripods for these would be entirely useless unless very rigid; but they are quite heavy.

Prompted by Mr. Starbird's suggestion, I have attempted to meet the exigency, and send herewith a sketch of a tripod which, I think would satisfy Mr. Starbird and others as to rigidity, though it might be too heavy for some. However, I have designed it as light as is consistent with strength and to withstand the ordinary "wear and tear." The main trouble with all the camera tripods I have seen Is in the head, though the legs are generally too light, and, more regard paid to compactness than to strength, and they either twist in the head or just below it, or spring inward a little further down.

Description of Sketch.—The head is of the regular "engineer's tripod-head" style, than which I know of no other good form. It is all brass, and a bottom view is shown at *B*, *S* being a side view. The jaws are 2 inches wide and 2 inches deep, the top of leg fitting neatly therein, and a good-sized brass pin (*x x x*) passing through one jaw cheek, the top of leg, and just into other jaw. This end of pin is tapped, and a screw from outside of jaw goes into it; the stem of pin at other end having a projection preventing it from turning; by tightening the screws the jaws are firmly clamped against top of leg, which then has but one (swinging) motion. The legs are in two sections: upper 3 feet, and lower 2 feet long. The upper section is a hollow square (I think this the best form to resist the twisting and other strains to which it is liable), 2 inches square at top outside, and 1½ inches square at bottom outside, and at bottom inside 1 inch square, the sides being one-quarter inch stuff (I prefer clear pine with brass plates at top); the top has a tightly-fitted solid plug about 4 inches long making top solid between jaws. The lower section, is a solid piece 1 inch square, and slides up into upper section. Sketch *C* shows the clamping device.



At *t t* the top (or front) piece of hollow leg is cut away for about 4 inches up the leg, so that the *side* pieces can spring inward enough to bind on *sides* of lower section, and so the *top* piece can spring down on *top* of lower section; this is accomplished, as shown, by a brass strap passing around the bottom and sides of upper section, and having short hinged links, *h h*, connecting it with the nut of the clamp-screw. When the clamp-screw is

turned so that the top side of upper section is pressed tightly down on top side of lower section, and can go no further, then by turning screw still more, the nut and links *h h* draw the sides tightly together, the lower section being firmly clamped on all four sides. The legs of this tripod contain double the amount of material usually found in the common three-section folding and sliding legs, and the material is much better disposed, as any one having a knowledge of the "strength of materials" will readily perceive. I can confidently recommend the above for trial to Mr. Starbird and others as a practically rigid tripod for cameras up to 6½x8½ size, and perhaps larger.

C. W. Grant.

COLLODIO-BROMIDE EMULSION.

(*Continued from page* 12 *and concluded*).

Dr. J. J. HIGGINS tells me the formula he used successfully is that which was employed by Mr. Albert Levy, and known as Levy's Emulsion.

In THE PHOTOGRAPHIC TIMES of September 4, 1885, Mr. Levy thus describes his method of working:

I will explain the manipulations in the way I think is the most practical, and by following them closely success will be certain.

For 54 ounces of emulsion mix the following:

a—Bromide of Cadmium.....648 grains
Alcohol (absolute)..... 18 ounces
Iodide of Ammonium.....162 grains
Cotton (Hances cream).....586 grains
Ether (concentrated)..... 27 ounces.

In another bottle:

b—Nitrate of silver.....600 grains
Distilled water.....360 drops
Alcohol ..... 9 ounces
Nitric acid.....270 drops

Pour *a* into *b* and leave exactly ten hours, then add 99 grains of green chloride of copper.

The excellent flowing qualities of my emulsion, its sensitiveness, etc., I ascribe, first, to the minimum quantity of water I put into it, and also to the correct measurement and timing.

First, I would advise to weigh out the required quantity of bromide of cadmium, and then dessicate this in a porcelain capsule on a gentle heat. It will first soften and boil, and the heat must be applied so that the bubbles do not blow out any of it, and change the quantity, however small the loss, as every particle is closely calculated. Then it will form in a lump (I forgot to say that during this evaporation the bromide should continually be stirred with a strip of glass, so as to prevent its adhering and consequent burning), when, by continuous stirring, it will granulate, and this should be pushed long enough, until the granulation is fine enough and powdery, showing that all the dampness has gone.

This powder, well scraped out of the capsule, is put into one-half of the given quantity of alcohol and shaken until well dissolved. The iodide of ammonium is now added. This should be of a light yellow color. When this is melted, add to it the cotton and shake well, after which the ether is added, and another good shaking given.

This first operation in one of the bottles previously well cleaned. It is well to have the bottles about twice as large as necessary, as it allows better shaking, and, of course, mixing.

In the second bottle put the nitrate of silver and the water (which must be counted by actual drops, and not measured), the actual amount of which must dissolve the silver; but as it will not do it while cold, it must be gently heated until the required result, when the second half of the alcohol is added. On a small quantity the addition of the alcohol leaves the solution transparent, but on a larger quantity the silver is precipitated. This does not in any way affect the result.

All of these manipulations may be performed in full daylight, but the subsequent ones must be done in the dark-room.

After having well shaken the silver solution, add to this the collodion in small quantities of four drams to an ounce at a time, shaking very well at every new addition, until all is transferred.

The emulsion is now almost finished, and should be shaken occasionally during ten hours (exactly, neither more or less), when the chloride of copper is added, giving a thorough shaking again, so as to dissolve it well, and also for other reasons.

Before adding the chloride of copper it must be put in a capsule and well evaporated. This can be easily perceived by the color, which must be thoroughly brown when fully dried. Contrary to the bromide, the chloride should and must be weighed after the drying process is gone through. I may add that the dried chloride will keep very well in that condition if placed in a well-closed glass-stoppered bottle. If it gets green it must be again evaporated.

Filtering now is advisable through Japanese filtering paper or cotton, when the emulsion is finished. The preservative is composed as follows:

PRESERVATIVE FOR 44 OUNCES.

Tincture nux vomica .....100 drams
Tincture scillac..... 42 drams
Tincture cochineal.....120 drams
Honey..... 20 ounces
Acetic acid..... 20 drams

mon color changing to blue, and finally to a blue green. It should now be poured into a shallow dish to cool. This will take about an hour. When firmly set, take it up with a silver spoon and squeeze through a piece of embroidery canvas into a dish of cold water. A large yellow bowl is useful for this, as the shredded emulsion may be readily seen by ruby light as it settles to the bottom.

Keep the shreds in motion with a glass rod. Allow them to settle every few minutes, and pour off the water, replacing it by fresh. Repeat this operation seven or eight times during twenty minutes, and the washing will be quite complete.

Pour off as much as possible of the last wash-water and add one-half ounce of alcohol to each ounce of emulsion. Let the shreds stand in this dilute alcohol for some minutes, then pour the whole upon a piece of soft muslin stretched across a deep dish or bowl; gather up the corners of the muslin and squeeze the shreds as dry as possible. Now spread the muslin upon the bottom of the washing-dish, and with a silver spoon gather up the shreds and place in a cup or glass, and remelt at 100 degs. Fahr. Then set away in a cool place to ripen for from one to five days. The addition of alcohol to the last wash-water accelerates the ripening process.

E. H. Lyon.

(*To be continued*).

Correspondence.

ALUM IN NEGATIVES AND PRINTS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I note an article in THE TIMES pertaining to alum in negatives and prints by Mr. W. H. Sherman.

I quite agree with Mr. Sherman on the subject. with the exception of well-washed negatives liberating alum or hypo. Last summer our printer complained that the negatives were not thoroughly washed and hypo had begun to do its own work. "They had the rash." This rash I speak of are spots varying in size, appears sunken in the centre white or light, and crystallized.

We wash our negatives thoroughly, using W. H. Oliver's splendid washing tank. They are placed in the water at 6 P.M. and remain until 7 A.M., when the water is turned on and kept running until 3 P.M. We never show proofs until the third day from date of sitting.

I never use alum with Cramer plates, and never have any frills. Our developer in summer is kept in an ice-box, as well as sulphite and carbonate soda, and used at about 60 deg. You see we have the breaking-out appearance.

I trace it to moisture swetting the gelatine and causing the varnish to settle back. "When the spots are dry," and become specked, we frequently find negatives in this condition. In fact, I have found them afflicted when they had been made but a short time.

Others bearing same marks that were made in 1883. To remedy this evil remove the varnish, soak the negative in water, rub the spots with the finger or pledget of cotton. When dry, re-varnish; if they don't entirely disappear they can easily be spotted out on the print. I think negatives are more apt to be ruined from improper fixing than from any other cause.

Yours truly,

F. S. Clark,
Operator for J. M. Branerd.

ROME, N. Y., January 12, 1889.

Notes and News.

DEXTRIN.—A Russian writer gives the following directions for making a superior quality: Mix 400 parts of potato starch with 200 parts of water and 5 parts of hydrochloric acid (s.g. 1.14) and allow it to dry. This takes about two days. Then heat gently in a water-bath for a half-hour, after which direct heat may be applied and the temperature raised to 230 degs. Fahr. The product is almost completely soluble in water, and possesses great adhesiveness.

TO CLEAR MUDDY WATER.—In obtaining beautifully clear water for photographic purposes the use of paper-pulp gives eminently satisfactory results. Shake about one ounce of filter paper into a fine pulp, in a bottle, by the gradual adding of half a gallon of water. Pour this at once in a plated filter in a large funnel, and keep it constantly filled by fresh portions of the water. This "bed" will filter many gallons of water as clear as crystal, it matters not how muddy originally. To filter a liquid having a finely-divided precipitate in a state of suspension, treat it just as directed for muddy water.—*American Druggist.*

THE GERMAN OFFICER'S PHOTOGRAPHIC BABY.—Major Blummenthal, an officer of the German Landwehr, has, on the suspicion of being a spy, been ordered to leave France within forty-eight hours. Suspicions were aroused, says the Paris correspondent of the *Daily News*, by his taking, under the assumed name of Baron de Jilly, a châlet near Conflans, not far from Paris. A lady who was supposed to have taken part of the châlet from him turns out to have been a German military cadet. They both used to go wandering about with a perambulator. What seemed to be a sleepiug baby was in reality a large doll which hid a photographic apparatus for taking views of the new forts and the positions commanding them. They were also enthusiastic pigeon fanciers, but some of their birds were trapped by suspicious neighbors, and found to be carriers.

PHOTOGRAPHS OF PROJECTILES.—After various experiments made by Mach, the Austrian chemist, he suceeeded in his efforts to photograph by electric light projectiles having respectively an initial velocity of 438 and 530 metres per second. The photographs obtained in this manner showed an air formation in front of the bullet having the form of a hyperbole, while behind it almost a vacuum was formed, in which, when the initial velocity was very great, there were some curious spiral motions.

From the description given, there appeared from these photographs to be a great similarity between the motion of a body through the water and that of a projectile through the air.—*Army and Navy Journal.*

"LILLIAN RUSSELL," BY B. J. FALK.—No picture in the "American Annual of Photography" this year has attracted more widespread or favorable notice than the excellent portrait of Lillian Russell, by Mr. B. J. Falk, of this city. Our only regret is that by oversight of those who printed the mount, Mr. Falk's name was not mentioned beneath the portrait, and thus have prevented the many inquiries which we have received as to the artist by those who did not notice the editorial on page 85. Mr. Falk's work, however, is so well known to most photographers, especially in this line of theatrical portraiture, that it is scarcely more necessary to affix his name to a portrait like this one of Lillian Russell than to print "H. P. Robinson" below one of that gentleman's inimitable figure compositions.

FIRST STEPS TOWARD THE STAGE.—It is reported that Mrs. James G. Blaine, Jr., as her first professional act, has had her photograph exhibited in a photographer's window. The portrait shows Mrs. Blaine to be tall, but not to ungainliness, however. She has square shoulders that would put many a dude to blush, blonde hair (not of the bleached hue, but more on the golden shade), blue eyes that express volumes when engaged in conversation, and a resolute mouth that betokens the determination she possesses. The face is that of a girl, pretty beyond question, with hair tastefully arranged, and a becoming dress, cut V-shape in front, disclosing a well-rounded throat, the modesty of whose apparel is in keeping with the features. The expression is demure in the extreme.

PHOTOGRAPHY AT A CHARITY FAIR.—At the fair for the benefit of the German Hospital, Der Verein Deutscher Photographen will undertake to make groups and single portraits by the magnesium flash-light. The co-operation of such experienced operators as Borgfeldt, Buchler, Esselborn, Kutscher and Mildenberger has been secured. William Kurtz, Th. Gubelman and others of excellent reputation will give their aid. The fair will be held at the hall of the American Institute, where a miniature atelier, with all modern accessories and utensils, will be erected. Chas. Wager Hull, the superintendent of the Institute, has promised to give the charitable undertaking all possible assistance. The German photographers confidently hope to obtain assistance in their charitable enterprise from all the generous dealers in photographic supplies, as well as from amateur photographers.

PHOTOGRAPHER: Your son, the student, had half a dozen photos taken a long time ago. Here is a proof I happen to have by me; a capital likeness, don't you think? But the young gentleman hasn't paid for them yet, I am sorry to say.

Father: H'm. That's far more like him.—*Freitagszeitung.*

AN INACCURACY.—An English contemporary announces the "demise" of our old American confrère, the *Philadelphia Photographer.* Another English contemporary, the bright, young *Photography*, in referring to the same note, says: "Nothing of the kind! The *Philadelphia Photographer* is going to change its title to *Wilson's Photographic Magazine*, and to very much improve in many ways. If that can be ealled 'demise,' we give in." Like *Photography*, the *Philadelphia Photographer* is going ahead!

THE VERY LATEST.—"Look heah, boss, I wants yer ter make a picter ob my brudder," said Jim Webster, an Austin darkey, to one of the leading photographers.

"All right; bring on your brother."

"I can't, boss. He has done gone away las' winter, an I doan know whar he is."

"Perhaps you have got an old photograph of him?"

"I hasn't got no picture ob him, but I reckon I has sumfin at home which mout do jess as well."

Jim disappeared, and after a while returned with a document. The photographer began to read:

"'To the Sheriff and all peace officers of Travis County, greeting: You are hereby commanded to arrest—' Why, what's this?"

"Dat am de dockerment de Sheriff sarved pon my bruder, befoah he done gone an' lit out. I couldn't find no ole photygraph, but dat's de dockerment whut made him git, so I s'pose you mought take his picture from dat ar."

"No, Jim. Great progress has been made in photography, but we have not got that far yet," replied the artist. —*Texas Siftings.*

PROOFS.—Most, if not all photographers are in the habit of supplying their sitters, or, as it is now fashionable to term them, *clientèle*, with a proof, or proofs, from the negative or negatives taken. The amount of finish given to these proofs seeming to vary considerably, the object of the present paper will be to discover, if possible, what is the best form in which proofs should be issued to sitters so as to ensure satisfaction and a good order. In the first place, should the negative be retouched, and, if so, to what extent? Many photographers send out proofs from an untouched negative, or one on which only the blemishes have been taken out without any remodeling whatever, holding that by so doing they save the retoucher some considerable amount of labor, as the rough proof is issued as such, and the sitter knows that the prints, when ordered, will be of much superior finish and workmanship. This may hold good in some cases where the business is exclusively high-class and the *clientèl* are cultured people, but in a middle-class business a re-sitting would be the result in nine cases out of every ten, and it is my opinion that even among the *beau monde*, or upper ten of society, a print from a thoroughly well-retouched negative would give greater satisfaction and produce far larger orders than from one which has been only partially finished.

Then as to the print itself. We are told, on the one hand, that an under-printed and untoned proof answered every purpose, so far as showing the correctness of the portrait, the position, etc., while others pin their faith to a finished proof. The advocates of the first have in their favor the fact that an untoned proof can be supplied at least a day sooner than a finished one; but I opine that this is not a matter of very material importance in most cases, though now and again rapidity is a matter of necessity. From personal experience of both systems, I have come to the conclusion that a thoroughly well-finished print from a good negative gives satisfaction in nearly every case, while the system of sending out rough or unfinished proofs does a

considerable amount of harm to the business. Let us reverse the positions of photographer and client, and think for a moment what we should say to a rough proof of a price-list looking as unfinished as the photographic proofs sometimes sent out. I think it highly probable that it would be either rejected or a finished proof requested.

I have often seen cases where a sitter has expressed himself unable to properly judge from an untoned and unretouched print, and has asked for a finished proof, thus proving that the system of sending out untoned proofs is not always a gain of time. I would in nowise advise or advocate that a multiplicity of proofs be submitted, having found in practice that the greater the number of proofs, the greater the uncertainty of the sitter, and the greater the chance of a request for a fresh sitting or series of sittings; for if half-a-dozen positions have been submitted at first, the same number will be expected again. It will often be found in a case of this kind that the sitter likes the face of one. "In fact it could not be better, but I don't like the position at all. Now this position is very nice, but the face is bad. If you can take me one combining these two I shall be quite satisfied," and so on. The chances are greatly in favor of obtaining an order from one or two proofs as against four or five. One well-known photographer submits, as a rule, four proofs, accompanied with a notification to the effect that two positions only are allowed at the price-list rate of charges, and for an additional one ordered an extra cost of 1*s* 6*d*. will be incurred. He considers that the extra money thus obtained repays him for the additional work of retouching so many negatives of each sitter, though I am inclined to think he would not find the theory proved on critical examination.

If no proofs are sent out at all, the photographer places himself in a dilemma, as he must either compel some of his sitters to put up with pictures which they do not approve, and probably destroy, or he must be himself at the loss of the half-dozen or dozen prints, and time taken in their production. If he compels the sitter to retain the pictures of which they do not approve, he loses at least one customer, and in all probability many of their friends as well, which is certainly rather a high price to pay for a whim or fad. The portraits may be thoroughly good both, so far as likeness and photography are concerned, but still he must put up with one loss or the other. The fact is, that the system of sending proofs has become so general that no photographer can get on unless he adopts it. Proofs must be sent, and it will be found in the long run that the best, and at the same time the most economical, practice is to send them out thoroughly finished and accompanied by an intimation that all proofs are counted in as a portion of the order. Where a fair price is obtained for work, it is not necessary to charge for re-sittings, as many sitters will be found to kick against the extra charge, resisting it as an imposition; but where the scale of charges is so regulated as to leave a minimum of profit it might be intimated that a nominal charge is made for all re-sittings, so as to cover the extra cost involved thereby.—C. BRANGWIN BARNES, *in the British Journal of Photography.*

A WISE PRECAUTION.—In France it is reported that every bank has a photograph of all the employees connected with it. They are filed away for use in case of an emergency.

Photographic Societies.

CASE SCHOOL CAMERA CLUB, CLEVELAND, O.

ON Friday evening, January 11th, 1889, a Camera Club was organized in the Case School at Cleveland, with the following officers: Charles F. Mabery, S.D., Hon. President; Albert W. Smith, Ph.C., Hon. Vice-President; Frank E. Hall, President; Lafayette D. Vorce, Vice-President; J. Frank Morse, Secretary and Treasurer; Milton B. Punnett, Corresponding Secretary.

The Club thus far includes professors and students of the "Case School of Applied Science" only, but other members are eligible for membership. At the meeting to be held January 25th, Mr. Ernest B. Cobb will give a demonstration of the making of lantern-slides.

THE LOWELL CAMERA CLUB.

WE are pleased to learn from George A. Nelson, Secretary of this club, that the old Association of Amateur Photographers has been reorganized under the name of "The Lowell Camera Club," with William P. Atwood as President; Charles J. Glidden, Vice-President; and H. W. Barnes, Treasurer. The club's head-quarters for the present will be at the photographic rooms of A. H. Sanborn & Company, and regular meetings will be held once a month. The next regular meeting will be held on the third Tuesday in February. Some fine flash-light work was shown at the first meeting of this club, and there was much interest manifested by the large attendance.

WASHINGTON CAMERA CLUB.

Special meeting Dec. 26th, 1888. Informal meeting only, no quorum being present at the time of calling the meeting to order. The evening was pleasantly and profitably spent by those present in experimenting with the Hibbard flash apparatus, and also with a new projector in connection with the club lantern.

ANNUAL MEETING, JANUARY 8TH, 1889.

Meeting called to order at 8 15 P.M; President Richards in the chair. Thirteen members present. Two applications for membership received and posted. Report received from Album Committee relative to receipt of prints for club albums.

Under the head of new business, Messrs. Fisher and Schneider, F. A., were appointed Auditing Committee, to audit the treasurer's accounts for 1888, to report at next regular meeting. The following amendments were proposed to the constitution:

Mr. G. A. Warren proposed amendment to Article IV., Section 1, to include election of Album and Room Committees at the annual meetings hereafter, these committees having been appointed heretofore by the president: also amendment to Article VII., Section 2, in regard to contribution of prints for club albums, amending the article to include lantern-slides, and also to provide a club collection of lantern-slides, to be under the control of the Album Committee, to be loaned to members for a length of time not exceeding one week, upon application for same in writing, and providing a penalty for retention of

same longer than one week; also an amendment by Schneider, W. E., to Article IV., Section 1, creating the office of vice-president.

A vote of thanks was extended by the club to the Hon. A. A. Adee, for contributions of volumes of PHOTOGRAPHIC TIMES 1886, 1887 and 1888; also "British Journal of Photography" for 1888; also vote of thanks to Henry Talbott for contribution of framed pictures for club room.

Mr. Hansman made a motion relative to the admission of ladies, in order to obtain the sense of the meeting; a favorable opinion seemed to prevail, and at the next meeting proposals for membership are in prospect from a number of lady amateurs.

This being the annual meeting, the club then proceeded to ballot for officers for the ensuing year, with the following result: President, Robert J. Fisher; Secretary and Treasurer, S. H. Griffith, M.D.U.S.N.; Corresponding Secretary, J. Albert Cole. Board of Trustees: D. E. McComb, F. A. Schneider, P. T. Dodge.

President Richards yielded the chair to the new president, a speech from whom was in order. After passing an unanimous vote of thanks to the retiring president and other officers of the club for 1888, the club adjourned at 10 15 P. M., the next regular meeting being January 29th, 1889.

J. Albert Cole,
Corresponding Secretary.

BOSTON CAMERA CLUB.

THE annual meeting of the club was held at the rooms on Monday evening, the 7th instant.

The reports of the different officers were presented, showing an encouraging state of affairs. The membership has increased fully one-fifth during the year, while the financial exhibit was so satisfactory that it was voted to pay fifty per cent. of the club loan from funds in the treasury.

Considerable new apparatus has been purchased and paid for during the year.

The following officers were elected for the ensuing year:
President, George E. Cabot, Brookline.
Vice-President, Francis Blake, Auburndale,
Secretary, Edw. F. Wilder, Boston.
Treasurer, Wm. Garrison Read, Boston.
Librarian, Wm. S. Briggs, Boston.
Executive Committee for three years:
Chas. H. Currier, Boston.
John G. Hubbard, Brookline.

A pleasant feature of the meeting was an informal exhibition of work of members only.

A circular had been sent out by the Entertainment Committee inviting each member to contribute not more than two mounted prints for this exhibition.

The rules governing it were few and simple.

1. The prints must be direct, neither enlargements nor reductions being eligible.
2. Nothing but title to appear on the front of mount.
3. Prize to be awarded by vote of those present at the meeting.

The response to this invitation was very general; forty-six members contributing ninety-two prints for competition, besides more than fifty for exhibition only, the latter including several enlargements.

The pictures were arranged on the walls of the club's reading-room, and made a very interesting and creditable exhibition; many of the best workers being represented.

The vote which was announced at the close of the meeting was as follows:

No. 8, "View at North Grafton," by C. H. Currier, received 9 votes.

No. 29, "Artists' Retreat, Waterville, N. H.," by Wilfred A. French, 7.

No. 35, "The Last Load" (a hay-making scene), by Wm. S. Briggs; and No. 7, "Salting the Sheep," by Mr. Currier, 6 each.

The prize (a copy of "Burnet's Art Essays," presented to the committee by two members of the club) was awarded to Mr. Currier.

An elegant collation concluded one of the fullest and most enjoyable meetings the club has ever held.

E. F. Wilder,
Secretary.

CHICAGO LANTERN-SLIDE CLUB.

A LARGE and appreciative audience filled the club rooms on the evening of December 18th, to enjoy the treat assured by the call stating that the interchange set from the Philadelphia Society was to be shown. Owing to this fact President Nicol announced that the Executive Committee had decided to omit the general business, except the admission of new members.

The following names were added to the roll by unanimous vote:

Mr. and Mrs. W. C. Comstock, Mr. W. C. Dow, Mr. H. K. Hibben, and Mr. E. W. Farnham.

A fine double lantern (sent to the club by the McIntosh Optical Company) was lit, the lights put out, and upon an eight-foot screen appeared the first picture, one of those inimitable compositions by Mr. John Bartlette, entitled, "Market Day."

This was followed by a few more by the same artist—child portraits, in pretty combinations—all of which brought forth applause.

Following these were beautiful landscape views by Messrs. George Vaux, Jr., Mr. Pancoast, Robert S. Redfield, C. W. Millar, and J. G. Bullock.

Here the Secretary announced that there was a good collection of foreign views, and he had taken time to arrange them so as to give the members a little trip into France, Italy, Switzerland, Bavaria, Belgium, and home via New England. Mr. Ellerslie Wallace had one of those beautiful views in the Garden of Versailles, quaint old houses in Hildesheim, the Hotel Kaiserworth, in Goslar, then a beautiful view at Hospenthal and Audermat, in the Alps. Messrs. T. N. Ely and W. A. Bullock had some very interesting views in Venice, nearly all taken with detective cameras.

Mr. Geo. B. Woods' "Negro in the Doorway," and Mr. Redfield's "Victuals and Drink" (Nos. 1 and 2), brought out a burst of laughter. Again our club has to thank the Philadelphia Society for as rare a treat among pictures as we have had since our organization.

W. A. Morse,
Secretary.

Our Editorial Table.

SUN AND SHADE for January is at hand, and in compliance to the wishes of its many subscribers, it contains, instead of four photo-lithographic sheets as hitherto published, two plates by the higher-grade processes, making eight plates in all.

The contents of this number include a lovely photogravure in green; Carot's "June Morning;" a copy of H. Rettig's painting, "Winter," also in photogravure; "As Age Creeps On," from life, by J. H. Ryder; "Canon of Rio las Anima," by W. H. Jackson. "In the Capitol, Albany, N. Y.," and the "Horse Race," by Barker, are plates in photogravure and photo-gelatine from photographic negatives. The number is completed by "Modesty," in photo-gelatine, and "A Pegged Down Fishing Match," in photogravure, both from paintings.

MESSRS. RAND, MCNALLY & Co., of Chicago, have in press a book by the well-known author and magazine writer, Mr. G. O. Shields ("Coquina"), entitled "Cruisings in the Cascades." It is a record of an extended hunting tour made by the author in the Cascade Mountains in Oregon, Washington Territory, and British Columbia, and contains many thrilling descriptions of adventures and incidents of travel encountered by the author in his explorations. He carried with him a detective camera, and the work is handsomely illustrated from instantaneous photographs and from drawings.

The book contains also special chapters on hunting the buffalo, elk, grizzly bear, Rocky Mountain goat, antelope and deer, and will do doubt prove intensely interesting to general readers as well as to sportsmen.

THE "Detroit Journal Year Book" for 1889, has come to our table. It is crammed full of useful information of all kinds, and is cheap at the price which it is sold for—by mail, post-paid, 30 cents. It is published by the "Detroit Journal Company."

MR. WILLIAM H. RAU, photographer of Philadelphia, called upon us last week during a brief visit to this city.

FROM an amateur, of Rome, N. Y., we have received three 4x5 views made in Watkins Glen. "Emerald Pool," "Pluto Falls," and the "Central Cascade," are the views. They were made on American Films, with the Waterbury Detective Camera, and are very creditable productions to all concerned.

A. C. SARGENT, Graniteville, Mass., sends us an 8x10 panoramic view of a picturesque little village on the banks of a river. It is a highly satisfactory photograph of a very difficult subject.

MR. G. D. MILBURN, Demonstrator for the Eastman Dry Plate and Film Company, now in this city, has shown us a collection of very fine photographs, made in the White Mountains, by William F. Briggs, on Eastman's American Films. They are not only artistic in composition and treatment, but technically are excellent examples of photographic work, and speak well for the films on which they were made.

POPE LEO XIII. ON A PHOTOGRAPH.

Sparkling likeness, swift touch of the sun,
By a ray instantaneously splendidly done,
Minutely and truly reflecting each grace—
Noble brow, beaming eye, and beauty of face.
What a triumph of skill, as wondrous as new!
E'en the rival of nature, Apelles, ne'er drew
More beautiful picture, or portrait as true.

—*Photography.*

Queries and Answers.

19 ECONOMY wants to know how to recover the full amount of silver from old and useless baths.

19 *Answer.*—First precipitate with solution of carbonate of soda and wash the precipitate of carbonate of silver in repeated changes of water. Finally dissolve in dilute nitric acid to perfect neutrality, and test the solution with the hydrometer. This method has been described before in these columns.

20 M. A. G. wants to have a recipe for a good paste for mounting bromide prints.

20 Boil one part of arrowroot and one part of gelatine in 100 parts of water. Before boiling allow the gelatine to swell. To keep the paste add a few drops of carbolic acid.

21 MINNIE A. R. has found aristotype paper to turn to a muddy yellow color, as soon as placed in the toning-bath, prepared after the standard formula.

21 She has probably added more than the prescribed *two* drops of sulphuric acid.

22 MISS R. E. S. has a very beautiful transferotype on opal glass, but it has a rusty stain in one corner. Can this be removed? she asks.

22 Try oxalic acid in dilute solution.

23 MASTER D. E. M. is using ground-glass for vignette printing in substitution of tissue paper, but finds it to take a much longer time to print than the older method.

23 Our own experience has proved that ground-glass absorbs about five times more light than good English tissue paper does.

24 SPRINGFIELD, O., complains that some of his Kodak negatives are not of sufficient printing density after they have been stripped.

24 After the paper has been taken off, and the quality of the negative appears doubtful, dry it, and make a proof. If not of sufficient density, intensify in the usual manner, and then apply the gelatine skin. A finished negative, enclosed on one side by a collodion, and on the other side by a gelatine film, is almost impossible to intensify.

25 P. T. has shown us a negative on an Ilford plate (English), and wants our judgment on the work and the plate, too.

25 The negative is very good. Of the plate we cannot form any opinion.

26 CHARLES F. BACON asks; What material should be used to stop out parts of a negative so as to give perfect whites in a print?

26 Gibson's opaque. For large surfaces we recommend lampblack rubbed down finely with a solution of asphaltum in benzole.

SUPPLEMENT

TO THE

PHOTOGRAPHIC TIMES,

FRIDAY, JANUARY 25, 1889.

PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

THE annual meeting of the Executive Committee, Photographers' Association of America, was held at the Revere House, Boston, Mass., January 17th, 1889.

There were present, H. McMichael, President; George H. Hastings, First Vice-President; J. M. Appleton, Second Vice-President; O. P. Scott, Secretary; G. M. Carlisle, Treasurer.

Meeting called to order by the President.

First order of business, reading reports of Secretary and Treasurer for the year ending December 31st, 1888.

Appointing of Auditing Committee. Report of Auditing Committee.

We, the Auditing Committee, have examined the books and vouchers of Secretary and Treasurer, and find them correct.

O. P. SCOTT,
GEO. W. HASTINGS,
J. M. APPLETON,
Committee.

Reports of Secretary and Treasurer were received, and committee discharged.

W. I. Lincoln Adams, editor of the PHOTOGRAPHIC TIMES, was appointed the Committee to report on the Progress of Photography.

AWARDS.

Resolved, That the Association award as a grand prize a bronze figure, valued at $200, and governed by the following rules and regulations:

Competitors for this award shall exhibit three plain photographs, subject, Longfellow's poem, "Evangeline," size not less than 13 or larger than 22 inches in length. Pictures to be tastily framed, either with or without glass; and the award to be made for the most meritorious collection.

Class A.—Four gold medals for the four best exhibits in genre photographs. Competitors for this class shall exhibit six photographs, subjects to be chosen by the photographer, and appropriately inscribed; size not less than 13 or more than 22 nches in length, and tastefully framed, with or without glass, and the award to be made for the best four collections.

Class B.—One gold, three silver, and three bronze medals, for best collection of portrait photography in all sizes from cabinet to 20x24, inclusive, and as above tastily arranged.

Class C.—One gold, one silver, and one bronze medal, for best collection of landscape photography; one silver medal for best collection of marine views; one silver medal for best collection of architectural views.

Class D.—One silver and one bronze medal for the six most artistically retouched negatives, any size; prints to be exhibited with negatives before and after retouching.

Class E.—One silver medal for the best six plain enlargements, either in silver, bromide, carbon or platinum, size not less than 18x22 inches.

Class F.—One silver medal for the best substitute for glass for negatives, and one bronze medal for the best and latest improvement in photographic appliances.

Class G.—One gold and one silver medal for the best *foreign exhibits* of portrait photography.

Competitors in all classes except Class "G" must be members residing in the United States or Canada.

Competitors in Class "A" cannot enter Class "B," but all can compete for the grand award.

Choosing Judges.

The President will name a chairman from competitors of each class, who shall call a meeting of those competing, who shall select three judges for each class.

A competitor in any class shall have one vote, except members of the Executive Committee, who shall not be eligible to vote in any class.

Rules Governing Judges.

Each judge must examine exhibits separate from the others and hand in a sealed report of his marking to the Executive Committee, who shall open them in presence of the judges, and the Secretary take each report and determine the winners.

Should any person or persons use their influence in any way, directly or indirectly, with the judges during their term of office in favor of any exhibit, it shall be the duty of the judges to strike said exhibit from the list of competitors.

The following principal points must be considered:

1st. Lighting.
2d. Posing.
3d. Chemical effect.
4th. General effects or finish.

Ten points to be the highest award in any one branch; consequently forty points the most that can be given to any one picture.

The exhibition of photographs connected with our convention to be considered an art exhibition, pure and simple; and in order not to detract from this standard, no sign of any description shall be allowed in the hall devoted to the display of photographs, except the name and address of exhibitor.

Each picture or set of pictures must be marked with a letter signifying the class in which it competes.

All exhibits must remain on exhibition until Saturday, the 10th.

One diploma will be awarded for the most tastefully arranged exhibit.

H. McMichael was made a committee on medals, members' badges, and issue of souvenirs.

G. H. Carlisle and Geo. Hastings committee on hotels.

G. M. Carlisle committee to secure stenographer.

All photographs must be from negatives made since the last Ninth Annual Convention, held at Minneapolis, July 14th, 1888.

The Tenth Annual Convention will be held at Mechanics' Hall, Boston, Mass., August 6th to 9th, inclusive, 1889.

The Art and Stock Department will be closed each day from 10 A.M. to 12 M., to secure a large attendance at the meetings.

The Art Department will be open to the public Thursday, Friday, and Saturday evening; admission twenty-five cents.

The First and Second Vice-Presidents a committee to have charge of art exhibits.

Manufacturers and dealers were made a committee on railroads.

G. M. Carlisle and Geo. H. Hastings a committee on exhibition hall accommodations.

On the evening of the first day of the convention, Dr. Edward L. Wilson, editor of *Wilson's Photographic Magazine*, will give an illustrated lecture on art principles useful in photography, to be followed by discussions.

On the evenings of the second and third days, evening sessions will be held for the purpose of reading papers and holding discussions on same.

One of the special features of the convention will be a clam-bake at Nantasket Beach, where the entire party will have a semi-centennial group made by Hastings, of Boston.

Programme.

First Day.

1. Address of welcome.
2. Calling meeting to order.
3. Roll call.
4. Reading minutes of last meeting.
5. Report of special and standing committees.
6. Selection of location.
7. Appointment of committee on nomination.
8. Committee on awards.
9. President's annual report.

Second Day.

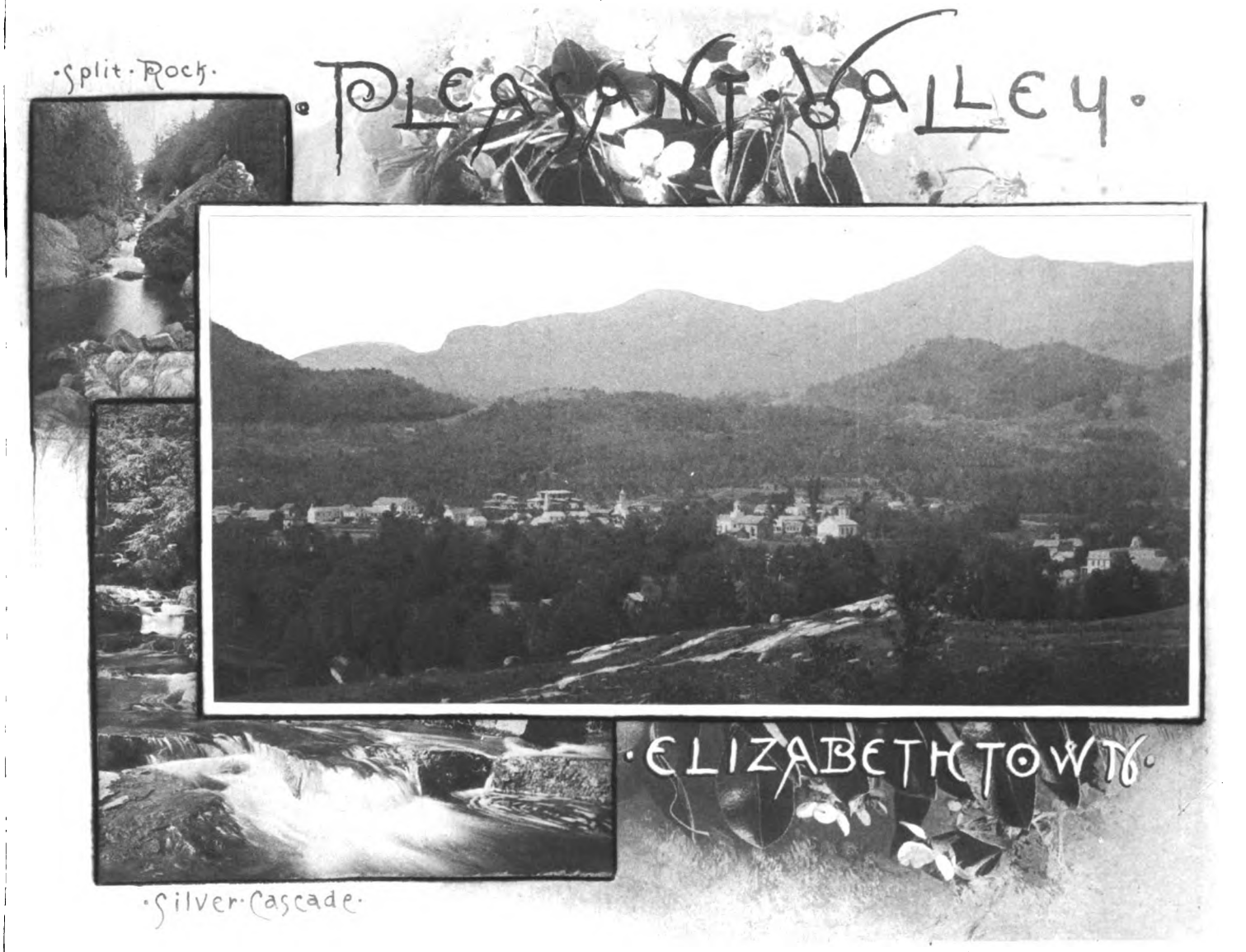
1. Reading of communications.
2. Unfinished business.
3. Report of committee on nominations.
4. Report of special committees.
5. New business.

Third Day.

1. Reading communications.
2. Unfinished business.
3. New business.
4. Election of officers.

Fourth Day.

1. Reading communications.
2. Report of committees.
3. Unfinished business.
4. New business.
5. Announcing awards.
6. Closing ceremonies.



S.R.STODDARD.

PHOTO-GRAVURE CO. N.Y.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, FEBRUARY 1, 1889. No. 385.

"PLEASANT VALLEY."

THE group of pictures which embellish our current issue are from negatives by S. R. Stoddard, of Glens Falls, the well-known Adirondack photographer. The grouping of the photographs with the ornamental accessories was done by Mr. Stoddard, and then the whole was photographed for the copper-plate engraving. Not only are the charming landscapes instructive in themselves as pictorial photographs, but in the grouping there is a lesson for photographers who desire to present their work in a similarly attractive manner. The original designing and lettering is done by hand on a negative, and then printed from in the group of photographs. "Pleasant Valley" with its picturesque little village of Elizabethtown; its Silver Cascade, Split Rock, and the many other charming bits of natural scenery, is in the Adirondacks, not far from the famous Keene Valley.

THE BOSTON CONVENTION.

IN our Supplement, last week, we published a full account of the annual meeting of the Executive Committee of the Photographers' Association of America, which was held at the Revere House, Boston, January 17th. The result of this meeting indicates every prospect of a most decidedly successful Convention at Boston next August; but unless the conscientious efforts of the officers are supplemented by an enthusiastic support from every member of the Association—and many photographers who at present are not members—the Convention will not be the success which it otherwise might be, and which it certainly should be.

Let us all unite in making this Convention a fitting celebration of the fiftieth anniversary of Photography's birth. Would it not be eminently proper and interesting to collect and exhibit at that time a large collection of photographic relics, specimens of various photographic processes, old apparatus, Daguerreotypes, Talbotypes, etc. Properly classified and arranged, such a collection would be something to remember for years; and by a personal effort on the part of all, an exhibition creditable to photography, especially American photography, can be made.

There are many pioneer photographers in this country who undoubtedly possesss interesting specimens of the earlier photographic methods. To have these first results arranged in chronological order, would be not only highly interesting, but of great value from a scientific as well as a historical standpoint. The early attempts of Morse, Draper, and others, would naturally come first; to be followed by Daguerreotypes made by such men as Gurney, Fredricks, Brady, Root, Hesler, and others. Old Mr. Schreiber, of Philadelphia, very likely possesses interesting specimens of the Talbotype as well as other early photographic products. Le Gray's waxed-paper negatives, and the first American negatives made by albumenized glass plates, it would certainly not be difficult to collect; and they lead up to the collodion process in its many varieties. Cutting and Rehn's ambrotypes, with their derivatives, melainotypes, and the popular "tin-type."

There is scarcely one of the older galleries but could make a splendid exhibition of photographs printed from collodion negatives—portraits, landscapes, and reproductions. The mediæval age of photography might be represented by preserved collodion plates like those of Taynot, Fathergill, and Russell, followed by specimens of collodion emulsion plates, collodio-gelatine emulsion.

With the advent of the gelatine emulsion plate, a new era opens for photography, and to represent it, specimens of orthochromatic methods, celestial photography, photo-micrography, and the many other scientific applications of photography should be shown.

The mechanical printing methods of recent, as well as older dates, should not be neglected, though it is doubtful whether any specimens of work dating earlier than 1850 can be found.

There are other ways, of course, in which the Boston Convention may be made the most successful and interesting one ever held in this country; and every effort should be put forward in a disinterested way, to make this semi-centennial celebration worthy of the occasion. The rules and regulations governing the exhibitions of photographs were never better, and we are assured of a management that will exert itself to the utmost in securing for all "a fair field and no favors." Now is our chance to show the world what photography has done and can do! Let us all unite in taking advantage of the opportunity!

EDITORIAL NOTES.

We publish this week a communication from Mr. T. H. Blair, treasurer of the Blair Camera Company, which will be read with interest, especially by dealers, manufacturers, and all those engaged in the business of supplying photographers' wants. The ideas expressed by Mr. Blair will undoubtedly call forth others, and we invite a free expression of opinion in these columns.

Mr. Hector Krauss, of Harrisburgh, Pa., sends us a formula by which over-developed bromide prints may be easily reduced to the desired intensity. It is as follows:

First, make a saturated solution of chloride of lime in water, and dilute it with four to eight volumes of water; pour this solution over the thoroughly fixed and washed bromide print. By degrees the action of the chloride of lime will become perceptible upon the image. If it be too slow, add a little more of the stock solution; if too rapid, a little more water. When the proper reduction has taken place, the print is removed and washed in pure water. The chloride of lime does not injure the tone of the print, and is as effective as it is a simple method for reducing.

Practical photographers desire to know, always, the comparative sensitiveness of the plates which they are using; and in compliance with this desire the manufacturers of America have very generally marked upon the box containing the plates, a number indicating their speed; but instead of uniting upon the adoption of one method of measurement to be used by all, each manufacturer uses his own system without the least regard to what his neighbor has chosen, so that there is no way of comparing by the numbers on the boxes the sensitiveness of one plate with that of another plate made by a different manufacturer.

Why do not the dry-plate manufacturers of this country unite upon a standard system of measurement and adhere to it, as the lens-makers united upon a uniform method for making the stops of their instruments.

Mr. John Carbutt describes a simple method for constructing and using a sensitometer, in the "American Annual of Photography for 1889," which we reprint in another column. Other dry-plate manufacturers might unite and adopt this, or a similar system. It is simple and reliable. Mr. Carbutt, in a recent conversation with us, expressed himself as not only willing, but glad to receive modifications that are improvements; and there would be no difficulty, we are sure, in finally deciding upon a standard system. Prof. William Harkness, of the Naval Observatory at Washington, contributed a valuable article on "Methods of Measuring the Sensitiveness of Photographic Plates" to the same issue of the "Annual" which contains Mr. Carbutt's contribution. We direct the attention of our readers to both articles.

Mention has been made in several daily papers of an old gentleman in Philadelphia by the name of Schreiber, asserting that he was the first man to make a photograph in this country.

Professor Ehrmann, our learned associate, well remembers Mr. Schreiber—now over eighty years of age—when he was connected in photographic work with the Langenheim Brothers, in Philadelphia. Professor Ehrmann remembers to have seen him at work producing his pictures—Talbotypes, they were called then—although it was an open question whether Talbot or Langenheim was entitled to the credit of first making the picture which bore the name of the former. Schreiber was a partner of Langenheim and worked with him for many years, sharing later in his financial misfortunes; but Langenheim, and not Schreiber, it was who first made the Talbotype in this country, if not in the world. Their "hyalotypes" or "hyalographs," as they called them, were photographic productions brought out simultaneously with Whipple's crystallotypes, though they yielded them no profit, as the latter process did.

Old Mr. Schreiber is now well-to-do, and happy in the association of the large family and circle of friends who surround him in his declining years.

Though many of the oldest American photographers have passed away of late, there are yet many remaining who still cling to their cameras. They never will lay down their arms, alive, and are entitled to a wider appreciation among the photo-

graphic fraternity, at least in this country, than they apparently receive. We are reminded, as we write, of men like Jeremiah Gurney, M. B. Brady, Thomas Faris, Charles D. Fredricks, A. Hesler, E. Long, and others, who have not yet ceased their service with camera and lens, though they have long since earned a well-deserved rest.

BUST OF DAGUERRE.
From the monument erected at Cormeilles-en-Parisis, Aug. 23, 1883.

WE reproduce from the pages of *La Nature* cuts showing portrait busts of Daguerre and Poitevin, which there accompany an article by Mr. Albert Londe, entitled, "The Inventors of Photography." These will be especially interesting to our readers at this time, so near the semi-centennial of the birth of photography. Mr. Londe says, in opening, "When a science like photography makes the rapid progress which it has done, there is a tendency to always go forward without casting any backward glances; to hasten from one discovery to another. The very names, sometimes, of those who were pioneers in the early days, who struck out into new and untraveled paths with no former results to refer to; who attained first successes, and even foresaw their future consequences, without being able to see the realization of their dreams, are hardly known. Let us stop a moment to admire them, to study them."

He then briefly reviews the labors of the Niepces, Daguerre and Poitevin, noting also the names of Davy, Wedgewood and Talbot, and points with pardonable pride to the fact that France not only gave to the world the processes of Daguerre and Nicephore Niepce, but has also honored their memory, as well as that of Poitevin, by commemorative monuments, an example which he thinks should be followed by England in similarly commemorating Fox Talbot.

BUST OF POITEVIN.
From the monument erected at Saint-Calais (Sarthe), Sept. 7, 1885.

PRINTING WITH THE SALTS OF IRON AND OF CHROMIUM.

WE propose to describe the simple processes by which proofs from negatives and drawings on tracing or ordinary paper can be obtained, not by the use of silver salts, but by the action of ferrous and ferric salts on each other and that of the alkaline salts of chromic acid on certain organic substances when submitted to the reductive action of light.

The old photographers will most likely not find something new in this communication, but it should not be forgotten that we must also write for those who are studying the various processes of our fascinating art, or who may have occasion in their daily occupations to have recourse to the most simple and expeditious methods to obtain duplicata of plans and designs.

PROCESSES WITH THE SALTS OF IRON.

The photographic processes with the salts of

iron are based on the property which the ferric compounds possess to be reduced by the agency of light.

This property did not escape the investigations of the fathers of chemistry. Berzelius observed that an alcoholic solution of ferric chloride is discolored by exposure to the sun's rays, and that during the reduction of the salt into ferrous chloride, iron oxide is deposited. Grothius, in his researches, reduced potassium ferricyanide in a few minutes at the focus of a concave mirror, and ascertained that even the light of a lamp is sufficient to convert it into ferrocyanate.

However, the first application to photography of the reduction of the ferric salts by the luminous action is due to Sir John Herschel. The process —the cyanotype—which he described in a paper read before the Royal Society of Great Britain in 1842, together with others not less interesting, reprinted by R. Hunt in his "Researches on Light," is still that which is now employed to obtain blue proofs.

Cyanotype.—This process consists, to imbue a sheet of paper with a solution by equal parts of ammonium ferric citrate and of potassium ferricyanate at eight or ten per cent., and to expose it to light under a cliché, when by a simple immersion in water a blue image is developed on a white ground. The chemical action is quite complicated; the light partly reduces both the ferric citrate and the ferricyanate, the film being after insolation a compound of four salts, viz., ferric and ferrous citrate, ferri and ferrocyanate, and these salts, acting on each other in presence of water, form Turnbull's blue,* by the action of the ferrous citrate on the ferricyanate, and Prussian blue† by that of ferric citrate on the ferrocyanate. The photographic image is consequently formed by a mixture of these two compounds.

To obtain a fine and intense blue, the paper should be sized with gelatine, arrowroot or albumen. The reason is obvious, since the reduction of the ferric salts is promoted by the presence of organic substances.

To size the paper with gelatine two parts of the substance are soaked for a few minutes in 100 parts of water, and then dissolved at a low temperature—about 150 deg. Fahr.—when a few drops of a saturated solution of alum are added, and the whole filtered through flannel. The paper is floated for two minutes on the warm solution, and pinned up to dry.

* Ferrous ferricyanate, $Fe_3(Fe_2Cy_{12})$.

† Ferric ferrocyanate, $Fe_4(FeCy_6)_3$.

The arrowroot bath is made by powdering two parts of arrowroot—good starch answers as well—with a little cold water, and adding gradually eighty parts of boiling water. The solution is then boiled for a few minutes and passed through flannel. The paper is prepared as said above.

The albumen paper employed for printing by silver salts may be employed. The albumen should, however, be insolubilized by alcohol, or by floating on water heated at the boiling temperature.

Instead of previously sizing the paper, the following solution of gum arabic containing the salts of iron can be employed:

a.	Gum arabic	4 parts
	Water	20 parts
b.	Ammonio citrate of iron	10 parts
	Water	40 parts
c.	Potassium ferricyanate	10 parts
	Water	40 parts

Mix before use, and filter through flannel. The paper is coated by brushing or by floating for a minute—this can be done by daylight—and hanged up to dry in the dark-room.

The prepared paper keeps well for a long time if preserved from the action of the air and dampness. But the sensitizing solution soon decomposes, and should be employed the day it is made.

The paper is exposed in the pressure frame on a cliché, or a drawing, until the image is faintly visible. It is developed and fixed by immersion in cold water and washing out the unaltered iron salt. If to the last washing water a few drops of a solution of lime hypochlorite (bleaching powder) be added, the blue becomes finer and intenser. Herschel recommends a little sodium sulphate to ensure the fixity of the blue precipitate.

The image is blue, on a white ground, when the cyanotype paper is exposed on a negative. It is white, on a blue ground, if the paper is exposed on a drawing.

The blue precipitate consists, as it has been explained, of a mixture of Turnbull's and Prussian blue, which dissolves by prolonged immersion in water. Hence, when the proofs are over-printed it is possible to reduce the intensity by keeping them in water for a certain period.

The blue proofs can be transformed into black by treatment with a solution of caustic potash at 3 per 100, or, better, by a dilute solution of liquid ammonia, which sets free the ferric oxide, and by floating it afterwards on a solution of gallic acid or of tannin at 4 per 100, whereby a gallate or a tannate of iron is formed. Other reagents acting with ferric oxide can be employed to change the

blue color of the proofs, but whatever be the process employed, it has the inconvenience of generally tinging the white ground. It is, therefore, advisable not to resort to these chemical actions; moreover, black proofs, quite permanent, can be obtained by special processes, which will be described.

The cyanotype has lately been employed for drawing with pen and ink on the blue proofs, in order to reproduce them by the photo-lithographic and engraving processes.

The sensitive paper is exposed under a negative, developed as usual, when the color is reduced by a prolonged immersion in water, until of a slight blue tinge. The image is then drawn over in lines or dots, and a negative taken by the wet collodion process; the blue color, being, as the reader well knows, very actinic, is reproduced as white, and therefore does not interfere with the operation.

Chrysotype.—This process is also due to Sir John Herschel. It yields proofs without much vigor, rather faint, and therefore cannot be employed to obtain brilliant photographs; but for tracing on paper or on canvass to be worked up in colors it can be used with advantage by artists; moreover, the proofs, consisting wholly of gold, are quite permanent. It is as follows:

Imbue the paper with a solution of ammonium-ferric citrate, 1:8, and, when dry, impress it by exposure to sunshine in the printing frame or by means of the solar camera until the image is faintly visible in the black, and, without washing, float the paper on a neutral solution of chloride of gold of "such strength as to have about the color of sherry wine." The proof appears and darkens with great rapidity, and should be fixed as soon as well brought out by washing in water three times renewed, then by immersion in a weak solution of potassium iodide for a minute or two. A last washing completes the operation.

The chemical change results from the property of the ferrous salts to reduce those of gold and silver. Hence, if instead of gold chloride the proof on its removal from the printing frame be treated by a weak solution of silver nitrate, a beautiful picture of great intensity is developed, which must be fixed with sodium thiosulphate (hyposulphite.)

The processes published since the time of Herschel to obtain blue proofs are quite numerous. The most simple is to prepare the paper with sodium nitro-prussiate, which light decomposes, with formation of Prussian blue. By adding ferric chloride to the sensitizing bath the prussiate is more rapidly reduced:

Sodium nitro-prussiate	1 part
Ferric chloride	1 part
Water	5 parts

However, a more sensitive compound is formed by mixing an organic ferric salt—oxalate, tartrate, etc.—with the ferric chloride, thus:

Ammonium ferric-oxalate	1 part
Ferric chloride	1 part
Water	5 parts

The impression is developed by floating on a solution of potassium ferricyanate and fixed by washing in several changes of water. By adding a little eau de javelle to the last water, the Turnbull's blue is more intense and brighter.

The action of light on the ferric oxalate is represented thus:

$$(NH_4)_6\,Fe_2\,(C_2O_4)_6 = 2\,FeC_2O_4 + 3\,(NH_4)_2\,C_2O_4 + 2\,CO_2$$

Amm. ferric-oxalate. Ferrous oxalate. Am. oxalate. Carbon dioxide.

That of the other double organic salts of iron at the maximum is similar.

By discarding the ferric chloride in the above formula, several colored precipitates are obtained with reagents after insolation:

Silver nitrate produces a dark brown precipitate;
Silver ammonio-nitrate produces a black precipitate;
Gallic and tannic acid produces a black precipitate, etc.

By the processes above described, a white image on a blue ground is necessarily formed by printing from diapositives, ink drawings, plans on tracing-paper, or other transparent or semi-opaque materials. To obtain from the same a blue image on a white ground, the *cyanofer process* is employed.

This process is an application of one of the numerous and useful inventions for which photography is indebted to A. Poitevin. In 1863 he discovered that ferric chloride possesses the property of insolubilizing gelatine—and other organic substances—and that this substance becomes soluble again when, by the action of light, the ferric chloride is converted into a ferrous salt. This curious phenomenon explains several of the remarkable processes imagined by A. Poitevin. Thus: If a plate glass be coated with gelatine, and, when dry, immersed in a mixture of tartaric acid and of the salt in question, the gelatine is rendered insoluble even in boiling water; but after insolation on a cliché, it dissolves in hot water, the solubility commencing *from the surface*, in proportion to the intensity of the luminous action, whereby the gelatinous film is converted into an image, in intaglio, or in relievo, according as it has been impressed from a negative or a diapositive. The industrial applications of this process suggest themselves.

To return to the cyanofer process—which consists to coat a sheet of paper with a mixture of gum arabic, ferric chloride and tartaric or citric acid, and to treat it after insolation by potassium ferricyanate—it is evident that the ferric chloride being transformed into ferrous chloride on the parts impressed, these parts become soluble and inert in presence of the ferrocyanate whilst those parts not acted on remain insoluble and form Prussian blue with that compound, hence a positive image from the diapositive and a reproduction similar to that of the ink drawing.

P. C. Duchochois.

(*To be continued.*)

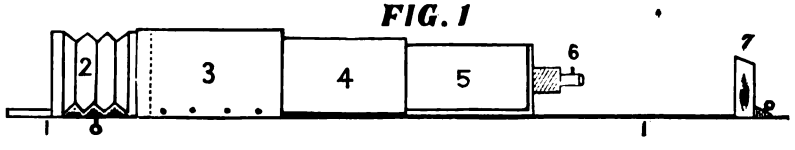
A HOME-MADE APPARATUS FOR ENLARGING AND REDUCING.

As the editor of the PHOTOGRAPHIC TIMES expressed a desire for me to give a description of my home-made apparatus for reducing and enlarging, in the issue of December 21, 1888, I will attempt to do so, not to enlighten or especially benefit those who have had years of experience, and plenty of means to supply themselves with every needed thing in the photographic line, but for those who, like myself, are situated where they must accept of very limited resources, or go without.

My camera is a 5x8, and a lens which is adapted for out-door and in-door work, and also for copying.

The "home-made" apparatus is a cone, or tube, of three sections, resting on a base to which one section is fastened and the other two are moveable, and constructed of thin boards—pine or any wood which does not warp will do.

FIG. 1



The base, Figure 1, is one-half inch thick, seven and a half feet in length, and the width is the same as front of the camera; beyond the tube the base may be narrowed to half the width, if desired.

The cone or tube is made off quarter-inch stuff, and put together with either brads or screws.

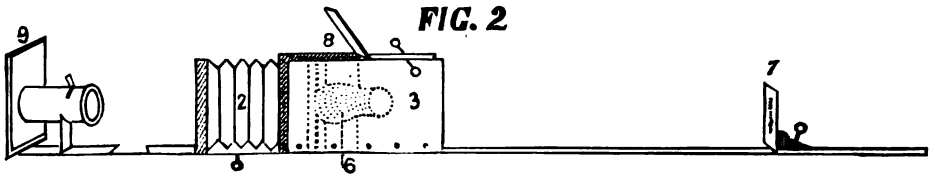
The first section of the cone, 3, in Figure 1, is eighteen inches long, and fastened to the base eight inches from end, so as to give room for the camera, 2, which enters the cone one inch. The camera is fastened with the tripod screw.

The other two sections, 4 and 5, are each sixteen inches in length, are movable, and work into the first, like a telescope.

The lens, 6, is removed with the front board from camera, and works into a frame with grooves on to the end of section 5 of cone. The holder, 7, for the picture to be copied, is made out of a piece of thin board, a little larger than a boudoir mount, with strips fastened on the side for grooves for the mount to pass in. A piece of card-board can be used this size, to which the tintype or small picture to be copied may be attached. The holder has a small bracket attached to the back and fastened to the base with an eye-screw, and can be moved to or from the lens at pleasure. The holder is used vertically or horizontally, according to the position desired for the picture on the plate, thus avoiding the change of the camera.

To work, the cone is moved in or out, and the holder is adjusted at the proper place, which can be known by the operator.

FIG. 2



Marks can be made on the base, so that the apparatus can be adjusted readily for the different sizes of the picture to be copied. The camera is to get a focus, and, of course, to hold the plate for negative.

Figure 2 shows the apparatus with the movable part of the cone removed, for reducing from a 5x8 to a card size on to a 4x5 plate. Half of the top of this section turns back, so as to uncap and cap the lens, which is shown inside by the dotted lines. 9 is the lens, which rests on a frame, to go inside of this section.

The inside of the cone is to be painted or stained a dead black, and all to work tightly but easily, so as to exclude all light. To be certain that all light is excluded, I pin my camera cloth around the lens (this I always do for inside or outside work) and cover up the cone with this and other wrappings when the exposure is made.

The whole material should not cost more than $1. Stain and varnish the outside, and the apparatus will not look very disagreeable when standing in

the corner of the room, or resting on the table when working it.

Thus my camera is made to reduce and enlarge, also to do out-door work on the tripod, and in-door on a "home-made" camera stand.

C. H. Shepherd.

EMULSION MAKING FOR AMATEURS.

(*Continued from page* 44, *and concluded.*)

The ripening of an emulsion appears to cause an organic change in the structure of the gelatine, after digesting or cooking, which brings about a

Precipitate, and re-dissolve with strong ammonia. granular condition. I would describe it as a mealy condition. Herein lies the extreme sensitiveness of a gelatine emulsion. Out of perhaps twenty different ammonia formulæ which I have tried, nothing is said about the method of making the first, *a*, solution further than to combine the ingredients, and yet I find it is very important; the resulting emulsion depends for its speed and excellence very much upon these first steps. For instance, if I heat the water and the bromide to a high temperature, and then add the gelatine dry, it will dissolve in a few minutes, but the emulsion will not be as rapid as when it is allowed to swell slowly and then dissolved at a very low temperature. I consider 100 degs. as high as it is safe to go with a gelatine solution that contains alkaline bromide. I use a pair of cheap scales, such as are sold at the stock houses. A piece of tissue paper should be used to weigh out each ingredient upon, throwing it away so that there may be no contamination, and it is very necessary in dry-plate making that everything shall be scrupulously clean.

In regard to distilled water. I have made a great many emulsions with the ordinary tap water, and I find that it answers the purpose very well; but still at certain times it will not give good results, although you may make a great many emulsions with it and not have any trouble. The ordinary tap water will sometimes contain iron and sodium, or there may be some trouble with the pipes, and if you make a poor emulsion it is very valuable to know what is responsible for the failure, and if the water is right to start with of course you can look elsewhere for it. Snow or ice water would be preferable to tap water, but as you use such a small quantity, anyway—for every hundred grains of silver only two ounces—it is better to obtain distilled water and use that only. The washing of the emulsion may be done with tap water.

Now, as I said before, temperature is a very important thing, and if the formula says 100 degrees, do not allow it to be as high as 110, for gelatine has been well called an unruly beast.

In order to keep the emulsion at a uniform temperature while digesting, use a small chemical stand provided with movable rings; -the water bath may rest upon one of these, and with a little practice you will know about how far above the lamp it should stand in order to keep the water at 100 degrees. Of course the temperature of the room has something to do with that.

I would recommend the amateur dry plate maker to make small batches. Forty-five grains of silver will coat about a dozen 5x8 plates, and that would be as many as you would care to make at one time. And another thing, it is not possible to make two batches exactly alike. No amateur could do that. I do not think the manufacturers can do it, and the best way to secure an average speed in emulsions is to make a number of small batches and combine them. With four or five small batches combined just before coating, you will get an average speed that will not vary much. You may have a number of batches ripening all the time. When you want to make a few plates of an evening take a teaspoonful from each glass and melt together.

Only photographic gelatine should be used. This has been cleansed of fatty matter. Nelson's No. 1 soft and Heinrich's orWinterthur hard gelatine are the best. Hard and soft gelatine may be cut up fine with scissors and kept in tin boxes ready for use. Gelatine should never be dissolved by adding it dry to warm ripened emulsion. It should first be allowed to swell for a few minutes, and then dissolved at a low temperature. The last addition of gelatine to the emulsion after washing and remelting should never exceed what is necessary to cause it to set. The amount of gelatine in the emulsion should be such that when a drop placed upon a strip of glass is held against a piece of ice to set, it will have a cheese-like consistency when pressed with the finger. If it sets tough like rubber, add water. I use equal parts of hard and soft gelatine all the year round for the final addition. Enough should be added to bring the total amount of gelatine in the finished emulsion up to about thirty grains to the ounce.

The final addition of hard and soft gelatine having been made to the ripened emulsion, we proceed to filter it. Obtain an argand chimney, which is simply a tube of glass about seven inches long by one and one-half in diameter. Upon one end of the chimney stretch a piece of chamois skin (not sheepskin) which has been dampened with water. Two or three turns of a strong rubber band will

hold the chamois skin on. Warm the tube over a lamp, pour in the emulsion, then placing the mouth close to the open end, blow vigorously, and the emulsion will be forced through.

The emulsion is now ready for coating. We next want some clean glass plates of the desired size. We may use old or spoilt negatives over and over again by thoroughly cleaning them.

Allow the old plates to stand in a strong solution of washing soda which is pretty near the boiling point for ten or fifteen minutes, then with a small scrubbing brush the films may be easily removed. By placing small clips of wire or tin on the edges of the plates, they will be prevented from sticking together while in the soda solution. Have three basins of clean, hot water handy; rinse the plate in each immediately after removing the film, and stand in a rack to dry. When dry, polish the side to be coated with a piece of chamois skin dampened with alcohol upon which a little whiting has been dusted.

A level surface upon which to allow the gelatine film to set is the next requisite. A slab of marble or slate will do for this. It may rest upon three screws set in the table or bench. A small spirit level should be used in adjusting it. The slab should be as cold as possible when used. A little chopped ice may be allowed to stand upon it for a half hour previous to coating, or it can be chilled in a refrigerator. It is important to have the film set as soon as possible after coating, as the sensitive bromide will have a tendency to settle down from the surface of the film, making long development necessary in order to get density. It also decreases its sensitiveness. The best method is to place the freshly-coated plate upon a perfectly level shelf in a refrigerating-box, but this is not absolutely necessary.

Plates larger than 5x7 seldom have a perfectly plane surface, being more or less "dished." The emulsion should be poured upon the concave side and the four corners pressed down by weights before the emulsion has time to set. Of course, a small spot on each corner has to be sacrificed when this is done, but plates having considerable curvature can thus be coated with a film of uniform thickness. As soon as the film sets, which it should do in three or four minutes, place the plate in a rack in the drying-box. Use about one and one-half drams of emulsion to a 4x5 plate. A little practice will enable the amateur to pour about the right quantity upon the centre of the plate without measuring. Guide the emulsion with a glass rod to the edges. Hold the plate on the extended fingers while coating, rocking it gently until the emulsion has spread uniformly. If the temperature of the room is below 65 degrees, the pile of clean glass should remain near a stove or in a warm place long enough to take off the chill before coating, but the plates should never be appreciably warm to the touch. The drying of the plates will be a serious trial to the patience if the proper arrangements are not made. The best drying-box for the amateur should be made of a tin cracker or cake-box. A tinsmith will put on an extra rim which will make the cover light-tight. To each end of the box attach a three-inch tin pipe, having at least two elbows to serve as light-traps. Arrange a shelf or stand for the box near a chimney and connect one pipe with the flue. A strong draught of air will pass through the box. The inside of the box and pipes should be blackened with a mixture of lamp black and alcohol, containing just enough shellac to keep it from rubbing off. By placing the ruby lamp, or any lamp, under the horizontal inlet pipe a few inches from the box, the air is slightly warmed and the drying is hastened. Do not let the temperature in the box exceed 80 degrees, or tough, glassy films will be the result. The plates should stand in a rack in the direction of the draught, and at least three-quarters of an inch apart. A batch of plates will dry over night in such a box. They should dry with a matt surface, and will show no drying-marks if the emulsion has been thoroughly washed and the draught is strong. A piece of mosquito netting smeared with a little glycerine or molasses, and made to cover the open end of the inlet-pipe, will prevent dust from entering the box. This precaution is hardly necessary if there is no carpet upon the floor. As the amateur will probably make his plates in the evening, any room may be used that can be kept dark; but I advise him, by all means, to have a room—such as an unused chamber, attic or store-room—when he can leave his bench, chemicals, glass-ware and drying-box in dark and inviolate seclusion during the day. A good dark-room is, of course, the best place, although, if very damp, the plates will dry slowly. Extreme care is necessary not to contaminate the emulsion with any of the chemicals used in developing. There is a great difference of opinion in regard to the use of iodide in emulsions, and this is due to the fact that slight changes in manipulation where it is used produce such widely different results. My own method of using it has given excellent results. In the first place, I find that three grains to every hundred of silver is as much as it is safe to use. I generally use about two grains.

Follow the formula previously given until ready to add the silver to the bromized gelatine; before doing so, add to the latter one dram of a solution of iodide of potassium containing eight grains to the ounce. Do not shake the gelatine solution until you begin to add the silver. Proceed as directed in previous formula until the emulsion has digested at 100 degs. Fahr. for one-half hour, or until the blue stage is reached, then add fifteen grains of swelled soft gelatine with which ten drops of ammonia has been mixed just before using. When this has dissolved, pour the emulsion into a dish to cool, but do not wash at once. Let it stand from ten to twenty-four hours. Then wash it, remelt and ripen for one day or more. This is a very rapid emulsion, giving fine negatives of portraits, interiors or landscapes.

In the above method the bromide has a firm hold upon the gelatine before the iodide is added. If the bromide and iodide are added together, a modification of the double salt is produced, which requires long digestion and is very hard to develop and fix.

E. H. Lyon.

Correspondence.

BUSINESS METHODS.

To the Editor of the PHOTOGRAPHIC TIMES:

Dear Sir: From the column of a late issue of the "Picture and Art Trade" I clip the following:

"'The catalogue is one shilling,' said the assistant at a London photographic material store; and then, in response to a look of surprise on the part of the person asking for the price list, he added, 'But we deduct the amount from any purchase you may make.' 'A purchase I make any time to-day?' 'Certainly.' The shilling was paid, and a careful search enabled the customer to select goods amounting to exactly one shilling and a half-penny, and he retired with the conviction that the tradesman who charges for his price list does not always fully realize his expectations."

The sentiments, or attitude, of a customer is here given in such a manner as to lead the reader to believe that the merchant in this instance had proven himself of the "penny wise and pound foolish" sect. The company of which I am manager are, as far as my knowledge extends, the only one in the photographic trade who haxe made a habit of charging for catalogues and refunding the amount when a purchase is made.

The responses we have had to our announcement of this plan of distributing a catalogue has been very interesting, and many not at all flattering to the wisdom of the company.

The adoption of this plan was the result of a conviction that extravagance or liberality (as one desires to term it) among manufacturers and merchants, is constantly increasing.

To exact the cost of mailing, and refund the amount paid from the first purchase, is certainly not unreasonable, and is intended only to discourage the sending out of expensive catalogues in response to requests from applicants who have no real intention of ever making a purchase. The applicants are not at fault, as they are only complying with the solicitation of the advertiser.

In reviewing the business of selling supplies to the photographer one cannot help noticing that in proportion to the amount of business transacted, the supply and cost of circulars, catalogues and correspondence is enormous when compared with that of the majority of other staple industries.

Now it cannot be claimed that our trade comprise men of greater mercantile wisdom than dozens of others we might mention, and it should not be considered as derogatory if the opposite was conceded. There has been much feeling evident against combinations of dealers, and I am not in a position to say whether it has been just or unjust. I feel, however, I am safe from censure, when I say that merchants have, of their own accord, cultivated or allowed expensive business methods to increase in their business to such an extent, that the business becomes unprofitable from these causes principally, and if they, instead of attempting to correct the evil, consolidate as a body for the purpose of compelling consumers to give them a profit after these extravagances have been indulged in, they certainly should expect opposition.

A combination, or trust, which demands more and gives less, must in the great majority of cases be short-lived, but any body of men or merchants who combine or co-operate together for the purpose of correcting the evils of a trade, and giving more of the useful and less of the useless, for what they receive, should have the approval of consumers *en masse*, as it is the innocent consumer, after all, who has to pay for business extravagance, while the dealer or manufacturer who indulges in them remains solvent, or successful.

I am led to believe that a reaction in the photographic stock business has set in, and that greater economy in handling the staples in use by the photographer is likely to be practised.

Desirable goods for sale require to be advertised, and often liberally, to acquaint the consumer of the fact that they are in the market, but creating goods solely for the sake of having the largest assortment, or issuing cumbersome catalogues, and advertising a great bulk of articles which the publisher never expects to make a sale of, or at least of a sufficient net amount to cover the cost of the paper which the article is printed on, cannot be considered otherwise than commercial blunders. One merchant may be compelled to do so because another does, but it is surely an evidence of a great amount of wasted energy, and any combination which can effect a cure of the evil will be a blessing to the photographer, possibly "an angel in disguise," but an angel nevertheless.

I trust I may have given at least one fresh idea, and start other minds to thinking.

Fraternally,

T. H. Blair.

BOSTON, JANUARY 19, 1889.

Notes and News.

A BRONZE MEDAL FOR PHOTOGRAPHIC PUBLICATIONS.—At a recent international exhibition held under the auspices of the Amateur Photographic Club of Vienna, Austria, the large bronze medal was awarded to the Scovill Manufacturing Company for the best photographic publications

on exhibition The works exhibited were volumes I. and II. of "The American Annual of Photography;" "Photographic Printing Methods" and "The Photographic Negative," by the Rev. W. H. Burbank; and "The Photographic Instructor," edited by W. I. Lincoln Adams.

THE PHOTOGRAPHIC SOCIETY OF CHICACO, which recently held its annual meeting, has grown to be a useful member of the photographic world. We learn from our Chicago correspondent that an annual exhibition will be given shortly under the auspices of this society, which will be of value to all those interested in photography.

THE NEW ORLEANS CAMERA CLUB will give an exhibition for the benefit of the family of heroic James Givens, who met his death at the helm of the burning steamer, "John H. Hanna." There will be one hundred lantern-slides projected on the screen—of American views; and one hundred views abroad. Vocal and instrumental music will complete the programme.

Mr. P. C. Carriere is Chairman of the Committee having the entertainment in charge. The benefit will be given on the evening of February 6th, at 7.30 P.M., and the tickets have been placed at fifty cents.

This action on the part of the New Orleans Camera Club suggests similar work of benevolence to other clubs.

GLASS, RUBBER OR PORCELAIN TRAYS THE BEST.—In the *Wiener Correspondenzen* we read that Balagny lays particular stress upon scrupulous cleanliness in the dark-room. He recommends, therefore, the use of glass or porcelain trays with his developer, rather than those made of papier maché or lacquered wood, from which invariably parts of the lacquer will dissolve and cause a deterioration of the bath.

MUSICAL SOUNDS.—The second lecture of the free course before the Society of Natural History, at Cincinnati, by Prof. Thomas French, Jun., of the University of Cincinnati, was upon the subject "Musical Sounds." The lecture was illustrated by lantern projections from instantaneous photographs showing the vibrations and waves of musical sounds and optical pictures produced by them. During the lecture an improvised experiment was afforded by the ringing of the fire alarm in the Gift's Engine-house, adjoining.

FIRE.—The photographic establishment of T. F. Indermill, at St Joseph, Mo., was entirely burned out January 21st. A telegraphic dispatch from Mr. Indermill states that the loss is a total one, but is amply covered by insurance. We extend our hearty sympathy to Mr. Indermill in this time of trouble.

PHOTOGRAPHIC GALLERY WRECKED.—Orange Graves, of Martinsville, Ind., has a stereopticon which he operates with oxyhydrogen gas. Mr. Graves had his instrument in a photographic gallery, testing it. The gas is held in a large, rubber bag, and during a cessation of the performance, was not turned off, and an explosion was the result. The gallery and instruments were damaged to the extent of several hundred dollars, while the building suffered much greater damage. The photographer was rendered totally deaf for a time, but has slightly regained his hearing. Nearly every particle of glass in the gallery, with the exception of negatives, was broken. The sky and side lights were badly wrecked. A hole was torn in the ceiling large enough for a man to crawl through. A large hole was also torn in the floor. The jar was felt a block away. Let this be a warning to those who are careless in the use of oxyhydrogen gas.

CHAUTAUQUA.—The annual meeting of the Chautauqua Assembly Board of Trustees was held at Akrono, on Friday, January 11th, Lewis Miller presiding. Officers were elected as follows: President, Lewis Miller, Akrono; Chancellor, Bishop Vincent, Buffalo; Secretary and Superintendent, W. A. Duncan, Syracuse, N. Y.; Treasurer, E. A. Skinner, Westfield, N. Y. The report of the Secretary and Superintendent, W. A. Duncan, of Syracuse, showed receipts for the year of $83,129; expenditures, $63,994; leaving a balance of $19,236, which was expended for improvements and in buying additional assembly property.

CHAUTAUQUA ART STUDIES.—To give an idea how the artistic pursuits are fostered in Chautauqua we extract from the general prospectus for 1889 the following:

"Professor Ernest Knaufft remains at the head of the school of fine arts, with which a class in industrial drawing will be connected. Prof. Charles Ehrmann, of the Chautauqua School of Photography, will instruct in the theories of the art-science, and lead practical exercises in atelier and field. China painting and wood carving will be taught as usual, and it is to be hoped Prof Spring will resume his position as director of the school of sculpture and modeling.

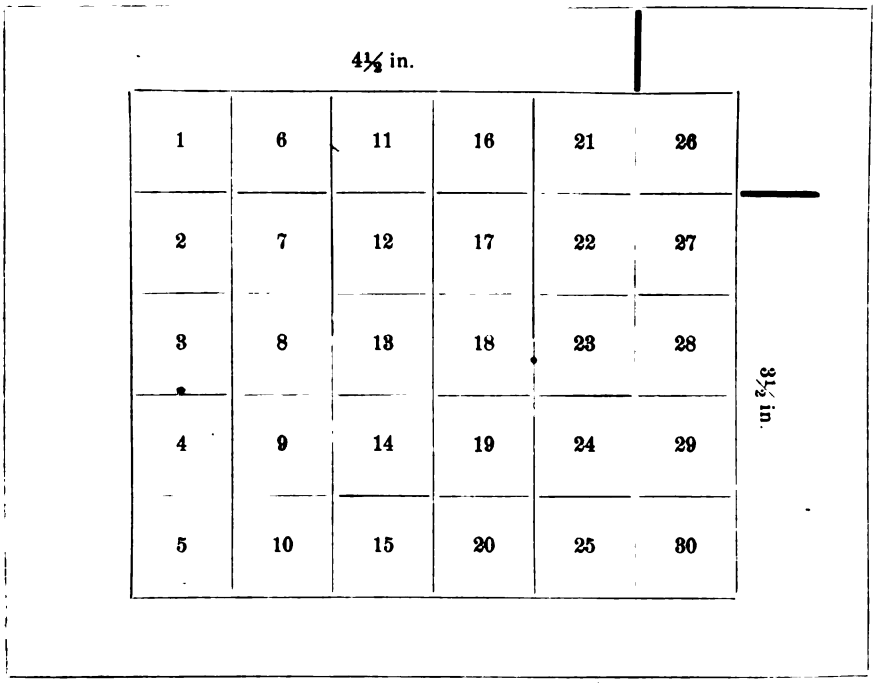
"The demand for admission to the several classes of the School of Photography is constantly increasing Those desiring to join the practicing class, open at the assembly grounds during the summer months, should file application on an early date. In order to arrange time for photographic instruction to those engaged in other studies, and considering the unexpectedly large number of students of last year, a previous knowledge of the number to be instructed has become almost a necessity."

HOW TO CONSTRUCT AND USE A SENSITOMETER.—On account of the many inquiries sent to the photographic journals, asking for information on the above subject, I believe that a description of how to construct a sensitometer for testing the speed of dry plates of different makers, or different batches of one maker, would be acceptable to the many readers of "The Times Annual for 1889."

It would be a very desirable thing if manufacturers of dry plates were to use sensitometers of similar construction and the same form of light. Any one may with very little trouble construct a sensitometer, and produce the same form of light we have used for the past six years, proposed by Captain Abney.

Procure a sheet of tracing paper, known as papier mineral. Cut from it twenty-nine pieces, 3½x4½ inches. Cut another piece 4x5 inches. On this piece, with a drawing pen and India ink, draw a rectangle 3½x4 inside, equally spaced; draw another one 2½x3. Then divide the inside square into thirty half-inch spaces. Number the squares, with steel pen and India ink, from one to thirty, commencing at left upper corner and number from 1 to 5, second column 6 to 10, and so on downwards (Chinese style). When finished and dry, examine, and if the figures

are not opaque, carefully trace over them. Now take a clean piece of glass, about 5x8 inches, touch with mucilage the four corners of the diagram, place face down on the glass, turn over, and you have your guide to cut out the spaces from the twenty-nine pieces. To do this, place them to your right. Then take the first piece, lay it over the guide so as to coincide with the 3½x4½ inch square. With rule and sharp knife cut the square 26, cutting through the margin at right and top, see diagram. Then cut out 26 and 27 from the next piece, and so on, for each piece of paper you cut an additional square, cutting through the margin top and side. For lower figures in a row the bottom also place the pieces from which the squares have been cut before you in a pile in the order in which they were cut. Then lay them down in order on the glass. Commencing with the space covering figure 5, touch lightly with mucilage the left and lower margin of each piece, being careful to adjust the pieces to coincide with the squares of the guide. When all are laid down, carefully remove the guide. Gum the margin on the figure side. Lay it face down with figure 1 over the empty space or 26 diagram. Then cut from a piece of any thin, opaque, or non-actinic paper, a mask with opening 2½x3 inches, and



paste down on the glass. Put under paper with a book or two on top, and, when dry, your sensitometer is ready.

The light we use is a coal oil lamp, with argand burner and parabolic reflector, which can be obtained at any house furnishing store. We prefer this form of light to gas or electric light on account of its steady and uniform quality. Dissolve two ounces of camphor in sixteen ounces of high test coal oil for use in the lamp. Turn up the flame so as to just show through the opening in reflector. Place on a support in line with a bench or shelf on which the printing frame with sensitometer and plate to be tested, placed at a distance of four feet from surface of glass in printing-frame to lamp chimney, and expose ten seconds. Develop by a standard formula the year round, giving attention to temperature of solutions, which we endeavor to have at from 65 to 70 degs. Use the alkali solution, showing 5 degs of Beaumé hydrometer, to three ounces of which add one and one half drams pyro solution, containing one of pyro in sixteen of solution, as per Keystone formula. Develop for about same time as you would for a properly timed plate exposed in the camera, and the highest number shown on a well-defined ground is the sensitometer number of the plate.—*John Carbutt, in the American Annual of Photography for* 1889.

PHOTOGRAPHIC MERCHANTS' ASSOCIATION.—The annual meeting of the Western Photographic Merchants' Trade Association will be held at the Burnett House, Cincinnati, O., on February 12th, at two o'clock P.M.

Photographic Societies.

PHOTOGRAPHIC SECTION OF THE MANHATTAN CHAPTER OF THE AGASSIZ ASSOCIATION.

AT the regular monthly meeting of the section, held at the rooms of the Chapter, 103 Lexington Avenue, on Friday evening, January 18th, the annual election of officers occurred, with the following result:

President, W. T. Demarest; Vice-President, W. P. Weidman; Recording Secretary, C. F. Groth; Corresponding Secretary, E. B. Miller; Curator, R. P. Moeller; Librarian, F. W. Roos; Board of Trustees, A. Nehrbas, F. Schneider, O. H. Lee, J. Bauermann, M.D., and J. Nehrbas.

The election was not concluded until a late hour, in consequence of which the lecture on "Objectives," by Mr. Frederick Schneider, was postponed until the next regular meeting, which takes place Friday evening, February 15th, when all who are interested are invited to be present.

W. T. Demarest.

THE PHOTOGRAPHIC SECTION OF THE ROCHESTER ACADEMY OF SCIENCE.

To the Editor of the PHOTOGRAPHIC TIMES.

Dear Sir: The Photographic Section of the Rochester Academy of Science has ceased to exist, and a new society has been formed, which bids fair to be far more successful than the old. The new society will be known as the Camera Club of Rochester, N. Y. It commences with a membership of 62, which includes all of the members of the late Photographic Section.

Mr. Peter Mawdsley, the new secretary (to whom all communications should be addressed) will furnish you with reports of the meetings.

Thanking you for the courtesy shown me while secretary of the Section, I am

Yours respectfully,

James Streeter.

ROCHESTER, N. Y., Jan. 21st, 1889.

ATLANTA CAMERA CLUB.

THE Atlanta Camera Club have taken two outings, one to Stone Mountain, the vast granite cliff of Northwest Georgia, and the other to Salt Springs, the seat of the Piedmont Chautauqua. This last was on invitation of the proprietor of the Sweetwater Park Hotel. Part of the day was spent boating on the Sweetwater River—a rare treat to Atlantians—and part in exploring the grand ruins of the Manchester Manufacturing Company's factory which was destroyed in Sherman's March. It stands on the heavy rapids, with magnificent forest background, and, even aside from its history, is one of the most interesting of spots to visit.

The club have a fine and varied collection of pictures finished—pictures that would be interesting in exchange with other photographic societies.

The Atlanta Camera Club was organized in September last, and now has a membership of over thirty. Sumner Salter, President, and T. J. Pacon, Secretary. The club is doing excellent.

E. Marguerite Lindley,
Corresponding Secretary.

124 PEACHTREE STREET, ATLANTA, GA.

Our Editorial Table.

"THE YEAR-BOOK OF PHOTOGRAPHY AND PHOTOGRAPHIC NEWS ALMANAC" FOR 1889. "The Photographic News Almanac" is the last of the pbotographic annuals to appear. It can scarcely be considered the least, however, since it contains many articles of value written especially for its pages; and the Editor's "Annals ot Photography" for 1888 is a concise, well-written account of photographic work and progress during the past year. The American information is considerably slighted. There is no list of photographic societies, and the list of American publications is strangely incomplete and incorrect. Still, it can scarcely be expected that the editor of the "Year-Book," in London, could obtain full or correct information concerning America. The book is embellished with a group of champion great Danes, by the Woodbury Company, from a negative by Thomas Fall; and a specimen collotype, in the advertising pages.

WE learn by letter that the maker of the three Kodak pictures referred to in our note on page 36 of January 18th issue, is Mr. Joseph Macks, of Charleston, S. C. The prints were made on Scovill's ready-sensitized paper, and the negative films were not stripped from their paper supports.

WE have received the Twenty-Seventh Announcement of the Chicago College of Pharmacy, of which our friend, Dr. H. D. Garrison, is Professor of Physics and Chemistry, and Dean of the Faculty. The report shows the importance and usefulness into which this college has grown.

FROM the Schultze Photo. Equipment Company, 5 Chatham Square, New York, we have received a calendar with wishes for a happy and prosperous New Year. The calendar is original in design and neat in execution, and compares favorably with the many others which we have received this year.

ANOTHER calendar comes to us, and this one is from Holmes, Booth & Haydens. It is printed in large, clear type, and has reference calendars for 1888 and 1890 at the back.

OUR friend, Mr. C. H. Shepherd, Melvin Village, N. H., sends two 5x8 photographs and two smaller ones. The 5x8's are respectively of the old house and windmill on Cow Island, on Lake Winnepesaukee, and Melvin Village and Ossipee Mountains, from the lake. Cow Island is rather a large tract of land near the course of the steamers from Wolfeboro to Centre Harbor. No one lives on the island at present, but the windmill, which is conspicuous from the steamers as they pass, was used for grinding corn more than fifty years ago, and the old house, by which now the cattle wander at will, was inhabited then. One of the smaller pictures is a cabinet enlargement from a gem-sized tintype, made many years ago, and is quite a remarkable picture. It was made with Mr. Shepherd's home-made apparatus for enlarging, which he has described for the readers of the TIMES.

Queries and Answers.

27 CURIOUS writes: 1. Will you kindly inform me, through the TIMES, how those prints of vignetted heads, that we see in the galleries, having the appearance of the corners curled up (and yet the prints are as flat as any other), are made? They look as though copied from first print with corners curled. 2. Is there anything in the shape of vignetting apparatus to produce that effect, for sale?

27 This is done by double printing. First print a vignette in the usual manner; then expose the picture under a negative bearing the rolled-up paper or other design, covering the parts to remain white or light with an accurately-made mask.

28 B. L., of Toronto, writes: "When toning Obernetter chloride of silver gelatine paper, the gelatine becomes so soft at times as to wash off the paper. Toning, I find, to be very difficult. Please assist me by your advice."

28 Harden the gelatine film in a weak alum solution; wash well, and use the Chautauqua toning-bath in the "American Annual of Photography for 1889," page 270, No. 88, or use the toning-bath, of which a formula accompanies the American aristotype paper, and if you don't succeed, drop the chloride of silver gelatine and take up the chloride of silver collodion or American aristotype paper, which you will find much easier to work.

29 LIZZIE FRIEDLANDER complains very much of pinholes, and holes of larger size, she has encountered with the Carbutt B plate.

29 If our young friend would remember that she has been told to brush the plates before inserting them in the plate-holder, we do not think she will have any reason to complain.

SUPPLEMENT

TO THE

PHOTOGRAPHIC TIMES.

FRIDAY, FEBRUARY 1, 1889.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

SPECIAL LANTERN-SLIDE EXHIBITION.

THE Committee on Papers and Publications send us the following report:

The work of two successful amateurs was shown on Friday evening, January 18th, 1889, at a special exhibition held at the rooms of the society, 122 West Thirty-sixth Street. The exhibition opened with Mr. Charles Simpson's illustrations of the "Open Air Statuary of New York," which comprised forty-three views of about forty-different statues. In speaking of his work, he remarked that it was the most difficult piece of photography he had ever undertaken. He made all the views with the detective camera, and at different times. Of one he made nine separate exposures before he obtained a picture that was at all satisfactory.

The chief trouble was the exceedingly dark color of the bronze figures (especially when they faced the north), in bringing out the details sufficiently. Again, very undesirable backgrounds would appear when a position was selected which would make the statue show to its best advantage. It was also surprising to note how scant a record was kept by the city of the dates when the statues were put up, the names of their sculptors and designers, and any other interesting information connected with them. He had had great difficulty in getting the information. It had taken him about one and a half years to make the collection. There were only two statues of Presidents of the United States in New York city. The pictures were quite interesting, as showing the number and variety of statues in New York and the work reflected considerable credit on Mr. Simpson for the time, perseverance and energy he had expended.

Following his views were about fifty beautiful slides by Mr. James E. Brush; these included some wonderful pictures of Niagara Falls in "Ice Chains," as the programme stated, and a great many fine landscapes in the White Mountains. One was an enlarged view of the "Profile on Mount Cannon, which he had enlarged directly upon the lantern-slide plate from the small image on the negative.

The result was to bring out the details remarkably clear, making the "Profile" appear much larger, as if one was looking at it with a telescope. It was said that it looked much larger on the screen than one could see it with the naked eye. To enlarge so successfully requires fine lenses and great care in focusing. Another view was of the steamer "Bristol," of the Fall River Line, recently burned at Fall River. It appeared like a shadow of its former self.

Altogether the exhibition was a decided success, as was shown by the frequent demonstrations of applause by a large and appreciative audience, among which were many ladies. In the latter was noticed two daughters of the Secretary of War, Mr. Endicott, one of whom, it is understood, is quite an enthusiastic amateur. The lantern was operated by Mr. F. C. Beach and Mr. Frank F. Cobb, while Mr. J. Wells Champney, seated in the audience, announced the titles of the pictures, making, as he usually does, interesting and instructive comments thereon.

Mr. Brush also explained some of the difficulties he met with in taking a few of the pictures. Mr. A. L. Simpson kindly assisted in seating the audience and otherwise aided the committee. Mr. Beach announced that the absence of President Canfield was due to a slight but painful accident that had happened to him a few days ago. There is to be a commemorative meeting on January 31st, on which occasion prominent and old photographers are to make addresses, and on February 12th, "Photogravure Processes," by Mr. Ernest Edwards, will be explained.

BROOKLYN ACADEMY OF PHOTOGRAPHY.

THIS Photographic Association met for the first time in the hall of the new Hoagland Laboratory, a large audience being present.

President W. G. Levison opened the meeting with a short history of the club, concluding by introducing Mr. Frank La Manna, the Vice-president of the Academy.

Mr. La Manna spoke of his recent trip abroad, and presented the numerous valuable gifts which had been made through him by distinguished members of foreign photographic circles to the Brooklyn Academy of Photography. The gifts were as follows:

No. 1. From Professor Janssen, President of the Academy of Sciences of France and Director of the Observatory at Meudon:

A photograph of sun-spots and photosphere, with autograph of Janssen.

Annuaire of the Bureau of Longitudes. Paris.

Sundry reports to the Academy of Sciences.

No. 2. From Professor Marey, Member of the Institute and Direetor of the Station of Physiological Research at Port-au-Prince:

Photographs of flying birds and of a falling ball.

Photo-engravings of similar subjects.

No. 3. From Messrs. Paul and Prosper Henry, the eminent astronomers of the Observatory in Paris:

Positive on glass from their original negative of constellation Cygnus.

Photograph of portion of moon's surface.

No. 4. From Mr. Albert Londe, Vice-president of the Society of Excursionists and Director of Photography at La Salpetrière, Paris:

Twelve photos of medical subjects.

Lecture on "Photography and Its Application."

No. 5. From M. Gauthier-Villars, member of the Société Francaise and publisher of scientific works:

"La Photographie," by A. Davanne, president of Société Francaise. 2 vols. Paris, 1888.

No. 6. From Mr. Henri Gautier Villars, member of the Société Française:

Several works on photography and its applications and technics.

No. 7. From Dr. Damaschino, Director of the Hospital Laeunec, Paris:

Photographs of various Parisian scenes.

No. 8. From Paul Nadar:

Portrait of Mr. Davanne, on Eastman bromide paper.

No. 9. From Guillaume Pettit:

Several specimens of photogravure.

No. 10. From Monsieur Poyet, member of the Société des Excursionists:

Photographs of Professor Janssen's laboratory.

The presents were received by President Levison in behalf of the society, and a cordial vote of thanks was passed for them.

The Vice-President then favored the audience with an interesting running account of his European trip, illustrating it with about one hundred photographic views gathered while abroad.

A Nominating Committee was appointed, to report at the next meeting, when the elections for the officers for the ensuing year will be held.

PHOTOGRAPHIC SOCIETY OF CHICAGO.

THE annual meeting of the above society was held January 16th at its new quarters on State Street, Prof. G. W. Hough presiding.

After some informal business, the society proceeded to elect officers for the ensuing year. The gentlemen chosen are as follows: President, Judge J. B. Bradwell; Vice-Presidents, Prof. G. W. Hough and C. F. Charles; Treasurer, Gayton A. Douglass; Secretary, C. Gentile.

The next order of business was the discussion of a proposal to hold an International Exhibition in Chicago in the near future, the exhibit to consist of everything appertaining to photography.

Considerable enthusiasm was evinced by the members present at the idea, and all expressed a willingness to put their shoulders to the wheel in order to make the affair a success.

A motion was unanimously adopted that the newly-elected officers constitute a Committee on Exhibition in order to make all arrangements for the successful carrying out of the will of the society in this matter. Full particulars will be given to the public at an early date.

Mr. G. A. Douglass said that it was necessary that the society should be incorporated. Hitherto we had got along without; but if we intended to give an exhibition on the scale proposed, it was well to incorporate. Incidentally he mentioned the fact that the Chicago Photographic Society was the second oldest in the United States, having been organized in 1869, the Philadelphia Society antedating it by a few years. On motion, it was resolved to incorporate.

The Chairman asked if any of the members could give him and the society any information about hydrochinon as a developer.

Judge Bradwell said that he had been using hydrochinon for some time, and was very well satified with it, but possibly Mr. Harley could say more about it.

Mr. R. P. Harley said that he had used hydrochinon for nearly a year steadily, and had every reason to be pleased with it. He could get fully as much out of a plate with it as with pyro. The only fault it had was a slight tendency to fog if the plate had not been properly exposed. The formula he used was as follows:

No. 1.

Hydrochinon (Herf & Frerich)	96 grains
Sulphite soda, granular, c. p.	320 grains
Water, distilled, to	8 fluid ounces

No. 2.

Carbonate soda, granular, c. p.	400 grains
Caustic soda, c. p.	80 grains
Water, distilled, to	8 fluid ounces

DEVELOPER.

No. 1	1 ounce
No. 2	1 dram
Water	8 ounces

Mr. M. J. Steffens said he was a convert to hydrochinon. He got no fog; never had seen any. Probably the reason was that he believed in ample exposure. He said he was in the habit of making two exposures on an 8x10 plate; sometimes one exposure got half a second, the other six seconds. Both developed up the same; in fact, it was difficult to tell which of the exposures was the shortest or longest. Another advantage was that it did not stain the fingers. It could also be used over and over; then put in a bottle for future reference. The hydrochinon he used was Herf & Frerichs, of St. Louis. The formula is as follows:

No. 1.

Hydrochinon	1 ounce
Sulphite of soda	5 ounces
Distilled water	80 ounces

No. 2.

Carbonate soda	10 ounces
Distilled water	80 ounces

For use, equal quantities of both.

Mr. Steffens asked the members present to take this developer and use it understandingly. If they did so they would never go back to pyro.

Mr. P. B. Green said that he had used hydrochinon, but could see no advantage that it possessed over pyro. Pyro was good enough for him.

Judge Bradwell said "The old guard dies, but never surrenders." Mr. Green might die, but he would never give up pyro.

After transaction of the usual routine business the society adjourned.

FLASH-LIGHT GROUP.

Made in the Rooms of the Society of Amateur Photographers of New York, at the Meeting held Tuesday Evening, November 13th, 1888.

PHOTO-GRAVURE CO. N. Y

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, FEBRUARY 8, 1889. No. 386.

ART.

Give to barrows, trays and pans
Grace and glimmer of romance;
Bring the moonlight into noon
Hid in gleaming piles of stone;
On the city's paved street
Plant gardens lined with lilac sweet;
Let sprouting fountains cool the air,
Singing in the sun-baled square;
Let statue, picture, park, and hall,
Ballad, flag, and festival,
The past restore, the day adorn,
And make each morrow a new morn.
So shall the drudge in dusty frock
Spy behind the city clock
Retinues of airy kings,
Skirts of angels, starry wings,
His fathers shining in bright fables,
His children fed at heavenly tables.
'Tis the privilege of Art
Thus to play its cheerful part;
Man in earth to acclimate,
And bend the exile to his fate;
And, moulded of one element,
With the days and firmament,
Teach him on these as stairs to climb,
And live on even terms with Time;
Whilst upper life the slender rill
Of human sense doth overfill.

—*Emerson*.

THE FLASH-LIGHT GROUP.

IN our issue of November 23, 1888, we spoke of the "flash-light negative" which was made at the rooms of the Society of Amateur Photographers of New York, by Messrs. A. Peebles Smith and Edward W. Newcomb, and at that time gave a half promise to show a reproduction of it to our readers. Mr. Edwards, of the Photo-Gravure Company, has enabled us to fulfill that promise by the excellent gelatine print accompanying this issue. The titling on the print gives the date of the meeting at which the exposure was made. The negative was made on one of the ivory films, with a Wale lens, and developed with a pyro-soda developer composed as follows:

a. Sulphite of soda to test 60 deg. by actino-hydrometer.

b. Carbonate soda to test 20 deg. by Hydrometer.

c. Pyrogallol..... 1 ounce
Water..... 12 ounces
Oxalic acid..... 30 grains

The film was first soaked in a solution composed of two drams of *c* in six ounces of *a*, and then transferred to a solution consisting of equal parts of *b* and water. Seventy grains of Scovill magnesium compound was used. Focus was previously obtained by the light of a magnesium ribbon, an aperture of $\frac{f}{8}$, used in the Wales lens, employed. No serious attempt was made at grouping, everything being more or less hurried, and the object being to test the magnesium compound. Previous to this experiment, no satisfactory flash-light group in the Society Rooms had been photographed, though many attempts had been made.

Before the exposure, a quantity of the magnesium powder was vigorously pounded in a mortar, to prove its non-explosiveness; and forty grains were actually *eaten*, to establish its non-poisonous character.

It should be explained that the peculiar softness of the gelatine print was given it by printing *through* the film. There is always a slight indistinctness in the print when this is done. It was necessary to print through the film in order to make the positive appear non-reversed, like the original.

An interesting account of the Society of Amateur Photographers, its present and future prospects, will be found in another column over the signature of C. W. Canfield, the President.

SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

IN response to your request for a brief view of the present and future prospects of the Society of Amateur Photographers, I am happy to say that I consider the Society in a most flourishing condition.

Notwithstanding the fact that the present society year inaugurated the experiment of increasing the annual dues over 50 per cent., the accessions of new members have exceeded the resignations, and a sinking fund, which was begun this year, of nearly $600 has been accumulated, putting the organization on a firmer financial basis, and assisting in giving it more standing with the community at large.

The meetings have been well attended, so that it has been found necessary to limit the attendance by making the admission by ticket; even then the rooms have been at times uncomfortably crowded.

This evidences an active and growing interest in the meetings, which has given encouragement and stimulus to those having them immediately in charge, and the committee promise even more attractive programmes for future meetings.

Two "Smoking Concerts" have been given, which were very pleasant occasions. The meeting held last week in commemoration of the semi-centennial of the announcements of Talbot and Daguerre's discoveries, and the centennial of Daguerre's birth as well, was of the highest interest.

The exposition of the Daguerreian apparatus, the magnificent specimens of Daguerreotypes and Talbottypes, shown in connection with them by the courtesy of the officers of the School of Mines of Columbia College, the personal reminiscences of the Daguerreotype days by the veterans Bogardus and Beckers, and of early dry-plate experiences of pioneer amateurs, by Mr Newton, well repaid those who attended, leaving out of account the privilege of examining the original Daguerreotype of Daguerre himself, made by Meade Brothers, and now in possession of Mr. Bogardus.

At the regular meeting of Feb. 12th., photo-mechanical printing processes will be treated on by Mr. Ernest Edwards.

Mr. Richard H. Lawrence will shortly give an account of his recent trip through Norway and France, with a detective camera, illustrated by lantern-slides from his negatives.

A "ladies' night" is also being arranged, on which occasion papers on photographic subjects by lady amateurs will be read and work by lady amateurs will be shown; prints, lantern-slides, photographic fancy work, suitable for gifts, etc.

Space has been secured for an exhibit of the Society at the coming Paris Exhibition, and a committee appointed to prepare and forward it.

Vigorous efforts are being made to have the Society well represented at the Joint Exhibition in Philadelphia, which will be one of the leading events of the year in this country.

The rooms of the Society are much frequented by the members, and the facilities which they supply fully employed. All of the popular monthly magazines, art-journals, etc., are taken by the society.

The reports of the meetings, of course, give in detail the accounts of our work and speak for themselves as to the progressiveness of the Society.

C. W. Canfield.

EDITORIAL NOTES.

We print this week a communication on "Business Methods," by George R. Angell, in continuation of the subject started last week by Mr. T. H. Blair.

Mr. Angell's suggestion for saving expense by having catalogue leaves supplied from one source, which might be supplemented and completed by pages giving the individual dealers' special goods, will at once appeal to all as a very sensible and practical idea.

In a private letter from Mr. Gayton A. Douglass, on the same subject, we read:

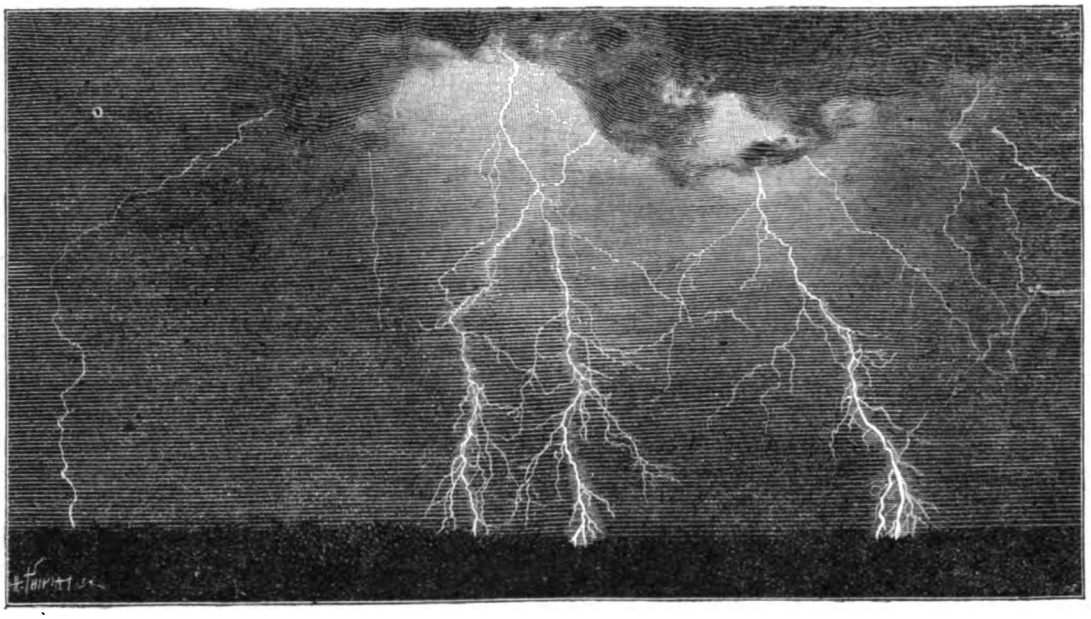
"Greater care should be used in selecting goods for advertising. The matter of charging for catalogues issued by our trade is doubtful economy. Taking a catalogue like that which some of our hardware firms get up—one edition which has just been completed by a hardware house here costing over $50,000--it is well enough to make a charge for, but this is very seldom done. Whenever they see a chance of getting some orders, the catalogue is placed in the prospective buyer's hands. The amount of expense to the volume of trade, we think, would be about the same as the sums invested by merchants in our line doing the same thing."

Let us hear from others.

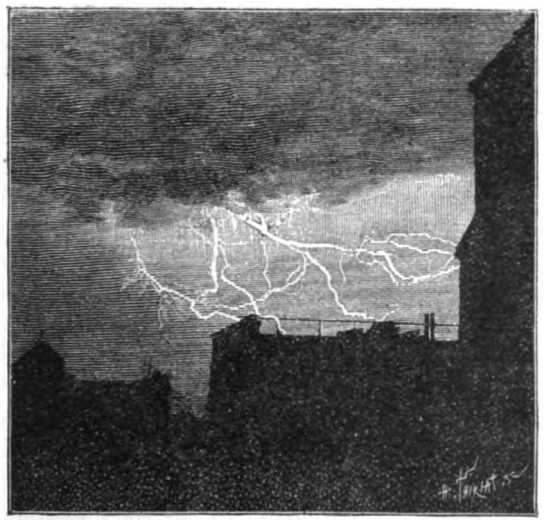
The assistance rendered by photography to science is more and more appreciated, and its aid is especially valuable to meteorology. The different shapes and classes of clouds are more easily recorded by photography than by any other method, and nothing has so much advanced the study of that manifestation of atmospheric electricity known as lightning.

The accompanying cuts are copied from "La Nature." The first is from a photograph taken by Mr. A. H. Binden, of Wakefield, Mass., at half-past eight o'clock on the evening of June 23d, 1888, and by him sent to Mr. J. Jackson, the Librarian of the French Geographical Society, at Paris, who communicated it to the editor of "La Nature," M. Gaston Tissandier. This gentleman is especially interested in the demonstration by the photograph

of the numerous ramifications of the bolt, which various authorities state do not accompany "zig-zag" lightning as a rule. This American illustration comes to us by a roundabout way. We hope that our friends who have or may obtain similar negatives will favor us with prints from them, so that we may be instrumental in first giving them to the world.



PHOTOGRAPH OF LIGHTNING.
Made by A. H. Binden, Wakefield, Mass., June 23, 1888.



PHOTOGRAPH OF LIGHTNING.
Made by M. Félix Burle, Paris, July 22, 1888, 10 P.M.

The other cut is from a photograph taken at Paris, July 22, 1888, at 10 P.M., by M. Félix Burle.

THAT the illustrated numbers of THE PHOTOGRAPHIC TIMES, since the 1st of January, 1889, have met with an unexpectedly enthusiastic reception, was clearly shown by the speedy exhaustion of the first two or three issues. Later numbers were issued in still larger editions; notwithstanding which fact, the demand continues to outgrow the supply. This was largely due, of course, to the attractiveness of the photogravure pictures which embellish the columns; though many encouraging evidences were shown of a wider appreciation of the reading matter as well. The latest evidence of the great attractiveness of the photogravure illustrations, is shown in the fact that when it is known that a certain edition is out of print, the temptation to possess a copy of that number proves so strong that even well-grounded principles of honesty are overcome, and copies of the journal *mysteriously disappear.*

THE application of soluble bromides to developing solutions for bromide silver paper, has heretofore been considered invaluable in every case where brilliancy of tone and decided neutral color was desired; but now Dr. F. Stolze very properly declares that this idea is an erroneous one. He claims that the best tones are obtainable only when the paper itself is in good condition and the time of exposure has been correct. The restraining bromide is only necessary when the negative printed from is unusually weak and lacking in detail. Bromide of potassium added to the developer tends to produce a tone on the bromide paper

that is not at all desirable. It is better to begin development with a small amount of the iron solution, when over-exposure is feared, than to add bromide of potassium; for the iron solution may be added gradually as the developing process goes on, and a better tone result than when a restraining solution of bromide is employed. Old developer may be used in retarding the action of development, but we think it better to begin with a fresh developer, weak in iron. As soon as over-exposure makes itself apparent in development—even when a solution weak in iron is being used—remove the developer at once from the print, and substitute for it a solution of oxalate alone; then add gradually small portions of the developer previously used, and proceed until the proper amount of detail and density is acquired. In this way we have saved from absolute ruin prints that were greatly over-exposed.

Dr. JOHN E. DUMONT, of Rochester, sends the following description of a simple method for flashing magnesium: "After purchasing an instantaneous lamp that will not burn five grains of magnesium at one flash," he writes, "I went into the kitchen and got a corn-popper, covered the bottom with flash-cotton, over which I sprinkled magnesium powder in the proportions recommended by Dr. Piffard. At the proper moment, I drop the popper into a gas-flame, and the picture is taken. With this simple arrangement I have successfully ignited thirty grains of magnesium, without waste, at one flash. In taking a large group, I would suggest the use of two poppers, with ten to fifteen grains in each, held in each hand as far apart as possible, with candles or lamps where the poppers can be lowered into them."

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—(*Continued.*)

CARBOLIC ACID; (PHENOL).

Formula, C_6H_6O: Combining weight, 94.

Coal-tar is the principal source of carbolic acid. When purified it crystallizes in colorless needles, which melt at 102 deg. F. It is soluble in water, and still more soluble in alcohol, ether, and acetic acid. Although called an acid, it does not redden litmus paper. Of late years carbolic acid has been largely used as a disinfectant; and as a preventer of putrefaction and fermentation. These valuable qualities appear to be due to its power of coagulating albumen. When a few drops of an aqueous solution of carbolic acid are added to albumen, gum, etc., decay or mould will be prevented. Carbolic soap contains from five to twenty per cent. of the acid, and is most useful, not only for general purposes, but in special cases where a disinfectant is required.

CARBON.

Symbol, C: Combining weight, 12.

Carbon is found free in nature as the mineral graphite (commonly called black-lead, or plumbago), and crystallized as the diamond. Coal usually contains from three quarters to nine-tenths its weight of carbon. All organic compounds contain carbon, and they give evidence of this by *blackening* when heated. In this way we often notice the presence of this element in bread, meat, etc.

By heating coal, wood, or bones in iron retorts, the gases these substances contain are driven off, and the forms of carbon known as coke, charcoal, and bone-black are left behind. Lamp-black is a finely divided form of carbon deposited from burning oil, or tallow; and in the same way we get gas-black by holding some cold incombustible body in a gas flame.

Carbon has never been melted or dissolved. Amorphous carbon or charcoal has a remarkable power of absorbing and condensing gases. In this way it destroys bad smells, and prevents putrefaction. It also retains the coloring matter of liquids passed through it, and is used for this purpose in the purification of raw sugar, and in filters, etc.

CARBONIC ACID GAS.

Formula, CO_2: Combining weight, 44.

Carbonic acid gas is chemically known as *carbonic anhydride*, because, when added to water, it produces a feeble acid—the true carbonic acid, H_2CO_3. But this acid cannot be obtained pure, and its aqueous solution is very unstable. Carbonic acid gas is usually prepared by the action of dilute hydrochloric acid on marble (calcium carbonate); but it is released whenever one of the carbonates is treated with a stronger acid; and is formed whenever carbon, or any substance containing carbon, is burnt in the air.

Carbonic acid gas is colorless, it will not burn, nor will it support combustion; it is so heavy that it can readily be poured, like a liquid, from one vessel to another. Animals soon die when placed in an atmosphere of this gas, and many human lives have been lost owing to its accumulation at the bottom of old wells, in brewers' vats, etc. By cold and pressure combined, carbonic acid gas can be reduced to a colorless liquid whose evaporation can be made to produce a most intense cold —166 deg. F.

Commercially, carbonic acid gas is largely used in the manufacture of effervescent drinks, such as

soda-water, ginger-beer, etc., the gas being forced into the liquid by pressure.

The sparkling appearance of spring-water, champagne, and most ærated waters is due to the presence of carbonic acid gas.

Castor Oil.

This is a viscid oil obtained from the seeds of the "castor oil plant," *Ricinus communis*. It slowly hardens by long exposure to the air but does not solidify even at 0 deg. F. It is soluble in alcohol. When a small quantity of castor oil is mixed with collodion it toughens the film so that it can be more readily transferred from the glass plate to some other support. It also imparts a toughness to varnishes.

Chlorine.

Symbol, Cl. : Combining weight, 35½.

Chlorine was discovered by Scheele, in 1774. It is never found free in nature, but occurs plentifully combined with sodium (as common salt, Na Cl), and with many other metals, forming binary compounds called chlorides.

It is a greenish-yellow heavy gas, possessing a powerful and disagreeable smell (something like that of sea-weed). It is very dangerous to inhale chlorine; hence it should always be prepared in the open air or where there is a free draught.

For this purpose we may mix one ounce of salt with one ounce of black oxide of manganese in a glass retort, and then add two ounces of sulphuric acid, previously diluted with an equal quantity of water. When a very gentle heat is applied, chlorine gas will come off in abundance. It should be washed by passing it through water.

By submitting chlorine to a pressure of about seventy-five pounds per square inch, it is converted into a heavy yellow liquid.

Chlorine is very soluble in water, and the solution—known as "chlorine-water"—is used for many purposes instead of the pure gas. Its powers of combination with other elements are very marked. A mixture of chlorine with hydrogen explodes when exposed to sunlight or to the light of burning magnesium, the two elements combining to form hydrochloric acid gas.

When metals in the state of a fine powder are dropped into chlorine gas, they take fire spontaneously, and the chlorides of the metals are formed.

Chlorine bleaches all animal and vegetable colors, and it is largely used for this purpose in the manufacture of paper, of cotton, and of linen. If all traces of chlorine are not removed after bleaching is effected, the substance will rapidly rot. Hyposulphite of soda—the photographers' bane—is frequently used to effect this complete removal of the last traces of chlorine, and is hence called an "anti-chlor."

Chloroform.

Formula, $CHCl_3$: Combining weight, 119½.

Chloroform can be prepared in several ways, as by distilling bleaching powder with very dilute alcohol, or by the action of chlorine on marsh gas. It is a colorless, heavy, volatile liquid, having a strong and rather agreeable smell. When inhaled it produces perfect though temporary insensibility to pain. It is a good solvent for sulphur, phosphorus and iodine, and for most fatty and resinous bodies, especially caoutchouc. It has no action on collodion, and does not mix with water; it dissolves readily in alcohol.

Chlorinetted Lime (Calcium Chloro-hypochlorite or Bleaching Powder).

Formula, Ca(OCl)Cl : Combining weight, 127.

This substance is commonly known as "chloride of lime" and as "bleaching powder." Chemists are not fully agreed respecting its chemical nature, some regarding it as a *mixture* of calcium chloride with calcium hypochlorite, while others consider it to be a true chemical compound—calcium chloro-hypo-chlorite.

Bleaching powder is made on a very large scale in the alkali works of South Lancashire. The floors of large chambers are covered with dry slaked lime, and the chambers are then filled with chlorine gas, which combines with the lime. Commercial bleaching powder contains from twenty-five to thirty-five per cent. of available chlorine. It is a white powder which has a faint smell of hypochlorous acid, and attracts moisture from the air. For bleaching purposes the articles are first dipped in a clear dilute solution of the bleaching powder, and then placed in very dilute hydrochloric acid. In this way chlorine is liberated, which combines with the coloring matters to form colorless compounds.

Under the name of "chloride of lime," bleaching powder is largely used as a disinfectant. In photography it is used as an ingredient of a toning bath which gives black tones.

Chromium Potassium Sulphate. (Chrome Alum.)

Formula, $Cr_2(SO_4)_3$, $K_2SO_4+24H_2O$. Combining weight, 566+432=998.

Prepared by passing sulphurous acid gas through a mixture of potassium bichromate and sulphuric acid. Also obtained as a bye-product in the manufacture of alizarine.

Chrome alum forms octahedral crystals, dark-red—almost black—in color, soluble in seven parts of water.

Chrome alum is employed in tanning. In photography, it is used to toughen and render insoluble the films of gelatine used in the manufacture of dry-plates.

CITRIC ACID.

Formula, $C_6H_8O_7+H_2O$: Combining weight, 192+18=210.

Citric acid is principally prepared from the juice of lemons, by the addition first of powdered chalk and then of sulphuric acid, the chalk forming calcium citrate, which is decomposed by the acid. Citric acid forms transparent crystals, which are very soluble in water and in alcohol. Being a tribasic acid, it forms three series of citrates, of which those of the alkalies are soluble in water. When added to the pyro developer, citric acid checks strongly the reduction of the silver salt, so that it is frequently used as a retarder, being especially useful in hot weather, or when the exposure has been much too long.

W. Jerome Harrison.

(*To be continued.*)

MY FINDER AND MY TRAYS.

ORIGINALITY is not claimed for the ideas advanced in this article. Modifications and simplifications of suggestions made by others have been adapted to my wants, and in the hope that some may be benefited, I submit them.

THE FINDER.

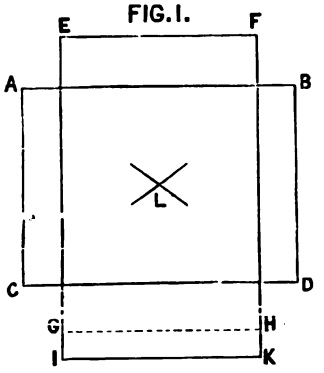
Many of those sold I have tried, and I have also imported one, but they all failed, in that it was almost impossible to do fine work with them; and if you used a short and a long-focus lens on the same camera, the best result attainable, if you wished to be *sure* of that result, was a picture much smaller in size than the plate was capable of. If you desired one of nearly the full size of the plate, such a finder could not be depended upon. You might be successful in using it, but you could not depend upon the result.

My finder can be made by any one with a little mechanical skill, and it will be found to work with great accuracy when using lens of different foci.

Take a piece of spring brass wire of about the size of the lead in an ordinary pencil. Bend this wire around a glass plate of the size you use and let it overlap slightly A, B, C, D. A drop of solder will then fasten it. This needs no special appliance. Brighten the wire, put on a drop of tinner's acid, and a very small bit of solder, and hold in the flame of an alcohol lamp. Take another piece of wire (K, E, F, I) a little longer than the two long sides and one short side, and bend this around the plate and place in position as indicated in the drawing.

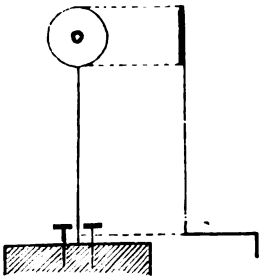
Flatten the wire with a blow of the hammer at the point of contact, and fasten as before. Of course, these joints can be tied by silk or fine copper wire, if desired. The dotted line can be a string or a separate piece of wire. At the proper place, on the front-board of your camera, make two holes to

FIG. I.



receive the ends of the wires K and I. You will then have an outline of your plate in either position on the front of your camera. Take another wire and make a ring of it at one end or fasten to it a piece of card or brass about the size of a twenty-five cent piece. Let this wire be of such a length that the centre of its loop will come opposite the point L, and fasten it at the back of your camera at a distance from the front equal to about the back focus of your lens when the camera is adjusted for a view. It may require to project backwards an inch or more. This can only be determined by trial, and you must allow sufficient wire to make the bends twice at right angles. (See Fig. 2). It will be found that a peep-hole one-eighth to three-sixteenths of an inch in diameter is preferable to a smaller hole, and can, with a little practice, be much more quickly used and with less strain to the eyes. Make the hole for this peep-sight as

FIG. 2



near the front edge of the back of your camera as possible, and drive two pins in as near the back edge as you can, and cut them off a quarter of an inch from the wood. This will insure the peep

being always opposite L and not to the right or left of the centre.

The advantages claimed are lightness (it will not weigh two ounces), and adaptability. It can be used with lenses of different foci, as the extension of the bellows for a long-focus lense will diminish the area of the view taken in. The picture is seen exactly as it would appear on the ground-glass, with the advantage of not being upside down. The plate can be nearly covered by the object photographed, and the greatest exactness can be counted on in getting it properly placed on the plate. The cost is only a few cents.

The Trays.

It is so nice to have one for each operation. Yet the cost prevents many from having this luxury. Try my plan, and be happy, provided you have a taste for the simplest kind of wood working.

Go to a carpenter's, or a place where they run a circular saw. Let him make for you some strips of wood, say of ash, maple, butternut, or other hard wood, about one and three-fourths inches wide and three-eighths thick, and long enough to make the four sides of as many traps as you desire, allowing for each tray four inches more than the sum of the lengths of its four sides. If you use a six and a half by eight and a half plate, get some old eight by ten plates for the bottoms. Let the carpenter, after he has made your pieces and planed them on both sides, set his saw so that it will cut at the distance of quarter of an inch from the edge of the strips a cut three-sixteenths deep, and the thickness of the saw the entire length of each piece. Cut two strips three-eighths of an inch *less* than the longer side of your plate, and two strips two and sixth-eighths *more* than the shorter side.

You can now insert your glass plate in the grooves made for it in the pieces for the longer sides, and applying the piece made for the short side mark on it the place which will have to be cut ous of it (three-eighths wide and three-sixteenths deep) for the sides to fit into. Fasten the corners with two screws each, and counter-sink the heads. A parafine candle can now be lighted, and its melted wax allowed to fill the spaces between the wood and the glass. Fill outside as well as in. If the wax does not lie flat and smooth, heat the blade of a case-knife, and make it so. Two or three coats of black varnish completes the trays. The cost is a mere trifle, say one dollar for the wood and work for a half dozen trays, and for almost all purposes these trays will be found as good as those for which you will spend much more money.

G. Livingston Morse.

PRINTING WITH THE SALTS OF IRON AND OF CHROMIUM.

(*Continued from page* 56.)

Cyanofer Process.—The *modus operandi* of this process is simple.

Prepare :

a.	Gum arabic	15 parts
	Water	100 parts
b.	Ammonium ferric citrate	25 parts
	Citric acid	15 parts
	Water	150 parts

Mix, then add 100 parts of a solution of ferric chloride at 45 Baumé (density 1.45), and filter through flannel.

The mixture does not keep; it thickens and should be used immediately.

The paper, which should be well sized and dry, is prepared by brushing or in the following manner :

Pour the solution in a shallow wooden tray, which need not be more than 24x30 inches, thirty inches being the width of the paper. Roll the paper—drawing paper answers well—and place it on the solution. Then, taking hold of it by the two corners, draw it out slowly ; the paper will unroll itself. This can be done by daylight, but, of course, the paper should be dried in darkness.

To expose, the drawing is placed in the printing-frame face downwards, and the sensitive paper laid over it. The whole is then pressed into contact by interposing a cushion between the lid of the frame and the paper.

The cyanofer preparation is quite sensitive, from one to two minutes by sunshine being sufficient in summer with a drawing made on the ordinary tracing paper. The progress of the impression is, besides, easily followed by opening one side of the pressure-frame and examining the paper ; the exposure is sufficient when the paper is tinged brown on the parts corresponding to the ground of the design. The image appears, then negative, that is to say, white on a tinged ground. Another and more safe method is to place a few strips of the cyanofer paper between the margin of the drawing and the paper, and, without opening the frame, to draw one of them out from time to time, and dip it in the developing solution. The moment the strip of paper is not more tinged blue, which indicates that the ferric salts are transformed into ferrous compounds, the exposure is right.

In developing it is important that the solution of potassium ferro-cyanate (the developer) does not run on the back of the impressed paper, which it would stain blue. Therefore, the edges of the paper must be turned upward so as to form

a dish into which the solution should not penetrate. This done, the exposed side is laid, avoiding air bubbles, on a saturated solution of potassium ferro-cyanate for five or six seconds. When the paper is seized by the two corners nearer to the body, raised up and held vertically to follow the development. As soon as the fine lines are well defined, the proof is rapidly rinsed in water; then immersed in a solution of sulphuric or hydrochloric acid at 3 per cent. during three or four minutes, where it is brushed over to clear the ground, and finally well rinsed and dried.

In this process there are two causes of failures, over and under-exposure. In the former case the fine lines are washed off, which may also happen from the design not having been drawn with an opaque ink; in the latter the whole ground becomes stained with blue patches. The reason of these defects explains itself by the theory of the process.

The blue stains on the ground, and even lines, may be removed for correction by applying with a brush a little of a solution prepared by mixing

a. Oxalic acid.....100 parts
Hot water.....700 parts

b. Caustic potassa.....125 parts
Water.....300 parts

It has been stated that the paper prepared by this or any other similar processes keeps for a long time, but the writer found in his practice that the ferric salt acts on the size as does potassium bichromate, and renders it insoluble in a certain period. Paper freshly prepared always gives the best results. It should be kept in a dry place, and preserved from the action of the air and dampness.

The blue proofs obtained by the cyanofer process can be transformed into black proofs by treating them as those obtained by the cyanotype. But, as it has been said already, it is difficult to obtain good and clean results.

Process to obtain black proofs:

a. Ferric sulphate..... 15 parts
Water.....100 parts

b. Tartaric acid..... 25 parts
Water .....100 parts

c. Gum arabic..... 25 parts
Water.....250 parts

Mix in order and add 50 parts of solution of ferric chloride at 45° Baumé.

The paper prepared with this compound does not keep over a fortnight. It is advisable to prepare it when wanted for use.

The paper is exposed on a diapositive or an ink drawing until the image is visible from the discoloration of the ground, when, by immersion in the following bath, a black image is developed by formation of iron gallate:

Gallic acid..... 3 parts
Oxalic acid ..... 0.1 part
Water..... 1000 parts

The theory of this process is identical with that of the processes previously described. The ferric salts are reduced to ferrous salts, which form no precipitate with gallic or tannic acid, unless exposed to the oxidizing action of the air for a certain period, while the ferric salts produce the photographic image by formation of a gallate of iron. If, instead of gallic acid, a decoction of gall-nuts or tannin is employed, a blue-black coloration is obtained. A brown image is obtained with the succinate or the benzoate of ammonium.

P. C. Duchochois.

(*To be concluded.*)

Correspondence.

BUSINESS METHODS.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir: There is so much of the Bible injunction of "Casting your bread upon the waters," in the free distribution of catalogues that I should hesitate to charge for them, as suggested by Mr. Blair, and so limit their influence. Many of your readers, especially among the dealers, will call to mind my ideas regarding a catalogue gotten up to correct this evil of "extravagance," which Mr. Blair says comes out of the "innocent consumer." I can see no business sagacity or economy in half a dozen dealers in Chicago, two or three in St. Louis, and a dozen others scattered through the West, each issuing a catalogue at an enormous expense to them, and then to find that, with probably the exception of a score of pages, they are all alike.

Why not a committee of dealers in and manufacturers of photographic goods meet and compile a general catalogue of their goods, and with one set of cuts and one cost of composition issue sheets for 100,000 copies, and share the expense among those desiring to issue a catalogue, and let them add such sheets as they wish and bind them up. Many thousands of dollars could be saved annually in this way to the dealers and to the "innocent consumers" spoken of by Mr. B., if the dealers, in the goodness of their souls, would distribute it among them.

Yours, etc.,

Geo. R. Angell.

216 WOODWARD AVE, DETROIT, MICH.,
February 2d, 1889.

EXTRACTS FROM A LETTER FROM H. P. ROBINSON CONCERNING "TWELVE PHOTOGRAPHIC STUDIES."

"'Ophelia' is a splendid rendering of what I feared would be a difficult negative to deal with. It is better than the original. Mr. Woods' 'boys' are capital, and so is Mr. Ryder's 'As Age Steals On.' This I consider the best plate in the collection.

And now you must excuse me if I protest strongly against the alteration of my title, 'Dawn and Sunset.' Even if the new title had been an improvement—which it is not—it would have been a mistake. There is no pretence whatever in the picture to represent 'From Dawn to Sunset.' That would have required several more gradations. Nevertheless, I hope the prints will be a success."

Yours very truly,

H. P. Robinson.

WINWOOD, TUNBRIDGE WELLS, ENGLAND,
January 18th, 1889.

Notes and News.

THE NEW ENGLAND METEOROLOGICAL SOCIETY proposes a loan exhibition of meteorological apparatus, photographs, etc., in connection with its fourteenth regular meeting in Boston.

FORCE OF HABIT.—Photographer (who has been summoned to photograph a dying man)—"Now, then, all ready! wink all you want to, and look pleasant."—*Exchange.*

CLIPPED FROM AN ENGLISH CONTEMPORARY.—"The American photographic magazines all seem to be engaged in a keen but not unfriendly rivalry. and in their closing issues of the old year they announce important improvements for the future. Particularly is this the case in regard to the matter of supplementary illustrations. In this respect the American magazines are already far ahead of their English contemporaries." * * * * "We notice that one of our contemporaries announces that the *Philadelphia Photographer* has ceased to exist; which is a misleading statement and hardly fair to Dr. Wilson."—*Photographers' World.*

THE PRINCESS OF WALES' PHOTOGRAPH.—LONDON, Jan. 17.—In the Court of Chancery, Justice Hay has granted a perpetual injunction against a prominent firm which had utilized the photograph of the Princess of Wales as an advertisement for a dressholder, by taking the head of the photograph and attaching it to the body of another picture which exhibited the dressholder. This is a significant action on the part of the court which it will be well to bear in mind.

NEW PHOTOGRAPHS OF MRS. CLEVELAND.—It is reported that Mrs. Cleveland has lately received three pictures taken by a photographer in Albany during her stay in the Adirondacks. The first one shows her in a white nun's veiling gown trimmed in military fashion with white braid, standing beside an open desk reading a closely written letter bearing the President's signature. On the wall of the log eabin above the desk hangs a picture of Priscilla, the Puritan maiden, and John Alden. On the open desk lie several letters, a wax candle, a collection of sealing-wax, and photographs of the President, Miss Kate Willard, Mrs. Cleveland's school friend, and one of the Duchess of Kildare. The second picture represents Mrs. Cleveland leaning back in a luxurious arm-chair before a big open fire of logs and pine cones, her feet resting on the low brass fender. In the third picture Mrs. Cleveland is seated at one side of a fireplace. idly turning over the leaves of a magazine, and Mrs. Folsom is seated at the other side knitting, her ball of white wool on the floor at her side. Of the three pictnres the first will probably be the favorite, as Mrs. Cleveland, no matter how fair when quiet and thoughtful, is more charming when she smiles, and then her standing pose in the first is the most graceful for a woman with a beautiful form.

A PROMINENT WESTERN PHOTOGRAPHER'S OPINION OF THE PHOTOGRAPHIC TIMES.—"Your new volume will surely mark an epoch in the history of photographic journalism, and fittingly commemorate the semi-centennial anniversary of the birth of the art. What better monument will be or need be raised to the honor of photography than this volume promises to be? The fifty beautiful full-page photogravures with which it is to be embellished—the excellence of which may be predicted from the samples already furnished--will so greatly add to its artistic and educational value. It is not surprising that the demand has at once exceeded the anticipation of the publishers, requiring in its first month a second edition of its first issue. This phenomenal circumstance is partly explained, that the promises of the PHOTOGRAPHIC TIMES are everywhere known to be good for something more than is called for on their face. They are never less than fully met."—W. H. SHERMAN.

THE FIRST MAN TO MAKE DAGUERREOTYPE PLATES.—The Waterbury *Daily Republican*, of January 28th, states that August Brassart, who resides at 209 South Main Street, was the first person in the world to make the Daguerreotype photographic plates.

It was in 1838. Mr. Brassart was then residing in Paris and was employed in a large factory in the gay French capital. Mr. Daguerre, who had been making some crude experiments in the line of the new photographic process which afterwards took his name and became exceedingly popular for a while, came to the proprietor of the factory one day and told him that he wanted to get some plates polished in a particular manner that was very difficult. He made no mention of the purpose to which he proposed to put them. The proprietor informed him that the plates could not be made, as the process was impossible. Mr. Daguerre, who was a quick and nervous man, impulsively said: "Let me see your polisher."

He was shown to Mr. Brassart, and, describing to him the difficult and delicate polish that he wished for his plates, asked him if it could be done. Mr. Brassart promptly replied: "It can." He worked at the plates for five or six weeks before he had the slightest intimation of their object, and when he was informed that they were to be used for photographic purposes he took it for a huge joke. But the experiments made with the plate that Mr. Brassart had so elaborately polished were successful, and Daguerre's new process of photography passed from possibility to reality.

For the seven years following 1839 Mr. Brassart served in the French army, that being the length of time that Frenchmen were then obliged by law to be engaged in military services. When he left the army he went into the Daguerreotype business for himself, in Paris.

In 1853 he was engaged to come to America for the purpose of making Daguerreotype plates here. For the past nine years Mr. Brassart has had a photographic studio in

Naugatuck. He goes down to that place each morning, returning on the 4 o'clock train in the afternoon. Physically he is a short and rather thickset man with a white beard. In conversation he exhibits all the nervous animation characteristic of the typical Frenchman.

CHARTING THE SKY BY PHOTOGRAPHY.—Lieutenant A. G. Winterhalter, U. S. Navy, who was sent to the late Scientific Congress in Paris, in his late report to our Government, shows the necessity of our National Observatory being equipped for doing its share of the work. He says: "Already foreign governments have been responding liberally with the necessary funds to allow their observatories to take part in the concerted operations; Germany, England, Brazil, Chili, Spain, Mexico, and the Argentine Republic, have each one instrument in progress of construction; Australia has two photographic telescopes under way, while France has one completed at Paris, and three others in the hands of a constructor. Besides, according to my information, instruments of the character prescribed by the Congress will, without much doubt, be also built for other observatories in England, Denmark, Austria and Russia. Only one of the thirteen instruments whose construction is assured has been provided by private means, and that for an established university observatory. The character and extent of the projected work will exclude the co-operation of private observatories." The Secretary of the Navy has urged prompt action on the part of Congress in granting appropriations for this object.

Photographic Societies.

THE OLD COLONY CAMERA CLUB.

AN amateur photographic association was organized at Rockland, Mass., January 23d, with the above title, Mr. N. G. E. Freeman being chosen President, and Mr. Burton O. Estes, Secretary.

NEW ORLEANS CAMERA CLUB.

AT the regular meeting, held Thursday evening, January 24th, a communication received from l' Orpheon Francaise was read. Captain T. W. Heppell, of the Steamship Oakdene, and Mr. England, both English amateurs, visited the club, and showed some interesting views taken at different places during their trip around the world. Mr. Carriere also showed some interesting photographs.

SPRINGFIELD CAMERA CLUB.

THE first exhibition of photographs by the Springfield Camera Club was held on January 23d, 24th, 25th and 26th. Several hundred photographs were exhibited, and the number of visitors on all the days was very large. There were representative exhibitions from the New York Society of Amateur Photographers, from the Hartford Camera Club, and from other photographic societies. Following is a list of some of the exhibitors:

The Eastman Dry-Plate and Film Company, Kodak prints and enlargements; Hinsdale Smith, Jr., Herbert H. Hallett, Charles W. Shaw, N. P. Ames Carter, L. J. Powers, Jr., Ellis A. Hallett, E. A. Beals, E. M. Surprise, J. C. Kemater, S. A. Bangs, Harry C. Haile, Edward A. Burnham, Frank B. Bigelow, H. N. Bowman and W. P. Draper.

HAWAIIAN CAMERA CLUB.

A NUMBER of amateur photographers of Honolulu have organized the Hawaiian Camera Club, with the following officers:

President, C. Hedemann.

Vice-President, George W. Smith.

Secretary-Treasurer, A. W. Richardson.

A committee was appointed to draft by-laws, and report at a meeting to be held four weeks hence. The objects of the organization are, generally, mutual improvement in the photographic art; the collection of views taken by amateurs. There are about fifty amateurs in the Hawaiian Islands which ought to be enough material to make the organization prosperous and useful. The public has an interest in it, as one function assumed by the Camera Club is the holding of exhibitions.

LYNN CAMERA CLUB.

THE club held a special meeting, January 15th, at which it was voted to make a set of negatives illustrating Lynn and adjoining places of interest, including Swampscott and Nahant, from which to make lantern-slides, and with a written description of same, to be loaned to other photographic clubs in exchange for similar sets. It was also decided to hold an informal exhibition of prints at an early date for which each member will be requested to furnish at least two prints for competition, and as many more for "exhibition only," as they please.

A few negatives made on the new Carbutt films were shown by one of the members. They are equal to glass and very light.

After the business meeting a few lantern-slides, made by members of the club, were shown on the screen, followed by a very excellent exhibition of slides made by W. S. Briggs, of the Boston Camera Club. Mr. Briggs' slides were a rare treat for the members present, and they were unanimous in passing a vote of thanks to that gentleman for his kindness in loaning them.

The committee report a number of demonstrations, and the like are booked for future meetings and expect to see a marked increase in photographic interest this season. There will probably be an outing for the club on the 22d of February, weather permitting.

A special meeting was held January 22d, and the application for active membership of E. W. Pecker was acted upon and he was unanimously elected.

After a short discussion in regard to the exhibition that is to take place at the February meeting, all lights were turned off, with the exception of a large red lantern, and a demonstration in making both dry-plates for transparencies and lantern-slides, known as the coffee or tannin plate process was given by the president of the club.

The process, without going into the fine details, is as follows: A clean glass plate is coated with a solution of white of one egg dissolved in forty ounces of water and dried by heat; when dry the plate is flowed with collodion; the plate is then ready for the sensitizing bath, which is a forty-grain silver solution, strongly acid. The plate remains in this bath until all the greasy lines disappear. It is then put into a dish of distilled water and allowed to wash a few minutes in order to remove the free silver. From the distilled water, after being rinsed in plain water, the plate is put into the preserving bath composed of a large teaspoonful of coffee dissolved in ten ounces of wa-

ter, where it is allowed to remain about three minutes, and is then dried by heat. When dry the plate is ready for use, and may be kept the same as any dry-plate, or used at once as desired. One of the plates was exposed and developed with the pyro-silver developer, and gave a very brilliant positive with exceedingly clear high-light.

After thanks to the president for the evening's entertainment, the meeting adjourned, subject to call of the secretary.

There will be another demonstration in plate-making, showing how to make emulsion plates, at a future meeting.

J. W. Gibboney,
Secretary.

BOSTON CAMERA CLUB.

A SPECIAL meeting of the club was held on Monday evening the 21st inst., to witness a demonstration of the Reeves' Magnesium Lamp.

There was a large attendance, and considerable interest manifested.

Mr. Reeves exhibited a large number of photographs, interiors, groups and portraits, made with the lamp, which were very good, and some of the groups extremely fine.

He then explained the construction of the lamp and the method of using, which is very simple.

The advantages claimed for it are absolute safety, absence of smoke, quickness of the flash, economy, the great breadth of the flame and consequent diffusion of light.

Mr. Reeves then proceeded, with the help of members, to make some portraits.

The first was made with one lamp, unscreened, about eight feet from the sitter. The lens was a No. 2 Euryscope, large stop. On developing the picture it was found to be decidedly over-exposed. A second, exposed under similar conditions, but screened, was developed into a well-exposed negative by the use a hydrochinon developer. A third exposure was made with a double view lens of 12 inch focus, stop $\frac{f}{16}$. This was a large head on a 5x8 plate, and was a splendid negative fully timed and with all the qualities of a daylight picture.

The screen used in the second and third exposures was a piece of tracing cloth hung at an angle of about 45 degrees, and three feet from the lamp. The demonstration was very successful, and of great interest to the large company present.

E. F. Wilder,
Secretary.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

REGULAR MONTHLY LANTERN-SLIDE EXHIBITION.

THE Committee on Papers and Publications send us the following report:

The exhibition took place on Friday evening, January 25th, at the rooms of the society, 122 West 36th Street, and was largely attended, there being as usual a great many ladies. The first half of the exhibition included about sixty slides contributed to the American Interchange by the Philadelphia Amateur Photographer's Club, and represented the work of twelve different members. There were some beautiful English road scenes by Mr. Alfred Clements, very pretty views of waterfalls by Mr. F. S. Cunningham and Mr. Charles Truscott, excellent views in Florida, by Mr. H. L. Roberts, "Southdown Sheep" by Mr. Edmund Stirling (a very effective animal study); while "Winter on the Brandywine" by Mr. Wm. H. Walmsley was a very striking and pleasing snow landscape. The work of this club is much superior to that formerly exhibited.

A brief intermission followed; then about fifty slides made by members of our own society were shown. They represented various subjects, mostly of views near and in New York, and the work of Messrs. L. P. Atkinson, Major George Shorkly, A. L. Simpson, J. H. Stebbins, C. C. Roumage, Jr., C. S. McKune, H. T. Duffield, J. Wells Champney, William M. Murray, H. J. Newton, John T. Bussing, Dr. John T. Nagle, C. J. Hine, Miss Catherine W. Barnes, and Rev. A. H. Hall, of Meriden, Conn. His pictures were mostly studies of children, and were quite novel in their way. The pictures of the other members were up to the usual standard and were pleasing and interesting. The lantern was operated by Messrs. Beach, Simpson and Cobb. Mr. H. T. Duffield announced the subjects. The seating of the audience was attended to by Mr. A. L. Simpson, who performed his duties with his usual politeness and good nature.

President Canfield, owing to a painful accident, was obliged to be absent; in his stead, Mr. Beach announced that a special meeting commemorative of the birth of photography would be held on the evening of January 31st, at which several of the oldest photographers in the city would be present.

On February 12th, improvements in photogravure processes are to be explained by Mr. Ernest Edwards, accompanied by a practical demonstration, and on February 20th a special lantern-slide exhibition representing the work of Mr. Richard H. Lawrence, called "A trip with the Detective Camera through France and Norway" is to be given.

The Lantern-Slide Committee has under contemplation the collection of a special set of slides illustrating "Interesting and Picturesque New York," and asks the aid of members in furnishing slides.

Our Editorial Table.

"WITH the compliments of the publishers," we have been favored with a bound volume of *Anthony's Photographic Bulletin*, for 1888. The volume will occupy an honored place in our library.

OUR esteemed contemporary, Dr. Edward L. Wilson, sends us bound volumes, in two parts, of his *Photographic Magazine*, for 1888. It is neatly bound in half calf, and presents a very handsome as well as substantial appearance. With the bound volumes of our honored contemporaries, the *Bulletin* and the *St. Louis Photographer*, these volumes make a valuable photographic library in themselves.

"PHOTOGRAPHIC SOCIETIES' REPORTER" is the title of a new monthly journal, to be edited by Charles W. Hastings and Lyonel Clark. As its name indicates, it is established for the publication of papers read before photographic societies, and the discussion thereon. We are pleased to note that the design of the cover expresses the "sincerest flattery," on the part of the publishers, to "THE PHOTOGRAPHIC TIMES, which it imitates.

MR. C. W. CANFIELD, President of the Society of Amateur Photographers of New York, has shown us three blue prints sent him by Mr. Fred Wessels, of New Britain, Conn., which were made from instantaneous negatives of a procession, and are very good.

MR. CANFIELD has handed us some further photographs which had been sent to him; and these are a number of very good quarter-size prints on various kinds of paper, made by James C. Church, an amateur, of Brooklyn. One, of a horse, is especially good, though, by an oversight, the shadow of the photographer is thrown on the foreground, thereby considerably marring the effect.

FROM Mr. B. O. Schultz, of Zanesville, Ohio, we have received two instantaneous river views, showing steamboats in motion, that are unusually good. They were made with the 4x5 Waterbury Detective, and testify not only to the efficiency of the skillful operator, but also to the apparatus with which the pictures were made.

MR. S. R. STODDARD, the eminent landscape photographer and photographic publisher, Glen Falls, N.Y., has sent us a series of 8x10 Adirondack photographs. They represent camp life not only in the Adirondacks, but also in the lumber regions of Maine. Some of them are most successful examples of flash-light photography, especially those representing the exterior of camps with surrounding view.

Did we not know to the contrary we should certainly suppose that some of these negatives were made by daylight, and that the evening effect was added by tricks well known to all photographers. To the lovers of nature this series of photographs will certainly be most welcome, and we predict for them an extensive sale. Our readers remember Mr. Stoddard's "Pleasant Valley," which embellished these columns last week.

MR. C. EUGENE ROBINSON, of Providence, R. I., has sent us a 6½x8½ view of an old mill and dam, which is excellent, especially in respect to its technical qualities, showing the finest detail in the water and all the dark parts. It is withal a well-chosen view.

MR. E. MARX, of Plainfield, N. J., who has made a name for himself in connection with instantaneous photography of racing horses, has now entered a new field, that of balistic photography, where he apparently meets with his old success. He recently showed us a negative of a projectile in motion, traveling at the rate of a mile in 11¼ seconds. The projectile is of a conical shape, weighing 600 pounds, and was discharged from one of Lieutenant Zabinski's pneumatic dynamite gun of 40 feet length, 50 inch bore. The shell was thrown at the same elevation which the gun will occupy upon the U. S. gunboat "Vesuvius." The negative was made on a hazy day, a heavy mist lying over the bay between the forts; notwithstanding which unfavorable condition of light and atmosphere, the projectile, though of small dimensions, in the photograph appears perfectly sharp. After striking the water, the shell explodes, throwing great volumes of spray, water and mud in every direction. Of these voluminous rising and falling masses Mr. Marx has obtained several negatives of more or less perfection.

Queries and Answers.

30 D. F. F. asks: Will you kindly inform me what proportion of *meta-bisulphide* of soda you would use in substituting it for sulphite of soda in pyro or hydrochinon developers?

Does it change the chemical action, rendering it slower, or in any other way?

30 Meta-bisulphite of potassium is, strictly speaking, not a substitute for sulphite of soda, but an addition to it, for preserving more perfectly the solutions of pyrogallol and hydrochinon. The reasons are explained in THE PHOTOGRAPHIC TIMES, Vol. XVIII., pages 589 and 590, why the presence of sulphite is necessary. On page 595 of the same volume you will find a formula by Dr. Eder, the basis of our experiments. You will deduce from it that three grains of metal bisulphite is about the correct quantity for pyrogallol eight grains. With hydrochinon you may take the same proportions, or still less.

Meta-bisulphite in larger quantities restrains development.

31 J. W. G. writes: Will you kindly let me know, through THE PHOTOGRAPHIC TIMES, how much of meta-bisulphite I should use to every ounce of mixed developer, also to ounce of solution No. 1.

This is the formula that I use:

No. 1.

Hydrochinon (Merks)...	100 grains
Sulphite soda crystals.....	500 grains
Water.....	14 ounces

No. 2.

Pure carbonate soda	100 grains
Water.....	2 ounces

31 This query was answered above.

32 WILLIAM S. asks: What is vitriol? I read of oil of vitriol, of white, green, blue, and red vitriol, but can not make out the meaning of the word.

32 "Vitriol" is derived from the latin word *vitrum*, glass, and so named, perhaps, from its crystalline form, its translucency, or its color. Green vitriol is proto-sulphate of iron. Red colored sulphate of iron is called red vitriol or vitriol of Mars. Sulphate of copper is known as blue, and sulphate of zinc as white vitriol. Sulphate of cobalt, also of red color, is sometimes called red vitriol.

Oil of vitriol is sulphuric acid, called so on account of its oily consistency.

We advise our correspondent to read Mr. Harrison's serial articles on "The Chemistry of Photography."

33 DISCOURAGED, desiring to work with plates of the highest possible sensitiveness, has of late adopted the Cramer 60 and 70 degrees, but finds that the plates fog very easily indeed.

33 Such highly-sensitive plates should be treated almost like color-sensitive plates—that is, be developed in a very subdued light. Yellow, orange, and even the very perfect ruby of the "Peerless" or the "Petite" lantern will, by long exposure, show effect. We have developed Cramer's 70 degree plates, and they came out perfectly clear in the non-exposed parts. We developed them by the light of a "Peerless" lantern, shaded with a screen of brown tissue-paper in double thickness.

H. P. ROBINSON.

PHOTO-GRAVURE CO. N.Y.

OPHELIA.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, FEBRUARY 15, 1889. No. 387.

"OPHELIA."

AS A PHOTOGRAPH from life, this picture of "Ophelia," by Mr. H. P. Robinson, conveys a truer idea of the character as described in Shakespeare's master-piece, than any photographic representation we have ever seen. The face, though plainly English, and, perhaps, rather old, nevertheless well expresses our idea of the character in the mad scene, when she enters the second time, carrying a wild profusion of flowers, and crowned with the same appropriate emblems.

* * * "*There's rosemary, that's for remembrance, pray you, love, remember: and there is pansies, that's for thoughts.*" * * *

The picture is one of the "Twelve Photographic Studies" which our publishers brought out near the close of last year. Mr. Robinson, in a recent note, expressed himself as well pleased with the manner in which the photogravure plate had preserved and rendered the peculiar qualities of his negative. "It is a splendid rendering," he writes, "of what I feared would be a difficult negative to deal with. It is better than the original."

TRANSFEROTYPES AND HOW TO MAKE THEM.

THESE beautiful pictures, and the simple method for making them on almost any conceivable substance, have been spoken of and described so frequently of late that it might appear almost superfluous to take up the subject again, were it not that most of the writers on this subject have invariably omitted those minor difficulties which always occur and which often are the cause of complete failure. We continue to receive inquiries, especially from beginners, on these minor points, and requests for instruction in overcoming them.

It will not be necessary for us to go back to the development of the image at this time; that is well understood, and the difficulties occurring in the making of transferotypes present themselves later in the actual process of transferring. Let us, therefore, consider the simplest and most effective way of transferring the image from the bromide paper on to a substance such as the celluloid supports of commerce, wood, metals, glass, porcelain, leather, silk, and other fabrics.

We are told in the printed directions that accompany the transferotype paper to squeegee the well-washed print upon the support to receive it, dry it partly under slight pressure, and then float it with warm water, when the paper support will peel off easily, leaving the image on the transfer surface to be dried upon the rack. This description is perfectly correct so far as it goes, but in actual practice things do not always proceed so smoothly as are indicated by these simple directions. For instance, it frequently happens that one is delayed from stripping at the precise moment, and the print is allowed to become perfectly dry. Then, again, the conventional opal glass may not be the material which we have at hand to transfer upon, or is not the desired substance for transferring, instead of which we have an oval surface, as a vase, a glass globe, a placque; or, possibly, a flexible substance like silk; and we are at once met with little practical difficulties in the transferring. However, they are not insurmountable.

To squeegee the print upon a convex or a concave surface with the ordinary straight-edged tool is not impossible. A heavy card-board, shaped parallel with the surface to be squeegeed upon, is of great assistance in bringing the gelatine film into absolute contact with curved surfaces. It requires considerable time and more patience. The print must be quite limp, or there will be danger of its doubling up toward the edges. Warming the support facilitates the work. Begin from the centre of the print, and move toward the outer edges, using a small curved card-board in the beginning, and smoothing down with a larger one later. As it is not easy to dry bent surfaces under an even pressure, the moisture may be extracted from the

paper and film by pressing bibulous paper upon it with the fingers.

If the film has become dry and quite hard, it will be found difficult to strip the paper from it in the ordinary way, and with water of the prescribed temperature—100 to 110 degs. Fahr. It is easier to soak the print first in cold water to which a small amount of acetic acid has been added, as this softens the gelatine substratum somewhat, and thus facilitates the stripping. This simple expedient is especially advisable for old transfer paper, when usually the substratum is very much hardened.

The paper support once having been removed from the film, every particle of the gelatine substratum must be carefully washed away, first with warm water, and then thoroughly with cold water. Without this precaution the grain of the paper impression upon the gelatine will remain and give the stripped print an uneven and coarse appearance, which is very objectionable, especially when required for lantern-slides.

To strip from leather and fabrics, the print must be perfectly dry before the paper can be successfully peeled off, and the water must be of as low a temperature as possible in order to do the work required. With very hot water the edges of the print are likely to frill. Leather, silk or linen must be wetted and then stretched upon a support before the print if squeegeed upon it.

The application of bromide prints to assist artists by being transferred upon painters' canvas has not yet seemed to be sufficiently appreciated. Gelatine takes oil-colors very well, and the transferring is easily accomplished. To make the film adhere closely to oiled canvas its surface should be deadened somewhat by rubbing it first with ammonia or a soda solution. Transferring upon box-wood for the engraver's purpose is also quite easily done, and the extremely thin gelatine film does not offer serious obstacle to the engraver's tool.

To transfer upon ordinary soft but fine-grained woods, such as pine, ash, etc., with bromide prints, a substratum of opal varnish or collodion should first be applied, in order to prevent the gelatine from sinking into the film and causing blisters and other irregularities. It is quite a remarkable fact that gelatine does not adhere equally well to all kinds of metal. Silver, tinned iron and Britannia offer no serious obstacles, while nickel, copper and gold absolutely refuse to take it.

We have transferred bromide prints upon an almost endless variety of substances and objects. On some the transferring is quite easily accomplished; on others it is very difficult. Surfaces like glass, porcelain, marble, celluloid, ivory, and bone, being those most in demand, are also easiest to transfer upon. We have noticed that when the gelatine adheres to the paper it is generally because an absolute contact with the substance to be transferred upon has not been effected. Transferring then becomes difficult. The closest possible contact must be insured, and especial attention given to the edges when the print is squeegeed.

If the edges should frill a little when the paper is stripped from the image after the print has become dry, sharp outlines can be re-established by trimming the edges with a straight ruler and sharp knife. The trimmed portions can easily be scraped off, and after the print has been washed in warm water and dried, no injury to the picture is perceptible. In transferring upon a bordered or beveled glass or opal, the paper may be trimmed before transferring, but this is not absolutely necessary, as it is so easy to trim after the transferring has been accomplished.

We have noticed of late a tendency among some to substitute for the ferrous-oxalate developer the pyrogallol or the hydrochinon in order to obtain warmer tones than the beautiful neutral black which is obtainable with the iron developer only. It is not our intention to enter into a discussion of the comparative merits of the developers for this purpose, though we certainly consider the ferrous-oxalate, all things considered, the most desirable for developing bromide prints. If warmer tones are desired than are obtained with this developer, let the prints be toned after development by nitrate of uranium, concerning which we spoke not long ago.

EDITORIAL NOTES.

THE first Annual Exhibition of the Photographic Society of Chicago, which we announced in a note under "Notes and News," not long ago, promises to fulfill the largest expectations of all. This week, in another column, we publish the Rules and Regulations to govern the Exhibition. It will be held some time during the month of May; medals and diplomas will be awarded; and the co-operation of photographers all over the country is invited. Any one can became an Associate Member of the Society, and thus compete for prizes, by payment of a small fee. Judge James B. Bradwell is President; Gayton A. Douglass, Treasurer; and C. Gentilé, Secretary.

We trust the semi-centennial celebration under the auspices of the P. A. of A., at Boston, next August, will not detract materially from the interest or success of this earlier exhibition in Chicago.

There should be no rivalry between the two; in fact, there is room for none; but the heartiest co-operation and most cordial relations should be maintained by all.

PIZZIGHELLI'S platinum paper seems to be injuriously affected by sea air, for carefully prepared paper sent to us from the factory on the other side does not result in prints anything like so good as the samples sent us, and this, after following carefully all the directions given, adhering strictly to the formula, and regarding every caution. It is claimed that this paper is much more sensitive than the albumen chloride of silver paper, but the samples that we have tried are far from being so sensitive; and in this judgment of the imported paper we are sustained by other careful investigators who have experimented with it.

In the articles on "The Printing Method of the Future"—begun in this issue—with which our friend Charles Scolik, of Vienna, has favored THE PHOTOGRAPHIC TIMES, he describes his own modified method of working with Captain Pizzighelli's platinum paper, and the experiences which he has had with that paper.

THAT the influence of THE PHOTOGRAPHIC TIMES is constantly spreading was recently shown by an order from Erzroon, Turkey, for our journal. In Japan THE PHOTOGRAPHIC TIMES is known and read in more than one place. From Turkey on the one hand, to Japan on the other, is quite an extent of territory to cover, and that THE TIMES has extended over it, is rather a significant fact, and one full of promise.

TO INTENSIFY gelatine negatives sufficiently for photo-mechanical work is a subject which has engaged the attention of practical photographers for a considerable time—in fact, ever since the introduction of the gelatine dry-plate itself. Some have claimed to have solved the problem, and it is true that gelatine emulsion negatives have been made, if not quite so good as collodion plates, for this purpose, still answering fairly well the requirement for photo-mechanical reproduction. Young Mr. Vogel, by modifying Dr. Eder's process with nitrate of lead and red prussiate of potash, has succeeded very well in obtaining a proper opacity and transparency on gelatine plates. In our own experience we have been able to obtain a fairly good opacity by adding salts of copper to the emulsion, and developing in various ways, including that with hydrochinon. Recently a new and quite ingenious method was reported—a method based upon the active reducing property of hydroxylamine. Mr. Borgfeldt, of Hoboken, N. J., has found that if hydrochlorate of hydroxylamine be mixed with a solution of caustic alkali, and applied to the gelatine negatives which have been whitened with bromide of copper, the highest possible intensity can be obtained without injuring the absolute clearness on the non-exposed parts, or obliterating any of even the finest details. We have not yet had opportunity to subject Mr. Borgfeldt's experiment to a practical test in our own laboratories, but as it is based upon chemical principles so well known, we have no doubt it works practically quite as efficiently as Mr. Borgfeldt claims it will. We shall, however, experiment with the process at our earliest opportunity, and report the result to our readers.

THE PRINTING METHOD OF THE FUTURE.

FIRST PAPER.

THERE has always been manifested a desire to improve on the attainments already accomplished in the arts and sciences, but especially in the mechanical processes. Whatever is pronounced perfect and is adopted for the time being is soon pushed aside by something that is still better, and which more completely satisfies the demands of the day; but this in turn soon proves unsatisfactory, and the old striving continues.

This perpetual endeavor for something better has plainly been manifested in the history of the photographic printing processes. If we carefully scrutinize all the printing methods known at the present time, with a view of deciding their merit, and the one which itself, or in modified and improved form, is entitled to be called "the printing method of the future," we must start out by at once excluding all those processes which require development to bring out the positive image. With them the effects desired are never sure of attainment. It requires the utmost care and skill to produce uniform results. These processes, therefore, can scarcely ever become widely popular or universally adopted.

Let us, therefore, consider the direct printing methods only, beginning with that upon silver albumen paper. Its disadvantages and the various manipulations requiring so great an exposure of time are sufficiently known. The paper itself is but little light-sensitive, deteriorates frequently while the process of printing is going on, and the results obtained assume a yellow color, or fade within a short period after finishing.

Very nearly the same thing must be said of a

process now so popular among European amateurs, with chloride of silver collodion emulsion—the aristotype. To the artist the results are not satisfactory, because of the want of harmony between its light and shade effects, and the insufficiency of tone gradations. With the aristotype, artistic effects are sacrificed to the rendering of photographic details ; plasticity, to sharpness.

More agreeable to work, and less difficult, are the various methods of printing on chloride of silver gelatine paper. With them we obtain proofs of a quality very similar to those of albumen prints ; and were it not for the difficult toning with sulphocyanates, which are so disadvantageous to all toning processes, no serious objections could be made to them. On account of their viscous surface these prints are not easily mounted, and retouching is quite difficult.

Pigment printing has many advantages over other methods. The paper is of much higher sensitiveness, more durable than albumen paper, but it requires much tedious work and many operations. For these reasons pigment printing has never been very popular.

Without considering further the other methods which are practiced now and then, to a limited extent, let us at once consider printing with the salts of platinum. The simplicity of the process, the absolute permanency of the prints, their inimitable softness in tone gradations, varying from absolute white to the deepest black, the general harmonious effect, so similar to those of the copper-plate engraving, make it appear to be an indisputable fact that platinum printing will supercede other methods, and be the printing process of the future. The late International Amateur Exhibition of Vienna proved this effectually.

The time has now arrived to introduce platinum printing to the great public. Albumen prints, it is true, enjoy much popularity in Europe (I do not know whether this is so also in America). But even so, there is no reason why the better process should not be adopted. Americans do not adhere with the same tenacity to old ways and customs as Europeans do. It is hoped Americans will do justice to this superior mode of making photographic prints.

Artists educate the taste of the public, and if the photographer will call the attention of his patrons to the fine qualities of platinum prints, progress in the art-science will be evidently more effectually promoted than to wait till the cognizance or advanced taste of the connoisseur demands the adoption of superior processes.

Discarding albumen printing at once, and substituting for it the platinum method, we professional photographers may save ourselves the great humiliation of being *forced* by a public demand to adopt the process. There are many photographers whose principal aim seems to be to produce prints of indisputable sharpness only, without regard to other qualities. To them platinum printing will scarcely give satisfaction.

Albumen prints carry the image on a film of its substance, paper is only its support, but of no influence whatever upon its character. The platinum print, on the contrary, does not rest upon any film, but, as in plain or arrowroot paper, the picture enters, indeed, the mass of the paper, more or less, according to weaker or stronger sizing, so that the quality and the property of the paper becomes of vital importance. Under these circumstances it is obvious that certain details will be lost in printing. How far this may be disadvantageous to the general result will be considered later. If photographic productions intend to rival with those of the graphic arts, we should, first of all, work with similar means. It should not be our principal aim to seek perfection in the absolute sharpness of the print, but to strive for harmoniously arranged, broad and artistic light and shadow effects.

It would be well, perhaps, for professionals to continue to print pictures of small dimensions on albumen paper; but for large portraits, for landscapes, architectural views, reproductions of engravings and paintings, the platinum method should be adopted. We trust to the progressive nature of the American people to adopt the new process.

It would be of great benefit to the practical man to prepare his own paper, first to have it always fresh, in the desired state of highest activity, and in the best condition ; also for economical reasons. I will, therefore, describe my method of preparing platinum paper in my next article, and follow in the main the formulæ laid down and published by Capt. Pizzighelli.

Charles Scolik.

PRINTING WITH THE SALTS OF IRON AND OF CHROMIUM.

(*Continued from page 72, and concluded*).

PROCESSES WITH POTASSIUM BICHROMATE.

The processes given in the following pages are based on the action of chromic oxide on organic matters and necessitates the use of negative clichés or of negative drawings, that is to say, white on a colored ground.

The method by which these drawings are made

was devised by Mr. Cheysson, and is described in a manual published in 1880, by the French Department of Public Works.* We translate:

"One can avoid the necessity of using a negative by transforming the drawing (*calque*) itself into a negative.

"To that effect it suffices to draw with lithographic ink, to cover afterwards the design with aniline brown, and after drying to wash it off with turpentine oil, which dissolves the lithographic ink without altering the ground. The lines then appear white on a brown ground impervious to light; the design is transformed into a negative, and can yield positive impressions with the paper sensitized with silver salts, the ferro-prussiate, or the bichromate of potash. The photographic ink should be very black and the lines well fed (*nourris*).

"When the drawing is finished, it is laid on a sheet of drawing-paper in interposing a sheet of blotting-paper, then one spreads all over it the aniline brown with a brush, and, lastly, after drying, one carefully rubs the paper with a bung of cotton or a rag imbued with turpentine, until the lines of the design are dissolved."

In the same manual we find the following advices for making an ordinary drawing to be reproduced by photography, which we think can be useful to some of the readers of THE PHOTOGRAPHIC TIMES:

The tracing paper should be very white, or slightly tinged blue, transparent, free from stains; the use of old paper, which is generally yellow and brittle, should be avoided.

The design having to play the part of a cliché, it is necessary to make it with very black ink and well-fed lines, especially those which are very fine. To obtain a complete opacity, and at the same time to keep the ink quite fluid, which gives great facilities to the designer, gamboge should be added to the india ink.† One can use with success the ink of *Bourgeois*, which contains some yellow and can be dissolved as india ink.‡

It is proper to replace as much as possible the colored lines which designate the axe of the lines, of the construction, etc., by lines differently punctuated. However, if the use of colors is obligatory, the red lines should be traced with thick vermillion or sienna, the yellow lines with gamboge, the blue and green lines with a mixture of Prussian blue and chrome yellow in different proportions.

One should refrain to apply washes of any tints, which should be made only after the reproductions are obtained, and can often be replaced by more or less close cross lines.

The tracing-paper is recommended instead of the linen, which, on account of the thickness of the grain, gives less satisfactory results in regard to the transparency of the ground and the continuity of the lines.

When the drawing-paper is too thick, it is rendered transparent by brushing over on the verso a solution of castor oil in alcohol, 2:100."*

The oil can be removed, when the photographic proofs are made, with strong alcohol or benzine.

Negatives from ordinary drawings can be obtained with great ease by printing with plain salted or albumen paper sensitized on a silver bath, and fixing without toning with a new sodium thiosulphate (hyposulphite) solution. The proofs thus obtained are of a brick-red color, quite non-actinic, and from them positive impressions may be obtained by the same process (but toning before fixing), or by the processes now to be described, which yield permanent proofs.

First Process.—Imbue from the back of a sheet of albumen paper—such as sold by photographic stock-dealers—with a solution of ammonium bichromate at three or four per cent. applied with a brush or a bung of cotton.† When dry, expose from one to three minutes by sunshine, according to the opacity of the drawing-paper, and then rub uniformly the surface of the albumen with finely-powdered graphite. This done, immerse the paper in cold water for fifteen or twenty minutes, when, by gently rubbing with a soft rag or a sponge, the albumen will dissolve on the parts not impressed, leaving the design on a perfectly white ground.

If, instead of graphite, a thin layer of lithographic ink be applied, as said above, a transfer ready for the stone or zinc is obtained.

Paper coated with a solution of gum arabic at from 6 to 8 per cent. of water can be substituted to albumen paper, otherwise operating as directed.

Second Process.—The process just described can be employed only for the reproduction of drawings, etc. The following can also be employed for subjects in half-tones by a modificaon in the manner of mixing the ingredients which will be indicated.

Take about two parts of lamp-black, and work it up in a mortar to the consistency of a thin paste by gradually pouring a little of a solution of six to eight parts of gum arabic in one hundred parts

* Manuel des procédés de reproductions d'écriture et de dessins à employer dans le service des Ponts et Chaussées. Ministère des travaux publics. Direction des Cartes et Plans.

† One can add a small quantity of gum arabic and of potassium bichromate to the india ink, whereby the ink becomes insoluble by insolation.

‡ Higgins' ink is generally employed in this country.

* Vaseline answers quite as well.

† Care should be taken in handling the bichromates. They are poisonous and act by absorption, producing diseases of the skin.

of water, adding afterwards the remainder, and filtering through flannel.

Now float the paper for two minutes on a solution of gum arabic at three per cent., pin it up to dry, and coat it afterwards by brushing the above mixture so as to form a thin and uniform film.

Thus prepared, the paper keeps well, and may be prepared in quantity for future use. It is sensitized from the back with ammonium-bichromate, and after insolation immersed in cold water to dissolve the unaltered gum in operating, as with the albumen paper. The result is a black image on a white ground.

By dissolving in the mixture of gum arabic and lamp-black three and a half parts of ammonium-bichromate, pictures in half-tones are obtained.

Various coloring-matters can also be incorporated in the gum solution, together with lamp-black, in order to obtain a variety of tints, but care should be taken that the mixture be not too opaque.

The bichromated paper does not keep. It should be prepared when wanted for use.

As to the theory of these processes, the insolubilization of the bichromated organic substances acted on by light was formerly attributed to the oxidation of the substances by the oxygen evolved during the reduction of chromic acid into chromic oxide, but from the fact that oxidation tends generally to destroy organic matters or to increase their solubility, it is more probable that it results from the formation of a peculiar compound of the substance with chromic oxide (J. W. Swan); moreover, gelatine imbued with potassium-bichromate and then immersed, first in a solution of ferrous-sulphate and afterwards in hot water, is insolubilized with formation of chromic acid (Monkhoven), and that the same substance, rendered insoluble by ferric-chloride, becomes soluble after this salt has been reduced to ferrous-chloride by exposure to light (A. Poitevin).

P. C. Duchochois.

EVERY MAN HIS OWN TINKER.

"And fasten them with solder."—*American Annual of Photography for* 1889, *page* 51.

OFTEN in the journals we see the description of some piece of apparatus that one may make by a neat bit of carpenter-work, but I never before saw directions that necessitated, or even recommended, the use of the soldering-iron. Now, before I continue, I would have the reader know that I am not an enthusiastic amateur tinman, although I can do a little soldering.

Truly, the process is very simple, though after my first efforts—which, it is hardly necessary to say, were failures—my admiration for the modern plumber went up several degrees. For this the kind reader must make allowances; I was young then! First I bought several lengths of a soldering alloy in the shape of wire. The street fakir held a lighted candle below the obnoxious hole, and rubbed the wire above it. "Presto, change!" The hole! "Ah! where was he?" However, though I said "presto" for a week, there was no change in the hole. Then I bought a box that contained a pretty little copper soldering tool that you heated over the gas-burner, a little box of powdered resin, and some solder. Alas! the tool contained so little metal, being small and hollow, that it was cool almost before your solder was melted, and the resin simply *would not work.* The very best I could do was to coax a chunk of half-melted solder to stick here and there.

I read several articles in a book that put me in the right track, and I then bought several moderately-sized tools and some solder at a hardware store, and made some soldering fluid according to a good receipt, and did not have much trouble afterwards.

The soldering fluid, or "flux," is very important; the baser metals, when heated in the air, become covered with a film of oxide, and the solder consequently will not stick to the metal.

If you put something on the metal that will protect it from the air—especially if this substance have more affinity for oxygen than the metal has—you avoid the film, and therefore the greatest difficulty.

The following receipt is very good, and the fluid has the advantage of acting efficiently with any ordinary metal; as it is acid and corrosive, the article should be washed after being soldered. To make, take common hydrochloric acid, saturate it with metallic zinc, and add a pinch of sal ammoniac (ammonium chloride) for each ounce of solution.

The solder can be bought or can be made by melting and mixing thoroughly equal parts of lead and tin, or, preferably, one part lead and two parts tin; then run it into moulds.

A "scraper" is desirable, as the metal surfaces must be scraped bright and clean before being soldered; but a knife or sharp-edged tool will answer most purposes.

The "irons" are of copper; it is best to buy two, that one may be heating while you use the other; for the photographer a small and a medium sized one will be most useful. To do the best work, you should have a charcoal fire; ordinary

coal will oxidize and corrode the irons; however, you can use the kitchen range, and rub the dirt off the tool, before soldering, with a file, or on a brick, for instance.

I made a small charcoal furnace from a section of galvanized sheet-iron pipe, six inches square by fourteen high. An opening near the base is divided into two sections by a piece of the metal punched full of holes and riveted as a grating inside the pipe some four inches from the bottom. The fire is on this grating; the air enters below it and ascends, the amount regulating the fire. I would recommend any one who tries such a furnace to do it out of doors the first time, as, if not well regulated, it will become terribly hot.

To solder, scrape the parts to be joined perfectly clean and bright, and put on a little of the soldering fluid. Have your iron heated nearly to redness, melt off a small quantity of solder and spread it along the joint.

When you first begin do not try to make a neat joint the first heating, but a solid one; then reheat your iron and run it over again. With practice, this will become unnecessary.

By the way, a small-sized pair of tinman's shears will come in very usefully, and are sometimes indispensable.

This whole outfit will hardly cost more than three dollars, and can be put to innumerable uses In fine work, an iron may be too large and unwieldy; in that case, the parts should be heated with a spirit lamp.

If the editor can afford me the space, I will suggest some bits of apparatus in the next issue.

Dallett Fuguet.

Correspondence.

AN APPEAL TO MR. BURBANK AND MR. EDWARDS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: In the "American Annual of Photography for 1889" there is a very entertaining and suggestive paper, by the Rev. W. H. Burbank, entitled "A Photo-Mechanical Printing Process for Amateurs." The opening paragraphs are as follows:

"The number of amateurs who have anything more than a theoretical knowledge of photo-mechanical printing processes is probably very few. Albumen, bromide and platinum printing practically exhaust the list of printing methods adventured upon even by the more enthusiastic followers of the camera. There are, doubtless, many who would be glad to practice the simpler methods of printing with ink, were they not deterred from making the attempt by fear of insuperable difficulties or excessive cost.

"Practical experience has shown the writer that this fear is not well grounded, and has conclusively proved that a moderate amount of experience and an inexpensive plant will enable the amateur to turn out excellent prints in durable ink at an expense much below that of the methods usually practised."

I perused this article with a great deal of interest, in fact, by the time I reached the end of it my enthusiasm at once opened a new world to conquer, which I should do with a dispatch quite characteristic of nineteenth century methods. Having a practical knowledge of typographical printing methods, I felt assured that I would meet with success at the threshold; but, unfortunately, before I could put the project into operation, I received a cold water bath from Mr. Ernest Edwards, the President of the Photogravure Company, and well known to the readers of THE PHOTOGRAPHIC TIMES. The aforesaid bath was, of course, a metaphorical one, but it "got there just the same." It was applied by my attention being inadvertently called to an article by Mr. Edwards, on the "Progress and Methods of Photo-Mechanical Printing," in the "American Annual for 1887," in which the following lines occur:

* * * * "To a bystander it is simple enough to produce them (gelatine prints), but in reality the working of the process requires a very high order of skill and an inexhaustible fund of patience in order to give any satisfaction. To those who contemplate going into this business as a side show, I would give *Punch's* celebrated advice to those about to marry—*Don't.* I fancy this advice will be endorsed by those artotype licensees who have been there. * * * * I remember when the artotype process was first introduced with a big flourish of trumpets, statements were made and figures adduced proving that the most lovely pictures could be printed for a fraction of a cent, at the rate of I don't know how many thousands a day. The profit on them was to be about 500 per cent., and the field for them unlimited. Alas! it was all poetic license."

Now, I do not say that I am discouraged from making "experiments" in this direction, by Mr. Edwards' disheartening words, but, in the interests of the readers of THE PHOTOGRAPHIC TIMES, and with the permission of the editor, I would like to call on Mr. Burbank and Mr. Edwards to again approach the "confessional." Will not Mr. Burbank give us a recapitulation and elaboration of his article in the "Annual," mentioning, among other things, the *largest* plate that the amateur may safely attempt to make gelatine prints from; where supplies may be obtained and the cost of the different items; whether a gelatine print from a negative of an engraving is easier to make than one from a negative direct from nature; as regards reversed negatives being a necessity, &c., &c.

And if Mr. Edwards cannot be coaxed to recede from his position, will he not give his reasons, going into details, so that the unenlightened photographic public may fall back on Mr. Burbank for damages, providing he makes out a good case.—Yours truly, W. H. GA.

BRISTOLVILLE, OHIO, February 4th, 1889.

PLEASE EXPLAIN!

To the Editor of the PHOTOGRAPHIC TIMES.

Dear Sir: I will suggest that through your journal you make inquiry of the Executive Committee of the P. A. of A., what they wish the photographic public to understand by *plain* photographs for the grand prize to be awarded at Boston.

The word "plain," as applied to photographs, means different things in the minds of different photographers. Some understand a "plain" photograph to mean one printed upon plain paper—unalbumenized; others understand it to be a print from an *unretouched negative;* again, others describe as "plain" a print *not vignetted.*

To make it plain to all, and to avoid misunderstandings, I think it would be well to ask the question.

Very truly yours,

J. F.

Will the Executive Committee explain?—EDITOR OF THE PHOTOGRAPHIC TIMES.

Notes and News.

AN ENTERPRISING AMATEUR.—The numerous friends of Mr. P. E. Carriere, of New Orleans, will be pleased to learn that he is about to engage in business on his own account, having severed his connection with the firm of E. Conery & Son, of that city, with which he has acceptably labored for the past twenty years.

THANKS.—We are indebted to Mr. Harly, the gentleman in charge of Gayton A. Douglass & Co.'s dark room, for the full report of the Photographic Society of Chicago, which we print this week.

OBITUARY.—We note with regret the death of D. U. Morgan, formerly a well-known manufacturer of albumenized paper for photographic purposes. Mr. Morgan died at his home in Philadelphia, of pneumonia, in the fifty-third year of his age.

ST. PAUL AMATEURS.—A movement is being agitated in amateur photographic circles in St. Paul to organize a Camera Club there. All interested in amateur photography are requested to send their addresses to W. B. Webster, Northern Pacific Offices, St. Paul.

"ILLUSTRATED BOSTON," by members of the Boston Camera Club, after being shown on the screen in Chickering Hall, Boston, February 13th, took the "road," and will circulate among those clubs in this country that ask for it. Application should be made at once to Edward F. Wilder, Secretary Boston Camera Club, 50 Bromfield Street, Boston.

ANNOUNCEMENTS OF THE S. OF A. P. OF N. Y.—The next meeting of the Society of Amateur Photographers of New York will be held Wednesday evening, February 20th, at which some slides illustrating "Through France and Norway with a Detective Camera," by Mr. Richard H. Lawrence, will be thrown upon the screen.

At the March 1st meeting contributions of the Chicago Lantern-Slide Club to the Slide Interchange, and work by members of the society will be shown.

WHITE CAPS WARN A PHOTOGRAPHER.—J. W. H. Shipler, a photographer of Clyde, N. Y., received a letter, not long ago, signed by White Caps, demanding that he dispose of his gallery and leave town. The letter was written in red ink and was adorned with a skull and crossbones. Mr. Shipler will fight it out. White Caps have also been heard from at Montezuma, eleven miles east of this town, and at Waterloo, twelve miles south.

PHOSPHORESCENT PHOTOGRAPHS.—*Courier des Etats Unis* tells how to render an ordinary photograph luminous in darkness. First coat the silver print with oil of palma christi; remove the excess, and coat the reverse side of the print with phosphorous powder, sulphate of barium, or calcium. Let this dry, and then mount. In a photograph thus prepared, the phosphorescent parts, when exposed to the light of day, will absorb light, and give it out when placed in the darkness.

A REVIVAL.—WE learn that there is to be a revival of a monthly photographic journal in Chicago. A small capital has been subscribed, it is reported, to re-start the little journal, and it is hoped that the capitalists' confidence may be justified by the ultimates uccess of the periodical.

CUSTOMER—What yo' charge for gittin' fotografs took?

Photographer—Imperials, $6 per dozen; duplicates, $3 per dozen.

Customer—Wall, I guess I'le jes' hab half dozen duplicates tooken.—*Harper's Weekly.*

Photographic Societies.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

THE Committee on Papers and Publications send us the following report;

On the evening of January 31, 1889, the society held a special meeting commemorative of the birth of photography, at its rooms, 122 West 36th Street, which was very interesting.

It was intended to commemorate the termination of the first fifty years since Daguerre first gave to the public the secret of his wonderful invention, and was attended by several of the oldest and leading photographers in this city.

Shortly after eight o'clock President Canfield introduced Professor L. H. Laudy, of the Columbia College School of Mines, who explained fully all the details connected with taking a Daguerreotype, exhibiting the apparatus as used by himself not very long ago. He related how some of the valuable specimens which he exhibited were obtained, and had several frames hung upon the wall, illustrating various styles and shapes of the Daguerreotype. The cheapest, he said, used to be sold, frame, case and all, at 12½ cents each. There were also three pictures of Daguerre, and a copy of Fox Talbot's "Pencil of Nature," published in 1844, with specimen photographs framed and hung on the wall.

The last Daguerreotypes were made by Pearsall, of Brooklyn, in 1878.

At the conclusion of his remarks Mr. Beach threw on the screen in the society's lantern a few slides which Mr. Laudy had made, showing the illustrations and title-page in the first book published by Daguerre. It bore the date of 1839, and had an engraving of Daguerre on the cover.

Mr. Abram Bogardus, the veteran photographer, followed, talking of the trials and tribulations of the photographer in the first days of photography. He said many amusing things, gathered from his forty-one years under the skylight. He showed a Daguerreotype of Daguerre himself made by a Mr. Mead, in Paris, about 1846, which

appeared to be an excellent likeness. His remarks needed to be listened to, to be fully appreciated. He advised all young photographers to try one brand of plates and one kind of developer, and stick to them till he thoroughly mastered the art, instead of branching out on new things.

The "Amateur Photographer of Other Days" was the topic which Mr. H. J. Newton spoke upon.

The first society for the advancement of photography was composed of three persons, and was started by Mr. H. T. Anthony, about 1861. Mr. Newton was a member, and was afterwards Treasurer.

Amateurs in the old days had to prepare their own chemicals, collodion, silver-bath, etc., which meant a great deal of work, and they sometimes produced fog, and considerable of it, instead of picture. Now it was only necessary to buy a camera, etc., make the exposure, and have somebody else do the developing and printing. He thought it was not quite right. If amateurs had more work to do, they would accomplish more, and make valuable discoveries.

Alexander Beckers, a gray-haired, aged photographer, one who was noted for the fine quality of Daguerrotypes he used to make, next read a paper on his experience in the history of the Daguerreotype, which was quite entertaining and instructive. He told of how he had to pay five dollars a pound for imported hyposulphite of soda, and said that the first place for manufacturing photographic chemicals was located where the Young Mens' Christian Association building now stands, corner of Twenty-third Street and Fourth Avenue. His first out-door views were of Highbridge, before the scaffolding was taken down. There he discovered that the Daguerreotype plate increased in sensitiveness during the time between preparation and exposure. He also said that this year celebrated the end of the first century since Daguerre was born, which was in 1789, making the meeting all the more valuable as a commemorative event.

At the conclusion of his remarks Mr. J. B. Gardiner was intending to speak, but owing to the lateness of the hour said the meeting would be continued at the section of the Institute, February 20th. On motion of Mr. Beach a vote of thanks was unanimously accorded to all of the speakers, and on another motion of Mr. Duffield a congratulatory letter, speaking of this meeting, and the interest shown, was directed to be sent to the Photographic Society of France, by the Secretary. The meeting will long be remembered as one of peculiar historic interest, since so much was said and shown regarding the birth of photography.

THE THIRD ANNUAL JOINT EXHIBITION

Of the Society of Amateur Photographers of New York, the Photographic Society of Philadelphia, the Boston Camera Club, open to all photographers, foreign or American, will be held under the auspices of the Photographic Society of Philadelphia, April 8th to 20th, 1889, at the galleries of the Pennsylvania Academy of the Fine Arts, Broad and Cherry Streets.

The rules, adopted at a meeting of representatives from the three societies held in New York, October 22d, 1886, revised and amended November 10th, 1888, are as follows:

1. No picture which has once been exhibited in competition at a Joint Exhibition shall be again admitted for competition.

2. No picture will be received "for exhibition only," unless by special consent of the Committee of Arrangements.

3. No pictures which have taken prizes elsewhere shall be so designated until after the awards have been announced.

4. All pictures, except those from foreign exhibitors, must be framed (with or without glass, at the option of the exhibitor.) Pictures from *foreign exhibitors* should be sent by *mail, unmounted.* They will be mounted for exhibition by the Committee of Arrangements, free of charge, or will be framed if the proper amount to cover the cost is remitted with entry.

5. The Committee of Arrangements shall have the right to reject the whole or portions of any exhibit offered; and if, in order to fairly apportion the space at their disposal among the various exhibitors, it becomes desirable to leave any pictures unhung, the rejections shall be made at the option of the committee, either from exhibits below the average in quality or above the average in number of pictures or wall space required.

6. Entries of all exhibits must be made *in duplicate*, on blanks issued by the Committee of Arrangements, giving, for catalogue purposes, etc., information on the following points:

Number and size of frames.
Amount of wall space required.
Total number of pictures.
Subject or title of each.
Lens and plate used for negative.
If for sale.
Price.
Name, address, and society of exhibitor.

7. The exhibitor's name and address, also a number corresponding to the descriptive number upon the entry form shall be clearly written on the labels provided, which shall be attached to the *back* of each frame.

When two or more prints are mounted in one frame, a designating letter shall be placed under the centre of each print, and all letters so placed shall appear in the entry form opposite the title of their respective pictures. *Nothing else* may appear in *front* of frame except title of picture and exhibitor's name.

8. No picture may be withdrawn before the close of the exhibition.

9. All pictures must be sent at owner's risk, prepaid and delivered to the Committee of Arrangements at the place by them indicated, and return charges collected by carrier.

10. The committee will not be responsible for any loss or damage that may occur to exhibits while in its charge, but will use all reasonable care to prevent such occurrence; and at the close of the exhibition will re-pack each exhibit and ship as directed by the exhibitor.

11. Advertising in any form in connection with an exhibit is strictly prohibited.

12. A charge shall be made for wall space at the rate of twenty-five cents per square foot (the minimum charge being one dollar) to all except members of the three societies and foreign exhibitors.

The amount of charge for wall space must be enclosed, with entry form, to the Committee of arrangements.

If any of the pictures entered are not hung, a due proportion of the charges will be returned.

A commission of ten per cent. on all sales will be retained.

13. Arrangements shall be made for the proper exhibition of lantern-slides on the screen.

14. The Committee of Arrangements, acting for the local society, shall receive all income and make all payments for expenses of the exhibition, the said committee being required to turn over to the local society, within a reasonable time after the close of the exhibition, properly authenticated vouchers for all expenditures, together with a statement of receipts, and the balance on hand, if any.

Entry Forms.—Entry forms and labels for back of frames will be furnished on application. Please state probable number of labels required. (See Rules 4, 6, 7 and 12.)

Correspondence.—All correspondence should be addressed to "Robert S. Redfield, Secretary, 1601 Callowhill Street, Philadelphia, Penn."

Reception of Exhibits.—All pictures must be sent, *charges prepaid*, addressed to "The Photographic Society of Philadelphia, care of The Pennsylvania Academy of the Fine Arts, Broad and Cherry Streets, Philadelphia, Penn., U. S. A." and delivered before 9 P.M., Monday, March 25, 1889. The attention of *foreign exhibitors* is directed to Rule 4.

Catalogues.—Catalogues (price 15 cents) containing full particulars of the exhibits may be obtained at the galleries during the exhibition, also from any member of the Committee of Arrangements.

It is intended that the exhibition shall be open day and evening, Sunday excepted, and several evenings will be devoted to the display of lantern-slides.

The names of the judges, and further details, will be announced hereafter.

While ample space is at the disposal of the Committee, it is desired to maintain a high average standard of excellence. Intending exhibitors are therefore requested to send a few *choice* examples of their work rather than a large number of specimens of only ordinary merit.

It is probable that at the close of the exhibition, by request of the Boston Camera Club, and at their expense, the entire collection of pictures will be forwarded to Boston, there to be publicly exhibited for a brief period, and thence returned to their owners. Any exhibitor not consenting to this arrangement will please give notice to the Committee of Arrangements upon entry form.

Committee of Arrangements.—John G. Bullock, Chairman, 528 Arch Street, Philadelphia, Robert S. Redfield, Samuel M. Fox, Photographic Society of Philadelphia; H. T. Duffield, Society of Amateur Photographers of New York; Edward F. Wilder, Boston Camera Club.

PHOTOGRAPHIC SOCIETY OF CHICAGO.

THE regular monthly meeting of this society was held at its rooms, 96 State Street, February 5th, Prof. G. W. Hough presiding.

Prof. Hough remarked that the time had now arrived when it became necessary for him to vacate his seat for the newly elected incumbent. The society had been very happy in its choice, and it would, no doubt, under the presidency of Judge Bradwell attain a measure of success it had not hitherto dreamt of.

Judge James B. Bradwell then assumed the chair and in a few brief remarks assured the members present that the advancement of the society lay with them more than with him; he would, however, do all in his power with their assistance to make the Chicago society second to none in the country.

The report of the Committee of Exhibition was then read, and on motion approved of. The report is as follows:

The First International Exhibition held by the Photographic Society of Chicago will be open to all Photographers, Foreign or American, and will be held in Chicago, during the month of May, 1889, probably at the Art Institute.

The object of the exhibition is for the promotion of the art science and technical excellence of photography.

RULES AND REGULATIONS GOVERNING THE EXHIBITION:

The exhibition to be held in Chicago, and last two weeks;

The important details of the exhibition shall be in charge of a Committee of Arrangements, appointed by the Executive Officers of the Society, and shall consist of not less than three.

At the annual exhibition, diplomas and other prizes will be awarded by a Board of Judges to be selected in a fair and impartial manner.

The number of awards to be made at the exhibition will be decided upon by the Judges, according to the number of exhibitors and the merit of the exhibits.

All photographers, professional or amateurs, are at liberty to compete for prizes. They must become active or associate members of the Photographic Society of Chicago, in order to qualify for such competition.

Entries for all exhibits must be made to the Secretary before the 15th of April. No exhibitors will be allowed to put on the front of the exhibit anything except the title and exhibitor's name.

All pictures to be sent at owner's risk. The Society will not be responsible for any damage that may occur to exhibits forwarded, but will use all reasonable care to protect them.

After the exhibition, which will last two weeks, the exhibits will be repacked and returned to the exhibitors.

PORTRAITS.

Class A. Portraits and Genre Pictures by professionals.

Class B. No. 1. Portraits and Genre Pictures by amateurs who complete the picture. This includes composition, exposure, developing, printing, toning, etc.

Class B. No. 2. The same as B. No. 1, by amateurs who do not complete the picture, but includes composition and exposure.

Class C. Landscape and Marine Photography.

No. 1. By professionals.

No. 2. By amateurs, same as in Class B. No. 1.

No. 3. By amateurs, same as in Class A. No. 2.

Class D. Flash Light Photography.

No. 1. Portrait and Genre by professionals.

No. 2. Portrait and Genre by amateurs, conditions same as Class B. No. 1.

No. 3. Portrait and Genre by amateurs, conditions same as Class B. No. 2.

Class E. Detective Camera Work.

Class F. Instantaneous Photographs.

Class G. Animals.

Class H. Kodak.

Class I. Window Transparencies.

No 1. Transferotypes.

No. 2. Lantern Slides.

Class J. Photomicrography.

Class K. The best Negatives on Celluloid Films.

No. 1. Instantaneous.

No. 2. Time Exposures.

Class L. Platinum Prints.

No. 1. Black.

No. 2. Sepia.

Class M. Best Prints on Linen, Silk, or any fabric.

Class N. Bromide Enlargement done by exhibitor.

No. 1. By professionals.

No. 2. Amateurs, conditions as in No. 1. A.

Class O. Bromide Prints contact.

Class P. Photo-Zinc Etching, for newspaper—best collections done by staff of paper exhibiting.

Class Q. Photography pertaining to the Profession of the Law.

Class R. Celestial Photography.

Class S. Exhibit pertaining to Medico-Photography.

Class T. Exhibit of Prison and Police Photography.

Class U. Exhibit of Photo-Mechanical Printing Processes.

Class V. Exhibit of Orthocromatic Photography.

Class W. Exhibit of Photographs in competition for prizes, other than those given by the society.

Mr. Gentilé, the secretary, remarked that the idea of an exhibition in Chicago had been very favorably received by everybody interested. He had already been notified of several prizes which would be offered by plate-makers and others. In reply to a query, he said that the fee for associate membership had not yet been fixed, but it would be placed low enough to suit all would-be competitors. Any person wishing further particulars could have them by addressing him.

Judge Bradwell then called on Professor Garrison to say a few words on the platinum process.

Professor H. D. Garrison gave a resumé of the history of printing by the salts of platinum and iron, showing the various reactions which took place between these salts in a very clear manner, by means of the blackboard. The remarks, though brief, were listened to very attentively by the members. Professor Garrison called upon Professor Bartlett to illustrate practically that which he had demonstrated in theory.

Professor Bartlett said that he had been experimenting recently in that branch of the platinotype process introduced by Captain Pizzighelli, namely, the printing-out process; he had worked the formula as recommended, but could not get the pure blacks so characteristic of the Willis & Clements prints; he had been led to modify the method of procedure in several particulars; he used no acid in the first wash-water after printing; he washed in pure water only, followed by acidulated water. The result was prints which compared very favorably indeed with those by the development method. The Professor then took several exposed but unfixed prints, and passed them through the water; the change was marvelous, from a dingy brown to pure black the moment they touched the water. Professor Bartlett claims for this process the extreme simplicity of the blue print, no extra care of the sensitized paper, that which was kept outside of the calcium tube printing as well as that which was kept in it. The permanency was undoubted, and to many the artistic effect was much greater than prints on albumen paper. In reply to a query, the Professor stated that the salts as well as the ready sensitized paper would be placed upon the market in a few weeks by a well-known dealer in Chicago.

Mr. Gentilé then demonstrated the simplicity of the Willis & Clement development process, more especially in its application to silk, linen, etc. He exhibited prints made by him ten years ago which are as perfect to-day as they were when made. Mr. Gentilé had several undeveloped exposures with him, which he developed with entire success by the hot oxalate bath. He also explained the new cold bath process, for which the paper would be ready in a short time.

Professor H. D. Garrison was elected to fill a vacancy on the Executive Committee.

A vote of thanks was unanimously tendered to Messrs. Garrison, Bartlett and Gentilé for the instructive evening they had given the Society, after which the Society adjourned.

A Pointer.—It is said that a writer on etiquette advises young actresses not to give their portraits to young men. Correct! Let the dudes buy the photographs with their cigarettes.

Our Editorial Table.

Modern Heliographic Processes. By Ernst Lietzé. New York: Van Nostrand. 8vo.

The book is intended for the use of engineers and draughtsmen, who are so frequently in need of a good process for reproducing their drawings. After a brief theoretical introduction on the chemical and physical action of light, the author classifies the processes with salts of silver, with iron salts, with salts of chromium, and with salts of uranium. He gives practical instructions in regard to the paper to be used, the methods of sensitizing, and the trays and dishes used for the purpose, and describes various forms of printing-frames. Formulæ which were found not practical, but which are recommended by reliable authorities, have also been given. The patented processes are included, although they cannot be used generally, in order to give a complete review of the subject treated. The first thousand copies of the book are accompanied by ten specimens of heliographic prints, among which the uranium and carbon prints deserve special mention. The first chapters, in which the methods of sensitizing and printing are described, are accompanied by numerous figures illustrating the instruments and processes.—*Science.*

Mr. Burbank has sent us a few of the latest appplications of his Brunswick Cyanotype Board, and they certainly are very attractive. By tastefully masking one or more negatives, beautiful blue pictures are printed of different shapes and in artistic arrangement on a single board, which also carries a neat little calendar pad. No end of similar attractive souvenirs are suggested which may easily be made with this freshly prepared and easily managed cyanotype board.

We have received advance sheets of a pamphlet on "Photographic Portraiture," by Charles Scolik, of Vienna. The difficult subject has been well handled by the author, who is himself an artist, and a practical photographer. We trust shortly to have space for brief extracts from this interesting and instructive little work.

Schott & Gen, of Jena, have published a catalogue of their manufactured glass for optical and other scientific purposes. In the preface thereto it is said:

"A theoretical revision of optical problems places it beyond doubt, that the construction of instruments, having to comply with a great many conditions, would become greatly facilitated if the optician had glass at his disposal with a constant index of refraction and several grades of dispersion, or, with an invariable dispersion and a variety of indices of refraction. We can only expect a practical realization of our discoveries to take place gradually, being, as they necessarily are, dependent on a further development of the theoretical and mathematical bases, which underlie the construction of optical instruments in general. It must, however, be considered a step in advance, that the systematic use of a larger number of chemical elements in the production of glass fluxes, renders such gradations possible.

To indicate the optical properties of the different kinds of glass, we have made use of five bright lines of the spectrum, viz., the red potassium line (Ka), the sodium line (Na),

and the three bright lines of the hydrogen spectrum. Three of these being identical with the Fraunhofer lines *C*, *D* and *F*, and the other two, *Ka* and *Hy*, approximating very closely to Fraunhofer's *A* and *G* lines, they are designated in the catalogue by the letters *A'*, *C*, *D*, *F* and *G'*."

The catalogue is of considerable interest and value. It contains much information on the chemical composition of the different kinds of optical glass ; their refraction, indices, dispersive power, and gravity.

We have been favored with several valuable pamphlets from George W. Rafter, treating of the microscope and its uses in connection with photography. "On the Use of the Amplifier" contains valuable suggestions for the design of a new photo-micrographic camera. "On the Use of the Microscope in Determining the Sanitary Value of Portable Water," is the title of another pamphlet which treats of its subject exhaustively. "How to Study the Biology of a Water Supply," and several of the author's contributions to the *Microscopical Journal*, etc., complete a valuable collection of instructive information in this particular branch of science, a department where the camera and sensitive plate render valuable aid.

It may not be generally known that some of the most successful, as well as some of the most excellent books published by American authors are written by what might be called western people, that is, by people who were born at least as far west as Ohio or Illinois. Messrs. Houghton, Mifflin & Co., the Boston publishers, issue this month a classified catalogue of their books by western authors, by which it appears that nearly fifty of the authors whose works are published by their house reside in Illinois, Indiana, Missouri, Ohio, or some other Western State.

Record of Photographic Patents.

395,899. Photographic Camera. Sydney P. Hasey, New York, N.Y.

Design 18,853. Photographic Exhibitor. Care G. M. Porteous and F. S. Miller.

Trade Mark 16,158. Photograph Album. Koch, Sons, & Company.

Design 18,871. Photograph Exhibitor Case Body. G. M. Porteous and F. S. Miller.

18,870. Photograph Exhibitor Stand. G. M. Porteous and F. S. Miller.

Designs 18,872 and 18,853. Photograph Exhibitor Stand. G. M. Porteous and F. S. Miller.

Designs 18,876 to 18,878. Photograph Exhibitor Case Body. G. M. Porteous and F. S. Miller.

396,428. Automatic Photographic Apparatus. William R. Pope and Edward L. Poole, Baltimore, Maryland.

396,455. Automatic Picture Exhibitor. Conrad Bach, St. Galle, Switzerland.

396,573. Camera Carrying Case and Plate Changing Box. James H. Johnson, San Francisco, California.

396,656. Magazine Plate-Holder for Photographic Plates. Frederick A. Hetherington, Brooklyn, N. Y.

396,699. Photographic Shutter. Edmund Kuhn, New York, N. Y.

Reporter (rushing into photograph gallery)—Can you take my picture ?

Operator (sizing him up)—What kind of a picture ?

Reporter—Tin type.

Operator—No ; but I can make a brass type of you.—*Washington Critic.*

Queries and Answers.

34 Jacque F. has mounted prints that had remained rolled up, face in, for a long time, and had been handled frequently. After mounting them the albumen film is covered with numberless very fine cracks. "What is the cause of this ?" he asks.

34 *Answer.*—If albumen prints are kept rolled up, for a length of time, the albumen side of the picture should be out, not in ; but what is still better, keep them flat, after a previous soaking in equal parts of alcohol, glycerine and water.

35 C. B. writes : Will you kindly inform me what kind of "sulphate of aluminum" Mr. F. A. Jackson, in his article on "Blisters in Bromide Paper," pages 47 and 48 of your "Annual" for 1889, means, pure crystal or commercial ?

35 By all means use the pure salt.

36 What is the English name for sulfure de calcium ? Is it not sulphuret of calcium ?

36 It is.

37 T. C. writes : Please answer in column of Queries and Answers of next issue : *a*. What is the cause of a negative turning yellow ? *b*. How can it be restored to its original color ? *c*. What is the best hydrochinon two-solution developer ? *d*. For an amateur, which is the cheapest developer, hydrochinon or pyro ?

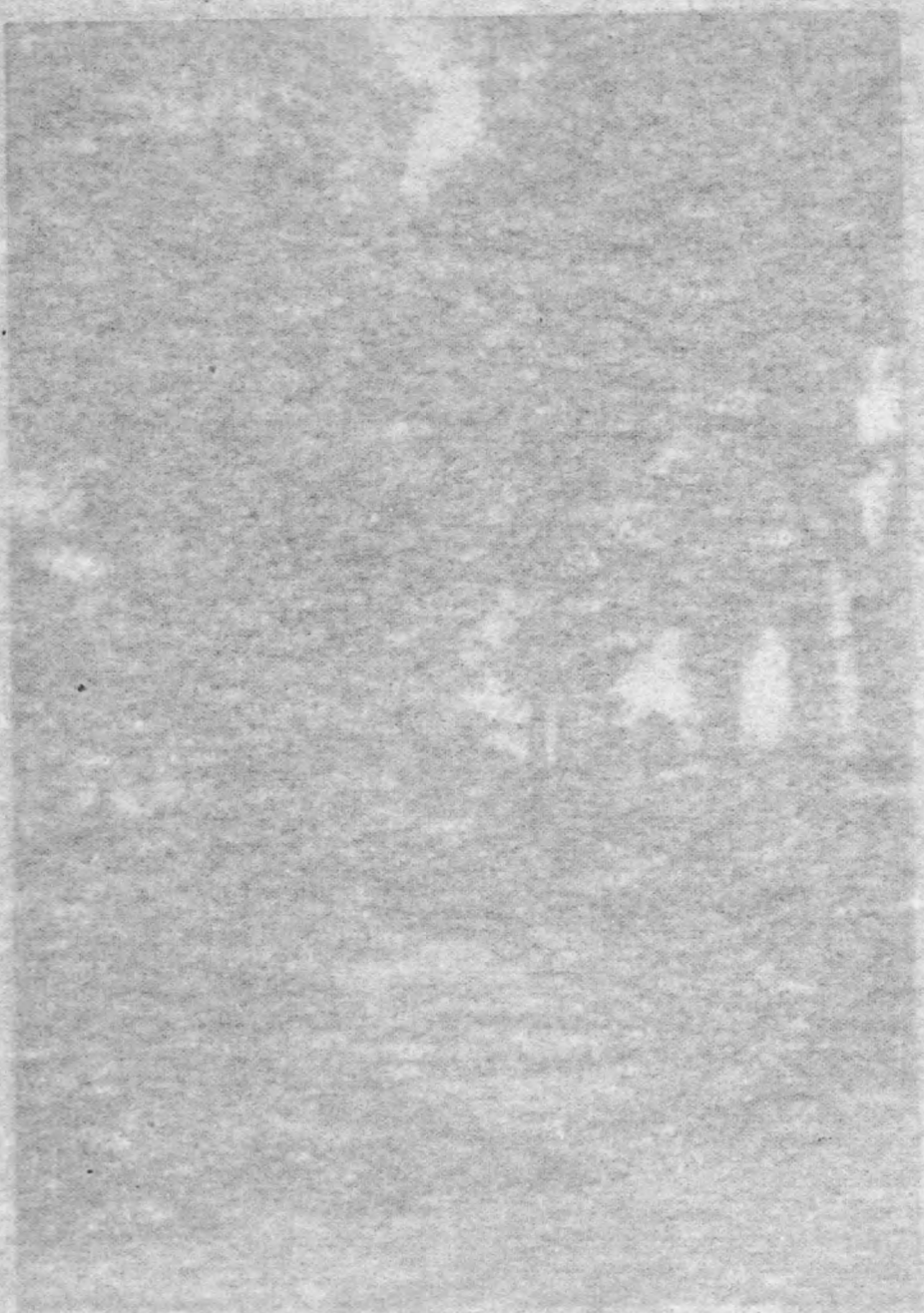
37 *a*. (1) Insufficient washing before fixing. (2) An excessive amount of alkali. (3) Too much iron, if developed with ferrous oxalate. (4) Exposure to light before being thoroughly fixed. *b*. 1, 2, and 3 may be restored by bathing the plate in sulphurous acid water or a solution of sulphite of soda to which sufficient sulphuric acid is added to evolve sulphurous acid. 4 is beyond all remedies. *c*. The Chautauqua hydrochinon developer, given in standaid formulæ of the "American Annual of Photography for 1889," No. 60, page 266. *d*. There is no perceptible difference for the beginner.

38 F B. E. says : "It seems to me the author of "Care of the Silver Bath," "American Annual of Photography for 1889," has not covered his ground completely. I miss advice how to keep the bath in a state of neutrality. Following the author there is no doubt the bath will turn acid in time. How can that be prevented ?

38 *Answer.*—Keep a small amount of carbonate of silver in the stock bottle.

39 "Not Lost Yet."—Under this title appears in your "Annual" an article in praise of the collodion process. I have read and heard of it, have tried it myself, but have never met with the expected results. Where can I get practical instruction in this process ?

39 *Answer.*—A few visits to our laboratory in the morning hours of Tuesday, Thursday and Friday will enable you to get the practical instruction you desire. *No charge !*



THE
PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, FEBRUARY 22, 1889. No. 388.

A PORTRAIT.

A still, sweet, placid, moonlight face,
And slightly nonchalant,
Which seems to claim a middle place
Between one's love and aunt.
Where childhood's star has left a ray
In woman's sunniest sky,
As morning dew and blushing day
On fruit and blossom lie.

And yet—and yet I cannot love
Those lovely lines on steel;
They beam too much of heaven above,
Earth's darker shades to feel.
Perchance some early weeds of care
Around my heart have grown,
And brows unfurrowed seem not fair,
Because they mock my own.

Alas! when Eden's gates were sealed,
How oft some sheltered flower
Breathed o'er the wanderers of the field,
Like their own bridal bower;
Yet, saddened by its loveliness,
And humbled by its pride,
Earth's fairest child they could not bless,
It mocked them when they sighed.

—*Holmes.*

THE PLATINOTYPE.

WE present with this (the Washington Birthday) number of THE PHOTOGRAPHIC TIMES, two full-page pictorial illustrations to our readers: the frontispiece, a platinotype, by Willis & Clements, of Philadelphia, from negatives made by Mr. Alfred Clements during a photographic trip abroad; the other, a gelatine print copy of the Washington Calendar, by the Photogravure Company of this city.

Concerning the platinotype, and how to make it, Mr. Alfred Clements has given our readers full particulars in the article following. The second paper, on "The Printing Method of the Future," by Charles Scolik, also contained in this issue, describes the method for making a platinotype paper. We deem the growing popularity of this excellent printing process to justly merit the prominence we have given it in this issue. The negatives which were selected by Mr. Clements for making these prints are all pictures that may be studied with profit, especially by landscape photographers. Of the Washington Calendar we speak in another column.

PLATINOTYPE PRINTING.

TO CORRECTLY judge the exposures of platinotype prints—to know the right moment to stop—is not so difficult a matter as many people think; neither is it of the first importance, as is sometimes supposed, that the negative should be extraordinarily dense to give the best results. But, a question here arises—what are the "best results" in platinotype? To which my answer would be, "there are several kinds of "best results," depending altogether upon the "effect" one is desirous of obtaining. Our exhibition walls have not, to the present time, been extensively patronized by users of the process, to give any idea of what is meant by "effects" in platinotype; but, any reader who has visited a London exhibition will remember the marvelous work of Emerson, Robinson, Gridley, Hollyer, and many others. Effects in black, dark gray, and the most delicate tints of gray are seen in great number and produced from negatives of every degree of density.

The illustrations for this number of THE PHOTOGRAPHIC TIMES were printed from a dozen different negatives, varying in density from very dense to quite soft—two or three of them might be called thin. At least four of the negatives were not made with any intention of having them printed in platinotype, yet the results are quite satisfactory and pleasing. So it follows that there can be no rule for making negatives especially for this process. Any negative suitable for a good print in silver will be equally as good for platinotype.

The little experience I have had in landscape negative making may be said in a few words: Expose for the shadows, a developer rather strong in pyro, and weak at the start in alkali—the latter

added as may seem necessary; development not hurried, from ten to twenty minutes duration should bring out all detail in shadows and sufficient density in the high lights, to give a negative of the requisite printing quality. The developer I most prefer is pyro and ammonia, ten-per-cent. solutions, with bromide ammonia as the restrainer. This in my hands is the most simple and effective; but this developer is a matter of my choice only.

Platinotype paper is somewhat sensitive to moisture, and, if not protected, will spoil in about two weeks' time. The little preserving tubes are convenient things to store the paper in, but the box of preservative in the tube should be changed for a fresh one every two or three months. The sensitized paper in these tubes will keep in good condition for at least six weeks, and sometimes longer.

Printing is done by daylight—dense negatives in sun, soft ones in shade. The printing-frames may be filled in a room lighted by gaslight, or by daylight through yellow paper. Rubber pads do not absorb moisture, and are, therefore, best for the frames.

When printing, care must be exercised to not open the frames *facing* the window. A little "dodging" may here be used with advantage. The back of the printer should be turned to the window and the frame opened whilst in the shade of the body, and progress of the exposure determined.

Should the negative be dense, or fairly so, the image on the paper can be plainly seen, and, after a little practice, the printing from such negatives will be found quite simple, and the right exposure easily decided; but with weak negatives the image will not be seen so well, and it will require some experience before the best results can be made from them. Perhaps it would be better for the beginner to first master the printing from his best plates, and, having done this, it will be easier to work from the thin ones.

The developer may range in temperature from 150 degs. to 180 degs. Fahr., but should the prints show any inclination to over-exposure, the temperature of the developer may be reduced to 100 degs. with advantage.

Clearing the prints ought not to be hurriedly done; give them the regulation three baths in the acid water, and then wash them well in plain water for about fifteen minutes.

That is about all there is to the process, but, as in all printing methods, the best results can only be got by practice, patience, and some disappointments.

Alfred Clements.

EDITORIAL NOTES.

NOTWITHSTANDING that a second edition of the first number of THE PHOTOGRAPHIC TIMES for 1889 was issued, no copy of that number is now to be found. Were it possible, our publishers would issue a third edition. They offer, however, to pay full price (15 cents per copy) for all copies of the January 4th issue, either first or second edition, in order to buy copies for filling urgent orders. January 11th and 18th issues, though considerably larger than the first edition of the January 4th issue, are both out of print; and the same offer is made for copies of these issues by our publishers. Those who have a complete set of THE PHOTOGRAPHIC TIMES, from the beginning of the year, will find it growing more valuable all the time on account of this demand for the earlier numbers which cannot be supplied. With every issue our edition grows larger, and we regret that those who delayed ordering early in the year, are compelled to go without the first numbers. Had our publishers anticipated so unusual a demand, we fear they might have been tempted to "go back" on their word, and issue more of the earlier numbers than were called for by the actual demand at that time. They are now doing all in their power to supply the growing demand by buying all the saleable copies of the January issues which they can obtain.

IN a recent issue of the *Photographic Art Journal* we notice an article on "Aristotypy," in which the editor quotes, as follows, from THE PHOTOGRAPHIC TIMES: "If burnished while quite damp a glacé finish is obtained." In regard to this he says: "Surely, there is some mistake or misprint here! Any one who has but once handled aristotype or similar paper can have but one opinion as to the result of passing a paper coated with a gelatine film through a burnisher while 'quite damp.'"

The "mistake" is entirely on the part of our esteemed contemporary. He does not seem to be acquainted with the aristotype paper which is manufactured in this country. As has often been stated in these columns, it is *not* coated with a "gelatine film," but with a collodio-chloride silver emulsion. If a perfectly dry collodion film is pulled through a hot burnisher, every one knows that the result would be a multitude of fine cracks, thus totally spoiling the print. It must, therefore, be "quite damp," as we stated in the editorial above referred to.

IN securing the finest focus, such as is required

for photo-mechanical purposes, etc., photographers have often been embarrassed by the grain on an ordinary ground-glass focusing screen. In grinding, minute conchoidal fractures of the glass surface are made, which cause so multitudinous light refraction when focusing, that the image does not appear to be perfectly sharp, when, perhaps, the true focus is really obtained. In some large photo-mechanical printing establishments focusing screens are employed with one-quarter of the glass left unground. A general focus is then taken upon the ground portion of the glass, and the fine details of the image are examined with accuracy on the plain part of the focusing screen. Others oil a part of the ground-glass for this purpose, or do as Mr. Walmsley does in his photo-mechanical work—leave a small central part of the screen unground. The latest method, however, is advanced by Dr. A. Lohse, of Potsdam, Prussia, who proposes to use instead of a ground-glass a plain sheet of smooth glass coated with a very fine-grained emulsion. He emulsifies 48 grains of gelatine with 16 grains of chloride of barium, 8 grains of sulphate of ammonia, and 3½ ounces of water. After cooling, the emulsion is pressed through canvas, washed, remelted, and finally filtered. A little salicylic acid, when dissolved in alcohol, serves as an antiseptic. Upon a glass coated with this barium emulsion the optical image appears in exquisite fineness.

Dr. M. Anderson, of Berlin, has applied for a patent on a developer for use with films containing chloride, bromide, and iodide of silver. The following interesting and euphoniously sounding substances are employed: Para-phenylen-diamin, paratoluyen-diamin and xylilen-diamin.

Although a very large edition of "The American Annual of Photography and Photographic Times Almanac for 1889" [8,000 copies], was issued, the demand has far exceeded the supply, and a second edition of at least two thousand copies (though probably five) is required. Each year the publishers of this "Annual" increased the issue over the maximum number of copies issued the year preceding; but the demand continued to grow faster than the books could be issued, so that again, and the third time, a second edition is necessary. It has been said that the value of the book has proportionately increased each year, which accounts for the constant growth in its popularity; and this is a very resonable explanation. The first edition for next year has already been placed at fifteen thousand copies, and the publishers and editors are determined to increase the value of the book proportionately. When will this phenomonal growth stop? At least, "the end is not yet."

THOUGHTS ON OUR ART.

II.*

It must not be supposed that in photography there is no scope for individuality; on the contrary, every photograph of any artistic pretention must show individuality and design. "Design" may include choice as well as deliberate arrangement. In photography the art of choosing plays a very important role, and from a certain point of view choice may tax the artistic capabilities of the photographer quite as much as may arrangement. But when to happy choice is added skilful arrangement, we are getting very close indeed to the summit of perfection attainable in our art. The painter often produces a picture by arrangement alone, little or no time being left to choice of existing details, and such pictures are very apt to be artificial in appearance, and to affect us with a certain sentiment of constraint. We may admire with our lips, but indifference is in our hearts. The difficulties of wholesale arrangement for photography are so great that our art is not so open to that defect of artificiality, and our imperfections lie more often in the direction of crudeness rather than of superfluity of arrangement.

Let us consider for a few moments wherein lies the difference between the ordinary "topographical" photographs, turned out by the million daily, and the photographs which are turned out about three in a year, admittedly artistic. Let us review, first, landscape photographs, and then gallery portraiture, and let us in each case assume that we are treating of photographs of average quality, not the landscapes of our more thoughtful amateurs nor of the holiday-maker with his touring kit; not the efforts of our Moras and Lafayettes on fashionable beauties, nor yet the "nine for a shilling" of our peripatetic tintyper.

Now, every exhibition used simply to blaze with "average" work of the kind I mean, but I will say that of late years the standard of our exhibitions is rising greatly, rising so greatly in the artistic sense that a good exhibition of to-day is hardly a good example of what I call average work, either in landscape or portraiture. I will, therefore, take for my example the inferior work on our exhibition walls, and the work turned out in the general

* For "Thoughts on Our Art," No. I, see page 27, of January 18th issue.

routine of business by the well-to-do photographer or amateur of average experience. What have we? Decidedly good technical photography, clean manipulation, good prints from evidently good negatives; all this we have. Probably the sitter or the scene is well and suitably lighted for photography, nice brilliant lights, shadows fairly clear, half-tones of sufficient detail. What more? Absolutely nothing more. Not a glimmer of intelligence (not to mention expression) on the sitter's face, not a suggestion in the attitude, not a trace of character in the pasty, retouched features, the whole thing an irritating, exasperating lump of placidity, stolidity or vacuity. And the landscape? A representation of a certain place on the earth's face, some trees, a bit of water, hills in the distance with their outline cut out sharp like the edge of a razor, against a sky either white or adorned with clouds, from one of a set of half a dozen negatives made consecutively from a house-top one spring morning.

If a tree happens to be leaning to one side a little bit, a boat is put under it "for balance," or a pigmy figure if a boat won't float, or a wheelbarrow if no figure is available. If there is a figure near the proper place, he is reading a book, balancing himself in a stream with one leg cocked up, and a tree-branch "balancing" him and the composition; or he is shading his eyes from the sun, which is really weak, behind his shoulder; or he is straining into vague distance, as if trying to discern Jupiter's satelites with naked eye in daylight. Perhaps it is an open-air group. If it is not arranged carefully on the "pyramidal" or "wedge" system, it is probably a tea-party, the young mother with a becoming cap has her hand on the tea-pot, which is in mid-air, if the exposure is short enough, a "gent" in a cricket suit, very much striped, sits at the feet of a young lady, and holds his cup (and his "mug") well up in her face. This is repeated more or less "in petto" on the other side, while a child and a hairy dog (moved slightly) are thrown in to emphasize the strong points of the composition.

All these are the early results of trying to learn art out of books, but I really don't condemn such works *in-toto*, for they are at least signs of attempts at art. Who shall throw the stone? Certainly not I. I have gone through the pyramid, the wedge, the tree-under-the-boat style, the "arrested motion," the "repetition in petto," the light against dark arrangement, and many other equally useful rules for the beginner, and I fear I never got much beyond them, and all I can do now is like other unsuccessful artists, to pose as a judge and critic. But while these things may lead to a picture, they can never *make* one.

What makes a picture is something far more subtle than a pyramid, or wedge, or balancing-point. A picture may be far better without any of the *recipes* laid down for us.

In the first place a picture must convey to our mind some definite expression, and every detail of the picture must tend to enhance the general effect. This enhancement may be performed by contrast as well as by direct aid; gloom may be enhanced by one small item of brilliance; joy may be emphasized by one subdued episode of sadness. The photographer must decide upon an expression, must work it out in his picture by general treatment as well as by particular arrangements, and the observer of the photograph, if it is a picture, will at once realize and enter into the photographer's conception. The fact is, that a picture is a direct communication from artist to observer; it is, moreover, a communication of sentiment and not of fact; an engineer's plan is a direct communication of fact, but is not a picture. The ordinary cabinet portrait is a communication of the fact that the sitter has such and such features—or might have such features if all the pits and wrinkles were puttied up and the freckles painted over; but an artistic portrait is quite another matter, and might be totally unlike the sitter in ordinary moods; at the same time there is no necessity in making an artistic portrait to eliminate the "likeness." What we want in our portraiture is *expression* gained by pose, surroundings, and play of emotions.

In pure landscape it is exceedingly difficult at all times to convey expression into the photograph; the introduction of figures when well carried out is an enormous help, and on this I shall have more to say later. A group ought to be the easiest of all subjects for expression-rendering, and would be so were it not for the extreme technical difficulties that meet us, and the extreme difficulty of getting each member of the group to lend himself to the execution of our conception, any incongruity of attitude, action or expression of any one item of our details serving to ruin our whole fabric.

I shall leave here this subject of expression, the most important, to my mind, of all the essentials for a picture, but I hope next month to resume the thread of my cogitations on the art of photography.

Andrew Pringle.

PICTURES OF THE MONTH.

"READING maketh the full man, speaking the ready man," is one of Bacon's wise sayings. Even

so we might say, "Study of pictures fills one with the sense of beauty; constant practice with the camera confers the ability to translate the sense of beauty into outward form." Photography's highest calling is to be a faithful translator of the beautiful, and one of the most encouraging things about amateur photography is the appreciation and love for Nature which the practice of the art is giving to many who else had looked upon her with eyes dim to her beauties. He who has once made friends with Nature, who has been made free of her wealth of grace and beauty, has greatly increased his capacity and his means of enjoyment, and henceforth lives in a world of enchantment. All honor, then, to our gentle mistress, who, though soon to celebrate her fiftieth birthday, is still young in heart!

Pictures are the great educators, and where shall you find more charming pictures than those which a trained and cultured photographic art presents to you? And so with this by way of preamble we come to our subject, "Pictures of the Month."

We give to our own PHOTOGRAPHIC TIMES, in its improved form, the place of honor which is rightfully hers. Right well are the publishers keeping their promise of a rare wealth of pictorial illustration. Readers of the TIMES will now find precept enforced by example in the charming reproductions of Mr. Edwards, which will form the *pièces de resistance* of the paper for the coming year.

In the number for January 18th, we have a charming figure study from a negative by Mr. W. B. Post. The picture is a strikingly good example of a too much neglected branch of photography, out-door portraiture. Of course, we know that many difficulties of lighting, arrangement, and background must be overcome before success can be attained; but when success does come, it brings ample compensation for all the pains and trouble, in the added grace and charm of the result. The *motif* of Mr. Post's picture is simple, "a rare and gracious maiden," easily posed amid spreading tree trunks; but it needs but a single glance to reveal the attractiveness of the composition. The pose is easy and natural; the lighting is fairly good, if a little tame; and the camera was judiciously placed to secure an effective grouping of the tree trunks. Altogether Mr. Post has given us a picture which we are glad to have seen.

The issue for January 25th contains a fine photogravure reproduction of the well-known engraving, "Poet and Peasant," which is especially valuable as showing the added interest of a pictorial composition by the judicious introduction of figures.

If the figures were removed from the picture we would still have a piece of effective composition—a meadow brook overshadowed by massive trees, with a pleasant bit of pasture land imparting a feeling of openness and breadth, but nothing more. But when the two figures are effectively grouped at the foot of a giant tree, the peasant girl, forgetful of her grazing sheep, leaning on her staff listening to the poet who lounges in an easy attitude at her feet, you have something more than a representation of Nature—you have a human interest. The study of this simple pastoral landscape cannot help proving a valuable lesson to all landscape photographers.

Mr. Stoddard's views of Pleasant Valley, in the number for February 1st, show that conscientious worker at his best, and in addition to their value as effective studies of pure landscape, they teach a useful lesson in artistic printing. A landscape view is always more interesting to me when seen in connection with related views, and there is no more effective way of grouping such views than to print a series of them on the same sheet as is here done. The work calls for the exercise of much skill and patience, but it is well worth doing.

Wilson's Photographic Magazine for January 19th, presents its readers with a charming genre study, "A Flower Girl," in which naturalness of pose, effective treatment of accessories, and good lighting are noticeable. It is, perhaps, as the editor calls it, an ideal picture, but none the less it is real, one which could without much difficulty be reproduced in any well-equipped gallery, to the great enhancement of that gallery's reputation. It is a good example of the inventive faculty, producing beauty from few and simple materials.

The artist wished to paint a flower girl, and his inventive faculty, joined to his command of brush and color, produced the picture before us. The photographer has as wide a field as the artist for the display of inventive genius, and it is greatly to be desired that more photographers would "give the rein to their fancy," and so produce more pictures out of the common run.

Another effective piece of genre work is Mr. Bartlett's "Twenty Days to Whitsuntide," in the *American Journal of Photography* for January. The old lady seated in her chair, with the bible on her knees, and her stick and basket at her side, form a picture quite different in character from that of the "Flower Girl," but quite as effective, in its way. As the maker of it says, "the picture has nothing of the sublime in the subject, nothing of the pathetic in its rendering, and yet it is pleas-

ing, and, therefore, fulfills one, at least, of the demands of true art."

The artistic aspects of modern life have not yet received adequate presentment. It would be better for the photographer to leave ambitious subjects alone, and turn his skill to the rendering of the scenes and incidents of common life, which often have so much of poetry about them. The principles of art can be no more truthfully presented than in the expression of the home and the home-life which are so inadequately treated in the art and photography of to-day.

Sun and Shade, for January, is even better than its predecessors. It contains five photogravures and three photo-gelatine prints, nearly all of high pictorial excellence.

The photogravure of Corot's "June Morning" shows us a picture composed on essentially the same lines as those of "Poet and Peasant," already mentioned. "As Age Creeps On" is a wonderful picture of old age, and is respectfully commended to photographers as worthy of close study. One of Jackson's strong pictures is given in the photo-gelatine cut of the "Canon of the Rio las Animas," in which good composition is evident. In "Modesty" we have a charming ideal sketch, but the gem of the number is "A Pegged Down Fishing Match," which has a simplicity, a wealth of composition, and a feeling of atmosphere which leave little to be desired. Here the figures form the *motif* of the picture, and the landscape occupies but a subordinate position. There are no less than four groups in the composition, but they are so perfectly joined together by single figures as to impart a unity to the picture, without which it would fall to pieces.

The only picture to be noticed in the February *Magazine of Art* is the little sketch "In the Birch Woods," which is almost perfect in its simplicity and effectiveness. It is in just such picturesque bits as this that out-door photography is at its best, and the study of such sketches is a photographic means of grace which should not be neglected.

It is a wide field that lies outspread before the adventurous photographer; a field abounding in grace and beauty; one which renders up its choicest treasures only to him whose eye has been trained to see them, and who is quick to use his opportunities.

May these sketchy notes be helpful to some few, at least, of that great army of amateurs who have girded themselves for the conquest of nature.

W. H. Burbank.

THE PRINTING METHOD OF THE FUTURE.

SECOND PAPER.*

THE preparation of the paper may be divided into two different operations—the sizing and the sensitizing. Stout photographic paper of either smooth or rough surface is furnished with a coat of gelatine, if bluish-black tones are desired, or with arrowroot for prints of brown-black color. Arrowroot being preferred on account of its protective properties, against the influence of injurious vapors and moisture, so likely to result in a very pronounced yellowing of the print.

Sizing the paper is a very simple operation, and is done as follows: Rub in a Wedgewood mortar three drams of fine arrowroot, with sufficient water to form a liquid of syrupy consistency, and add it in small portions to twenty-six ounces of boiling water. When cold, the resulting pasty fluid is spread by means of a soft-bristle brush over the sheet of paper, which is fastened with tacks upon a clean board. Then hang up to dry. A second coat of arrowroot is commendable. This first preparation or sizing must be done to correspond with the quality of the paper. When of more bibulous nature a stronger size is requisite, than if of closer texture. With paper not sufficiently sized, the image will sink into its mass, appearing more perfect and brilliant when viewed by transmitted than by reflected light. If, on the contrary, the paper is too strongly starched or gelatined, but weak and feeble prints can be obtained, as by the subsequent operations parts of the sensitive superstratum will be washed away.

Paper may be sized in advance of sensitizing to any desirable amount, but must be kept in an absolutely dry place.

For sensitizing, the following solutions are used:

a. Potassium platino-chloride..... 1 part†
Distilled water..... 6 parts

b. Sodium ferric oxalate..... 40 parts
Solution of sodium oxalate (3:100)...100 parts

The sodium oxalate solution, of which large quantities may be kept in stock, is heated to 100 or 120 degs. Fahr., and the sodium ferric oxalate dissolved in it. After cooling, a part of the dissolved salt will separate, and require the solution to be filtered. In very dry weather about three per cent. of glycerine may be added.

c. Of the iron solution *b*..... .....100 parts
Chlorate of potassium..... 0.4 parts

* For First Paper see page 79 of preceding issue.

† No explanation of "parts" accompanying the author's MS., we have only to conclude that they are determined by weight in the case of solids, by volume when liquids are used.—ED. PHOTOGRAPHIC TIMES.

d. Solution of bi-chloride of mercury (5 : 100).. 20 parts
Solution of sodium oxalate (3 : 100)..... 40 parts
Glycerine (in dry weather only).... ..... 1.5 parts

Immediately before coating the paper, mix for every single sheet, if black tones are wanted :

Platinum solution *a*.....5 c.c.m. [1 dram 25 minims]
Iron solution *b*.....6 c.c.m. [1 dram 42 minims]
Chlorate of iron solution *c*. 6.2 c.c.m. [34 minims]

It is advisable to use for hard negatives a little more of the iron solution *b* and less of *c* ; but if of feeble density the quantity of solution *c* may be increased and that of *b* diminished.

For brown tones take :

Platinum solution *a*.....5 c.c.m. [1 dram 25 minims]
Chlorate of iron solution *c*...4 c.c.m. [1 dram 8 minims]
Chloride of mercury solution *d*.4 c.c.m. [1 dram 8 minims]

Half-tones can be regulated at will by proportionally increasing the amount of solution *c* and decreasing that of *d*.

The solutions being mixed, are then spread over the surface of the paper with a soft-bristle brush, and equalized with a blender.

Another method is to add the developing solution of sodium oxalate directly to the arrowroot paste.

Arrowroot..... 2 parts
Solution of sodium oxalate (3 : 100).....100 parts

The rest of the preparation is like that of the first method, only a quantity of distilled water, equivalent to that of the sodium oxalate solution, is added to the iron solution *b*. The preparations regarding the variety of tone remain the same.

A third method, which is similar, but not quite the same, is the following :

Sizing of the paper is dispensed with, instead of which a viscous substance is added to the sensitizing solution :

a. Potassium platino-chloride..... ... 1 part
Distilled water..... ..... 6 parts
b. Sodium ferric oxalate..... ..... 40 parts
Pulverized gum arabic..... 40 parts
Solution of sodium oxalate (3 : 100).....100 parts
Glycerine..... ..... 8 parts

The ferric salt and the glycerine are dissolved in the solution of the sodium oxalate, previously warmed, and with it the gum arabic rubbed down and dissolved in a Wedgewood mortar, the solution allowed to stand for several hours, any deposit of undissolved gum arabic rubbed down again and the solution finally strained through cloth.

c. Gum iron solution *b*.....100 parts
Potassium chlorate..... 0.4 parts
d. Bichloride of mercury solution (5 : 100).....20 parts
Solution of sodium oxalate (3 : 100).....40 parts
Pulverized gum arabic.....24 parts
Glycerine..... 1.8 parts

Mercury solution and glycerine are also added to the warmed solution of sodium oxalate, the gum arabic dissolved with it in a mortar, and the solution strained.

The proportions for mixing the solutions are the same as those used in the first method. In my next and concluding article I shall describe the coating process.

Charles Scolik.

Correspondence.

ANSWER TO W. H. GA.'S "APPEAL."

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I have just finished reading W. H. Ga.'s "Appeal to Mr. Burbank and Mr. Edwards," in No. 887 of THE TIMES, and hasten to answer it, so far as pertains to myself.

In doing so, let me say, at the outset, that my article in the "Annual" was written solely from the standpoint of the experimenter, not of the workman who is working for a livelihood.

I fully agree with Mr. Edwards that the photo-gelatine or phototype process has its annoyances, and does not offer an easy road to wealth. If it did, I might be tempted to engage in it myself.

What I wrote was intended solely for the amateur who might like to experiment with the process. I am willing to confess, however, that the formula sent to the "Annual," taken from my notes of experiments, will not be found entirely satisfactory. This has been corrected in an article recently published in THE TIMES, to which I refer W. H. Ga. for further information.*

My own experiments ceased a year ago, after I had succeeded to turning out satisfactory prints, and my old outfit is now *hors du combat.*

Replying to W. H. Ga.'s questions, I would say that the largest plate which I have worked is the 5x8, which requires a sheet of copper or zinc 9x12 inches, if printed with margins. I should say, however, that the whole plate might be worked.

I am unable to state definitely whether a negative of an engraving is better than one direct from nature. Theoretically, the balance would seem to be in favor of the former. Of course, reversed negatives must be used if unreversed prints are wanted. As to the cost of the different items, it is not easy for me to give a very accurate estimate from memory and in the absence of prices current. Copying-presses range from three to ten dollars ; rollers vary in price according to size and quality. Fuchs & Lang, 29 Warren Street, New York, will supply all the needful materials and apparatus, including phototypic ink, which can also be had of Geo. Mather's Sons, 60 John Street, New York. Gelatine plate paper can be had of M. Plummer & Co., 161 William Street, New York. All of these firms will be happy to quote prices on application.

In this letter, and in my recent article in THE TIMES. I

* The first part of an article on "Collographic Printing," by Mr. Burbank, will be published next week.—EDITOR OF THE PHOTOGRAPHIC TIMES.

have honestly sought to supplement the article in the "Annual," and to give as much information concerning the process as can be imparted in writing, and I trust that W. H. Ga. and others will not hold me responsible for failures in working a process which, admittingly, has its difficulties, and of the commercial aspects of which I am ignorant.

Mr. Edwards, writing as he did from the standpoint of an expert in the commercial application and value of the process, was doubtless wise in discouraging the novice to adopt it as a means of livelihood.

My aim was simply to call the amateur's attention to an easy and not over-expensive way in which he might venture upon the process in a small way, and perhaps, acquire the skill necessary for more ambitious efforts; so that there is no conflict between an amateur, like myself, and a past-master in heliotypic printing, such as Mr. Edwards is well known to be.

Our standpoints were different. I do not deny the difficulties of the process; they are known to every practical worker; but I did not think it well to discourage experimenters by pointing out to them all the obstacles.

I encountered them in my own experiments. Most of them I overcome, and, then, having learned the process, and, having no time to continue working it, I ceased its practice.

I think that I have answered all the questions of the "Appeal." I have not sought to make out any case for myself, but simply to give your correspondent the information he asks for, and I thank him for giving me the opportunity of writing what I have.

With his experience in typographic printing, I do not think that he will find any insuperable difficulties in phototyptic printing.

Very truly yours,

W. H. Burbank.

BRUNSWICK, MAINE, Feb. 16th, 1889.

CLEANING DAGUERREOTYPES.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Permit me to make an addition to Mr. England's excellent article in *The British Journal Almanac for* 1889.

In cleaning and copying Daguerreotypes, he says: "Pass a camel's-hair brush slightly over the surface."

This may be correct enough with Daguerreotypes which have been gilded, but with those made before we had learned to gild them, fixed merely by hyposulphite of soda, the camel's-hair brush will not only remove the dust from the plate, but in a large measure remove the picture deposit also, and at best will scratch the image so as to greatly mar its beauty. Before I attempt to clean a Daguerreotype, I remove all the adhesive paper, then I bathe the plate in an alkaline solution to saponify all oily matter, and finally apply the cyanide solution. Some of our old plates, and those which have not been gilded, will repel water and alcohol as well as the cyanide solution. A heavily-gilded plate, if heated too strongly, will crack off or blister, leaving at places—especially when but slightly galvanized—the bare copper plate.

Very truly yours,

Old Daguerreotypist.

NEW YORK CITY, Feb. 18th, 1889.

REPLY TO J. F.

To the Editor of the PHOTOGRAPHIC TIMES.

My dear Sir: I notice in your journal dated February 15th, an inquiry of the Executive Committee of the P. A. of A., what they wish the photographic public to understand by plain photographs for the grand prize to be awarded at Boston?

There is nothing to prevent a member from competing for the grand award, with photographs printed on unalbumenized paper or prints made from unretouched negatives, if he thinks his chances better to win, so long as he prints them plain, but he must not vignette them, to hide any imperfections from bad manipulation, or dense shadows, caused by imperfect lighting, etc.

Very truly yours,

H. McMichael.

BUFFALO, February 18th, 1889.

A CORRECTION.

To the Editor of the PHOTOGRAPHIC TIMES.

Dear Sir: Allow me to call your attention to an error in the formula of Levy's Collodion Emulsion recently given by Mr. F. C. Beach, on page 41 of THE PHOTOGRAPHIC TIMES current volume. The amount of nitrate of silver should be 900 grains, and gun-cotton, 486 grains, instead of the amounts printed.

Very truly yours,

W. H. Ga.

BRISTOLVILLE, OHIO.

THE following letter from Mr. Reeves to Messrs. C. H. Codman & Company, has been sent to us for publication:

"In the *Photo Magazine* reports of the demonstration of the 'Reeves Magnesium Lamp,' at Boston Camera Club, January 21st, it states:

'A third exposure was made with a double view lens of 12 inch focus, stop f_{16}. This was a large head on a 5x8 plate, and was a splendid negative, fully timed, and with all the qualities of a daylight picture.'

"It is due you to state that the 'double view' lens was a *No. 69 ortho-panactinic, portrait and view combination.* Many of the groups and interiors exhibited were also made with smaller size lenses of same make.

Respectfully yours,

W. Reeves."

NORWICH, CONN., Feb, 13, 1889.

Notes and News.

OBITUARY.—Mons. Boissonas, an eminent photographer of Geneva, has been taken away from his work in the very prime of life. His reputation as a skillful and artistic photographer is world-wide. Readers of "The American Annual of Photography" will remember his valuable contributions to that periodical.

A LUCKY GUESSER REWARDED.—Allen Brothers, of Detroit, announce as the successful guesser of the aggregate of numbers engraved on Suter lenses sold by them during the years 1886, 1887 and 1888, in the guessing competition started by them, James Batty, of Utica, Mich. The guess

which secured the lens was 3,200,000, the aggregate of numbers being 3,254,532. Five other guessers were not much further away from the correct number.

AT THE WESTERN PHOTOGRAPHIC DEALERS' ASSOCIATION, held on February 12th, at the Burnett House, Cincinnati, we hear that many of the Eastern dealers, including those especially from Boston and Philadelphia, offered their resignations as members of the Association. We expect to hear further particulars soon, when we shall report the full proceedings to our readers.

MR. W. I. LINCOLN ADAMS, editor of THE PHOTOGRAPHIC TIMES has accepted the editorship of the department devoted to amateur photography in *Outing*.

HAS HIS PORTRAIT MADE EVERY MONTH.—It is reported that one Krassowski, a Russian, has had himself photographed once every month for the past twenty-two years, in order to note the ravages of time.

HAND PHOTOGRAPHY FOR LOVERS.—The fashion has been set of having one's left hand photographed when it acquires the decoration of a betrothal ring. Odd little pictures, showing pretty hands resting on velvet cushions or waving somewhat aimlessly in air, are the newest form of announcing an engagement, and are mailed, with that end in view, to friends. The member is pictured of nearly life-size, to bring out the jewel to advantage. This eccentric fancy is followed more modestly by some girls, who have but a single copy printed, which is framed in ivory and silver, and presented to the betrothed by way of deed testifying to his ownership of the original.

THE AMATEUR PHOTOGRAPHIC ASSOCIATION OF TORONTO is considering a grand exhibition for next August. The meeting of the American Association for the Advancement of Science will take place the latter part of that month, in Toronto, and no doubt there will be a large number of amateur photographers among their number. The two events will help each other. The amateurs of Toronto are an enterprising set of photographers, with a fine dark room, which they generously place at the disposal of all visiting members. Mr. F. D. Manchee, the secretary, may be found at the Queen's Hotel; or Mr. Hugh Neilson, a prominent amateur, and manager of the Bell Telephone Company of Canada, may be reached at any time, from any place in the city, by telephone.

THE CAMERA VS. THE GUN AGAIN.—Frederick H. Chapin writes, for the February *Scribner's*, a graphic account of how he succeeded in the remarkable feat of photographing a group of big horn or Rocky Mountain sheep, in July, 1887, in the Sierras of Northern California. The view of the group is an excellent one, and the plate has the additional interest of including a characteristic bit of a rocky gorge 2000 feet deep, and the peak of Mount Hallett. "When one reflects," Mr. Chapin writes, "that hunters are obliged to use many precautions when approaching their haunts, and sometimes are obliged to be concealed for hours, or to crawl on the edge of dizzy precipices, in order to obtain a distant shot, he will appreciate the value of what we saw and took away with us."

CRAMER'S HYDROCHINON DEVELOPER:—

1. Sulphite of soda	480 grains,	30 grammes
Phosphate of soda	160 grains,	10 grammes
Water	8 ounces,	240 grammes

Dissolve, filter, and add

Hydrochinon	100 grains,	6 grammes
2. Carbonate of soda	480 grains,	30 grammes
Phosphate of soda	160 grains,	10 grammes
Water	8 ounces,	240 grammes

For use, mix equal parts of 1 and 2. This developer can be used repeatedly. Old developer will give more contrast and keep the shadows clear.

NO FLATTERY THERE.—Boston Girl—"Uncle Gawge, do you think my photographs do me justice?"

Uncle George (critically)—"Yes, Emeline; justice without mercy."—*Judge*.

QUICK *versus* SLOW PLATES.—There seems to be an insanity afloat in the photographic community, a mania for quick plates, a mental malady which, like whooping cough, is more prevalent in the younger part of the community than in the older, and the severity of which decreases with age and experience.

The absurdity of this mania would be apparent to everybody who thinks, if they would but consider that the tendency to defects in any given class of plates is in proportion to the liability of the sensitive film to being acted on by subtle chemical or mechanical influences or agents-as is exemplified in the broadest manner by the history of all the old dry processes, in which it was the rule that the quickest were the most marked by defects. The reason is not difficult to assign, for the chemical constitution, which yields most readily to the attack of the developer, holds its constituents in bond by a weaker attraction than does that which requires an energetic agent to separate them. In the albumen processes we were able to develop by a tallow candle without a screen of color, while in the gelatine we require a light so veiled that in the old days it would have been considered impossible to work by it. And, practically, we know that the extremely rapid plates not only deteriorate more rapidly than the slow ones, but that, *cæteris paribus*, the quick plate is always more likely to fog and to develop accidental defects. I remember on an occasion when I wanted some plates of the most sensi, tive quality that I ordered a dozen of a well-known firm which were believed to be the quickest possible. I tried them with the utmost care and with various forms of development, but every plate fogged. It is on the principle of tobogganing—the hill you can go down most rapidly on when you want to slide is that on which you slip up most easily when you don't want to slide.

Of course, when you want instantaneous results, it is necessary to get as close to the edge of danger as you can, and not slip; and if there are defects, make the best of them, using fresh plates (a precaution which is not always possible when *en voyage*, or when using commercial plates); but when we have to make a time exposure in which the desideratum is quality of negative without regard to the instantaneous quality, and where it is *indispensable* that the exposure should be full, and *desirable* that the development should not be forced, the difference in the time of the exposure is of no commensurate importance, while the advantage of a restrained development and the greater freedom from structural defect, consequent on the

more thorough action of the light, is so great that nothing to be gained by catching some object on the move is to be for an instant compared to it. And even in instantaneous work I think that we had better sacrifice something in the field, if sacrifice must be made, by using a quicker lens and a slower film. In short, instead of making it the rule to use the quickest plate we can get, it should be to use the slowest that will answer our purpose.

I sometimes amuse myself with detective work, but in all the serious photography that I do, I find myself seriously hampered in it by the defects in the film consequent on straining for rapidity and large figures on the photometer. As I use only paper, I am obliged to beg Mr. Eastman to give us slower paper for ordinary work, from the difficulty of developing without defects the extremely sensitive film he sends me.—*W. J. Stillman, in B. J. Almanac for* 1889.

Photographic Societies.

NEW ORLEANS CAMERA CLUB.

THE long-promised entertainment and lantern-slide exhibition given by this Camera Club for the benefit of James Given's family, took place Wednesday evening, February 6th, and a large audience testified to the public appreciation of the club's generous action, and the admiration in which the dead hero is held. We quote the following from the local paper:

The programme was opened with a fantasie march, composed by H. Wehrmann, Jr., and executed by the Orpheon Francais orchestra, directed by Prof. G. L. O'Connell.

Following came a solo by Master A. C. Pierpont, who was repeatedly encored. Mr. H. Wehrmann next played a violin solo in a masterly manner, eliciting much applause. Mr. C. H. Shields recited "Spartacus" with great power, and was followed by the event of the evening, the magic lantern exhibit.

Mr. Horace Carpenter was the lecturer, and drew a great part of the applause to himself by the numerous witty saying with which he interspersed his descriptions.

Many scenes were shown illustrating the first exposition, and also bits of scenery taken on the Covington trip, including a picture of the club assembled on the river bank under the oaks.

Bright and pleasing colored slides were also shown, and an hour was quickly passed in reviewing them.

The second part of the programme followed, commencing with a selection from the opera of "Martha," by the Orpheon Francais orchestra, followed by a song, "Let Me Dream Again," by Miss Louise Trufet. Prof. G. Ricci next gave a violin solo, in his usual elegant style, and Mrs. G. Witham presented "Galatæ." A recitation by Mr. C. H. Shields, and a violin duo by Prof. Ricci and Mr. Wehrmann closed one of the most interesting entertainments ever given by the Camera Club.

As usual P. E. Carrière directed the arrangements, as it is impossible to find a more energetic chairman than he. His assistants were Messrs. D. L. Mitchell, C. H. Fenner, B. Shields, S. Boullemet, P. Deiler, L. E. Bowman, D. Rosenburg and Fred Eyle.

The new double lantern was used for the first time, and, considering the short time to become familiar with its workings, the committee, Dr. W. R. Mandeville, A. L. Du-Quesnay, P. Reynes, P. E. Carrière and H. Carpenter, did remarkably well.

The reception committee was composed of Messrs. Newton Buckner, G. W. Barbat, H. D. Hart, L. M. Bourgeois, J. B. Labouisse, Guy Carpenter, W. M. Lynch, T. W. Castleman, Jas. Moulton, R. S. Charles, Jr., Alf Philips, T. F. Claussen, W. J. Rhodes, W. W. Crane, C. P. Richardson, H. H. Edgerton, R. W. Rogers, W. C. Faust, W. E. Seebold, Jr., A. R. Shattuck, S. Weis, Walter Stauffer, Elmer E. Wood, and C. M. Whitney.

THE LYNN CAMERA CLUB.

INFORMAL EXHIBITION OF PRINTS.

ABOUT one hundred and twenty prints were shown recently under the auspices of this Society, and were viewed with interest by a large number of visitors. In the Competition Class only two prints were allowed to each member.

Mr. Hoyt showed views at Wood's Holl, Mass.; Mr. Coates, views on Ricker Mountain; Mr. Bacheller, an interior and a flash-light; Mr. Darcy, a Lake George view and one at Howlet Pond; Mr. Russell, an instantaneous view on Flax Pond and one at the Marblehead fire; Mr. Rogers, pond at Middleton and Porte-Cochere at E. V. R. Thayer's house; Mr. Breed, an interior and residence of Mr. Sprague; Mr. Pecker, bromide print of Biddeford Pool, and transferotype print of an old mill; Mr. Fox, an old saw mill and a mountain view; Mr. Drew, wood interior on Paradise Road; Mr. Jeffers, instantaneous surf views; Prof. Thomson, base ball game and Jackson Falls, N. H.; Mr. Porter, a hanging scene and a mountain brook.

Mr. Porter's views were received too late for competition; his hanging scene was a figure composition and well made up. Each person present was given a chance to vote on the merits of the pictures, and the result shows that they must have been very nearly of equal value.

COLUMBUS CAMERA CLUB.

THERE was a full attendance of the members of the Columbus Camera Club, at the meeting, held at their rooms, on Tuesday evening, February 12th. No business was transacted, and the entire evening was devoted to the entertainment of the members and a few friends, by the Secretary.

Before commencing his address on the "Curiosities of Ohio," he passed around a number of negatives of various highly-colored maps, made on Carbutt's orthochromatic plates; the color-values were distinctly shown, and every detail brought out with great accuracy. Slides from these negatives were projected on the screen, and the different colored sections of the maps represented in their relative values.

Two negatives, made from a profusely-colored engraving (one a Carbutt B 17, the other a Carbutt orthochromatic), were passed around, and then slides made from the negatives were shown on the screen. The superior quality of the slide made from the orthochromatic plate was very marked.

The main part of the evening's entertainment was then entered upon. This consisted of an illustrated address on the "Curiosities of Ohio and Ohio History." The illustrations were gathered from a variety of sources, such as old wood-cuts, photographs, lithographs, and some

from negatives. Going back to pre-historic times, the first illustration was that of a skeleton of a mastodon, unearthed in Auglaize County, and destroyed at the burning of Barnum's Museum, in New York City.

Then followed a series of illustrations, representing the mounds, fortifications, and other earth-works of the mound-builders; then a number of the curious natural rock formations in Ohio, as: The Devil's Tea Table, Pompey's Pillar, Rock Bridge, Rock House, etc.

After these came curious tree growths, as: The Big Sycamore, the largest tree east of California; the Wedded Trees, the Twin Trees, Old Man of the Woods, etc.

Curious customs of the early settlers were represented, as "Niggering Corn," etc.

Curious characters, as: Johnny Appleseed, Mad Ann Bailey, Lorenzo Dow, and John Gray, the last pensioner of the American Revolution. Some sixty illustrations in all were shown. At the conclusion of his remarks, the Secretary was the recipient of a vote of thanks from the Club.

The destruction by fire, on Monday night, of the Ohio State University Laboratory, entailed a very serious loss on two accomplished scientific workers in photography, viz.: Professors N. W. Lord and H. J. Detmers. The former lost over $500 and the latter $200 worth of photographic apparatus, besides many valuable negatives, prints, and slides used in the illustration of their lectures.

The materials lost represented the accumulations of years of scientific work, which cannot be replaced, and was the personal loss of these two gentlemen. The loss to the University will net from $40,000 to $50,000.

Frank H. Howe.

Our Editorial Table.

THE MODERN PRACTICE OF RETOUCHING NEGATIVES. Fourth Edition. New York: The Scovill & Adams Company.

ANOTHER edition of this practical little hand-book on "Retouching, as Practised by French, German, and American Experts," has been demanded; and it makes its appearance thoroughly revised, considerably enlarged, and brought down to date by the Editor of THE PHOTOGRAPHIC TIMES. The appendix, consisting of the article on "Retouching Gelatine Negatives with Red Chalk and Black Crayon," by Anton Baumgärtner, which attracted so much attention when first issued in "The American Annual of Photography;" directions for "Retouching Large Heads;" and for "Retouching the Negative by Chemical Means," also by eminent authorities, is the chief addition to this edition. As is said in the preface to this little volume:

"Retouching is a branch of photographic art that has taken firm root in all directions, and by its judicious use has conferred a beauty upon negatives previously unknown. It is to be regretted that some carry it to such an extent as to far transcend its legitimate functions and entirely destroy the likeness in the desire to flatter the subject.

"It is well said that the legitimate functions of retouching are the removal of blemishes and the correction of such inequalities as those caused in the photographic reproduction of colors, which are often untrue to nature. Its debatable sphere is the softening of shadows and lines in the features in conjunction with attempts to alter the expression.

"The author of the first part of this book refers to the treatment and retouching of collodion negatives, but his technics are exceedingly well adapted to retouching upon gelatine films.

"The latter part contains instructions for retouching on gelatine negatives as practiced by German, English, and American experts."

The completeness with which the book covers its field is shown by the following index:

Abrading the Surface of the Negative; Applying Cold Varnish; Artificial Light for Retouching; Cloud Effects in Landscapes; Cold Varnish Unsuitable; Condition of Negative; Cross Expression, How to Cure; Drapery; Emery Powder in Retouching; Hints from the German Methods of Retouching; Improving Bad Negatives; Landscapes; Improving the Skies; Lighting the Negative; Magnifying Glass, Use of; Modeling; Obtaining Effects of Snow; Old Faded Photographs; Pencils and Brushes; Positions for Producing Enlarged Negatives; Preparing the Surface· Removing Accessories; Reproducing Daguerreotypes; Retouching Details; Retouching Enlarged Negatives; Retouching Frames; Retouching Gelatine Negatives with Red Chalk and Black Crayon; Retouching Large Heads; Retouching the Negative by Chemical Means; Retouching Varnishes; Shadows Under the Eyes; Specks—How Removed; Swollen Veins on the Hand; Tracing Paper—Its Uses; Uses of Dragon's Blood; Utility of Retouching; Venice Turpentine, Substitute for; Wrinkles.

Price, in its enlarged and improved form, 50 cents. Mailed, post-paid, to any address on receipt of price.

OUTING, for March, is a very strong sportiug number. We note the following principal articles: Fox Hunting; A Day in the Shires, by Henry H. L. Pearse ("Plantagenet"), richly illustrated; Lawn Tennis in the South, by Henry W. Slocum, Jr.; Snow-shoeing in Canuckia, by James C. Allan. Salmon Fishing on Loch Tay, by "Rockwood," and illustrated by J. and G. Temple, deserves special mention. In addition, we note Spaniel Training, by D. Boulton Herrald; How to Cycle in Europe, by Joseph Pennell; Amateur Photography, by Ellerslie Wallace; and Winter Shooting in Florida, by F. Campbell Moller. There is, moreover, a well-illustrated account of Coaching and Coaching Clubs, by Charles S. Pelham-Clinton, and a Sonnet, by Howell Stroud England. The Editorial Departments are bright and attractive, and the Records present, in a complete manner, the latest achievements of our athletes.

Among Western writers, concerning some of whom we spoke in a brief note last week, Joseph Kirkland, of Chicago, described as "a military-looking man, not far advanced in years," is taking rank as a master in realistic portraiture of life in the prairie towns. Mr. Kirkland's first book, "Zury, the Meanest Man in Spring County," met with an excellent reception; his latest book is "The McVeys." James K. Hosmer, of the Washington University in St. Louis, is the author of "The Life of Samuel Adams," and of the new "Life of Young Sir Henry Vane," probably the best biographies of those eminent statesmen. Thomas M. Cooley, of Michigan, Lucien Carr, of Missouri, Rufus, King, of Ohio, J. P. Dunn, Jr., of Indianapolis, N. S. Shaler, of Kentucky, Josiah Royce, of Cali-

fornia, and James Phelan, Member of Congress from Tennessee, although active in professional and practical affairs, are also the authors of admirable books of history or biography. John Hay, the Cary Sisters, the Piatts, E. R. Sill, and Edith M. Thomas, all of Ohio, are widely-read poets. These names, selected at random, by no means exhaust the list, for W. D. Howells, a resident of New York, but really an Ohio man, Mary N. Murfree ("Charles Egbert Craddock"), of Tennessee, and Bret Harte are among the strongest and best-known of American writers, each employing a distinctly original method, and enjoying a reputation in England as well as in America. The scene of nearly all of Harte's works is the West, but as he now resides in England, his publishers do not classify him as a "Western Author," but as an "Author of Works on Western Topics."

We have recently had opportunity of noticing, especially, "The Old Sergeant and Other Poems," by Forceythe Willson, and the charming little volume of poems by Edward Rowland Sill; and we are reminded of the irreparable loss to American literature in the early death of these two promising poets. They lived long enough, however, to leave a work that will be esteemed for more than the unusual promise which it contained. "The American Horsewoman," by Elizabeth Karr, has also come to our table, and its sensible advice and correct drawings commend it to every lover of out-door sports. If photographers would place more of such books on the centre-table of their waiting-rooms, their studios would be rendered much more attractive to cultivated and wealthy patrons.

Miss Isn has shown us several studies in portraiture which she has made in her own home by the light of an ordinary side window. The posing and lighting of these studies show great promise. The developing and printing are also very good. The young lady should feel encouraged by these first attempts.

From Mr. C. H. Stokes, of Clifton Springs, N. Y., we have received a flash-light group of two gentlemen playing chess. It was made with a Waterbury B lens with an $\frac{f}{10}$ stop, on a Cramer No. 40 plate, and using 48 grains of flash-light powder. The figures are well lighted, showing a good modulation of tone. It reflects much credit on the operator, and the apparatus used.

From Sam C. Partridge, the enterprising photographic dealer of San Francisco, we have received a package of photographs made by the popular Kodak Camera. They are mostly taken in the Chinese quarter of San Francisco, and are very neatly mounted on heavy boards. The pictures themselves reflect every credit on the instrument used in producing them.

Record of Photographic Patents.

396,727. Temporary Binder for Photographic Cards. Irving H. Brown, New York, N. Y.

396,929. Photograph Album. Carl H. Hammann, Offenbach-on-the-Rhein, Germany.

396,951. Revolving Photometer Stand. James W. Packard, New York, N. Y.

February.

397,309. Photograph Burnisher. Silas H. Randall, Wyoming, Ohio.

397,428. Photographic Camera. John J. Higgins, New York, N. Y.

397,429. Photographic Camera. John J. Higgins, New York, N. Y.

397,411. Process of Toning Blue Prints. Harold Whiting, Cambridge, Mass.

Queries and Answers.

40 "Photo."—What is the meaning of photometer, sensitometer, degrees of sensitiveness, etc. I cannot understand it. Will you enlighten me?

40 *Answer.*—This subject cannot very well be treated of in all its details within the limited space of our Queries column. Read "Vogel's Progress," pages 128 to 142, and compare with Mr. Carbutt's article, page 208, "American Annual of Photography for 1889."

41 Josephine Baillard intends to go to Chautauqua next summer, and asks: (1) The best route. (2) Expenses for board. (3) Tuition fee in the School of Photography.

41 *Answer.*—(1) By the Erie road *via* Lakewood. (2) Six dollars per week and upwards. (3) A course of ten lessons, five dollars.

42 John P. G. writes: I have tried to copy an old document, yellow with age, but can hardly get sufficient intensity to distinguish the letters from the ground. What should I do to get a legible reproduction?

42 *Answer.*—Use an orthochromatic plate.

43 Minnie Dayton wants to color stereoscopic pictures, but does not succeed to her satisfaction with Windsor and Newton's colors. She asks for better material to paint with.

43 *Answer.*—Take aniline colors. With the exception of blue, perhaps, they flood well over an albumen print, and if properly diluted, they are transparent enough not to obscure the details of the photograph. To wash in a blue sky, take Prussian blue with a little prepared ox-gall.

44 "Typo," a practical photographer, wants to make cuts for illustrating printed matter, and asks which is easier to learn, photo-engraving or zinc etching.

44 *Answer.*—Neither of them is as easy to learn as our correspondent seems to imagine. The best mode he can possibly adopt is to serve an apprenticeship with a practical man.

45 Nellie W. writes: What is the best way to mount and burnish aristotypes, and how can they be kept flat and glossy without being mounted?

45 *Answer.*—(1) Trim before toning, mount in the usual way, and burnish before perfectly dry. (2) Squeegee them on a clean glass, and when dry pull them off. Unmounted aristotypes are kept generally under slight pressure—in a book, perhaps.

46 James O'Rourke.—Is the chloride of silver paper more sensitive than Eastman's permanent bromide paper?

46 *Answer.*—A few comparative experiments will tell you very definitely.

SUPPLEMENT

TO THE

PHOTOGRAPHIC TIMES.

FRIDAY, FEBRUARY 22, 1889.

THE WASHINGTON CALENDAR.

It seems eminently proper that the number of The Photographic Times issuing on the 22d of February (Washington's Birthday) should be embellished by a reproduction from the "Calendar" which depicts the home and haunts of Washington. We trust that the fact that this "Calendar" was the one presented with the compliments of The Photographic Times itself, early in the year, will not detract from the interest of our illustration this week. Our publishers would have been pleased to have presented every reader of The Photographic Trmes with an original "Calendar," and had they known that the demand would be so great, they would certainly have issued a larger edition of them. As it is, they do the best they can in presenting every reader of The Photographic Times with a gelatine print *fac-simile* of the "Calendar," trusting that next year there will be enough of the "Calendars" themselves for all who desire them.

The fact that next April will be celebrated the centennial of Washington's inauguration as first President of the United States, lends an added interest to this "Calendar" and the reproduction from it.

The titles of the various pictures composing the group are sufficient explanation of the illustrations. No American is so ignorant of the leading facts in the life of the Father of his Country as to require further description from us. In a later issue we expect to present equally good illustrations from negatives of other "homes and haunts" made famous by the first great President.

EVERY MAN HIS OWN TINKER.

Part II. *

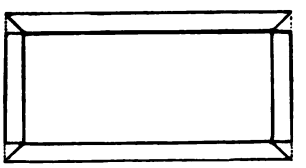
Among the many things where soldering may be useful, are odd fittings and metal pieces for cameras, tin extension cones for lenses, trays, wash-boxes, and lanterns.

I will confine myself to short descriptions of my method for making some of these things, and I hope the reader will get suggestions which he may work out to suit his own taste.

In making a tray, I would take a sheet of clean metal, tinned iron or copper, and draw on it in pencil a rectangle about three-eighths ($\frac{3}{8}$) of an inch larger each way than your negative; then a larger rectangle, with sides as far from those of the inner one as the desired height of sides of the proposed tray.

With your shears cut out the larger rectangle; cut from each corner into the point of the inner rectangle; then to this point also along the continuation of the lines of two opposite sides of the inner rectangle.

In this way you cut out one small right-angled triangle from each corner.



Bend the sides up; a convenient way to do so is to lay the sheet over a block and tap with a mallet; then bend the projecting flaps around and solder the corners, inside and outside.

Tinned sheet-iron or copper may be used for most solutions, as developer, and plain alum, and the tray, if varnished with shellac or asphaltum varnish, may be used for hypo, etc., but not for alkaline solutions, as the developer.

One of my best trays was made in this manner (except that one corner is made into a lip), from an old daguerreotype.

A lantern will take more skill.

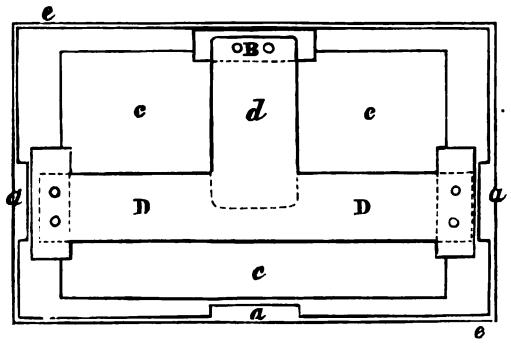
The form may be varied to suit circumstances, and all light-leakage carefully avoided by giving every joint and opening a double angle with non-reflecting surfaces.

* For Part I. see page 82 of preceding issue.

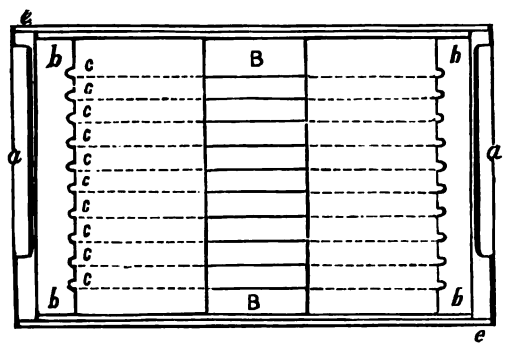
By the way, the simplest dead-black varnish that I know of is made by dissolving shellac in aqua ammonia to the proper consistency. Good sealing wax will answer as well as gum shellac. Stand the bottle, which should be well corked, in a warm room, and shake every day till the shellac is dissolved. Take some of this and rub it up with enough lamp-black to cover well. This may be used on wood or metal.

But to continue. Have plenty of space and a good draught in your lantern, to prevent overheating, and do not solder the parts around the chimney —*rivet* them. My lantern was improvised from a toy magic lantern; it has a burner with a chimney, a reflector, two grooves for colored glasses, a shade for the eyes, and the light is regulated from the outside. My wash-box (4x5) was made from a tin cracker-box, 5x7x7 inches, and has a hinged lid. I have tried the running water arrangement, but prefer simply a water-tight box which holds the plates securely, *film side down;* in this box you must change the water, some eight or twelve times, according to how long each change remains on. I believe that this washes the plates most quickly and thoroughly. As, in making a solution, the denser portion sinks, so will the hypo sink from the inversed film.

TOP VIEW.



SIDE VIEW.



As this box (e) is rather large and the plates must not work round in it, slips of tin (a, a, a) project from the two ends and the front side.

The piece that holds the plates is taken out, the plates slipped into its grooves, and the whole slid into the box.

This piece has three slips of hard wood with grooves in them for the plates (B, b, b). Two of these slips (b, b), the grooved sides facing, are held together by strips of tin (D, D), one at the top, one at the bottom.

The third slip (B) is held by two strips of tin (d) soldered to the middle of the first strips (D, D); now all the grooves face inwards, the plate is slid in lengthwise between the first two slips (b, b), and one side rests in a groove in the back-piece (B); the slips (b, b) holding the ends rather more than half way towards the front.

The whole is like a set of shelves, the grooved strips acting as supports and the plates as the shelves.

Fit the strips on the box (a, a, a), and those forming the holder (b, b, B), so that the plates being put in—film side down, of course—cannot shift around.

When finished, varnish the whole well with good oil, shellac, or asphaltum varnish.

Dallett Fuguet.

THE PYRO CLUB OF ROSE POLYTECHNIC INSTITUTE, TERRE HAUTE, IND.

THE amateur photographers among the students of the Rose Polytechnic Institute have formed a club, to be known as the Pyro Club.

Officers for the ensuing year are: H. H. Holding, President; O. G. Hess, Vice-President; J. S. Cox, Treasurer; W. T. Ames, Secretary.

Regular meetings are held on the second Saturday of each month.

At the February meeting Mr. Harper presented a paper on Toning Blue Prints. Some very excellent samples were shown of various tints—brown, red, green, and blue-black.

Toning was principally done with gum catechu—with bleaching before or after toning with ammonia.

THE CASE SCHOOL CAMERA CLUB, CLEVELAND, OHIO.

A REGULAR meeting of this club was held Friday afternoon, February 8th. All the old officers were re-elected for the ensuing year, and one new member was added to the roll.

Secretary Punnett explained the principles and the workings of the carbon process, and succeeded in arousing considerable interest in it.

At the next regular meeting the platinotype process will be demonstrated by either F. A. Colman or by Milton Punnett.

THE
PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, MARCH 1, 1889. No. 389.

"A PORTRAIT STUDY."

As its name indicates, our illustration this week is a picture which all portraitists may study with profit. The pose, the lighting, and the arrangement of details in this "portrait study," are all worthy of the sincerest flattery—imitation! Mr. Falk, the artist, is here at his best; but undoubtedly much credit is due to the intelligence and beauty of the subject, as well as to the skill of the artist, for the happy result. The charming picture has met with the greatest sale, which is, perhaps, after all, the best test of merit. As one of "The Twelve Photographic Studies," it also gained an immediate and wide-spread favor. It is not often we can give our readers so good an example of portraiture. The original of the picture is Miss Isabella Irving, of Daly's excellent Theatrical Company, and she is here depicted in one of her charming *ingenue* parts in which she is not to be excelled on the American stage.

PHOTOGRAPHING GLASS-WARE.

GLASS being a transparent substance, objects made of it cannot be photographed in a way to truly depict the form of the subjects, except where the object is highly illuminated or in deep shadow; the transparency of the subject making objects beyond it visible. Even a plain background will not save the glass object from being more defined in a photograph than a confused mass with no distinct lines. Hollow glass-ware, especially, presents a variety of reflecting and refracting surfaces, and therefore requires peculiar treatment in order to be successfully photographed. In many cases the glass is cut to represent crystalline forms, while in others it is decorated with intaglio designs which are cut in matted or ground surfaces. Now, these matt surfaces give us a clew as to how we should proceed in photographing the rest of the glass object.

In photographing a glass lamp-shade of globular form, for instance, the main surface of which is ground, and with intaglio designs, we find that the rotundity of the globe will show when it has been placed in a proper light, but of the designs only those parts will come out in the photograph upon which dark objects from without were reflected. Through the other parts the ground-glass of the other side of the globe will be visible, and thus the design will be entirely lost. By placing a piece of dark paper or muslin back of the design, inside the globe, it will become visible in all its details; but in saving the details of the design in this way, the shape and the form of the globe are almost entirely lost. The design and the shape may both be preserved by bending the piece of dark material inside the globe as nearly as possible to its shape, and having it of a slightly colored or neutral tone rather than decidedly black.

Photographing plain glass surfaces, and preserving all the detail in the designs, may easily be done by backing the glass with some dark material; but the backing must be carefully placed in close contact with the glass to avoid reflections. Reflections from in front must also be carefully avoided when photographing large, plain sheets of glass, and this can be accomplished by using dark reflecting screens placed at the proper angle, at the sides and in front of the glass.

As we depart from plain surfaces, our difficulties increase with the curvature of the object to be photographed. An engraved placque or tray must also be backed with a material of non-actinic color, in order to save detail in the designs, and reflecting screens are also quite indispensable. Sometimes a complete set of glass-ware is required to be photographed in one group, and to place a number of articles in a proper light requires considerable skill and ingenuity. The nearer the source of light the greater the variety of illumination, of course; so that the problem becomes simplified when the group is removed further from the light source. To photograph glass bottles, they may be filled with a non-actinic colored fluid, such as milk, for instance,

to which a tincture of tumeric has been added. Cut-glass must also be filled with a non-actinic colored fluid, in order to overcome reflections which, otherwise, one side would throw upon the other.

To preserve the form of glass covers of great convexity, a dark screen adjusted above will be found necessary. Stationers' small glass articles, such as inkstands, paper weights of various forms, etc., must be placed before, and near to, plain, black backgrounds, with screens of dark material on each side, in order to prevent extraneous light from illuminating them, and confusing the form by various reflections. Coating the reverse side of the object with a non-actinic color is also successfully resorted to in addition to the side screens.

When the prismatic form of crystallization is present in cut-glass ware, a remarkable phenomenon is observed. Those faces of the crystal from which blue or violet light is reflected, appear in the photograph to be surrounded by a halo resembling much the parhelion. These effects have been observed on gelatine plates, but never on collodion; and they have occurred more frequently under electric, than in daylight. This is an effect which it is quite difficult to remedy, since it matters not in what light the article is placed, some side of the crystal will continue to reflect blue or violet light. If it is merely desired, however, to reproduce the *form* of the crystal, without its *lustre*, it may be dipped in ground-glass varnish, and then photographed with its lustre dimmed. Colored collodion has also been used for the same purpose, but, on account of its transparency, is not so effective as the varnish; nor is the collodion so easily removed as the ground-glass varnish after it has served its purpose.

Very pretty effects may be obtained by photographing naturally-frosted glass windows; and by placing the camera directly in front of the plane surface no difficulty is encountered in securing a distinct and sharp image. More contrast may be produced by placing a light (but non-actinic) colored tissue paper in close contact with the outside of the glass. For photographing church windows, or articles of stained or painted glass, color-sensitive plates should always be used.

EDITORIAL NOTES.

Mr. F. S. Hyde, of Brooklyn, sends us the following simple though not new method for mounting albumen prints:

Before toning, he says, the print should be trimmed to the proper size. After washing, the wet print is placed, face down, on a glass plate. Then, with a sponge, a little freshly-prepared starch paste is applied evenly to the back.

The print, still wet, is taken from the glass and placed on the card, care being taken to spread the print from the middle towards the edges.

The picture may then be dried artificially.

An excess of meta-bisulphite of potassium, with pyro and sulphite, or with hydrochinon and sulphite, is a very powerful restrainer. Very fine "black and white" negatives may be made on Carbutt "B" plates with hydrochinon and meta-bisulphite.

The selection of appropriate backgrounds requires the most scrupulous attention, if by their aid the photographic portrait is to be improved. The figure should in every case appear to be in relief before it, and not flattened out upon a monotonous surface The background should be of such a color, and with such a light and shade effect that the subject before it seems to be surrounded by vital atmosphere. Unless the photographer be also an educated artist, it is much better for him to select, as a rule, rather plain backgrounds than those more pretentious, and which, unless chosen with the greatest skill, appear simply ridiculous in many pictures. We have been reminded of this by a recent article in *The Deutsche Photographen Zeitung*.

THE CAUSE AND PREVENTION OF BLISTERS ON ALBUMENIZED PAPER.

In the number of the Photographic Times for November 23d, on page 531, appears a note with the above heading, which reproduces the substance of "A paper by Edward Dunmore, read before a South London photographic society many years ago," in which the cause of blisters is held to be "nothing more nor less than the imperfectly rendering insoluble of the albuminous coating when it is floated on the silver bath."

The conclusion at which the author of this paper arrives is terse, pointed, and practical: "Sensitize your paper properly, and you will never be troubled with blisters."

If it be true that albumenized paper that is properly silvered will *never blister*, it is highly probable that there is not a photographer on this continent who knows how to silver his paper properly. It is, moreover, very interesting to notice that no book ever published, in this or any other country, tells how to sensitize such paper *properly*. The highly albumenized paper now generally used and ap-

proved can be silvered on a plain thirty-grain bath which will coagulate the albumen, and it will be even less liable to blister than if silvered on a sixty-grain bath. If silvered on the latter the right length of time (generally about half a minute after it lies flat and limp on the solution), it would be difficult to prove that there were patches of soluble albumen between the insoluble film and the paper support; and yet the liability to blister which sometimes forcibly shows itself under these conditions often disappears at once on reducing the strength of the bath to fifty or forty-five grains per ounce. It is not easy to believe that the soluble patches of albumen assumed to exist in the former case should be effectually remedied by using the weaker bath; but this may not be admitted to be conclusive. I will endeavor to strengthen the argument.

When the blister season is in high feather, and something must be done to save the prints; when it is an easy matter to secure, say, a hundred adult specimens, including some of gigantic proportions, in a fair-sized batch of prints, according to the theory quoted in the first paragraph of this article, every blister, large and small, is represented and defined by a corresponding patch of soluble albumen, which was there when the paper was taken from the silver bath. After the paper is printed it is washed in several changes of water. It may be washed, first, in cold water, then in warm water, then in cold again, then in warm again, then in salt water; removed from this into still another, it may remain soaking two days and nights before toning, after which it may be left over night again before fixing. It is safe to say that during all this time not a blister will raise its head, diminutive or otherwise. Why? Simply because the blisters are not there. On the supposition that they are caused by the dissolving of the soluble albumen wherever they are formed, is there the remotest probability that they would not show themselves during all the prolonged washing just described, or even during the washing which prints ordinarily undergo before fixing? But they do occur, often in great numbers, *after* fixing, when previous to this process there are no symptoms of their existence.

Is it not reasonably certain, then, that they are caused by something which happens in the hypo bath? As they are filled with gas, of which fact any one can easily satisfy himself, is it not highly probable that the gas causes the splitting apart of the film from the paper and the filling of the blisters at the same time?

On the passage of the albumenized sheet from the silver bath to the finished print, there is a blister stage which must be crossed in safety or otherwise. Before this stage is reached and after it is passed, there is no liability to blister. In fact, excepting in this stage, blisters are apparently impossible. As they never occur before the prints reach the hypo bath, so after the gas generated therein is once out of them, they may lie in water indefinitely without danger from that source. [This is mentioned only as a fact in relation to the subject in hand, not that it is at all advisable.] Fortunately, a very simple way of bridging, or, rather, of ferrying over the dangerous stage, has been devised.

The fact that salt water is a safe preventive of blisters is a notable and successful example of empirical or experimental knowledge, and its discoverer is entitled to honorable mention among those who have done something for photography.

Before leaving this subject, I beg to say that I am hardly willing to admit that the cause of blisters is not an ascertained fact. That gas is generated by the action of hypo on albumenized paper and other organic matter I have had repeated ocular demonstration. Blisters form on silvered paper that has not been exposed, from which it appears probable that the albuminate of silver furnishes the constituents from which by the agency of the hypo the gas is generated.

The subject is intensely interesting, and there are several questions connected with it which are yet in abeyance.

W. H. Sherman.

THE PRINTING METHOD OF THE FUTURE.

CONCLUDING PAPER.

COATING the paper must be done by very much subdued light. To do it by gas or lamplight is impracticable. The solutions being of a yellow color, it is impossible to see well when they are spread uniformly over the surface of the paper. The operation of coating can be much better performed by subdued daylight. After coating, the paper is at once transferred to a dark-room to dry. Only enough of the solution must be mixed at one time as is required to coat one sheet of paper, and it must not be longer exposed to even a subdued light than is absolutely necessary. Spread the solution over the paper, tacked to a clean board, by means of a soft bristle brush bound with non-metallic material.

When the paper has ceased to be wet, finish drying near a heated stove. It is highly important to do this at the proper time. Premature drying pre-

vents the sensitive solution from passing sufficiently into the mass of the paper, while too much of it will enter if drying is delayed too long. When perfectly dry, the paper should be inclosed in an air and light-tight tin-box provided with a perforated receptacle for chloride of calcium.

The actual printing process does not differ materially from that with albumenized paper. The paper is placed by subdued light in the printing-frame, exposed, and occasionally looked at to see how far printing has proceeded, by lifting a corner and breathing upon the sensitized side. Sufficient depth being obtained, the proof is removed from the press and exposed to the vapors of hot water, when the picture will assume vigor and brilliancy. If under-exposure should be observed, the picture may be developed to its requisite intensity by the well-known methods with cold solution of potassium or sodium oxalate, or a 5 per cent. solution of carbonate of soda.

When a number of prints have been made, they are immersed in a water bath to which a little hydrochloric acid has been added (one part of acid to thirty parts of water). This acid bath must be changed three or four times at intervals of several minutes, or until no trace of yellow color remains. After that, washing of the prints for fifteen minutes in pure water completes the operation. The prints may then be dried and mounted.

Platinum prints do not roll up like those made on albumen paper, and show, in fact, so very little resistance that mounting them in the usually adopted manner is not at all necessary. It is quite sufficient if they are tacked on the corners with gum arabic mucilage upon white or gray cardboard.

The general character of platinum prints is not of the brilliant nature of those on albumen paper, a disadvantage, perhaps, if they are of small dimensions. If it is desirable to preserve detail to greater extent, they may be bathed in a dilute solution of gelatine and dried spontaneously. Pictures furnished with such a coat of gelatine are, however, quite difficult to retouch, while the rough surface can be well worked upon with graphite or black crayon. A very good retouching medium for platinum prints is the well-known "negro pencil."

The tone of the "retouching" is not subjected to change.

As the platinum deposit is indifferent to the action of any acid, or vapors or gases, the permanency of the print is absolute. When kept in chloride of calcium boxes the sensitized paper will keep at least for six or eight weeks. Printing on very old paper results in foggy and feeble proofs; hence it is advisable to prepare the paper in limited quantities.

Very old and partly decomposed paper may be restored to its original activity by brushing it over with

Chlorate of iron solution....10 c.c.m. [2 drs. 50 min.]
Chlorate of potassium solution (0.005—0.01 gr. in 100 c.c.m. of water—$\frac{1}{10}$—1½ gr. in 8½ oz. of water).10 c.c.m. [2 dr. 50 min].

Paper spoiled by time or when exposed to light prints equally as well as freshly prepared paper after the application of this solution.

The great artistic value of platinotypes and their superiority over all other kinds of photographic prints is as yet not fully appreciated. It is confidently hoped, however, that my American colleagues, who are ever on the alert to make improvements, and are always open to be convinced of the good qualities of newer and better methods, will not hesitate to adopt a printing process by which most superior results have been obtained, and to bring it eventually into general practice. I should be much gratified if these articles proved instrumental in awakening interest in platinum printing beyond the ocean, for it is there we have most reason to place our hopes.

Charles Scolik.

CHIPS FROM AN AMATEUR'S WORKSHOP.

XI.

Collographic Printing.

The numerous letters of inquiry which I have received of late concerning the mechanical printing process of which I gave a description in the "Annual" for 1889, have demonstrated pretty conclusively the existence of a widespread interest in this desirable department of photographic work, which makes a more extended treatment of the subject than was possible in the "Annual." I propose, therefore, to devote one or two batches of chips to a description of collographic printing from the standpoint of an amateur.

As every well-informed photographer knows, collotypes, or heliotypes, or phototypes are in reality photo-lithographic prints, a film of bichromated gelatine taking the place of the lithographic stone. It would be much better, therefore, to give the process a name more descriptive of its character than either of those given above. In Mr. Davanne's monumental work on photography the process is described in the section devoted to

photo-lithography; Geymet calls it phototypy, and Wilkinson terms it collographic printing. Its most common title is collotype.

As I propose to describe the process from the beginning, I shall take for my starting-point the formulæ for the sensitive film, which, while alike in all essentials, differ somewhat in details.

As I am writing for amateurs, who will probably not care to venture upon the difficulties which put in an appearance when glass is the material coated, but will prefer a less fragile substance, such as copper, zinc, or brass, I shall speak only of those formulæ which are suitable to these substances.

The formula given in the "Annual," while workable, is not the best. The quantity of glue, added to prevent the formation of a high relief, is too great. It should be diminished one-half, or better still, an equal amount of Coignet's No. 1 gelatine should be substituted. With this modification no difficulty should be experienced in obtaining good results as soon as the necessary skill has been gained.

But formulæ for the sensitive mixture are as thick as leaves in Vallambrosa, and lest the formula-loving amateur should feel himself defrauded, I add a few of known excellence, from which the amateur can select the one best suited to his purpose.

The gelatine is always to be well swelled in cold water before being dissolved, and then melted at as low a temperature as possible. The bichromate is powdered and added to the melted gelatine with constant stirring. After filtering, the mixture is ready for use. While the quantity of gelatine admits of considerable latitude, it is best always to use solutions rich in gelatine. This hastens the drying, and diminishes the likelihood of the bichromate crystallizing out.

FORMULÆ.

1.

Water	2 ounces
Gelatine	200 to 300 grains
Bichromate of potash or ammonia	45 to 60 grains

2.

Water	3 ounces
Gelatine	75 grains
Russian isinglass	75 grains
Bichromate of ammonia	23 grains

3.

Water	3 ounces
Gelatine	75 grains
Bichromate of ammonia	8 grains
Chloride of sodium	200 grains

When the solution is cool, add

Alcohol	3-5 ounce

4.

Water	15 ounces
Gelatine	2½ ounces
Bichromate ammonia	100 grains
Bichromate potash	50 grains

Dissolve the gelatine at the lowest possible temperature; then add the bichromates, previously powdered. Raise the solution to 140 degs., and keep it at that point for ten minutes, then cool down to 125 degs., and add a mixture of 15 ounces of alcohol and 5 ounces of a saturated solution of borax in alcohol. Filter and coat.

5.

a. Water	3 ounces
Russian isinglass	45 grains
b. Water	3 ounces
Gelatine	180 grains
c. Water	3-5 ounce
Bichromate potash	75 grains
d. Whites of two eggs beaten to a froth and allowed to stand for twelve hours.	

When *a* and *b* are dissolved, mix, and to the mixture add *c* and stir for five minutes. Then cool down and add three drams of *d*, and stir well for some minutes. Filter through fine linen, and coat.

Remarks.—Of these formulæ, Nos. 1 and 2 are the simplest and the best for initial experiments. Nos. 3, 4 and 5 are more complicated, but somewhat better for fine work. The albumen in No. 5 is added to purify the solution. The gelatine used should be of the best quality. Nelson's No. 1 is well suited to this work.

When dried at a temperature of about 110 deg. F. the film should have a slightly matt surface with a trace of reticulation. If it dries hard and glossy, the sample of gelatine is too hard, and must be softened down with a softer sample. If the film will not stand much press work, the gelatine is too soft, and must be hardened with a harder sample.

The isinglass must be pure; that which has been whitened with sulphuric acid is not good.

Coating the Plates.—The coating-room should be well warmed, free from dust, and lighted by yellow light. The metal plates must be sufficiently large to allow at least four inches of margin all around the picture in order to prevent cutting the roller, and to give plenty of room for the masks used to protect the margins of the prints.

About two ounces of solution will be required to coat a 16x13 plate. The plates should be placed on the warm slab of the drying oven until slightly warm, and dusted off. The plate is then taken in one hand, or placed on a leveling tripod, and the solution poured on and evenly distributed, taking care

not to allow any to run off the plate. It is then placed on the warm slab, and the others coated in the same way. As soon as the slab is covered the door of the drying oven is closed, and kept closed until the plates are dry. The temperature should be kept at about 110 deg. Fahr.

The Drying Oven.—For amateur work the drying oven need not be very complicated or expensive. A simple and efficient form is made by removing the bottom and one of the sides from a long, narrow box, of a size suited to the plates to be dried. The bottom of the box is placed on an open framework, with the open side facing the operator. The frame may be from ten to fifteen inches high. Four brackets are placed inside of the box, two on each side, opposite each other, about six inches above the bottom. A glass or metal slab is placed on these brackets, and leveled. The slab must be sufficiently smaller than the box to leave a half-inch space on all sides to allow the heated air to rise. A door or curtain is arranged for the open side, and a source of heat is placed beneath the plate. As this box is not light-tight, it must be placed in a room which can be darkened. A convenient method of working is to coat the plates early in the evening, and to place the box over a dish containing burning charcoal, or over a kitchen stove with a gentle heat. A more efficient oven is made by adapting a light-tight box to a copper reservoir filled with warm water kept at the proper temperature by any suitable means. From two to four hours will be required to dry the plates.

Graining the Plates.—Before being coated the plates must be grained. This may be done with fine emery powder, or more easily and quite as effectively by immersing them in a tray containing water, nitric acid and alum, in the proportion of one dram of acid and one ounce of a saturated solution of alum to a quart of water. The plate, previously polished with levigated pumice-stone powder, is placed in the tray and rocked for five minutes, or until a fine matt surface is obtained. The plate is then removed and rinsed under the tap, a fine sponge being used to remove all scum. The surface of the plate should show a smooth, matt appearance, free from scratches. If any scratches are seen, the plate must be re-polished.

W. H. Burbank.

(*To be continued.*)

PORTRAITS of Ellen Terry are said to be a drug in London. Perhaps she believes she can medicine to a mind diseased by multiplying her picture in little.

PHOTOGRAPHS MADE WITH THE EYE.

[Read before the London and Provincial Photographic Association.]

By way of preface to the subject I am about to bring before you to-night, may I ask if you have ever seen anything with your eyes shut? And when I say with your eyes shut, do not mistake me and run away with the notion that I am in any way referring to any imaginary mental vision one can conjure up in the dark. For instance, look at an object that is fairly illuminated, steadily for a few seconds, then suddenly close your eyes, and a similar object can be seen. I do not attempt to explain this, though it is evidently governed by some law; and it leads me at last, after no end of failures, to the discovery which is one of the subjects of my paper to-night, namely, that you can obtain a photograph with the human eye if you have a light strong enough and a plate sensitive enough. After no end of failures, I obtained an impression with the aid of an electric arc lamp, 2,000 candle-power, which I have at my place, 92 Piccadilly, for taking photographs. I looked at the arc light for fifteen seconds, then switched the light off and exposed a very quick plate (a plate coated in different layers, which makes it much more sensitive) and held it to my eye for a minute or more. On developing it I found a spot, which pleased me very much. If you put the spot under a powerful microscope you can see the image of the arc. I have obtained marks with the magnesium flash-light, but they are not so good as with the electric arc; in fact, there is nothing definite about them.

I have my flash-light here, so if any of you would like to try the experiment I shall be very pleased to watch the proceedings, for I begin to value my eyes more than I did at first, because after one experiment I did at Piccadilly, I had a black spot hovering about the retina for some days. With Mr. Debenham's advice, and that of others, I have come to the conclusion that it is dangerous; and the black spot did not go off until I put a piece of red glass before the arc light and looked at it for two minutes, which seemed to counterbalance the effect. I shall not try it many more times, for, after all, sight is very precious. I have only chanced one eye always, but it may affect the other, so I intend to be careful.

I may say, here, just one or two things with regard to the eye. It is by it we alone can judge, not only of its own perfection, but also of the comparative value of any given optical combination. It is endowed with considerable freedom of motion; and no doubt we shall have to go to the eye for many

optical hints. I may here say the retina is a transparent substance composed of nerve fibres spread out into a thin layer, and corresponding to the ground-glass of the camera. The retina receives the picture from the object in front, and being connected with the optic nerve behind, the picture is conveyed to the brain. I believe if one could analyze them there are salts in the retina corresponding to those used in photography, though probably of a much more sensitive nature; and the electric magnetic effect of light conducts to the brain, where there is always an alkali and acid to develop, and the atom deposit in the cells can be called at will to answer our memory. Perhaps I am going a little too far, both for myself and others who may think in a similar way, also for those who do not think in the same way; but there is no harm in giving you my thoughts, as it seems to me we like dabbling in ideas that are a perpetual mystery.

But now to offer some suggestions with regard to the picture produced by the eye. Can it be reflected from the retina, from the cornea, or from the back surface of the lens? Is there a kind of phosphorescence which can affect a photographic plate? Is it some kind of electric phenomena, and our latent image a galvanic action? Of course, these suggestions are very wild; for I must confess, although I discoveered the effect, I cannot explain it, and the more I try to do so the more ignorant I feel. It may lead to something important as time rolls on. Photography is now making huge strides; its history becomes a clueless labyrinth of confusion and uncertainty; it has vigorous health and plenty of practical and mental ingenuity always at hand, which affords ample proof of the earnestness with which experimental investigators work. Experimentors should work out their internal nature, with the aid of experiments, of things contained in the varied world around them, then they will have something original to tell us, and be continually adding atoms to the progress of our fascinating art. I know, for my own part, I have formed a love and veneration for photography—with all its worry, disappointments, etc.—which has almost the nature of a passion; every act of seeing leads to consideration, consideration to reflection, reflection to combination, and combination to ideas which ought to be worked out with method and system, then we shall be sure to discover something quite new and original, especially if we work earnestly and patiently.

Friese Greene.

Correspondence.

A COMMUNICATION FROM THE PRESIDENT OF THE P. A. OF A.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: As it may be of interest to members of the Photographers' Association of America to have some idea of the awards and a description of the members' badges intended for the coming convention, the following is now submitted.

The Grand Award. which is to be presented for the best collection of photographs illustrating Longfellow's poem, "Evangeline," is to be the original bronze cast figures, about three feet in height, and known as the "Roman Wrestlers," which was exhibited at the Paris Salon, where it was greatly admired and gained "honorable mention." This original was imported free of duty, and not even European copies can now be had of it, unless at very much enhanced prices.

For the medals a design has been secured which is entirely new and unique. On the obverse side will be a fine head of Daguerre in bold relief, and on the reverse figure representations of American photography. The die is to cost $250, and the medals are to be of gold, 24 carats fine, and finished in dead gold.

They will be placed in the shape of a badge, with a bar of gold at the top for an inscription of the winner's name. Members' badges are to be of solid silver, oxidized, embellished with head of Daguerre, and may be worn suspended from coat lappel as common with other badges.

They alone will be intrinsically worth the admission fee, while as souvenirs of the "Semi-Centennial of Photography," only possessed by members of the association, they will be permanently invaluable.

Very truly yours,

H. McMichael.

BUFFALO, N. Y., February 22d, 1889.

Notes and News.

THE MONTREAL AMATEUR PHOTOGRAPHIC CLUB proposes to hold its second exhibition of photographs during next April, and in order that it may be complete in specimens of the different printing methods used for making pictures at the present time, and be as representative as possible, it has decided to ask the co-operation of all sister clubs in this country as well as in Canada.

All exhibits must be in their hands not later than March 30th, and will be returned at the expense of the club. Prints may be mounted, but not framed. Full particulars may be obtained by addressing J. W. Davis, Honorable Secretary, at 2204 St. Catherine Street, Montreal.

THE YONKERS AMATEUR PHOTOGRAPHERS' CLUB has been organized, with thirty members and the following officers: G. L. Morse, President; R. M. Reevs, Secretary-Treasurer; Executive Committee—President, Secretary, and R. Eickemeyer, Jr., S. S. Clark and F. D. R. Eschmann.

The Club has secured apartments on the top floor of the Deyo Building, and a meeting will be held there on Thursday evening. These quarters will be fitted up in good style. They consist of an assembly room, a dark room, a

storage room, and a cloak room. May the Club live long and prosper.—*Yonkers Statesman.*

THE WESTERN PHOTOGRAPHIC DEALERS' ASSOCIATION,—From Cincinnati we learn that the following officers were elected for the ensuing year, at the close of the two days' session in the Burnet House: George R. Angell, President; J. C. Somerville, of St. Louis, Vice-President; and J. H. Smith, Secretary and Treasurer.

St. Louis was selected as the place for next meeting, in February.

WHERE WILLIAM PENN IS BURIED.—A richly-framed photograph, showing the graves of William Penn and other members of the Penn family in Jordan's burial ground, England, was presented to the city of Philadelphia by Captain Clipperton on behalf of the trustees of the burial ground. The picture was taken to the Mayor's office, together with a communication to his Honor explaining that as the trustees were unable to grant the request for Penn's remains they concluded to send the picture showing where they were buried. The Mayor sent an appropriate letter of thanks. Councils will designate where it shall be placed.

A PHOTOGRAPHIC GROUP of all the athletes in the New York Athletic Club hangs in the large hallway of the dining-room of the club-house, at 104 West Fifty-fifth Street.

PROFESSIONAL COURTESY.—MR. W. I. LINCOLN ADAMS, Editor of THE PHOTOGRAPHIC TIMES, has been publishing in the *Argosy*, for some time past, a series of articles on "Amateur Photography." The series has reached chapter nine so far. It is written in a clear, plain, straightforward style, without any effort to mystify or elaborate, and must be easily understood by the youngest readers. Mr. Adams goes very carefully over the various departments of photography, and uses original illustrations for his help.

Many a veteran writer would be glad to find himself able to produce such a series of articles as this; but unfortunately the old writer cannot know so well as the younger one what should be done for the help of the young workers. Mr. Adams is able to get down to his audience, and therefore the superior advantage of his *Argosy* papers. We wish him a wide audience.—*Wilson's Photographic Magazine.*

HOW THE CAR COMPANIES UTILIZED THE DETECTIVE CAMERA DURING THE RECENT STRIKE.—Had the more active among the strikers during the recent tie-up in this city been aware that they were being indelibly spotted by the aid of photography it is more than probable that they would have rendered themselves less conspicuous.

A miniature camera covered with leather, about the size of an ordinary cigar-box and made to look much like a satchel, was in frequent request as a silent detective of the most convincing kind.

In this way several of the officers of the street railroad companies were furnished with excellent photographs of the men whose features occupy a handy place in the ready reference book of those corporations, who doubtless paid liberally for the services performed.

NUDE PHOTOGRAPHS.—The "awfully proper" sentiment of Boston was vigorously emphasized in connection with a collection of photographs after works by Gustave Boulanger, on exhibition at the Art Museum. These pictures, some sixty in number, were loaned by Mr. A. H. Munsell, to the Museum, for art purposes, and were interesting in showing the artist in every aspect of his life work. These works contained several nude figures, and these, as it seems, shocked the refined sensibilities of various pure-minded people of nasty-nice ideas, who remonstrated with the director of the Museum, and caused the pictures to be removed. Now, none of these photographs had anything impure, even suggestively, in them, and the excuse given by the remonstrants, that the pictures might have an evil influence on the young students who visit the Museum for the purposes of study, was absurd, when it is taken into consideration that young art students study from the living nude. These "unco' guid" persons would doubtless find something corrupting in the Venus di Milo. Nothing is pure to the mind constantly looking for the impure. Here, again, was exemplified the truth of Dean Swift's maxim, that nice people are generally people with nasty ideas. The manner in which moral Boston manifests its sense of morality is oftener comically provincial than otherwise.—*Exchange.*

META-BISULPHITE OF POTASSIUM.—Sodium nd potasumsal meta-bisulphites form solutions strongly acid to litmus. They differ from ordinary bisulphites in that they contain no hydrogen in their composition, *e. g.*, $NaHSO_3$. ordinary bisulphite, $Na_2S_2O_5$, meta-bisulphite of sodium. They are far more stable than the bisulphites, not oxidizing nearly so readily upon exposure to air; they are also readily obtained, upon the large scale, in large, regular crystals, which fact is a guarantee of their purity and constant composition. The purity and the reliability of the salts are greatly in favor of their use in technical processes. The method given by some writers for preparing the compounds (viz., by supesaturating a strong solution of carbonate of potassium—some writers say a *hot* solution—with sulphurous-acid gas, and precipitating with alcohol) would not, in my opinion, yield meta compounds, but a mixture which is extremely unstable, consisting mostly of bisulphite of potassium, or of sodium, ($KHSO_3$; $NaHSO_3$) according to circumstances—indeed, it is hardly practicable to prepare the pure meta salts on a small scale.—*American Druggist.*

A JUVENILE CRY OF THE HEART.—An eight-year-old boy whose superabundant animal spirits require an occasional check was looking at some proofs of photographs of his mother which had just been sent home. There were two views, and the youngster was very decided in his preference for one over the other.

"Why do you prefer that?" asked his mother.

"Because," said he, "in the other one you look as if you meant it."—*Boston Transcript.*

NEGATIVE DRAWING.—Oftentimes one wishes to send a friend a copy of an outline design or drawing of a more finished character than can be obtained with tracing paper, which, like pitch, defiles all it touches. If one is a photographer, a very obvious method is to make the drawing with India ink on white paper, pin it to a board, and photograph it. In many cases, however, this method in-

volves too great an expenditure of time and labor, and it is possible only for those who have the use of a camera. The simplest method of reproducing a drawing is to make the sketch itself serve as a negative. But the ordinary drawing is a positive, and if used to print from it will give negative productions. To be sure, one of these may be used to reproduce the original positive, but here again we have somewhat too much of manipulation.

A simple method of solving the problem is to make the original drawing with lithographic ink, then to cover the paper with a liquid aniline brown, afterwards removing the ink with turpentine, which will not affect the aniline color. We shall now have a sketch in white, on a non-actinic ground; in other words, a negative which may be used for the production of positives by any of the well-known printing methods.

The sketch is fastened to a drawing-board over a sheet of thick blotting-paper; the aniline color is applied with a soft brush and allowed to dry. The ink is then removed with a tuft of cotton dipped in turpentine. In applying the dye, care must be taken not to lay it on so thickly as to penetrate through the paper, or spots will be produced in the positives. The method is simple and trustworthy, requires no knowledge of photography for the production of the negative, and, as will readily be seen, it admits of a wide range of application.—*W. H. Burbank, in the Art Amateur.*

ZINC-ETCHING BY THE ASPHALTUM METHOD.—The asphaltum method is distinguished by the superior sharpness of the etched lines. Notwithstanding its lower sensitiveness when compared with that of chrom-albumen or chrom-gelatine, it deserves our utmost attention. Printing should be done by direct sunlight, and in cloudy weather by electric light, the negatives be made upon plane glass, or, what is still better, be strippers.

The best asphaltum is that from Syria. There are two ways to increase its sensitiveness; the one by exposing asphaltum solution to light, a method published by Niepce as early as 1854, consists of dissolving 5 g. asphaltum in 100 g. of benzole and 50 min. of oil of lavender, and exposing the solution in half-filled and but lightly-covered bottles for five to eight hours to direct sunlight.

The other, a chemical purification of the asphaltum, renders it still more sensitive.

It is done by kneading it thoroughly with ether, or, still better, as follows:

Coarsely powdered Syrian asphaltum is dissolved in chloroform to a thickish liquid. When it is thoroughly dissolved, three times its volume of ether is added; set aside for three days, and during that time frequently and vigorously shake up. The ether is then decanted from the residue, the remaining bitumen washed several times in ether, collected upon a filter and dried in the dark.

To purify the asphaltum-chloroform solution by kneading with alcohol, by which also a part of the non-sensitive asphaltum is separated, is not as effective.

Of the purified asphaltum 5 g. are dissolved in 100 g. of benzole and a few drops of Peruvian balsam.

To 100 c.c.m. of the solution are added 50 min. = 3 c.c.m. of oil of lavender, and filtered. The addition of oil of lavender is not absolutely necessary, but aids much to develop clear pictures. A few drops of anilin oil makes the film tough and cohesive. It is best to filter it before being used. After standing a week or so it is said to work much better. The addition of a small quantity of anilin violet gives it color to distinguish the picture more accurately when being developed.

Highly polished zinc plates are coated with the solution, like collodion plates, the surplus drained off, the film dried, slightly warmed, and can be used for printing the next day. These plates will keep well for several days.

To print requires in the sunlight of a summer's day from 10 to 30 minutes, in winter several hours. Developing is done in a tray with oil of turpentine, eventually with the aid of a tuft of cotton or a soft badger brush, the plate washed under a gentle stream of water, blotted off and etched. Or the rinsed plate may be dried by blowing air upon it with a bellows, exposed for half an hour to daylight, and then etched.

First etching requires a from 1 to 3 per cent. solution of nitric acid, and a time of from 1 to 3 minutes. The plate must then be rinsed off, gummed, dried, the drawing rubbed on with fatty ink, and etching continued

Or the asphaltum picture may be laid for 5 to 10 minutes in an acid gum solution (40 water, 40 gum arabic, 4 nitric acid), wiped with a sponge and dried spontaneously, or intensified by rubbing on. If sufficiently intense they can be at once subjected to the etching process.

Dr. Jos. M. Eder, Correspondoyen.

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the society was held Wednesday evening, February 6th, 1889, with the President, Mr. Frederic Graff, in the Chair.

A report was received from the Executive Committee asking for an appropriation for binding journals, etc., and also suggesting a plan for selecting each year from the work of members six pictures to be considered the honor pictures for the year, copies of which should be preserved by the society. As the plan, after discussion among the members, seemed to be imperfect in some of its details, it was referred back to the committee for their further consideration, and report at the next meeting.

The Committee on Lantern-Slides also presented a report.

The Committee on Membership reported the election of the following active members:

John P. Anshutz, Ellwood R. Kennington, E. M. Pine, Ogden D. Wilkinson and Frank S. Harris.

The Committee on Joint Exhibition reported favorable progress in their preparations. About two thousand circulars, with rules, etc., had been distributed to photographers and photographic societies in all parts of the world, and every effort was being made to secure exhibits of the very best photographs obtainable from all sources. Applications for space had already been received, which included a very prominent English photographer, who proposes to exhibit some fine work of large size.

The committee had in contemplation four evenings devoted to lantern-slides. In addition to the slides sent for the regular competition, one evening would probably be given to the slides sent to the American Interchange by the Camera Club, of London, and it was thought that the re-

maining evenings might be devoted to slides representing work of our own members.

In accordance with the report of the Lantern-Slide Committee, and as required by the rules of the American Lantern-Slide Interchange, Mr. J. G. Bullock nominated Mr. W. H. Rau as Director, to represent the Society in the Interchange for the coming year, to which position he was unanimously elected.

The President appointed Messrs. John C. Browne and F. T. Fassitt auditors, to examine the accounts of the Treasurer, and Treasurer *pro tem.*, for 1888.

Mr. Burrows (a visitor) showed a form of lamp which he had advised for use with flash-light compounds. The powder was inserted on a small, funnel-shaped receptacle, the bottom being connected by a rubber tube with the usual bulb. A short distance above the cup for the powder a metallic ring about three inches in diameter was suspended, the ring being wrapped with asbestos fibre. The asbestos was wet with alcohol, which, when ignited, produced a large flame, into which the powder being suddenly forced by pressure on the bulb, was instantly consumed with a most brilliant light. Powdered magnesium thus used was entirely consumed, with practically no smoke or residue. Mr. Burrows also showed another form of the lamp which could be used with one hand, a trigger releasing a piston which, actuated by a spring, gave the necessary puff of air to blow the powder into the flame.

Mr. Lewis called attention to the fact that with flash-lamps of similar construction to that shown by Mr. Burrows, a small portion of the powder was sometimes drawn back into the mouth of the tube, which, on being ejected the next time the light was used an instant later than the main charge, was apt to make a secondary flash, which was undesirable, if not detrimental, to good work. To obviate this, he recommended inserting a very small piece of absorbent cotton into the bottom of the powder cup, which, being blown out with the powder, would prevent any getting into the tube, and would also be entirely consumed with the powder. The cotton could also be used with lamps in which the flame was blown against the powder, to hold the compound and prevent any of it being blown away and not consumed.

Mr. Lewis also mentioned having been troubled by a plate frilling at the corners, which he overcame by applying blotting paper. He thus absorbed the water from the film, and by gently patting it the film was made gradually to adhere again to the glass in its original position free from ridges or other marks.

Mr. Earl showed one of Beck's wide-angle lenses fitted with the Iris diaphragm, which had many excellent features.

Dr. Reed showed what was apparently an umbrella, but on removing the case and unscrewing the handle it proved to be a tripod for use with a detective or other light camera. The legs were formed of light metal tubes, each made in two sections, so that it could be extended to the full height necessary for a practical tripod. The umbrella tripod was of English make.

Mr. Bullock mentioned that in toning some prints on a new brand of paper he was trying, on putting them into the fixing-bath, which was of the usual strength, he found the albumen immediately began to dissolve and leave the paper. Thinking the bath too strong he diluted it, only to make matters worse. A teacupful of salt was then added to the fixing-bath, which instantly stopped the trouble, and excellent prints were obtained on paper which otherwise might have been condemned.

Mr. Wallace thought if the silvering-bath was too weak, it was liable to cause the trouble referred to with some paper. He recommended the use of a minute quantity of alum in the silver-bath to coagulate the albumen.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

REGULAR MEETING, FEBRUARY 12, 1889.

THE Committee on Papers and Publications send the following report:

At the regular meeting of the Society, at its rooms, 122 West Thirty-sixth Street, on the evening of February 12th, Mr. Ernest Edwards, of the Photogravure Company, read an interesting paper on the "Improvements in Photogravure Processes," supplementing it with a demonstration before the audience by actually printing (in a press he had set up in the rooms), from prepared plates, several photogravures, which were distributed among those present.

He also presented to each person present a neat souvenir picture, commemorative of the occasion, representing a study of a tree, which he said was produced from a negative on Carbutt's celluloid film, originally taken by an amateur. He exhibited the negative, the photogravure printing plate, and printed from the latter in the press. The old way of printing directly from the gelatine film, supported in a copper plate, was much slower, and was not capable of giving as many impression as his improved method, which consisted in first treating the film after printing, and then immersing the plate in an electro-plating solution and coating the face with a thin layer of steel. This produced a hard, steel-faced copper plate, which, when polished, was susceptible of withstanding ten thousand impressions before the face would wear off enough to be injured. It could again be very easily renewed.

In addition to the machinery, he exhibited several specimens, showing some beautiful work. There were also examples of colored photogravures, one of a little girl and another of a modern residence. These, he said, were some of their latest attempts, and were simply the ordinary photogravures with three different colors printed over them. The shading and gradations were very delicate, and there is no doubt but what the new departure will become quite popular. A vote of thanks was accorded Mr. Edwards for his interesting paper and exhibits. In reply to a question as to whether the amateur could print his own pictures in the same way, he remarked that, after spending fifteen dollars for the first outlay, he could try it, but he did not know how much more he would have to spend before he could obtain satisfactory results.

President Canfield exhibited a new oil optical lantern, sent by Mr. J. B. Colt, which was very neatly made, and was tested after the meeting adjourned. It gave a well-illuminated disk. An Argand lamp inside of a true parabolic silvered reflector sent forward the rays in parallel lines, illuminating every portion of the slide equally. Later in the evening he presented the lamp to the Society and received a cordial vote of thanks.

Mr. Armstrong exhibited a new miniature detective camera christened the "Lilliput." It takes pictures

2½x2½ square on glass plates or films, has means for making time and instantaneous exposures, and is put into a neat leather traveling case.

A new Ross folding 6½x8½ camera, loaned by Mr. Frazer and explained by Mr. Duffield, had several novel features. The base-board had a large circular aperture, on the inner side of which were metal projecting pins, in which the tripod legs fitted. Thus the weight of the tripod head and base-board were dispensed with, while it did not detract from the strength of the camera.

A treble patent McKellan camera and new focusing screen sent by Miss E. Slade was also explained and shown by Mr. Duffield. A series of rubber cloth bands an inch wide are stretched across the face of the ground-glass frame. To use it the bands are separated, a portion going over the top of the head and the other portion under the chin.

The President announced the election of eight new members, urged members to prepare exhibits for the Philadelphia Exhibition, and stated that a special ladies meeting would be held the latter part of March, at which papers on photographic subjects would be read, and prints and lantern-slides by ladies shown, and it was expected a lady would preside over the meeting. Examples of photographic fancy work would be shown. He called attention to an exhibit of photographs hung on the wall, sent by the Springfield Camera Club, representing the prize pictures at their first annual exhibition. He then read a paper on "Lantern-slide Mat Cutters," presented by Joseph P. Beach. Following it Mr. F. C. Beach exhibited specimens of the steel dies made out of dress steels bent around a wood form. Ink sketches illustrating how the dies were formed were also shown.

A new shutter called "The Queen Shutter," invented by Mr. Frank Burrows, and sent by Queen & Co., was also explained by Mr. Beach. It is placed between the lenses and operates on the open and close principle. Some of the members thought it not quite fast enough. It was very neatly made and worked with little or no friction.

Mr. David Williams made some interesting remarks on the difficulty of putting the celluloid films in holders like that made by Barnett, and explained a design of a holder he had thought of which made it much easier and required less fingering of the film than is usual.

President Canfield then read a paper on "Development by Separate Solutions," by Mr. Bachrach, of Baltimore, in which some former statements were corrected, and, after a motion was made and passed re-electing Mr. F. C. Beach as the representative of the society in the American Lantern-slide Interchange for another year, the society adjourned.

Our Editorial Table.

'A New Principle in Heliochromy." By Frederick E. Ives.

In the essay before us—neatly bound in cloth and with an excellent frontispiece of the author—that which is claimed as "new" is the author's method for producing heliochromatic negatives by exposing color-sensitive plates through compound color-screens, these screens having been adjusted so as to show the curves of intensity bearing a definite relation to the colors employed in producing heliochromatic pictures in the negatives. This method is distinct from that of Ducos du Hauron, in that it does not require the exposing of sensitive plates through orange, green and violet glasses. It is distinct from Vogel's method, in that separate negatives are not made for each region of the spectrum, but only three for the entire spectrum, and they only in such a manner as to secure curves or intensity which correspond to the action of light rays upon the sets of nerves that produce color-sensation.

Much is yet required to perfect the printing part of the process. At present satisfactory heliochromatic prints have been made on glass, so that results may be shown with the optical lantern. The blue print is made by the cyanotype process on gelatine; the red, by the carbon process with eosine; and the yellow on specially prepared films of collodion and gelatine. After placing the yellow film picture between the blue and red pictures on glass—and, therefore, in contact with them—they are moved until the images are exactly super-imposed, and then fastened together.

Notwithstanding the incompleteness of the process in its present form, as described in the little book before us, it is full of new and interesting things that are well worth studying by those who are interested in the orthochromatic and heliochromatic printing processes. There are some ideas expressed which are not, perhaps, quite in conformity with those of other experimenters in the same field, and from which, perhaps, interesting discussions may arise. Great credit is undoubtedly due to Mr. Ives, not only for the result of his labors in the past, but for that interest which keeps him ever active in research; improving the old and discovering the new.

"Sun and Shade" for February has made its appearance, and fully keeps up with the high standing established by the initial number. In the current issue, however, an exception is made to the rule originally established, to keep it a journal without letterpress, for a description of the processes used in illustrating *Sun and Shade*, by Ernest Edwards, is printed as a preface to the number. The plates are "Evening," from an orthochromatic plate of an original painting by Frederick Voltz; second—a flash-light study photographed from life by Dr. S. B. Ward, of Albany, with magnesium powder, the subject of which we recognize, by the way, to be Mrs. Cleveland; a photo-gelatine of Oak View, the summer residence of President Cleveland, near Washington, D. C., from a negative by W. J. Mozart; a photo-gelatine from the familiar painting by Andreotti, entitled, "Old Wine and New Love;" a costume photograph by Sarony, of the actress, "Lotta"; some "photographic bits" in photogravure, by Ernest Edwards, consisting of three studies in Prospect Park, Brooklyn and a marine view in New York Harbor; some microscopic enlargements in photo-gelatine, from negatives by Edgar J. Wright; and "After the Storm," in photogravure, from an instantaneous photograph from nature, by J. E. Dumont, of Rochester.

W. A. Armstrong, a well-known amateur photographer, of Milwaukee, has written a legendary tale of Wisconsin, entitled "Miracle Hill," which he has illustrated by photographs. The book is now being issued from the press of Cramer, Aikins & Cramer, and will make an attractive appearance, both inside and out.

THE first number of "The Beacon" has come to our table. It is edited by Dr. John Nicol, and published by The Beacon Publishing Company. This number makes an attractive appearance and contains several articles of merit. We wish the little journal a longer life than was allotted to its predecessor.

MR. JAMES, C. C. of Brooklyn, sends some specimens of aristotype printing. They are beautifully toned, accurately mounted and burnished. It is the work of an amateur, who is very much pleased with this new method of printing and toning.

WE have received from Ely, of Oskosh, a very fine portrait of a large dog. The portrait could not be better, from a photographic point of view, were the subject a human being instead of a brute.

Record of Photographic Patents.

Trade Mark. 16,286. Photographic Camera. E. L. Horsman.

398,084. Magnesium Lighting Apparatus for Taking Photographic Pictures. John W. C. C. Schirm, Breslau, Prussia, Germany.

398,231. Photographic Camera. Louis Chevallier, Brooklyn, N. Y.

WITH A PHOTOGRAPH.

This is a valentine, my love,
From her who tried your truth to prove,
And found, alas, too late, too late,
So sad is life, so cruel fate,
That you were truer far than she
Who thought you false as false could be.

Was ere so sad a face as this is?
Take it and cover it with kisses!
Cold is the brow—the sighless bosom
Bears on its snow the scentless blossom.

Were this my real face Death had chosen,
On which to leave his imprint frozen;
Were this Death's emblematic blossom—
A lily frozen on my bosom,
Your clinging lips upon my own
Would wake me were I turned to stone!
My marble cheek would flush to rose,
My eyelids quivering would unclose,
And you would see, ah, sweet surprise!
Your Galatea's wondering eyes;
My lips would move your name to utter,
My heart would flutter, flutter, flutter—
Until the shaken lily bloom,
Drooping, would shed its rich perfume!
And smiling, I would murmur low,
"O love, my love of long ago,
She loves you yet, my love, my love!
Who long since tried your truth to prove."

—Juliet V. Strauss, in Indianapolis Journal.

Queries and Answers.

47 ANDREW J. asks: What is the cause of albumen prints turning red when brought into contact with water?

47 *Answer.*—It is not definitely known, but it is believed that the water merely heightens the color of the albuminate of silver in juxtaposition with the chloride of silver of sensitized albumen paper.

48 VIRGINIA writes: Can the same hypo solution be used for fixing negatives and prints?

48 *Answer.*—You may use hypo solution of the same concentration for either of the processes, but it will never do to fix prints in the bath in which negatives have been previously fixed. For fixing prints use always a new bath, and if you want to be very economical, collect and preserve them for the purpose of fixing negatives. For bromide prints you must also use a fresh fixing bath.

49 "FAILURE" has not yet been able to tone aristotypes like the beautiful specimens seen.

49 *Answer.*—Nothing is easier than to tone the American aristotype paper. Follow the formula accompanying each package of paper, and you cannot possibly fail. Be cautious in the selecting of sulpho-cyanide of ammonium, which must be colorless, and do not add more sulphuric acid to the bath than the prescribed two drops.

50 "WATERBURY," and several others, want to know why, with the prescribed time of exposure, the same diaphragm and Carbutt B plates, the plates are now all under-exposed Are the present B plates of lower sensitiveness, or is a deterioration of the lens the cause of the variance?

50 *Answer.*—The actinic force of light varies with the altitude of the sun. On the 21st of December, at noon, in clear weather, the exposures should be about three times as long as they are on the 21st of June at the same hour. See Lieut. Very's diagram, page 311, "American Annual of Photography for 1889." Under parallel conditions of light and atmosphere exposures will be much alike between 10 A.M. and 2 P.M. From various unexplained reasons, actinism is one and a-half times greater in autumn than in spring at the same time of day.

51 "PRINTER IN A HOLE" writes: "Can you give me a good method for rectifying an old silver bath?"

51 *Answer.*—Sunning it for several hours is frequently of very good service. Boiling with a little aqua ammonia does equally well, but after cooling and filtering the bath, it must be brought back to its normal concentration and neutrality. The best mode of purifying an old silver bath, is probably that with permanganate of potassium. Dissolve one part of the permanganate in one hundred parts of distilled water, and add the solution drop by drop to the bath impregnated with organic substances, till after vigorously shaking it a pinkish color will remain. A bath containing foreign salts cannot be rectified by either sunning, boiling, fusing, or the treatment with the manganic salt. In such cases it will be most economical to precipitate the whole amount of silver with carbonate of soda, wash and re-dissolve the precipitate with dilute nitric acid, a method frequently described in THE PHOTOGRAPHIC TIMES.

PHOTOGRAPHIC TIMES. (A)

C.M. FOWLER, PHOTO.

PHOTO-GRAVURE CO. N.Y.

IN THE WOODS.

THE
PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, MARCH 8, 1889. No. 390.

I PHOTOGRAPH MY LOVE.

SUNLIGHT ! golden sunlight !
Softly light my love,
Reclining on a mossy bank,
With leafy trees above,
Glorify the scene around,
Make it more than earthly ground—
Her picture I would take !

Ruby ! mystic ruby light !
Aid my loving labors
To charm her image from the film
That paints true—never favors.
Can I by thy aid get truth,
To favor needless were, forsooth !
Her portrait I would make !

Love's light in her angel soul
Does ever burn for me ;
Oft from the portals of her orbs
The half-hid flame I see.
Behold ! from e'en the imaged eyes
I see that sacred glow arise
That shineth but for me !

—D.

"IN THE WOODS."

THE charming bit of nature, which embellishes our journal this week in photogravure, was discovered by Mr. Clarence M. Fowler's discerning eye on an outing with his camera near the Delaware Water Gap, N. J. It was photographed about noon on a rather hazy day, which accounts for the softness and soothing atmospheric effect of the quiet scene. The sheet of water partly shown in the picture is Lake Leiup. The pleasing composition of the view speaks for itself. Mr. Fowler, the author of the picture, is an amateur photographer who thinks more of the art side than the scientific technicalities of photography. He is a member of the New York Tile Club, an amateur art association in which photography frequently plays a conspicuous part. The picture was made on a Carbutt Special plate, with a Beck lens.

EDITORIAL NOTES.

FOR the production of violet-black tones on albumen prints, an old formula, including benzoate, has been recently revived. A very good formula is composed as follows :

Water	100 parts
Benzoate of ammonia	4 to 5 parts
Chloride of gold (pure)	1 part

This solution should stand at least twenty-four hours before being used. It is a toning solution that is worth trying, especially by those amateurs who are unable to obtain anything darker than a brick-red color on their albumen prints.

A GOOD way to number albumen prints or entitle them effectually and distinctly, is to write upon a dark part of the print with a steel pen, and ink composed as follows :

Iodide of potassium	1 part
Water	2 parts

A short time after the writing the letters appear white, the silver of the prints having been converted into iodide of silver ; and as the iodide of silver, which is formed when an excess of iodide of potassium is present, is not sensitive, the writing is permanent.

WE are constantly receiving inquiries concerning the old iris diaphragm, as it has been revived to some extent recently. Many seem to think it is something new, whereas, in reality, it is an old form of a diaphragm patented many years ago by the Scovill Manufacturing Company, and in earlier times was largely used in the lenses put upon the market by that firm. It was probably due to the cost of manufacture, which made it rather expensive to the purchaser, that the iris diaphragm gradually fell out of use. It is an excellent form, however, and we are glad to see the tendency to adopt it once more. We understand that Mr. Wale uses it in his new Instantané lens with general

acceptability, and we think it will be more widely employed as time goes on, as it certainly possesses many excellent features.

To overcome the resistance of ivory and flexible films it is only necessary to bathe them for a few moments in a glycerine solution composed of one part of glycerine to twenty parts water. They may then be dried, hanging up or lying flat, and will remain perfectly flat after drying.

In toning bromide prints or transferotypes with uranium nitrate and ferricyanide of potassium, too much caution cannot be used in selecting the latter salt in a pure condition. When it has been but slightly reduced the ferrocyanide, or yellow prussiate of potash, which is in the form of a yellow powder, adheres to the crystals, and, instead of pure whites, unpleasant greenish yellows will be produced on the prints.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—(*Continued.*)

Collodion.

In 1847, Maynard, in America, discovered that a certain form of pyroxyline was soluble in a mixture of alcohol and ether, and that as these solvents evaporated the pyroxyline was left behind as a delicate transparent skin or film. To the substance so obtained the name of *collodion* was given, and it was found to be of service in surgery to form a covering to raw places on the skin, to keep away the air.

In 1850, Scott Archer applied the new material to photographic purposes, using it to coat glass plates and to receive and hold the sensitive salts which were to be affected by light. From 1850 to 1878 the "collodion process" was almost universally employed by photographers, but the advent of gelatine dry-plates in the latter year has since caused it to hold a secondary position.

For general work, a good collodion may be made by taking half-a-pint of alcohol (sp. grav., .820) and the same quantity of ether (sp. grav., .725) and dissolving in the mixture 115 grains of pyroxyline. In cold weather half-an-ounce *less* alcohol and half-an-ounce *more* ether may be used with advantage.

Photographers almost always purchase collodion ready-made, since the great manufacturing firms, who have made its preparation a specialty, are able to produce a better article at a less cost than any individual could hope to do.

Copper Bromides.

Copper combines with bromine in two proportions to form cuprous bromide (Cu_2Br_2) and cupric bromide ($CuBr_2$); the combining weights are 287 and 223, respectively.

Cuprous bromide is a brown crystalline substance which becomes blue when exposed to sunlight. It can be prepared by heating copper filings in contact with bromine.

Cupric bromide is formed as dark-colored deliquescent crystals when cuprous oxide is dissolved in hydrobromic acid and the solution evaporated *in vacuo.*

Copper Nitrate.

Formula, $Cu(NO_3)_2+H_2O$: Combining weight, $187+54=241$.

Copper Nitrate is produced by the action of nitric acid on metallic copper, or on copper oxide. It forms blue prismatic crystals, which are very soluble in water and in alcohol. Copper nitrate readily parts with oxygen, and is used as an oxidizing agent in dyeing, and in calico-printing. It imparts a green color to the flame of a spirit-lamp, or Bunsen burner.

Copper Sulphate.

Formula, $CuSO_4+5H\ O$: Combining weight, $159+90=249$.

Copper sulphate, cupric sulphate, or *blue vitriol*, is obtained in large blue crystals by dissolving copper oxide in dilute sulphuric acid, and evaporating the solution. It often contains ferrous sulphate as an impurity.

Cyanogen.

Formula, $(CN)_2$, or Cy_2: Combining weight, 52.

The important organic compound called cyanogen was discovered by Gay Lussac, in 1814. Cyanogen gas can be obtained by strongly heating dry mercuric cyanide in a glass tube. It is transparent and colorless, and burns with a beautiful, rose-edged, purple flame. Cyanogen is very soluble in water, and in alcohol. Cyanogen is important as being the first known of the "compound radicals"—compounds which can be transferred bodily from one chemical compound to another, just like elements. Its "compound atom" (CN) forms part of many organic substances. Cyanogen may be readily liquefied by heating mercuric cyanide in a bent tube, sealed at both ends.

Ether (Sulphuric Ether).

Formula, $C_4H_{10}O$: Combining weight, 74.

Ether is prepared on a large scale by distilling alcohol with sulphuric acid. It is a colorless, very mobile liquid which has a specific gravity of from .720 to .736, and a boiling point of 94 deg. F.

Ether is a colorless, transparent, light, and mobile liquid having a fragrant and exhilarating smell. It mixes readily with alcohol, but scarcely at all with water. It dissolves fats and resins; also bromine and iodine, and most metallic bromides and iodides.

The boiling point of ether is so low, and it vaporizes so readily, that it is dangerous to bring a light near to an unstoppered bottle containing it. Pure ether becomes acid by exposure to light, so that it should always be kept in a dark and cool place. This acid condition may be detected by the yellow color such ether produces when shaken up with an aqueous solution of iodide of potassium. Ether is sometimes adulterated with water, but the latter may be tested for by mixing a little of the ether with spirits of turpentine. If any water is present a turbidity is produced. Methyl, or wood spirit, is sometimes added, but this may be known by the smell, and its discharging in a few hours the color produced by adding one drop of tincture of iodine to an ounce of the ether. One of the best signs, however, of pure sulphuric ether, is its low specific gravity.

Ether, Methylated.

Just as pure ether is made by distilling a mixture of alcohol and sulphuric acid, so methylated ether is made by distilling methylated spirit with the same acid.

As methylated spirit is much cheaper than pure alcohol, so the methylated ether produced is cheaper than pure ether. Since it answers almost equally as well as pure ether in the manufacture of collodion, the methylated ether is now universally used by large preparers of that article. Its odor is, however, stronger and more disagreeable than that of pure ether, and the nitrate of silver bath is more easily disorganized by it.

Ether, Methylic.

Formula, C_2H_4O: Combining weight, 46.

Methyl ether, or methylic ether, is also known as methyl oxide. Although it is composed of the same elements, in the same proportions, as alcohol, yet its properties are very different, a fact which chemists explain by believing that the atoms which form its molecule are differently arranged. Methylic ether is prepared by distilling one part of methyl alcohol (or pyroxylic spirit, CH_4O), with four parts of oil of vitriol, and purifying the distillate with slaked lime.

It is a colorless gas, very soluble in water, and still more so in alcohol or ether. It burns with a pale flame.

Fluorine.

Symbol F: Combining weight, 19.

This element, the most chemically active of the four halogens, is most frequently met with in combination with the metal calcium, as beautiful cubical crystals of calcium fluoride, $Ca\,\dot{F}_2$ (commonly called fluorspar).

Fluorine has a remarkable chemical affinity for all the other elements except oxygen. It was not obtained in the separate or free state till 1887, when M. Henri Moissan succeeded in obtaining it by passing a current of electricity through potassium fluoride dissolved in anhydrous hydrofluoric acid. Fluorine is a colorless gas, having a penetrating and disagreeable odor, and an irritating effect when inhaled. It combines instantly with almost all substances, even such refractory bodies as silicon, boron, etc., igniting spontaneously when brought into contact with it.

Formic Acid.

Formula, $C\dot{H}O\dot{2}$: Combining weight, 46.

This acid occurs in the bodies of red ants, in the hairs of certain species of caterpillars, and in stinging nettles.

It is usually prepared by distilling a mixture of oxalic acid, glycerine, and water.

Formic acid is a clear, colorless, inflammable, corrosive liquid, which acts as a powerful reducing agent.

When heated with silver nitrate, carbonic acid gas is evolved and metallic silver deposited; similarly mercuric is reduced to mercurous chloride or calomel. This reducing action seems to distinguish formic acid from acetic acid and its homologues.

Freezing Mixtures.

By a mixture of certain chemicals, or other substances, it is possible to temporarily produce a degree of cold far below the freezing-point of water. It is advantageous to place the mixture in some thick vessel, well surrounded by flannel, or some other non-conducting substance, to prevent the access of heat. The substance to be cooled should be placed in a thin vessel, which should be inserted in the middle of the freezing mixture. Thus the street vendors of "ice-cream" put the dainty in a tin, which stands in a freezing mixture contained in a bucket well wrapped up in flannel.

Some of the best-known freezing mixtures are given below, together with the degree of cold each is capable of producing.

FREEZING MIXTURES WITHOUT ICE.

Mixtures.	Thermometer falls.	Degree of cold produced.
Ammonium nitrate, 1 part Water, 1 part.	From 50 deg. to 4 deg.	46 deg
Ammonium chloride, 5 parts. Potassium nitrate, 5 parts. Water, 16 parts.	From 50 deg. to 10 deg.	40 deg
Sodium sulphate (Glauber's salt) 3 parts. Dilute nitric acid, 2 parts.	From 50 deg. to 3 deg.	53 deg
Sodium sulphate, 8 parts. Hydrochloric acid, 5 parts.	From 50 deg. to 0 deg.	50 deg
Sodium sulphate, 6 parts. Ammonium nitrate, 5 parts Dilute nitric acid, 4 parts.	From 50 deg. to 14 deg.	64 deg

FREEZING MIXTURES WITH ICE.

Mixtures.	Thermometer falls.	Degree of cold produced.
Snow (or powdered ice), 2 parts. Common salt, 1 part.	From any temperature to 5 deg. below zero.	.....
Snow, 8 parts. Hydrochloric acid, 5 parts.	From 32 deg. to 27 deg. below zero.	59 deg
Snow, 4 parts. Calcium Chloride, 5 parts.	From 32 deg. to 40 deg. below zero.	72 deg

All the temperatures given above, are according to Fahrenheit's scale. By the evaporation of a mixture of solid carbonic acid gas and sulphuric ether, a temperature of no less than 166 deg. F. below the freezing point of water can be produced. Several machines for the production of artificial ice have been invented. Of these, perhaps, Carre's is the best known. In it the cold is produced by the evaporation of pure ammonia, which has previously been liquified by pressure.

The production of cold by freezing mixtures depends on the fact that to change bodies from the solid to the liquid, or from the liquid to the gaseous state, *heat* is required. When substances are dissolved, or vaporized, without the application of external heat—as when a salt is dissolved in water—the heat necessary to bring about the change of state is abstracted from the neighbouring objects.

GALLIC ACID.

Formula, $C_7H_6O_5$: Combining weight, 170.

Gallic acid is prepared from tannic acid by exposing to the air for several months moist powdered nutgalls (which contain nearly half their weight of tannic acid). The dark, mouldy mass so produced is first pressed, and then boiled with water, from which, on cooling, feathery colorless crystals of gallic acid are deposited. It is soluble in one hundred parts of cold or three of boiling water, has an acid, astringent taste, and decomposes when kept in solution.

When heated to 400 deg. F. gallic acid gives off carbonic acid gas, and forms pyrogallic acid. Gallic acid differs from tannic acid in not precipitating gelatine. With ferric salts it forms a black precipitate which disappears when heated. Gallic acid slowly reduces salts of gold and silver to the metallic state, and it is to this property that it owes its introduction into photography.

Gallic acid was used as a developer by the Rev. J. B. Reade, it is said, as early as 1837, and certainly by Fox-Talbot, in his calotype process, in 1840. It can also be employed in combination with silver nitrate as an intensifier.

W. Jerome Harrison.

(*To be continued*).

HINTS FOR WORKING BROMIDE AND CHLORIDE PAPER.

In printing on bromide or chloride paper, amateurs, especially beginners, should invariably use artificial light. Daylight is utterly unfit for habitual exposure, as it is constantly varying in intensity from morning to night. Not so with lamp or gas light. By carefully regulating the size of the flame, and having certain distances from the light to place the printing-frames, practical uniformity may be secured for exposures. It is best to have about three distances—say twelve, eighteen and twenty-four inches from the illuminating medium. Chloride paper being far less sensitive than bromide paper, should usually be exposed at the first distance—twelve inches; while the latter paper will generally give better results at the two latter distances. The time of exposure will vary from a few seconds to five minutes for bromide paper—the normal time required for the average negative being from ten to one hundred seconds. Chloride paper may require as much as fifteen minutes if the negative has great density. No absolute rule for exposure can be given. After a few trials

with one negative, the proper time (and size of the illuminating flame) can be determined for this particular negative and brand of paper used, and a memorandum made of the result. If possible, use invariably one lamp for making exposures, and have the various heights of flame marked on the back of the chimney with a file, or else paint. Trim the wick evenly, and keep the chimney clean ; also the lamp not less than half-full of oil. When the wick gets so short that it does not touch the bottom of the lamp, discard it and insert a new one.

Make your memorandum something as follows : Negative of Amateur Club House. Transferotype paper, sensitometer No. 19. Illumination, lamp, two-inch burner, one-inch flame (in height). Time of exposure, fifty seconds. Developer, oxalate six parts, iron one part.

Of course this hypothetical memorandum could have been greatly abbreviated, but it is here given in full to avoid errors. Even professionals will find a decided advantage in keeping such a record. This can be applied to enlargements as well as to contact printing.

The choice between bromide and chloride paper is a matter that depends on circumstances, and I would advise that a stock of each be kept on hand. My individual preference, like that of the Rev. W. H. Burbank, is for the chloride paper, as its tones are more varied and beautiful than its competitor. Yet the bromide paper will give very fine effects in many cases, and its superior sensitiveness will make it the favorite for enlarging purposes. For contact printing it will be best to use paper of not over sensitometer No. 16, *as a rule*. Paper of higher sensitiveness may be kept in stock for use with dense negatives and enlargements, but the dim light in which it has to be developed is very exasperating to the eyesight.

The toning of bromide and transferotype paper is done by the use of uranium nitrate, ferricyanide of potassium and the alum bath. Directions will be found accompanying the formula enclosed with the paper. The diverse tones of chloride paper are secured by various modes of development. A blue-black tone can be had with a full exposure, soaking the paper in acetic acid solution before development, and using the developer without bromides. For a sepia tone use bromide in the developer. Other tones can be had by varying the constituents of the developer. (See the Rev. W. H. Burbank's article in the PHOTOGRAPHIC TIMES, No. 349, page 243).

Prints can be burnished, of course, by the use of a burnisher; but the following method is an efficient substitute :

Dissolve white wax in benzine to the consistency of thin cream. Apply a small quantity to the mounted print and thoroughly rub into the surface with a cotton rag. Repeat the process. Now apply (say half or two-thirds of a teaspoonful) over an 8x10 print, and *very lightly* spread over the entire surface, until the benzine has evaporated ; continue to *lightly* rub the print until the print begins to show signs of taking a polish. Now discard the rag, and, taking a yard of cloth—either cotton, linen or woolen—gather it loosely but firmly in the hand, and *very lightly* and *rapidly* go over the print until the desired finish is obtained. A little experience will enable any one to burnish their prints without a burnisher.

The prints must be dry—the dryer the better. Do not fail to observe this rule.

I have photographs finished with the above process that are equal to the polish of prints run through a burnisher. If there is any difference it is that the former have less of the "glassy" appearance than the burnished prints, but a refined taste will invariably prefer the latter if *well done*. An ingenious person can easily rig up a revolving frame covered with loose folds of cloth—or, better still, with horse hair—with which the finishing may be done with much less expenditure of "elbow grease" and in much less time. This method is applicable to all kinds of photographs, and acts as a preservative to the picture. Those who have not tried it will be agreeably surprised at the results.

Both bromide and chloride paper are excellent mediums for finishing in crayon, ink or water colors. Mr. G. Hanmer Croughton read a paper at the Chicago Convention on this subject, which is printed in the PHOTOGRAPHIC TIMES, Nos. 314 and 315 (1887), and which will be of interest to artists. There is also a reprinted article, entitled, "Painting Photos in Water-Colors," on page 226, No. 347, of the same journal, which is of undoubted value. In view of the fact, recently stated by a Canadian gentleman, that he sent his photographs to England to be finished because he could not get them artistically finished in this country, it would seem that it might be a paying investment for American artists to give more attention to this branch of art; and they will find bromide and chloride paper of the highest value for the purpose.

W. H., GA.

CHIPS FROM AN AMATEUR'S WORKSHOP.

XI.

COLLOGRAPHIC PRINTING.

(*Continued from page* 108 *and concluded*).

The Negatives.—In order to secure unreversed prints, reversed negatives must be employed. For experimental work, however, the reversal of the print is not a matter of great importance, and ordinary negatives may be used. The best negative for this work is one which a conscientious photographer would consider suitable for ordinary silver printing. It must be characterized by sharpness, opacity in the lights ,clearness in the shadows, and well accented. A negative which requires dodging to produce a good print in silver is not suitable for this process.

The Exposure.—A deep printing-frame with screw pressure and a heavy plate-glass front is best for exposing. The back of the plate should be well padded, and a good pressure applied to secure perfect contact. The proper time of exposure can be learnt only by experience. As in carbon printing a photometer will be of help in determining the time of exposure. Half an hour in the shade seems to be about the normal time. Over-exposure is better than under-exposure. In the former case the printing is made possible by a prolonged soaking of the plate to soften it; while in the second case the gelatine refuses to take the ink after giving a few weak prints. A correctly exposed plate shows all the details in brown on a golden ground.

Development.—Immediately after exposure the plate is taken into the dark-room and immersed for half an hour in water slightly warmed. At the expiration of that time the water is poured off and replaced by a fresh supply, slightly warm. This is repeated twice at intervals of five minutes. The plate is then allowed to dry hard in a current of air, or the plate may be washed for two or three hours in running water.

This method differs from that given in the description given in the "Annual," where it was recommended to plunge the plate in water for one minute only, which is, of course, insufficient to remove the bichromate, the presence of which in the film will impart a yellow tinge to the first impressions, which is, however, easily removed by immersing the prints in water slightly acidulated with sulphuric acid.

The process described in the "Annual" being intended only for amateurs, who care to strike off only a few prints, or for those who wished to obtain a few transfers as rapidly as possible, the prolonged washing necessary for work on a larger scale was dispensed with.

Treatment of the Plate before Inking Up.—The dried plate is soaked for half an hour in clean, cold water, wiped with a clean, soft rag, and the back cleansed of gelatine. It is then placed level and covered with the following:

Glycerine	5 ounces
Water	10 ounces
Ox-gall	A trace

This is allowed to act for fifteen minutes. Its function is to prepare the plate to take the ink well. When ready to ink up, the fluid is removed with a very soft sponge and blot with fine plate paper. Then roll up with a leather roller.

The Rollers.—Two rollers at least will be required, a good leather roller and a composition roller, the first to lay on the ink and the second to clear up the image. These can be purchased ready made of dealers in typographic material, who will furnish those which are suitable for collotypic printing if the purpose for which they are wanted is specified. The so-called phototype rollers are the best, being made especially for this class of work. If possible, the leather roller should be purchased "made," as the expression is, that is, prepared to take the ink well. This will save the trouble of making up the roller yourself. This is done by treating the roller with Russian tallow, allowing it to stand for some hours, then repeating the operation, finishing up with much rolling in middle varnish and ink, until it takes the ink evenly.

Some operators make use of velvet and rubber rollers for very delicate work, but the beginner had best keep to the leather and composition rollers, until he has mastered the initial difficulties.

Ink.—While any good typographic ink will answer, it is best to use the phototype ink to be had of all dealers in such goods. If it requires thinning down it had best be done with olive oil, adding a pinch of powdered talc to prevent the roller sticking to the film. Some collotype plates require thinner ink than others, a matter which can only be determined by practice and striking a proof or two.

As a plain black ink will not suit every class of subject, a stock of different colors must be kept on hand to mix with the black ink to bring it to the desired shade. The ink for collotype printing should be stiff.

For detailed instructions, so far as such instructions can be given in writing, concerning inking up, printing, etc., the reader is referred to the

article in the "Annual." A few lessons from a good litho. printer would be worth volumes of printed matter.

This lengthy article may be brought to a close by a few formulæ for the "damping liquid" used to damp the plate whenever the prints look flat and gray.

1.

Glycerine	5 ounces
Water	5 ounces
Nitrate of potash	1 dram

2.

Glycerine	5 ounces
Water	5 ounces
Ammonia	10 drops

3.

Glycerine	5 ounces
Water	5 ounces
Hyposulphite of soda	½ dram

Apply with a wet sponge.

The various formulæ given in this article are such as are in constant use in the best phototype establishments, and they may be implicitly relied on.

W. H. Burbank.

THE DISCOVERY OF THE DAGUERREOTYPE PROCESS.

[Abstract of the paper read before the Society of Amateur Photographers of New York].

MANKIND little reflects what a privilege we enjoy, living in this nineteenth century, for included in it are all the great discoveries. Truly, this is the age of progress and invention. We are better prepared to-day to accept the announcement of any great discovery, and to look upon it with less incredulity, to encourage and possibly capitalize it, than were the people when the announcement was made of actually impressing the image so often seen in the camera obscura, and producing in all its detail the reflected image, and making a permanent impression upon a sensitive surface.

This paved the way for other discoveries, and to-day we have many important inventions that contribute to our welfare and happiness.

We have the best and cheapest farm implements, fire-engines, fire-arms, fastest steamers and best railroads, telegraph, photography, anæsthesia, sewing machine, electric light, telephone, phonograph, and last, flexible films. If any nation during the same time has done more, or as much, the fact is not generally known.

We are assembled here to-night to celebrate the fiftieth year of one of these many inventions, the greatest of all discoveries—photography—and to pay homage to the illustrious names of Neipce, Daguerre and Talbot, not forgetting our own countryman, Dr. Draper. The name of each is associated with that which he accomplished—names that will forever shine forth as fixed planets in the shrine of invention. They will be everlasting on the tablets of memory, monuments in themselves, the best that can be erected to everlasting fame, and will never cease to be heralded to all the world.

We need not write the history of these great men; it is too well known, for their noble gifts to science will ever share the same position that follows with their fame, and to-day we reap the golden harvest of their genius and invention.

You may wonder why I have added the name of Dr. Draper to the list. My reason for so doing is because Daguerre never succeeded in taking likenesses. When the French government purchased his process it was only adapted to statuary and architecture. The first successful Daguerreotype portraits were made in the New York University, 1840, by Dr. Draper, who overcame the optical difficulty which had defeated all previous attempts. When the news of the discovery reached Europe, it was ascribed to the peculiar brilliancy of the American sun; but this theory was hard to reconcile with the success which attended the American artists who soon prosecuted the business in London and Paris.

Opinions may differ as to the real date of this important celebration—whether it should be chosen from the date of the discovery or the public announcement before the Chamber of Deputies by M. Arago, are matters of minor importance.

Each progressive step in photography is worthy of special recognition, and it is to be hoped that steps will be taken to celebrate the occasion of that important date upon which M. Arago read the paper before the French Academy of Science.

The ultimate movement in all cases establishes the fact that this is the most wonderful invention of the nineteenth century, and it reflects great credit upon the society in taking the initial steps to make this year one of celebration and commemoration to these great discoveries.

On January 31, 1839, the results of Daguerre's labors came forth fully finished for use.

To France alone, for the Daguerreotype, is all honor due, and the liberality with which it was purchased and given for the benefit of universal science will secure to France the gratitude of all nations.

This wise and generous step was at the suggestion of her most eminent philosopher, M. Arago, to whom Daguerre had confided the secret of his art.

Struck with the splendor of the discovery, and foreseeing the advantages which science and art would receive from its application, he induced the French government to offer an unusual pension of 6,000 francs to Daguerre, and to Neipce a pension of 4,000 francs for surrendering to the public the use of their inventions.

When the secret was made known, and the pensions granted, the seals which retained the secret were broken, and the Daguerreotype became the property of the world.

The genius of men like this comes like an incantation of science, and descends upon the world but once in a series of years, and the peculiar assemblage of faculties requisite to produce these wonderful results are seldom found together, each possessing that persistent will, and all claiming to share in the great discovery; some giving the result of their labors to science, others pensioned by a government, and to one must be added the desire for a patent granted by the English laws.

This does not detract from their fame. They have accomplished enough to crown them all founders of our beautiful art.

And while the invention has afforded employment to thousands, it may be safely said that it has given to art the greatest stimulus it has received in modern times.

The colors of genius are determined by the ray-incident on the first prism, and the light once decomposed by refraction, no further refraction can again decompose. It is thus with photography, for to-day it remains the same incident ray (the camera lens and silver salts are in principle the same that was used by the early investigators), and no further change has taken place, and it is doubtful if any ever will.

Many topics are important enough to deserve a separate consideration. All that can be alluded to in this short space of time will be to point out objects best deserving our attention; while, if time permitted, we could present a diorama of men all more or less connected with this history. To mention a few of the many may not be out of place—Neipce, Daguerre, Talbot, Draper, Fyfe, Claudet, Fizeau, Biot, Arago, Hunt, Ponton, Lassargne, Netts, Herschel, Moser and Lerebours.

Horace Vernet and Goupil made Daguerreotypes in Spain; Fredrichstal traveled in Central America for the Prussian Government; Davidson made first camera (optician of Edinburgh); Adamson first made pictures in New York.

If time were at my disposal, I should like to inquire into the various benefits that result from photography, and to show that it has had as great an effect upon civilization as the telegraph, telephone and steam engine.

It stands alone, occupying a distinct position, and furnishing to mankind a new vision that can penetrate into distance or the past; a retina as faithful as the human eye, but whose impressions do not perish with the wave of light that gave them birth. It has had a birth and a growth among the people; it has, like many other discoveries, been singularly successful in interpreting the wants of the day and serving popular welfare.

The noble works of the great masters are no longer the exclusive property of a single individual; they are now reproduced, by the aid of photography, and given to the world or published for the benefit of society.

The whole world is brought to our view by the aid of photography, and to-day we find it occupying an important position in science, art, and all industries.

To me it has always been a pleasure to look over the history of these great men, and to ramble through the literature of the important event has offered many pleasant hours of study.

To-night I yield the field to others, for my mission is rather to describe the process than to describe the men.

I am inclined to think that I shall best meet your wishes if, instead of dwelling on the history of these great men, we include them all in one great class of inventors and benefactors to mankind, and in as brief a manner as possible outline the Daguerreotype process, and describe the use of the apparatus that has been loaned from the photographic collection of the School of Mines Museum.

The Daguerreotype process is wonderful for its extreme simplicity, and when once explained it seems strange that it was not thought of before. The crowning wonder of all is that it was made at a time when materials were not only difficult to procure, but far from being pure.

Iodine was discovered, in 1812, by Courtois, and bromine, by Ballard, in 1826.

Little did they dream that their discoveries would lay the foundation of the science of photography, and it is surprising to think that no other compounds have ever been used with success, and it is not likely that others will.

[Professor Laudy here went through the operation of buffing a silvered plate; then illustrated the use of the iodine sensitizing box and the funnel-shaped mercury developing bath. He also showed several old specimen Daguerreotypes and Talbotypes.]

L. H. Laudy.

SAVED BY A PHOTOGRAPH.

I AM a photographer; and, taken altogether, have been as successful in my vocation as most men, for I have managed to lay by a tiny little sum for my old age, which always gives a man a feeling of security. Besides this, I have seen many interesting scenes in different countries, having been, when a young man, connected with several illustrated papers in the capacity of an artist. The railroads, of late years, have employed many of us in connection with their books on summer travel. It was on one of these trips that the events in the story which I am about to relate occurred.

I was returning from a journey through the mountainous region in which the H. & L. railroad runs, and had taken a large number of photographs for the company. The sun had dipped below the western horizon, and the stars glimmered in the heavens like beacons of hope. I had intended to reach home that evening, but had missed the train, and was obliged to walk two miles to the nearest hotel. It what seemed to me a short time, for I am fond of a walk under the broad canopy of heaven with only my thoughts for company, I reached the hostelry, and after carefully attending to the valise which contained my negatives, retired for the night, and was soon fast asleep.

I awoke early in the morning, dressed, and was soon upon the street. It was Fourth of July, and the walks of the city of Wellington were thronged with people. Everybody seemed to breathe the air of independence and freedom, which this day always inspires in the mind of an American. The city had appropriated quite a respectable sum for the day, and young and old alike were participating in its enjoyment.

It was a fine day. The sun shone in regal splendor, and although quite warm, a gentle breeze, like some angel of mercy, sprang up and fanned the face of the multitude. At ten o'clock the grand procession, composed of civic and military companies, marched down the principal street. As the parade passed I decided to photograph it, and hastened to the hotel for my camera. I was delayed somewhat in obtaining it, and was obliged to set it up in a more obscure place than I desired, but I was determined to make an exposure, and so, waiting for a favorable opportunity, I drew the slide and sprang the trap. I then carried my box to the hotel, where I remained until afternoon, and then returned home.

The next two weeks were spent in developing the plates and placing them in envelopes prepared for the purpose. For some time I had made it a rule to enclose each plate exposed in these wrappers, marked with the date, time of exposure, brilliancy of the sun, and the size of the stop used. This aided me in my work, and could be referred to at any subsequent time. The plate on which I had photographed the scene in Wellington came up readily, and when printed, made a fine picture. The marching men in their fine costumes, stood out in bold relief against the background of a white wooden block, while the lights and shades blended with each other as perfectly as one could desire, but the scene in the foreground especially drew my attention. It was the figure of a man dressed in ragged clothes, handing something to an old woman. The face of the man was turned toward the woman, and came directly in front of the camera, showing his features plainly. His hair was long, and protruded from beneath the rim of an old felt hat. His features were plain, but the expression was strong and kindly, although there seemed to be a sad look about them. In short, you might look at his clothes and declare him a beggar, but to look at his face was to call him a gentleman.

After finishing the picture I laid it away among other samples, and for five months never had occasion to look at it. One morning I was sitting in my studio reading the morning paper, when my eye fell upon the cut of a man who was being tried for his life in a neighboring city. The face seemed familiar, and I tried to remember where I had seen it. Like a flash it came upon me; the face in the paper was the one I had photographed five months before.

I became interested, and eagerly read the account of the murder, and the evidence against the prisoner. It was plainly circumstantial, but so strong that it seemed conclusive that the man was guilty. A farmer was at work in his barn among the horses and cattle, when some one had stolen up behind and struck him a terrible blow on the back of the head. No motive, except robbery, could be found for the deed, and suspicion at once fell upon a tramp who had been seen around the town, a few days previous to the murder. He was arrested in a village some miles off, lodged in jail, and was now undergoing trial. Furthermore, the paper stated that the prosecution had nearly closed, and the defense would soon open.

The next sentence startled me: "The coroner's jury find that the man was murdered between the hours of 9 and 10 A.M., on the morning of the Fourth of July."

I threw the paper down and went to an old closet where I kept my plates, and had no difficulty in finding the one I was seeking. Looking at the printing on the envelope, I read:

"Date, July 4, '78.
Time, 9.50 A.M.
Sun, bright sunlight.
Stop, No. 4, instantaneous."

There could be no doubt in my mind that the murder was committed at nearly the time I had taken the photograph in Wellington, and consequently the crime could not have been perpetrated by the man held, provided the face in the photograph and that of the prisoner were identical. I compared the two prints, and the more I examined them, the more satisfied I became that they were one and the same. I decided to go to L—— the next day. That night I could not sleep, thinking of the murder trial, and of the fate of the prisoner, so sure had I become of the man's innocence.

In the morning I took the train and soon reached the city. Proceeding directly to the court house, I found the prosecution closed, and the defence opened.

The prisoner sat at the bar, the same sad look upon his face that I had noticed in the photograph. Now that I saw him face to face, I was doubly sure that I was right in my conjecture, but I was bound to be sure of my position before making my evidence known.

The defence was weak in every particular, the prisoner's story being unsubstantiated by any witness. He was a stranger and a tramp. He was seen around Moulton only the day before the murder, and could not prove his whereabouts on that day. Indeed, it seemed that he had no case at all on which he could base the slightest hopes of acquittal, and the only thing that seemed in his favor was the lawyer's skill, who handled his case remarkably well.

His examination of the man was most satisfactory to me, the design being to obtain from the prisoner every movement he had made on that fatal day, hoping, as the

papers printed it, that it might stimulate the memory of some one who saw the prisoner on that day.

"On what day did you leave Moulton?" questioned the lawyer.

"On the day previous to the murder, at about nine o'clock in the forenoon," was the answer.

"For what purpose?"

"To obtain work."

"Did you seek employment while in Moulton?"

"I did."

"With what success?"

"I found a few days' work there, and got my board and a very little money. It was in hope of obtaining steady employment that I went to Wellington."

"When you arrived there where did you spend the night?"

"In an old barn that stands alone in a field as you enter the city from the south road. I noticed it as I passed, and thought it a good place for a night's lodging."

"How long have you been a tramp?" queried the lawyer.

Here the sad look came over the tramp's face more strongly than I had noticed it before.

"For eight years," he answered, "since my wife died. At the time of her death I was employed by the railroad, but disheartened by this event, I left and sought work at some other place, but could not find it. Since that time I have become what I now am, a tramp; but, before God, I am innocent of the crime charged against me."

He said this in so straightforward a manner as to elicit the sympathy of judge and spectators alike.

"Did you try to obtain work in Wellington?"

"I did, but not on the Fourth of July, the shops and places of business being closed."

"Proceed and tell the court how you passed the day."

"I awoke early in the morning; the sun was shining brightly, and having no board bill to settle, I proceeded down the road to the city; it was about six o'clock, I should think, and a large number of people were upon the streets. I wandered about until eight o'clock, when I entered a cheap restaurant, and got a bit to eat. I passed the time until nine o'clock upon the main street. It was about this time the grand procession came along, and I watched it until it passed, and then entered the park and remained there upon one of the seats for about half an hour. Becoming tired, I again went upon the street and met the parade as it came down Lincoln street. I watched it five or ten minutes, when I was touched upon the arm by an old beggar woman, who asked me for a few pennies. Poor as I was (for I had but half a dollar left since breakfast had robbed me of a quarter), and being moved by the woman's story of poverty, I handed her a dime, and she went her way. If the old woman could be found I am sure my story would be proven true, and perhaps my life saved. From ten o'clock, for it was about this time that I stood upon the corner with the beggar woman, I passed my time upon the streets, and went back to my barn early in the afternoon. I did not again go out until the next morning, when I found work, and was doing well until arrested for the crime of which I am charged."

The prosecuting attorney cross-examined him, but failed to elicit any new facts, or to break down his testimony in the least. The prisoner's lawyer then arose and said, "In the absence of witness—"

My time had come, and I sprang to my feet, and in a clear voice said, "I am a witness for the defense."

Had a peal of thunder, bursting from a clear sky, filled the room, it could not have caused more surprise to the prisoner and his lawyer. They looked as they felt, startled in the extreme, while a murmur ran through the crowd of spectators, for it had been published time and again, that no one could be found to testify in the prisoner's behalf.

I strode through the main aisle of the room to the witness stand, and as I passed the dock, I impulsively held out my hand, and the prisoner grasped it fervently. What was it that passed between us? It was like an electric shock, he told me afterward, but I have always believed that it was the thrill of hope, which at that moment filled my mind, conveyed along his strained nerves to his brain.

I went on the stand and told all I knew in regard to the case. How I had been in Wellington, on the Fourth, and had seen the parade; how I had photographed it; the position I had occupied and the time I sprang the trap shutter, all of which tallied exactly with the prisoner's story.

"But," said the Attorney-General, "what bearing has this on the case."

"Wait and you will see, I replied, and drawing from my pocket the photograph, I held it up before the court. "This," I said, "is what I obtained with my camera. In the foreground of this picture, in full view, is the face and figure of the prisoner at the bar. He occupies a position which he has described to you. The old beggar woman is there, and her hand is held out to receive something from him. Upon the envelope which contained the plate from which this photograph was taken, are these words and figures," and I read the time, length of exposure, the date, and the size of the stop.

"If the crime was committed," I continued, "between the hours of nine and ten, it must have been by some other hand than that of the prisoner in the dock."

A murmur of applause again ran for a moment through the whole court, but was promptly silenced by the judge, who said, "Let me see the picture."

He examined it closely and said: "It certainly bears a striking resemblance to the prisoner, and strongly corroborates his story."

The jury all closely inspected it and one of them asked if it could not be enlarged.

I answered in the affirmative and the court adjourned for a week to give time for the work. Inside of four days it was finished, and I carried it into the court-room.

This time there was no hesitation, for one and all pronounced it to be a correct portrait of the prisoner, and it is needless to say that he was acquitted.

The real murderer, I believe, was never found.

In my studio, in a prominent place, hangs the photograph, and often as I pass I stop and gaze at it, thinking of its history. But no one prizes it more highly than my business partner, the tramp of years ago.—*Exchange.*

Notes and News.

THE FIRST GUN FOR 1890.—The publishers of the "American Annual of Photography" have received the following letter from Lieut. Col. Ottomar Volkmer, Vice-Director of the Imperial Court and State Printing Establishment, and President of the Photographic Society of Vienna:

"Allow me to express my most heartfelt thanks for the 'American

Annual of Photography' you have kindly presented to me. It has indeed pleased me very much, for in every respect it is *a model of perfection*.

If convenient to you I will prepare for 'The Annual for 1890,' an article on the value of electric light in photography."

Thus it is that the last copies of one issue have scarcely been sold before work is commenced on the issue which is to follow.

FOR CATCHING BURGLARS.—A local paper states that George E. Davis, of the Novelty Iron Works, and photographer H. A. Jordan, both of Dubuque, Iowa, will probably obtain a patent on a device for flashing magnesium powder and exposing a plate in a camera simultaneously, when the door or window of a bank or a private apartment is opened by a burglar at night. We have not yet learned the particulars of their device, but are reminded of several suggestions by others, for securing the same end. We shall hope to receive the details of this method, for publication, as soon as they are ready for printing.

PROFESSOR PICKERING has just published an interesting paper upon the discovery of nebulæ by means of photography. He has compared with the catalogues of known nebulæ five photographic plates, which cover a certain region of the sky extending about 15 degrees north and south by 10 degrees east and west, and having the great nebula of Orion nearly in its centre. The photographs were taken with the Bache photographic telescope of eight inches aperture and forty-four inches focal length, belonging to the Cambridge Observatory. In the region photographed, the Nebula Catalogue of Dreyer indicates eighteen objects. Fourteen of these appear upon the plates; four do not, but two of them are indicated by Dreyer as merely "suspected." On the other hand, twelve new nebulæ are shown on the photographs, which are not given by Dreyer, and five of them are really interesting objects as regards their form and detail, or on account of their connection with certain stars. It is obvious that the number of known nebulæ is to be much increased by photographic observations.

PHOTOGRAPHY IN THE DARK.—An ingenious method for the photographic study of the stars, resorted to by an English artist, has excited much interest in scientific circles. Observing that the summit of Mont Blanc retained after sunset, say until half-past ten o'clock, a phosphorescent bluish appearance, he thought it possible to utilize it for obtaining a photograph of the mountain. For this purpose he projected, by means of a photographic camera, the image on a plate covered with a layer of Balmain's luminous paint, and, after an exposure of a few seconds, this plate was held in contact, in the dark, with a dry photographic plate, and at the end of an hour the image of the mountain was obtained complete, with all details, as if taken in the ordinary way. This interesting result permitted conclusions to be drawn that the carbonate of lime, exposed during the day to a brilliant sunshine, emitted during the night invisible but very active rays. Experiments being made at Prague, very fair photographs of objects were obtained during the night time, thus appearing to confirm the theory that light can be absorbed and slowly remitted, and that the image of invisible objects may be fixed in the darkness by means of actinic rays —a process not only serviceable in the preparation of astronomical maps, but applicable also in other ways.—*N. Y. Telegram.*

"MR. ISAAC ROBERTS," says *Nature*, "the eminent photographic astronomer, has presented to Dunsinsk Observatory a photographic reflecting telescope, with a mirror by With of 15 inches aperture. The generous donor is erecting the instrument at his own expense, aad it will be employed in furthering the study of star parallax—a study with which Dunsinsk has been so long associated."

THE BOOK CAMERA.—Kruegner's book camera is a veritable detective. One might be meekly walking along the road, or mixing with the devout going to or coming from church (on a week-day, of course). with this innocent-looking, yet really formidable, apparatus in his hand or under his arm, and no one would suspect its nature, for to a casual observer it is a book and nothing more. Yet does it really contain, stored away in its interior, no fewer than two dozen small plates, $1\frac{5}{8}$ inches square, each of which can be brought in rotation to the focusing plane, exposed, deposed into a separate receptacle, and another plate made to take its place, and all this by the simple act of pulling out a small handle, pushing it in again, and pulling a string.—*British Journal of Photography.*

GOOD FOR HOTBEDS.—Joseph H. Ives, of Danbury, finding it necessary to replace much of the glass in one of his hothouses, bought of a photographer in the place a lot of old negatives and refitted the entire roof. He arranged them in groups. One represents the old gray beards, who have long since gone to their rest. Next come men of middle age, who are now old and bent. The women follow, and then young men and young women, who are today grandfathers and grandmothers. The children represented by the negatives are married and have their children. In one corner, over the heliotrope bed, Mr. Ives has placed the lovers—those who, in the days before they were married, had their pictures taken holding each other by the hand. It is expected by the ingenious florist that his heliotrope, which represents love, will flourish greatly under the influence of the faces of the love sick people.—*Hartford Times.*

TO COPY NEGATIVES FROM NEGATIVES by one operation, Mr. Brebure exposed a thin negative to the light of a gas-burner for forty-five minutes, and at a distance of 10–12 inches from the source of light, and developed with pyrogallol 4, ammonia 1-2, water 480, with the addition of a proper quantity of bromide of potassium. Ferrous oxalate does equally well, but in either case the developer should be abnormally weak. With correct exposures negatives have been made in this manner, of slow printing quality, perhaps, but giving proofs as good as those printed from the original negative.

Photographic Societies.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

SPECIAL LANTERN-SLIDE EXHIBITION.

THE Committee on Papers and Publications sends the following report:

One of the most enjoyable exhibitions representing the work of a single member was given at the rooms of the so-

ciety, 122 West 36th Street, on Wednesday evening, February 29th, 1889.

The subject was "A Trip With a Detective Camera Through Norway and France," the negatives and slides on dry-plates being the work of Mr. Richard H. Lawrence.

He had been highly successful, having obtained with his 4x5 camera some remarkable views, especially in Norway. The exhibition comprised an admirable selection of 120 slides of excellent quality and of interesting subjects. Some mid-ocean views were especially artistic, while the grand and magnificent scenery in Norway, including interesting cloud effects and high waterfalls, were perfectly portrayed. The views in France showed the peculiar chalk cliffs on the coast, included various styles of architecture, views on the Seine and other views; also several interesting points in Paris.

All of the pictures, with the exception of a few interiors and some others, were made instantaneously with a Beck lens of about six inches focus, using a stop *f*-11, and for marine views a stop *f*-16 in a Scovill detective camera, on Seed No. 26 plates, developed with pyro or hydrochinon and potash. Most of the slides were made on dry-plates (Eastman transparency), and were developed with pyro, hydrochinon or iron. Some of his best work was on slides developed with the iron developer and afterwards slightly intensified.

Mr. Champney read the titles of the pictures, and in commenting on them, said Mr. Lawrence had shown excellent taste in his selection of points of view; also in his management of architectural subjects, which he was compelled to photograph without the aid of a swing-back.

A unanimous vote of thanks was accorded Mr. Lawrence at the close of the exhibition, and it is hoped other members will follow his example by showing the results of their labor to the society.

Our Editorial Table.

ALDEN'S MANIFOLD CYCLOPEDIA.—Volume XI. carries this work from Debt to Dominie. The 640 pages are packed with information of just the kind which the vast majority of reading people desire to obtain. Like its predecessors it is truly *manifold* in its character. In a single volume it gives an unabridged dictionary, and a cyclopedia of information which is ample for practical use, is fully reliable, and is brought down to the present year. There are, also, a large number of really helpful illustrations. The form of the book is most convenient; the paper, printing, and binding are all good. This is emphatically *the* Cyclopedia for the people, and the extremely low price —only 50 cents a volume in cloth, or 65 cents in half Morocco—brings it within the reach of all. A specimen volume may be ordered and returned if not satisfactory. John B. Alden, Publisher, New York, Philadelphia, Chicago, Atlanta, and San Francisco.

Record of Photographic Patents.

Trade Mark. 16,320. Photographic Paper. A. Schaeffner.

398,712. Photographic Chair. Theodore Endeau, Cleveland, Ohio.

THE LATENT IMAGE.

I do not need thy portrait, dear,
Whilst thou art far and I am here:
For on my heart 'tis very near;
And in my mind, is pictured clear!

Rhymesmith.

Queries and Answers.

52 BURGESS has been told sulpho cyanogen in some combination exists in the human body. Is that so?

52 *Answer.*—Traces of alkaline sulpho-cyanides have been found in the saliva of man.

53 M. P. M.—"A Study in Orthochromatic Photography" is the title attached to one of the illustrations of "American Annual of Photography for 1889." Not understanding the term used, I apply to you for information.

53 *Answer.*—We know you to be in possession of "The Photographic Instructor." Read lesson No. XVII.

54 HAMPTON.—What length of time, in bright sunlight, is usually allotted to the different openings in the diaphragm?

54 *Answer.*—The time of exposure is inversely proportioned to the squares of the diameters of the diaphragm.

55 CHROMO inquires: Where can I buy a Decoudon photometer?

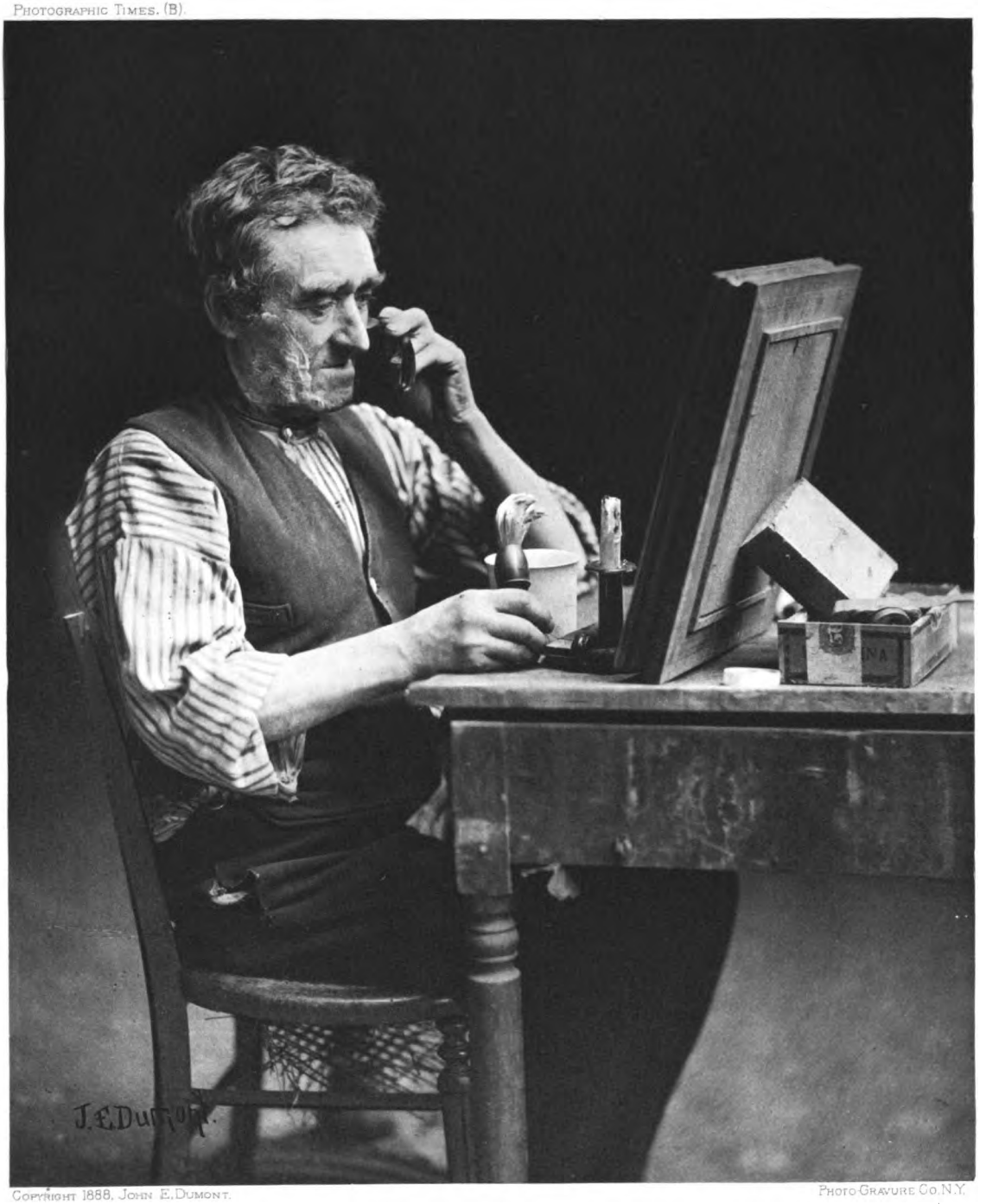
55 We do not know. We think the article has not been brought to this country, as yet.

56 PH. O'B. has a large lot of silver precipitated with sulphuret of potassium from old hypo bath. How is the precipitate reduced to metallic silver? he inquires.

56 *Answer.*—Wash the precipitate well and dry it. Mix with granulated carbonate of soda or potash, and put in a Hessian crucible to about one-third its capacity. Then expose for from fifteen to twenty minutes to a strong, red-heat. After cooling, a button of metallic silver will be found on the bottom of the crucible. A more economical way is to send the precipitate to a professional refiner.

57 BRAXTON, of Va., writes: "When developing instantaneously exposed plates, I have repeatedly found that the negative lacking of detail and intensity, after a long continued developing is covered with a film of iridescent color and metallic lustre, if viewed in a certain light. How can this be prevented, and how can I develop printable negatives from instantaneously exposed plates?"

57 *Answer.*—With correct treatment, a highly sensitive plate, exposed only for a small fraction of a second, can be developed to a printing negative without extreme trouble or difficulty. You must be patient and careful, use a well proportioned solution of pyro and alkali, develop first for the picture, then for the intensity of it. The iridescent or metallic cuticle is caused by too large amounts of alkali. If the deposit appears, which can be well seen when the plate is still under the developer, you may as well stop, for then nothing more can be brought out. The deposit, if the negative is good enough to make a print from, can be wiped off with a dry linen rag, and should the density not be what is required, you may then intensify it with mercury in the usual way.



AN OLD SHAVER.

THE
PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, MARCH 15, 1889. No. 391.

"AN OLD SHAVER."

OUR photogravure illustration this week will be especially welcomed by portrait photographers and those who strive to make pictures with the camera from life"—human life.

"An Old Shaver" has many suggestions to give the observing and studious ones, in posing, arrangement of accessories, and lighting.

It is a famous photograph, having received honorable recognition in more than one exhibition where it has been shown. But Mr. Dumont has told us its history briefly. We quote from his personal letter to us:

"This old man," he writes, "is the same one whom you are all familiar with as the subject of 'Solid Comfort,' and the picture is one of five studies that I made of an old man who used to peddle oranges around the streets and offices in this city; but as his wants were greater than his income, I had the pleasure of making up the deficiency until he was taken sick, and I had him sent to the poor-house, where he died, greatly to my disgust, as I have never been able to find another model whom I could do anything with or get any expression as I could with him. After taking this picture I discovered that my developer had given out, and after leaving him for not less than fifteen minutes I came back and found him with his razor up to his face just as I had left him; he hadn't moved a muscle.

"This picture was awarded a silver medal at the *Amateur Photographer* Home Portraiture Competition, London, in 1887, and is one of four for which I was awarded a diploma at the New York Exhibition the same year."

EDITORIAL NOTES.

ALTHOUGH our publishers have offered full retail price in cash for all copies of January 4th, 11th, 18th and 25th, 1889, TIMES, that should be sent them in good saleable condition, these rare numbers of the journal are valued so highly that but a very few copies can be obtained, especially of the January 4th issue. It will, therefore, be impossible for them to date subscriptions further back than February 1st. The circulation of THE PHOTOGRAPHIC TIMES grows larger with every issue, and the publishers and editors have every reason to feel gratified by the hearty response with which their efforts have been met by the photographic reading public.

DR. EDER expresses himself as very much in favor of silver collodion emulsion paper for printing purposes. It is far more sensitive than albumen paper, he says, and will produce much better results than it from feeble negatives. The emulsion paper, in the institute of instruction over which Dr. Eder is director, is made with lithium chloride and acidified with citric acid. Dr. Eder denounces in the strongest terms the addition of castor-oil, as it produces red spots during the toning process, he claims, and acts as a retarding agent in the toning solution. The toning bath which he has adopted consists of:

Water	12 ounces
Gold solution (1:50)	1 dram, 40 minims
Acetate of soda, fused (1:50)	2 ounces

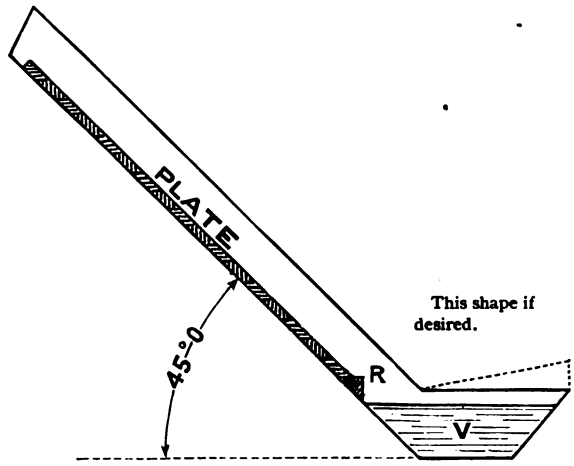
HERR LÖWY, of Vienna, has construsted a screen for regulating light in portraiture. Its principal feature is the colors of various shades which are easily interchangeable, so that the peculiar character of the original may be suited. For faces of delicate tints he uses a screen of bright red; for more highly colored faces he uses a correspondingly colder tint; and in this way obtains most satisfactory results.

HERR E. VOGEL, JR., states that developing trays varnished with an asphaltum solution exercises a retarding influence upon the action of the developer. Asphaltum is soluble in developers of high alkalinity, and this does not fail to show it-

self in the developing process. Japanned metal or varnished papier-maché trays may do well enough for some kinds of photographic work, but for developing purposes a glass or porcelain dish should always be used.

THROUGH the kindness of Mr. P. T. Duchochois we have come into possession of some American-made azaline, which, as every one knows, is a compound color composed of chinoline blue or cyanine with chinoline red. This dye is a most excellent color sensitizer for commercial work, and the cheap American sample which we have experimented with is a perfect substitute for the expensive imported article.

A SUGGESTION for a form of developing-tray permitting ready modification of the developer, for over or under exposures, without removing the plate from the tray or requiring an unusual quantity of developer, is made by Mr. C. W. Grant, of Buffalo, N. Y.



He says in explanation:

The raised rib, R, reaches from side to side of tray, forming a dam high enough to insure plate being well covered when tray is horizontal, and only just sufficient developer to do this need be used. The shape of R is such that the tray need only be tipped slightly more than 45 degs. either way to allow developer to flow from one side into the other, over R.

We offer it for the consideration of our readers.

POSTAL PHOTOGRAPHIC CLUB.

ALBUM No. 2 of this useful little organization has come to our table, well filled with amateur work that is considerably above the average of excellence. The note-book accompanying it informs us that Professor Randall Spaulding, of Montclair, N. J., is now president of the club, and that Dr J. Max Mueller is secretary and treasurer. The membership at present is about fifteen and is limited to twenty. We are glad to learn that the little club has revived under so favorable circumstances, and with prospects so promising of a prosperous future.

The album before us contains forty-nine prints, neatly mounted and labelled, of various subjects and of several sizes. Mr. F. A. Jackson's "Summer Morning," printed in bromide, to our mind, is the best, both artistically and technically, in the album. All Mr. Jackson's bromides are unusually excellent, and we agree with President Spaulding in thinking that Mr. Jackson should write a book on bromide printing. If he considers that too much of an undertaking, we suggest an article for the columns of THE PHOTOGRAPHIC TIMES.

Mr. J. Albert Cole's architectural subjects are all well rendered, one, a view of several stately mansions in Washington City, being especially admirable.

The interior, of Dr. Mueller, showing the billiard table in a well-lighted room, is far above the average of this kind of work.

Mr. H. H. Suplee contributes two very good figure pictures, the plain drapery making an effective background and setting off to advantage the fancifully dressed subjects before it, but neither is so good as Miss Littlejohn's figure composition entitled "Eve's Drooping in Disguise," the drapery being beautifully lighted and the pose being very good. Miss Littlejohn's interior is also very good.

Professor Spaulding shows two or three prints; one a satisfactory picture of cows, another a pleasing bit of landscape on the Rockaway. "The Cider Mill" is not so good.

Mr. Samuel Wadsworth exhibits a fairly good view, though rather flat print, of the famous "Flume" in the Franconia Mountains, New Hampshire; and Mr. Vernon L. Davey's "Jolly Pair," a picture of two young children, artistically, is very good.

We note a view of Sunnyside, by Miss Gillender, that is different from any we have seen in photographs of Irving's famous home on the Hudson.

We wish all our readers could carefully examine the photographs in this album, for there is much to be learned from studying such a collection of prints.

The Third Album has started on its rounds and will be noticed in our issue next week.

THE ART SIDE OF PHOTOGRAPHY.

I WAS somewhat surprised to read in an article by my friend, Andrew Pringle, for whose lucid thoughts about photography I have a very great esteem, the following sentence: "The photographer can conceive a picture, arrange its details in his mind, determine the expression of the whole and of each part, settle the composition and chiaroscuro, just as well as the painter; but the photographer cannot by any means *so easily give his conception a visible graphic existence.* This, however, does not, or ought not to, impugn the character of the photographer as an artist; in fact, it ought to raise the efforts of the photographer higher in our estimation." The article will be found in the number of THE PHOTOGRAPHIC TIMES for January 18th, 1889, and contains many statements which are equally unsound, to my mind, but which all depend more or less on the soundness or unsoundness of the foregoing, and which I propose to take up in due course when I have said my say on that, which I propose to do with the same frankness that has always characterized the debates between Pringle and myself when we had the, to me, good fortune to be in the same place and able to debate *viva voce.*

The fundamental error of the above sentence is in assuming that the facility of conception of a pictorial subject by a photographer has anything to do with photography; for he might just as well say that any man can conceive a picture just as well as the painter; and the dependent error is in saying that he cannot by any means "*so easily give his conception a visible graphic existence.*" In the first place, the conception of a picture is an act of which we can give no evidence to anybody beside ourselves otherwise than by putting it on paper or canvas or some equivalent. The conception is not art, and the rank or quality of an artist is not primarily determined by his conceptions, but by his success in giving them visible form, by which alone others take cognizance of them, and, after that, we speak of the artist as a great or a minor artist according to the imaginative power; but if he has not succeeded in giving his conceptions a visible form in keeping with the imaginative quality we put him down as a failure. A man may have all the clearness of conception and vigor of imagination that Michael Angelo had, but if he never learned to draw he has no means of showing it, nor do we call him an artist. Secondly, the art of any artist is rated according to its mastery of the means of expression and its success in expressing for others, the conception with which the mind was charged. The conception may be a very trivial one, and the art of a very low order, but very perfect, as in some of the Dutch painters, as for instance Teniers, who had conceptions of merry-making and debauchery, but whose art is of the most subtle and triumphant we have. Michael Angelo himself has not been more successful in giving visible expression to his conceptions, or, I might say, imaginations, for there is a difference between imagination and conception, though it does not concern the present discussion. Conception is defined as the recalling of a perception which is a sufficient definition for our use, and describes the mental action to which Mr. Pringle alludes. Now any man, be he photographer or not, can conceive a scene, or an act of one or many persons, and therefore he is right when he says that the photographer can do this as well as the painter, but the fallacy is in saying that he cannot so easily give it expression as the painter, when the fact is that he cannot give it expression at all *as a photographer.*

To do this he would have to possess the power claimed by the spiritualistic photographers of projecting on the plate in material form, a mental or immaterial image. If he goes out to get a photograph which shall correspond more or less with the conception he has in his mind, he has to be content with the more or less as nature arranges it for him, for by no mental effort can he "make one hair black or white," or one leaf or twig larger or smaller," or in any way modify the subject as nature has made it up for him. He may cut it up and make a photographic "composition" such as Mr. Robinson has given us most remarkable and successful examples of, but in that case it is only putting the application of the same law on each part of the composition, for by no effort can he change the form of a single detail, unless he has recourse to working on the negative afterwards; which is not photography, but drawing, and what is true of each part is true of the whole. Pringle is too sound a scholar and too good a Scotchman to contest this.

"Practically speaking," he goes on to say, "the photographer must have his whole picture in the desired aspect, each part and the whole with the desired expression, before the lens at one time; the painter can, and does, do his work bit by bit, one model, one accessory at a time; or he may paint the generalities of a view at one time and add the expression at another. This increases the comparative difficulty, but does not damage the character of photography as an art." Here again is a fallacy which is fatal to the argument. The difference, or what Mr. Pringle calls the "difficulty"

is not comparative at all, but absolute, and consists in the utterly antagonistic "character" of photography and art, the one being the expression of a mental conception, and the other the purely mechanical impression by chemical means, of a phenomenon which is placed before the camera and is not in any sense a mental conception; but the mechanical part of the work even is not done by the photographer but by the lens, and this the photographer cannot modify by any operation of his mind or hand though it is conceivable that the optician could, by an operation in which the photographer has no part. "Practically speaking," therefore, the photographer is limited in putting the object before the camera, judging of the time necessary for the impression to be made, and developing it afterward. In this there is an opportunity for the exercise of taste, and the artistic temperament, but the possession of these in the highest degree does not constitute an artist, any more than the power of forming or receiving the conceptions which are the material of art. Nor is taste even the measure of the quality of an artist but the faculty of distinguishing between the more and less beautiful, which a man may do without having the least power of executing the most rudimentary operations of art, or taking a photograph.

But there is another fundamental error in the doctrine laid down for the elucidation of this subject by Mr. Pringle. He says, "some, we know, take this ground: that photography cannot idealize, must depict what is exactly before the lens. What they mean is: photography cannot lie; in every sense art is truthful. If our art depicts what we know cannot or could not exist it lies, and is no longer fine art, etc." This is absolutely incorrect as doctrine, for the truth of a picture has nothing whatever to do with its quality as art. The arabesques of Raphael are as good art as is to be found in the world, and they are most assuredly "what we know cannot or could not possibly exist," and the tritons and sirens and centaurs of Greek art are of the same category, but no one ever considered them other than good art. Nor is it true as Mr. Pringle asserts, that "the most famous sculptures, be they Venuses or Adonises, are but compositions made up of the parts of various women and men in actual existence," for it is a law of the artistic nature that no ideal image can be patched up in this way, but is an actual conception in all its individuality, and is not made up from parts of models. Nor is the distinction between "fine art" and any other art, whatever it may be, what Mr. Pringle supposes it, but simply the difference between an art which is ideal, like that of Michael Angelo, Phidias, Teniers, Raphael, Turner, Claude, etc., and that of Meissonier, Gerard Douw, Denner, etc., in which the painter simply painted what he had before him, without the power of conception which made him independent of the immediate aid of nature, and this is simply imitative art, in which distinction lies all that can be pointed to as the difference between "high art" and any other art. But in photography the picture is made by the camera, and the photographer no more does it than the engineer of a railway train draws the train.

W. J. Stillman.

SOME PRACTICAL EXPERIENCES OF A VETERAN DAGUERREOTYPIST.

At your request I give you some of the practical experiences of an old veteran Daguerreotyper, some of which have not (to my knowledge) before been published, and, so far as I know, were only known and practised by myself.

Much has been said and written about the slow Daguerreotype and long exposures required to make a fully exposed plate, and the wonderful improvement of the instantaneous dry-plate. The following facts will show how much gain in rapidity the latter has made over the former.

In the early summer of 1851 I made a series of views for "Harpers' Traveler's Guide" of all the towns between Galena and St. Paul that were then settled on the Mississippi, from the pilot-house of the steamer "Nominee" while under full headway, that were just as sharp as if taken from a fixed point. The pictures were taken on what we then called a half Daguerreotype plate.

I had constructed a drop-shutter, the first and only one I had ever seen or heard of—had it made at a tin-shop—and practically the same as is now in use. In the drop I made a slit half an inch wide, and extending entirely across the diameter of the lens. The drop was accelerated in its fall by a stout rubber spring. The lens was a "C C Harrison" single view. When the boat was far enough away so that all the village was embraced in the plate it was at once put in place and the shutter released, the plate put away in a light-tight box, and not developed until I got back to Galena.

How did I get the rapidity? Simply by having a pure silver surface exposed to the right proportion of the fumes of iodine and bromine. And here was the secret. *Coating the plates two or three weeks* beforehand and keeping in light and air-tight boxes! The longer they were kept the more

rapid they became! When properly prepared, the time was reduced from minutes to seconds!

The plates could be exposed and developed at any future time. Many, both in and out of the profession, wondered at the soft and delicate detail both in shadow and high light, and roundness of the portraits I exhibited at the Crystal Palace in 1853, and tried in vain to equal.

None of the pictures had received over five seconds' exposure! Hence their lifelike pose and expression.

Rapid or short exposures were also obtained by charging the plates with electricity generated by giving the plate for the last finish a brisk rubbing on a white silk-plush buff; but this was only effectual in a dry, warm atmosphere. When thus treated I could get rapid plates about one-sixth the usual time, but unless the temperature and atmosphere was right the exposure was only retarded, so I had to abandon that as very uncertain.

A. Hesler.

FIFTEEN YEARS' EXPERIENCE OF A DAGUERREOTYPER.

[Read before the Society of Amateur Photographers of New York.

THE first daguerreotype I saw, was made by Robbert Cornelius, in Philadelphia. His laboratory was conspicuous. On the outside could be seen a large mirror, swung on a bracket, for illuminating his sitters with reflected sunlight. The use of bromine was not known in 1840, but Boudine introduced it soon after. In the same year Robert Chilton called on my brother to make hyposulphite of soda, offering four and a half dollars per pound, stating that the French article cost over five dollars to import, although still impure. Thus the first hypo was made here at the corner of Twenty-third Street and Fourth avenue, the present site of the Young Men's Christian Association. Orders for other chemicals followed, and in 1843 Louis Beckers was the first to manufacture photographic chemicals exclusively, at Old York Road, Philadelphia.

In the same year I entered the daguerreotype business of Mr. Fred Langenheim, in the Merchant's Exchange of Philadelphia. Here there was little to be seen of the things you see nowadays in a photographic art gallery. A kind of a hiding-place for a dark-room, and a spyglass-like camera were all the indications of the mystery I was to learn. The camera rested on a candlestick-like tripod, with three set-screws for adjustment, and was placed on an ordinary table. To interchange the ground glass and round daguerreotype plate, it was necessary to unscrew a flanged ring, and replace the same by a reverse motion. For the adjustment of the focus, there was the rack and pinion, as Voightlander's instruments still have. This instrument was one of the first made according to the mathematical calculations of Professor Petzval, of Vienna, having two acromatic lenses. It had been sent by young Voightlander to his college-mate, William Langenheim, as a present, with supplies and instructions, but also the warning not to try daguerreotyping, unless he had courage enough to try five hundred times more after failing with the first hundred pictures. William Langenheim, a lawyer, did not have the courage, but his brother Fred had, and succeeded so well that he was offered six hundred dollars for that odd camera.

The manipulations of preparing a Daguerreotype plate will not interest you much. I should state, however, that the production of a chemically clean surface on silver is a difficulty that increases fourfold with the size of the plate. Another difficulty is the use of the chemicals in a volatile state. The iodine can be controlled by sight with faint daylight, but the bromine only by even temperature and constant practice.

At Langenheim's, necessity soon introduced a square camera, with square plates and holders. A high tripod was also used in place of the table. In the summer of 1843 the first dozen of small Voightlander objectives, such as are still on the market, were imported. Soon after, four larger ones, for 6x8 inch pictures, arrived. In the Fall of that year, Phillip Hass, formerly of Paris, showed Fizeau's method of fixing the image on the plate by cold gilding. Soon after, the picture was made more brilliant by heating the plate while the gold solution was on it. In that winter the first polishing wheel was made. It was constructed like an ordinary grindstone, worked by a treadle, the wheel being cushioned and covered with buckskin. With the aid of this machine, and after weeks of hard labor and many experiments, we succeeded in making the first good large Daguerreotype of 6x8 inches, called whole size; half and two-thirds size were advertised and made with success. At that time we also succeeded in making a picture of a sick lady at her own residence, which had been considered impossible.

In the spring of 1844 Mr. Edward White bought one of the large Voightlander instruments, and for him I made the first large Daguerreotypes in this city at 175 Broadway. There were then but a few Daguerrians here. They were Gurney, Anthony, Edwards & Chilton, Augustus Morand, Von Loan,

Burgess, Brush, Weston, Artho, Trisley, Plumb, myself, and others I cannot recall.

I remained with Edward White until December, 1844, when it became impossible to make a picture in his operating-room on account of the extreme cold, for Mr. White would not allow a fire in the place over-night. Then I commenced business for myself at the corner of Nassau and John Streets, and after May, 1845, at 201 Broadway, under the firm of Langenheim & Beckers, agents for Voightlander & Louis Beckers.

At that time, the large Vogtlander objectives had a chemical and a visual focus, so that in order to make a large, near picture, the lenses were moved out one-eighth of an inch, while for usual work the ground-glass was set permanently one-sixteenth of an inch nearer the plate. That summer I took a view of High Bridge before the scaffolding was removed. This picture was taken for the engineers, and was perhaps the first one ever taken here in aid of architecture. By taking out-door views, I discovered that the plates increased in sensitiveness with the time between the preparation and exposure.

In 1847, I began to use a speculum metal mirror, in order to have my pictures not inverted. For very unsymmetrical faces, this arrangement was quite indispensable in order to get a likeness. The mirror was attached to the instrument at an angle of 45 degrees. The use of the mirror required double the time of exposure. It was made by Fitz, Senior, the optician, and was used for years after.

In 1848 Fred Langenheim bought the Fox-Talbot patent for the United States, at six thousand dollars. He introduced it here and failed in the undertaking.

In 1849 my firm was changed to Beckers & Piard. Having now more time, we succeeded in substituting machinery for cleaning our plates, and thus obtained cleaner and better plates in one-third the time required by hand.

In 1852 M. M. Root, of Philadelphia, made two pictures on one plate; we succeeded in making four on one plate, and in such a way that the exposed quarter was in the centre of the field of the lens. It was then a great relief, as locket pictures were in fashion. In 1856, Mr. Ormsbee patented this same multiplying plate-holder and collected considerable money on it, until my priority made his claim void, in the law suit brought as a test.

The production of stereoscopic portraits was the next task. Marchner, of Philadelphia, made patent cases to show these pictures in a very neat way. In 1854 F. Langenheim had commenced to manufacture stereoscopic views on glass. He sent me three dozen of his make, to find sale for them here. At the first exhibit of these pictures, one dozen of them were broken. This loss set me to thinking how to find an arrangement to show and secure the pictures against breakage, and, in 1857, I obtained a patent for my revolving stereoscope. The increasing demand for this machine induced me to sell my Daguerreotype business in 1858.

Thus I was relieved from satisfying the vanity of each individual beauty of this world, and ended my career as a Daguerrean.

Alexander Beckers.

CALCIUM BISULPHITE AS A PRESERVE FORR HYDROCHINON.

Sodium sulphite decomposes rapidly. A hydrochinon solution combined with sodium sulphite is also slightly durable. If we employ soda compounds for the development of Eastman bromide paper, the result possesses an olive color, which is very disagreeable. Potassium meta —bisulphite, is more constant in its chemical relations, but is a rare article. Calcium bisulphite, a salt much employed in dying establishments and printing establishments, is easily procured in sufficient purity, is cheap, and has been tried as a hydrochinon preserver with good success.

I take a saturated solution of it, dilute 20 c.c.m. (5 drams, 40 min.) with 180 c.c.m. (6 ounces, 3 drams) of water, and dissolve in it 1 gram (15½ grains) of hydrochinon. This solution is absolutely durable. To combine an alkali with it to make an active developer, no better formula can be given than to add to the above-mentioned quantity 20 c.c.m. of a saturated solution of caustic potassium reduced in strength to from 50 to 100 per cent, and immediately before being used.

The solution opalesces after mixing. When the developer is poured over the slightly warmed Eastman paper, half a minute will suffice to produce perfect development. Rapidity in action is requisite. The developer removed, which, however, may be used repeatedly, the print is rinsed off well with pure water, and fixed at once in the hyposulphite of soda bath. The usual acid clearing bath can be dispensed with, as under all circumstances absolutely pure whites are retained. Using the developer again, the results are likely to be of a yellowish hue.

The activity of the developer may be regulated by reducing its strength with water, the addition of more alkali, or if restraining becomes necessary by minute portions of a concentrated solution of calcium bisulphite.

For contact printing on Eastman permanent bromide paper, for enlargements of any size, provided the time of exposure has been approximately correct, the developer has proved to be highly active and manageable. It is economical, and, on account of its chemical nature and its rapidity of action, the acid clearing bath becomes unnecessary.

The usual precaution required with hydrochinon developers must be observed; absolute cleanliness and total absence of hypo or iron salts.

Glass plates and negative films may be developed with this solution, if certain precautions are observed; but of this I shall take the pleasure to speak in a future article.

Chevalier Augustus Von Loehr.

Correspondence.

A CHEAP APPARATUS FOR ENLARGING.

To the Editor of the PHOTOGRAPHIC TIMES.

Dear Sir: Finding the Kodak pictures too small, and that a 6x6 enlargement would be plenty, I have devised a cheap apparatus for enlarging, for every one who has a large camera and a short focus lens. All that is necessary is to construct a telescopic box, the outside dimensions to equal the front board of the camera, to which it is glued. The one end is cut circular to fit the Kodak negative, which is fastened, and then enlarged in the ordinary manner. The focusing-glass is the screen and the lens is reversed.

Truly,

A. R. Frank.

GRAY'S HALL, CAMBRIDGE, MASS., February 22d, 1889.

Notes and News.

EXHIBITION OF PHOTOGRAPHS AT COLUMBIA COLLEGE.—The Columbia College Photographic Society held its fourth annual exhibition in the Chemical Museum of the School of Mines, February 14th and 15th. Nearly five hundred photographs were exhibited, that well represented the work of the members. Prominent among the exhibitors were C. W. and A. A. Stroughton, Dr. L. H. Laudy, Henry R. Taylor, Oswald Jackson, Lincoln Cromwell, J. H. Wainwright, Cheston Simons, and W. S. and A. W. Post. The work exhibited showed an encouraging progress.

THE PROVIDENCE CAMERA CLUB is said to have the best accommodations for amateur photographers, in New England. Their quarters are high up in the new Swarts building. Mr. Swarts, being himself an amateur, has had the rooms fitted up especially with reference to the needs of amateurs. The building is not completed as yet, so that the club has not yet entered upon its enjoyment of the improved quarters, but they will be ready for it before very long.

THE WORCESTER LANTERN SLIDE CLUB was organized Feb. 19th, 1889. It is composed of members of the Worcester Camera Club specially interested in this branch, and proposes to hold regular meetings for the exhibition and criticism of slides, and the discussion of methods, etc. It is probable that it will be ready to co-operate with similar societies in matters of exchange, etc.

George E. Francis,
Secretary.

MEMBERS of the Society of Amateur Photographers of New York who intend exhibiting at the Third Annual Joint Exhibition at Philadelphia, and wish to send their prints with those of other members of the society, must have them at the rooms by Thursday, March 21st, as the exhibits must be in Philadelphia before Monday, March 25th. There will be no charge for expressage. Members who intend exhibiting at Philadelphia are requested to inform Mr. H. T. Duffield, at the society's rooms, of the number of their exhibits and the sizes of them; and those who have photographs on fabrics, metals, wood, porcelain, are requested to communicate with Mr. Duffield if they are willing to have them exhibited.

A CORRECTION.—We have received a letter from Mr. James H. Smith, Secretary, suggesting a correction in our designation "The Western Photographic Dealers' Association," as published in the TIMES of February 22nd, to "The Photographic Dealers' Association."

A GREAT many girls say "No" at first, but, like the photographer, they know how to retouch their negatives.—*Puck.*

SECOND EDITION OF "PHOTOGRAPHIC PRINTING METHODS."—A second edition of two thousand copies of Mr. Burbank's popular book has been announced by the publishers (The Scovill & Adams Company). As every copy of the first edition has been sold, and the demand remains as lively as ever, the second edition will be issued at once. It is to contain a portrait of Mr. Burbank, with a biographical sketch by W. I. Lincoln Adams: and will be printed from a copy that has been thoroughly revised by the author.

A PHOTOGRAPHIC JOURNAL IN THE JAPANESE LANGUAGE.—The first journal devoted to photography published in any Eastern language will be issued next month under the editorship of Professor W. K. Burton, of the Imperial Institute at Tokio, Japan; and K. Ogawa. It will make its appearance monthly, and will undoubtedly meet with an enthusiastic reception by all those who understand the language in which it is printed.

THE PHOTOGRAPHIC INSTRUCTOR, Edited by W. I. Lincoln Adams (Scovill Manufacturing Company, New York).—A series of letters written especially for beginners in photography where the whole science is treated in plain, straightforward language. It contains amongst much other useful information, an appendix by Professor Charles Ehrmann, on the various photographic chemicals.—*Journal of the London Camera Club.*

COLOR BLINDNESS.—Professor Ramsay, an exchange states, believes that the particular defect giving rise to color blindness lies not in the eye itself, but in the brain. Certain persons, he points out, are incapable of judging which of two musical tones is the higher, even when more than an octave apart. Yet, as such persons hear either tone perfectly, the defect is not one of deafness. He accordingly argues that in such persons the brain is at fault, and thence proceeds to the assumption that it may be equally true that the inability to perceive certain colors is not due to a defect in the instrument of sight by the eye, but to the power of interpreting the impressions conveyed to the brain by the optic nerve.

A FAMILIAR OPTICAL ILLUSION.—M. J. L. Soret, in his article on "Illusions of Drawing and Painting, translated from *Revue Scientifique* into "Science" says:

"A very distinctive illusion is shown in many portraits, in which the eyes seem to follow the eyes of the spectator. This occurs when the model's eyes are facing the artist's. We assume the position of the artist, and so have the eyes in the picture looking at ours. If we move to one side, we get the illusion of the portrait's turning about, because the eyes still suggest direct vision, and the rest of the pose does not strongly contradict it. This lateral displacement, brought about by a change of position, is very slight in a painting, while very marked in a three-dimensioned object. Paintings of animals frequently show similar effects. The true artist must understand and utilize such illusions, for they make the difference between what is life-like and what is artificial."

A MIDNIGHT PHOTOGRAPH.—The other night a peripatetic photographer, with camera in hand, dropped in at a popular Dearborn Street resort, says the *Chicago Herald*. The place was crowded with convivial spirits, both animate and inanimate. Calling the white-aproned proprietor aside, the photographer offered to take a picture of the interior of the place at a small cost. No one present had ever heard of a photograph being taken at night, and they began to guy the fellow as a crank. He explained that he could take a picture in the dark by igniting the magnesia, which would make an instantaneous flash, fixing the scene upon the plate. The crowd was ripe for anything, and they urged the proprietor to consent, and he was nothing loth. The bar was arranged, the groups posed about the place, and then, after the magnesia had been fixed for ignition, the lights were all turned off. It was a new experience to every one present. "Are you ready?" came the sepulchral voice of the hidden photographer from the gloom. They were. "Biff!" went the flash. The glare startled every one. The gas was turned on again, and the photographer took his leave, saying that he would submit a proof the next day. He did so, but it was a sight. The flash had so startled the posers by its suddenness that they had involuntarily closed their eyes and thrown up their hands to ward off an imaginary blow. In the proof it looked as though the place had been filled by a hilarious crowd of howling drunkards who had been surprised by the camera in the wild postures of a can-can. "You needn't finish that up," said the proprietor, as he looked at the proof. "People wouldn't come in here if they thought my whiskey had such an effect on my customers."

THE CAMERA AS A TEMPERANCE ADVOCATE.—The camera in the hands of a photographer has served many uses, but its value as a temperance advocate has never been fully tested. A few days since a couple of enthusiastic photographers, with an instantaneous pocket instrument a little longer than a sardine box, appeared at the Fifth Avenue Hotel, and informed the clerk that they came to photograph a friend who had been taken violently drunk the day before, and who was still largely under the influence of the ardent.

Inquired of as to the reason for wishing to make a counterfeit presentment of the vinous individual, they said their object was to reform him by exhibiting to him, on his next occasion of sobriety, a picture of himself taken in an advanced stage of whiskey, and that this exhibit, thus made, would in all probability have the same effect upon him that the sight of the drunken women had upon the Spartan youth—teaching him the need of moderation in his cups. The hotel people, at first were disinclined to permit any copying from still-life of the character referred to, were induced to relent and co-operate in the proposed reformation, and the expedition, including a reporter who was taken along to chronicle the success of the new method, proceeded to hunt up its proposed subject. There was no question of his fitness for that test when he was found. Like Marmion he had fallen in mid-battle. One boot had been substracted, but the other remained, and as if to leave no doubt as to the means of his overthrow he had gone to bed with his hat on.

It required but a moment to supply the few details necessary to make the picture effective. An American flag draped after the manner of a winding sheet, a few bottles and tumblers peeping out through its interstices, and the inscription, "We have given him up for gone," on a tag pinned to his collar, told the whole story. The instrument was leveled and sighted. Snap! and with an instant's opening of the shutter-valve the whole scene was perpetrated for all time to come. If the victim does not reform when he gets his copy of that picture there is no hope for him.—*N. Y. Graphic.*

HYDROXYLAMINE may be regarded as ammonia (NH_3), in which one atom of hydrogen is replaced by hydroxyl (OH), thus:

$$N\begin{Bmatrix} H \\ H \\ H \end{Bmatrix} \text{ ammonia;} \qquad N\begin{Bmatrix} OH \\ H \\ H \end{Bmatrix} \text{ hydroxylamine.}$$

The hydrochlorate of hydroxylamine, which is the salt generally employed, has the composition $NH_3.OH.HCl$. Hydroxylamine is not known in the free state, but only in the form of salts. It has been stated that the hydrochlorate of hydroxylamine, which had been found a very efficient reducing agent in photography, would probably be found serviceable in dermatological practice for the same purposes as pyrogallic acid and chrysarobin. Prof. C. Binz has recently published results of experiments made on animals which seem to confirm this. At the same time it was found that the substance, when injected hypodermically, is an energetic poison, affecting particularly the oxyhæmoglobin of the blood and the nerve centres.—*American Druggist.*.

EXCELLENT TONING-BATH FOR ALBUMEN PRINTS.—The following is recommended by James Bourier, in the *Amateur Photographer:*

Distilled water	1,000 c.c.
Carbonate of soda	5 grams
Benzoic acid	10 grams
Gold chloride (brown)	1 gram

No other gold bath has given to the author such beautiful, warm, velvet-like tones as the above, which has also the advantage to keep very long. The natural benzoic acid, produced of gum benzoin, is, however, rather dear, while benzoic acid "extoluol" (a compound of the coal tar oil) is much cheaper and as good as the natural one. The benzoic acid, being lighter than water, floats upon the latter, and the bottle in which the gold bath is made must, therefore, often be shaken, to cause the crystals to dissolve.

OPAL PICTURES.—Comparatively few amateurs are aware of the beauty and charm of positives printed on opal glass. There is a softness, a delicacy, and a brightness about these pictures which is indescribable. There is no more beautiful application of photography than opal printing, or a more fascinating occupation for a long, winter's evening.

Opals may be made by a number of processes. There is the slow printing-out process; the transfer method, with carbon or transferotype papers; the dusting-on process, and the development process, with either a bromide or chloride of silver emulsion. The latter method is, perhaps, the easiest and simplest.

For these pictures opal glass is coated with an emulsion containing bromide or chloride of silver. In either case the plates are treated exactly as in the making of transparencies on plain glass. Exposure, development and fixing are the same in either case.

While very beautiful pictures can be made with a bromide emulsion, a greater range of tones is possible with an emulsion containing chloride of silver. Opal plates so prepared can be obtained in the market, and the following hints apply to them.

The developer which has given me the best results with these chloride plates is made by mixing one part of the ordinary ferrous-sulphate developer with three parts of a citrate of ammonia solution made by dissolving one ounce of citric acid in five ounces of water, adding strong ammonia until red litmus paper turns slightly blue, and making up to eight ounces with water. The ferrous-sulphate solution should be made acid with citric acid.

With moderately short exposures this developer will produce rich purple tones. For a pure black, the exposure should be short, and equal parts of ferrous-oxalate and citrate of ammonia used in the developer. Warmer tones are produced by lengthening the exposure and increasing the proportion of citrate of ammonia. In this way one can produce a variety of beautiful tones. The greater the proportion of ferrous-oxalate used, the shorter the exposure and the darker the tone.

After fixing and washing, the pictures may be mounted for transparencies or to be viewed by reflected light. In the latter case a very effective style of mounting is to cover a piece of wood with velvet, and to mount the plate with brass-headed tacks. By hinging a strip of wood to the back a charming easel picture is produced. A still richer effect is given by cutting a depression in a block of wood of sufficient size and depth to take the plate, the sides and ends of the block being covered with velvet.—*W. H. Burbank, in the Art Amateur.*

HOW I PHOTOGRAPHED THE WORLD'S HIGHEST MOUNTAIN.—The nearest point from Darjeeling which affords a peep of Mount Everest, is Senechal, which is about 8,000 feet high. Away to the north-west will be seen Everest, appearing in the distance of the size and shape of the point of an egg. This view is anything but imposing, as Everest is too far off—about eighty miles as the crow flies—and hidden from view by the Ghoonpahar range. The best view of Everest is obtainable from Santakphu or Phalut, distance from Darjeeling about fifty-six miles, and 12,000 feet high. Mr. Cowell and myself started on this arduous expedition with a view of obtaining, if possible, a negative of Everest, the highest peak in the world, on the 10th of November, 1886.

The weather was very unfavorable; we were enveloped in thick fog, and had occasionally a wetting. The first day we got as far as Tongloo, 10,074 feet high, and continued our journey the next morning. Five miles before reaching Santakphu, at a height of 11,000 feet, the drizzling rain changed into a snowstorm, and we were glad to reach the rest-house at Santakphu, 12,000 feet high, as the road got very slippery for the ponies. We had to stop here for the rest of the day, as the snow came down in earnest and continued all night. It was bitterly cold at this elevation; everything froze except the whisky, of which we had a good supply.

The weather very fortunately changed early next morning, and we had a glorious view of Kinchinjunga and Everest; the atmosphere was very clear, and made the peaks appear quite near. All trees were covered with snow, which glistened in the rising gun, making the landscape look like a fairy scene.

The camera was soon on the stand, and we took a few negatives of Kinchinjunga, and, after refreshing the inner man, we started for Phalut, from whence we expected to get a still better view of Everest. The road from here runs through that beautiful pine and rhododendron forest, which, in the beginning of April, is in one blaze of various colors.

The height of Phalut is 11,811 feet. We observed that the best time to photograph Everest was soon after sunrise, as a little later the broad shadow on the higher peak disappears, and all is one mass of white. This fact proves that the centre and smaller peak, which is Everest, stands by itself many miles beyond the front range. It is said by some unknown big man that the distance between the front range and Everest is fifty miles.

Next morning we were ready long before sunrise, and after selecting a suitable place with regard to foreground, we waited till the sun gradually rose and lighted up the snowy peaks. Sunrise and sunset from any of these points is probably the finest sight in the world.

We exposed about eight plates of different makers.

The exposure we gave was between one and two seconds.

The lens used was one of the single combination of a 12x10 triple achromatic, which gave about thirty-five inches focus. I found this lens very suitable for distant views, as it gives a large image with great depth of focus.

After returning to Darjeeling we developed our exposed plates, and the best results were obtained with Tailfer & Clayton's isochromatic plates. The next best (but not to be compared with the former), were Wratten & Wain-

wright's make. The Britannia plates which we exposed proved a complete failure. Everest was not even visible, and the foreground dim and flat.

In conclusion, isochromatic plates are the best for distant objects such as Kinchinjunga or Everest, and give a very brilliant negative with true intensity in tint and color, and are quite as rapid as the best plates in the market. The negative of Everest we have taken is the only one in existence. THEODORE HOFFMAN.

—*Journal of the Photographic Society of India.*

PHOTOGRAPHING THE BIRTH-PLACE OF JESUS.—From Doctor Wilson's illustrated article in the January *Century*, entitled "Round About Galilee," we quote: "One of the best views in the city is to be had from the campanile of the Church of the Annunciation. In the distance is the brow of the hill to which Jesus was led by the enraged multitude who attempted to throw him from it. A modern house in the foreground brings to mind time when they uncovered a roof and let down the bed whereon the sick of the palsy lay. This must be very much the same kind of house as that historical one at Capernaum. There is the peculiar roof, and there are the outside stairs leading to the roof. The eastern householder makes his roof serve for more than a protection from the weather. It is the piazza, the quiet place of the dweller, and sometimes it becomes his summer residence. As a rule it is not very heavy or very strong. Rafters are thrown across from wall to wall, say a yard apart; then the whole space is covered with twigs such as we saw the women selling in the market place. On these the slender limb of a tree was thrown and thickly coated with mortar. Lastly, a thick spread of earth is thrown on, rolled to a level, and oftentimes sown with grass seed. Thus by care many of the roofs become as smooth and soft as a machine-mown lawn. They may be easily broken up and anything lowered inside from above. By some such process the four bearers of the poor palsied man managed to enlist the attention of the Great Physician in behalf of their friend. It is not hard to understand it all when viewing such a house as this one at Nazareth. It would not be difficult for four men to carry a lame friend in a hammock by the outer stairway up to the roof, and, breaking through, let him down into the apartment or court below. Not far from this same house, in a narrow street, is a little chapel erected upon the site of Joseph's carpenter shop. Over the altar is a picture representing Mary and Joseph instructing Jesus, and finding that he knew more than they. Another painting represents the lad Jesus assisting his father at work. It contains no accessories of the carpenter's shop, but there are enough of them in the shops close by. The webbsaw, the glue pot, the plane and the hammer are the principal tools used in such shops, all withont the modern improvements. Yet whatever the Palestine carpenter produces is from the fragrant cedars of Lebanon or from the eccentrically knotted and gnarled olive-wood. The operation of bargaining and waiting for any article of wood to come from a Palestine carpenter's shop is a lengthy one. Articles of wood are a luxury there, and when the carpenter receives an order for one he usually employs the next three days of his life in soliciting the congratulations of his friends upon his wonderful good fortune in receiving an order for 'something made of wood.'"

Photographic Societies.

CASE SCHOOL (CLEVELAND) CAMERA CLUB.

IN the absence of President Hall, Hon. Vice President Smith occupied the chair at the regular meeting Friday afternoon, (22d.) Kent Jarvis was elected a member. Fred. A. Coleman then gave an interesting and instructive demonstration of the Willis & Clements method of making sepia platinotype prints. The prints were the admiration of all, and the demonstration, no doubt, will do much to bring into popularity here, a process which is used with such great success by our English cousins.

Milton B. Punnett,
Corresponding Secretary.

THE LOWELL CAMERA CLUB.

THE first stated meeting of the club was held at Morrill's studio, Tuesday evening, February 19th, with President W. P. Atwood in the chair. Thirty-five persons were present. The membership now numbers thirty-two, including several ladies.

After considerable discussion it was voted to recommit the matter of club headquarters to the Committee on rooms to make further inquiry and report at the next meeting.

A communication from the Providence Camera Club regarding the formation of a New England Lantern-slide Exchange was next considered.

A committee consisting of J. D. Gould and G. A. Nelson was appointed to confer with members, and if it was thought practicable to report in favor of joining the exchange, if one should be formed. The club library, which it is hoped will be of much value to the club, is to be kept at the photographic rooms of A. H. Sanborn & Co., Central block, until permanent headquarters can be secured.

The subject for the evening was "The Flash-light." Mr. H. W. Barnes read a very interesting and instructive paper explaining the development of the idea of using magnesium as an artificial light for use in photography. He illustrated each step by burning the magnesium wire, the powder with gun cotton, compounds of various kinds, and lastly the magnesium lamp.

Mr. J. D. Gould showed and explained his new apparatus for burning magnesium powder in large quantities.

This lamp was set up, and several cameras were focused upon the company. It was expected good pictures would be secured, because the experiment had been successfully tried on very large interiors.

Unfortunately the large rubber bag used for a compressed air reservoir burst before the experiment could be made.

The lamp was afterwards worked by a hand air-bulb. The negatives thus obtained indicate that satisfactiory results can be secured if the compressed air device is used with the lamp.

A vote of thanks to Mr. Barnes for his valuable paper was unanimously passed. Also to Mr. Morrill for the use of his reception room.

Adjourned.

George A. Nelson,
Secretary.

LYNN CAMERA CLUB.

THE Lynn Camera Club held a special meeting Tuesday evening, at which the President demonstrated the ammonia process for making emulsion and coating dry plates. There are two kinds of gelatine used in making this emulsion, the soft and the hard, for the former, Nelson's No. 1 photographic gelatine may be used, and for the latter, Heinrich's. Both are cut into small pieces before using for ease of weighing, and in order that it may dissolve more readily.

Weigh out 5 grains of Nelson's No. 1 gelatine, and put it in 4 drams or half ounce of distilled water, and add 30 grains of ammonium bromide. Ordinary tap water should not be used in the process of making an emulsion, as the successful making of it depends upon extreme cleanliness throughout, and tap water contains more or less mineral and earthy matter. Let the gelatine swell about forty minutes. The dissolving of the gelatine should not be hastened by heat, as this is apt to make it difficult to manage. Now take 30 grains of hard gelatine (Heinrich's) and place it in just enough water to cover it. In a separate receptacle dissolve 40 grains of nitrate of silver in 4 drams of water. The operations up to this point may be conducted in white light, but the rest must be performed with red light only. Bear in mind that the smallest amount of water possible should be used in all operations.

The next operation is emulsifying. If the hard gelatine is not yet dissolved it may be heated up to 120 degs. Fahr., but the emulsion must never reach a higher temperature than 100 degrees Fahr. The silver in the four drachm silver solution is now precipitated by adding, a drop at a time, a solution of strong ammonia, until the silver is all precipitated, which is indicated by the solution assuming a dark brown color. More ammonia is now added slowly until this precipitate is redissolved. It is well to allow the contents to be exposed to the air a few minutes, so that any excess of ammonia can evaporate. It should only have a faint odor, if any. This solution is now added in very small quantities, a drop at a time at the start, to the soft gelatine solution, the bottle being thoroughly shaken all the time. The thorough shaking while this operation is progressing, and the careful addition of minute quantities of the silver solution, especially at the start, are important factors of success. Now add the Heinrich's gelatine, which should have a temperature of about 80 degs. Fahr. After being thoroughly mixed, the emulsion is poured out into a dish and put away to cool and set.

The emulsion is next strained through a coarse mesh cloth, such as "railroad canvas," into a dish of cold water and washed, this operation being repeated six or seven times. A small sieve is necessary here to recover the emulsion from the washing dish. Care should be exercised to keep the hands from contact with the emulsion as much as possible to prevent contamination of the product, and the temperature must be kept low, about 50 deg. Fahr. The washing should occupy from fifteen to twenty minutes, and six to eight changes of water are necessary. This washing removes all the uncombined salts, and should be performed thoroughly. After the last washing add a small amount of alcohol to the emulsion and allow it to stand about ten minutes. Re-dissolve the emulsion at 100 deg. Fahr., and set it away to "ripen," which will occupy a period of about three or four days. The emulsion must of coarse be unaccessible to dust or dirt.

After the emulsion has ripened it is redissolved at 100 deg. Fahr., and enough gelatine added to give the requisite body for flowing on the glass plates. With the quantity used in this case we should add from twelve to eighteen grains, the gelatine (Nelson's No. 1) being first dissolved in the least possible amount of water. After the emulsion has ripened the plates may be flowed.

Level a marble slab (a plate glass or heavy metal plate may be used instead, the object being to obtain a perfectly even surface, whose temperature will not change readily) having previously cooled it in water to about 40 or 50 degs. Fahr. The glass plates, with their surfaces perfectly cleaned, should now be coated with the emulsion. It is well not to polish the plate, as it will be difficult to wet it with the emulsion. A good plan is to wash the plates in a bath of water to which has been added some alkali, such as soda or potash, wash in slightly acidulated water to neutralize any alkali adhering to the plate, and dip in alcohol and dry, without rubbing the surface. The emulsion can be drawn over the surface of the glass plate by a small glass rod. The plate is now placed upon the cold slab or plate to set, which occurs in a few moments, and is then placed in the dark closet to dry. An improved closet may readily be made from any old box of suitable dimensions. False bottoms and tops are inserted, so that a current of air is compelled to pass through long S shaped compartments before reaching and after leaving the plates. This is done to prevent the entrance of any light, and to this end also the whole box is covered with a dead black wash, such as a lampblack solution, so that all light is absorbed and no reflection can take place, which might fog the plates.

The president showed a negative made on a plate that was coated with some of the emulsion used in the last part of the demonstration, and it was a very fine one, showing the possibilities of the process.

Our Editorial Table.

LES LEVERS PHOTOGRAPHIQUES ET LA PHOTOGRAPHIE EN VOYAGE. Le Bon, Gustave. Paris, 1889. Gauthier-Villars et Fils. 2 vols. 5 francs.

We have rarely read a more interesting photographic work than this of Dr. Le Bon, which treats of the application of photography to surveying and the measurements of buildings. Simple methods are given by which a photographer can rapidly and almost mechanically secure accurate measurements of buildings, fortifications, ruins, etc., and transform views in perspective into geometric plans, with little change in the ordinary form of camera.

The chapters on the use of the camera for regular measurements, on the determination of the size of objects from the images on the ground glass, on photographic perspective, and on photographic triangulation, are particularly valuable, and the book as a whole forms an important addition to photographic literature, one which we would like to see translated into English.

"PRACTICAL HINTS ON CAMPING," by Howard Henderson, of Chicago—The John Wilkinson Company—has made its appearance in a new edition. There are valuable chapters on "The Outfit;" "Camp Cooking;" "Boats and Boating;" "Accidents and Ailments;" "Prepara-

tions;" etc. The chapter on "Camp Photography" is very incomplete, and scarcely up to date. The book as a whole, however, is a useful little volume for the camper.

PROF. JOSIAH P. COOKE, of Harvard will contribute to "The Popular Science Monthly" for April an article on "The Chemical Elements," telling the story of the changing beliefs about what substances are made of, from the time when earth, water, air and fire were thought to be the elements of all things, down to the present day, with its list of over seventy different substances, and when the idea is gaining ground that perhaps there is only one kind of matter after all.

MR. CONSTANTINE KRZYZANOWIKI, an amateur photographer of Turbon, Russia, has sent us a large collection of landscape studies, including instantaneous street scenes, artistic views, etc., for the ultimate purpose of exhibition at the next joint exhibition of the Philadelphia, Boston, and New York amateur societies. These pictures are highly interesting, as descriptive of life in the Russian Empire, and possess great artistic and technical merit as well.

WE have received from Mr. George W. Rafter, Civil Engineer of Rochester, N. Y., a fine collection of photo-micrographs of his own make. Those showing the colony of living rotifiers, the female pulex, the living hydra, and one or two stem sections are especially interesting.

Mr. Rafter promises on article on Photo-Micrography, at an early date, for the readers of THE PHOTOGRAPHIC TIEES.

A NEW paper, entitled *The Amateur*, has been started in Chicago, with a department devoted to photography under the editorship of our old friend and contributor, Henry L. Tolman. The first number contains editorials on "Hydrochinon Developer" and "Instantaneous Exposures."

WE have received a copy of "Tyler's Practical Hints and Photographic Calendar" for 1889, which is a useful little book distributed gratuitously.

WE have received from Houghton, Mifflin & Company, publishers, a copy of the *Atlantic* portrait of Hawthorne, made by the Armstrong & Company lithographers, of Boston, from the original by H. Baker. It is a magnificent study of portraiture, as, indeed, are all the excellent likenesses published in the Atlantic Series of Portraits.

Record of Photographic Patents.

398,980. Camera Shutter. William Shakespeare, Jr. and Garret W. Low, Kalamazoo, Michigan.

398,941. Photograph Transferring and Printing Frame. Cornelius T. Cain, Owensborough, Ky.

Trade Marks. Photographic Papers, Instruments, Specialties and Supplies. American Aristotype Co., Jamestown, N. Y.

A NEGLECTED DUTY.—Mrs. Youngwife: "Oh, George, how utterly heartless, almost wcked, we have become!"

Husband: "Eh? What?"

"It's awful to be so neglectful of Heaven's choicest blessings. We haven't had baby's picture taken for a week."—*Philadelphia Record.*

Queries and Answers.

58 CH. P. B. asks: Can you give me Spiller's developer for collodion positives?

58 *Answer.*—Water.....16 ounces
Protosulphate of iron... 1 ounce
Saltpetre.....¼ ounce
Acetic acid..... 1 ounce
Nitric acid.....30 minims

59 CHAS. P. B.—Developing Eastman permanent bromide paper with generally good success, complains, however, that every now and then spots, streaks, and stains develop in advance of the image. As soon, almost, as the ferrous oxalate is poured over the paper, these imperfections appear, develop up to total black, marring thus the general good effect of the picture, if not spoiling it entirely.

59 *Answer.*—This very annoying occurrence is caused by the presence of hypo; a trace of it on the fingers touching the paper will do it. It should be remembered hypo is a very forcible accelerator to the ferrous oxalate developer. If only a few drops of a hypo solution 1:3000 be added to an ounce of developer, the effect will show at once. As we all dip our hands or fingers, now in silver, then in hypo, and again into various other solutions of chemical activity, we should be extremely careful to wash them well after every operation. In our own practice we wash hands in a dilute solution of hypochloric acid before touching Eastman's bromide and transfer paper, and never fix them till the whole job on hand has been completed.

60 FLORENCE G., being afraid to prepare "magic" photographs by means of the poisonous bichloride of mercury, wants to know if there is not another method by which the same effect can be produced.

60 *Answer.*—There is one with bichromate of potassium, but this is also a poisonous salt. Size ordinary photographic paper with gelatine solution 1 : 30, and dry. Float it on a solutien of bichromate of potassium, 1 : 9, and dry in the dark. Expose the paper under a negative and fix in hot water, to which a little sulphuric acid has been added. When dry the picture disappears; by wetting the paper the picture becomes visible when viewed by transmitted light.

61 PH. K. L. wishes to know how to make the rubber solution used for stripping Kodak negatives.

61 *Answer.*—Dilute ordinary rubber cement with benzole. But it is much cheaper and better to buy the solution prepared by the Eastman Co.

62 TYRO asks for a formula to make lime water.

62 *Answer.*—Here is the formula of the United States Pharmacopiæ: Take of lime four troy ounces, distilled water eignt pints. Upon the lime first slacked with a little of the distilled water, pour the remainder and stir them together. Then immediately cover the vessel and set it aside. Keep the solution together with the undissolved lime, and pour off the clear liquid when wanted for use.

PHOTOGRAPHIC TIMES. (A).

E.EDWARDS.

PHOTO-GRAVURE Co.N.Y.

BY THE RIVER.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, MARCH 23, 1889. No. 392.

BY THE RIVER AGAIN.

OUR illustration some weeks ago, entitled "By the River," and the half promise then given that, later, other similar sensible bits of nature made in Prospect Park, Brooklyn, during the pleasant afternoon outing, when it was photographed, might be reproduced in these columns, met with so hearty a reception, that we have ventured to give another glimpse of the same "river." It might more accurately be entitled, perhaps, "By the Lake," or a "Glimpse of the Lake," for it is really a bit of the picturesque lake-shore in the park, and not a river, which is depicted. Mr. Edwards, the author of the charming view, can only plead "poetic license" for his title.

EDITORIAL NOTES.

ALBUM No. III. of the Postal Photographic Club, including also Album No. I., followed closely upon its predecessor, concerning which we spoke last week. The present album contains many excellent prints, a large proportion of which are by the more uncommon printing processes.

Mr. Cole contributes three excellent platinotypes of a sepia tone, which are as good as anything of the kind we have ever seen.

President Spaulding contributes a number of prints to this album, two of which are of the same subject, but printed, the one on plain paper, and the other on albumenized paper, so that we have a fair opportunity of comparing the two results from the same negative.

Miss Gillender's interiors do not seem quite up to the work exhibited by her in the former album, though this may partly be due to the tone of her prints. For the first attempt at flash-light, however, they are very good negatives.

Mr. Samuel Wadsworth's New Hampshire scenery is as good as ever, as are also the excellent bromides by Mr. F. A. Jackson, the latter's "Entrance to the Cloister" being an unusually fine thing.

Mr. Davey's "Apple Tree in Bloom" and "Child Portraits;" Miss Gillender's "Hay Stacks;" the two interiors by Professor Spaulding, and the group of calves by Mr. Wadsworth, as well as the sheep by Miss Littlejohn, deserve more than a simple mention. They are all pictures that may be studied with advantage.

We note, also, the figure pictures by Mr. Suplee, and one or two landscapes by Secretary Mueller, as especially worthy of note.

"ILLUSTRATED BOSTON," prepared by members of the Boston Camera Club, at the suggestion of, and under the direction of one of its most enterprising members, Mr. William Garrison Reed, being shown before the Society of Amateur Photographers of New York, has excited enough interest here to insure the preparation of a similar collection of slides, accompanied by descriptive reading matter, to be entitled "Picturesque New York." It is to be hoped that the photographic societies in other cities will undertake the same pleasant work; for, by exchanging their results with each other, considerable entertainment and instruction may be furnished, beside the useful work which it gives to the members of the various photographic clubs themselves. We understand that societies at New Orleans, Rochester, Providence, and Washington, will make slides of the best negatives sent in by members of the respective clubs, of the most interesting and picturesque views in their neighborhood, to be accompanied by descriptive reading matter, which one of their number will prepare, and it is expected and hoped that the other clubs in this country will do the same. It is suggested that they first illustrate their own city, and then take up a subject near at hand with which they are also familiar. The Boston Camera Club, having started "Illustrated Boston" on the road, are now engaged in collecting views of the White Mountains. The collection should not exceed one hundred slides in number and the descriptive text should also not

be too long. After exchanging with the clubs in this country, an exchange might be effected with foreign societies without difficulty, and we hope to see this done.

In answer to inquiries, we will say that the Photo-Gravure Company, who prepare the beautiful copperplate engravings that adorn the Photographic Times, do this work for no other photographic magazine.

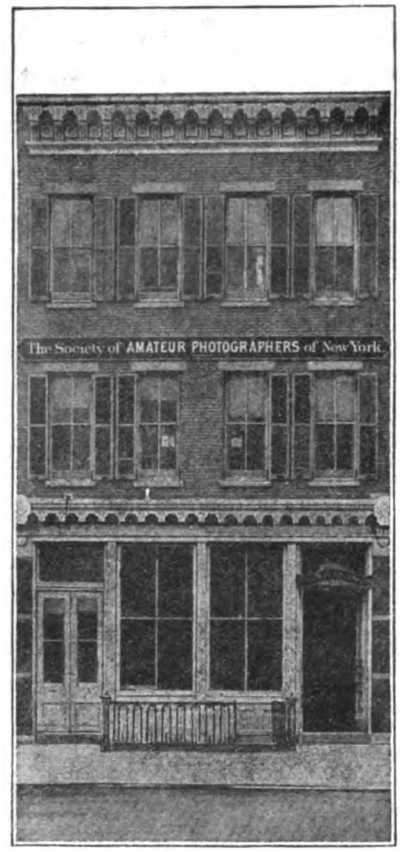
In the *Photographische Correspondenzen* an excellent method is described for securing absolute contact between the negative and sensitive paper in a printing-frame. For first printing pads (laid directly upon the back of the sentitized albumen paper) he uses heavy packing paper finely crumpled up, and afterwards somewhat smoothed out again. Upon this he places the other paper pads, which are soaked in carbonate of soda solution, to preserve the paper and secure a permanency of its white color. The crumpled packing paper packing serves as a spring that perfectly secures the sensitive paper upon the negative, and is instrumental in producing the sharpest prints. For coloring those parts of a negative which have insufficient density, Herr Leutner, the author of the above method, uses collodion emulsion with Paris blue, as this preserves its color in the light.

THE ROOMS OF THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

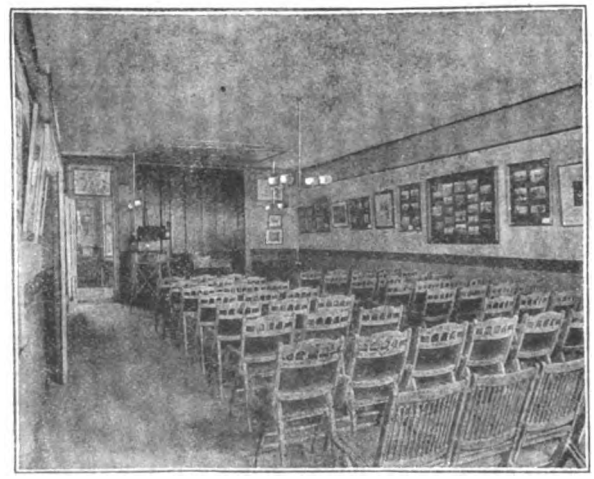
We are glad to be enabled to present this week to our readers cuts of the rooms at present occupied by the Society of Amateur Photographers of New York, and hope that a brief description of them may not prove uninteresting.

The building at 122 West Thirty-Sixth Street occupies a full lot in breadth, and has no particular architectural pretensions, being of brick, and very plain. The sign of the society is a prominent object on the facade. The entrance is shown at the right, in the cut, and one flight of stairs leads to the meeting room and library floor.

The view of the meeting room is taken from the rear looking toward the library, which is closed off from the meeting room by a partition in which are large sliding doors of dark wood, and an ordinary swinging door, shown open in the cut. The sliding doors extend to the ceiling, and when they are opened, the two rooms are thrown into one, thus increasing the accommodations. There are three windows in the rear of this room, giving light and ventilation. The hall is furnished with chairs in which an audience of about one hundred and twenty-five can be comfortably accommodated, though the popular lantern-slide meetings usually



attract a greater number than this. On the walls are hung framed photographs, presented by members and friends, souvenirs of exhibitions and noteworthy examples of the best photographic art.



Directly above the folding doors is seen the screen on, or rather *through*, which lantern-sides are displayed. The narrowness of the hall and lowness

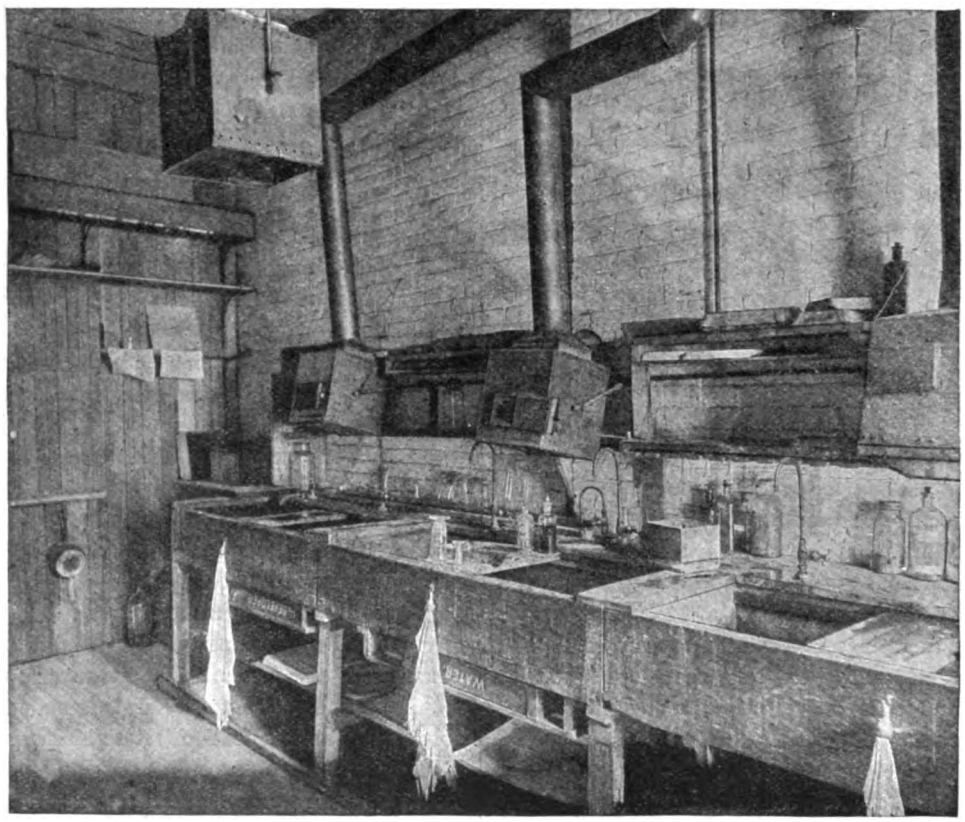
of the ceiling makes it practically impossible to show lantern-slides against a screen, and the expedient has been adopted of placing the screen between the audience and the lantern, thus displaying the pictures through it. This is covered with thin white paper, rendered translucent by being paraffined, and tightly stretched on a wooden frame, which is suspended by hinges from the ceiling, and by means of cords and pulleys is raised up parallel to it when not in use.

The Society's lantern, a single instrument with dissolving attachment, which has been before described in these columns, is seen against the folding doors, although it is usually set on one side out of the way.

On the left of the cut is seen the edge of the door to the stairway leading up to the working floor, and just beyond it, though not visible in the picture, is the entrance from the stairway leading from the street.

The interior of the library shows the inside view of the doorway seen in the preceding cut, and one of the folding-doors, the library table with current journals on file, and the library bookcase, the secretary's desk, member's letter-box, copying press, etc.

But the main point with many members is, after all, the dark room. Here those who are not so fortunate as to have dark rooms of their own, or whose better halves object to profanation of the bath-room, fill their plate-holders when preparing for an outing, or hang with bated breath over the fateful tray that contains what they fondly hope will prove "a daisy" negative—some detective shot of a busy street scene, a peaceful landscape or the portrait of a beloved face. Here they can "slop around" to their hearts' content, so that they conform to the few and simple rules prescribed by the House Committee, and take advantage of all the facilities which have been provided, and which are not likely to be found in most dark-rooms.



The illustration shows the developing sinks with the lanterns over them for developing. These are of the pattern described in the "American Annual" for 1887 by Mr. Beach. They shed the light directly downward on the developing tray, and are ventilated into the chimney. There three of these lanterns, each with different colors and qualities of glass, and in addition a lantern in the centre of the room for general illumination, and on the wall, not shown in view, are gas brackets for unshielded lights, shelves for bottles, etc., making it a comfortable as well as commodious room.

The illustrations are from 8x10 negatives made by Mr. F. C. Beach, and they show the lens he

employed, a wide-angle "Ross," to be possessed of remarkable qualities, when it is considered that the library is less than 25 feet in length, and that an 8x10 plate is covered, and everything is in good focus.

"TENTATIVE" DEVELOPMENT AND ITS EQUIVALENTS.

THE power of compensating for errors of exposure has always been claimed as the special advantage of the "alkaline developer," and there can be no doubt that the claim is a just one. It is not too much to say that, with good plates, even of great sensitiveness, it is possible, with proper care, to get negatives that cannot be distinguished from one the other, with any exposure between the minimum that is permissible and ten times that minimum. The only question is, How are we to work the developer so as to get full advantage of the powers that it possesses?

On this subject it is that I propose to write a word or two. In the case that occasionally happens when we know that we have given an abnormally long exposure, the whole thing is quite simple. There is nothing to do but to use a developer with a large quantity of restrainer and a small quantity only of alkali, and we get out the necessary density without fogging the shadows. Unfortunately, however, it is not once out of a hundred times that we know beforehand that our negative has been over-timed. We have to find that out during the time of development. It is true that this is not, if the necessary precautions have been taken, at all too late, but, in most of the various ways of working, the uncertainty in the first place, and the steps that have to be taken to gain the necessary density, if it has been found that the plate was over-exposed, involve the expenditure of a great deal of time.

There are various ways of proceeding when there is uncertainty as to the exposure The commonest, and I think the oldest, is to begin with the full amount of pyro and the full amount of restrainer, if the developer is one that needs restrainer, as, for example, the ammonia developer, but to add, at first, a very little of the alkali, or, indeed, sometimes none at all, to proceed slowly, adding the alkali a little at a time, adding eventually no more than is just necessary to bring out the detail in the shadows. Now, this method allows of a very considerable latitude of exposure, but there is the grave defect in connection with it that it is a process taking much time, and that especially in the cases where it is desirable that the development should be expeditious, namely, when the exposure has been correctly timed. Here I will say that I consider the correct or normal exposure in all cases to be the shortest that will give the nature of negative that the photographer wishes.

The reason of the length of time taken is that it takes even an experienced photographer a considerable time before the appearance of the image tells him whether the exposure has been normal or too long.

There is a modification of the "tentative" method, that has, I think, been called "development in two solutions." This method is very applicable where a number of negatives have to be developed at the same time. Briefly, the method consists in the use of two solutions, the one of which has been termed the "density-giving solution," the other the "detail-giving solution." The first is a solution strong in pyro and in restrainer and weak in alkali; the second one weak in pyro, but without restrainer; or, in the case of ammonia with the minimum allowable, but strong in alkali. Considerable quantities of the solutions are mixed, so that each will cover the bottom of a developing dish for about half an inch in depth. The plate goes into the "density-giving solution" first; and may remain there till it is finished, if it turns out that it has been much over-timed. In any other case it goes for part of the time of development into the other solution.

The method that I have just described was a favorite of mine for a considerable time. There can be no doubt that, with it, it is possible to compensate for even wildly wrong exposures. It has, however, the same advantage as the first kind of tentative

development described. It involves great delay. This is the case with glass, at least, and for exactly the same reason as in the other case. In the case of paper—and it was chiefly for negative paper that I used the method—there is not this drawback, as a number of sheets may be in the first developer at the same time all that is necessary being to keep them in action as in toning prints.

Indeed, I am not sure but that, for negative paper, the two-solution method that I have just described is better than any other; but I wish here to call attention to another two-solution method that I have been working with great success of late. It is, in fact, exactly the reverse of the method that I have just been writing of. I am indebted to Mr. B. J. Edwards for the first hint that I got of this way of working. Mr. Edwards published the method in an annual that I cannot lay my hands on at this moment, giving his paper, if I remember rightly, the title "Intensification before fixing," or something to that effect. Shortly after the publication, another photographer claimed to have originated the method, and, if I remember rightly, Edwards acknowledged a prior publication. However that may be, credit is due to him for attempting to popularize a method that ought to be far better known than it is. I say "attempting" advisedly, for I do not think that the method has attracted nearly the attention that it should have.

Briefly, the way of working is as follows: There are two solutions, as in the last case mentioned, but in this case the first solution is the normal developer, and the second is the density-giving developer, is, in other words a developer abnormally strong in pyro, weak in alkali and considerably restrained.

The plates go into the normal developer first, and into the intensity-giving developer—or "intensifier," as Edwards calls it—only if it appears that they have been over-exposed. Now observe the immense advantage of this way of working. In all cases where exposure has been normal, the development is simply completed in the ordinary solution, without any of the delay that is necessary in the other case to determine whether the exposure has been normal or not. Even in cases where there has been over-exposure—and all practical photographers know that, in cases of great over-exposure some delay in getting up density is unavoidable, however we work—the density comes up much more quickly in the "density-giving solution" than it would if the negative had not first been in the normal developer. Indeed, it is wonderful how easily density is got in the case of considerable, but not excessive, over-exposure. But by far the greatest advantage of the method lies in the fact that the quality of the work is undoubtedly better when development is begun with a normal developer than when a very much restrained developer is followed by one that is much accelerated. The advantage shows itself chiefly in the high lights, where there is a greater gradation of density in the former case than in the latter, with a corresponding increase of "sparkle" in the resulting prints.

I am under the impression that there is barely as great latitude of exposure in Edwards' method as in that where the restrained developer is used first; but by the use of a plain bromide of ammonium solution, in cases of extreme over-exposure, as to be described immediately, quite as much latitude is allowable. Farther I cannot recommend the method—at least without some modification—with the ammonia developer, for the reason that, with a normal ammonia developer and a much over-exposed plate the image flashes up so suddenly that there is not even time to transfer the plate from the normal solution to the other.

Here is a description of the exact way in which I have been working lately. I make up three solutions as follows:

SOLUTION A.

[Normal developer.]

Pyro	3 grains
Carbonate of potassium	10 grains
Sulphite of sodium	20 grains
Water to make	1 ounce

SOLUTION B.

[Density developer.]

Pyro 1	15 grains
Carbonate of potassium	3 grains
Bromide of ammonium	2 grains
Sulphite of sodium 60	60 grains
Water to make	1 ounce

SOLUTION C.

A ten per cent. solution of bromide of ammonium.

Of "A" solution the quantity commonly used in development is made up, of "B" solution enough to cover the bottom of the developing dish to a depth of half an inch. A few ounces of "C" is quite sufficient. "A" and "C" are both used in developing cups, "B" is poured into one of the two developing dishes that it is necessary to use before beginning work.

A plate is taken and "A" is poured over it in precisely the usual way. Within a few seconds it will be evident to an experienced eye whether the plate has been over-exposed or not. If it has, it goes into "B" solution just a little before all the detail that is wanted has come out. There it will gain

density rapidly and will take on a very little more detail. If a mistake has been made, if the plate has been put too soon into "B," and it appears that it is going to get too dense before the necessary detail is out it may be returned to "A." The use of the bromide solution "C" is for cases of excessive over-exposure only. When the flashing out of the image indicates that the plate has been very much over-timed it will be found that, even in the "density" developer, the necessary density will not come out unless special steps are taken. In such a case, however, all that is necessary is to remove the plate from "A" as quickly as possible, and holding it level in the left hand to flow the bromide solution "C" over it The solution is kept moving on the film, exactly as in developing a wet plate, for some ten seconds or so, it is then drained off, when the plate goes into the density developer "B." In very excessive cases it may be necessary, occasionally, to remove the plate from the developer and to repeat the flowing with bromide solution, but this is certainly not the sort of thing that will occur in ordinary work, even in landscape work. It is possible to get a dense negative in this way when an exposure of minutes has been given instead of seconds.

Solution "A" may generally be used for three or four plates; solution "B" will do for a whole day's work if a good, fair quantity is mixed up at first, the assumption being that only one negative out of four or five has to be put into it.

I returned three days ago from a trip in the country. While there I exposed thirty 12x10 plates, on subjects so very various and in light so very varying that I had only a very wild idea of the right exposure. I, however, carefully avoided under-exposure. The development of all the plates took less than three hours; there was only one finished negative that showed even slight signs of having been abnormally exposured, and it was found necessary only in one case to use the bromide solution "C."

The whole work is more like wet-plate developing and intensification than any other dry-plate work that I know of.

A word on the temperature of developing solutions may not be out of place here. With the ammonia developer low temperature does not have the same effect that it has in the case of developers made up with the fixed alkalis—carbonate of ammonia, carbonate of potash, or carbonate of soda. With the ammonia developer lowering of temperature has but little effect at all, with the others it very greatly increases the time taken for development, and, indeed, when the temperature of the solution is only a little over the freezing point development will scarcely proceed at all. In winter time I find it advisable to raise the temperature of the solutions to about 60 deg. Fahr.

I hope that your readers will give the method of development, that I have been describing, a trial, and will give the readers of THE PHOTOGRAPHIC TIMES the advantage of their experiences.

I need scarcely say that the method is as applicable to hydrochinon as to pyro.

W. K. Burton.

THE BURNISHER, AND HOW TO USE IT.

[Read before the Photographic Society of Chicago.]

IN considering the subject of burnishing, we should, it seems to me, first make inquiry as to what new and desirable qualities are imparted to such prints as have undergone this treatment. Is any new element added which enhances its beauty? Are any new qualities imparted by this process which render it a more perfect and truthful representation of the object which it photographically delineates? Does this process render the photographic print more durable or less liable to become soiled by dust and handling to which almost all pictures are subjected, to a greater or less extent?

If we are to receive our answer to these inquiries from the photographic fraternity at large, as judged by the universal use of the burnisher, we would hear a positive and unmistakable yes to these inquiries.

We occasionally hear of some would be bright and conspicuous luminary in the photographic dome who dispenses with the burnisher entirely, declaring that the gloss it gives is "inartistic," yet leaves us in ignorance concerning the process of reasoning by which he discriminates between the artistic and the crude. I believe it is the generally adopted theory that so far as any photographic print may be affected, as viewed from an artistic standpoint by the surface finish which it receives, that its merits are enhanced by the operation of burnishing, not because it gives a gloss to the surface, but because it adds to the brilliancy of the high lights, and increases the depth and transparency of the shadows, and it is universally conceded that any photograph is lacking in excellence to the extent that it is deficient in these characteristics. It is well known that no negative which is "veiled" or "filled up" in the shadows can be made to produce a print possessing that snap and brilliancy which constitute the most prominent points of excellence in the photograph. A perfect negative

must be absolutely clear in the deepest shadows; and it is perhaps as well known that it is impossible to produce even from a perfect negative, a print on paper which, without burnishing, will show the brilliant qualities of such a negative. The fibre of the paper and the pores of the albumen when the surface has become dry are sufficiently loose and open to give the shadows a slightly veiled or gray appearance, which diminishes this transparency, and detracts from the beauty of the result, and can only be remedied by the burnisher, or by enameling.

And I maintain that this brilliancy and transparency of the shadows is a more perfect representation of nature, and therefore more artistic than it is possible for the "Knight of the Brush" or even the photographer without the aid of the burnisher to produce.

If this theory is correct, then the higher the gloss we impart to our prints, the greater the brilliancy will be, and therefore the more artistic and attractive. I have thorefore given considerable attention to the study of the processes by which the highest polish may be secured with the greatest ease and certainty.

In the first place I would call your attention to a mistaken theory which is still quite prevalent that a great deal of friction is necessary to produce a good burnish. Now I will illustrate the error of this theory by running a picture part way in this burnisher and allowing it to stop. The result, as you see, is a brilliant gloss across the print just where the stop was made, all other parts of the surface being comparatively dull. Now, inasmuch as the highest gloss on this print was produced while the print was still, and therefore received no friction, it is evident friction had nothing to do with producing the gloss, and our rotary burnishers are built on this theory. It is true they give a very little friction, but is only just enough to overcome the liability to stick, and cause the roll to be self-polishing and cleaning.

The first step, then, to secure a good burnish is to see to it that your prints are in a proper condition as to moisture. They must neither be too wet or too dry. It is impossible for me to describe in words just what the best condition is; that is a point any one will soon learn for himself in the actual operations of the process. There are several methods used to secure a proper degree of moisture. One of the best, in my judgment, is to have a tight box with a false open bottom of slats, under which a tray of water with two or three large sponges is placed. The water evaporates quite rapidly from these sponges, filling the box with a moist atmosphere, which will in time moisten sufficiently any dry prints placed therein, or prevent further drying out of any that are placed therein when only partly dry. It is found to be an excellent plan to gather up prints as soon as they begin to curl towards the face, and place them in such a box, leaving them there a few hours, taking out a few at a time to "spot" them, and returning them to the box again to remain till ready to burnish.

Another good plan is to lay prints face down on a blotter, next face up on top of the first layer, then another blotter, and another layer on the blotter, face down, and so on, till all are piled up in this way; then place a board the size of the blotters on the top and place a weight on it; by this means prints may be kept from two to twelve hours in excellent condition. Some prefer to let prints get thoroughly dry, then moisten them up again in a moist box; and this is an excellent plan, but, of course, takes time. Others use devices for steaming them a few minutes. Any of these plans will be found effective if carefully followed, and one of these or some other plan must be adopted to secure moisture in order to get the best results; dry prints will not burnish well. Of course it is understood that the burnishing roller or tool must be hot, hot enough to "snap" when touched with a hot finger. If too hot it will blister, if not hot enough no gloss will be secured.

James H. Smith.

ENLARGING ON PERMANENT BROMIDE PAPER.

[Read before the Society of Amateur Photographers of New York.]

THE process of making bromide enlargements from small negatives is very simple. To the professional photographer it is a source of profit and to the amateur a great pleasure. From a very small negative you can produce as fine a large picture as the finest engraving, and it is now well known that, when a bromide print is properly made it is permanent in the full sense of the word. An easy way to construct a bromide enlarging apparatus out of apparatus on hand is to first take your front focus view camera, place your negative in a proper size plate holder kit, and adjust the negative and kit (upside down) inside of the ground glass of camera, that is, negative and film of negative next the lens. Place the camera on a small table, and move the table and back of camera against the window in an ordinary small room. (See Fig. 1.) Shut out all the white light in the room except that which enters through the ground glass of camera. A magic lantern with oil burner can be used instead of daylight apparatus described above. Extra quick bro-

mide paper can be had for that purpose. Use most any good lens that is capable of covering the size plate you intend to enlarge from. Then you want an upright easel to suspend your bromide paper on, which is easily constructed out of two uprights, a flat board and a box of suitable size to serve as a base. The face of the easel should be covered with white paper. Place your easel squarely in front of the camera. (See Figs. 1 and 2.) The

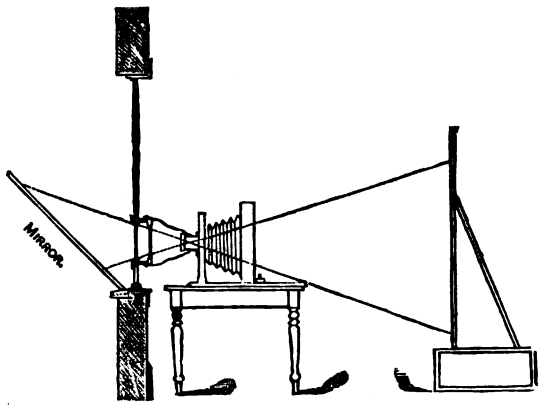


Fig. 1.

size of the enlargement will depend on the focus of the lens and the distance that the easel is set from the negative. Move the easel back and forward until you have the required size Then proceed to focus the enlarged image sharp. Now put the cap on the lens. At this stage of the operation it is necessary to have a ruby lamp in the room.

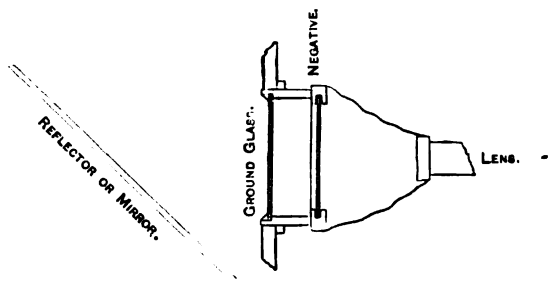


Fig. 2.

Another method to improvise an apparatus is to construct a shutter for the window, and cut a hole in the shutter two sizes larger than the largest negative to be enlarged from. Fit into the opening a frame about two or three inches deep, glazed on the outside with a sheet of ground glass. On the inside edges of the frame, top and bottom, arrange grooves in which to slide the negative. Now, on a table or shelf adjusted in front of the negative box, place an ordinary camera having the ground glass removed. Point the lens toward the negative and connect the lens and negative box by means of a bag of opaque cloth, open at both ends, and provided with an elastic band to close it tight around the lens and negative box. This will prevent any light coming into the dark room. (See Figs. 2 and 3.) If there are other windows in the room they can be darkened with curtains. In case a portrait lens is used, it should be put in position so that the back lens will be next the negative instead of as shown in Cut 2; the easel to hold the sensitive paper is described above

The best bromide paper to use is of the Eastman Dry-Plate and Film Company's manufacture. I find that this is the most reliable, as well as the most permanent bromide paper on the market. Take a sheet of the bromide paper, pin it on the easel, uncap the lens and give it the proper exposure, which will vary from a few seconds to several minutes, according to the strength of the negative and light. If you are uncertain about the necessary time of exposure, pin a small piece of bromide paper on the easel, to cover the most important part of the picture, expose and develop.

This trial exposure ought to show you just how long to expose the full sheet of bromide paper, and will prevent waste. The best exposure is not less than twenty or thirty seconds. The lens can be stopped down to decrease the light if necessary. By giving the proper time of exposure, you can make a strong print from a comparatively weak negative, and *vice versa*. In fact, we have more latitude with the bromide process than any other photographic process known.

To make a vignette picture, the operator standing at the left and half facing easel, should screen the lens with a piece of straw board about 16x20 inches. A hole of the proper shape for the vignette cut in the centre. [See Figure 1.] Having uncapped the lens, the vignetter should be moved back and forth from the lens to the easel. Continue this movement through the entire exposure. Additional time can be given on any part of the image that may need it, by cutting a smaller hole in the same size straw board and proceeding about the same as when vignetting. On landscapes extra time may be given on the sky by shading the balance of image with a piece of straw board of the proper shape; the most beautiful sky effects can be produced in this way.

My formula for developer is the same as that published by the Eastman Company.

1—Oxalate of potash	1 pound
Hot water	48 ounces
Acetic acid	3 drams
2—Proto-sulphate of iron	1 pound
Hot water	32 ounces
3—Bromide potassium	1 ounce
Water	1 quart

To develop, take of No. 1, six ounces; of No. 2, one ounce; and of No. 3, half a dram. Care should be used in measuring No. 3, as an excess of bromide will produce too great a contrast, and too little will have a tendency to flatness. If you prefer to have your picture to come up slow, this developer can be diluted with one-third the amount of pure water. In a suitable tray, soak the exposed

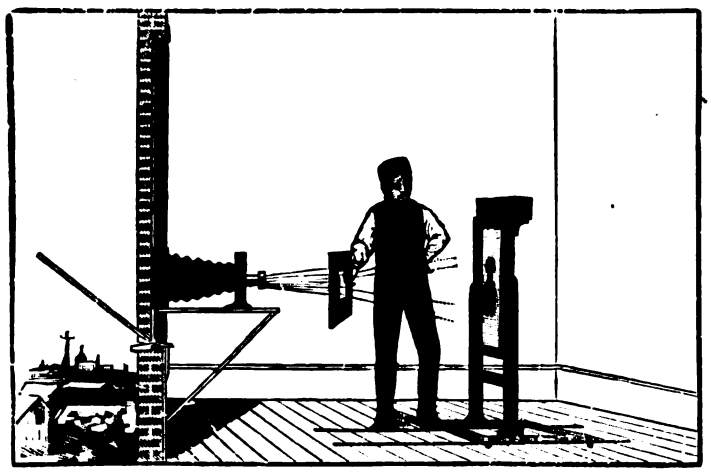


Fig. 8.

print in clean water until limp. Then pour off the water and flow with the developer. The image should develop up strong, clear, and brilliant. When the shadows are sufficiently black, pour off the developer, and flow the print with the clearing solution, which consists of acetic acid, one dram; water, 32 ounces. Use a sufficient quantity to flow over the print. Allow it to act for one minute. Then pour it off, and apply a fresh portion. Repeat the operation a third time. Then rinse in pure water, and immerse for about ten minutes in the fixing-bath: Hyposulphite of soda, 3 ounces: water, 16 ounces. After fixing, wash thoroughly for about two hours, and hang your print up to dry.

To mount, wet the print, brush over the back with a thin starch paste. Lay the print on the mount, and rub down with a soft damp sponge.

A good method to force an obstinate spot, on the print, when developing, is to dip the fingers into the fingers into the developer and slightly rub the obstinate part. Care should be used not to overdo it, and to have no other chemicals on the fingers, as it would leave a stain.

Beautiful results on bromide paper, are obtainable with the hydrochinon developer. Some operators would like to see the print retain its gloss, as when in the water; this can be done by squeegeeing the print, face down on a polished piece of hard rubber. When dry the print will peel off with a fine glossy surface. A higher polished surface can be obtained by enamelling with the plain collodion process on a plate glass.

G. D. Millburn.

Correspondence.

HER FIRST PICTURE.

A USE FOR FILMS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: The dry plate largely extended the practice of photography. Eastman's stripping films and roll-holder marked another advance; and, although these are not superseded, the introduction of such films as Carbutt's, which do not need stripping, but are developed as easily as glass is, a further advance, and may go far, as soon as their merits are appreciated, to again double the number of cameras.

The writer has a daughter who has just gone South to escape the rawness of our spring months. She learned to expose a plate, and she is provided with a quarter-plate camera (bijou) and Carbutt's slow films. As the films are exposed they will be sent home, well wrapped in an ordinary envelope, for development. Her first picture, as it slowly shows itself in the developing tray, will be read with as much interest as the letter which accompanies it. A friend who has made herself a name teaching Indians in Dakota, deserves, and must have, a camera for Indian pictures.

The reader can think of many such uses for films. And as a small camera, which takes but little room in a trunk, can be had, of good quality, at moderate cost, and a picture can be taken with even less trouble than is required to write a letter, will it not become a common thing for travellers to send back such missions to their friends.

C. M.

N. B.—If a dealer sends films larger than the size ordered, they may be cut down with a sharp-pointed knife or a pair of scissors.

WILLIAMSTOWN, MASS., Feb. 28th, 1889.

"PHOTOGRAPHS MADE WITH THE EYE."

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Mr. Greene, in his article on "Photographs Made With the Eye," in the March 1st number of THE TIMES, certainly seems to "go a little too far," as he himself says. He says that the phenomenon of seeing bright objects with the eyes closed, immediately after looking at them for a few minutes, led him to the "discovery" of the fact that photographs can be made in a similar manner with the eye.

Now, for a short time after looking at objects, we see their images. This is called persistance of vision, and occurs for a longer or shorter time according to the degree in which our optic nerve has been affected. We have this after-vision not because there is the slightest light in the eye, but because the effect on this optic nerve continues a short time after the exciting cause is removed.

That experiment of Mr. Greene with the arc light—which,

by the way, has been announced before—seems to be the only instance on record of such an occurrence, and physical science would seem to deny the possibility of such action.

One may seem to see light in a dark room, or to see fire if the eye be struck, but these appearances are caused by abnormal influences, such as a blow, exciting the nerves to the production of the sensation within us. There is no light outside, however, that any one else could perceive, or that could act on any sensitive chemical compound.

May not this result of Mr. Greene's be similar in character to that of the amateur who in hap-hazard work obtains a result that is to him entirely unaccountable, and who, therefore, announces to the world that he has found the secret of color photography or a universal developer.

To what profitable results could such photography with the eye lead? Even could one obtain a few results, curious rather than useful or beautiful, it would be done at the risk of impairing the eyesight, for this method of photography puts an enormous strain upon the eye.

In conclusion, I would say to any one who may feel inclined to try to obtain photographs in this manner: "Don't do it!"

Yours respectfully,

Dallett Fuguet.

BRYN MAWR, PA, March 2d, 1889.

Notes and News.

SAMUEL ROOT, a well-known old Daguerreotyper, died suddenly in Rochester, Monday evening, March 11th, of apoplexy. He was buried in that city. Mr. Root was one of the oldest photographers in this country. He was brother to Marcus A. Root, also an old Daguerreotyper, who died last year. Next week a more extended notice will be given of this old-time photographer.

"VIVAT, FLOREAT, CRESCAT."—We learn from Professor Ehrmann, the instructor of Chautauqua School of Photography, that the number of students admitted to the corresponding class during January and February of 1889 is more than double that of the previous year. The local class has also had a considerably larger number of attendants this winter. From present indications it can, therefore, be inferred that the productions of the school of the present term, to be publicly exhibited on commencement day, will be far above the general average of previous exhibitions, both in points of quality and quantity. Verily the Chautauqua School progresses, and we can justly repeat what has been said to be her motto: "Vivat, floreat, crescat!"

THE CHAUTAUQUA SCHOOL OF PHOTOGRAPHY, under Dr. Charles Ehrmann, will begin its sessions the first week in July, 1889. Dr. Ehrmann's large studio is constantly filled with amateur photographers engaged in the mysterious processes of developing plates, printing photographs, stripping negatives, and the like. The Doctor conducts besides a class by correspondence throughout the year. He is able to direct work, answer questions, and give satisfactory instruction in this department now that the camera has come into so general use as to be the almost indispensable companion of the traveler, whether he make a tour of the world, or take a tramp on foot through his own State, or ride a bicycle a few hundred miles, there is an increasing demand for practical instruction. This the School of Photography is able to supply, and that, too, under the delightful conditions which are to be round only at Chautauqua.—*The Chautauquan.*

THE EXHIBITION OF THE PHOTOGRAPHIC SOCIETY OF CHICAGO.—In our report of the Photographic Society of Chicago, this week, will be seen the conditions to govern the forthcoming first annual exhibition of that society. A circular containing full information, classifications, prizes to be offered, etc., may be obtained by addressing the Secretary, C. Gentile, 134 Van Buren Street, Chicago; or Gayton A. Douglass, Treasurer, 185 Wabash Avenue, Chicago. Mr. Douglass also announces that all exhibits entrusted to his care will receive prompt attention, and be handed to the proper parties in charge. At the present time every indication points to a most successful exhibition next May.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK has arranged for a public exhibition of lantern slides at Hardman Hall, Fifth Avenue and 19th Street, on Friday evening, March 29th.

THE PHOTOGRAPHIC CLUB OF THE UNIVERSITY OF PENNSYLVANIA.—A photographic club was formed, Thursday, March 14th, by the students of the college department. The following were the officers elected:

Dallett Fuguet, President; Mr. Carbutt, Jr., First Vice-President; Mr. Howard, Second Vice-President; Mr. Delaplaine, Recording Secretary; Mr. G. Hill, Corresponding Secretary; Mr. Mitcheson, Treasurer; Messrs. Rosengarten, Dillingham, Beyer, and Koenig, Executive Committee.

A later issue will be given, full of particulars.

A NEW AMERICAN EDITION OF H. P. ROBINSON'S "PICTORIAL EFFECT IN PHOTOGRAPHY," is said by the publishers, The Scovill & Adams Company, to be nearly ready.

Mr. Robinson's first, and, in the opinion of many, his best, book on photographic art, has long been a standard work in this country. Originally published in America by Edward L. Wilson, it enjoyed for many years a large sale. Later works by the same author being issued here, the attention of photographers was more or less withdrawn from Mr. Robinson's first book. Recently, however, a growing demand for the "Pictorial Effect" has unmistakably evinced itself, and a new edition has, therefore, been required. We have no doubt that this new American edition of "Pictorial Effect in Photography," containing all the original illustrations, will meet with a wide and appreciative reception.

E. & H. T. ANTHONY & CO.—We learn from *Wilson's Photographic Magazine*, and *The Photographic Eye*, that Colonel V. M. Wilcox was elected President and Treasurer of E. & H. T. Anthony Company at a recent meeting of that corporation. Mr. Richard Anthony was elected Vice-President, and Mr. F. A. Anthony, Secretary.

A RECENT INVENTION.—A burglar alarm has lately been devised which secretly registers the burglar's weight as soon as he enters the house, turns on electric lights, and takes an instantaneous photograph of him, throws indelible

ink in his face, seizes him by the coat collar and leads him into the kitchen, where it administers a kick that sends him through the window into a back alley. It is said to be an effective alarm.—*N. Y. Evening Telegram.*

"LARGELY THEORETICAL!"—The latest use of photography is to make a cannon-ball take a picture of its own wabblings. An arrangement something like a camera is placed in the forward end of the projectile, and when it is fired directly at the sun the light traces lines upon the sensitive plate, from the direction of which it can be told whether the projectile has kept in one position or has wavered to and fro during its flight. The scheme is largely theoretical as yet.—*Boston Globe.*

ONLY A PHOTOGRAPH.—How successfully an artistically retouched photograph may be made to imitate a drawing is shown in the following account from the New York *Evening Post.*

The picture in the Stebbins collection catalogued as a drawing by Rosa Bonheur (signed by the artist) and sold to Alfred Corning Clark, Treasurer of the Singer Sewing-Machine Company, for $725, is now supposed to be a swindle—unknown of course to Mr. Stebbins. When the rumor got about Mr. Stebbins wrote to Mr. Clark, offering to take the picture back, but Mr. Clark replied that he was sure it was a drawing, and not a photograph, and he preferred to keep it. He would, however, send it to Rosa Bonheur, and if she said it was spurious, he would destroy it.

Mr. Kurtz, the photographer, said that he had had a picture to photograph for the catalogue, and saw at a glance that it was a photograph. It had been taken many years ago, before the albumenized paper was in use and before photographing had reached its present high standard. At that time it was customary for photographs or pictures to be retouched. The reason for this was that as the paper was not properly prepared it had a flat effect, and a few touches here and there were made to bring it out. Touching up had been done in this case, but no fraud was intended. Mr. Kurtz has been sick for six weeks, and had not seen the announcement in the catalogue that the picture was a drawing, or he should have immediately informed Mr. Kirby of the Art Association of the fact that it was nothing more than a retouched photograph.

PHOTOGRAPHING PATTERNS.—Sterling Elliott sends to the *American Machinist* the following plan for keeping track of patterns:

Spread a white paper on the floor, lay patterns on it in proper order, place on each pattern a small square of white paper on which is painted a black, plain figure beginning with one, two, three, etc.; these may be cut from an old calendar, or printed purposely. Directly over the patterns suspend by any suitable means a photographic camera, and you have it. From the negative thus obtained, make two blue prints, send one to the foundry, and the old problem of marking patterns is not only solved, but lost patterns are much more easily found; for a pattern, unlike an actress, resembles its photograph every time.

THE MOUNTING OF GLACE OR ENAMELED PRINTS is, in our estimation, most conveniently effected in this way: After the print has been on the glass for half an hour, take two thin Bristol boards, and having previously soaked them in the gelatine, place them, one at a time, down upon the print, and allow to dry for twenty-four hours before stripping. If the ordinary card mounts are to be employed, they must be well sponged with the gelatine before application to the print, and pressure applied to the back to insure contact until the adhesion is perfect. It is, of course, well understood that the prints must in this latter case have been properly trimmed previous to the application of the mounts —*Exchange.*

COLORATION OF FLAME BY ELEMENTS.—Herr Cracau points out as a point probably worthy of further investigation (*Der Pharmaceut*, Sept. 15, page 116) that certain elements resembling each other in chemical properties impart colors to flame that are complementary. For instance, potassium and sodium resemble each other in chemical properties, and the former imparts to flame a violet and the latter a yellow color, the two colors being complementary; barium and strontium also resemble each other chemically, and the one colors flame green and the other red; and a similar remark applies to zinc and cadmium. Herr Cracau also thinks it suggestive that the colorations produced by potassium and calcium, both of which lie under suspicion as to their true elementary character, are of a compound character, the one being violet, a combination of blue and red, and the other orange, a combination of red and yellow.

SOLUBILITY OF STRONTIUM NITRATE IN ALCOHOL.—The ordinary commercial salt was found to have the composition Sr. $(NO_3)_2.4H_2O$. From this the anhydrous salt was prepared. After numerous experiments, it was established that one part of anhydrous strontium nitrate in round numbers requires for solution 4,190 parts by weight of absolute alcohol, or 200 parts by weight of rectified spirit at 60° F.—*J. R. Hill, Edinburgh Chem. Assistants' Association, Br. & Col. Dr.*

Our Editorial Table.

"PROCESSES OF PURE PHOTOGRAPHY." By W. K. Burton and Andrew Pringle. New York: The Scovill & Adams Company.

THIS new work, by two authorities so well-known and universally acknowledged, will undoubtedly at once meet with a wide and eager welcome by photographers, not only in this country but also abroad. As the preface states, both of the writers have zealously followed photography as something more than a mere amusement for a considerable number of pears. One of the writers has studied the science from a theoretical and experimental point, while the other author's attention has been almost entirely directed to the production of practical results by the processes known, and by each process as it has been given to the world. The chief claim made for the work is, therefore that every word in it refers to subjects with which the authors are personally and intimately acquainted, not a direction nor a formula being given on trust, every one having been successfully used by either one or the other, and in most cases both have used the formulæ to be found in this book. There are valuable chapters on the "Theory of Photography," "Apparatus" and the "Dark Room." Another chapter is devoted to the "Negative" and the

"Positive." The wet collodion process and the dry collodion process each are amply treated of in a chapter, which leads up to "Gelatine Emulsion Processes," for the proper presentation of which several chapters are devoted. Then we have valuable instructions on "The Camera in the Field," "Exposure" and "Development" generally treated; "Defects in Gelatine Bromide Negatives," "Paper Negatives" and "Stripping Film," "Correct Color, or Orthochromatic Photography," and "Stereoscopic Photography."

Part II. of the book is devoted to "Printing Processes," and in it we have plain working instructions given for printing on albumenized paper, gelatine chloride paper for printing out, contact printing on gelatine bromide paper, rapid printing paper, printing in platinum, the carbon process or "pigment" printing, positives and negatives by enlargement, lantern-slides, the preparation of negatives for printing, combination printing, vignetting, residues, etc., etc.

At the end of the book are a number of valuable tables and a complete index.

Price, in paper, $2; library edition, $2.50.

FROM Dr. Geo. L. Sinclair, of Halifax, N. S., we have received several beautiful winter landscapes. Fir trees heavily covered with snow, horse and sleigh forcing a path through snow-banks apparently several feet high, and a view of a far-off village, a glimpse merely through a cluster of pine trees, are the subjects. They are all well timed and carefully developed. Notwithstanding the dark trees, every detail is shown and the snow has fine shadows. They are well toned, of that cold natural color well fitted for the subjects.

FROM A. Farsari & Company, of No. 16 Bund, Yokohama, Japan, we have received an interesting portrait group of a Japanese mother and child. It was made at 10 P. M., by the flash-light of a Scovill's magnesium cartridge, and developed with a pyro and potash developer. This we learn from the printed information on the back. The group is entitled, "The Madonna Della Seggiola," and very well justifies its name. We understand that A. Farsari & Company are now engaged in the business of supplying photographers' wants, as well as making pictures. We wish them every success in the new departure, and have no reason to doubt that our wishes will be fully realized.

ON page 100, of our February 22d issue, we noticed some "Kodak" pictures, mostly taken in the Chinese Quarter of San Francisco, from Sam C. Partridge, the photographic dealer of that city. We now learn that these pictures were made and sent by Mr. W. B. Tyler, though the imprint of Mr. Partridge was on the back of each.

Record of Photographic Patents.

399,324. Album. Owen J. Griffiths, Chicago, Illinois.

399,325. Album. Owen J. Griffiths, Chicago, Illinois.

399,499. Photographic Lens. Alvan G. Clark, Cambridgeport, Mass.

399,845. Camera Adjuster. Henry E. Poehlmann, San Francisco, California.

ARTIST (holding out a photograph): "Don't you want your picture taken? Three for a quarter."

Shabby party: "No, I don't care for any. My brother had his taken three times, and he was innocent every time but one."—*Texas Siftings.*

Queries and Answers.

63 N B. B. wants to know why ammonia is added to the dye solutions in color-sensitive methods.

63 *Answer.*—Eosine and other dyes are destroyed by acid. Ammonia increases sensitiveness for yellow and greenish-yellow.

64 AMATEUR has attempted to make emulsion, but cannot keep the bromide of silver in suspense.

64 *Answer.*—Not enough gelatine in the emulsion, or it has been digested too long at a very high temperature, by which gelatine is decomposed.

65 I. P. T. had negatives too large for his printing frames. By cutting them down to the required size, the gelatine film became detached from the plate. "Why?" he inquires.

65 *Answer.*—Gelatine negatives or unexposed plates should be cut through the film, not on the glass side.

66 P. P. PARKER.—How much water of 65 deg. Fahr. is required to dissolve a certain quantity of ordinary alum.

66 *Answer.*—One ounce of alum is soluble in thirteen and a half ounces of water of ordinary temperature.

67 MISS PHOEBE C. P.—What is aesculine, and where can I buy it?

67 *Answer.*—(1) An alkaloid from the horse chestnut—aesculus hippocastamun. (2) Try Schiefflin Bros., 170 William Street, New York City.

68 J. B. S., of Lawrence, Kansas, is very much troubled with a peculiar kind of spot which occurs on his albumenized paper. Showing samples, he asks for an explanation and a cure.

68 *Answer.*—These spots are undoubtedly caused by irregular fuming, or the sheet was but partly dry when removed to the fuming-box.

69 MARION.—Why do so many photographers soak the plate in water before developing; it cannot be absolutely necessary to do so, as others pour the developer directly upon the plate?

69 *Answer.*—Plates having laid for a long time at a dry place, become very hard and repel the aqueous solution. Experienced operators resort but rarely to soaking the plates; beginners are advised to develop without it.

70 Y. P. bought oxalate of potassium in a country apothecary's shop. As soon as the least quantity of iron is added to its solution, a yellow precipitate will form at once. "What is the matter?" he asks.

70 *Answer.*—For the preparation of oxalate developer we use only the neutral oxalate of potassium. The article purchased is doubtlessly the bin-oxalate, or the so-called salt of lemons of commerce. It is of acid reaction, is not as soluble as the neutral salt, and forms with ferrous sulphate the yellow, insoluble ferrous oxalate, but not the soluble red double salt of oxalate of iron and potassium of our developer.

SUPPLEMENT

TO THE

PHOTOGRAPHIC TIMES.

FRIDAY, MARCH 22, 1889.

THE ARTIST.

"And, he goes, he marks how well agree
Nature and Arte in discord unity,
Each striving who should best performe his part,
Yet Arte now helping Nature, Nature Arte,"

—*Spenser.*

Photographic Societies.

YONKERS PHOTOGRAPHIC CLUB.

THE Yonkers Photographic Club was organized on February 15th, 1889, by the election of the following officers: G. Livingston Morse, President; Robt. M. Reevs, Secretary and Treasurer; and the following Executive Committee: Salter S. Clark, R. Eickemeyer, Jr., and F. W. R. Eschmann.

The club has forty members and the roll is still growing. A very fine suite of rooms, overlooking the Hudson River and Palisades, has been secured in the Deyo Building, corner Warburton and Wells Avenues, which are now being fitted up in the most approved style.

Regular meetings are held on the first Friday of each month, and the annual meeting on the first Friday in April.

CASE SCHOOL CAMERA CLUB.

AT the regular meeting of the club, held Friday afternoon, March 8th, Mr. W. Williams was elected an active member

On motion of Professor Smith, the Committee on Demonstration was instructed to appoint a member each month to read before the society such articles from the photographic journals as he would deem interesting and instructive.

After discussing the relative merits of the different modes of making lantern-slides, and the resensitizing of exposed gelatine dry-plates by using bichromate of potash, the meeting was adjourned.

The subject for next meeting will be the developing of a negative of the members of the society, by Professor A. W. Smith, for the benefit of the uninitiated.

Milton B. Punnett,
Secretary.

THE NEW ORLEANS CAMERA CLUB.

THE regular monthly meeting of this Club was held Wednesday night, February 20th, at its rooms in Tulane Hall; President Howard in the chair. Mr. P. E. Carriere was unanimously elected librarian of the club, and the treasurer's report of the Givens' benefit, held February 6th, was read and approved. It showed that $275 had been raised for this benevolent purpose. On the motion of Mr. Carriere it was resolved to allow the admission of ladies to the club free from payment of initiation fees and dues.

Messrs. P. M. Westfeldt, C. F. Low and R. H. Palfrey were elected active members, and Mr. C. P. Richardson was elected as corresponding member.

Upon motion of Vice-President Joseph A. Hinks, it was resolved to give a lantern-slide display, the proceeds of which will be devoted to the Ladies' Unsectarian Aid Association. Mr. Horace Carpenter, who did such excellent service at the Givens' benefit, was selected to describe the slides as they are thrown upon the screen.

THE NEW YORK CAMERA CLUB.

OPENING OF THE ROOMS.

ON Wednesday evening, March 13th, the new rooms of the New York Camera Club, at 314 Fifth Avenue, were formally opened, and, in response to the invitations sent out, a large audience filled the club's rooms.

Mr. W. T. Colbron, President, made a short address, in which he stated the purpose of the club, its requirements for admission, dues, etc., and after giving all a hearty welcome, he introduced Mr. G. M. Allen, who showed a set of lantern-slides illustrating a trip through the Yosemite Valley.

Mr. Allen's slides were of very fine quality indeed, well chosen, of beautiful tone, crisp and clear. Mr. Allen charmingly described the trip, and gave the audience a most enjoyable entertainment.

Afterwards the various rooms upstairs were thrown open for inspection, and proved commodious, well-planned and comfortable. The dark-room, particularly, must be seen to be appreciated. The club has sixty-five members now, and will undoubtedly soon have its full limit.

Among those present were Miss Watson, Dr. and Mrs. Hinton, Miss Hinton, Mr. and Mrs. Colbron and Miss Colbron, Mr. and Mrs. J. W. Wainwright, Mrs. Dr. Parker, Dr. and Mrs. Piffard, Dr. and Mrs. Cheeseman, Dr. R, M. Fuller, L. C. Ivory, F. A Brower, John Rogers, Mr. and Mrs. D. P. Read and Miss Read, E. B. Barker, T. T. Eckert, Jr., Albert S. Newcomb, F. W. Stillman, Mr. and Mrs. W. J. Cassard, Dr. and Mrs. G. C. Brown, Mrs. J.

Thorne, Jr., Mr. and Mrs. Carleton, C. Volney King, Dr. R. W. Taylor, The Misses Taylor, Mr. and Mrs. J. Wells Champney, Mr. and Mrs. Cyrus W. Field, Jr., Miss Connah and Mr. and Mrs. Thos. Oakley.

E. W. N.

PROVIDENCE CAMERA CLUB.

THE annual meeting of the club was held March 2d, 1889, President Fuller in the chair.

The committee appointed to procure a charter for the club presented a copy of the act passed by the General Assembly February 8th, incorporating the club, and it was accepted by a unanimous vote.

The Executive Committee reported on the lantern-slide exhibition illustrating Narragansett Bay, showing it to have been a photographic and financial success. The slides for this exhibition being owned by different members, the Executive Committee were instructed to secure the slides for the use of the club to place in the proposed Lantern-slide Exchange, or to let for the benefit of the club.

The Committee on Proposed Exchanges of Lantern-slides between New England clubs reported favorable action by two clubs, and communications from officers of five other clubs, showing considerable interest in the matter, and stating that their clubs would undoubtedly be in favor of the exchange.

Upon a vote, the chair appointed a committee of three to revise the constitution and by-laws of the club.

The annual reports of the President, Secretary, and Treasurer showed good progress and a prosperous condition.

The following officers and committees were elected for the ensuing year, and six applicants were elected to active membership: President, R. C. Fuller; Vice-President, L. L. Anderström; Secretary and Treasurer, J. E. Davison: Librarian, A. B. Ladd; Executive Committee, President and Secretary, *ex-officio*, C. R. Ferris, H. J. Reynolds, L. L. Anderström, Benj. Smith; Room Committee, R. C. Fuller, Benj. Smith, E. Q. Gladding.

After discussing the annual exhibition of photographs to be held at the opening of the club's new rooms about April 15, the club adjourned.

J. E. Davison,
Secretary.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

REGULAR LANTERN-SLIDE EXHIBITION.

FROM the Committee on Papers and Publications we learn that on the evening of Friday, March 1, 1889, the first regular spring Lantern-Slide Exhibition of the Society was held at the rooms 122 West 36th Street, and comprised fifty slides contributed to the Lantern-slide Interchange by the St. Louis Camera Club, and seventy by the members of the Society. In the St. Louis collection were several original group studies by Robt. E. M. Bain, interesting views by Wm. M. Butler, and excellent animal and landscape pictures by Rev. C. M. Charroppin. Altogether the series was considerably better than the contribution last year.

In the New York collection were foreign views by Messrs. J. E. Plimpton and Sidney Bishop. A charming and attractive landscape by Mr. J. T. Bussing was especially admired, while his views of "Plymouth Rock," "Plymouth Monument," and "Miles Standish House," were excellent slides, and full of historical interest. Mr. J. Wells Champney had a very picturesque country road slide, and one of 'Sheep," that was much admired. A capital picture of a white horse jumping about, called "His Sunday Out," was taken by Mr. E. F. Hill with a Kodak camera. Other interesting slides were contributed by Mr. F. Vilmar, Miss E. Slade, Mrs. Arnold, Sec'y, C. S. McKune, Wm. H. Murray and Major Geo. H. Shorkley. Dr. John T. Nagle had some clever marine views caught with the detective camera. "Surf at Sea Bright," and a few other attractive landscapes by Mr. J. H. Stebbins, Jr. were especially liked and applauded. His skill in obtaining clear slides with the hydroxylamine and pyro developer certainly shows marked improvement.

Among Mr. A. L. Simpson's slides was an exceedingly picturesque view of the ruins of a fire covered with ice. He had excellent views of "Central Park Elephants," steamer "Mexico," and "Boat House" in Central Park. The exhibition concluded with a few slides contributed by Mr. G. H. Hull, of children dressed and posed in queer night costumes.

The lantern was operated by Mr. A. L. and Mr. Chas. Simpson. President Canfield read the titles, and Mr. Beach attended to the seating of the large audience that completely filled the hall.

The interest shown in lantern-slide making is very encouraging to the committee. From present indications there will be no difficulty in obtaining a fine collection of slides to represent picturesque New York

THE PHOTOGRAPHIC SOCIETY OF CHICAGO.

THE regular monthly meeting of this society was held on March 5th at the Art Institute, Judge J. B. Bradwell presiding.

The minutes of the previous meeting were approved of as printed in the various journals.

Mr. C. Gentile, for the Committee on Exhibition, reported progress. In addition to the medals and diplomas to be awarded by the society, he had been advised by the following firms of their intention to offer the prizes set opposite their names:

Smith & Harrison Dry Plate Co., $50 in gold.
" " " $25 "

Harvard Dry Plate Co., valuable prizes.

Blair Camera Co., value of not less than $50.

Gayton A. Douglass & Co., Laverne ortho-panactinic lens, with Iris diaphragm and Laverne's shutter for 5x8 plate, value $48, for best collection of 12 platinum prints.

Sweet, Wallach & Co., one 8x10 Imperial lens, for the best display on the McGowan dry ferrotype plate.

Eastman Dry Plate & Film Co., one Kodak camera, for best collection of 25 Kodak pictures.

N. C. Thayer & Co., valuable prize.

Mr. Gentile stated that this was but a commencement—a mere tithe—of the prizes the committee expected to be able to offer. He was in receipt of letters from England, Germany, France, etc., as well as from every section of the United States and Canada, making inquiries and asking for particulars. He hoped to be able to send out circulars containing all the necessary information this week. In the meantime he would state that to enable parties to

compete for prizes they would require to comply with the following rules formulated by the committee :

Associate members (non-resident) : this will entitle any one to compete for prizes to be awarded by the society ; fee, $3.

To compete for all prizes offered by the society and others ; fee, $5.

Exhibits of merit in all classes approved of by the committee will be admitted free, provided they do not compete for prizes.

Exhibits from foreign countries can be sent unmounted.

Mr. Gentile further stated that the Art Institute would in all probability be the place where the exhibition would be held. Arrangements were nearly completed looking to that end. The whole of the galleries of the institute would be thrown open, and the managers would very likely tender a reception to the society and its friends.

Judge Bradwell then introduced Mr. James H. Smith, who read a paper on "The Burnisher and How to Use It."

Mr. Smith was listened to by a very attentive and appreciative audience.

In reply to a question by Dr. Nicol, Mr. Smith said that both rollers of the burnisher did not revolve at the same rate of speed. That did not appear to cut any figure in the amount of polish to be got, but by having the polishing roller move a little faster than the feed roller, it cleaned itself, and was less liable to gather dirt. No lubricator was necessary in using this machine.

Mr. G. F. Charles said that it was the simplest and easiest worked machine in the market ; a child could run it, and as for gloss, polish and finish, it was ahead of all others.

The burnisher being heated, Mr. Smith ran fifteen or twenty mounted prints through it. The ease with which it was worked and the excellence of the results was the subject of much favorable remark.

Colonel Stevenson and Mr. O. P. Scott were elected members of the society.

Mr. C. Gentile stated that the next meeting of the society would be held at 184 Van Buren Street, on April 2d, where he had made arrangements to give a practical demonstration of the Meissenbach type of photo-mechanical printing.

A vote of thanks was tendered Mr. Smith for his very interesting paper and demonstration, after which the society adjourned.

OXALIC ACID MANUFACTURE.

THE first mention we have of oxalic acid is by Savary, in 1773. He obtained from sorrel plants an acid sublimate and an aqueous distillate, which he called "the salts of sorrel." The products he obtained are supposed to have been anhydrous oxalic acid, and an aqueous solution of the same. Later, a Swedish chemist, Bergman, obtained a crystalline acid by the action of nitric acid on sugar. He called this "sugar acid." Scheele found this sugar acid to be identical with what he obtained from salts of sorrel by precipitation with subacetate of lead and subsequent decomposition of the precipitate. He called this product oxalic acid, from the name of the plant that yielded the salt. This acid occurs as the potassium, sodium, and calcium salts, and as the free acid in some species of plants, and also in the animal body.

It was formerly manufactured in Germany as the bioxalate of potash. Wood sorrel, and afterwards common sorrel, were used. The leaves were beaten, mixed with water, allowed to stand, decanted and evaporated. Next, sugar was employed as the source of the acid. Coarse refuse sugars and treacle were treated in earthenware jars or lead-lined wooden tanks, with nitric acid of specific gravity between 1,200 and 1,270, the temperature being kept at about 125 deg. Fahr. Sugar and nitric acid were added until the liquid, on croling, deposited a large mass of crystals. One hundredweight of sugar yielded about 140 pounds of the acid ; 1 cwt. of treacle gave about 116 pounds of the acid. Potato starch, horse-chestnuts and rice were converted into saccharine matter by heating with dilute sulphuric acid. This was changed to oxalic acid by nitric acid. This method was abandoned as being too wasteful of nitric acid, which passed off in nitrous acid vapors.

Finally, the present method was adopted. Although the detailed operations are kept secret by the manufacturers, a general account of the processes may be obtained from the patents taken out in this country, and from the information published abroad. It was found that if neutral organic bodies, as starch, woody fibre, and the like, were heated with excess of potash or soda, the oxalate of the alkali was formed. Potash was found to give better results than when soda alone was used ; but a mixture of one part of soda to two of the potash gave one-eighth more than when only potash was used. On account of the higher price of potash, more soda is used than this proportion, even if the amount of acid produced is less.

Sawdust from soft woods—fir, pine, poplar—is preferred to hard woods, such as oak and beech. A greater proportion than one of the sawdust to two of the alkali cannot be advantageously employed. The sawdust is first freed from resinous and other matters by treatment with an alkaline lye. Then the alkali is well mixed with it, spread on iron plates, dried and heated. The temperature must be carefully regulated and kept between 200 degs. and 225 degs. C., until the mixture becomes white. This takes about six hours. The product, containing oxalate of soda, carbonate of potash, humus and excess of alkali, can be treated in two ways to obtain the acid. Either the mass may be washed with cold water, leaving the oxalate undissolved, when some of the oxalate of potash also dissolves and passes away, or the mass may be dissolved in a small quantity of hot water, and the oxalates crystallized out. The mother liquid may be cauterized and used again.

The oxalates, after either of these methods, are changed to the oxalate of lime by boiling the solution with excess of milk of lime. The reaction is $CaH_2O_2 + Na_2C_2O_4 = CaC_2O_4 + 2NaOH$. The soda is obtained as caustic lye, and may used again after concentration. The lime salt is mixed be with three parts of sulphuric acid to one of the salt, calcium sulphate being formed, and after the solution has been boiled for one or two hours it is filtered. The fluid is concentrated, filtered again, then cooled, and the oxalic acid crystallizes in needle-shaped crystals. The great object of the manufacturers seems to be to save all the alkali possible.

Experiments show that the acid may be made from paraffin oil. Paraffin oil, specific gravity about 0.8, obtained by the destructive distillation of shale, was treated with twice its volume of nitric acid of sp. gr. 1.3. After the reaction was complete the liquid separated into three layers, the lower one yielding oxalic acid.—*The Pharmaceutical Era.*

PHOTOGRAPHY.—"As our art is not a divine gift, so neither is it a mechanical trade. Its foundations are laid in solid science; and practice, though essential to perfection, can never attain to that which it aims unless it works under the direction of principles."—*Sir Joshua Reynolds.*

THE HYGROSCOPIC QUALITY OF TABLE SALT, and its tendency to pack together in cruets and containers, may be entirely vercome by thoroughly drying the salt and intimately mingling with it a small percentage of dry corn starch or arrowroot. From 8 to 10 per cent. is amply sufficient for the most humid atmosphere (as on the sea coast), while a much less percentage of the starch is sufficient for inland points.—*St. L. Med. and Surg. Jr.*

POLISHING AND GRAINING ON ZINC PLATES.—The best and most rapid method for polishing and graining zinc plates is after the following directions:

1. First wash the old work out with turpentine or benzine.

2. Take a piece of caustic potash of the size of a walnut and dissolve it in a glass of water, then take a piece of clean flannel and apply the solution, rubbing the plate until all the work has entirely disappeared.

3. Next wash the plate under a hydrant and dry the same.

4. The graining is now done with a solution of two parts of hydrochloric (muriatic) acid and one part of distilled water. This solution should be applied with a perfectly clean camel's-hair brush in all directions over the plate, care being taken that no drops are left remaining on the plate. Then a new application of the potash solution is advisable. After washing the plate in clean (distilled is the best) water, dry quickly with blotting paper so as to avoid oxidizing, and the plate is ready for use.—*Lithographer and Printer.*

A PHOTOGRAPHIC BOTCH.—Photographer (impatiently)—"I thought you called yourself a first-class retoucher?"

New man—"Yes, sir; that is my profession."

"Huh! This negative of Miss Snubnose, the wealthy young society actress, is a botch, a perfect botch, sir?"

"Eh? What's the matter with it?"

"Matter? Great Daguerre! Why, it still looks like her."—*Philadelphia Record.*

PHOTOGRAPHIC MAP OF THE NORMAL SOLAR SPECTRUM.—A new and greatly improved edition of this map, made by Professor H. A. Rowland, extending from the extreme ultra violet down to and including B to wave length 6950, is now ready. The old map, published in 1886, was made by means of a grating ruled on the old dividing-engine, which was originally intended for only small gratings, and at a time when Professor Rowland's knowledge of photography was limited. Furthermore, it was not printed in a sufficiently careful manner; and the negatives, which were originally none too good, soon became broken or defaced, so that many of the prints, especially the later ones, were not satisfactory.

The whole work has now been gone over again. A new dividing-engine to rule large gratings has been constructed and has proved to be superior in every way to the old one, although the old one is almost equal to it for small-size gratings. It has been placed in the vault of the new physical laboratory, where an almost constant temperature is maintained. Several concave gratings of 6 inches diameter and 21½ feet radius have been ruled with 10,000 or 20,000 lines to the inch, giving definition hitherto undreamed of. These have been mounted in the bes possible manner.—*Science.*

SHERIDANS'S WINCHESTER PHOTOGRAPH.—We were walking in the first snow of the season, in the crowd, my friend and I, when we saw a picture of Phil Sheridan in a window. Stopping to look at it, although it is the one most familiar to Chicagoans, and the one, as I am told, from which the best crayons and paintings have been made, my friend took occasion to say that there was more expression in the face than any photograph he ever saw.

Then we went up-stairs to the room of the artist who had made the picture, and we asked him if there was anything of special interest in connection with the photograph which we described.

"Yes," the artist replied. "One day General Sheridan came in here in that quiet way so characteristic of him, and said he must have some pictures made for his family. He said he never liked to waste much time on matters of that sort, and wanted a date and hour in which he could come and get through quickly. I told him to come the next day at 11 o'clock sharp. He said he would be here. I had everything in readiness the moment he entered the operating-room. He threw aside his cloak and said he was ready. I asked him if he had any preference as to pose.

"'I suppose,' he said, rather sharply, 'that you understand your business. It is not for me to say what pose is best.'

"I thanked him for the compliment. Then I pointed to a rug on the floor, and said, as sternly as I could, 'Stand over there,' and he obeyed like a true soldier.

"'I want you,' I said, 'to think of what I tell you, I want you to think of the most serious moment of your life—to think, if you can, as you thought then. I want you to think of Winchester. Now, ready,' and I dropped the black cap from the camera. He stood there one and a half seconds.

"'Did you think as I told you to?' I asked.

"'Yes,' he said. 'And I actually forgot for the second that I was here.'

"'That will do,' I said, as I removed the plate. 'You may go, if you wish.' I knew I had a good negative. I was sure of it when I made my proof, and that picture that you saw, which so many people see and have seen, represents Sheridan at Winchester."—*The Chicago Times.*

WE have received from Dr. James P. Holt, Claremont, New Hampshire, a unique order for the PHOTOGRAPHIC TIMES, on the back of a postal card which is itself a blue print, having been sensitized and printed from a portrait negative, we presume, of the sender.

WE understand from those who have used it, that Russell's compound sulpho-chinon developer posseses many excellent qualities, chief among which is that it allows a great latitude in the timing, and developes bromide paper effectively without stain or any discolorization. It has received several endorsements by photographers in the employ of the Government. Manufactured and sold by W. G. Russell & Company, of Baltimore.

PHOTO-GRAVURE CO. N.Y.

A Disgrace

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, MARCH 29, 1889. No. 393.

"IN DISGRACE."

OUR photogravure picture this week is another figure composition, and, though not "a study from life," like the preceding, but a copy from the famous painting, is nothing that a skillful photographer could not make in his own home. The effectiveness of a plain background—in this case merely a corner of a room with white walls—is clearly shown. The introduction of a shadow from the flowers at the extreme right of the picture, as well as the shadow from the little girl herself, wonderfully enhance the effect of the background. It is an excellent study in light and shade; and such examples photographers of these days need and value, perhaps, more than any other.

The making of a perfect technical negative, so far as the photographic qualities are concerned, seems to be an easy matterfor most photographers. They have reached the highest point of excellence in this direction. It is in composing, and in the management of light and shade that photographers have most to learn. The application of art principles in these directions, like the study of music or the building of character, has no limit. One can always improve one's self in these pursuits, and yet perfection seems to be as far remote as ever. The greatest satisfaction in such effort is that there is no end to the improvement possible. There is always something ahead, and we need never, like Alexander, sigh for new worlds to conquer.

"In Disgrace" is a picture which plainly tells the story it is intended to depict. The scattered fragments of paper on the floor, and the demure look on the child and dog alike, who are friends and comrades "in disgrace," as they were previously companions in the frolic which brought about their fall from favor, clearly tells the whole story at a glance. It is, moreover, like all true pictures, more thoroughly enjoyed the longer we look at it.

EDITORIAL NOTES.

THE praiseworthy search after novelties which has characterized modern photography has had a practical outcome in the exploitation of hydrochinon as a developer, with the result that it may now be obtained at a price only about double that of "pyro," although a few years ago its cost was prohibitive so far as regards commercial photography. Experiments to test its capabilities are now being made on a large scale, both practically and theoretically, in fact, the battle of pyro versus ferrous oxalate is renewed, hydrochinon taking the post of the latter, in whose power the tide seems turning. Pyrogallic acid, as it was wont to be termed, afterwards more correctly converted into pyrogallol, gave way to the abbreviation pyro; it has already been proposed to term hydrochinon "hydro," from similar motives; but the most recent proposal is the best, namely, to use its shorter, but strictly correct, verbal equivalent or synonym "quinol" (pronounced *keenole*.)

FROM time to time other reducing agents have been proposed for use as developers, but upon trial found wanting, and now attention is being directed to still another new chemical, or, rather, series of salts of a new chemical amidogen which possess reducing powers of a very remarkable character. It was only a few weeks ago that gaseous amidogen itself was isolated, and recently an investigation into its hydrate and various salts has been made, and the results published by Drs. Curtins and Grey, of Erlangen University. First, the hydrate $N_2H_4H_2O$ was tried and found to reduce metallic solutions with great rapidity, and some compounds. *e. g.*, mercuric oxide with explosive violence. It is not probable that amidogen hydrate or hydrazine will be obtainable for some time to come as a regular article of sale in the stores, for, besides being costly, it is a corrosive liquid acting upon glass, india rubber, and many other substances. But it is found that all its salts possess this remarkable reducing power, at any rate those hitherto experimented with—the dihydrochloride, the carbonate, nitrate, acetate, and oxalate. Photographic experiments with this series of salts are for a time only likely to be made

in the laboratory of the scientific chemist; but this need excite no apprehension should there be probability of photographic usefulness. Most photographers whose experience dates back a decade or two remember pyro at a very different price from that it is now sold at; a few years has sufficed to bring down the cost of quinol, and it is matter of history how hyposulphite of soda, as it was called for so long, was an expensive salt when first discovered by Herschel as a solvent of chloride of silver, and was sold at a high price per ounce.

Let photographers who employ the electric light beware how they permit their eyes to be subjected to its glare! Dr. Dubinski, of Cronstadt, has had under treatment over thirty cases of young sailors suffering from a diseased condition of the eyes, owing to effect of the electric light, in whose vicinity duty had placed these patients. The effects of the disease only manifest themselves during the night time; the patient is awoke by a violent flow of tears, and intense pain round the orbit of the eye, combined with extreme aversion to light. The paroxysm lasts from an hour and a half to double that time, after which the symptoms subside, and the patient can sleep. When he awakes again the only after effect of the illness seem to be a feeling of fatigue in the region of the eye-balls. It is evident from these facts that too much care cannot be exercised by those brought into proximity to electric lights, photographic operators in electrically lighted studios being, we should imagine, a most likely body of workers to be affected in the manner we describe.

Before dismissing the subject of electricity attention may be called to some most marvellous effects recently obtained by Dr. Hertz, of Carlshrue, in which for the first time he has proved it to behave in a manner precisely analogous to light. He condenses it, and perfects it, and he shows how it can pass through bodies that are transparent to it, as glass is transparent to light. Dr. Hertz excited vibrations by means of certain electrical arrangements which we need not particularize; he then collected them by a parabolic mirror, and using a second similar mirror collected them and brought them to a focus. He diverted the vibrations like those of light by passing them through a prism, and showed how they travelled in straight paths through homogeneous media. But strange to say his prism was of pitch, and the substances the electric vibrations passed through were not glass, but bodies such as a wooden door, or a stone wall and so on, these materials offering little or no obstacle. The prism had sides of over a yard long, the electric vibrations being so large in proportion to those of light about two feet in fact from crest to crest was their dimension.

C. M. writes: "Her first picture" (anticipated last week) was successful. A rocking chair, a rug, a mantel, a fire-place, and a blazing fire of pine knots. Dr. Johnson said: "A word written on the spot is better than a cartload of recollection." A photograph taken on the spot is better than a long letter of description.

PHOTOGRAPHING AT THE INAUGURATION

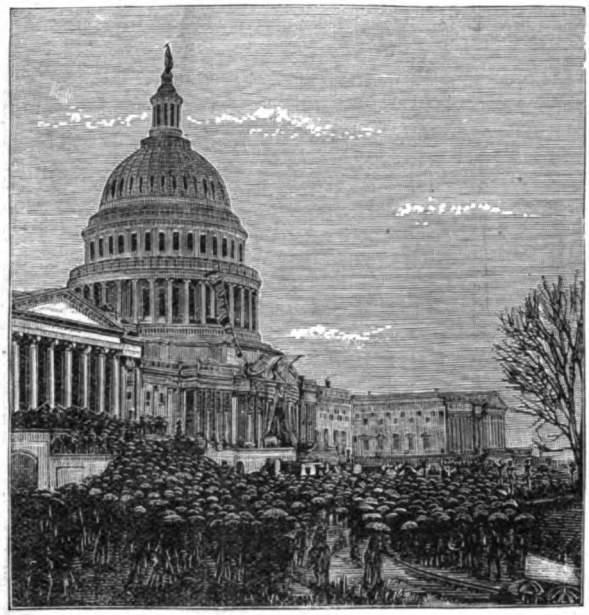
The 4th of March—as every one knows—was a rainy day in Washington. It had rained for the two days previous, and when the knowing ones awoke on the following day to find the wind still unchanged from the north-east, though the atmosphere was much clearer and brighter, they at once gave up hope for a pleasant day, notwithstanding the fact that in this locality a lingering rain almost invariably gives way to brighter weather by noon of the third day.

We had gone to Washington primarily to photograph, and were not to be deprived of at least an attempt by the discouraging outlook; so, filling our plate-holders with the quickest plates available (Cramer's No. 50 sensitometer), and replacing the smaller diaphram in our lenses for one that was larger, we set out in the settling mist for the Capitol.

Pennsylvania Avenue had already been shut off from the rest of the city by large wire ropes stretched along each side of the broad street from the Capitol to the Treasury Building, though it was scarcely 9 o'clock; and we were forced to make our way to the little arbor, from whose roof we had obtained permission to photograph as best we might, by a long and circuitous route. The crowds had already commenced to gather along the sides of the avenue throughout its entire length, but mainly, of course, near the Capitol, and especially round the east front, where the temporary platform showed that the inaugural ceremonial would take place. As the morning wore on the crowds increased and the mist settled into a decided rain.

Shortly after 11 o'clock the van of the escort conducting the Presidential party from the Executive Mansion made its appearance, and soon the landau, drawn by four beautiful bays and driven by Albert Hawkins, the President's coachman—for which all eyes were expectantly looking—drew in sight, and was greeted with prolonged shouts from the assembled multitude. Then came a United

States Artillery Company, making a picturesque appearance with their blue capes lined with red thrown back over their shoulders.



As the Presidential carriage approached nearly opposite our stand, with the troops before and behind it in beautiful array, there was a momentary pause in the march, caused by the immense crowds, and we took advantage of the brief delay to make our first exposure. It was not an instantaneous exposure, for that would have been hopeless under the circumstances, but a quick, timed exposure, made by raising and lowering rapidly a shutter hinged at its top, similar to those used on stereoscopic cameras. This was quick enough for our subject, as the momentary delay in the parade, and its considerable distance from our arbor, together with the fact that the crowds immediately in front of us were so closely jammed together as to be absolutely incapable of moving very much, gave us a brief opportunity to catch the view in comparative stillness.

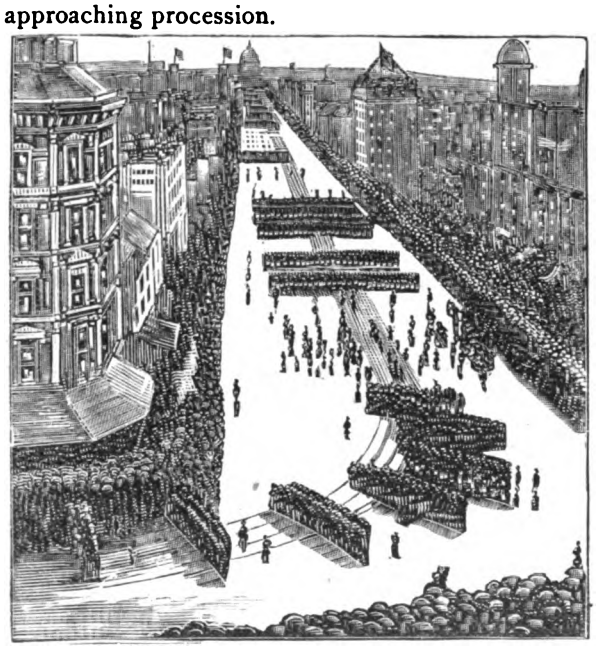
The crowd were not very still, in one respect, at least, especially when a little later the Presidential party issued from the Senate, under raised umbrellas, and proceeded to the front of the temporary platform where the President-elect was to receive the oath of office administered by Chief-Justice Fuller. In the very act of taking the oath, with his right hand raised, we made our second view of President Harrison. Then followed the inaugural address.

The heaviness of the atmosphere and the distance makes it impossible to distinguish individuals in the photograph, of course; but our view gives a good idea of the general scene.

Whilst the President was reading his address, and before the return march to the Executive Mansion had begun, we hastily picked up our traps, and made our way as best we might to the carriage awaiting us on the outskirts of the crowd, and in which we hoped to recross the city by the circuitous way we had come, and get into position on the top of the Treasury Building—the best point in the city from which to photograph a parade on Pennsylvania Avenue, as it views the entire length of the magnificent boulevard, showing the Capitol at the other end—before the first of the column, returning, should have passed our point of view. The length of the inaugural address and the speed of our horses, enabled us to effect this object, though not without some danger, as our colored Jehu, rather enjoying the excitement, took many risks on the way.

"Whar' you driving *at?*" angrily exclaimed an older and more conservative black than our own reckless driver, as we almost ran into his steady-going horse, and stopping him short in our reckless attempt to pass in front.

Arriving at the Treasury Building from the furthermost side, we made our way past the many scrutinizing attendants—armed as we were by our special permission in the autograph of a well-known United States Senator—and at last reached the roof of the building, where we set up our camera in the rain and got all in readiness for the approaching procession.



First came the usual file of armed police to make sure the way; then General Beaver, Chief Marshal, with his staff and numberless aides; after which came the Indiana Veterans who acted as a

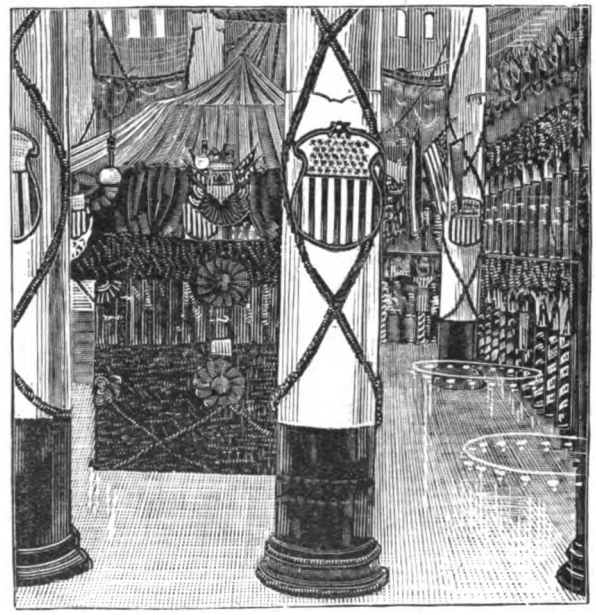
special escort to President Harrison, their old commander. They had seen hard service under him with Sherman's army, during the Rebellion, and the steady down-pour of rain did not seem to disturb them in the least as they marched along in elegant array, dressed in brown uniform overcoats, and carrying canes. Ex-President Cleveland courteoulsy held the umbrella over his successor's head, protecting him from the rain, as he lifted his hat right and left, in response to the tumultuous applause of the crowd.

The continuing rain did not seem to dampen the ardor of any one in the least, and not a ceremony was left out of the immense programme. As the Presidential party, in carriages, turned off to the left, immediately at our feet, to enter the White House grounds, and thus reach the grand reviewing stand in front of the executive mansion on Pennsylvania Avenue before the head of the parade should have passed that point, the procession halting a few moments to allow time for this, we made another exposure, and this time gave our plate at least two seconds. The march continuing, and the atmosphere brightening a little—as well as the uniforms of the men who happened to be passing at the time—we tried one or two "snap-" shutter exposures. Then came eight thousand of the Pennsylvania National Guard, which seemed a still greater number as we looked down the avenue and saw it filled from one end to another, and from curb to curb with the same uniformed men.

"*See 'em, see 'em, see 'em!*" excitedly cried a small, black urchin at our side; and his expressive exclamation seemed very well to describe the interminable body of troops.

A procession of uniformed men makes, at best, rather an uninteresting appearance in a photograph. If a parade be photographed coming directly toward one, or passing at right angles, it shows merely a number of parallel and perpendicular lines of men, without the brilliancy of color and without the strains of martial music that go so much to arouse the interest on beholding such a spectacle; and therefore, as a rule, is unsuccessful. We placed our camera in position so as to view the troops as they wheeled around the base of the Treasury Building, and so obtained a scene with more variation than would otherwise be possible. Some of the companies maneuvred most beautifully before us previous to wheeling into the narrower part of the street. By crossing to the other end of the Treasury Building we caught them as they wheeled again previous to passing in review before the President in front of the "White House."

The procession required several hours to pass a given point. Of course, we did not photograph during the entire time. A few well-chosen "shots" at a parade answers as well as one made at every different body of troops in it.



That night the Inauguration Ball was held, when, of course, no photographing could be done; but the next morning, before any of the profuse decorations had been removed, we photographed the interior of the Pension Building wherein the ball was given.

The reproductions of our views are from wood-engravings of the photographic prints, this being the best method of presenting them under the circumstances.

OBITUARY.

Samuel Root.

From the brief notice last week, our readers learned of the death of Samuel Root, which occurred Monday evening, March 11, at the residence of his sister-in-law, in Rochester, N. Y. Mr. Root had been on a visit in Rochester for some time. He had been sitting in a chair, and arose to walk across the room, when stricken with apoplexy, from which he died instantly.

Samuel Root was one of the oldest photographers in this country. He was born in Ohio, and remained in his native State until reaching manhood. He then went to Philadelphia, and there learned the art of photography. Coming to New York he soon established himself as a leading artist in this profession. He remained in New York several years, and in 1855 went to Dubuque, Iowa, where he also conducted a photographic gallery. Here

he remained until two or three years ago, when he retired from business.

The first picture taken in this country of Jenny Lind, the famous prima-donna, was made by Samuel Root. He also made portraits for Henry Clay, Edwin Forest, George M. Dallas, Bayard Taylor, George William Curtis, and many other noted men. He has accomplished a good work in the photographic world, and was a man much respected and esteemed by all who knew him.

PICTURES OF THE MONTH.

Mr. Andrew Pringle in the last instalment of his interesting and valuable "Thoughts on Our Art," published in No. 388 of THE TIMES, speaks some very wise words anent the reason for the difference existing between ordinary "topographical" photographs and those which possess artistic qualities, his conclusion being that the artistic photograph is differentiated from the non-artistic by its possessing more or less of the subtle quality known as "expression."

None will question the soundness of Mr. Pringle's conclusion; many will wish that he had enlarged somewhat on the best methods of giving expression to a landscape view, which, as he says, is an exceedingly difficult matter. While agreeing with Mr. Pringle that the judicious introduction of figures is "an enormous help," I am not prepared to say that a landscape without figures is therefore devoid of expression.

I have seen not a few landscape views which were full of expression, I have even been so fortunate as to make a few myself without the introduction of figures, which I must confess is always a difficult matter for me to do well, and if not done well 'twere better left undone. The play of light and shade, the presence of atmospheric effect, the judicious arrangement and balancing of the main features of the composition, all help to give expression even to pure landscape.

An instance in point is given by Mr. Fowler's pleasing study, "In the Woods," which forms the embellishment to No. 390 of THE TIMES. While a properly posed figure would undoubtedly have improved the study, no one can glance at it without being touched by the feeling of absolute rest and peacefulness which pervades it, a feeling due in great part to its soft atmospheric effect, but intensified by the easy grace and harmony of the composition. The amateur who can produce such views as this need not lament over-much the absence of figures. Another example will be found in the series of views on the Nashua River, which illustrate No. 341 of *Wilson's Photographic Magazine*, all of which are characterized by the same gentle feeling of restfulness and quiet. To a very high degree they possess picturesqueness, and are therefore pleasing even though they may not be startling. They are "topographical," certainly, but they are not merely that, they are charming interpreters of river scenery, and they form worthy models for study. The same may be said of Mr. Ingersoll's study on Minnehaha Creek, published in the *Science of Photography* for February, although here we find somewhat more of the feeling of life and motion due to the dashing, foaming waters of the little stream. In the same number Atwood's Sancoty Light House is an effective study, which owes its strength to the wise selection of the point of view, by which a good bit of foreground is secured.

A master hand might have improved all these views by the introduction of figures in harmony with the surroundings, but it will be seen, I think, that a considerable amount of expression or feeling has been secured without figures.

"A Picturesque Bit," by Ferguson, in the same issue, shows very strongly how much of added effectiveness is given to a landscape by properly managed figures. Even if the figures in the boat were removed, we would still have a picturesque bit marked by good composition, but we would not have one so rich in interest.

Of the illustrations given in recent numbers of THE TIMES, especial mention must be made of Robinson's "Ophelia," Falk's "Portrait Study," and Dumont's "An Old Shaver," all of which reach the high-water mark of photographic excellence. Mr. Robinson's study is an almost perfect presentation of Ophelia as we picture her in the mad scene. Mr. Falk has given us a picture which is refreshingly outside the usual lines of portrait work, and Mr. Dumont's study shows us the lover of "Solid Comfort" in a new guise. We lament with Mr. Dumont the loss of so promising a model. Mr. Dumont has a sure and easy mastery of accessories, and those who are going in for character studies will do well to learn and heed the lessons of "An Old Shaver." *W. H. Burbank.*

ON DEVELOPMENT.

"What's one man's poison, signor,
Is another's meat or drink."
LOVE'S CURE. Act iii., Scene 2.

How true is this saying of Beaumont and Fletcher. In everything in which man intervenes as a means to the end there is the same break in the chain of certainty.

Man is not a machine; even in the most me-

chanical of work his actions cannot be reckoned upon with certainty, while in brain work pure and simple the result cannot be counted upon at all. Start two men thinking upon any subject and let each follow up his own train of thought; would it ever be the same conclusion, arrived at in the same way? It is hardly probable.

Of all the photographic processes, man's brain is probably most highly concerned in the production of the negative. This is why we read of so many favorite developers. Each one thinks that his must be the best if he gets good results with it, and it is for him, undoubtedly, but when he publishes his formula he generally gives merely the skeleton on which his process is founded, he *cannot* give the most valuable parts of it, *they* are peculiar to himself—part of his inner nature.

Of course, the skeleton one offers us may be a more suitable foundation than another for our own reasoning and peculiarities, for some are better intrinsically, and others are more suitable because they are in harmony with our own method of work.

Since we must have some such foundation for our superstructure, the best and most suitable is of course preferable, and therefore it is useful to have a large variety of formulæ to choose from, and developer cranks are useful in their way.

We should try to choose good formulæ, and then stick to them and learn to use them well. The artist must learn the use of his palette and brushes before he can depict his thoughts on the canvas; the mechanic his tools before he can fashion his model.

Especially should we become well acquainted with the action of our developer. The time of exposure we must determine from a few very general rules deduced from experience, and we are very liable to make an error. So when we come to develop the latent image we should muster our arms—the bottles, and be able to fight our battle coolly, decidedly, and without hesitation, if we would bear off our prize, the good negative, from the opposing chemical forces. The result of this battle depends a good deal upon the accuracy of our preliminary advance, the exposure. If that be wrong we may fare badly, though often if we are cool and able generals we may save ourselves by the use of our reserve forces; if the exposure be right, with a little experience and with good equipments we will succeed.

We do not know the full reactions of the substances which we bring into action upon each other, but we can say empirically that such a thing will have such an action.

Indeed, if the previous processes—the manufacture of the plate and its exposure—could only be reduced to a mathematical certainty, the development would be certain, and almost entirely mechanical. But, as these processes cannot be made an exact quantity, but will always remain variable, to complete the equation, so that the whole may equal n—a negative, we must insert x—experience (no pun intended). Now, this experience resolves itself into brain work, the invariable concomitant of development, and its data, from which we are to deduce by analogy the rule for this particular plate and occasion, its data, I say, whether learned by ourselves or from others' work, should be understood easily and be available for immediate use in any emergency.

Therefore, in the adoption of a formula, we should choose one that suits our taste, and should not adhere to it as to a cast-iron rule, but should be able to vary and change it to suit our needs or peculiarities of working.

If you prefer always to take "so much of No. 1 to so much of No. 2," do so by all means; but if you would rather vary the proportions to what you think suitable for that particular plate or exposure, why, vary them!

Some prefer weak, bulky solutions; others, concentrated solutions and smaller bottles.

Study several well-recommended formulæ, and after you understand the general principles embodied in all of them—the quantities and proportion of the various ingredients and the modifications for under or over-exposure—vary the one you prefer till it suits you.

Now, when you have found this suitable developer and mastered its difficulties, keep to it; but do not think you have found the "best" developer and attempt to dictate to all your fellow-workers; offer them your means to that desired end, a good negative, but do not say, in sweeping generalities, as too many of us are rather apt to do: "This should be so-and-so; *this* is the correct way."

Dallett Fuguet.

A POSSIBLE CURE FOR BLISTERS.

HAVING occasion to use many brands of albumen paper in an experimental way, and always using the commonly recommended preventives of blistering, I have still found many papers to blister in a most annoying manner.

Upon the first appearance of the incipient blister—the small, round pinhead elevation on the prints—we are advised that heroic measures must at once be used, or this pimple will extend to enormous size. As they seldom put in an appearance, however, until after the time prescribed for

the use of the usual preventives—generally not to any noticeable extent until at the last washing—we are then at a loss for a remedy.

Having long since adopted the use of the hypo eliminator so highly recommended in these columns, I am inclined to credit it with a virtue not claimed for it before, to my knowledge—that of restraining the growth of blisters.

As soon as the premonitory blister is observed at once place the afflicted print in a bath of the hypochlorite of zinc, as advised for the elimination of hypo,* and allow it to soak therein some minutes. I have noticed that (presumably by the astringent action of the bath) the primary blister is prevented from increasing in size, and the print passes safely through the final washings. Occasionally a second or third bath is necessary in dealing with extremely obstinate cases.

A protracted washing not being deemed necessary whenthis bath is used, the risk of blisters extending is greatly reduced, besides the advantages of economy in water, labor and patience.

C. M. Brockway.

WINDOWS.

[Read before the Photographic Society of Philadelphia.]

ANYONE who has made photographs of interiors has doubtless taken more or less interest in the window question, and tried in various ways to overcome the great difference in time of exposure necessary for the windows and the interior part of the room.

These ways include shading and closing windows, inside and out—the local use of restrainers in development, and of vignetting in printing, etc.

Wishing to try an experiment in developing, and having no plate exposed, I set up a small camera opposite a window when it was almost dark, and left it for ten or fifteen minutes while I prepared my developer.

When the plate was developed, I found an image of the window sash, curtains and shutters, and also of the trees and houses on the opposite side of the street, but nothing of the inside of the room. This suggested the possibility of getting a picture of the interior with the view outside on the same plate, and the flash-light seemed the thing to do it with.

The exposure by flash-light may be done at the same time as the other if the lens will permit, or if it is not desired to have the outside in focus, or it can be done after dark with a different stop and so have the whole picture sharp.

* Flandreau's hypo eliminator.

The mode I found successful was to focus with the stop I intended to use for the flash, bringing the interior sharp, then inserting a small stop, and giving a suitable exposure for the outside about the same as if I was working out of doors—rather a full than an under-exposure, preferably late in the afternoon, even after sunset; then capping my lens I inserted the large stop, and left the camera closed till it was quite dark, when I uncapped it and fired my flash-powder.

The usual development seemed all right, and the result may be judged by negatives and prints shown.

In the "British Journal Almanac," 1889, there is a somewhat similar method described by an Australian correspondent, who uses, instead of flash-light, ordinary gas with long exposure.

Much might be said about the desirability of having in and outside both in focus at the same time, but that is a matter for individual taste and circumstances to decide.

I think anyone who cares to try this experiment will find it quite interesting, and another pleasure added to the many that photography gives.

Theodore H. Luders.

MY $2,500 NEGATIVE!

$2,500.—Twenty-five hundred dollars reward, for information concerning the whereabouts of the Honorable Mr. Coane, last seen August 17th, 1883, at Oak Mountain, Section X, Cape Noir Island. Apply for information, in detail, to the

I. C. M. DETECTIVE AGENCY,
Central City, Centralia.

This advertisement appeared for a number of weeks in the various daily papers under the headings of Personal, Information Wanted, and Lost and Found. A person curious to learn more would have received, upon application to the agency, a printed letter, having a photograph and description of Mr. C. in the centre, surrounded by a marginal statement of facts, in brief, which I will narrate more in detail.

Mr. Coane was one of a party of ten who left Central City early in August to spend a few weeks in camp in the wilds of Cape Noir. We had organized an Outing Club, and leaving beaten paths, had bought a woodland lot of one thousand acres in Cape Noir Island, which, aside from being a fine camping ground, was a good investment as a lumber interest. In the centre of this extensive playground on the shores of a beautiful lake which we christened Lake Blanc, as a contrast to the name of the island, we had erected a log house of

two stories, fitted with all the rough and ready comforts and necessities that a woodsman knows so well. An immense fireplace in the centre of the large living room, built after the Russian plan, always heaped generously with a blazing fire, crackling and snapping, seemed to animate our cabin with the spirit of good cheer, and in its flickering light the shadows danced fantastically to the music of the soughing pines without. Deer's horns, antlers of the moose, bear rugs, and similar trophies intimated tales of adventure, while guns and rods spoke of exciting times still to come. Bark sketches of fish recorded remarkable catches, and gaudy flies told the secrets of the waters, and the deadly temptation of its denizens. Signs of the outer world were visible too in little luxuries doubly dear in the wild woods, and among others an upright piano was noticeable, which had been sent into the camp during the winter, on a sled, proving by its presence, that the campers were prepared to drive dull care away, even should he by any means intrude his odious presence in this nest of rest.

There were signs, too, of woman's presence, as necessary to man's perfect life of happiness, and good as the tree to the forest without which the field of life would be as a barren waste, a parched and burning desert, with no bright or refreshing oasis, a blot on the world's fair page.

Such was the place to which Mr. C., with the remainder of his party, including four ladies, had come after an exciting journey of seven days, by sea and by land, full of incidents which, though trivial, we all enjoyed, and which our "Scribe" entered in his log-book in due form, and which he may at some day give to the public.

One day, for instance, we had an antediluvian engine whose flues leaked, as a matter of course. Flue-plugs of iron or steel being non-existent thereabouts, wooden plugs were whittled out and driven into the hissing tubes; these would hold water for a while, and until they were burned or blown out we could crawl along for a few miles. This, of course, necessitated a very hot fire, and therefore a large quantity of wood, so all hands turned out and went to chopping *en route*. After fifteen hours of this kind of travel, we reached a place which was built in literal compliance with the scriptural injunction. It was builded on a rock, and comprised two houses, one a store, one, an inn, again reminding us of that one who was weary and was taken in. Here we lodged for the night, after a late supper on coffee, if that is the right name for roasted sawdust, and on bread. Our room was divided amongst us, and all slept in one bed, on the floor, along with the fleas, who kept us warm, especially our feelings, as they merrily skipped about and feasted to their hearts' content upon homœopathic morsels of the contents of our hearts.

But all good things end, and so do the bad, this memorable night included. Day broke before our backs did, and, weary and sore, we again started. We sailed all day, and at night, in company with others, joined a line of stages, by courtesy so-called, each consisting of a dry-goods box on four wheels, without springs. Imagine a board taken out on each side, and nailed across the inside at each end, for seats, the door formed by the missing boards and the roof being covered with enamel cloth, and you can picture our chariot. Our trunks being strapped on behind and the driver being seated in front, away we go across country at the heels of a pair of frisky horses. Each driver was imbued with the water of life which was flowing freely, and his spirits were at high-water mark.

Nervously clinging to our narrow, uncushioned seat, we madly tore up one side of the many hills and wildly ran down the other side, dashing recklessly over corduroy roads and log bridges, occasionally meeting an emphatic "Thank you, marm," with a jounce and a snap that threatened to telescope our spinal column; earnestly hoping that we should not get fillipped out, and yet wishing we could get out in the legitimate way, if only to feel terra-firma once more; wanting the driver to stop that we might get breath which we seemed to have left behind us, and yet earnestly trusting that he wouldn't stop, for fear that the pole of the stage behind might transfix us, a catastrophe which threatened us constantly and of which we were reminded by an occasional more or less gentle prod in the back.

We could see nothing in the inky darkness; we could say nothing, for if we opened our mouths to speak, some log or rock would snap it too again, biting our words off short, at imminent risk of taking a bit of the tongue along with them.

The rain descended in torrents, but as the morning dawned the clouds cleared away, and the sun appeared in splendor, making a view which well repaid us for our adventure of the night. Beneath us lay the waters of an inland sea, sparkling like an emerald, and around it, as far as the eye could see, was a forest of pines, whose dew-bespangled leaves glittered in the sun like flashing spears. But even this was marred by our exuberant drivers, for as we reached the summit of the last hill we saw a sight which induced us to walk the rest of the way rather than end our journey as suddenly as the foremost of our train, for there, at the bottom of the hill, lay the fragments of our Ganymede's

chariot, the commissary wagon, laden with the water of life before mentioned, while the cup-bearers were strewn along the hillside, a sad but striking proof of the intimate relationship between rum and ruin.

At last we reach the wished for shore, and sit gazing seaward, patiently awaiting the steamer and regaining our equanimity, when suddenly the cry of "Fire!" fills the air, and a bale of burning cotton thrown into the midst of our little company fills us with consternation. To catch up pails from the neighboring storehouse, to fill them with water and rush into the burning warehouse, where a careless clerk has dropped a kerosene lamp into the cotton, is the work of a moment, and the fire is out in a flash.

At last, tired and disgusted, wet and begrimed with smoke and soot, we board the long looked-for steam-tug, and reach another landing-place in our course, where we rest for a day. But, alas! for our peace of body and mind, it is muster-day. All day long the bagpipes drone their drowsy tune in our ears, and the kilted Highlander passes and repasses. Usquebaugh now takes the place of eau-de-vie, and the air is redolent with its fumes. In a neighboring field the targets are set up, and the bark of the Snider rifle and the pinge of the bullets vary the monotony of the mournful pipes. Night comes, but sleep does not travel in that night's train; although other wayfarers do, who prove the truth of the old age, for, after giving up all attempts at sleep, and, as a last resort, making a circle of kerosene oil and balancing ourselves in a chair upon one leg within the circle, these indefatigable travelers scale the wall, and after accurate calculation, drop upon the victim beneath. It is of no use to stand seige where such strategies and such missiles are used; retreat alone offers safety, and so we go to the barn, where, on the hay, we get our forty winks of sleep.

Again we start in an open wagon, and after a ride of fifty miles, the latter part on horseback, we reach our camp in the woods, unlock the doors, and at last reach home. Soon our cook has a steaming dinner before us, and a good one it is, for during the winter we send in over the snow all that we can find good and portable. For days we fish and hunt to our hearts' content, and—— "But what's all this to do with the $2,500 negative!" exclaims some impatient reader. So far this is only a log book.

Well, the story is briefly this. But, first, I must describe the camera, for it was by its peculiar construction that I was able to locate certain views and thus get the reward. My negative was taken with a camera which was a surveying instrument. The tripod was without joints, of the pattern known as the Alpine Stock, serving to help me over many a hard place in climbing, and giving me a firm support to the camera. Within it was an iron rod, painted alternately black and red, at intervals of a decimeter.

A small brass disc slipped over this rod answered the purpose of a target, and gave elevations and angles when used with the camera as with a transit, and also gave a comparative scale when appearing in the negative. The bed of the camera contained a pair of leveling glasses, so situated that they served to level the camera in all positions, while a compass set in the centre and having a finely graduated scale served to show the circular deviation from the points of the compass. A finely divided sector swinging in the bed served to show horizontal declination when the camera was tilted. A set of cross-lines in the field of the lens located the position of any object in connection with a central dot on the focusing glass, the point of coincidence being used to sight the object. Whenever I took any view I always sighted some prominent point, and then read the scales, entering the record in my note book opposite a number of my plates or films. In the case of plates I scratched a number in the corner before filling the holders, and so had a record as a part of the negative. For triangulation I took a view at a given spot. I then took this point of view from some other spot, thus obtaining figures from my scales by which the angle could be computed, as with a surveyor's transit, and in addition I had a view of each boundary point and line of permanent value, a speaking likeness, as it were, which would locate the points in the future beyond the question of a doubt. In Florida, where I first used the camera, the prints attached directly to the deeds were positive proofs which admitted no dispute, a valuable factor in a country where boundary lines and surveyors' stakes are as sinuous and as elusive as the rattlesnakes that hide among the scrub palmettos. Positives printed on cross-lined paper told the whole story at a glance, and showed every detail in proportion.

Charles Everett Warren M.D.

(*To be continued.*)

Notes and News.

THE INTERNATIONAL EXHIBITION OF THE PHOTOGRAPHIC SOCIETY OF CHICAGO will be held at the Art Institute from May 15th to 25th, inclusive.

A RECOGNITION FROM HER IMPERIAL HIGHNESS, THE ARCHDUCHESS OF AUSTRIA,—The following letter to the Scovill & Adams Co. explains itself:

"VIENNA, FEBRUARY 28, 1889.

"*Gentlemen:*—On behalf of Her Imperial Highness, the Archduchess Maria Theresia, who is glad to have been able to contribute her share to the results attending upon the Vienna Photographic Exhibition, I have to thank you very much for your kindness in submitting the "Annual of the Photographic Times and American Photographer," which Her Imperial Highness has deigned to accept, and will take a great interest in reading.

Believe me, gentlemen, yours very truly,

Dr. Von Cathrarin,

Secretary to His Imp. and R. Highness, the Archduke Carl Ludwig of Austria."

MEMORIES OF THE BLIZZARD.—Reminiscences of last year's blizzard were vividly recalled to the eye Monday evening, March 11th, by the Brooklyn Academy of Photography, at its fifteenth exhibition reunion at the Hoagland Laboratory, on the corner of Henry and Pacific Streets, Brooklyn. The exhibition was confined wholly to views taken by members of the association of the track of the great storm of last year, and the evening's exercises were intended as an anniversary celebration of the storm, portions of which the indefatigable members of the association had caught with their cameras.

The description of the pictures, which were illustrated with screen and lantern, was preceded by an introductory sketch of a scientific nature, explaining by charts thrown upon the screen the atmospheric conditions preceding the storm, and showing its course from the time it struck New York until it blew itself out in the north-east. These remarks were made by Wallace Gould Levison, president of the association, who also conducted the meeting. He said that for two months preceding March 12, 1888, ships traversing the ocean between Cuba and the Grand Banks met with unusual meteorological phenomena, chiefly in the nature of waterspouts and local cyclones, more than forty of the former having been reported. On March 11 three distinct points of lowest barometric pressure existed. One to the eastward off shore was connected with a storm of hurricane violence which had developed near the Bermudas, and was then travelling to the east away from the coast. Its only participation was to send back a rolling swell from the north-east. The other two centres of low barometer were separated by so slight an intermediate rise in the barometer that they formed practically a trough of low barometer stretching westward considerably, but advancing toward New York at a rate of 600 miles per day on March 11.

Over the coast a warm atmosphere from the Gulf Stream, charged with moisture, prevailed. As the low pressure approached this city the cold temperature following it chilled this atmosphere and precipitated the water in rain or snow. By midnight of March 12 the line of low barometer had passed this city, continuing eastward, where it contracted from a long ellipse to a circle, concentrated between Nantucket and Block Island, where it remained on the 13th and 14th of March and blew itself out.

The lecturer then went on to narrate some of the experiences of vessels in the great storm, after which he was followed by Frank La Manna, who described the various pictures thrown upon the screen. One hundred and thirty-six views, incidents of the great storm, were graphically shown.

Photographic Societies.

LOWELL CAMERA CLUB.

A REGULAR meeting of the Lowell Camera Club was held at Morrill's Studio, March 19. The Committee on Rooms reported that it was deemed inexpedient to change the place of meeting, and recommended that the library remain in its present quarters. The club voted to join the New England Lantern-Slide Exchange, as proposed by the Providence Club.

Mr. W. P. Atwood read the paper on the subject for the evening, "The Development of the Dry Plate." He presented the subject in such a way as to make the process clear to beginners, and gave many suggestions of value to the experienced photographer.

The subject for the April meeting will be "Lantern-Slide Making." It will be practically treated, and club slides will be exhibited on the screen.

Several joined the club at this meeting, increasing the membership to forty-three. Two of the members have sent pictures to the joint exhibition to be held at Philadelphia next month. Yours respectfully,

George A. Nelson,
Secretary.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the society was held Wednesday evening, March 6, 1889, with the President, Mr. Frederic Graff, in the chair.

The Secretary reported the death of Mr. Emlen Cresson, an active member of the society, which occurred suddenly on the 2d inst.

He also reported the presentation to the society, by Mr. Frederic E. Ives, the author of a copy of "A New Principle in Heliochromy," and by Mr. Edward T. Wilder, of Boston, of a pamplet entitled, "The Dawn of Photography," by Wm. T. Brigham, both of which were received with a vote of thanks.

Exhibition circulars, etc., were received from the Columbia College Amateur Photographic Society, the Montreal Amateur Photographic Club, and the International Photographic Festival and Exhibition, to be held in London, Eng., during March.

The Executive Committee presented a report proposing a plan for the selection annually, by vote of the members, of four "Honor Pictures." The pictures submitted for this purpose to be exhibited in the room of the society during the month of December in each year, and to be from negatives made within eighteen months of the date of this exhibition. Each member to have one vote for four pictures, without restriction as to the number to be selected from the work of any one exhibitor. The report was accepted, and the proposed plan adopted.

The Committee on Lantern-Slides made the following report:

Your Committee on Lantern-Slides begs leave to report that at the Conversational Meeting, February 19th, the slides of the Philadelphia Amateur Photographic Club were shown. The committee venture to express the opinion that these slides were the best of the interchange series presented this season, both technically and artistically. Subsequently, slides were shown by George B. Wood, R. T. Hazzard, Robt. S. Redfield, F. T. Fassitt, David Pepper, F. G. Rosengarten, O. D. Wilkinson, W. H. Rau, C. P. Sinnikson, and John A. Schultz.

The Manager of the American Lantern-Slide Interchange has notified us that the English slides have arrived from London, and will be here during the Joint Exhibition.

Several gifts of slides have been received, of which report will be made.

WILLIAM H. RAU,
FRANK BEMENT,
EDMUND STIRLING,
Committee.

The Committee on Joint Exhibition reported that responses from the foreign edition of circulars were beginning to come in, and a fine series of yacht studies by Messrs. G. West & Sons, of Southsea, England, and also some pictures from Russia and Germany had already arrived. Other foreign exhibits from distinguished English photographers were in prospect. The interest displayed by photographers in all parts of this country, not members of either of the three societies, was quite gratifying, many having expressed their intention of exhibiting.

Members and other intending exhibitors were reminded of the near approach of March 25th, the date fixed when all exhibits and entry forms must be in the hands of the committee. The committee being entirely dependent upon the applications for entry blanks as a means of knowing what exhibits can be depended upon, it was urged that every *intending exhibitor* notify the committee of his intention at the *earliest possible date*, and also that exhibits be delivered as promptly as they can be made ready, so that the inevitable rush of work at the last moment be relieved as much as possible.

The Committee on Membership reported the election of the following active members: George B. Phillipps, Dr. William M. Sweet, James Laurence Dillon, Emlen L. Carolus.

A letter was read from Mr. W. E. Barrows, a member of the society, as follows:

ROBERT S. REDFIELD, ESQ., Secretary.

DEAR SIR—Having occasion to use hyposulphite of soda for precipitation where freeness of foreign matter was important, we filtered 15 pounds of that article through the accompanying filter. The hypo sulphite was purchased for photographic purposes from a manufacturer of established reputation in Philadelphia.

Query: How many good pictures have been spoiled by the dirt in hyposulphite of soda?

Very truly yours,

PHILA., PA., Feb. 20, 1889. W. E. BARROWS.

Accompanying the letter was a piece of filtering paper containing a large amount of "foreign matter," which had been filtered out of the solution.

The condition of the filter seemed to indicate that Schuylkill water in its *most natural state* had been used either in the original preparation of the hyposulphite of soda or in the solution which had been filtered. How far such impurities could affect photographic operations was not discussed.

Mr. Theodore H. Luders read a paper on the treatment of windows in connection with interior work, recommending the use of flash light compounds for obtaining the view beyond the windows, as well as the interior itself. (See page 161.)

Dr. Reed showed a film carrier, designed for use with Carbutt films, which had been brought to the meeting by Dr. Hollingsworth, a visitor, who had designed it.

Mr. Earl showed a flash-light devised by Mr. Edward M. Pim, a member of the society. The flame was produced by a coil of wick about two inches in diameter, which was saturated with alcohol. Tubes of glass about two inches long, corked at each end, were loaded with about ten grains of powdered magnesium. A tube of magnesium could readily be inserted in a brass tube beneath the wick, the corks being removed as it was inserted, Pressure on a rubber bulb, with tube connection, forced the magnesium powder through a slit in the centre of the wick, producing a very brilliant light, which, by means of a cardboard reflector attached to the lamp, could be directed as desired.

Dr. Trueman showed an attachment for use with the Scovill Detective Camera, by means of which the shutter could be readily operated, either for time or instantaneous exposures.

A device for setting the shutter of a Scovill detective camera, obviating the use of the usual string provided for the purpose, was described by Mr. Pettit.

Mr. Graff showed a portrait transparency made in 1845, by Mr. Langenheim, of Philadelphia. The precise process used was not shown, though, at that time, the paper prints known as Talbotypes were in vogue. The transparency was in a most excellent state of preservation, though, apparently, some detail in the whites was lacking. It had a peculiar, warm, purplish brown tone, which, so far as known, was the original color.

Adjourned.

Robert S. Redfield,
Secretary.

Our Editorial Table.

NUMBER 7 of *Sun and Shade* has come to our table, filled, as usual, with beautiful plates from life, nature, and famous paintings.

"Eyes to the Blind," in photo-gravure, is the first plate in this issue. It is a reduced copy of the engraving after the original by A. S. Bellows.

Next comes a portrait of Secretary Blaine, also in photo-gravure, after the negative by M. B. Parkinson.

"At Evening Time it Shall be Light," after the etching by P. W. Leader, in photo-gravure, next meets our attention, and then we have a photo-gravure of "A Pair of Forgers," which is a composition from life, by Marshall Brothers of Cazenovia, N. Y., and is a notable photographic work of art.

"The Ice Palace at Montreal, 1889," by J. Loeber, of New York, is reproduced in photo-gelatine; as is also "Mother's Love," a photographic composition from life, by M. B. Parkinson.

"Wood and Water," a study from nature, by Mrs. Nathan Appleton of Boston, Mass., is beautifully reproduced in photo-gravure; and the number closes with a magnificent photo-gravure of "Bayard," after a famous engraving of the noble canine.

The publishers ask the co-operation of their subscribers in speaking favorably of *Sun and Shade* to their friends, advising *Sun and Shade* as a good advertising medium, etc.

Subscriptions are now taken for the current year, from No. 5 to 16. A few copies only of Numbers 1, 2, 3, and 4, are left, which are sold at 50 cents each.

We have received from Mr. Julian Townsend Davies, of New York City, two 4x5 photographs of lightning, made on the Nepigon River in Canada, about 9 o'clock in the evening. The prints are not so good as they might be, but show that the negatives are very good specimens of lightning photography. Mr. Davies should send specimens of his work to the Meteorlogical Bureau.

Mr. A. G. Benedict, of Clinton, N. Y., sends a winter landscape. It was made with a Waterbury B lens, on a Cramer plate, with an exposure of but one second. It is one of the best snow scenes that have have to our table this winter, and reflects credit on all concerned.

From Mr. A. Lundelius, of Port Jervis, N. Y., we have received a pretty photographic novelty in portraiture—two heads in profile introduced on a placque. The idea is attractive, and worth imitating in a souvenir of a wedding.

Representatives from the American Aristotype Company have shown us some of the finest examples of photography of household furniture, etc., on "Aristo" paper of their own manufacture which we have ever seen. The detail is exquisite,and all the beautiful qualities of the negative are perfectly preserved on this extremely sensitive paper.

The *Pansy*, for March, comes to our table, freighted with pictures and stories for young folks from eight to twelve. It is certainly a charming magazine, with not a line of reading that the most particular of parents can object to. The subscription price is $1 a year. The publishers, D. Lothrop Company, Boston, will send a sample back number on receipt of 5 cents.

HER LIKENESS.

Her eyes are bright as bright can be,
Like sun-rays on a summer sea!

Her hair is like a sunset crown
O'er fields of wheat just turning brown,

And in her lips the mantling blood
Is like a ripe pomegranate bud.

Her heart is true as true can be,
Like some stanch oak beside the sea,

And her small hands are pearl and pink,
Like peach-blooms by a river's brink!

Her voice is like a gentle breeze
Borne through the languid laurel-trees.

But, ah! her soul, that few may know,
Is strong as fire and pure as snow!

William H. Hayne,
In Lippincott's.

Record of Photographic Patents.

400,031. Method of mounting and preserving photographic proofs and copies. Daniel K. Zumwalt, Visalia, California.

Queries and Answers.

71 Richard A. M. asks: "What is a 'diapositive?'"

71 *Answer.*—Diapositive is a synonym for transparent positive. It is generally applied to a lantern-slide or window transparency.

72 H. R. T. inquires what quality of meta-bisulphite of potassium should be used with "Chautauqua hydrochinon developer," formula No. 60, in the "American Annual of Photography for 1889."

72 *Answer.*—Take 30 grains of meta-bisulphite of potassium to 120 grains of hydrochinon.

73 R. C. C. asks: "Will you kindly inform me through The Times where I can obtain a few practical lessons in retouching?"

73 We understand that a retouching class is connected with the Cooper Institute; but it might suit you better to make an arrangement with the chief retoucher of some first-class photographic establishment.

74 H. S. asks us to describe the method of intensifying collodion negatives with Schlippe's salt.

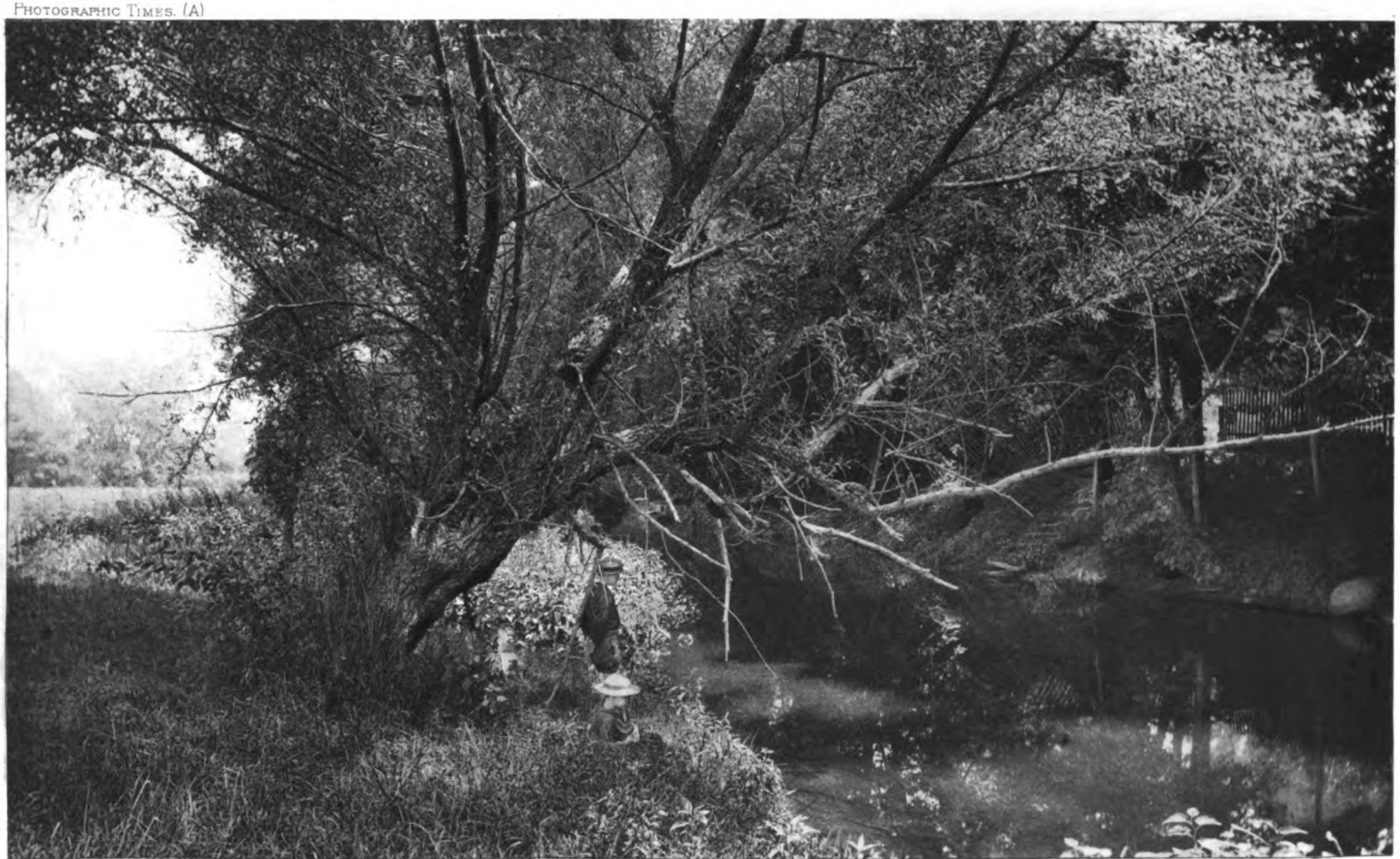
74 *Answer.*—Treat the plate with bi-chloride of mercury, until the light stage is reached, and after washing, pour over it a dilute solution of Schlippe's salt (sulphantimonite of sodium) when the negative turns to a bright scarlet color, very opaque to active rays. The solution of the salt should not be stronger than 10 per-cent, and it should be kept in well-corked bottles. Adding a few drops of ammonia prevents the solution from depositing a precipitate. When ammonia is present, however, the scarlet color is not obtained, but instead of it a rusty brown.

75 An Amateur writes as follows: Will you kindly inform me (1) through your columns how to treat unmounted albumen prints so they will remain perfectly smooth and flat? I have tried various ways that have been recommended, but none has removed the "curl." Is there a sure method? Also tell me (2), if you can, how to mount prints on the leaves of a photograph album so they will remain flat. The leaves will warp and twist, spite of all I can do. By answering these questions you earn my hearty thanks.

75 *Answer.*—(1) Soak the print in equal parts of alcohol, glycerine and water, and dry between blotting paper under slight pressure, or squeegee them upon a clean glass or ferrotype plate. (2) Try No. 131 of standard formulæ, page 280, "American Annual of Photography for 1889."

76 P. F. writes: Please explain (1) why more *iron* is called for in the oxalate developer when plates are undertimed. Are the conditions reversed from the pyro developer which calls for more soda? Also please give (2) cause and cure for the red stain and fine grain of the same in the enclosed print. It is in the *paper*, as another brand does not show it with the same treatment. It is first noticed in the toning bath.

76 *Answer.*—(1) With ferrous oxalate developer iron is the main factor. If otherwise correctly compounded, the stronger the solution the more active it is. For underexposed plates it is advisable not to accelerate with a very strong iron solution, but with minimal quantities of hyposulphite solution in the proportion of 1 to 1,000 (2) The red stain is evidently caused by a grease spot or something that will repel the toning solution. The fine grain is probably caused by the paper not being sufficiently fumed, or by printing in a very cold and moist atmosphere.



MONTGOMERY. PHOTO-GRAVURE CO. N.Y.

STILL WATERS.

THE PHOTOGRAPHIC TIMES.

V[illegible] XIX [illegible] [illegible]AY, APRI[illegible] 5, [illegible]

"STILL WATERS."

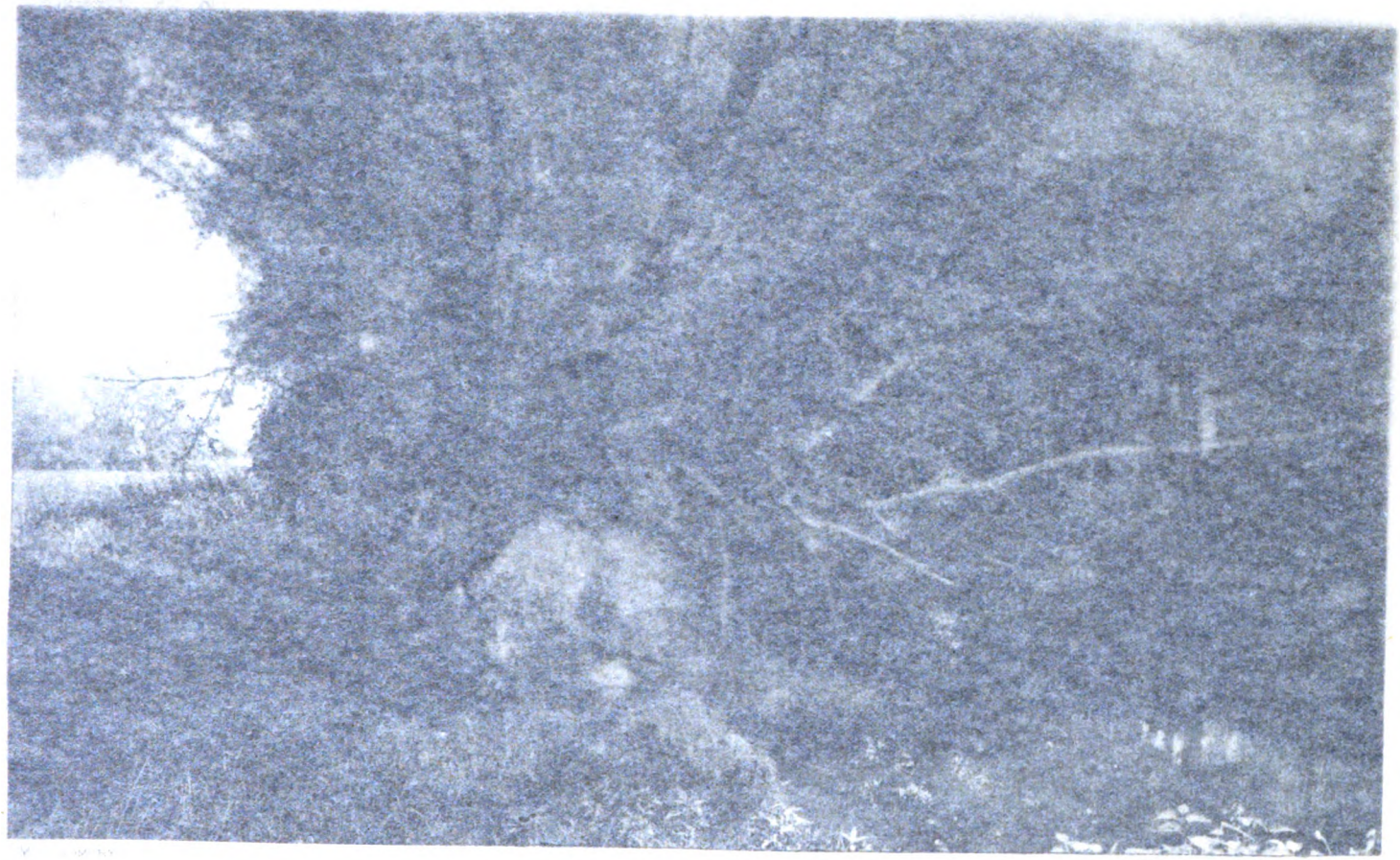
[illegible] frontispiece [illegible] work is from [illegible] by J. J. M[illegible] operator and was [illegible] twelve Ph[illegible] which [illegible] just [illegible] last year. [illegible] speaks [illegible] of [illegible] form [illegible] the be[illegible] we have [illegible] the lig[illegible] shade [illegible] in a [illegible] to bring [illegible] per[illegible] appropriate [illegible] the subject [illegible] enhance the [illegible] the composition.

ARISTOTYPY AGAIN.

[illegible] great and con[illegible] demand for [illegible] chloride of silver [illegible] paper has in[illegible]nced the manufacturers of [illegible] article to increase their facilities for [illegible] the paper [illegible]pecially [illegible]ported for this p[illegible] with sub-stratum and sensitive collodion emulsion. They are now able [illegible] turn out [illegible] not only in machinery [illegible] quality also con[illegible] improved. It is [illegible] uniform now, being [illegible] in rolls from two thousand to five thousand feet [illegible] as sensitive as ever, and partakes [illegible] of the beautiful tones which first attracted popular attention. Profes-sionals are now using the "Aristo" paper exten-sively, and find it to their advantage to do so. The average patron of the professional's studio prefers the tones to be obtained on "Aristo" paper to any other of those he is familiar with. He also admires the fineness of detail which is characteristic of these prints; and it must be admitted that the high polish to which they are susceptible—while de-nounced by artists and disliked by many amateurs, has an unquestionable charm to the average cus-tomer.

Amateur photographers are especially attracted toward this process by its many advantages in manipulation. Its simplicity is one strong charm to them, and the fact that insufficiently developed [illegible] with this paper [illegible] each package of [illegible] not more than the [illegible] are used—[illegible] of the [illegible] satis-[illegible] [illegible] of [illegible] of water, [illegible] adds 15 grains [illegible] The bath must stand [illegible] two [illegible] hours before it will [illegible] With the phosphate bath any variety of tone can be produced, and it is thus proved that the presence of sulph[illegible] is not absolutely necessary for the toning [illegible].

The toning process requires [illegible] and cleanliness. The paper [illegible] on its surface, and the negatives [illegible] varnished. The slightest trace of [illegible] in the film, from insufficient washing [illegible] spots and stains on the print that are [illegible]



STILL WATERS.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, APRIL 5, 1889. No. 394.

"STILL WATERS."

THE lovely bit of natural landscape which embellishes our issue this week is from a negative by J. J. Montgomery, formerly operator for Mora, and was included in "The Twelve Photographic Studies" which were published just before the holidays last year. The picture speaks for itself, and as a study of foliage and tree-form is one of the best things we have ever seen; the light and shade is managed in a manner to bring out the peculiar softness appropriate to the subject, and yet enhance the effectiveness of the composition.

ARISTOTYPY AGAIN.

THE great and constantly increasing demand for American chloride of silver collodion paper has induced the manufacturers of this popular article to increase their facilities for coating the paper (especially imported for this purpose) with substratum and sensitive collodion emulsion. They are now able to turn out the paper not only in much larger quantities than heretofore, but its quality is also considerably improved. It is more uniform now, being coated in rolls from two thousand to five thousand feet long, is quite as sensitive as ever, and partakes as readily of the beautiful tones which first attracted popular attention. Professionals are now using the "Aristo" paper extensively, and find it to their advantage to do so. The average patron of the professional's studio prefers the tones to be obtained on "Aristo" paper to any other of those he is familiar with. He also admires the fineness of detail which is characteristic of these prints; and it must be admitted that the high polish to which they are susceptible—while denounced by artists and disliked by many amateurs, has an unquestionable charm to the average customer.

Amateur photographers are especially attracted toward this process by its many advantages in manipulation. Its simplicity is one strong charm to them, and the fact that insufficiently developed negatives will give brilliant prints is another. So long as the high lights are developed with some distinction, with details in the shadows but faintly visible, there is a possibility to secure a print with a brilliancy that is beyond the reach of any other process. Its increased sensitiveness over albumen paper is considered to be another important advantage of the "Aristo" paper; and the fact that the image rests upon the insoluble collodion film makes it impossible for the picture to sink into the mass of the paper.

In toning the greatest latitude is employed. Almost any tone may be obtained from a negative, so that the most appropriate color can be given to a picture. A number of toning-baths have been recommended by the manufacturers and those who have been most active in experimenting with this paper. The formula that is sent out with each package of paper, if strictly followed, and if not more than the prescribed two drops of sulphuric acid are used—the sulpho-cyanide of ammonium being of the proper purity—will be found to be perfectly satisfactory. Those who object to the use of sulpho-cyanide—under the impression that it is a poisonous salt—may be assured of its harmless character. Mr. Alfred Stieglitz has described a toning-bath without sulpho-cyanide, which works very well and exceedingly rapid. He dissolves 320 grains of phosphate of soda crystals in 34 ounces of water, and after perfect solution is obtained, adds 15 grains of pure chloride of gold. The bath must stand for at least twenty-four hours before it will gain its full force. With the phosphate bath any variety of tone can be produced, and it is thus proved that the presence of sulpho-cyanide is not absolutely necessary for the toning of aristotypes.

The toning process requires the greatest care and cleanliness. The paper must not be touched on its surface, and the negatives should always be varnished. The slightest trace of hypo remaining in the film, from insufficient washing, will cause spots and stains on the print that are impossible to

tone. In washing the prints, previous to toning, an abundance of water should be used. The prints sometimes roll up in the water and show a persistent resistance to lie flat. This may be overcome by placing the prints, after washing, in a clean porcelain tray, allowing them to remain face downward and piled one upon another for several minutes without water, and then placing in a large volume of the toning-bath; but more than two or three prints should not be toned at one time.

Aristotype paper, though originally costing somewhat more than albumen paper, is more economical in the end; for instance, it requires less gold to be toned; in fact, not quite half so much. No fuming is necessary, and less labor is required in completing the process. Five minutes' fixing in a hypo-bath is quite sufficient, and ten minutes' washing will perfectly eliminate the fixing agent, since it cannot possibly sink into the paper, but remains in the collodion on its surface.

Mounting is accomplished in the usual way, except that perhaps the "aristo" prints are not required to be so wet as the albumen prints when the mountant is applied. Starch paste answers very well; or gelatine. The mounted aristotype, as we have said before, should not be perfectly dry when burnished. (See editorial on page 289 of June 22nd issue, 1888).

EVANGELINE.

At the last annual meeting of the Executive Committee of the Photographers' Association of America, it was resolved that a prize, valued at $200, should be awarded to the photographer exhibiting the best collection of three plain photographs, illustrating Longfellow's picturesque poem, "Evangeline." In The Photographic Times of March 1st President McMichael explains what the grand award will be—the original bronze cast figures of "The Roman Wrestlers," which was first exhibited at the Paris Salon. The competing photograph must be not less than thirteen nor more than twenty-two inches in size; and they must be neatly framed, either with or without glass. It will be a fair field and no favor.

The choice of the poem Evangeline as the subject for competitive illustration is a fortunate one in many respects. The poem abounds in graphic description of pictures which are entirely possible for the photographic artist to interpret and depict with his camera and lens; and the time and location of the incidents are such as make it comparatively easy for any photographer to control the accessories necessary for faithfully representing his ideas of the lines selected for illustrating. He need not even employ figures, if he is unskilled, for there are several descriptions of landscape that might be beautifully rendered from nature. The very opening lines are an instance:

This is the forest primeval. The murmuring pines and the hemlocks,
Bearded with moss, and in garments green, indistinct in the twilight,
Stand like Druids of old, with voices sad and prophetic,
Stand like harpers hoar, with beards that rest on their bosoms.

And a little further on is another—

In the Acadian land, on the shores of the Basin of Minas,
Distant, secluded, still, the little village of Grand-Prè
Lay in the fruitful valley. Vast meadows stretched to the eastward,
Giving the village its name, and pasture to flocks without number.

Then we come upon a pleasant group—

There in the tranquil evenings of summer, when brightly the sunset
Lighted the village street, and gilded the vanes on the chimneys,
Matrons and maidens sat in snow-white caps and in kirtles
Scarlet, and blue, and green, with distaffs spinning the golden
Flax for the gossiping looms, whose noisy shuttles within doors
Mingled their sound with the whir of the wheels and the songs of the maidens.
Solemnly down the street came the parish priest, and the children
Paused in their play to kiss the hand he extended to bless them.
Reverend walked he among them; and up rose matrons and maidens,
Hailing his slow approach with words of affectionate welcome.
Then came the laborers home from the field, and serenely the sun sank
Down to his rest, and twilight prevailed.

Next comes a chance for a figure composition of strong and picturesque contrasts, and a description of the lovely Evangeline herself.

Stalworth and stately in form was the man of seventy winters;
Hearty and hale was he, an oak that is covered with snow-flakes;
White as the snow were his locks, and his cheeks as brown as the oak-leaves.
Fair was she to behold, that maiden of seventeen summers;
Black were her eyes as the berry that grows on the thorn by the wayside,
Black, yet how softly they gleamed beneath the brown shade of her tresses!

Sweet was her breath as the breath of kine that feed in the meadows.
When in the harvest heat she bore to the reapers at noontide
Flagons of homebrewed ale, ah! fair in sooth was the maiden.

Fairer was she when, on Sunday morn, while the bell from its turret
Sprinkled with holy sounds the air, as the priest with his hyssop
Sprinkles the congregation, and scatters blessings upon them,
Down the long street she passed, with her chaplet of beads and her missal,
Wearing her Norman cap and her kirtle of blue, and the ear-rings
Brought in the olden time from France, and since, as an heirloom,
Handed down from mother to child, through long generations.
But a celestial brightness—a more etheral beauty—
Shone on her face and encircled her form, when, after confession
Homeward serenely she walked with God's benediction upon her.

Here is a pretty group of the children, watching the village blacksmith:

There at the door they stood, with wondering eyes to behold him
Take in his leathern lap the hoof of the horse as a plaything,
Nailing the shoe in its place; while near him the tire of the cart-wheel
Lay like a fiery snake, coiled round in a circle of cinders.

We read on until the following lines describing the lovers at a later and perhaps more interesting period arrest our attention:

Meanwhile apart, in the twilight gloom of a window's embrasure,
Sat the lovers and whispered together, beholding the moon rise
Over the pallid sea and the silvery mist of the meadows.

And then we shortly come to another picture, that is entirely within the range of photography:

And the notary rising, and blessing the bride and the bridegroom,
Lifted aloft the tankard of ale and drank to their welfare.

The "feast of betrothal" is rich in suggestions for pictures. Following are the lines describing it:

Under the open sky, in the odorous air of the orchard,
Stript of its golden fruit, was spread the feast of betrothal.
There in the shade of the porch were the priest and the notary seated;
There good Benedict sat, and sturdy Basil the blacksmith.
Not far withdrawn from these, by the cider-press and the beehives,
Michael the fiddler was placed, with the gayest of hearts and of waistcoats.
Shadow and light from the leaves alternately played on his snow-white
Hair, as it waved in the wind; and the jolly face of the fiddler
Glowed like a living coal when the ashes are blown from the embers.
Gayly the old man sang to the vibrant sound of his fiddle,
Tous les Bourgeois de Chartres, and *Le Carillon de Dunkerque*,
And anon with his wooden shoes beat time to the music.
Merrily, merrily whirled the wheels of the dizzying dances
Under the orchard-trees and down the path to the meadows;
Old folk and young together, and children mingled among them.
Fairest of all the maids was Evangeline, Benedict's daughter!
Noblest of all the youths was Gabriel, son of the blacksmith!

Then we approach descriptions of appending gloom in the poem, that are none the less picturesque because more sombre.

What an exquisite picture Evangeline makes in our imagination as we read the glowing lines:

Long at her father's door Evangeline stood, with her right hand
Shielding her eyes from the level rays of the sun, that, descending,

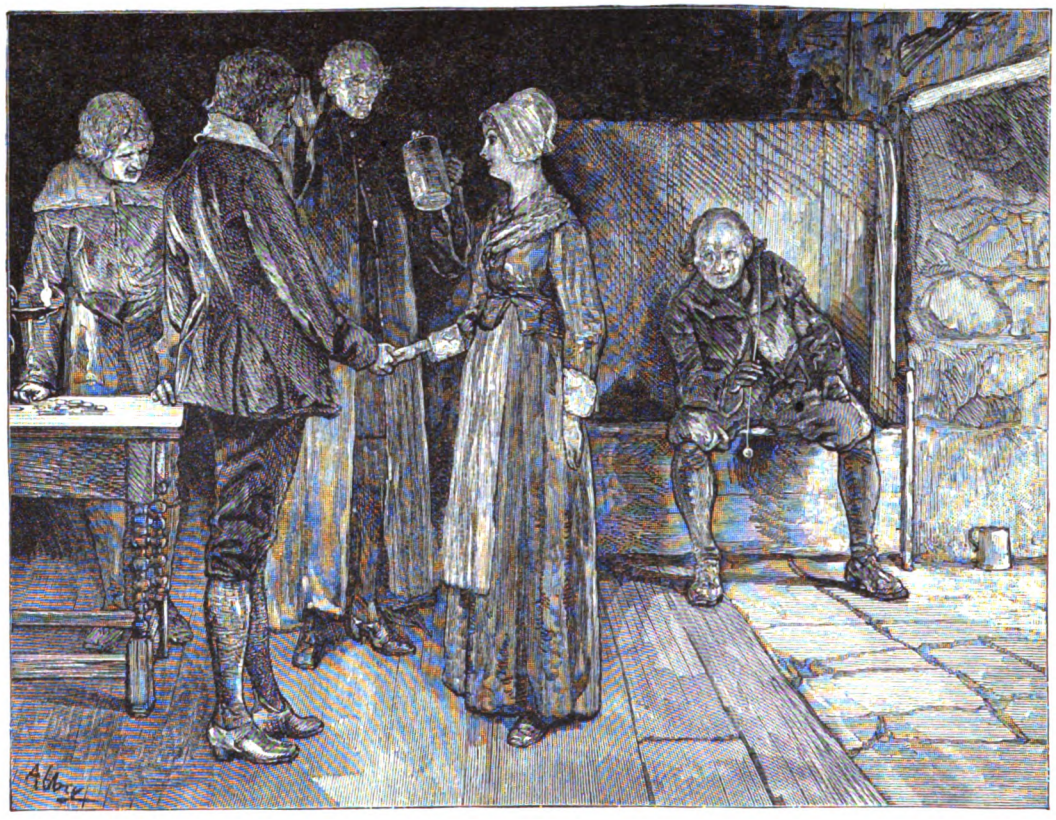
Lighted the village street with mysterious splendor, and roofed each
Peasant's cottage with golden thatch, and emblazoned its windows.

But the saddest of all is the actual parting :

Half-way down to the shore Evangeline waited in silence,
Not overcome with grief, but strong in the hour of affliction—

in the city hospital, Gabriel, the lover of her youth, in the dying old man before her, will be the subject of many pictures :

Tears came into his eyes; and as slowly he lifted his eyelids,
Vanished the vision away, but Evangeline knelt by his bedside.
Vainly he strove to whisper her name, for the accents unuttered



Calmly and sadly she waited, until the procession approached her,
And she beheld the face of Gabriel pale with emotion.
Tears then filled her eyes, and, eagerly running to meet him,
Clasped she his hands, and laid her head on his shoulder, and whispered—
" Gabriel ! be of good cheer ! for if we love one another
Nothing, in truth, can harm us, whatever mischances may happen ! "

Part Second of the poem, which follows the varying fortunes of the wanderers after their cruel separation in the embarcation from Acadia, will be found more difficult to illustrate by photography. The last scene, however, when Evangeline, now the Sister of Mercy, recognizes on her round of charity

Died on his lips, and their motion revealed what his tongue would have spoken.
Vainly he strove to rise; and Evangeline, kneeling beside him,
Kissed his dying lips, and laid his head on her bosom.

Of course there are many more pictures to be found in the poem suitable for photographic rendering than we have called attention to. The poem should be sympathetically read from beginning to end and carefully studied. The wood engravings illustrating some of the lines we have quoted will serve useful only as suggestions. Our quotations it is hoped will be stimulating, and a large number of appropriate and artistic photographs be the result.

The various editions of " Evangeline," published

by Messrs. Houghton, Mifflin & Company, are announced in the advertising columns of this issue with prices annexed. We call attention especially

to the New Phototype Edition, which contains sixteen admirable reproductions from the original illustrations by F. O. C. Darley. These illustrations will be found of greatest benefit to photographers who expect to compete for the Grand Prize; for they are by a skilled artist and will suggest pictures to the photographic artist and stimulate him as well. Let us have an exhibition of photographs at Boston next summer, worthy the subject, the prize, and our own chosen art.

WASHING FLEXIBLE FILMS.

THE question has been asked me more than once, What is the best method of washing a number of films? I offer the following mode as the one presenting itself to me as being of a practical nature, which may be carried out as follows: Take a Scovill washing box, remove the inside frame that is used for washing glass negatives, prepare two strips of wood five-eighths of an inch by three-fourths, and the length of the washing box.

On each strip of the five-eighths side cut a groove the entire length, sufficient in width, and one-fourth inch in depth, to allow it to pass over the edge of the box; on the opposite side of the groove cut notches one-fourth of an inch deep by one-half inch in width, and three-fourths to one inch separation.

Prepare a number of strips half an inch square, and long enough to cross over the washing box and rest in these notches, then attach spring clips known as "bull-dogs" in the hardware trade, and by Dennison Manfg. Co. as their No. 12 card clip, straiten out the hook and attach two (2) to each strip at such a distance that when a 6½x8½ or an 8x10 film is to be washed the clips can be attached equidistant on the one edge of the film, or two 4x5s or smaller sizes can be suspended to hang vertically in the washing box.

The clips should be fastened on the cross-pieces so that the films when suspended in the box may be covered with the water when it overflows from the box; being in a vertical position, the hypo will be washed out much quicker than if the films were laid flat in the dish.

The plan thus suggested is similar to the mode we at one time washed gelatine reliefs in warm water, and will be found to be very effectual in the case of washing flexible negative films to free them from the hypo solution. The clips can also be used to hang up the films for drying.

John Carbutt.

THE SULPHITES OF POTASSIUM.

(Report of the Chemical Committee (James H. Stebbins, Jr., Chairman) of the Society of Amateur Photographers of New York.)

THREE sulphites of potassium, corresponding to the three sulphates, are known, viz., the neutral or dipotassium sulphite, $SO\begin{matrix}OK\\OK\end{matrix}$ which crystallizes with two molecules of water; the acid sulphite, or monopotassium sulphite, commonly called bisulphite of potassium, $SO\begin{matrix}OK\\OH\end{matrix}$ and the anhydrosulphite, which is now known in photography as the meta-bisulphite of potassium, $SO\begin{matrix}OK\\O\end{matrix}$

$SO\begin{matrix}\diagup\\\diagdown\end{matrix}OK$

NEUTRAL SULPHITE OF POTASSIUM, K_2SO_3:

This salt is obtained by passing a current of sulphurous acid through a solution of potassium carbonate until the latter is saturated and all the carbonic acid driven off. The liquid so obtained is allowed to evaporate over sulphuric acid until the salt deposits in a crystalline form. It crystallizes in octahedra, or six-side pyramids. These crystals have a sharp, sulphurous taste. When heated, the salt decrepitates, giving off some of its water of crystallization and losing some of its sulphurous acid. When exposed to the air it absorbs oxygen and is transformed into potassium sulphate. For

this reason it is advisable to always keep your sulphite bottles well corked in order to prevent the absorption of oxygen, and consequently the deterioration of your sulphite. It dissolves in its own weight of cold water and in a lesser quantity of warm water.

ACID SULPHITE OF POTASSIUM, $KH\ SO_3$:

This salt may be obtained by saturating a solution of carbonate of potassium with a current of sulphurous acid.

On now adding absolute alcohol to the liquor so produced, a crystalline precipitate is obtained, which is collected upon a filter, washed with alcohol, and dried. Commercially, however, this method is not employed, as the alcohol is too expensive. The acid sulphite when left exposed to the air gradually gives off sulphurous acid. A saturated solution of this salt, when left to itself, gradually deposits fine rhombic prisms, having the above composition, and a sulphurous and disagreeable taste. The property of this salt, of gradually giving off sulphurous acid, makes it, in our opinion, a valuable ingredient in the compounding of developers, and we are surprised that it or its corresponding soda salt have not been more extensively employed for this purpose.

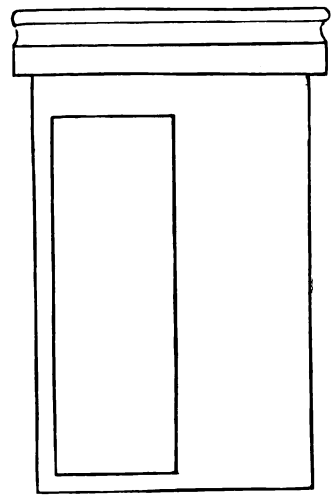
ANHYDRO OR META-BISULPHITE OF POTASSIUM, $K_2\ S_2\ O_5$:

This salt, to which the photographer's attention has lately been called, may be prepared by passing a current of sulphurous acid through a boiling and saturated solution of potassium carbonate. On cooling, the salt deposits in a crystalline form. When heated, the salt is decomposed, giving off sulphur, sulphurous acid, and potassium sulphate. We have received a sample of this salt from Messrs. Herf & Frerichs, which, upon examination, proved to be perfectly pure. As to the role played by this new salt in developers, your committee is at present unable to give any information, but, if we are to judge by the experiments of such men as Professors Eder and Vogel, it presents no advantage over the the ordinary neutral sodium sulphite, and, in fact, is not as efficacious as the latter.

We will, however, institute experiments in this direction at a future time, and hope to be able to report to you upon the same at our next monthly meeting.

TWO IDEAS FOR AMATEURS.

I STRUCK upon a plan a few days ago, while thinking of a manner to make two exposures on the same plate, not such as amateurs are in the habit of doing without much trouble, but one alongside of the other, so as to make it appear as if one was talking to or shaking hands with one's self. I at first thought of many elaborate pieces of mechanism in the camera and holder; but finally something so simple suggested itself that I fear that it has been done before. I never have heard of it, and so am bold enough to present it to the consideration of the fraternity. Get an extra slide for one of your holders and draw a line directly in the center of it, and cut away one-half, leaving about $\frac{3}{8}$ of an inch all around this side, so as to give to it a certain amount of necessary stiffness Cut as here shown:



Draw on your ground glass a line which will correspond to the centre line on the prepared slide; arrange your figure on one side of this line, being careful to have the corner of the room, some line in frame-work, the wall paper or drapery, come over the line on the ground glass; then insert plate holder and withdraw the slide, in its place insert the prepared one, so as to cover the side of the picture on which you desire to make the second exposure. When made, reverse prepared slide, after arranging all for second part of your picture. It is important that same duration of exposure should be made on each half.

I have also another suggestion to make to my amateur brethren who are obliged to convert home arrangements to photographic uses. This is a good way to wash your prints in a bath-tub. Take an empty soap-box and bore it full of holes one inch in diameter; then procure a piece of lead pipe about twelve inches long and large enough in diameter that with a little whittling on the end it will fill the place in which you place the stopper in the bath-tub. Now bend in the form of a letter U, with one end a little longer than the other. Put

the long end into the waste-water opening, when the water will rise in the tub to the height of the top of the bend, when the syphon will begin to act and empty the tub. Fasten a piece of lead to the bottom of the box you have made, this will keep it standing fast in the tub, into which you place it; the water will rise and fall inside of the box and carry your prints with it, so after a few hours you will find that you have gotten rid of the objectionable "hypo" without any attention on your part.

A. S. Murray.

MY $2,500 NEGATIVE!

(*Continued from page* 162 *and concluded.*)

Other details were added as experiment proved their convenience or necessity, but a lengthy description would tire the reader. Equipped with this camera, a pair of roll-holders and a number of rolls, I took many shots on the wing, developing the rolls at home at my leisure, and I took as much pleasure in this novel kind of shooting as with my gun. In the winter they furnished me with studies for my paintings and covered my name with glory, as well as filling my purse with gold. My method was to take color notes at the time of exposure, and then when I threw up the negative on a screen, I had the outlines of any desired size, which I could fill in with color at leisure. This, so far, was a mechanical process, the skill consisting in the blending of the colors and softening of details.

On this trip one of my pet schemes was to obtain a view in panoramic form from the summit of Oak Mountain, which commanded an extensive field of varied landscape. I went up the mountain, August 15th, taking my rods and gun, as there was a large pond at the top, said to be bottomless and full of trout as the woods were of deer. A friend and two guides were with me. After three miles of tiresome travel through heavy brush we reached the summit, put up a shelter, and turned in for the night. The sky was overcast, and not favorable for views, but excellent for fishing, and we caught a great many. Not content with the shore, we launched a raft which we had been told we should find there, and, with our guns at our feet, we poled out into the pond. We had gone about a thousand feet from shore, when our pine tree, with which we had been poling, failed to touch bottom, and slid from our hands with the momentum of the stroke. There we were, without paddle or push-pole, and no bottom; to cap the climax, the raft, waterlogged as it was, began slowly to sink from under us. The prospect was doleful, especially as I couldn't swim a stroke; but, finally, by paddling with our gun-stocks, we reached shore, and walked around to camp.

We had intended to camp one day and two nights, returning the second day, but the weather being unfavorable for views, and desiring to get a shot at some deer who had a trail around the lake, we sent our guides to the main camp for extra provisions and a boat. They came back at nightfall, bringing for provisions a pack-basket full of doughnuts. This provender, with the still dubious weather, disgusted us so thoroughly, that we left the boat, gave the doughnuts to the squirrels, and went back to camp the morning of the 17th. Before going, the clouds lifted about ten o'clock, and the sun shone brightly, showing a clear horizon. One view was especially charming to me, showing, as it did, a green valley extending in an unbroken line at the foot of the high hills, where the river, like a ribbon of steel, ran down the mountain side, setting out on its joyous journey to the sea.

I took two sets of this panorama, to make sure of a complete series, and had to use a second roll for the second series. Upon reaching camp there was great consternation because Mr. Coane was missing. Early in the morning he had gone down the lake, intending to fish the river which joined the one which I had seen from the mountain. As evening came on he did not return, and several guides were sent down the lake with torches, instructed to search until they found him. But in the morning no signs had been found.

For six days we staid at the camp and made a thorough search, but without success. Every part of the reservation was gone over, and finally, with hope gone, we broke camp, leaving a guide at the camp, sending two of the party and all the other guides down the stream, the rest of the party going homeward. Ten days later, the party who had searched the stream reported at Central City that, about five miles from the mouth of the river, they had found the missing boat full of water and with a hole in her side evidently made by the rapids, below which she was found caught in the eddy. The gun and other accoutrements were found intact, but the fish rod and creel were absent. A long search near the place revealed nothing. No news could be gathered from the towns along the river, and the inevitable conclusion was that Mr. C. had lost control of his boat, had been capsized and drowned, and inasmuch as no trace of him could be found, it was probable that he had been carried to sea or been eaten by the wolves and bears which were plenty in that region.

The will was duly probated, and no contestant appearing, the property passed in trust to his brother, to be given, at her marriage, to his daughter, to whom, by the way, I was engaged.

The affair thus far being settled, I began an attempt to unravel the mystery of Mr. C.'s disappearance, with the most curious results, purely negative in every way, but full of surprise and danger to myself. My plans were balked in every way, and I was threatened with violence. My prospective uncle-in-law was as zealous in the search as myself, and was as greatly troubled at our lack of success, earnestly discussing and elaborating new plans, but to no purpose. There was evidently some enemy in the council.

Several weeks before Christmas one of the young ladies who had been in camp with us asked me as a favor to print a set of views of the camp on linen napkins, intending to use them as souvenirs of a reunion of our Outing Club on Christmas Eve. For this purpose I developed the roll having the first series of views from the mountain, leaving the second roll in the camera only partially filled. From these negatives I printed a series of positives, adding the date and an appropriate motto. Our Camp Fire passed off pleasantly, and the guests were especially pleased with their suggestive mementoes.

Next day Miss C. came to my studio early in the morning greatly excited, and produced the napkin which had fallen to her lot. It happened to be a view of the river from the mountain, and had the significant motto, "This is the place I long have sought, and mourned because I found it not." In the middle ground a large water-fall stood clearly out, and at its side, plainly outlined against a background of black rocks, stood Mr. C., with fish-rod in hand, evidently fishing the falls. There could be no doubt about it, but to make surety sure, I threw up the negative on my screen, and then we found that the head was turned, so that the face could be seen as if listening to some sound in the woods, or expecting the approach of some person or thing. Here was a clue, but of doubtful value. Our agents thought it worthless, and the uncle coincided very emphatically in this view, but I thought that at least it gave a clue where Mr. C. was at ten o'clock of the fated day, but the clue would have been worthless if it had not been for the method in which it was taken. I went to the camp by sled most of the way, and by other views found the spot where this silent witness last saw him, but here again we were at a loss. The river was frozen, and the snow was deep, so that the only thing to do was to wait for Spring to clear away the mystery for us, and probably carry all traces away at the same time in the inevitable freshet.

Early in the season we put watchers on the ground, and when the snow was gone we were rewarded with a report that one of the Indian guides, Hiatha by name, had discovered the body of Mr. C., and to our great surprise it showed signs of violence. A party immediately left for the place and discovered the body well-preserved, with a shocking cut through the head and shoulder.

Further search unearthed a bill-hook encrusted with blood, and on this was stamped the number 3, proving it to be Hiatha's, as these bill-hooks, as well as all other property of the camp issued to the guides or others, were stamped with numbers, that an account could be kept more easily. Number 3 had been issued to Hiatha. Circumstantial evidence pointed strongly to the guide, and as he had been previously suspected, he was arrested. At the trial things looked black for Hiatha. He was Mr. C.'s favorite guide. He had gone with me to the mountain, but had been sent down for provisions, and had sent back another guide in his place, that he might go with Mr. C. on the 17th. On that morning he had turned up at camp at noon, saying that Mr. C. put him ashore to drive some ducks that he might get a shot at them. While ashore, another man hailed Mr. C. from the shore below, and Mr. C. knew him and took him in, and went down the lake, leaving him to tramp home. The defence pleaded want of motive, and especially made the point that, if he were the guilty one, Hiatha would not have discovered the body, but rather have concealed it; nor would he have brought the bill-hook to light. On the other hand, the prosecution claimed that he might have done these very things to allay suspicion. That a man should suddenly appear in the woods, miles from any civilization, and that that man should be an acquaintance of Mr. C.'s, was highly improbable, if not absurd, and seemed the invention of a cunning brain rather than a reality.

The jury quickly brought in their verdict, but as the evidence was circumstantial, sentence of death was mitigated to imprisonment for life. The court was closing, already the people were rising, the lawyers were chatting and collecting their briefs, and all was uproar, when a man rushed into the court-room breathless and hatless, with a roll under his arm, which he wildly flourished in the air, and as soon as he could get breath, shouted out to the judge and jury and all present, "I've got him! Look!" and unfurling his roll, he produced a life-size solar print showing a man on a rock by a waterfall such as Miss C. had once before seen, but

with another actor, who had grappled the first by the throat with one hand and with the other held a bill-hook in the act of striking.

The first man was Mr. C., the second his brother. The picture was in the second series taken by me on the mountain. It was on the second roll, with other pictures taken during our last days in camp. I had loaned the camera, with the half-filled roll, to an artist friend, who was taking pictures of models posed for an allegorical painting that he had under way. He had used the remainder of the roll, and had taken the liberty of developing the whole, with startling results, as any one who has seen the picture creep over the plate, as if by magic, when in the developer, can imagine. As detail after detail flashed into view from the dark film, he read its meaning, and seeing its value as a proof in evidence, he hastened to enlarge it and to produce it in court.

The brother was arrested, and, being recognized by Hiatha, confessed. He had left the camp on the plea of a sudden call to the West, had gone a circuitous route to the sea coast, and worked back up the river, waiting for an opportunity to waylay Mr. C. Traveling by night, he had escaped observation, and, supposing himself unseen in any way, and being his executor, had killed him, knowing that the wealth of his brother would be placed in his hands, and that he could then use it for his own ends in speculation. Summary justice followed, and I received the promised reward, although I was paid by my wife, the greatest prize of all.

Charles Everett Warren M.D.

Notes and News.

THE LATEST EXPENSIVE WHIM indulged in by the King of Wurtemberg is the photographing of the moon to ascertain whether it is inhabited. He has the negatives magnified one hundred thousand fold, and has thus far discovered nebulæ covered with little dots, which he believes to be lunar people.—*San. Francisco Argonaut.*

A CORRECTION.—*To the Editor of the* PHOTOGRAPHIC TIMES.—*Sir:* In your issue of March 22d, 1889, on page 142, you say that the illustrations were made from 8x10 negatives by me with a "Ross" wide-angle lens. I employed a "Voigtlander Wide-Angle Lens." By publishing this correction you will greatly oblige,

Yours respectfully,

F. C. Beach.

NEW YORK, March 30, 1889.

PROCESSES OF PURE PHOTOGRAPHY.—"It requires only a few moments to discover that we have in 'Processes of Pure Photography' a most concise and useful exposition of the art photographic—useful especially to beginners from the fact that all hair-splitting has been studiously avoided. All explanations seem to have been evaporated to the point of crystallization. The shortness of its chapters its one of is best features. I cannot well see how the 'processes of pure photography' could be better described."

Yours very truly,

C. D. Cheney, D.D.S.

HOBOKEN, N. J.

MRS. CLEVELAND'S PHOTOGRAPHS STILL SELLING.—Whatever may be said of the popularity of Mr. Cleveland, now that he is no longer President, Mrs. Cleveland still remains, perhaps, the most generally popular young woman in the country. "You are not selling any pictures of Mrs. Cleveland now that she has lost her position as first lady of the land, are you?" asked the reporter of old Aunt Clara Morris, who has kept a picture and curiosity stand at the Capitol for an ordinary lifetime. "Yes, by the hundreds," was the reply.—*Washington Post.*

THE GOOD WORK GOES ON.—Fritz Mueller, of Munich, has sent his contribution for "The American Annual of Photography and Photographic Times Almanac for 1890." Other eminent writers are already at work on articles for the same volume. It will probably be out early next fall.

NOTABLE DEFINITIONS OF ART.—And in the words of Plato, as admirable as they are hackneyed, the beautiful is the splendor of the true. Our artists are, in Charles Lamb's phrase, "deeply corporealized, and enchained hopelessly in the groveling fetters of externality." And this they call realism. The fine arts, as they exist among us, bear witness only too clear and decisive to the deidealizing of life. "A poor toy, petty or vile," is the sentence pronounced upon modern art by Mr. Ruskin. Barren nobleness and void of dignity the arts of design, as they exist among us, proclaim that "glory and loveliness have passed away" from common life. And now let me set down what I believe to be the true theory of art—the theory which, consciously or unconsciously, has inspired every great artist who ever lived. I do not know who has better formulated it than Kant in a pregnant passage of his "Critique of Judgment:" "Only the productions of liberty, that is, of a volition which founds its actions upon reason, ought properly to be called art." It was observed by Goethe that to read Kant is like going into a lighted room. What an illumination is thrown upon the whole subject of æsthetics by these few words of his.—*W. S. Lilly, in the April Forum.*

THE BEST ARTIST.—The eye is the best of artists. By the mutual action of its structure and of the laws of light, perspective is produced, which integrates every mass of objects, of what character soever, into a well-colored and shaded globe, so that when the particular objects are mean and unaffecting, the landscape which they compose is round and symmetrical. And as the eye is the best composer, so light is the best of painters. There is no object so foul that intense light will not make beautiful. And the stimulus it affords to the sense, and a sort of infinitude which it hath, like space and time, make all matter gay. Even the corpse has its own beauty. But besides this general grace diffused over nature, almost all the individual forms

are agreeable to the eye, as is proved by our endless imitations o fsome of them, as the acorn, the grape, the pine-cone, the wheat-ear, the egg, the wings and forms of most birds, the lion's claw, the serpent, the butterfly, sea-shells, flames, clouds, buds, leaves, and the forms of many trees, as the palm.—*Emerson.*

Photographic Societies.

NEWARK CAMERA CLUB.

LANTERN-SLIDE EXHIBITION.

THIS enterprising young club gave a most pleasant lantern-slide entertainment in Association Hall, Thursday evening, March 21st. The best of fifteen hundred pictures were selected, and the exhibition did not close until nearly 11 o'clock. The slides shown were the work of the members, and included some unusually fine ones. There were landscapes (summer and winter) about Greenwood Lake, along the Passaic River, in the Catskill Mountains, in Pennsylvania, New York, and some from foreign countries, a number of notable ones being contributed by Mr. Thomas A. Hine, who spends his winters on the shores of Biscayne Bay.

CASE SCHOOL CAMERA CLUB.

BEFORE the time for the regular meeting, Friday afternoon, March 23d, the members of the club assembled and were photographed by Lafayette D. Vorce, who afterwards during the meeting gave a demonstration of the development of the negative with hydrochinon, and although the weather and conditions were unfavorable, he obtained a first-class negative.

At the next meeting (April 5th) a demonstration of amateur dry-plate making will be given by

Milton B. Punnett,
Corresponding Secretary.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

ON Friday evening, March 8th, "Illustrated Boston," by the Boston Camera Club, was shown before the society and comprised sixty-seven views, mostly of the interesting streets, squares, historical buildings, the public common, educational institutions, Harvard College, and scenery along the Charles River. The description of the pictures was prepared by Mr. Arthur H. Dodd, who was present to read it. Mr. Wm. Garrison Reed has the honor of being the member who suggested the idea of illustrating the city.

As a whole, the views in showing the streets and buildings were quite interesting. The dissolving lantern used was loaned by Mr. George Marshall Allen, and operated by Mr. F. C. Beach and A. G. Tisdel. The hall was crowded to its utmost capacity, and sprinkled among the audience were many ladies.

On Tuesday evening, March 12th, the regular monthly technical meeting of the society was held. Mr. F. C. Beach read a paper on the "Effect of Electricity on Dry Plates," describing a number of scientific experiments.

Mr. Charles Simpson exhibited a peculiar changing bag to be hung from the neck and to be used when in a sitting position.

Mr. David Williams explained his outfit which he intends to use during the summer on his trip abroad. It was arranged to take 6½x8½ pictures, and folded up in a small space. He also had a new but simple magnesium lamp and a special canvas box divided into compartments to hold the various articles needed on a photographic jaunt.

The Chemical Committee read a report on "The Sulphites of Potash."

Mr. G. D. Milburn exhibited an improved Bausch & Lomb shutter having a special air-valve device by which the time of the shutter was very easily regulated. He also read a paper on "Enlarging on Bromide Paper," following it with a successful demonstration, enlarging a child's head two inches in diameter to life size, and used for this purpose the society's optical lantern with limelight. An exposure of twenty seconds was given.

After the demonstration the society adjourned.

The President announced the election of Dr. J. M. Eder, Leon Vidal, A. Davanne, Dr. H. W. Vogel, J. Glaisher, and M. Carey Lea as honorary members of the society. He also read a few proposed amendments to the constitution, among which was one allowing amateurs or professionals residing beyond the corporate limits of the city of New York to become corresponding members on payment of a fee of five dollars.

THE THIRD ANNUAL JOINT EXHIBITION OF PHOTOGRAPHS.

AT the close of the very successful exhibition of photographs, held by the Photographic Society of Philadelphia, in January, 1886, the committee in charge suggested to the Society of Amateur Photographers of New York, and the Boston Camera Club, that the three societies should unite in holding annual exhibitions in each of the three cities of New York, Boston, and Philadelphia, in rotation. (This was first proposed in the PHOTOGRAPHIC TIMES.)

By such a combination it was thought that much more interesting collections of pictures could be brought together in one exhibition each year from all parts of the country, than if the work was scattered through three separate exhibitions in as many different cities.

The idea became immediately popular in the other organizations. A "Joint Exhibition Council" was formed, with three representatives from each society. A uniform set of rules was adopted, so that the awards of the judges at one exhibition should be equal in value to those of any other in the series. A high standard of merit was made imperative to obtain one of the limited number of diplomas at the disposal of the Board of Judges.

The first exhibition of the series was held under the auspices of the Society of Amateur Photographers of New York, in April, 1887. This was followed by one in charge of the Boston Camera Club, held in the galleries of the Boston Art Club, in May, 1888. This year the Photographic Society of Philadelphia takes its turn, and preparations are now in progress for the third exhibition at the Pennsylvania Academy of the Fine Arts, from April 8th to 20th.

Naturally much friendly rivalry exists among the three societies, to make each exhibition more interesting and successful than previous ones.

The Photographic Society of Philadelphia was organized in 1862, being the oldest organization of its kind in this

country. Among its original members, who are still actively associated with it, are Messrs. Frederic Graff, the present President; John C. Browne, Coleman Sellers, Francis T. Fassitt, Wistar Morris, and J. Dickinson Sergeant. During the twenty-seven years of its existence it has thoroughly kept pace with the progress of the art, and counts among its members, past and present, many of the most expert photographers and scientific men of this city. Its present active membership is something over two hundred, composed of skillful amateurs, who find in photography a pleasant and healthful recreation; scientists, who study the art experimentally; artists, to whom the camera is a helpful tool; travelers, who bring from all parts of the world pictorial records of what they have seen, and professional photographers of the highest ability.

With her large membership to draw upon, and the assistance not only of the other two societies, but of photographers in all parts of this country and abroad, there seems every prospect that the approaching exhibition will excel in number of exhibits and quality of work shown, anything of the kind yet held in this country. A large number of most beautiful examples of photographic art have been received, including many exhibits from England, Germany, and Russia.

Photography now numbers among its followers many ladies, whose artistic skill and cultivation enable them to produce work of the highest excellence, and it is expected that they will be well represented on the walls of the Academy.

The Exhibition will open on Monday, April 8th, and continue until April 20th, the galleries being open day and evening, except Sunday. On Tuesdays and Thursdays of each week, at 8 o'clock, P.M., special displays of lantern-slides will be made in the lecture-room of the Academy. One of these evenings will be devoted to a fine collection of slides sent over by the Camera Club of London, England, in exchange for a set representing the work of some of the prominent societies in the United States. Upon other evenings miscellaneous collections will be shown, including the work of the Photographic Society of Philadelphia, and other American photographers.

For these lantern displays the committee have wisely determined to issue special tickets, limited in number to the capacity of the lecture-room, for each evening, so that overcrowding will be avoided.

A complete catalogue is in preparation, which will give full particulars in regard to each picture, with information as to the processes employed, etc., making it a valuable assistance to a full appreciation and understanding of the exhibits, and an interesting souvenir for future reference by photographers.

The committee of arrangements in charge of the exhibition consists of Messrs. John G. Bullock, Robert S. Redfield, and Samuel M. Fox, representing the Photographic Society of Philadelphia; Mr. H. T. Duffield, of the Society of Amateur Photographers of New York; and Mr. Edward F. Wilder, of the Boston Camera Club.

Diplomas, not exceeding twenty-five in number, will be awarded by a board of judges for the most meritorious work exhibited; and the committee have been most fortunate in securing for this most important and difficult duty the services of the following gentlemen: Messrs. John C. Browne, George W. Hewitt, James B. Sword, Xanthus Smith, and Frederick B. Schell.

The foreign exhibit therefore received comprised over 180 pictures; and the American entries include over 440 frames, and, of course, a great many more pictures.

Prof. S. W. Burnham, of the Lick Observatory, has entered some fine moon photographs—the largest ever taken, besides some excellent views of the observatory (exterior and interior), and of the surrounding mountain scenery.

Among the foreign exhibitors from whom pictures have been received are the following:

Frank M. Sutcliffe, of Whitby, Yorkshire, England, and John Patterson Gibson, of Hexham, England, both of whom were awarded prizes at the Joint Exhibition at Boston, in 1888. Mr. Sutcliffe received two awards for best landscapes and animals.

Arthur R. Dresser, of Kent, England.
G. West and Son, Southsea, "
W. W. Winter, Derby, "
W. C. Harvey, Gosport, "
Alfred Stieglitz, Berlin, Germany.
Harry Symonds, Portsmouth, England.
Mr. & Mrs. W. J. Anckorn, Arbroath, Scotland.
James Brown, Newcastle-on-Tyne, England.
Richard Keene, Derby, "
Paul Lange, Liverpool, "
Charles Edward Wyrall, Aldershot, "
W. H. Geddes & Son, Arbroath, Scotland.
Harry Tolley, Nottingham, England.
P. H. Emerson, Suffolk, "
Konstantz Krzyzanowska, Turbow, Russia.

PHOTOGRAPHIC ASSOCIATION OF BROOKLYN.

THE annual meeting of this association was held on Wednesday evening, March 20, 1889, with twenty members present.

The secretary's report was read and approved. The membership roll shows the association to have thirty active members.

The treasurer's report was also read and approved. The surplus now amounts to $90.20.

The following officers were elected to serve for one year:

President, E. Wagner.
Vice-President, Dr. F. A. Schlitz.
Secretary, Chas. M. Heid.
Treasurer, A. Roussel.
Librarian, L. Burckhardt.
Chemist, Dr. E. Rauth.

Chas. M. Heid,
Secretary.

Our Editorial Table.

THE first number of *Sashin Shimpo*, the Japanese journal devoted to photography, of which our esteemed contributor, Professor W. K. Burton, is an editor, has come to our table. We regret our inability to profit by the valuable information with which it undoutedly is filled, but we are interested to *look* at the little magazine, and wish for it a successful career.

A UNIQUE photographic calendar designed by Mr. J. H. French has come to our notice, and for which we have

nothing but words of praise. The design is very attractive, combining in one view fourteen scenes of lake, river, mountain, seashore, surf, cascade, falls, bridges, etc., besides views of children. A small calendar is placed in the centre of the card. The whole forms a souvenir which patrons ordering photographic work will be glad to receive. It was photographed from an original copy fifteen by nineteen inches, and is made in two sizes, the smaller of which is the cabinet size.

THE "flash" light picture sent by Mr. A. Lundelius, of Port Jervis, N. Y., is excellent in many respects. Its composition is especially good, showing the author and his brother over a game of chess. On the wall we recognize the familiar portraits of two or three friends, that have embellished pages of THE PHOTOGRAPHIC TIMES in weeks past.

A LONG-FELT want by photo-engravers, has been met by Mr. Wolfe, of Dayton, Ohio, who proposes not only to give instruction to the uninitiated in the methods of making line plates for the production of half-tone, high relief, clichés, etc., but will actually make the plates himself, at a small cost, from negatives which are sent to him for that purpose. The specimens of Mr. Wolfe's work which we have seen show him to be well qualified for this work.

FROM Messrs. Allen & Rowell come two show frames of photographs from negatives on "ivory" films. One is an excellent portrait 8x10 inches in size, printed in carbon; the other consists of a number of foreign scenes that are well selected and beautifully rendered. If we had ever had any doubt as to the efficiency of "ivory" films, it would be dispelled by these examples of photography, for they are equal to anything we have ever seen, and far superior to most of the work that comes under our notice.

Record of Photographic Patents.

400,084. Photographic shutter. Henry Herbert, London, County of Middlesex, England.

400,140. Lantern or Lamp. George W. Stockley, Cleveland, Ohio.

400,162. Photographic camera. Erastus B. Barker, Newark, N. J.

TRADE MARKS.

16,420. Photographic outfits. E. J. Horsman.

Queries and Answers.

77 FRED. C. PARKER writes: In your "Photographic Instructor" you recommend the "Chautauqua" toning bath, and give directions which I tried to follow out, but I had a number of prints in the above bath, but could not get them beyond a very reddish brown tone. Was this caused by too many prints being put in the bath? How many will that bath tone, size, 5x8?

77 *Answer.*—With 1½ grains of chloride of gold in solution you can tone from eight to ten 5x8 prints. It is not stated what kind of paper you print upon. If ready-sensitized, it should be remembered that the paper requires to be fumed in the vapors of ammonia before printing, and to be washed in alkaline water before toning. Then the toning bath will work satisfactorily.

78 RODNEY BUSHHILL, writes: (1) I will say I have been using a book called The Amateur Photographer Systematic Exposure note book, published by the The Camera Co., of New York. I use a Beck 8x10 Lens and Carbutts B plates No. 16, and go by the book. To-day I took several views and gave them four seconds exposure, at 11 o'clock A. M. they were of dark houses and were way over exposed. Can you tell me the reason? I have used the book with a Queen's Pantograph Lens and they were always about right. Can you let me know if I can use the book with a Beck lens; I used a stop F 45 and F 32.

78 *Answer.*—These books and tables give approximately correct information on the subjects treated. In practice, however, you will find that you must rely more upon experience and judgment than upon the letter of the law. Not all emulsions bearing the same number are equally sensitive; a slight deviation from the developer you have been accustomed to, condition of light and atmosphere, and also the state of temperature are of great influence. There is no reason why your tables could not be used with the Beck lens.

79 "HAMPDEN" writes: (1) I wish to use the "Schwier" toning bath, No. 79 of the Annual of 1888, but my gold is acid sol. 4 grains to the ounce. Can you give me a modification of the formula to use my acid gold chloride? (2) Does the 1:50 given mean 1 grain dry chloride in 50 grains of water? (3) Have tried neutralizing with borax without satisfactory results as yet on the "Schwier" durable paper.

79 (1) The quantity of borax required to neutralize the acidity of chloride of gold is generally given far below what is really required. Owing to the different state of acidity of commercial chloride of gold, no definite quantity can be given. Rely upon the test with litmus paper. (2) A solution 1:50 means 1 part of the substance dissolved in 50 parts of the solvent. (3) Your gold solution being quite strong and acid, probably not enough borax has been added to secure the effect desired.

A LAMENT.

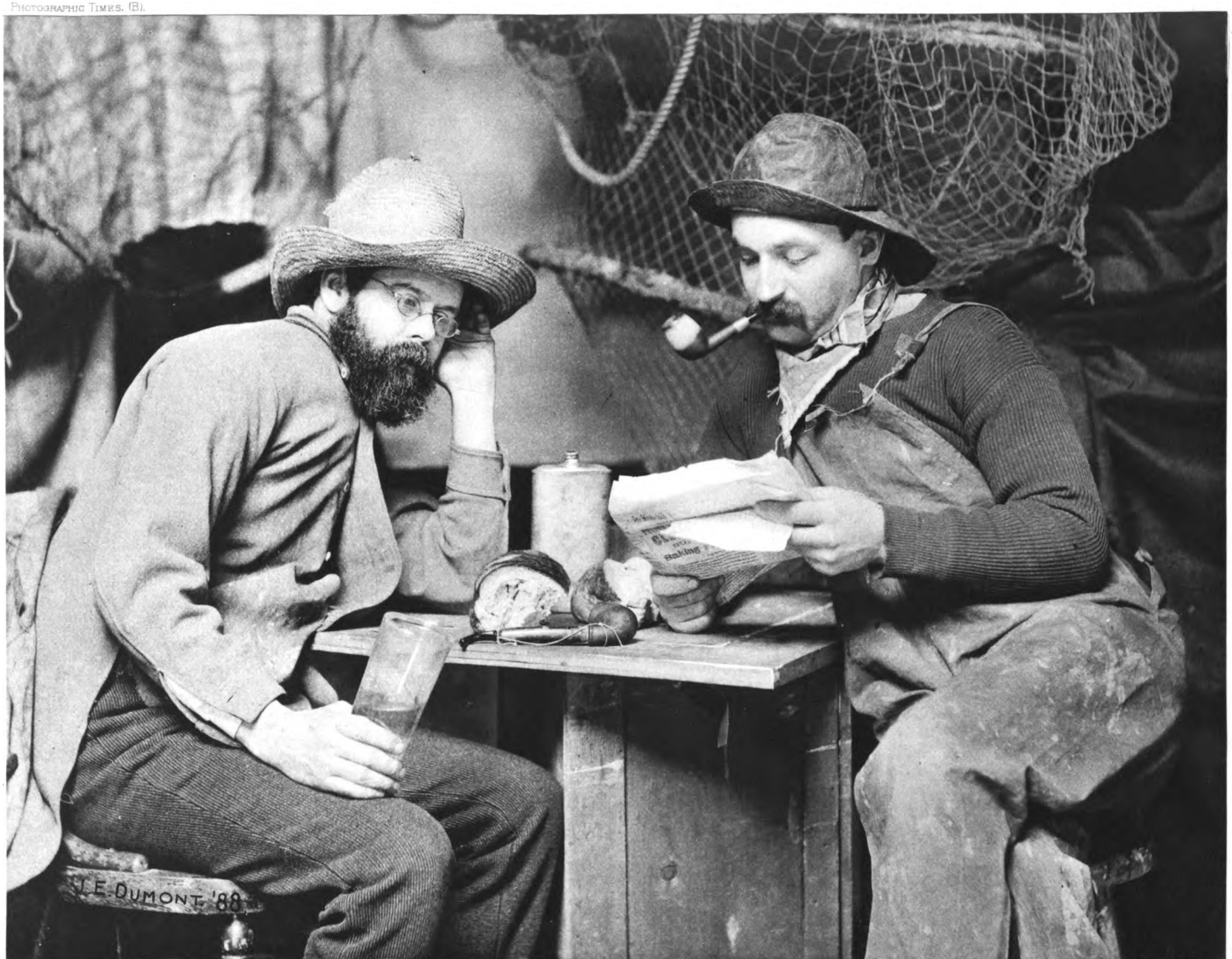
WHY, oh why, in this silver age,
When costly films are all the rage,
Are small boys so aggressive
So irrepressive
In their demands that their "picter be took?"

Where, or where, in this time realistic,
Will I find a maiden so unsophistic
As not to pose,
To cock up her nose,
At the photographer's merest look?

When, oh when, in this country progressive
Will my friends but see the marks expressive
Of my loving pains
And artistic aims
In the prints of my photographic book?

Ah! then, when small boys are polite and artistic,
Every maid is natural, every friend a critic
Of feeling and taste—
Ah! then, in haste,
At Gabriel's call the skies will fall!

—D.



AN OUTING.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, APRIL 12, 1889. No. 395.

"AN OUTING."

THE figure composition which embellishes this issue of THE PHOTOGRAPHIC TIMES, is by John E. Dumont, of Rochester, already well known to the readers of this journal by his "Old Shaver," and its companion, "Solid Comfort." In "An Outing" we have an example of no less skillful if more intricate composition, than in the two previous pictures shown. The story of two comrades enjoying "an outing" together, somewhere by the sea, with plenty of good fishing, and freedom from the restraints of city life, is well told by the subjects which enter into the composition of the picture, the accessories, and the arrangement of the whole. The pleasant brown which Mr. Edwards has chosen for printing the photo-gravure, lends itself especially to the spirit of the picture. "An Outing," writes Mr. Dumont, "was made in the room of a friend, on a Cramer plate, with twenty seconds' exposure."

EDITORIAL NOTES.

FOR restoring negatives intensified by mercury, which have turned yellow with age, Dr. Zenker proposes an immersion of the plates in Selle's uranium intensifier, acidified with acetic acid, until, by reflected light, all the light parts of the negative appear bluish in color, and the shadows, greenish. After thorough washing, the plate is then transferred to a dilute ammonia solution in which the yellow stains will gradually vanish, and the negative, with a very slight loss of density, will come out of the bath possessing an agreeable grayish-black tone.

WE recently have read the report of some experiments by Dr. Oidtmann, on the action of light on albumen and coloring matter in living plants and blood, that are very interesting. He renders blood light-sensitive by adding to it bichromated alkalis, and coats large glass plates with the adhesive mixture. All moisture having been removed from these plates, they are exposed to sun or electric light, under an oiled lithograph or other translucent print. An exposure of a minute proves sufficient to produce an invisible image, which may be developed by dusting-in with black enamel. The light rays seem to cause a distinct transformation in the blood albumen. From these experiments, the doctor goes on to draw conclusions respecting hygiene, which, while interesting and instructive, are more appropriate in other columns.

A NEW medium for protecting glass negatives and positives from injury by dampness, friction, or moist printing paper, has recently been introduced under the name of "ivory varnish," and so far as our experiments with it have progressed, it seems to be an excellent and safe compound. As it dissolves pyroxiline, however, it cannot be used for collodion plates; but it is perfectly applicable to gelatine negatives. The latter need not even be heated when the varnish is applied, but the preparation is merely flowed over their surface and dried in an ordinary temperature. The result is a protective film of extreme hardness which perfectly resists the action of all moisture. A negative thus varnished, after being thoroughly dried, may be immersed in hot water of 120 degs. Fahr., and wiped dry with a rag, without injury. This quality makes the "ivory varnish" an excellent one for transferred bromide prints. The damar varnish heretofore used for this purpose, being softened by a high temperature, will scratch or dull when touched. The varnish is mainly intended, of course, for "ivory" film negatives, and for this purpose nothing can be better. It will not crack nor soften; dust, water, and foreign matter will not adhere to it; and retouching is facilitated by its use.

SOME weeks ago (January 11th issue) we spoke of an improved studio camera stand entitled the "Elite," showing a cut which gave a very good idea of its general appearance. In compliance with the inquires which this note raised, we now give our readers a more definite description of this new camera stand.

At first glance this stand appears to be built upon the general principal underlying the construction of the older studio camera stands for large portrait cameras; but practical portraitists do not fail to admire the ease with which this stand can be adjusted at any desirable height or inclination, and the noiseless manner in which it may be moved from place to place, its elegant appearance and accurate construction.

Instead of the clumsy levers and racks, by which accurate adjustment of the platform was obtained in the older stands; the proper elevation and inclination are produced in the "Elite" stand by cog-wheel and snake screw, and the manipulation at one side by a wheel with handle, and within reach of the operator, so that he may adjust his camera from under the focusing cloth while focusing. The platform, when raised to its highest limit, is forty-seven inches from the floor; and when at its lowest, thirty-two inches, allowing thus a difference of fifteen inches between its extremes. By means of the wheel worked at the rear end of the platform, the horizontal position of the platform may be inclined upward or downward to a limit of 15 degrees. A great advantage from this movement, we observe, is that a true horizonal position—so difficult to obtain in the old camera stands—is, with this one, an easy matter to effect. This is especially important to those who may use this stand for reproduction work. The platform is fifty-two inches long and twenty-five inches wide, and its length may be increased to seventy inches by an attachment which slides out forward, making it quite long enough for supporting a large copying camera. Then, a semi-circular cut-out, to the rear end of the platform, is a convenience to the operator, who is thus enabled not only to stand closely up to the ground-glass, no matter how far the camera may have been pushed forward, but bending of the body is obviated, which is quite a necessity with all the older stands. It also contains a wooden rack, attached to one side, for receiving the plate-holders. In fact, the new "Elite" camera stand is a boon to every photographer who works under the sky-light. It is made in two sizes, No. 1 and No. 2. The dimensions which we have given refer to No. 1; with No. 2 they are larger.

THE HISTORY OF A CHERRY BOUGH TOLD BY PHOTOGRAPHY.

THE accompanying illustrations, for which we are indebted to *La Nature*, show the working out of a very original idea—that of photographing successive phases in the life and development of twig on a cherry-tree.

The originators and executants of this "object lesson" are two brothers, amateurs, of Prague, Bohemia, Messrs. Jos. and Jon. Fric.

Having selected the branch which they wished to study, they marked three points on the ground, so that the tripod might always be placed in the same position, and, of course, used the same lens and camera.

The appearance of the branch at the beginning of spring is shown by Fig. 1; some of the buds are

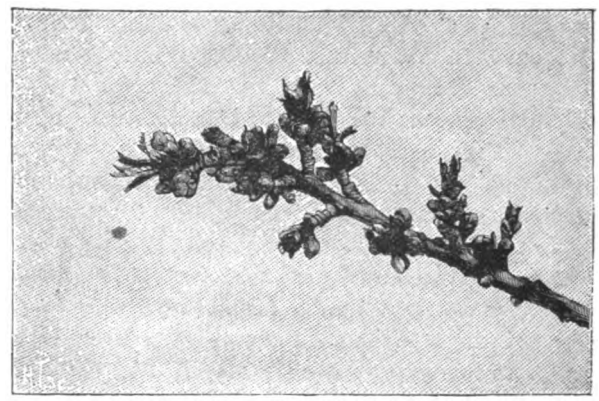


FIG. 1.

beginning to swell and open, the advancement being unequal; the tips of the young new leaves just begin to be visible.

Fig. 2 shows us the leaves and blossoming time in the full tide of spring. What a marvelous

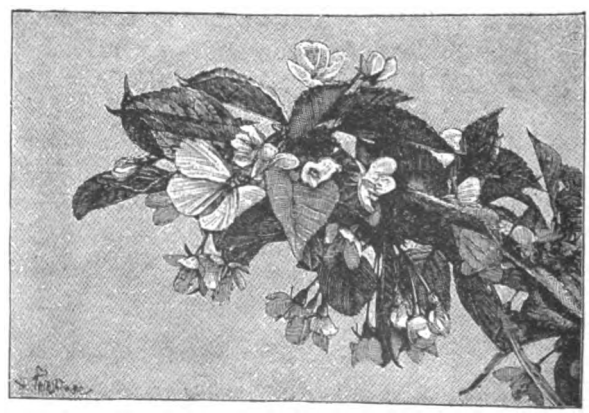


FIG. 2.

change has taken place! The branch itself is entirely concealed by the leaves and blossoms. What

looks at first sight to be a cluster of flowers on the lower side, near the end, proves on closer examination to be a wandering butterfly who has called to make a visit.

The bud and blossom have given way, in Fig. 3, to the fruit; three fine cherries, one of which is

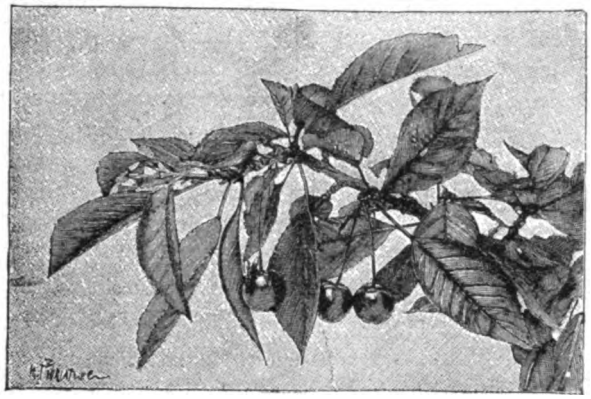


FIG. 3.

serving as restaurant to a fly. The branch has again become visible, and a new shoot has appeared at its extremity.

Up to this point we have followed the rising and growing fortunes of our twig to its complete maturity. Now we contemplate the other phase of its career. Fig. 4 shows how autumn finds it; most of the leaves have fallen, and we shall see that one only

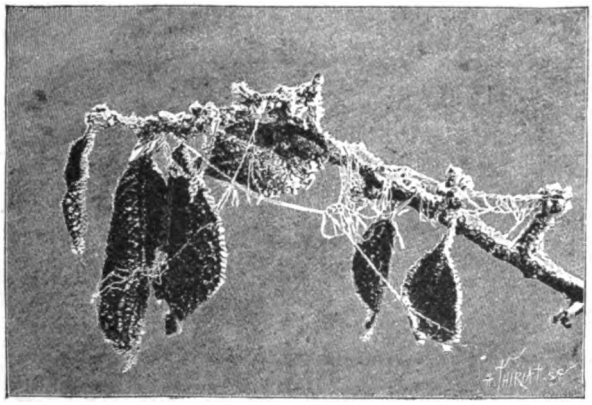
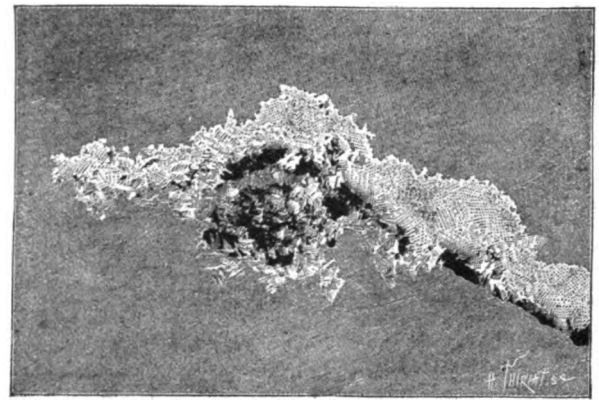


FIG. 4.

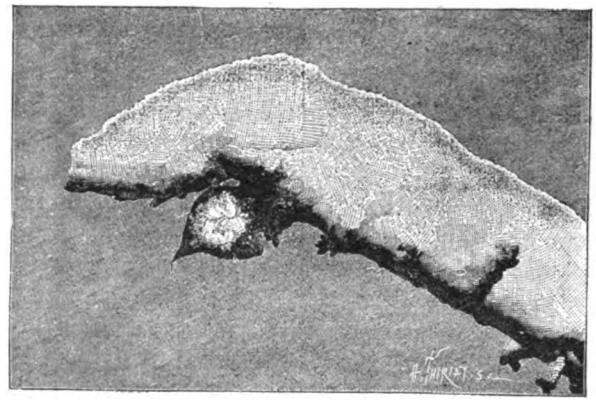
—that which is in a horizontal position near the centre of the branch—will remain through the winter. A cocoon of some sort of insect is seen near the centre, and stray filaments of cobweb appear here and there, and the whole is whitened by the early frosts.

The next figure shows the appearance at the beginning of winter, and the effects of heavy frosts, or possibly light snow; and lastly we have the branch weighted down with the heavy snow of



mid-winter; and the hurrying wheels of time will soon again bring the buds and inaugurate anew, the same series of metamorphoses that we have been following.

The clever authors are to be congratulated on their success in making a permanent record of Nature's works, and it is to be hoped that their example will inspire others to attempt work in similar directions. The same landscape, at different



seasons of the year, would be interesting; other trees, even shrubs and grasses, are not far to seek.

A Philadelphia amateur recently studied, in a similar way, the rapid growth and blossoming of the night-blooming cereus, and it is to be hoped that we may see many more results of this interesting sort.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—(*Continued.*)

GELATINE.

When a bone is left for a day or two in a weak solution of hydrochloric acid, the mineral part is dissolved away, and a soft mass remains composed of a substance known as *ossein*. An analysis of

ossein shows it to be composed in one hundred parts as follows :

Carbon	49.2
Hydrogen	7.8
Oxygen	24.4
Nitrogen	17.9
Sulphur	0.7
	100.0

This ossein is insoluble in either hot or cold water. Other parts of the animal body, as skin, horn, and connective tissue, have the same composition as ossein, and are in all respects similar to it.

But when ossein is boiled with water it undergoes a modification into the substance called *gelatine*, which has somewhat different properties, especially in being soluble in warm water.

In the manufacture of gelatine the raw material —usually the parings of skins, with hoofs, etc.—is treated somewhat differently by different manufacturers. When it is received at the factory it is treated with milk of lime and dried in sheds, so as to stop the decomposition which would otherwise take place. When required for use, the lime is washed off, and, after exposure to the air for two or three days, the skins, etc., are boiled in water until the transformation of ossein into gelatine is complete.

To clarify the hot liquid, either alum or albumen is added, which carry the impurities down to the bottom. The insoluble parts are then removed from the boilers by a strainer or colander, and the liquid gelatine is poured upon tables to solidify, the drying being afterwards completed upon nets.

The gelatine so prepared is a brittle, glassy, transparent mass, which swells up in cold, and dissolves in warm water. When the solution is cold, if it contains more than one per cent. of gelatine, it forms a tremulous jelly. Gelatine is insoluble in alcohol or ether ; it is precipitated from its solutions by the addition of excess of alcohol, or by tannic acid, corrosive sublimate, or platinic bichloride. Impure gelatine may be purified by dissolving it in warm water, allowing it to cool, squeezing the jelly so produced through coarse canvas, then washing several times in tepid water (which will remove the coloring matters), dissolving again in warm water, and finally precipitating as a whole clot by the addition of an equal quantity of alcohol.

By long-continued boiling gelatine is changed into a gum-like substance called *metagelatine*, which is soluble in cold water. Boiling with strong alkalies converts gelatine into leucine and glycerine, ammonia being given off.

Chondrin is a very similar substance to gelatine, differing in the fact that it is precipitated by alum, acetate of lead, and sulphate of iron, or copper.

Gelatine is now of primary importance to the photographer, being used as the vehicle which holds the sensitive salts of silver on the glass plates. When impregnated with about one-sixth its weight of potassium bichromate, the mixture is readily affected by light, and is then insoluble in warm water. This fact is the foundation of most of the photo-mechanical printing processes now employed.

The principal gelatine manufacturers now prepare a special article for photographic work, and this is usually of two qualities, soft and hard. "Nelson's No. 1 Photographic" is a good example of the former, and "Heinrich's" or "Coignet's Gold Label" of the latter. An admixture of the two varieties is best for most purposes.

Isinglass is a superior, and common glue an inferior variety of gelatine. In testing gelatine, each sample is made up into a ten-per-cent. solution with water, and allowed to cool in a beaker. The beaker is fitted with a lid, through the center of which passes a stout wire having at its lower end (resting on the gelatine) a half-inch-ball, and at the upper end a small tin canister ; shot is poured into each canister until the ball is forced into the gelatine, and the weight of shot required in each case indicates the comparative strength of the various samples. In the dry state, gelatine keeps well, but when moist, or in solution, it soon decomposes.

Glycerine.

Formula, $C_3H_8O_3$: Combining weight, 92.

Glycerine is largely obtained, as a bye-product, in the manufacture of soap. For when a fatty body is boiled with a caustic alkali we get soap and glycerine. It is also produced in Wilson's patent process for candle-making, by which fat is decomposed by superheated steam. Glycerine is a viscous, colorless liquid, with a very sweet taste, but no smell. It mixes readily with water, and is neutral to litmus paper. Glycerine is sometimes added to the pyro developer, which it assists in preserving ; it also acts as a mechanical restrainer, preventing the too rapid decomposition of the silver sub-bromide or bromide.

Glass.

Glass is a transparent, hard, brittle, homogeneous solid, formed by melting silica (sand or powdered flint) with oxides of the alkaline, earthy, or common metals. It is insoluble in all acids except hydrofluoric (HF).

There are four principal varieties of glass:

(1) Crown Glass, used for glazing purposes; plate glass is a variety of this; chemically it consists of silicate of soda and lime.

(2) Bohemian Glass—silicate of potash and lime; this kind of glass is hard to melt, and is, therefore, used for tubes which have to be strongly heated, as, for instance, those employed in the analysis of organic substances:

(3) Flint Glass or Crystal, containing silicate of potash and lead. This is a heavy, lustrous, and easily fusible variety. Our common glass tumblers are usually made of lead glass; and it is practically indispensable for the manufacture of achromatic lenses.

(4) Bottle Glass; silicate of soda and lime, colored green by the presence of oxide of iron. This is the cheapest and most impure variety of glass.

Ordinary glass is rarely colorless, and its tints are due to the presence of small quantities of the oxides of certain metals, especially iron, in the sand which is practically an essential ingredient in the manufacture of every variety of glass.

The colors imparted by these oxides are as follows:

Protoxide of iron (FeO).....green.
Peroxide of iron (Fe_2O_3....brownish-yellow.
Protoxide of copper (Cu_2O). .....green.
Peroxide of copper (CuO).. .....red.
Sesquioxide of chromium (Cu_2O_3)....green.
Oxide of uranium (UO_2)....greenish-yellow.
Oxide of cobalt (CoO).....blue.
Oxide of silver (Ag_2O).....lemon to orange.
Oxide of gold (Au_2O_3).....ruby.

By far the commonest impurity is the protoxide of iron (FeO), which stains the glass green. To correct this the manufacturer adds a little black oxide of manganese (MnO_2), which, when heated, readily parts with some of its oxygen. This released oxygen unites with the protoxide of iron, raising it to the state of peroxide (Fe_2O_3), which imparts only a light lemon tint to the glass—a tint which is practically invisible. But, unfortunately, an *excess* of oxide of manganese is almost always added, and under the influence of light this colors the glass a pink or puce color. This is a frequent cause of studios becoming "slower"—exposures lengthened—after they have been erected for some years. On taking out an old pane of glass the difference in color between "that which has been exposed to the light and that which has been protected by the rabbet will often be very noticeable." Fortunately it has been discovered that arsenic trioxide (As_2O_3) will oxidize the iron as effectually as manganese; and as all the arsenic dissipated by heat passes up the chimney of the glass furnace, it leaves no injurious residue.

Lead glass may be known by its blackening all through when heated strongly in a gas flame.

Plate glass is made by pouring melted glass upon a level iron table, and rolling it out to the required thickness with iron rollers; it is then ground and polished.

Sheet glass is made by "blowing" the glass into large cylinders, which are then cut with a diamond and again heated till they open out into flat sheets. "Patent plate" is only sheet glass which has been ground and polished. For large negatives (say sizes above whole-plate) patent plate is to be recommended, as it is, or should be, perfectly flat; and there is thus little danger of its breaking in the printing frame.

The "ruby" glass so largely used by photographers is made by "flashing" (*i. e.*, coating) white glass with a thin layer of glass containing peroxide of copper. Glass colored all through is called "pot metal," and pot metal colored ruby by oxide of gold is better than the "flashed" glass. But the safety (for photographic purposes) of any sample of red or yellow glass can only be properly tested by the spectroscope, as some varieties of red glass allow many blue rays also to pass.

Gold Cyanides.

When a solution of potassium cyanide is added to a dilute solution of gold trichloride, a yellow precipitate of gold cyanide, Au (CN), is produced. The principal solvent of this substance is potassium cyanide in excess, which combines with it to form a double salt—potassium-gold cyanide—which is largely used for gilding by means of the galvanic battery. Copper and silver articles may be gilt by simply making them perfectly clean and then dipping them into the liquid.

Gold and Sodium Chloride.

Formula, $NaAuCl_4+2H_2O$: Combining weight, 361+36=397.

Prepared by dissolving common salt in a solution of gold trichloride, and evaporating the solution. Yellowish-red crystals of the double salt then appear. When exposed to the air, these crystals effloresce and become yellow. When anhydrous they are red. This salt is also known as sodium chloro-aurate. Prepared in this way, the gold salt keeps better (*i. e.*, is less deliquescent) than if in the form of the pure chloride. When used for toning purposes, a rather larger quantity, by weight, than of the pure gold chloride, will, of course, be required.

GOLD.

Symbol, Au: Combining weight, 192.

Gold is found either in detached grains or nuggets scattered through sandy or alluvial deposits, or disseminated in veins or reefs of quartz. Native gold usually contains a little silver. California and Australia yields nine-tenths of the gold now raised annually.

Gold is yellow, lustrous, soft, very malleable and ductile. It reflects yellow, but very thin gold-leaf transmits green light. Neither oxygen, air, nor steam have any effect upon gold, and it is unaffected by acids, except the mixture known as aqua-regia, in which it readily dissolves to form trichloride of gold, $AuCl_3$.

Gold is too soft for use alone, so that for coins, jewelry, etc., it is alloyed with either copper or silver, or both. Pure gold is 24 carats fine, standard gold (employed for coinage), 22 carats, and 18, 15, 12, and 9 carat gold are also recognized. These expressions mean that 24 parts by weight of the alloy contain 22, 18, 15, 12, and 9 parts by weight of pure gold respectively. In the German, American and Italian coinage the standard is 21.6 carats only. English gold coins consist of 11 parts of pure gold alloyed with 1 part of copper.

Gold is precipitated from its solutions by the addition of ferrous sulphate. It then appears as a brown powder, fusible under the blow-pipe to metallic gold. Oxalic acid also slowly reduces gold.

W. Jerome Harrison.

(*To be continued.*)

CHIPS FROM AN AMATEUR'S WORKSHOP.

XII.

ANILINE DYES IN PHOTOGRAPHY.

THE numerous applications of photography in the arts of decoration have received comparatively little attention in this country. It is possible that many of the commercial methods of decorating plane and other surfaces owe more to photography than is suspected. But if this is so, the general public are not aware of the fact, and the secret is jealously guarded by interested parties.

Many of the decorative applications of photography succeed only in skilled hands, and for that reason are little practised by amateurs. The beautiful art of photo-ceramics is an instance of this; this interesting and valuable application of photography being less widely known and practised than its merits deserve, on account of its many difficulties.

The beginner should commence lower down, and for his first efforts in this direction nothing can be better than the photographic application of various aniline dyes, a subject which has recently been quite thoroughly treated by M. Geymet in his "Procédés Photographiques aux Couleurs d'Anilines," to which I am indebted for much of what I shall have to say about the process, in which I am as yet only an experimenter on a small scale. My purpose in including a description of Geymet's process in this series is not to tell what I have done with it, but to tell what can be done, and to call the attention of amateurs to a process which seems full of promise and to open up a new and charming field of photographic work.

My own experiments have been tentative merely, intended only to demonstrate the feasibility of the process, but they have been so far successful as to warrant me in calling the attention of more skilful workers to it, in the hope that they may discover other applications than those which I shall indicate. Meantime I shall continue my own experiments as opportunity permits, and shall give the readers of THE TIMES timely notice of the results.

At the outset I wish to disclaim all intention of writing authoritatively in the matter. At the same time, what I shall have to say may be taken as the result of personal experiments, and, to that extent only, reliable. This much by way of introduction to guard myself from possible misconception or the assumption of seeming to speak more wisely than is becoming an humble experimenter.

Now for the process itself. It is asserted by M. Geymet to afford a comparatively easy and economical method of decorating in colors such substances as glass, ivory, celluloid, etc., etc., by means of bichromated films and aniline dyes, and so far as my experiments have extended, these claims seem to be well substantiated. Up to the present time my experiments have been confined to the production of pictures in one color on glass, and while I cannot claim to have attained perfection, the results, or rather the best of them, are sufficiently good to warrant the following description of the method.

As applied to glass, either plain, ground, or opal, the process may be thus briefly summed up:

1. The coating of the support with a sensitive film which shall have the property of being made insoluble by light.

2. The removal, after exposure, by means of a suitable solvent, of the soluble portions of the film.

3. The coloring of the image thus left by means of an alcoholic solution of an aniline dye of the desired color. The reason for employing an alcoholic solution will be evident from the fact that the glass is coated with a bichromated albumen film,

the undissolved portions of which are made completely insoluble, and thus hardened by the alcohol.

Preparation of the sensitive solutions :—Pulverize 75 grains of pure gum-arabic, pour over it 3½ ounces of water, and allow it to stand for twelve hours, or until dissolved.

At the same time 6½ drams of whites of eggs are placed in a wide-mouthed receptacle together with 3½ ounces of water and allowed to stand until the gum solution is ready.

When ready to prepare the sensitive solution, 35 grains each of the bichromates of potash and ammonia are powdered and dissolved in 13 drams of water.

This done, the gum and albumen solutions are mixed, one-quarter of the bichromate solution added, and the whole beaten to a froth, which is removed to another vessel with a silver fork as fast as it forms. The beating is continued until all the liquid is, so to speak, emulsified, the bichromated solution being added gradually.

The beaten product is allowed to stand for twelve hours, in the dark, of course. It is then beaten a second time precisely as before but without the addition of the bichromates. After standing for some hours the mixture is filtered three times, or until a perfectly pure and clear liquid is obtained. It should be used within two or three days to insure good results. The proportion of albumen in the formula is purposely great in order to secure brilliant results.

The next step is

Coating the Plates.—This is to be done in a room lighted by yellow light and kept scrupulously free from dust. Previous to coating each plate is dusted off with a brush. The plate is then coated by pouring on sufficient of the mixture to make a moderately thick film. Any excess is poured into a second bottle surmounted by a filter. The mixture is distributed evenly over the surface with the finger or a piece of cardboard. All air-bells are removed by gently blowing them to the edges of the plate, where they will do no harm.

Each plate must be dried immediately after coating to prevent the bichromates from crystallizing. As the application of heat would cause a "too previous" insolubility of the film, some other means must be adopted. The one recommended by M. Geymet, and which I have found efficacious, is to place the plate on a level surface and to fan it dry with a piece of flexible cardboard. By this simple means an 8x10 plate in a warm room can be dried in fifteen minutes.

The dried plates do not retain their good qualities for any great length of time, and should therefore be used soon after their preparation.

The Exposure.—The exposure under a suitable negative is very short. With negatives strong in the blacks and without veil in the lines, three to five seconds' exposure to sunlight in summer and five to ten in winter will generally be found sufficient. But diffused light produces the best results, and requires an exposure varying from five to ten minutes.

Negatives of line subjects or grained negatives of subjects in half-tones must be used. A thin finely-ruled or dotted film screen interposed between an ordinary negative and the plate will answer for experimental work.

The Development.—Development is effected by immersing the plate for some minutes in clear cold water, to remove the still soluble parts. As the image is not visible until the color-bath is applied, the process of development is purely mechanical, but if the exposure has been right, three minutes will suffice to remove all the soluble portions.

The development terminated, the image is colored by flooding the plate, held by a pneumatic holder, with a saturated filtered solution of some aniline dye in alcohol. In order to produce a more intense tint, the alcohol may be warmed.

The color-bath is poured over the still wet plate, and allowed to evaporate before the plate is washed. After washing, the plate is allowed to dry spontaneously, after which it is varnished with a turpentine varnish, since alcohol will re-dissolve the dye.

Here then, it would seem, we have the foundations at least of a process by means of which colored images on glass may be easily and economically produced for decorative purposes. It may possibly find an application in "process work" as a means of producing the intense negatives and positives required in most of the photo-engraving and etching processes. If a deep yellow or red dye be used, there seems to be no theoretical reason why negatives and positives of great opacity in the ground and clearness in the lines should not be made by this means, especially since all traces of veiling admit of easy removal, as will be described in a subsequent communication, in which some minor details will be taken up and discussed.

W. H. Burbank.

TO PRESERVE SENSITIZED ALBUMEN PAPER.

AFTER silvering and drying, the albumen paper should be rolled on a roller, each sheet separately. Then wrap over it tracing or oiled paper, and enclose the whole in a cylindrical tin tube of the

proper size and length. The tube should have a telescopic lid or cover, so as to make it as nearly air-tight as possible. This protects the paper from the air, and it will remain white for several days.

The paper should be fumed just before using, and should be toned the same day it is printed.

J. R. Swain.

THE EFFECT OF ELECTRICITY ON DRY PLATES.

[Read before the Society of Amateur Photographers of New York.]

I WAS much interested a short time ago in an account of a demonstration given before an English society by a Mr. Greene, wherein he intended to prove that a fac-simile of a coin could be impressed upon the moist film of dry-plate by the action of a current of electricity passing between the terminals of a battery, one of which was immersed in an acid solution, and the other connected with and rested upon the coin laid on the film of the plate, the latter being also immersed in the solution.

After the current passed for a short time, the coin was removed and the plate put into a developer. Soon a distinct negative image of the coin appeared. The experiment showed that by electric action and without the aid of light an impression was made.

Knowing from some experiments made by a friend of mine, Mr. John R. Paddock, of the Stevens Institute, on the electrical conductivity of the bromide film of gelatino-bromide paper, resulting in proving that it was nearly a non-conductor, I hesitated to believe that the result obtained by Mr. Greene was entirely due to direct electric action, but imagined that it might be the result of some secondary effect induced by the electric current.

With a view of investigating the subject further, I invited Mr. Paddock to carry on a series of experiments under my direction, and supplied him with a dozen 3¼x4¼ gelatino-bromide, and also the same number of gelatino-chloride plates, the latter being of English manufacture.

He has recently handed me a report of some of his experiments which is substantially as follows :

First Set of Experiments.

A bath of muriatic acid, 2 drams ; water, 1 ounces, was first made. Two gelatino-chloride plates were placed in the bath in a horizontal position, films upward, and on one rested a silver half dollar coin, and on the other a silver dime. The battery consisted of five Leclanche cells, connected in series. The electric current was then passed through the solution for thirty seconds, from the positive platinum pole in the solution to the negative platinum pole on the coin. After keeping the plates in a pyro and potash developer for from ten to twenty minutes the image of the coins was faintly discernible. Plate marked No. 1, shows the result. Merely a faint outline of the coins will be observed.

A third gelatino-chloride plate was immersed in the solution having the coins resting on the film, but no current was passed through. No impression was obtained on development.

A fourth plate of the same brand was suspended film side downwards, horizontally, in a bath of water. A rubber tube was carried under the solution until the mouth of it was one-fourth of an inch away from the centre of film. Then a current of hydrogen gas was sent through the tube, and in emerging at the mouth gradually spread over the film.

When placed in the developer the plate turned a deep black color over the entire surface.

Second Set of Experiments with Gelatino-Bromide Plates.

The plates were immersed in a muriatic acid bath as before, and connected in the same way. On the first plate was placed a half dollar silver coin, having the edges and one face protected with wax. The unprotected face was placed in contact with the dry film, and cemented at the edges with wax, and then immersed in the acid bath, the negative pole being connected to the coin. The current could only act on the under side of the coin next to the film. The current was then passed through for two minutes.

In raising the coin from the plate a small portion of the solution worked in under the edge, which appears in the peculiar hook appearance shown in the resulting disk ; but prior to immersion in the developer nothing was observed on the plate. After development, for several minutes, a dense black disk, with a faint marking of the dots on the coin, was obtained, but it was nothing like a satisfactory image or *fac simile* of the coin. In plate No. 2 the peculiarity of the disk will be observed.

Other coins of copper, a German coin (alloy 25 per cent. of copper) and an engraved copper plate resting on the film, with the electric current passing as before, were tried, but on being placed in the developer no impression appeared.

A third set of experiments included the immersion of chloride plates in a chloride of ammonia bath, using the same electric current and silver coins as above, but the results were not as satisfac-

tory, only indistinct, blackened impressions appearing during development.

A plate was moistened and coins of various kinds pressed down upon the film. On development the impressions came out as good as when no electricity was employed.

Plate No. 3 shows the effect very clearly. It should also be mentioned that if a chloride or bromide silver film be stripped from a support and be subjected to a current of electricity passing directly through a cross section, the film will blacken at the negative pole by reason of the silver salt in the film.

The opinion of Mr. Paddock and myself is that the blackening effect produced in the film is the result of the reducing action of hydrogen gas generated in its nascent state, in contact with the film by the current of electricity passing between the two poles, and not to the current alone, as stated by Mr. Greene.

This he in part proves by causing a stream of hydrogen gas to impinge against the film, immersed in water; when developed the film blackens precisely like the disk obtained with the waxed coin.

Passing next to the effect of a high tension current (such as is obtained by an induction coil) on a dry plate, I have been much interested in an article by J. Brown, "On Figures Produced by Electric Action on Photographic Dry Plates," published in the *London Philosophical Magazine*, and reproduced in the January, 1889, issue of the *American Journal of Photography*. In photographing the discharge between the electrodes of an induction coil, Mr. Brown was led to further experiment on the effect of the current when applied directly to the film. He obtained some interesting results, the most important of which was the discovery that an induced current so slight as to be invisible to the eye produced an impression on the film of sufficient strength to be developed out.

He says: "The foregoing results would go to show that actual disruptive discharge over or in the film is not needed to produce an effect visible on development, but that the figures and markings are produced partly, at least, by direct electric action on the sensitive film, without the intervention of a visibly luminous action, or what would be usually understood as a purely photo-chemical cause. Possibly further investigation may show that we have here a new kind of experimental evidence on the relation of electricity to light."

It is presumed the experiments were carried on in absolute darkness, so that the eye might easily detect the least trace of the inductive current. Nothing in regard to this, however, is stated. If a faint red light was used, it might prevent the indistinct electric sparks from being noticed. Plates of extreme sensitiveness were employed, and it is possible they may have been impressed with the faint light not seen by the eye.

A short time ago, with the assistance of Mr. George M. Hopkins, of the *Scientific American*, I tried a few experiments, more especially with a view to determine first what the actual electrical resistance of a section of an undeveloped and developed gelatino-bromide film is; and, secondly, to satisfy myself as to what effect an invisible induced electric current has on a wet and dry surface of a gelatino-bromide film.

F. C. Beach.

(*To be continued*)

Notes and News.

DEALERS' MEETING.—Mr. James H. Smith, Secretary of the Photographic Dealers' Association, has sent out a circular notice to the members of the association of a meeting to be held in the second week in April.

CHARLES SCOLIK, editor of the *Photographische Rundschau*, 48 Biaristingassa, Vienna, Austria, solicits for publication in his journal the experience of photographers, both amateur and professional, of all countries, in regard to hydrochinon developers. American photographers, especially, have been cordially invited to respond to this request.

PORTRAITS OF BARONESS VETSERA are in great demand in Vienna just now, but although the photographers have orders for thousands of copies, they can supply none, the plates having been destroyed and all the pictures bought up by the court.

A CAMERA CLUB ORGANIZED IN HOBOKEN, N. J.—The Hoboken Camera Club was organized at the residence of Mr. William Sachs, No. 432 Garden Street. The club has sixteen charter members. The object of the club is to push amateur photography in every particular. Sociability is also to be one of its features. The officers of the club are W. Allen, President; C. Beckers, Custodian, and F. A. Huench, Secretary. Young men with cameras can join by making application to the secretary, residence, 76 Bloomfield Street, who will in turn submit their names to the club for action.

MRS. BLAINE'S ONLY PHOTOGRAPH.—An effort was recently made by a leading New York daily paper to obtain a photograph of Mrs. James G. Blaine for reproduction, and it was ascertained that she had never had her picture taken except on one occasion, that was when she and Mr. Blaine made their famous coaching trip in Scotland.

Then in a group she consented to appear before the camera, and an excellent likeness was obtained. There are but few of these pictures in existence, one of them being in the possession of Mr. Manley. Members of her family have repeatedly besought her to sit for a photograph, but she has always steadfastly refused.—*Lewiston Journal.*

A Triumph of Photography.—Ellen Wheeler Wilcox's husband is on the road a great deal selling goods while his wife is at home writing poetry. He carries in his travelling valise twenty-seven pictures of his wife, taken by different photographers during her rise to poetical fame. The resemblance of the pictures to each other and to the original can easily be imagined by a remark made to him by a fellow drummer in Cincinnati. Mr. Wilcox put the twenty-seven photos on the mantel board of his room in order to remind him of his absent spouse. When the other drummer entered he exclaimed: "Well Wilcox, I must say that you have the pictures of many duced fine-looking girls. What town do they live in?"—*New York Graphic.*

Congressman Allen's Camera.—Congressman Allen, of Massachusetts, is one of the few who are turning to some account the monotonous moments in the proceedings of the House. Armed with his pocket camera, he saunters idly to and fro, watching the while with a keen eye for a subject, and when this presents itself, he is quick to catch the situation. In this way he is getting quite a collection of the more prominent members in attitudes which they will cordially repudiate. To-day he followed for a long time the only Tom Reed, and at last caught a view of the back of his head as the member from Maine was sitting besides Oregon's lone representative. There is much curiosity as to the ultimate purpose he has in view in making this collection, and several are inwardly trembling lest they find copies of his work circulating in their districts. As he never warns his intended victim to look "intelligent," and the absolute truthfulness of the views could not be satisfactorily explained away, there will be an intense feeling of relief when the little leather box disappears from his desk. In the meantime, he is the recipient of a courtesy from his fellow members which is as agreeable as its object is obvious.—*Baltimore American's Washington Letter.*

A Photographic Romance.—A brief note from London suggests the following photographic romance: A young artist of the camera was called in to photograph the lifeless body of a young lady who had just died under peculiar and distressing circumstances. The young woman was laid on the sofa in the drawing-room, and presented a singularly beautiful spectacle. The photographer was left alone in the room with the body, and made a negative. After development he found that the exposure had been somewhat incorrect, and made another. On the development of the second negative, he discovered to his amazement, that the two photographs were not exactly alike. The body must have moved! In great excitement, he proceeded to take a third negative, which turned out to be exactly like the second.

The young artist then instantly summoned the nurse who had been in attendance on the deceased girl, and after some difficulty and delay, had the physician brought. To cut a long story short, the young lady was not dead at all, but is now the happy bride of the proud young photographer whose camera revealed the precious fact of life.

Processes of Pure Photography.—"I have read No. 29 of the *Scovill Photographic Series* with interest. It is a capital book for beginners, and for older hands also."

Prof. W. H. Pickering,
Of Harvard Observatory.

It is one of the most perfect works on the processes of pure photography, written right up to date, that is to be obtained. * * * Any one wishing to take up photography, be his object to become a professional or amateur, cannot have a better instructor.—*The Photographic Eye.*

A great and surprising number of works on photography have recently been published; many of them are simply compilations from other works. The last and most complete work that has beenissued containing practical information is, "Processes of Pure Photography" by W. K. Burton and Andrew Pringle.

Mr. Burton's name is sufficient guarantee alone that the work is thorough in every department of photography. He has had every opportunity to test and practice what he teaches. It is one of the most perfect works treating on the practice of pure photography written right up to date that is to be obtained.

This work has two authors, Mr. Burton has been assisted in his laborious work by the well-known and distinguished amateur photographer, Mr, Andrew Pringle, a gentleman who stands sufficiently high in the estimation of the professionals and amateurs who compose the National Photographic Association of Great Britain, to be chosen the president for this year.

Anyone wishing to take up photography, be his object to become a professional or amateur, could not have a better instructor. Both these gentlemen claim that they have not followed photography simply as an amusement for a number of years. One of them has made a most thorough study of it from a "theoretical and experimental point," while the other has worked hard and continually to produce practical results from every known process, and how well he has succeeded is known to all who are familiar with the photographic literature of the day. The authors assure us that they have tested every formula that is given by them in this work.

The work contains all practical printing processes that a professional photographer would care to practice in his gallery for portrait and landscape work.

The work is a handsome book of over 200 pages of well printed matter. It is, we think the first work published by the Scovill and Adams Company, although, it is the 29th of the Scovill's Photographic Series.

Professor W. K. Burton, at the present time holds a high position at the Imperial University of Japan.—*The Photographic Eye.*

Caller: How do you manage to get such pleasant expressions on the faces of your male sitters?

Photographer: Easy enough. I have a pretty girl to manage the camera.—*Philadelphia Record.*

"DON'T be angry when the photographer tells you to smile. Grin and bear it."—*Exchange.*

Photographic Societies:

LYNN CAMERA CLUB.

AT a recent meeting of this club, after a successful demonstration of "Aristo" printing had been given by the President, Mr. W. H. Drew, it was decided to have an outing on Fast Day, April 4th, weather permitting. At a January meeting, it had been voted to follow the example set by the Boston Camera Club and other clubs, in illustrating the city by a set of lantern slides, accompanying the same by a descriptive lecture. It was decided to give the other clubs a glimpse of Ye Old Shoe Town, as well as views of the two noted summer resorts—Swampscott and Nahant.

THE BROOKLYN SOCIETY OF AMATEUR PHOTOGRAPHERS.

AT a meeting held on Friday evening, March 22, 1889, at the residence of Mr. Allan Ormsbee, No. 183 Joralemon street, a number of amateur photographers of Brooklyn, organized under the name of "The Brooklyn Society of Amateur Photographers," the following gentlemen were elected to fill the several offices, viz.: President, Mr. Allan Ormsbee; Vice-President, Mr. Homer Ladd; Secretary, Mr. Geo. R. Sheldon, Jr.; Treasurer, Mr. Chas. Blake. The Society hopes to be the means of promoting the art in its many branches among the amateurs of Brooklyn, and it is confidently hoped that in the near future it will rank as the leading organization of its kind in this city. Respectfully,

Geo. R. Sheldon,
Secretary.

WASHINGTON CAMERA CLUB.

LANTERN-SLIDE EXHIBITION.

IN the Assembly Hall of the Cosmos Club, Thursday evening, March 21st, the Washington Camera Club gave a very enjoyable lantern-slide exhibition. The pictures were mostly in and about Washington City, but an occasional trip was illustrated, with charming views. Mr. Max Hausmann was the author of a number of unusually picturesque slides around Hartford and other Connecticut towns, as well as along the Chesapeake and Ohio Canal. Mr. Le Breton showed some portraits, and copies of old paintings, that were well done. Mr. Cole contributed views about the City of Washington, along the Potomac, and in Virginia. Mr. Schneider's work was mostly around home also. Two of his slides were devoted to the effects of wildly-tossed water and swiftly-blown clouds, in both cases the detail being remarkably fine. The only view presented by Mr. Fearne was an oddity, being a photograph of the sun in partial eclipse just before sunset on New Year's day of this year. A little piece was gone from the disc, which looked like a cracker from which a child had taken a surreptitious nibble. The photograph was taken with the aid of an opera-glass. Mr. McComb showed an excellent view of a scene near the Center Market in Washington, a purchaser just leaving an old flower woman, whose dusky face was turned to greet a new comer, with her wide-open eyes showing a fringe of white. Hon. A. A. Adee took the audience on a tour through picturesque scenes in Havana. The harbor, with its scenes at horse-washing time; a bull-fight at an exciting moment; the Havana hansome cab, a crazy vehicle, looking as though it were a cousin to the "one hoss shay," except that it was drawn by two, hung on shafts about fifteen feet long, and wheels six feet in diameter; some odd groups of Cuban negroes; scenes on Christmas day on a Sugar Plantation, with a big dance in progress; an old Spanish mansion with a lonely cow just going out of sight in the roof of the portico. These are the subjects of a few of the scenes with which the exhibition closed.

Our Editorial Table.

LA PHOTOGRAVURE FACILE ET A BON MEARCHÉ L'ABBE J. Ferret, Paris, Gauthier — Villars et Fils, 1889, 1 fr. 25.

IN this small brochure of fifty pages, M. L'Abbé Ferret, explains a cheap and simple method of producing typographic blocks from originals in lines and half-tones. The method is simple and practical, and is well worth the attention of those who wish to experiment in this application of photography.

LES PORTRAITS AU CRAYON, AU FUSAIN ET AU PASTEL. C. Klary, Paris, Gauthier-Villars et Fils, 1889, 2 fr 50.

IN this little volume of 100 pages, M. Klary, the well-known Parisian photographer, gives to the fraternity the results of his long experience in the artistic touching-up of enlarged portraits. The instructions given are plain and complete, and the result is a book embodying the latest and best methods of crayon work.

MR. GAYTON A. DOUGLASS has sent us two interesting photographs of a "home" in Chicago, one the exterior of the building itself, and the other a group of some of its inmates.

FROM Mr. Douglass we have also received an interesting photograph of a unique botanical specimen—a double-petaled calla lilly. The photograph was made by Professor Querean, of Aurora, Ill., and the lilly is so placed in a vase before the mirror, that the whole compasses into a really attractive picture.

WE have received some more "Kodak" pictures of Chinese subjects, taken in San Francisco, by Mr. W. B. Tyler. They are even better than those which Mr. Partridge sent us, by the same gentleman, before; and we value them highly.

MR. THOMAS W. CHITTENDEN, of Appleton, Wis., "An Old Amateur," as he signs himself, sends us an interesting bromide print, showing a "live soap bubble," suspended from a pipe. He asks if the photographic feat has ever been accomplished before, to which we reply that it has, we ourselves having made photographs of soap bubbles on collodion, but never more successfully than the result which Mr. Chittenden shows. "I propose to secure a more artistic grouping," he writes, "when I try it again, as I hope to before long; in this instance, the actual photograph of the swelling globe itself engaged the operator, and the accessories were neglected." We shall be pleased to receive later results in this line from Mr. Chittenden.

We have been presented with a fine collection of landscapes and portrait studies, printed in platinotype after the manner of "the printing method of the future," as described by Herr Charles Scolik, in these columns, not long ago; by the author of these valuable articles. These beautiful platinotypes, of various subjects and in different and appropriate tones, fully substantiate all that Herr Scolik has claimed for the process, besides justifying his reputation as a skillful photographer and cultured artist. In an early issue, we shall have the pleasure of presenting Charles Scolik's portrait to the readers of this journal, accompanied by a sketch of his life.

The *Pansy*, for April, brightens our table with its pretty cover. The contents are even more interesting than usual. Pansy (who is undoubtedly the most popular writer to-day of the best class of Sunday-school literature) edits the magazine, and several of the stories this month are from her pen.

Altogether there are thirty-two pages of reading matter and pictures, besides several pages devoted to the Pansy Society, letters from the children, etc. The price is ten cents a number, $1 a year. D. Lothrop Company, Boston, will send a sample (back) number at half price.

MY PHOTOGRAPH.

From Judge.

The picture-man's accustomed hand
  Arranged me with celerity,
And hid my principal defects
  With judgment and dexterity.
He turned me right, he turned me left,
  With wonderful rapidity,
Securing my inconstant head,
  To give it due solidity.

He placed a river at my back,
  And trees and rocks adjacently
Adjusted, with artistic touch,
  And viewed the whole complacently.
"Just drop your chin!" I dropped it to
  The best of my ability;
"But shut your mouth!" he added, which
  I deemed an incivility.

Across the room, with dirty face,
  A bric-a-bracket Psyche sat;
The artist backward jerked his thumb
  And bade me keep an eye on that,
And eke to smile, and also wink,
  With dignity and suavity,
Whereat I smiled full solemnly,
  And winked with awful gravity.

'Twas difficult—but now 'tis done,
  With secret exultation do
I show to friends my photograph,
  And note their admiration, too.
"How beautiful!" they cry, nor know
  Their honest praise is praise of me,
Till, pressed to tell them whose it is,
  "'Tis mine!" I say triumphantly.

Mrs. George Archibald.

Queries and Answers.

80 F. H. writes: "In toning the aristo paper, I find that it curls in the first washing, and does not get limp during the whole manipulation, thus toning uneven. How is this prevented?"

80 *Answer.*—First take two perfectly clean trays, put just enough water in one to cover the prints. Lay them one at a time, and one on the top of the other, face down, in the water. It is a good plan to let them remain in this water from five to ten minutes. Care must be taken that they do not stand too long as they are liable to stain. Do not put more than enough water in first tray to cover prints. After having all the prints in first tray put about same amount of water in second tray, and lay them one at a time, and one on top of the other in this tray same as before. Put them through three waters in this manner, always using perfectly clean water. Have just enough water in first tray to dampen the prints. Never put them in the water as you would albumen. There will be no trouble from curling if these directions are carefully and explicitly followed.

81 D. W. B. writes: "I would like to ask through your journal some of your chemists a question, to know the cause of my soda developer's behaviour. It will at times act all O. K., then it will deposit its soda in crystals at the bottom. It will go on for four or five days, and not deposit, then do it every night for a short time. It is a solution of two pounds of soda to sixty ounces water. I have it in stock bottle, and for convenience I put some in eight ounce bottles for use, and put them on the shelf together, and sometimes one will drop the soda and the other will not. In the coldest day it will not deposit, and during the warm days will show itself again. I have used this developer, prepared the same way, for two years, and it never acted so until this winter. At the present time two bottles on same shelf in dark-room are as I have told you, one with the crystals at the bottom, the other clear. It is a little annoying to have to put the bottles in warm water to dissolve before work in the morning, but that is the only hope to get along. If your chemist can throw any light on this freak in my bottles I will be much pleased. My dark-room is same temperature with the operating room in shape to work. I have this day mixed another bottle to keep from the annoyance this has given me. I will see if it will play the same trick. If it does I will have to keep it to exhibit at the convention next summer.

81 The ordinary carbonate of soda of commerce, when in pure, bright crystals, is soluble at a temperature of 60 degs. Fahr., in the proportion of 60:100. Your solution of 32:60, if carefully prepared with a pure article of soda, is therefore not saturated, and should remain without separation of crystals under ordinary circumstances. But if the soda used has effloresced to any extent, which may possibly have been done in your case, much more water is required to dissolve it, and if warm water is used, less of it will, of course, be required, but crystals will separate, as soon as the solution returns to a normal temperatur. Carbonate of soda crystallizes with 62.9 per cent. of water, and if all the water of crystallization is driven from it the 62.9 per cent. must be added to the 100 to dissolve 60. A draught of cold air may reduce the temperature of one bottle containing the solution, and separate crystals, while another somewhat distant from it is not so affected. Raising the temperature of the solution that has separated crystals, will re-dissolve them, as you have found yourself.

J.F COWEE. PHOTO.

SURF.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, APR... 1...

"SURF."

THE marine picture that embellishes the pages of THE PHOTOGRAPHIC TIMES this week is fr... negative by J. F. Cowee, an enthusiastic am... of Troy, New York. It is a picture that has ... widely admired being chosen as the "present... print" in one of the competitive exhibitions c... ducted by the Society of Amateur Photograph... of New York. It was also included in the l... collection of "Twelve Photographic Studies" pub... lished near the close of last year. As an instan... taneous photograph, it is admirable; and how appropriately the green tint of the ink used, lends itself to the general effect of the picture.

CLOUDS.

THIS is the season to photograph clouds. A really good cloud negative is an eminently satis... factory and pleasing affair, although there is noth... ing distinctly representative about it. Neither th... image of a fixed fact, nor the representation of an idea, it is merely the picture of a constantly changing mass of aqueous vapor, full of beautif... forms, splendidly shaded from most brilliant li... to obscure darkness through all possible t... gradations, a truthful natural representation ... Hogarth's lines and forms of beauty.

Clouds have always been favorite studies w... photographers, not solely to perpetuate their bea... iful forms and tones, or as aids in meterologic... studies, or helps to the artist, but for printin... purposes to fill in the blank skies of timed landscap... exposures, and give the finishing touch of beauty to the print.

Such prints win a meed of praise even when th... landscape is sacrificed to the sky as in those case... where landscape and clouds are rendered on a single plate.

Such pictures rarely possess perfect harmony, the objects below the horizon line being generally to... little exposed and developed to stand out with good effect. Photography is largely a science of averages.

... by ... level stretch of ... work.

But even from this point of view, the w... its diffic... ies which one ... judgment can ove... me.

There are three broad ... cloud forma... the nimbus, cirrous, and cumulus. Nimbus, ... clouds, ... photographic ... color. ... In ... name, ... their color and the fact ... that they are usually accompanied by an intensely ... blue sky, cirrous clouds are extremely difficult to photograph by ordinary methods, which render them but faintly, if at all. The difficulty may be overcome by using a plate of high sensitiveness with a dark yellow screen inte... ...chromatic methods. In this ... tone is so much suppressed th... mass is distinctly defined on ... judgment. As a rule, the cirrous ... adapted for printing-in purposes ...

SURF.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, APRIL 19, 1889. No. 396.

"SURF."

THE marine picture that embellishes the pages of THE PHOTOGRAPHIC TIMES this week is from a negative by J. F. Cowee, an enthusiastic amateur of Troy, New York. It is a picture that has been widely admired, being chosen as the "presentation print" in one of the competitive exhibitions conducted by the Society of Amateur Photographers of New York. It was also included in the little collection of "Twelve Photographic Studies" published near the close of last year. As an instantaneous photograph, it is admirable; and how appropriately the green tint of the ink used, lends itself to the general effect of the picture.

CLOUDS.

THIS is the season to photograph clouds. A really good cloud negative is an eminently satisfactory and pleasing affair, although there is nothing distinctly representative about it. Neither the image of a fixed fact, nor the representation of an idea, it is merely the picture of a constantly changing mass of aqueous vapor, full of beautiful forms, splendidly shaded from most brilliant light to obscure darkness through all possible tone gradations, a truthful natural representation of Hogarth's lines and forms of beauty.

Clouds have always been favorite studies with photographers, not solely to perpetuate their beautiful forms and tones, or as aids in meterological studies, or helps to the artist, but for printing purposes, to fill in the blank skies of timed landscape exposures, and give the finishing touch of beauty to the print.

Such prints win a meed of praise even when the landscape is sacrificed to the sky as in those cases where landscape and clouds are rendered on a single plate.

Such pictures rarely possess perfect harmony, the objects below the horizon line being generally too little exposed and developed to stand out with good effect. Photography is largely a science of averages. Perfection in one part of the picture is generally sacrificed to that of another, and if clouds are the main object of our strivings, the landscape must be subordinated to them. The landscape under a well developed sky is usually too dark to be distinctly delineated. In sea views the contrast is not so great, owing to the strong reflecting power of the water.

From all this it follows that the better way of securing harmony between sky and land in our prints is to resort to double printing, and provide ourselves with a series of cloud negatives, in which the horizon is purposely kept low down on the plate by pointing the camera upwards, or seeking a low level stretch of the country side for our field of work.

But even from this point of view, the work has its difficulties which only good judgment can overcome.

There are three broad divisions of cloud formations, the nimbus, cirrous, and cumulus. Nimbus, or rain clouds, are not well suited to photographic purposes, being too uniform in shape and color. The cirrous is better adapted for our purpose. In color and form it is oftentimes picturesque. These clouds take the form of light masses of vapor floating in lofty aerial regions, rosy, light yellow, and sometimes white in color.

The vapor is piled up in well rounded forms like loose masses of wool, whence their German name, "lambs' wool." Owing to their color and the fact that they are usually accompanied by an intensely blue sky, cirrous clouds are extremely difficult to photograph by ordinary methods, which render them but faintly, if at all. The difficulty may be overcome by using a plate of high sensitiveness with a dark yellow screen interposed as in orthochromatic methods. In this way the action of blue is so much suppressed that the light cloud-mass is distinctly defined on the plate after development. As a rule, the cirrous cloud is not well adapted for printing-in purposes, but in exceptional

cases it may be used, as in yachting pictures, to heighten the feeling of motion.

The cumulus is by far the most important. When these clouds form shortly after sunrise or before sunset a few degrees above the horizon the illumination is such as to satisfy the highest demands of the photographer. While much very beautiful work has been done in this direction, it is probable that none has surpassed that of Gustave le Gray, whose cloud-marine views have always been considered as well-nigh perfect. His method was to work directly against the sun, just before it sank into the ocean, and when surrounded by brilliantly illuminated cloud masses. We would not to-day attempt the kind of pictures Le Gray made so well on collodion or waxed paper, without an orthochromatic plate of distinct red sensitiveness, since a truthful representation of the non-actinic colors of a sunset scene can only be made on a color-sensitive plate.

The amateur, always ready for action when the opportunity presents itself, will invariably obtain better cloud-pictures than the professional, who is not always prepared for the emergencies of cloud photography, and, as it were, photographs only to order. With a 4x5 or 5x7 detective camera, furnished with a finder and lens of average good quality, there is no other difficulty in making a good cloud negative than the wise selection of suitable material. The focus being set for far distance, it is only necessary to bring the desired on the ground-glass of the finder and spring the shutter.

For the cirrous cloud the yellow screen must be used with a highly sensitive plate, the cumulus is easily taken with a plate of low sensitiveness, while for ease, certainty, and comfort in working, nothing can exceed the Waterbury Detective.

For printing-in purposes the negatives should be only moderately intense, if the original plate is to be used, but if the negative is to be enlarged to serve for pictures of larger dimensions, it is better to develop the plate in a normal developer, obtain a positive by contact printing, and then enlarge in the camera. In this way it is possible by judicious development to adapt the intensity of the cloud negative to that of the plate to which it is to be added.

It must be remembered that not every sky or cloud negative is suited to every landscape picture, in regard to illumination. Therefore, a variety of cloud negatives will be required to meet all emergencies. If the clouds are made on stripping films it will be possible to use them for opposite directions of illumination.

THE PHILADELPHIA EXHIBITION OF PHOTOGRAPHS.

THE third annual joint exhibition of the Photographic Society of Philadelphia, the Society of Amateur Photographers of New York, and the Boston Camera Club seems to be quite as successful in the number of photographs exhibited, and the quality of the work shown, as either of the preceding exhibitions.

In fact, there is considerable progress evinced in the present exhibition, and in several directions. About seven hundred frames are shown, the work of one hundred and forty-eight exhibitors. Professionals as well as amateurs are included in this number; and several lady photographers make by no means the least interesting exhibition of work in the collection. Philadelphia has the largest representation, of course, but the Society of Amateur Photographers of New York follows closely with twenty-six exhibitors, and the Boston Camera Club is a good third, with twenty representatives. The New York Camera Club sends two exhibits; the Plainfield Camera Club, two; the Lowell Camera Club, four; and one each comes from the Baltimore, the Pittsburgh, the Philadelphia Amateur, and the Columbia College Clubs. England sends eleven exhibits; and there are more than thirty exhibitors from various parts of this and foreign countries, who are unattached to any photographic organization.

The diplomas have been awarded as follows:

DIPLOMAS FOR SPECIAL EXCELLENCE.

1. For Landscape or Marine Views—Harry Tolley, Nottingham, England, No. 524, "On the Lonely Shore."

2. For Portraits—Frederick Gutekunst, Philadelphia, No. 303, miscellaneous portraits.

3. For Genre Subjects and Figure Compositions—W. W. Winter, Derby, England, No. 608, "My Mammy."

4. For Work by Ladies—Mrs. S. M. Cleveland, Philadelphia, No. 311, entire exhibit.

5. For Enlargements—William H. Rau, Philadelphia, Nos. 340 to 343.

6. For Lantern Slides—Professor Henry A. Rowland, Baltimore, Md.

DIPLOMAS FOR EXCELLENCE.

For Entire Exhibits—Frank M. Sutcliffe, Whitby, England.

William Parry, Shields, England.

J. P. Gibson, Hexham, England.

John Bartlett, Philadelphia.

Charles L. Mitchell, M. D., Philadelphia.

George B. Wood, Philadelphia.
Paul Lange, Liverpool, England.
Robert S. Redfield, Philadelphia.
Richard Keene, Derby, England.
Harry Symonds, Portsmouth, England.
S. W. Burnham, Lick Observatory, California.
The Rev. F. C. Lambert, M. A., Cambridge, England.
H. A. Latimer, Boston, Mass.
A. K. P. Trask, Philadelphia.
George A. Nelson, Lowell, Mass.
R. T. Hazzard, Philadelphia.
Clarence B. Moore, Philadelphia.
Mr. and Mrs. W. J. Anckorn, Arbroath, Scotland.

The Judges were John C. Browne, George W. Hewitt, Xanthus Smith, Fred. B. Schell, James B. Sword.

The photographs, for the most part framed, are well hung in the three galleries occupying the right half of the Pennsylvania Academy of fine arts. Lantern-slide exhibitions are given on Tuesday and Thursday evenings; and the attendance has been good since the opening of the exhibition, Monday, April 8th. It will close April 12th.

The committee having the exhibition in charge are entitled to credit for the admirable manner in which it has been managed. Next week we shall speak of some of the more noteworthy photographs which are shown in the exhibition.

THE POSTAL PHOTOGRAPHIC CLUB.

ALBUM No. 4 of the Postal Photographic Club is quite up to the high standard of the earlier numbers. It opens with a fine copy of Fabiola by Mr. Dumont. Mr. Jackson contributes more of his remarkably successful work in bromide; especially noteworthy is the Waddingham Palace. In the "Rustic Bridge" and "Woodland Scene in Autumn" Mr. Wadsworth has secured a beautiful tone with the uranium bath. Dr. Müller has a "Village Smithy" and several bits of scenery in his usual fine style. Miss Littlejohn's "Portrait" would be hard to excel. Mr. Suplee has indulged his exuberant fancy and skill in posing in several flash pictures; especially in "Marguerite." Mr. Briggs contributes a fine winter scene; Mr. Prentiss a beautifully soft surf picture made upon a paper negative; Mr. Phelps a remarkably good "May Morning;" Mr. Hausmann a curious study of an old "Cooper Shop."

Mr. Cole and Mr. Fearn, a new member, send choice bits of architecture and scenery from Washington. Mr. Spaulding contributes some river scenery and a snow scene in which the delicate shadows are well rendered. There are choice pieces also from Miss Gillender and Mr. Davey.

The property of the old Postal Photographic Club has been turned over by the former president, Mr. Canfield, to the new club. Some of the prints formerly sent in appear in this album under the title of "Immortelles." The Club numbers twenty-one members and seems to be in an extremely flourishing condition. Certainly great benefit must be derived from such a collection as we have just had the privilege of inspecting.

THOSE who have doubted the durability of "ivory" and "flexible" films, need hesitate no longer on that score, as we have before us the result of a test which completely removes all doubt. When the first "ivory" films were put upon the market, more than six months ago, we made a negative on one of the films, and put the rest of the package, with the negative, carefully away for preservation.

Recently one of these first films was exposed by Mons. Flammang, superintendent of the American Optical Company's apparatus factory, and, on developing, it produced a negative equal in every respect to the one which was made from the same batch a few days after being coated. A substance that will show no deterioration in six months, will remain good a longer time, and we have every reason to believe that the "ivory" films are quite as durable as the best dry-plates. There is nothing absolutely permanent under the sun, to be sure, but for all practical purposes, carefully manufactured dry-plates retain their good properties quite as long as is required; and so will also the "ivory" and "flexible" films.

WE call the attention of our readers this week especially to the valuable article on "Photographic Color-tones," by Dr. Julius Schnauss. Nothing better on the subject than this valuable article has been given to the photographic public. We shall have further articles from this distinguished pen from time to time in the future.

THE ART SIDE OF PHOTOGRAPHY.

A REPLY TO MR. STILLMAN.*

I have long known that my old friend, Mr. W. J. Stillman, held views on photographic æsthetics somewhat different from my views, but I was quite unprepared for his sweeping denial of the possibility of art in photography, for to such a denial his article in the TIMES of March 15th, virtually amounts, if I have, after much study, read it aright. Mr. Stillman

* For "The Art Side of Photography," by W. J. Stillman, see page 129 of March 15th issue.

alludes gracefully to personal interviews and debates between himself and me, and in replying to him I have two sentiments uppermost in my mind, first, that W. J. S. is not a party to be trifled with in argument; second, that he and I may hold different opinions without quarrelling, and argue without enmity. The most unfortunate point to my mind is that our very "first principles" are so diametrically opposed to each other that we can never expect either to meet on equal ground, or to elaborate any line of argument likely to be of service to the readers of the TIMES.

I say our first principles are diametrically opposite, and by this I mean that our definitions of art are totally different. In fact it is to a great extent a waste of time for Mr. Stillman and me to argue as to the possibility or impossibility of art to photography until we agree as to what art is. Mr. Stillman, for instance, has the following: "In the first place the conception of a picture is an act of which we can give no evidence to anybody beside ourselves than by putting it on paper or canvass or some equivalent. "The conception is not art." * * * Here already we differ, Mr. Stillman and I. I say the conception *is* the art, the painting is only the visible expression of the artistic conception. This unexpressed art is, I admit, of no use to anybody but the artist, and that is not the point. From my point of view there are and have been many artists who never made a sketch in their lives, and there are many artists whose technique is so bad that their art is strangled in the execution. Mr. Stillman seems inclined to shut his eyes to the definition of art and rather to lean towards defining *what we call* an artist. "The art of any artist," he says, "is rated according to its mastery of the means of expression and its success in expressing for others, the conception with which the mind was charged." "Mastery of the means of expression" is distinctly technique and not art, is not at least what most people mean when they use the word art.

From a paragraph in the second column of page 129, I gather that because the photographer can "by no mental effort make one hair black or white, or one leaf or twig larger or smaller," therefore he cannot be an artist, according to Mr. Stillman. Does this mean that a painter can by *mental effort* effect these alterations? Surely not. The painter with his tools deliberately alters things to suit his purpose, this is his technique; the photographer, less happy, has less pliable tools, and has to choose his lens, his standpoint, his time of day, to suit his purpose; and this is *his* technique. The conception, or, as I put it, the art, may be equal in the two cases. The very feelings that cause the painter to alter proportions and the photographer to select certain tools and times, constitute in my idea, the art; the painting and the photograph are visible signs of the artistic feeling that influenced the two artists. As I said before, the photographer is handicapped by less facile tools, but that fact does not impugn his art. Mr. Stillman says the "comparative difficulty" of which I then spoke (namely, the greater difficulty under which the photographer labors as compared with the painter), "is not comparative at all, but absolute, and consists in the *utterly antagonistic 'character' of photography and art*" (Italics mine), which, of course, is simply begging the question at issue. Then follows: "The mechanical part of the work even is not done by the photographer but by the lens, and this the photographer cannot modify by any operation of his mind or hand."

* * * * *

This leads us to a pretty paradox. The photographer cannot do any mental work, and does not do the mechanical; the camera, lens, tripod, and black cloth, therefore, take tours on a vehicle known as man, and select views in such a way that the vehicle itself sometimes thinks the travelling companions had some definite ideas of pictorial effect; the camera draws itself out, and points itself in the most accommodating way, while the lens puts a stop in its throat and removes its cap during a suitable lull of wind and glimpse of light. The party once more remounts the willing two-legged steed, is carried home, and the plate takes a cold bath kindly poured out for it by the ever-obliging tripod. Mr. Stillman, a sentence later, admits that in putting the object before the camera, "fuming," and developing, "there is opportunity for the exercise of taste, and the artistic temperament." That is just what I claim; but he proceeds to spoil it all by saying that "the possession of these in the highest degree does not constitute an artist." Nor does it, but the possession of these constitutes *art*, and if any man possesses these he possesses art, and if any man possesses them and can express them to others he is an artist.

Mr. Stillman in next paragraph says: "The truth of a picture has nothing to do with its quality as art." I fancy Mr. Stillman is about the first writer on art who has ventured on a statement such as this; every writer with whose works I am acquainted is pretty emphatic on the necessity for truth, and the fatality of falsehood. Arabesques, which for argument I will admit to be art, are not falsehoods, for their very essence is pure imagination, they do not pretend to represent any existing thing; while

tritons, centaurs, and sirens represented creatures such as the ancient imagined to have real existence, a point which I covered in the article attacked by Mr. Stillman, if I remember aright.

I am contradicted flatly for saying that "the famous sculptures were but compositions made up of the parts of various men and women in actual existence." I need not say I did not dream this, and as I am not old enough to remember the time when these sculptures were made, I can only rely upon written evidence of generally accepted authorities. In more modern times I can of my own personal knowledge say that pictures and sculptures are often made up in this way. If, as Mr. Stillman asserts, "it is a law of the artistic nature that no ideal image can be patched up in this way," then I fear I must forever disclaim the possession of artistic nature, for I can easily conceive a very beautiful figure so made up.

Curiously, Mr. Stillman draws the line between fine art and art just where I do. "Fine art" he defines as ideal, such as that of Angelo, Raphael, Turner, Clauder, etc. Into this region Photography, in my opinion, need not seek to enter. "Art" obtains where a painter simply paints what he has before him. Photography can do this, only it is restricted to monochrome, and has greater difficulties in getting the scenes before it in suitable aspect.

Mr. Stillman winds up: "But in photography the picture is made by the camera, and the photographer no more does it than the engineer of a railway train draws the train." I leave this sentiment to speak for itself.

I do not suppose our readers will desire a prolongation of this discussion, which must be futile until Mr. Stillman and I can find a definite ring wherein to fight. Who's afraid? Mr. Stillman is welcome to have the last word if he wishes it.

Andrew Pringle.

PHOTOGRAPHIC COLOR TONES.

THE chemical analysis of a photograph is quite a difficult task to perform. The extreme thinness of the film carrying the photographic image does not make it so, but, the fact that the print, having dassed through solutions of various kinds, is so modified by various agents that their presence or action cannot be determined analytically, but may only be conjectured.

We can make photographs in almost any color. We can make them blue, red or green; but to deal with such fancy pictures is not our purpose. Let us consider rather only the combinations and decompositions of the two most important metals in photography,—silver and gold,—so far as they serve us in the production of the photographic image and the manifold tones they are capable of producing.

So far as possible we rely upon chemical analysis to aid us in brightening up this still dark precinct, but whenever it is impossible to receive light from that source we make hypotheses, which, unfortunately, govern yet a good deal of matters photographic. Many factors influence the colors of photographic silver and gold precipitates, and in most cases they are the same with both metals. To pass correct judgment upon the precipitate of gold, that of silver, which is a condition of the first, deserves our consideration; and, before proceeding further, let us consider the physical conditions of our substances.

The thickness of the film, whether the deposit is of metallic silver or its sub-chloride, influences the tone materially; and again it appears to be entirely different, whether it is viewed by reflected or transmitted light, to serve as a negative or as a diapositive. Chemical action however, exercises, a great influence upon the generation of various tones of the silver print. Those produced by exposing bromide and chloride of silver films to light for a short time only, and bringing them forth by subsequent development, will invariably have a greater tendency towards grayish black tones than those which by long exposure have been printed out. Chloride of silver gelatine films when longer exposed and developed, but to a limited degree, will always be of a reddish cast, because with the presence of organic substances the deposit formed will always be of a reddish or brown tone.

When a picture is produced by the exposure of pure chloride of silver films, and then brought into contact with a chemical agent, as, for example, with our well-known sodium hyposulphite, a very perceptible color change will at once take place. It will change to yellow or red, and be more intense the more organic matter is present. The effect is more striking with prints on gelatine or collodion emulsion than on ordinary albumen paper, because of the more intimate mixture of the substances when emulsified.

An old fixing-bath containing much silver and gold will change the tone of the print by long immersion, the yellow or brown will turn darker gradually, induced to do so doubtlessly by chemical processes, which, to prove distinctly by chemical research is scarcely within the scope of possibility. Traces of sulphite of silver are probably formed, for the older the fixing-bath is, the sooner tone-darkening will be observable, because

the double salts contained in old solutions are far more inclined to be resolved into sulphur combinations than the pure sodium hyposulphite.

The tones of the reduced silver, provided all free nitrate of silver has been previously washed away, will vary in the fixing-bath between a tan color, rusty brown, gray, and black; whether the image has been produced by direct printing or by developing. In the latter case the color scale is much simpler, and varies from a yellowish red at the beginning of the process to a deep black. If a subsequent toning becomes necessary it is invariably done with a gold solution. Only light tones are capable of being colored deeper. It is true the gold will also act upon black tones, but the effect is not visible. The brighter the tone of a brilliant print, the more handsome will be its gold tone.

The chemical process taking place during gold toning is doubtlessly known to the majority of my readers. The silver image or the subchloride of silver, which is the substance of the photographic image, is, at the cost of the chloride of gold, changed again to chloride of silver, an equivalent amount of metallic gold is separated and takes the place of the silver. According to the length of time the proof is subjected to the action of the gold bath, its concentration and temperature, the more perfect will be this transmutation, and the more beautiful the tone. The acid or neutral reaction of the gold bath is furthermore important. We use neutral and alkaline gold solutions, and others again of slightly acid reaction. Alkaline baths tone very rapidly, are of great activity, can be used immediately after being prepared, but they are not durable, and can produce only such tones tend towards a bluish-black.

Phosphoric, biboric and fused acetate of sodium induce the same chemical process in the gold bath as the stronger alkali. Sodium aurous chloride is formed and the solution, at first yellow, loses its color.

Acetate and tungstate of sodium like all other salts in which a weak acid is combined with the alkali tend towards a neutralisation of the free acid of the gold bath. Really neutral gold baths can be procured only by the long continued action of insoluble carbonates, like the carbonate of calcium.

The double salt of sodium hyposulphite and gold contains the precious metal in the form of a suboxide. This very combination was in former times much employed in the gilding of Daguerrotypes. At the present time we find it forms in the fixing-bath of gilded but not perfectly washed proofs, and also in the combined sulpho-cyanide or rhodan gold bath.* It is extremely difficult, impossible almost, to explain with our present knowledge what chemical processes produce to a distinct tone.

1. *The reaction of the Gold Bath.*—If it is alkaline, nearly neutral or distinctly acid, bluish blacks, or bluish violet tones may be expected to result in the first case, in the second they will be from purple to violet; but in acid baths which are but rarely used the tone will be from red to brown.

2. *The time required for toning.*—In the beginning the tones are always red, but assume a darker color in time.

3. *Temperature.*—The color shades peculiar to every individual toning bath are much easier attained at a raised temperature.

4. The concentration of the gold bath.

5. The thickness of the albumen film, and respectively the quality of the emulsion, whether it is a collodion or gelatine emulsion, and the method of developing.

6. The age of the fixing-bath, whether it is new or has been used before.

7. The concentration of the silver bath requisite to sensitize the albumen paper.

8. The time of exposure required for printing out, and respectively the density of the negative.

Every practitioner who is aware of the endless variety of color tones capable to be produced through the instrumentality of the above mentioned conditions will not contest their higher importance over that of the different salts added to the gold bath. And even physical action comes here into play. An albumen print immersed in a water bath changes color at once; it turns lighter apparently, because in its present condition it reflects light of a different color than when in a dry state. The experienced eye is well able to distinguish the most delicate tone change occuring in gold baths of different ingredients, no matter by what salt neutralized. By practical knowledge we can judge of these changes; chemical analysis cannot control them.

The usually employed toning baths, containing a variety of salts and the tones they claim to be able to produce, are laid down in every handbook of photography. The self-toning fixing baths, containing a large amount of silver, have been mentioned before. They become active toners in

*The word Rhodan, extensively used by French and German authors, but rarely by the English, is derived from the Greek ῥοδός, rosy, of rose color, because Rhodan alkali's form with ferric salts precipitates of intense red color.

consequence of the formation of sulphide of silver.*

A well-gilded photograph shows in its resistance to chemical agents the character of a true gold deposit. A saturated solution of mercuric chloride attacks it but little; it turns lighter, indeed, because the silver still present is changed to chloride, but the gold remains as it is. Under the same circumstances gold resists the action of nitric acid, till the glue sizing of the paper, and finally the paper itself, is totally destroyed.

Recently another method of toning developed bromide of silver prints has become quite popular: a mixture of uranium nitrate and ferri-cyanide of potassium (Selle's well-known negative intensifier.)

With it a substitution is not effected. The process is analogous to that of developing or intensifying in the ordinary way the wet collodion plate. The newly formed body, a not distinctly described combination of uranium, iron and cyanogen, is proportionately precipitated upon the silver image; which is a phenomenon easily to be produced with other chemicals upon other photographic deposits.

Julius Schnauss.

THE EFFECT OF ELECTRICITY ON DRY-PLATES.

(*Continued from page* 187 *and concluded.*)

First, then, I prepared two sections of plates of exactly the same length and width (4 inches long by 1 inch wide), wrapping tin foil around each ends, and marked respectively *A* and *B*. *A* is the developed and fixed section. *B* is the plain, undeveloped portion.

These, in turn, were laid upon a block of pure paraffine wax, and then connected with a battery of six standard gravity zinc and copper battery cells, a Bergmann Wheatstone bridge and a Thompson reflecting galvanometer (the most delicate that is made), and carefully tested as to the amount of current they (the plates) would conduct. After spending nearly two hours in conducting these experiments, the conclusion reached was that there is no conductivity in the gelatine film containing the salts of silver. The only measurement we did obtain amounted to over a million ohms resistance, which is equivalent to infinity. There was no difference either in a developed or plain film.

From an 8x10 gelatino-bromide plate of medium rapidity we cut off four strips, 1 inch wide and 8 inches long. These we respectively laid on a paraffine block and experimented with an induction coil run by five cells of a medium sized bichromate plunging battery. We wrapped the tin foil about an eighth of an inch in width around the end of each strip, and connected them with the fire wires from the secondary poles of the coil. The by-pass points of the coil were separated about two inches, to force the current to pass over the wires and across the section of the strip. The wires were covered with a piece of silk cloth to prevent any light that might come from them from striking the plate. A very weak induced current was generated and kept up for two minutes. The strip marked *C* was thus treated. Next a strip marked *D*, subjected to the same current for the same time, was moistened with water. In each case no current in the darkness of the room was observable to the eye, but when looking closely at the strip the nose detected the peculiar odor of ozone.

A third strip, marked *D*, was then held in the air at right angles to the passage of the spark passing across between the two by-pass points of the induction coil, these being about 1½ inches apart. Numerous discharges were allowed to play against it for about a minute, and seemed enough to fog it badly.

Lastly, a fourth strip, marked *F*, was laid on the paranffied cake, the by-pass points drawn apart, and the full force of the induced current put on. A bluish light glowed all around it; the current was observed to leap across in the air about half an inch above the strip, showing beyond a doubt that the film had no attraction for it.

The distance between the wires connecting it to the strip was decreased one-half; still the current would prefer the air to the plate.

I placed all the four strips (*C*, *D*, *E*, *F*) in one tray, and poured over them a pyro and potash developer, containing 2 grains of pyro and 4 grains of carbonate of potash to the ounce. In about a minute and a half the films of all commenced to turn, and after three minutes development they were all pretty well blackened.

C and *D* show no markings other than a general turning of the film. *E* shows the distinct tracing of the sparks as they flew over the film, the points of contact and departure being very foggy. *F* shows the effect of the light very plainly at the terminals where it was surrounded by the wires.

In the cases where there was no electric spark visible and where the the plate was in total darkness I cannot account for the turning of the film in the developer, unless it was caused by some subtle

* Hyposulphite solutions saturated with chloride of silver and the aid of cream of tartar will precipitate metallic silver upon brass or copper objects. Chloride of gold dissolved in a solution of sulpho-cyanide of ammonium will serve equally for cold gilding of similar objects.

influence of the current not fully explainable, or to chemical fog. I at first attributed it to the atmosphere of ozone which must have been over the film, but to prove it I had Mr. Hopkins generate ozone by running a series of electric sparks between needle points inclosed in a paper cylinder. Rubber tubes passed from each end of the cylinder. At the end of one tube was placed a sensitive plate protected with a metal shield having a star cut in it. After the electric current had generated sufficient ozone in the paper tube, air was blown in one end, which forced the ozone out against the sensitive plate at the end of the other tube. This was kept up for one minute, during which time the ozone was continuously generated. The experiment was carried on in total darkness. The plate mark *G* was thus treated. After being kept in a pyro and potash developer for ten minutes the entire film simply darkened slightly, but no impression of a star was brought out. The mat marks on the edges of the plate developed out very distinctly, as they usually do. From this experiment I am able to conclude that ozone has no effect on a dry plate. Three other plates, marked respectively, *H*, *I*, *J*, were next subjected to the induced electric spark by placing them on a cake of paraffine and resting the terminals of copper wire parallel with the edges. Curious discharges of the spark across the plates were easily developed out, showing that a very faint electric light is sufficient to produce an impression. The sensitive plate thus affords a convenient means of recordig the varying forms and shapes of electrical discharges.

In order to confirm my conclusion as to the effect of ozone, I supplied Mr. Hopkins with two other plates of one maker, Cramer 40, 4x5, and had him expose one in absolute darkness for five minutes to the ozone, and the other for two minutes. These I placed in a hydrochinon developer (10 grains hydrochinon, 15 grains carbonate of potash to the ounce), and kept them there for half an hour, covering the dish during development. Nothing appeared except a slight darkening of the film all over: not a sign of the star I had hoped to obtain was visible. Plates marked *K* and *L* were thus treated.

Taking into consideration the excellent electrical conducting qualities of metallic silver, it is rather surprising to note that its salts, when inclosed in a gelatine film, appear to be such a good electrical insulator.

If electricity is ever to be employed in transmitting photographs by telegraph, it will have to be done by some method of controlling the variations of light, and not by any direct action of the current. Mr. Paddock and myself are about to experiment in this direction. The field is an interesting one, and there is room for several useful experiments. What I have said is the latest in this line, and I trust my work may stimulate others to experiment further.

F. C. Beach.

Correspondence.

PHOTOGRAPHING OIL PAINTINGS BY GASLIGHT.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: It is no new thing the taking of photographs by gaslight, but I think I can give my fellow artists, painters in oil and water color, a suggestion which will be of great benefit to them, and to owners of paintings as well.

For two years past I have been making orthochromatic photographs of my paintings, and those of my friends, by a very simple process; and generally have made much more successful rendering of "values" in orange and red draperies, sunset skies and blues of all kinds, than by the use of shields or color glasses. The artists ought to know of this. Instead of taking the photograph by daylight through a yellow glass, take it by gaslight, through a yellow atmosphere. Expose the picture to a quick plate. I use Carbut's eclipse; they are peculiarly adapted to this object.

Use a medium stop. Time from forty to sixty minutes.

Light from two (six-foot) to six burners, shielding them from the lens, and in such position near the picture as will not make a glare on the painting. Let this be once tried by an artist and he will be surprised at the result. I develope with hydrochinon, Dr. Piffard's formula.

Yours truly,

Robert C. Minor.

CECIL DREEME STUDIO, University Building,
NEW YORK, APRIL 8, 1880.

A BIT OF HISTORY.

To the Editor of THE PHOTOGRAPHIC TIMES:

DEAR SIR:—A few lines to thank you for the February number of the PHOTOGRAPHIC TIMES I just received.

The January number I have not got yet but I hope you'll be so kind as to send it as soon as possible. The February number being of great interest to the members of our club.

I have still to add some little remark as to the address put on the post parcel, containing the above mentioned February number, by which you show unaware of the fact that Amsterdam is the capital of the Netherlands, a kingdom quite independent from Germany; having a history of its own as well as a very distinct language, and occupied by a people that never learned to obey to any foreign nation.

At the end of the Sixteenth Century, the seventeen provinces that now constitute the Netherlands were in some way dependent from Spain but fought themselves free in a war that lasted some eighty years. (Rise of the Dutch Republic, Sir John Lotropp of Motley).

At the end of that long war the seventeen provinces combined under the name of the Dutch Republic, and

during the Seventeenth Century the Dutch were the first navigating nation of the world, ruling the ocean and having their colonies in the East and West Indies, Japan, etc. Also the town of New Amsterdam (now called New York) has been founded by the Dutch.

England and France, (particularly under the reign of Louis XIV., *Le Roi Solul*), successively tried to subject the little nation and to take hold of its riches but without any success.

The last attack at our liberty was undertaken by Napoleon Buonaparte I., Emperor of France, but ended in the battle of Waterloo, where his forces were completely destroyed by Wellington, Orange and Blucher. So far as to inform you after the Dutch and their history, I hope you had the patience to read all this and will honor my patriotic feeling by, henceforth, changing the address as follows:

J. H. Peelen,

Member of the Society of Amateur Photographers of Amsterdam, V. Buerlish, No. 8,

Netherlands.

March, 1889.

Notes and News.

We note with sincere sorrow the death of the wife of Abraham Bogardus, the veteran photographer.

Michel Eugène Chevreul, the renowned chemist and physicist, died at the ripe old age of 102 years, at Paris, April 9th. Chevreul was born 31 August, 1786, at Angers, Department of Maine and Loire, studied at Paris, and became assistant to Vauquelin in 1809, Professor of Physics in the Lyceum Charlemagne in 1813, Director of the Government Dyeing and Weaving Establishment, and Professor of Chemistry in the Collège de France in 1830. He retired from his active work in 1879. Chevreul has written several important works on chemistry and physics, and he is considered a great authority on photographic matters as well.

The Society of Amateur Photographers of New York have issued a little hand-book of their society, illustrated by reproductions from Mr. Beach's photographs, which were shown in The Photographic Times not long ago, and containing a complete list of members, with their addresses. The summary shows the society, at present, to consist of one hundred and ninety-two active members, twelve honorary members, fifteen subscribing members, and thirty-six corresponding members; making a total of two hundred and fifty-five. The officers for the ensuing year are as follows: President, C. W. Canfield; Vice-President, David Williams; Secretary, H. T. Duffield; Treasurer, J. E. Plimpton; C. S. McKune, W. M, Murray, J. H. Stebbins, Jr., Louis B. Schram, A. L. Simpson, F. F. Cobb, T. J. Burton, H. N. Tieman.

President Canfield.—At the close of the regular annual meeting of the Society of Amateur Photographers of New York, which occurred Tuesday evening, April 9th, a fine bromide enlargement, made by the Eastman Company from Pach's negative of C. W. Canfield, was presented to the Society, thus completing the gallery of Presidents up to date.

Mr. George R. Angell, the widely known Photographic Merchant of Detroit, is a member of the Building Committee of the First Congregational Chuch of that city.

We learn that this society is about to erect at the corner of Woodward and Forest Avenues, in the Byzantine style architecture from plans prepared by the celebrated Boston of architect, T. Lyman Faxin, a magnificent church edifice, to cost $100,000, and to have a seating capacity of 1050.

Shakespeare at Cornell.—We recently received a photograph of a bust of Shakespeare, carved in snow by Mr. Williams, instructor in drawing at Cornell University. The bust was about nine feet in height and was situated on the University Campus. The carving occupied only three hours, being done at night under the light of an arc lamp near by. The photograph was made by Mr. W. B. Hand, a student in the University, and was very interesting.

America Sends Ivory to Africa!—Of the recent novelties introduced to the photographic fraternity, none have met with a more instantaneous or widespread favor than has the "Ivory" film, and that it has deserved this popularity, no one can doubt. It not only continues to justify the favor with which it was instantly received, but is being more widely used every day. The latest application of the "Ivory" film which has come to our attention, is shown in an order on The Scovill & Adams Company, from an officer of the staff of Major Wissmann, who commands the German expedition to explore the interior of Africa. This order calls for a large supply of "Ivory" films of the highest sensitiveness, to be used for photographing during the African expedition. As there are thirty cameras to be carried on this exploring trip, there will be sufficient opportunity to prove the efficiency of these flexible films.

The Composition of Celluloid.—The extended use to which Celluloid is now being put in photography as supports for the popular "Ivory" and Flexible Films, makes the following description of its composition from the *American Druggist*, "timely" and interesting: "Most celluloid is made in France. A roll of paper is slowly unwound, and at the same time is saturated with a mixture of five parts of sulphuric and two parts of nitric acid which falls upon the paper in a fine spray. This changes the cellulose of the paper into pyroxyline (gun cotton). The excess of the acid having been expelled by pressure, the paper is washed with plenty of water until all traces of acid have been removed. It is then reduced to a pulp, and passes on to a bleaching trough. It is this gun cotton which gives it its explosive nature. Most of the water having been got rid of by means of a strainer, it is mixed with from twenty to forty per cent. of its weight of camphor; a second mixture and grinding follows. The pulp is spread out in thin slabs, which are squeezed in a hydraulic press until they are as dry as chips. Then they are rolled on heated rollers, and come out in elastic sheets. They are from that point worked up into almost every conceivable form. In Paris there is a room almost completely furnished in celluloid. The curtains, the furniture, the door knobs and even the matting were made of this material. To be sure, no matches were ever carried there. Indeed, the room was never used. It was only a curiosity, and the man who owned it owned the factory where it was made.

A LANTERN SLIDE JOURNEY FROM KILLARNEY TO THE HEBRIDES.—Professor Randall Spaulding, Superintendent of the Montclair Public Schools, gave a very interesting talk Monday evening, April 8th, at Montclair, which he illustrated with lantern slides made from negatives taken on a summer journey from Killarney to the Hebrides. The negatives were made with a small camera, in all kinds of weather, and the lantern slides were made by the lecturer himself on gelatine plates.

PHOTOGRAPHING THE NAVAL TRAINING STATION.—Mr. E. H. Hart, a New York artist, assisted by Professors C. C. Langill and George Fairman, also of New York, are said to be engaged in taking a series of photographic views of the Naval Training Station, to be used in a book, partially for the use of the government and to educate the public as to the aims and objects of the station. So far about one hundred views have been taken. The work is being done under the superintendence of Lieut. F. W. Nichols, U. S. N., who is an expert in photography.

PHOTOGRAPHY AN AID IN EDUCATION.—Photography can be made a most valuable aid in school work. The processes of making photographs, and reproducing them in printer's ink, have been so cheapened and improved that pictures can easily be taken and preserved. All the world can be brought to the school. No class should be without a few hundred illustrations, from all parts of the world, especially the geography class. Trees, landscapes, public buildings, manners, customs, trades, and a thousand other things can be obtained for a small sum. The dry-plate process brings the means of taking pictures within the reach of every school. How delightful it would be for the teacher to bring to her pupils what she saw during vacation. She would be able to live over and over, again and again, her experiences, and inspire her pupils with irrepressible desire to see the world for themselves.—*School Journal.*

RESIDUES.—Amateurs, who find their hobby somewhat expensive, and professionals, whose yearly returns are not as large as might be desired, will do well to preserve carefully all material containing noble metals in any shape. A very small percentage of the silver originally used in the preparation of sensitive substances is present in the finished negative or print. We have seen it stated that a print on albumenized paper contains only about three per cent. of the silver originally present in it. We do not guarantee the accuracy of this estimate, but it is probably not very far wide of the mark.

The following should always be carefully preserved: 1st. All paper containing or bearing silver salts, as trimmings of untoned albumenized paper, bromide and chloride papers, filter papers used for silver solutions. 2d. Water wherein prints containing free silver nitrate have been washed. 3d. Old toning baths. 4th. Old fixing baths. 5th. Waste emulsions of any kind.

1. *Paper Residues.* After a considerable quantity of waste paper has been collected, it should be burned completely to fine ashes. An ordinary stove or grate will answer for burning, provided the draught do not carry away the very light ashes.

2. *Washing Waters.* The first two waters used for washing sensitized albumenized paper should be put into a reservoir with a tap about four to six inches from the bottom. When the vessel is pretty full, hydrochloric acid may be used to acidify the residue, and the silver may be thrown down as chloride by the addition of a quantity of concentrated solution of sodic chloride—common salt. Hydrochloric acid may be used to throw down all the silver, but we prefer the salt. If too much salt be added, the chloride will be re-dissolved. When the chloride is all down, the supernatant liquid is drawn off by the tap, or siphoned off, or even baled off. The chloride is collected, washed in water, dried, and added to the paper ashes.

3. *Old Toning Baths.* In a toning bath the gold may be inert as a toning substance but can be saved. The bottle containing a toning often becomes encrusted with a deposit of gold; this may be dissolved by *aqua regia* and added to the bulk of old baths. The bulk being acidified with sulphuric acid, a saturated solution of ferrous sulphate is added till no more gold is precipitated. The precipitate is collected, washed, dried, and may either be added to Nos. 1 and 2, or kept separate.

4. *Old Fixing Baths* are usually the most valuable of all residues. Every plate, whether exposed or gone wrong before, during or after exposure, should be "fixed." The used fixing baths are to be preserved in a vessel similar to that used for No. 2. The solution should be acidified with sulphuric acid, and precipitation of the silver effected by the addition of a strong solution of potassic sulphide, "liver of sulphur." This, however, must not be done in the operating, nor, indeed, in any inhabited room; but in the open air, for the odor is both unpleasant and unwholesome. As an alternative, strips of zinc or copper may be suspended in the old hypo solution, when the silver will be precipitated on the strips or on the vessel. When the precipitation is complete, the deposit is collected, washed, dried, and kept separate from other residues.

5. *Old Emulsions*, if of collodion, may be poured out to set in a flat dish, allowed to desiccate, lifted or scraped from the dish, and added to the paper ashes, or the chlorides. If of gelatine, they should be treated in one of the following ways: Add to the waste emulsion, in a large iron pot, five times its weight of caustic alkali and boil for half an hour. The boiling will be very furious at first, but will subside after a little. Or several times its bulk of sulphuric acid may be added to the emulsion and the whole boiled for a few minutes. In each case the gelatine will be deprived of its setting power or viscous quality, and the silver, in whatever state it is, will settle to the bottom and can be separated by decantation from the liquid. It may then be washed and added to the chlorides.

Platinum residues are very valuable and may be saved thus: All waste paper should be passed through the developing solution. Old potassic oxalate developing solutions are collected and boiled with one-fourth of their volume of ferrous sulphate. The platinum separates and can be collected on a filter.

We do not advise the reader to fuse his own residues as a matter of business, for a professional refiner will get much more noble metal out of them than the photographer is likely to do. As an interesting experiment, however, the following may be tried. Take the paper ash and the chlorides, with which may be included the gold, dry all thoroughly and mix with a *flux* consisting of four times the weight of the chlorides of a mixture in equal parts of the carbonates of soda and potash. Mix thoroughly and put into a crucible, subjecting it to white heat

till the contents of the crucible are perfectly liquid. Then either pour out on to a cold stone floor, or allow to cool and break the crucible. In one case a bar, in the other a button of silver, will be found. If gold is present a refiner will allow for it.—*From Processes of Pure Photography.*

Photographic Societies.

CASE SCHOOL CAMERA CLUB.

At the regular meeting of the Case School Camera Club, Friday afternoon, April 5th, Wm. T. Rynard was elected a member, after which Corresponding Secretary Punnett gave a demonstration of the making of the plates. After discussing the solarization of plates from an extraordinary long exposure, the club adjourned.

Milton B. Punnett,
Corresponding Secretary.

PHOTOGRAPHIC SOCIETY OF CHICAGO.

The regular monthly meeting was held April 2d, at the rooms of the Art Publishing Company Exchange Building; Judge Bradwell, the President, in the Chair.

Dr. C. F. Matteson and W. M. Henshee were elected resident members.

The Secretary submitted a list of names for associate membership.

Mr. Douglass, for the Committee on Exhibition, said that matters were in excellent condition, and everything bid fair for a very successful display at the first annual exhibition; the committee had secured three of the large rooms in the Art Institute for the exhibit of pictures, together with the lecture-room in the basement, for nightly lantern exhibitions, as well as another hall for display of apparatus. Nothing in this last department would be on sale, but exhibitors could be there to explain the working of their various novelties, etc.

The exhibition would open on the 5th day of May with a reception given by the officers of the Art Institute and close on the 25th; the admission would be twenty-five cents, which would entitle the visitor to visit all the departments of the institute.

In addition to the prizes already mentioned, the committee report the following:

Harvard Dry-plate Co., $50, for portraits; (amateur) $25, for marine or landscape.

Stanley Dry-plate Co., $50; two, $25.

Twenty-five dollars for best exhibit of work done with Lilliput Camera.

A complete list and programme would be ready for mailing in a few days, and could be had by applying to the Secretary, or to any of the photographic dealers.

Judge Bradwell then introduced Mr. Ward, the Manager of the Art Publishing Company, who explained and demonstrated the working of one of the best known of the photo-mechanical printing methods.

The process which his company worked was known by various names, probably the best being that of "collotype," the most useful, in his estimation, of the gelatine processes. Briefly, the method of working is as follows: A finely ground plate-glass of sufficient size is coated with a mixture of silicate of soda and albumen, dried and flowed with bichromatized gelatine in the proper proportion; this is dried at a high temperature in a non-actinic light; the prepared plate is then exposed in the usual way under a reversed negative until the print shows; the plate then undergoes a so-called etching process, after which it is ready for printing,

Mr. Ward had plates which he exhibited in every stage of the process. One of the presses was started with a plate prepared especially for the occasion, every member present receiving a copy of a large picture printed in his presence equal in appearance to the finest steel engraving.

After a vote of thanks to Mr. Ward and his assistants, the society adjourned.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

Regular Monthly Lantern Slide Exhibition at Hardman Hall, Friday Evening, March 29, 1889.

It having for some time been the desire of the officers of the Society to provide better accommodations for members and their friends to see lantern slides exhibited on a larger scale than is possible in the limited dimensions of the present rooms, the new Hardman Hall, corner of Fifth avenue and 19th street, was secured for the regular exhibition held on Friday evening, March 29th, and was admirably adapted for the purpose, since it has ample seating capacity, a small gallery at the rear for the lantern and sufficient room over the stage to admit of the placing of a 20-foot-square screen. Much extra work was required of the Lantern Slide Committee in arranging the screen and setting up the pair of MacAllister Dissolving Lanterns kindly loaned for this occasion by Mr. S. Quackenbush. The Committee, however, had everything in readiness for the exhibition to begin at the appointed hour, half-past eight.

The spacious hall was completely filled by a very appreciative audience.

President Canfield, stationed near the screen, made a few preliminary remarks, and after the lights were lowered, announced the titles of the pictures.

Mr. F. C. Beach, Mr. A. L. Simpson and Mr. F. F. Cobb, of the Lantern Slide Committee, attended to the working of the lantern, while Mr. Charles Simpson acted as usher.

The exhibition represented the work of about twenty members of the Society. A picture of a "Daisy field with a view of an Amateur at work," by President C. W. Canfield, was first shown and elicited applause. There were so many fine views it will be difficult to particularize.

Some of the best work shown may be mentioned as follows: "Two cherubs—of the New York Athletic Club," "Ducks Racing" and "View in Central Park Ramble," by Mr. William M. Murray; "Central Park Skating" and "Roadside Pond," by Major George H. Shorkley.

"View near Sandy Hook," "Pet Dogs," and "Kaaterskill Clove," by Dr. John T. Nagle. "A View in South America," by Mr. Edward Leaming. A figure study entitled "Mending Nets," by Mr. John E. Dumont; "Views in Liverpool," by Mr. J. E. Plympton. Pictures in England, Switzerland and Italy, made with an American detective camera, by Mr. Sidney Bishop; "Pet of the Family" (a sky terrier sitting up begging for something to eat), by Mr. C. S. McKune. A magnificent clear slide of the noted lioness "Cleopatra," in Central Park Managerie, by Mr. F. Vilmar.

This was accepted with loud applause.

Mr. Charles Simpson's figure studies, "An Old Southern Darkey," "Isn't it Funny" (representing a lady sitting on a log laughing as heartily as possible), his "Mermaid," and his other interesting slides of "Gettysburg Monument," Following in a Steamer's Wake," and landscape view in "Kaaterskill Clove," were all very much liked.

"At Still Water, Deerfield, Mass." by Mr. J. Wells Champney, made an interesting picture.

Miss Elizabeth Slade's "Cathedral at Exeter, England," and "Two Young Arabs," were excellent, and were the only work of a lady included in the exhibition.

"Her New Bonnet," "Road Study at Putney, Ct.," and a house floating down a river on two dredge scows, were the best of Mr. F. C. Beach's work.

"Plymouth Rock," its monument and a very pretty road scene, by Mr. J. F. Bussing, were very much admired.

"Surf at Sea Bright" was particularly good, while the landscapes by Mr. James H. Stebbins, Jr., were very attractive and charming.

A few of Mr. C. D. Irwin's India and Ceylon views were included, and, though of foreign subjects, they were interesting, in showing what an amateur may do on a trip around the world.

Several landscapes by Mr. Ferdinand Ruppert around Wuerzberg, Germany, its old fortifications, bridges and old buildings, were very fine. Also his "Surf at Long Branch" was particularly clear, showing a succession of rollers coming in, with a ship on the horizon, equally sharp and distinct.

As usual, Mr. A. L. Simpson's marine pictures of racing yachts, so artistically caught, were very favorably received. His single slide of a pussy-cat emerging from a vase was also very odd and attractive.

A few of Mr. Richard H. Lawrence's admirable Norway views, made with the detective camera, and Mr. James E. Brush's splendid slides of Niagara Falls in winter dress, including also his fine view up the Saco Valley, together with a very attractive slide of the Bronx River in winter, by President C. W. Canfield, and amusing flash-light pictures of children going to bed, by Mr. George H. Hull, concluded the entertainment.

A brief intermission was taken after half of the 180 slides had been shown, for the purpose of resting the eyes of the audience.

There can be no doubt but that the exhibition was a success, and it is hoped the Society will see its way clear to hold several more in the same place.

Mention should be made of the assistance rendered by members of the House Committee in attending to the comfort of the audience and the details pertaining to transportation.

A CARD, dated April 1st, 1889, notifies us that Stanley Noble Partridge came on that day to gladden the hearts of our friends, Sam C. Partridge, the enterprising photographic merchant of San Francisco, and his charming wife.

FROM Mr. Edward H. Lyon, author of the interesting articles on "Emulsion-making for Amateurs," published in THE PHOTOGRAPHIC TIMES not long ago, we have received a specimen of work with the iodo-bromide formula which he speaks of in those articles. It is clear and brilliant, and possesses all excellent technical qualities.

EVERY one who has wondered how the marvelous artistic effects of our best mosaic windows are produced will be interested in the account of a visit to a colored window studio, which Prof. C. H. Henderson will contribute to the May "Poupular Science Monthly." The article is entitled "The History of a Picture Window," and contains illustrations of the several processes of manufacture.

CHLORIDE OF GOLD AND CHLORIDE OF GOLD AND SODIUM.

THE following is an abstract of an article by Alex. Lainor in *Photographische Correspondenzen*:

A brown residue frequently occurs when chloride of gold is dissolved in water. It is metallic gold resulting from incorrect preparation of the salt. When a solution of gold in aqua regia is evaporated, a part of the auric chloride is decomposed, aurous chloride is formed with a direct separation of metallic gold. Dissolving excessively heated gold salts in water, the finely divided metallic gold remains naturally undissolved. Solutions containing aurous chloride will, even when not heated, separate metallic gold with the formation of auric chloride. To prepare anhydrous gold chloride of the formula $AuCl_3$, the above mentioned evaporated solution should be diluted with warm water, the metallic gold separated from it by filtration, be again carefully evaporated, and finally heated to 150 degs. The result is a dark ruby or reddish brown mass of acid reaction, and contains 64.9 per cent. of gold.

Evaporating the solution to crystallization point, large, dark, orange-colored crystals will form after cooling. They are of the formula $AuCl_3+2H_2O$, deliquescent in moist atmosphere, but efflorescent in absolutely dry air.

The chloride of gold of commerce has a percentage of pure gold ranging from 41.11 to 51.75.

Chloride of gold and sodium, $NaCl.AuCl_3+2H_2O$, is properly prepared by dissolving four grammes of gold in aqua regia, evaporating the solution to dryness, and redissolving in eight grammes of water to which one gramme of sodium chloride has been added. From the evaporated solution will form orange-colored crystals, which are permanent in air. The chemically pure salt contains 49.48 per cent, of gold; that of commerce varies from 17.73 to 20.55 per cent.

Large amounts of chloride of sodium in the chloride of gold and sodium act disadvantageously to the toning process; it tends towards the production of foxy-red tones.

All gold chlorides are frequently found to contain much free hydrochloric acid. Very acid toning baths retard the action, and the pictures toned in them are poor. They look corroded, and mat. By neutralizing the excess of acid with carbonate of soda, chloride of sodium is formed of its own disastrous influence to the toning of the print. Gold chlorides made from coin, and containing a certain amount of copper, according to Soppe's experience do not act disadvantageously to the toning bath, but are rather beneficial to it. With it the tone keeps better, and does not fade in the fixing bath. Herr Soppe is so well pleased with the action of copper, that if he is compelled to work with pure chloride of gold, he adds copper chloride to secure the wonted results. The great variations in the purity of commercial gold chlorides have led to constant complaints. Practical photographers should prepare them in their own laboratories, if it is an object to them to have the article of uniform quality and gold percentage.

Washington Landing in New York. 1789.

PHIC TIMES.

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, 26, 1889. No. 397.

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Akin to this, his love for
A tenderness for little child
Gentle his touch, as the ... with
Gentle, as is the face he turns to th
And while the kindly eye is wont to
The charms of little children, and of bird
In such wise, reverently, notes he, too,
The graces sweet of women—women
Such as ever that word, womanhood, suggests
He is an artist: struggling at the first,
But one hath said, that earlier in his art,
Ere that experience had made more ware,
His crafty models' feigned tales of want
Would draw from out his purse beyond their due
Ready his sympathy for other's woe,
Like to his homage to another's worth.
A man an artist, 'mid the narrow throng,
And bounded not by self, nor yet by Art;
As rare, methinks, as that rare art which shows
The strange, poetic peopling of his brain.
These things we see who know him, but there are
Who note him as the casual passer-by
Notes but the rough burr on the chestnut shell
Unlearned, unskilled in th' maze of social forms,
He may not meet with ease in formal way,
With childlike nature and colossal frame,
He brings the thought of Elemental Man;
Fresh, strange and unconscious—so he stands;
Fashions and customs, manners, social, rules,
Stirring about him, leave him still unchanged,
As though but in a shower of falling leaf
Careless his dress, even as are his ways,
And not with fancies artist's careless grace;

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Leila R. Ramsdell.

INAUGURATION.

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...tates. ... deral Hall, which stood ... Treasury building now stan... et, on Wall. His inauguration ... that date because not enough of ... es had come into the new U... that time.

Washington had set out from h... Vernon on the 16th of April, and ... was one long ovation. He proceeded ...

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, APRIL 26, 1889. No. 397.

A PORTRAIT.

Among the things which carefully my mind
Stores in her treasure-house, and thence draws forth
To gladden world-tired eyes, are freshening thoughts
Of one whom Nature loves, now rarely seen ;
One who loves Nature, knows her fair, pure soul,
Who can spend hours of deep, uncloyed delight
Musing upon her varying countenance ;
One who notes the pretty ways of birds,
And toys with them, unconscious and engrossed,
Holding, this tall, and large-framed, unkempt man,
Light-perched upon his long and shapely hand,
The little, chirping, softly-feathered thing,
And needing no companionship beside.
He is an artist, and he loves to paint
The little rounding breast, the huddled group.
Akin to this, his love for little birds,
A tenderness for little children shows,
Gentle his touch, as though with fear to harm,
Gentle, as is the face he turns to them ;
And, while the kindly eye is wont to note
The charms of little children, and of birds,
In such wise, reverently, notes he, too,
The graces sweet of women—women
Such as ever that word, womanhood, suggests.
He is an artist ; struggling at the first,
But one hath told, that earlier in his art,
Ere that experience had made more ware,
His crafty models' feigned tales of want
Would draw from out his purse beyond their due.
Ready his sympathy for others' woe,
Like to his homage to another's worth.
A man, an artist, 'mid the narrow throng,
And bounded not by self, nor yet by Art ;
As rare, methinks, as that rare art which shows
The strange, poetic peopling of his brain.
These things we see who know him, but there are
Who note him as the casual passer-by
Notes but the rough bur on the chestnut shell.
Unlearned, unskilled in th' maze of social forms,
He may not meet with ease in formal way,
With childlike nature and colossal frame,
He brings the thought of Elemental Man ;
Fresh, simple, and unconscious—so he stands ;
Fashions and customs, manners, social, rules,
Stirring about him, leave him still unchanged,
As though but in a shower of falling hail.
Careless his dress, even as are his ways,
And not with fancies artist's careless grace ;
But plainly, like a heedless man of toil.
I call him not "a diamond in the rough,"
A thing we prize for possibilities,
For fairly shows his virtues' worthiness,
As shows, always, the arbutus' rare bloom,
'Mid last year's sheddings and its own torn leaves.
Again he brings to mind this flower of Spring ;
Were it unshielded from the outer air,
By last year's sheddings, and its own tough leaves,
Had it so fully born us this fresh bloom ?
But, yet, once more, of this, of earliest flowers ;
Not only that it blooms a thing so rare,
But that it differs from the neighboring world,
It's blossom still so welcome proves to men.
Large, fresh, and simple nature, generous heart,
Your own free measure men yield back to you,
Lover of tree, and bird, and little child,
The kindly thoughts you give, to you are given.

Leila R. Ramsdell.

WASHINGTON'S FIRST INAUGURATION.

OUR photo-gravure this week, from an old-time engraving, will be welcomed by every reader of THE PHOTOGRAPHIC TIMES, as a most appropriate and interesting illustration at this time.

In our February 22d issue of the current year, a *fac simile* of the Washington Calendar was reproduced, which showed the home and some of the haunts of Washington. Miss Skeel's excellent picture, of the "Newburgh Head-Quarters," is another illustration of Washington interest.

On the 30th of April, 1789, as every one knows, George Washington was formally administered the oath of office, as First President of the United States. The place was on the balcony of the old Federal Hall, which stood very nearly where the Sub-Treasury Building now stands, facing Broad Street, on Wall. His inauguration was delayed until that date because not enough of the original Colonies had come into the new Union previous to that time.

Washington had set out from his home at Mount Vernon on the 16th of April, and his journey thence was one long ovation. He proceeded first to Alex-

andria, then through Georgetown to Baltimore, thence to Philadelphia. From Philadelphia he passed over to Trenton, crossing New Jersey, and reaching Elizabethtown, where a committee, with a barge provided by Congress, was awaiting to convey him to New York. This barge was rowed through the Kill von Kull by thirteen of the harbor pilots, and was followed by a long train of boats bearing officers of the new government and other prominent men of the young republic. As the barge drew nearer the Battery, the train of boats grew larger. The war-ships in the harbor fired salutes, while—as one writer has said—"over the water, to those on shore, came the blare of conches and trumpets, the sound of song and music, and the stirring notes of 'Stony Point.' As the little fleet came around the end of Governor's Island, the shouts were taken up by the crowds that lined the shore or stood in a dense mass about the spot which, bright with flags and bunting, marked the landing place at Murray's Wharf. There Washington was met by George Clinton and the members of Congress. and escorted by all the troops in the city, to the house made ready for his use."

Our picture shows us the scene as Washington approaches the landing, and gives us a good idea of the brilliancy and the enthusiasm of the time.

META-BISULPHITE AS A PRESERVER OF PYROGALLOL AND HYDROCHINON IN SOLUTION.

When the hydrochinon developer first became used to any extent, superior and peculiar keeping qualities were claimed for it, and the old search for a good preserver was thought to be no longer necessary. Alcohol, the sulphites and sulphurous acid, had been used in turn, by those who employed the pyrogallol developer, in order to preserve their solutions, but never with perfect satisfaction. It was, therefore, considered a great step in advance, when hydrochinon was proposed as a developer which did not require the addition of any one of these more or less unsatisfactory preserving agents.

But it has been found that hydrochinon is no more durable than pyrogallol, and that, therefore, something more must be added to it, in solution, in order to preserve its original purity and activity. Nothing better has yet been found than metabisulphite, not only for hydrochinon but also for pyrogallol, in solution. It is a much more stable salt than sulphite of sodium, and a very little goes a great way in preserving developing solutions; in fact, nearly all the formulas prescribe a larger amount than is necessary. Metabisulphite in excess tends to retard development, but, in proper proportions, serves merely as an excellent preserver. One-sixth in weight of the developing agent, is quite sufficient.

But meta-bisulphite is not a substitute for the mono-sulphite, as has been erroneously believed by some, for it acts merely as a preserver, and unless sulphite of sodium is used in connection with it, the resulting negative will have an undesirable yellow tone.

Many hydrochinon developers that are sold ready-prepared are not at all reliable, being of a darkened color, when purchased, and before the stopper has been removed at all. They intensify in color rapidly when exposed to air, and all that meta-bisulphite can do is to preserve them from further deterioration; it cannot restore them to their original purity. Hydrochinon developers should be prepared in two solutions, separating the alkali from the hydrochinon. The meta-bisulphite of potassium will then be found to be most efficacious.

AMERICA THROUGH AN AMERICAN LENS.

I.

Washington's Head-quarters at Newburgh.

"All ashore that's going! One hour and three-quarters to see Washington's Head-quarters. Steamboat leaves Long Dock promptly on advertised time; ticket forfeited by a stop-over. All ashore that's going. One hour and three-quarters to see Washington's Head-quarters!"

With these words in their ears, pilgrims to our Newburgh shrine toil up our steep, straight hills, eager to see all there is to be seen at Washington's Head-quarters; but, alas! a house a century old will not permit a stranger to gaze at its treasures in this eclipse-plate, drop-shutter fashion. Hence these visitors take instantaneous views, lacking detail and density, and my excuse for giving the Times readers a longer exposed picture lies in the fact that I have spent not only an hour and three-quarters in Newburgh, but all my life; that I have indeed no return ticket to New York to forfeit, and may speak entirely from the stand-point of a stop-over. Therefore, I point my camera at the old grey house, whose latent image has been developed on dry plates thousands of times before, and try to bring out some forgotten feature which shall stir our patriotism in this centennial season.

To photograph a familiar scene is always awkward, and begets a feeling not unlike one's experiences in taking family portraits. "How shall I approach the Head-quarters?" I asked myself tentatively. "How shall I see it, when I have looked at it so often? How shall I unblush-

ingly, in the presence of people who know me, deliberately set up the tripod and focus on this historic chestnut?

It seemed like a monstrous joke, some way, and it was impossible to make believe I was a stranger, for even should I coax myself into such a folly, there were the school children passing across the well-kept park, calling me by name, and the neighbors stopping at the iron gates to ask "What are you taking now?" and the mutual acquaintances nodding to each other, whispering "Doesn't she know she can buy those views?" Finally, the little folks who would play on my known weakness, and insist on being taken in a group, perchance seated on a cannon, and, as a final obstacle, the Superintendent, whose small perquisites come from the sale of copyrighted views. Alas! to whom does the latent image of a historic relic belong? However, in spite of these difficulties, great and small, I ventured to detect with my Waterbury on successive sunny mornings a number of 4x5 counterfeit presentments of the house, and although none of these views were technically good, they served the purpose of all detective work, and showed me, as ten-minute sketches show an artist, the best point of view from which I must take my exhibition picture. I may say, in passing, that Washington placed his house most advantageously for a photographer, for it stands on the brow of a hill, unshaded by trees on the river side, framed in an interlacing network of boughs on the west.

When I finally gained courage to come with my big machine and to set up my long-legged patent adjustable sliding, rigid, immovable, easily shifted tripod, I found that I knew the exact spot on which to begin operations. I own I had a desire to take a view from the old porch or "rickety stoop" as Lossing calls it, for from this place I could see Fishkill, New Windsor, Plumb Point, Pollopel's, and Beacon Hill, not to speak of the town of Newburgh itself, the tower of victory, the Knapp Tomb, the monument to the memory of the last of Washington's life-guards, and our great river; but remembering I was to take the house, I came reluctantly away from it, and put up my camera on the lawn to the east. When my head was covered with my focusing-cloth, I was assailed by another temptation, for a gentle purring about my feet reminded me of Lady Washington's famous cat at Mount Vernon, for whose self and kitten she had a big hole and little hole cut in her bedroom door. I fancied the pussy now at my feet was a lineal descendant, and the wish to take her portrait, rather than house, grew very strong within me. I succeeded, however, in carrying out my original design, and lo! as a reward for such unusual steadfastness of purpose, when I developed the plate Tabby was found to have posed herself comfortably on the sill of the left-hand window. Those of us who hardily brave the January cold, and consider winter landscapes more interesting work even in zero weather than flash-light interiors, will know how difficult it is to make a correct exposure for snow effects. I have decided, after many backward steps, that a small stop, medium-length exposure and weak developer give the most generally satisfactory results and allow the widest latitude of error. I like to take winter views, because buildings stand forth in such bold relief that they seem to readily focus, while the bare branches of leafless trees make a setting far more beautiful to a photographer's limited art than the lumpy, heavily-shadowed foliage of midsummer.

My eastern view of the house having proved rather more of the realistic Verachestchagin order than I had desired, from the fact that I had pointed my lens down a cannon's mouth, I turned to the other side and took a peaceful picture from the west. Here cannon balls are piled in triangular mounds by the low porch, under whose snow-covered eaves was posed our courteous Superintendent in all the bravery of his buttons. After exposing a couple of plates on this shining mark, I followed some guests into the famous seven-door one-window room to hear the oft-told tale of this Hasbrouck house, which gets its name from the venerable Huguenot family who owned it before the State of New York bought it as a Revolutionary relic. It is memorable as Washington's head-quarters at the close of the Revolution, and here it was that Lady Martha lived during the summer of 1783. Her flower garden was long preserved, but one does not think so much of June roses as of January snows when remembering the hardships our soldiers endured in the vicinity of Newburgh that last winter of the eight years' struggle. It was here, in our

town, that one of the most trying events of Washington's life took place; when, worn out by suffering and privation, cold, hunger and nakedness, his army abandoned the idea of a republic, and offered their great commander a crown. There are many political letters written nowadays to turn the course of events, but none, it is said, more noteworthy and of greater historic vitality than the answer General Washington penned in this small north-east room of the old stone house.

"Let me entreat you, gentlemen," he wrote "not to take any measures which, viewed in the calm light of reason, will lessen the dignity and sully the glory you have hitherto maintained. Rely on the plighted faith of your country, and place full confidence in the intentions of Congress."

Thus was quelled a mob, and thus, too, was personal vanity set aside.

"Four events," says the chronicler, "are intimately connected with the head-quarters locality." Here the tourists get out their note books and make ready to jot down these important facts, while I, who write with the sunbeam and carry no lead pencil, make sure I shall remember nothing.

"The refusal of Washington to accept a crown."

"The suppression of a movement to seize the government."

"The proclamation of the cessation of hostilities with the mother country."

"The disbandment of the army, Nov. 3, 1783."

The tourists, like a dismissed history class, put up their note books, and while they stroll about to examine such relics as the embroidered gown a manor-house lady wore to a revolution ball; the tooth of poor Jane McRae, scalped by Indians who she trusted to lead her to her British lover; the big chimney; the Hessian officer's bigger boot; the life-size floss silk portrait of the Father of his Country; the chain which was thrown across the Hudson; the piano with its tuneless keys, and the registry-book, where blots remind us of so many great men, I go outside again to gather up my traps, trusting this bit of America through an American lens will, like its English predecessor, meet with a few indulgent readers.

Adelaide Skeel.

THE CAMERA AS A DRAUGHTSMAN.

A Hint for Architects.

All architects are called upon in the practice of their profession to make alterations to old buildings, and these require to be measured inside and out, more or less carefully, according to the nature of the work, that plans may be made of them upon which to base the designs for the proposed changes. There has been no better way ever found to obtain the desired measurements than by a careful use of tape-measure and rule, and this, comparatively easy for all inside work, is for outside figures, especially in getting heights, both difficult and tedious in the extreme. The steel tape and ten-foot pole, with yourself and assistants leaning painfully out of windows and dangerously over cornices, effecting it only after much ruffling of clothes and temper. In addition, sketches must be made of the building, that they may guide the architect in his designing the contemplated improvements. It is for this latter part of the work the camera proves the most efficient aid and practical draughtsman. By photographing the several sides of a building, not only in dead elevation, but in perspective, the architect has before him a series of views that not only give him, as no hard line drawings can, the building as a complete whole, with all its projections, mouldings, detail, and shadows, but an exact and literally truthful *measurement* of it all. If the building be of wood, he has but to take the average measure of the clapboards or other covering, if of brick, the measure from the centre of joint to joint, and he has all his heights at once by the mere counting up of these on the photographs, and from them he can also construct a scale which will give him every other measurement required.

To give one instance of this: I had a building, an old farm-house, beautifully situated far up in the Connecticut hills, to alter into a roomy mansion for a client who had purchased it for a summer home for his rather large family. The trains communicating with the nearest station to the house, and some six miles from it, ran so inconveniently that to go and return in one day and to make all the required measurements would have been impossible but for my camera, as there was no place I could stay over-night at this winter season of the year. I had about two and a-half hours between trains, and in this limited time I made my interior survey of the premises and six photographs of the outside, and using this time a *Detective Camera*. I developed the negatives the same night, made blue prints the next day, handed them over to my assistants, and was relieved and immensely gratified by the results in the great saving of time and labor. When I began to design the additions, a wing here, new piazza there, bay-window to one room on the one side, enlarging another room with a double bay on the other, raising a one-story extension to the height of the main house, I had my blue prints at hand for ready and constant reference, and I never appreciated the little camera as I did in this,

helping me at every turn in my designing, and its pictures forming a most valuable adjunct even for the builders in estimating upon the new plans, in showing the house as it originally stood, and defining more clearly than possible in any other way the amount of alteration called for.

I might add that I gained an additional bond of sympathy from my client in giving him a set of the views for a souvenir, and this is not the least valuable view to take of the camera in its many uses, by any means.

H. Edwards-Ficken.

ART IN PHOTOGRAPHY.

I DON'T know if I am in order in taking part in a question which is in such good hands as those of Mr. Stillman and Mr. Pringle, but when the subject is that of Art in Photography, I find it difficult to keep out of the fray, although not unmindful of the fate of "those who in quarrels interpose."

Mr. Stillman has always seemed to take a pleasure in maintaining that photography is not an art. For nearly a quarter of a century I can remember him as the one good man whom all those who advocate the art claims of photography have desired to see on their side, but have not been able to convert, and it is with great satisfaction that I notice in his article on Mr. Pringle in the PHOTOGRAPHIC TIMES, March 15th, although as persistent as ever, is weaker than usual, and admits more. His arguments against photography as an art, indeed, now appear to be narrowed down to the means by which art is expressed—or, narrower still, to the means by which it is put on paper or cameras. Formerly I think he had more serious objections than this, so we must be grateful for having got him along with us so far, it time may be not far distant—another twenty years or so, perhaps—when he will give us the other little bit

If I understand Mr. Stillman aright, he says that the conception of a picture is not art, but that art consists in giving visible form to a conception. "A man may have all the clearness of conception and vigor of imagination that Michael Angelo had, but if he never learned to draw he has no means of showing it, nor do we call him an artist." He continues: "Secondly, the art of any artist is rated according to its mastery of the means of expression and its success in expressing for others, the conception with which the mind was charged," and he admits that the conception may be a very trivial one, and the art of a very low order. His chief point, however, the only one on which, I think, we now differ, is that the photographer cannot give expression to his conception at all *as a photographer.*

There is a subtlety of thought running through these propositions which it is difficult to follow, but I should have thought that if an artist was to be judged by the quality of his imagination, imagination would have been a considerable part of his art.

I don't know why the art of drawing should be selected as the only means of art. Drawing (including painting) is only one of the many means of embodying a conception. There has been many a great sculptor who owed nothing to drawing. Mr. Stillman is an "expert" in Greek art. Did he ever hear of the drawings of the Greek sculptors? We have ample records of them as modellers and carvers, embossers and engravers. Mr. Stillman will admit that Phidias was an artist, yet we have no record (I speak under correction) of his drawing, we are only told that he worked in marble, ivory and gold, and did not fail to use the skill of inferior men. Raphael, also, we know, employed the hands of other men to embody many of his conceptions, yet these pictures are admitted to be by Raphael. And to come to our own art, I should not be surprised if some day a great photographer would be possible, who knew a great deal of art but nothing of drawing. Although, I must admit, I should think him unwise if he had not learnt, not only to draw, but to draw well, and I believe the time is near when a man will be classed with the uneducated who cannot draw as well as he can write.

Mr. Stillman's mistake is in holding that only one way of expressing a conception to art, and that way drawing or painting. It seems to me that a work of art must consist of more than the laying on of paint. To say that the mere operation of painting is art, is like saying that the mechanical art of writing is literature, and that he who makes the best pot-hooks and hangers is the greatest writer. I look upon painting as only the grammar of the language in which the artist has to express his ideas, and there are other languages of art, in which ideas may be expressed by those who know how to speak them. It is admitted by others than Mr. Stillman, that one of the languages of art, photography, is not so plastic as some others and has its limits. As Mr. Pringle acknowleges, "the photographer cannot by any means so easily give his conception a visible graphic existence," but that renders it by no less a means of expression.

An example may make the matter clearer, and will show how a conception may be realized by a

photographer. It will be found that he uses drawing, but that is what all artists do now, and he only exchanges facilities with the painter, and uses drawing where the painter often uses photography —that is, in the preliminary sketches.

Months ago I thought of a subject that I felt would make a good picture in photography, well within the limitations of the art. I don't want to mention the subject until the picture is finished, and, therefore, will simply say that it consists of some figures on a sea beach. A note-book jotting was at once made, then a careful drawing of the figures, full-size, followed by a visit to the nearest coast to select and sketch a suitable background, which was added to the drawing. I have corrected and altered the drawing at intervals ever since, and it is complete to the minutest detail so far as I can make it.

The sketch was made in winter, but when the fine weather comes I am going to *express my conception in photography*, and I know from experience that I shall have such command over my materials that the photograph will follow my sketch as much as a painter follows his sketch in painting a picture or copying a photograph. It may be not artistic to wait for weather, but it can be no less artistic than for the landscape painter to wait for the leaves to come on the trees when he selects that his theme shall be summer.

That there is at least something in the execution of the photograph will be easily seen when I say that no photographer could carry out a sketch as well as the designer would do himself. There would be something missing, the loss of which would be felt. It would lose the "go" which I believe is admitted to be a part of art. Another operator may be a much better manipulator than I pretend to be, and he may, as he easily might, know those thousand and one chemical things of which I am ignorant, but his carrying out of the subject I conceived would be wooden and mechanical, showing, I think, the "personal equation."

Photography has been called a mechanical art, but the photographer is not the only "artist" who embodies his creation with the help of a machine. All artists use machines or implements of some kind or other, it is only a question of degree, not of principle. The painter uses brushes, pencils, paints, etc., the sculptor puts his conception into marble by the aid of as mechanical a machine as the camera—he goes further than that, he leaves the pointing and cutting to his workmen, and confines his labors to going over the piece at the finish with the "patience and sandpaper" which Ruskin tells us never made a statue. In effect he does the retouching. It is true that the preliminary sketch is his work, so is that of the photographer, as I have shown the work of the user of the camera.

According to Mr. Stillman, as I understand him, an artist is one who lays on paint, therefore a copiest must be an artist, which great title was not due to Michael Angelo until he applied his fresco colors to the plaster. But he admits that he would have been only a little artist if his conception had not been great.

So we have now got from Mr. Stillman a closer definition than we have hitherto been favored with of what art is. It is the application of paint to a surface, and the artist is great or little according to the quality of his conception. We should all be glad to agree with him if he would only widen his admission a little and take in at least sculpture and photography.

H. P. Robinson.

THE CHEMISTRY OF PHOTOGRAPHY,

CHAPTER XII (*Continued.*)

Gold Trichloride.

Formula, $AuCl_3$: Combining weight, 302½.

There are two chlorides of gold, the mono-chloride, AuCl, and the terchloride, or trichloride, $AuCl_3$; it is the latter which is exclusively employed in photographic operations. With pure gold there is no difficulty in the preparation of this salt. It is simply necessary to dissolve the gold in about eight times its weight of aqua-regia, an operation which is facilitated by gentle warmth, as by placing the glass vessel in hot water. When the gold is entirely dissolved, the solution must be poured into a small porcelain crucible, and evaporated until the free acid is all, or nearly all, driven off; a few drams of distilled water may then be added, and the evaporation continued a little longer. Lastly enough distilled water must be added to bring the solution to a standard strength, say one grain of gold to three drams of water.

Thus, if 20 grains of pure gold were used, enough water should be added to make the whole up to 7½ ounces. The solution of gold trichloride so prepared has a yellow color, and is slightly acid. It should be kept in an opaque bottle, or in a dark place, as light causes it to be decomposed, the gold separating as a brown or black powder.

$AuCl_3$ combines with alkaline-chlorides to form double salts called chloro-aurates; thus we have sodium *chloro*-aurate Na Cl, $AuCl_3 + 2H_2O$, and potassium chloro-aurate KCl, $AuCl_3 + 2H_2O$. These are yellow crystalline substances, and it is in

this state that chloride of gold is usually sold to photographers, the salts being sealed up in small glass tubes.

It is not at all difficult to make gold trichloride, and a considerable saving may be effected by those who can prepare it for themselves. Pure gold can be obtained by dissolving the substance containing the precious metal in aqua-regia, diluting with water, and then adding ferrous sulphate, which will precipitate the gold as a brown powder, while the other metals will remain in solution. When the brown powder has all settled to the bottom (which takes a long time), the liquid must be poured off, and the gold first washed with distilled water, and then re-dissolved in fresh aqua-regia. The operation can then be continued as described above. But for the purpose of toning prints—the only process in which gold trichloride is required by the ordinary photographer—pure gold is not absolutely necessary, and gold coins may be used without injury to the result. Australian coins are the best, because they contain less copper. Or almost any scraps of broken gold ornaments may be used, and the copper with which the gold is alloyed may either be removed or allowed to remain, as its presence seems to make no difference whatever to the action of the toning solution. A sovereign weighs—or should weigh—113 grains, and will readily dissolve in about ten drams of hot aqua-regia. Now, evaporate the solution down to about four or five drams (this should be done where there is a good draught, as the acid fumes are injurious), add a little chalk or whiting to neutralize the remaining acid, and filter off the sediment produced; lastly add distilled water to make the whole up to 7½ ounces. The result will be a solution containing 174 grains of terchloride of gold, or two grains of metallic gold to each dram. As a rule, one grain of gold is sufficient to tone a sheet of sensitized paper. The same quantity of gold purchased in the usual small tubes would have cost 23 shillings, besides which there would have been some uncertainty as to getting the true weight and the pure article.

Gold and Sodium Hyposulphite.

Formula, $AuNa_3S_4O_6+2HO_2$: Combining weight, 489+36=525.

Prepared by gradually mixing concentrated solutions of gold trichloride and sodium hyposulphite, in the proportion of three parts of the former to one part of the latter salt, and then adding alcohol which precipitates the double hyposulphite of gold and sodium in the form of delicate colorless needle-like crystals. It has sweetish taste, and is soluble in water. This substance was formerly known as "sel d'or," and was used to tone the Daguerreotype plates employed in the early days of photography.

The silver plate bearing the picture to be toned was covered with a solution of "sel d'or," and was then heated. The double salt was decomposed by the heat, the gold being deposited upon the picture, to which it gave a pleasing color and enhanced durability. Afterwards "sel d'or' was much used for toning silver prints on paper, and we have seen some of these more than twenty years old which still retained their pristine colors.

Gums.

Gums are vegetable exudations which differ from resins in being soluble in water. Gum arabic may be taken as the type of "gums" generally, its formula being $C_{12}H_{20}O_{10}$. Gum tragacanth is not a true gum, but a mucilage which differs from gum in refusing to dissolve in water, merely swelling up and gelatinizing.

Gums are sometimes used to mount photographs with, but for this purpose they are inferior to either starch-paste or the alcoholic solution of gelatine. In the dry collodion process a weak solution of gum was frequently flowed over the film to act as a "preservative" or "organifier." It was liable, however, to produce a blistering during or after development.

W. Jerome Harrison.

(*To be continued.*)

Correspondence.

A HARMLESS SUBSTITUTE FOR CYANIDE.

To the Editor of The Photographic Times.

Dear Sir: All photographers are aware of the dangers attendant upon the usage of cyanide or other dangerous chemicals for the removal of silver stains from the fingers, and if a simple and easily procurable article for this purpose will interest the fraternity, I would be pleased to see this letter in the bright and best of all photo journals, The Photographic Times. It is nothing more or less than sapolio, such as is sold by all grocers and druggists at a small cost. And yet the silver stains under a cake of this compound will disappear as if by magic.

Fraternally,

A. H. Caldewood,

Operator at G. W. Gurleys, 128–132 Genesee St.

Utica, N. Y., April 5, 1889.

A PROPOSED CONTEMPORARY.

To the Editor of the PHOTOGRAPHIC TIMES.

My Dear Sir: Will you kindly spare me sufficient of your space to bring before your readers a project which I have been elaborating for some time?

I have long felt that there was room for a live, independent, well-managed photographic monthly, devoted exclusively to amateurs and the work of the societies. I have waited long to see the need supplied, and in despair of seeing it done by others, I have formed the desperate resolve of "seizing my courage in my two hands," and doing it myself. I sigh for editorial honors; the well-known emoluments of editors are as nothing to the honors.

Seriously speaking, I have had considerable correspondence on the subject, and I find the idea very generally received with favor. I am fortunate enough to be promised the active co-operation of a prominent New York amateur, whose name, did I feel at liberty to divulge it, would be an assurance of the character of the undertaking. Our plans, so far as matured, include the publication by amateurs of a monthly illustrated magazine in the interests of amateurs. We shall give descriptions of home-made, money-saving devices, illustrated sketches of amateur wanderings, full reports of society meetings, exhibitions, etc., with leading articles on processes, methods of work, and all subjects of interest to amateurs. We hope also to illustrate the prize pictures of the exhibitions. In short, we propose to do our best to make the paper indispensable to every amateur, an amateur but not amateurish paper. The subscription price will not exceed $1.50, and the first number will appear in June if at all. The question of publication depends very largely on the encouragement we receive, and I would ask those readers of THE TIMES who think well of the plan and who would like to receive a specimen copy of the first number, to send me their address on a postal card.

Very truly yours,

W. H. Burbank.

BRUNSWICK, MAINE.

Notes and News.

DULUTH TO HAVE AN AMATEUR PHOTOGRAPHIC CLUB,—Mr. S. L. Frazer, an enthusiastic amateur of Duluth, Minnesota, is busy in organizing an amateur Photographic Club in that city. There are about twenty who will become the charter members. The first regular meeting will be be held April 29th, to perfect the organization.

A COMPOSITE PHOTOGRAPH, nearly life-size, of eleven members of the faculty of Washington and Lee University has been taken upon one sensitive plate with a total exposure of forty-four seconds, each person receiving an exposure of four seconds. The photographer was Mr. Miley, of Lexington, Va.

POSTHUMOUS PHOTOGRAPHS.—A collection of photographs of snow scenes taken by Donkin, the celebrated mountain climber, is being exhibited in London, and is creating much interest, which the climber cannot enjoy. He and an English companion are supposed to be lying in a crevasse somewhere in the Caucasus, no trace of them having been found since they set out to ascend one of the loftiest peaks.

"THE AMERICAN ANNUAL OF PHOTOGRAPHY" A UNIVERSAL ANNUAL.—A letter recently received from a distant city in Turkey, states with what interest "The American Annual of Photography" is received and read there. Another letter, from Holland, of similar tenor, shows that "The American Annual" is appreciated in the Netherlands, and intimations from several sources in Japan, prove that "The American Annual" is a familiar friend in that far distant country, as well as those of Europe and nearer at hand.

PHOTOGRAPHY IN THE BROOKLYN INSTITUTE. — The recent rapid development of the Brooklyn Institute as a centre of public enterprise in the arts and sciences has an agreeable incident in the organization of a new department devoted to the popular art of photography. The new department is formed with the following officers: President, Alexander Black; Vice-President, H. D. Eggleston; Secretary, Anna L. Meeker; Treasurer, William C. Bryant; Curator, Dr. Lewis E. Meeker. Committees on art, photographic chemistry, micro-photography, processes and appliances, excursions and lantern-slides are being formed. These committees will take the initiative in the various branches of photographic application and research suggested by the titles. The chairmen of these various committees will form an Executive Committee, having authority to designate the character of the department meetings. A well-filled photographic laboratory is to be fitted up at the Institute under the supervision of a committee, and everything is being done to make the department an interesting photographic centre. With the Brooklyn Academy of Photography, of which Prof. Wallace Goold Levison is President, and this new Institute department, Brooklyn seems likely to make its influence felt in the world of photography.

PHOTOGRAPHY AT THE BROOKLYN INSTITUTE.—At a meeting of the Photographic Department of the Brooklyn Institute, held Saturday evening, April 13th, Dr. Lewis E. Meeker read a well-considered paper on orthochromatic plates, their nature, preparation and value in photography. Following the paper was an informal exhibition of lantern-slides representing old Brooklyn houses. Many of Brooklyn's old houses are disappearing and the photographic enthusiasts are doing a work that will preserve examples of the old Dutch and English homesteads. The Photographic Department at the Institute has rapidly enlarged since the date of its recent establishment.

AMONG THE PHOTOGRAPHIC MERCHANTS OF PHILADELPHIA.—During a recent visit to Philadelphia we had the pleasure of calling upon several of the photographic merchants of that city. We admired especially the long, well lighted building of the A. M. Collins' Manufacturing Company, which faces on 527 Arch Street, and extends through to the next street in the rear. Being but one story high, for the most part, the offices and sample rooms are illuminated by cheerful sunlight, the great depth of the building making it possible to meet the large demands of this well-known, reliable firm without building much above or below the earth's surface, as is the custom in New York.

The new warerooms of the Wilson-Hood-Cheyney Company, at 910 Arch Street, are models for those engaged in this business. We here saw the *confrère* of Scovill's "Billy," and received the pleasant news that business was brisk and growing brisker.

We regretted to find Mr. Thomas H. McCollin out, on calling at his headquarters, also on Arch Street, and were sorry not to see our friend, Mr. Bartlett, of *The American Journal of Photography.*

At James W. Queen & Company, we regretted to learn that Mr. Fox, editor of *The Science of Photography*, is unable to be in his sanctum on account of ill-health.

Morris, Earle & Company also assured us that business was never better with them than at present; in fact the outlook seems good for Philadelphia photographic merchants.

MEASLY AND MEALY PRINTS.—A correspondent to the *Scientific American* asks what is the difference between a "measly" and "mealy" print, and what are the causes producing the same; and J. B. G. replies:

The appearance of a mealy print is readily recognized by its fogginess, dullness, and general lack of vigor.

A measly print has the appearance or is similar to that of the same disease in the human subject. Hence its name. It is most noticeable by looking through the print. These spots appear to exist chiefly in the texture of the paper, and so ingrained are they that they may be regarded as almost incurable. Perhaps the best means of avoiding them is by floating the back of the paper immediately after sensitizing and blotting off the surplus with acetic acid one ounce, water sixty ounces.

The terms mealy and measly are not synonyms as used in photography, and the remedies to be applied in curing or preventing mealiness are not always *apropos* in cases of measly prints. A mealy print may be caused by the manner in which the paper is albumenized, or by the condition of the albumen, and though by skillful handling on the part of the photographer, it is much safer to exchange it for a better quality. In determining whether the fault is in the paper or is due to some other cause, it is only necessary to float it on a test bath containing forty grains of nitrate of silver and twenty grains of fused nitrate of ammonia dissolved in each ounce of water. If in silvering the paper on this bath there is any perceptible change after drying and fuming it, the fault is in the paper, and it should be thrown aside. Mealiness, however, may occur with good paper when the silvering solution is very alkaline or where there is too little silver to coagulate the albumen. Under such circumstances the solution penetrates through the back of the paper, and it is very likely to discolor in a very few hours. A very strong and rapid toning bath will sometimes produce a mealy effect and destroy the brilliancy and force of the finished print. But in any case, whether the mealiness comes from the paper, from an alkaline or very weak bath, or from rapid toning, it may soon be learned and recognized by an observing and practiced eye, and so disposed of with but little loss of time and trouble.

A BRILLIANT IDEA.—A week or two ago a local photographer hit upon a brilliant idea for increasing his business. He has been taking pictures in Chicago for years, and he had all his old negatives brought to light and a proof printed from each one. He directed his assistants to look up the names and number of each proof according to the name of the party it represented. Then he had enticing little circulars printed. These were addressed to his customers, and stated that he inclosed a proof of their photograph, taken by him, and hoped to receive an order for more, "on receipt of this, at reduced rates." Through some unfortunate error the lady who put the proofs in the envelopes got the numbers mixed up, and as a result not one man addressed got his own proof. He received some one else's proof instead. In this way old men were made young and young men made old, and a great deal of confusion and hard feeling resulted. A new set of circulars and proofs are being prepared, and these will probably soothe wounded feelings around town.—*Chicago Herald.*

Photographic Societies.

THE PHILADELPHIA EXHIBITION OF PHOTOGRAPHS.

IN our editorial last week, we announced the winners of diplomas, etc., and gave our readers a cursory glance at the exhibition as a whole. It will now be our pleasant privilege to personally conduct the reader through the galleries, and to call his attention to the individual exhibits which, in our opinion, seem most worthy of observation and study.

On entering the first gallery, we are attracted almost immediately by the magnificent exhibition of F. Gutekunst. His large portraits are especially admirable, an excellent one of Edwin Booth being conspicuous. We note, also, in this display, some extremely fine interiors, the one of the Egyptian Room in a Masonic Temple being quite perfect.

Passing on, our attention is next arrested by the lovely tree studies of Walmsley. The portraits, by A. K. P. Trask, are worth our study for a while, especially the large head of "A Little Boy," and its companion head of "A Little Girl." His nine assorted portraits are also admirable.

David Pepper, Jr., makes a creditable exhibition of surf pictures from negatives caught at Mount Desert, Maine; and Henry R. Taylor, also shows some good surf work and marines, including several views of Niagara Falls.

The portrait entitled "Marie Stuart, Queen of Scots," by Edward Leaming, next holds our gaze. It is printed in platinum, and is very effective; and right here it may not be out of place to note how large an increase of platinum pictures there is in this exhibition over that of former years.

John Bartlett certainly deserves the diploma for excellence which was awarded him. In his exhibit we note two or three old friends, to be sure, but there are several *genre* pictures which we have never seen, which are fully equal, if not superior, to the work which he has exhibited from time to time in his own excellent magazine. Mr. Bartlett makes rather a large, and a creditable exhibit in every respect.

G. Harry Squires, in his "Studies Around Home" and "Glimses of Milburn Brook," shows himself a competent landscape photographer. The portraits of Henry Harrison Suplee are excellent. We have admired two or three of them in the albums of the Postal Photographic Club.

We must linger before the frames of H. A. Latimer, especially Number 442, in which there are several admirable examples of fine figure work. R. T. Hazard makes an excellent exhibit in a similar vein to the one we have just left, "A Capital Joke," "Young Hay-Makers," "The Village Smithy," etc. being especially attractive.

Horace C. Dunham makes an exhibit of "Roses" that are very good indeed. This is a field which amateur

photographers are especially qualified to cultivate, and which we regret to say is, for the most part, neglected.

Readers of THE PHOTOGRAPHIC TIMES will remember "Weighing the Baby," by Charles L. Dillon, which embellished these columns some months ago. This picture is exhibited with the instantaneous "Divers," (which was published in "The American Annual of Photography" of the current year,) and several others just as good.

Miss Cornelia J. Needles, in frame No. 216, exhibits ten flash-light studies in the nursery, that are admirable, and we are free to say, could not be surpassed in their line by the cleverest male photographer that ever focused. Mrs. S. M. Cleveland, another lady amateur, exhibits some excellent figure pictures.

The horse and cattle pictures, by G. A. Nelson, hold our attention, as well as do his admirable landscapes. Next we are attracted by William H. Rau's large exhibit. Here are bromide enlargements, large albumen silver print interiors, and smaller views of various sizes. The interior of a Pennsylvania railroad bay-window parlor car especially attracts attention. The flash-light interiors are very good.

We now come upon one of the best things of the kind we have ever seen, and it is, with one or two exceptions, the most attractive picture in the entire exhibit. We refer to No. 61, by William P. Atwood, entitled "Moonlight Effect." It is one of the few Photographs of the kind which really seem to be made by the soft and wierd light of the moon. The time and place also shows rare judgment and a trained taste on the part of the artist. Concord's "Quiet Waters," in the same exhibit, is also excellent.

Charles Le Baron Withrow, in a large frame, exhibits a number of small pictures, portraits, landscapes, etc., that are worthy our attention, "The Novitiate," "A Gondolier," and "The Wreck of the Brig 'Alice'," being specially good.

"Hoar Frost on Trenton Farm," by Paul Lange, for work of its kind, is not surpassed in the exhibition, unless by "A Frosty Walk," by Harry Tolley. But we are only half around our circle of inspection, and must hurry along.

"Home Revisited," by C. R. Pancoast, has more real poetry in it than, perhaps, anything else in the entire exhibition. It is a small picture of a dilapidated old farm-house, with the figure of a tired way-farer approaching its deserted door. "Sunset at Twin Lakes" and "Rustics," by the same author, are also good.

Miss Margaret L. Corlies makes a credible exhibit, while our friend, Alfred Stieglitz, of Berlin, shows some of the very best work in the entire exhibition. His "Return," "Grindlewault," and eminently, "The Approaching Storm" (Lake Como), are worthy of the highest praise.

The yacht pictures of Harry Symonds, of England, taken from a sailing boat, are very good. We note rather fewer pictures of this class in the exhibition this year, than have been shown heretofore.

"The Smith," a combination print, by W. H. Geddes and Sons, of Scotland, is a good composition; we have also nothing but praise for J. Patterson Gibson's "We watched the Speckled Trout glide by," and "Under the Hay-cock Fast Asleep."

"My Mammy," by W. W. Winter, also of England, is admirable; in fact, all the English exhibitions are of marked excellence. Harry Tolley, especially, who takes the highest prize for landscapes and marine views, makes a conspicuous exhibit with his two pictures, "On a Lonely Shore," and "A Frosty Walk," (already alluded to). The latter is an Eastman bromide print, while the former is a magnificent specimen of platino-printing. Both are from negatives on Eastman's negative paper.

The Reverend F. C. Lambert, of the London Camera Club, makes a notable exhibit.

Nobody's Darling," "A little sorrowful, deserted thing, begot of love, and yet no love begetting," by Charles Edward Wyrall, while admirably conceived and executed, is spoiled by the broad, gilt mat that surrounds it. Why photographers will dazzle the eyes of admirers of their work, by a broad gilt band around their pictures, and thus throw the soft photographic tone into a secondary and unpleasant place, by contrast, is more than we can explain.

The exhibit of Frank M. Sutcliffe, Whitby, England, is what we are learning to expect from his clever camera. His treatment of atmosphere is specially admirable. Robert S. Redfield, in his landscapes, uses similar methods, we should judge, to those employed by Mr. Sutcliffe. He shows this year some English scenes, as well as a few equally charming ones in our own country.

Charles H. Davis makes an exhibit of excellent portraits, if treated in a somewhat unusual manner.

George B. Wood continues to be the leader in his line of work, though there is a rather monotonous sameness running through it all. He is especially skillful in the conception of his pictures; being an artist, only pictures suggest themselves for the work of his camera. The portrait of himself is one of the best things in his exhibit, in our opinion.

Doctor Charles L. Mitchel makes a large exhibit of landscape work, especially in the White Mountain region.

The photographs of machinery, by Frank Bement, are very good, and, being difficult to make, reflect much credit on the author. Professor H. A. Rowland, of John Hopkins University, takes a well-earned diploma for his plates of maps of the solor spectrum, on home-made plates, with a lens of his own contriving.

Our old friend, Charles Wager Hull, shows admirable interior views of the American Institute Building. William D. H. Wilson shows several excellent pictures, "I Won," "Ready," and "Peace and Comfort," being exhibited in silver and in bromide enlargements. All are good.

We must stop to examine the admirable flash-light pictures by E. M. Pine, and then hurry along until stopped by the exhibit of Henry R. Taylor. Near this display is that of W. B. Post, who shows some excellent out door portraits, one of which, "A Study from Life," was presented in THE PHOTOGRAPHIC TIMES of January 18th. We shall have other pictures to show in these columns, that were exhibited at Philadelphia this year. There are many pictures worthy of praise, which we have not had time to closely examine in our rather hasty circuit of the exhibition. On the whole, the work shown was in advance of that previously exhibited, and there were no pictures hung that were really poor. We wish to give special mention to William Parry Shields and J. P. Gibson, of England, also to Richard Keene; Professor S. W. Burnham, of the Lick Observatory, California; Clarence B. Moore, of Philadelphia; and Mr. and Mrs. W. J. Auckarn, Arbroath, Scotland.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held Wednesday evening, April 3d, 1889, with Vice-President John G. Bullock in the Chair.

Slides were shown by members of the society, as follows: By Mr. John Carbutt, of views in Pike County, Pa., made on orthochromatic plates; Mr. Henry Harrison Suplee, Mr. Thomas Wakeman Lane, Mr. O. D. Wilkinson, Dr. A. Graham Reed, Dr. C. L. Mitchell, Mr. J. A. Shulze, Mr. Frank S. Lewis, some fine studies of ducks and other barnyard animals, caught with a detective camera; Mr. Edmund Stirling, and Mr. William H. Walmsley.

The American Lantern-slide Interchange has organized for 1889 by the election of George Bullock, of the Cincinnati Camera Club, as Manager; and William H. Rau, of the Photographic Society of Philadelphia, and F. C. Beach, of the Society of Amateur Photographers of New York, as Assistants. The Philadelphia Amateur Photographic Club has withdrawn, and the New Brunswick Cameras have been admitted to the Interchange.

The Committee on Membership reported the election of the following active members: Messrs. Francis Burrows, J. Milnor Walmsley, Elmore C. Hine, M.D., and William A. Cheyney.

Mr. John C. Browne presented to the society on behalf of Mrs. Corlies, a framed portrait of the late Treasurer of the society, Mr. S. Fisher Corlies, remarking in his brief address that no portrait could more thoroughly deserve a place of honor in the room of the society. A cordial vote of thanks was tendered to Mrs. Corlies for her most acceptable gift.

Mr. Rosengarten showed some prints on a new paper known as The Buffalo New Enamel Paper. The paper was intended either for contact prints or enlargements, the exposure being by gas or lamp light, and the development similar to other gelatino-bromide paper.

LYNN CAMERA CLUB.

AT a meeting held on Tuesday evening, April 2d, the club gave a lantern-slide exhibition. Some excellent slides were shown, among which were slides from Messrs. Darcy, Jeffers, Bacheller and Coates of the Lynn Club, and also some very fine ones from Messrs. Francis Blake, E. F. Wilder, William G. Reed and E. Milliken, of Boston. About two hundred slides were shown, and a large proportion of the work was of the highest order. The meeting was the most successful of any the club has ever held. After the regular exhibition a few slides were put through, to select those suitable for the set to be used in "A glimpse of ye old shoe town" that is in preparation by the club. Six of the slides shown were accepted, as follows: Old Newall House, Old Assembly Building, Boston Street, Old Sargent House, John T. Moulton House, Trevert Rhodes House, and the Old Academy Building on Western Avenue. The negatives were made by Mr. Darcy, and the slides by Mr. Bacheller. Mr. Drew tried a few slides made on plates coated by himself, that showed a fine, crisp picture. The increased interest in lantern slides is very encouraging, and the club will soon be well "under way" in this direction. The next exhibition to be given by the club will be "Illustrated Boston," prepared by the Boston Camera Club.

At a meeting of the Lynn Camera Club, held Tuesday, April 16th, it was decided to show the set of slides, "Illustrated Boston," at the hall of the Y. M. C. A. April 26th. These slides were made by members of the Boston Camera Club and have already been exhibited in New York and Boston, attracting considerable attention and merited praise. They were kindly loaned to the Lynn Club for this exhibition.

This is the first public exhibition of the Lynn Camera Club. The next will probably be "Illustrated Lynn and Vicinity," the work upon the slides for which is at present progressing. J. W. GIBBONEY, Sec'y.

THE ST. LOUIS CAMERA CLUB.

At a meeting held April 2d, the following officers of this club was elected for the ensuing term: President, Robert E. M. Bain; Vice-President, Rev. Charles M. Charroppin, S. J.; Secretary and Treasurer, William M. Butler; Librarian, Rev. Charles M. Charroppin, S. J.; Executive Committee—the President and Vice-President ex-officio, Eliot C. Jewitt, John W. Dunn, John B. Holman. Lantern Slide Committee—Henry B. Alexander, Henry Blattner, Robert E. Collins. House Committee—John F. Valle, William M. Bulkley, Henry M. Holland. Membership Committee—Charles W. Alexander, Charles W. Melcher, Samuel B. Ball.

THE CAMERA CLUB OF SYRACUSE.

ON Friday evening, April 5th, an exhibition of lantern-slides, made by members of this club, was held in the Music Hall. About one hundred and fifty pictures were thrown upon the screen, and were greatly enjoyed by the large audience in attendance. Prof. N. A. Wells explained the slides as they were projected. Some of the exhibitors were: Dr. Masse, Arthur Beebe, A. P. Yates, Arthur Padgham, I. U. Doust, Dr. Robert Aberdeen, C. R. Jones, Dr. F. W. Marlow, John Winter, Jr., S. W. Rose, W. H. Olmsted, J. D. Pennock, Rev. D. W. Smith, C. E. Lipe, Wallace Dickson, I. A. Savage, R. W. Bellhouse, Dr. G. P. Clark, Fred Northrop, J. R. Clancy, Professor N. A. Wells, P. J. Brumelkamp.

Our Editorial Table.

PICTORIAL EFFECT IN PHOTOGRAPHY. H. P. Robinson. New York: The Scovill & Adams Company, 1889. New American Edition. $1.50.

The Scovill & Adams Company have made a notable addition to their long list of standard photographic works by the republication of Robinson's "Pictorial Effect," a book which long since became a classic in photography and which remains the best of the author's writings on the art. Mr. Robinson's thorough training, both as an artist and a photographer, gives authority to his attempt to apply the principles of art to photography, while his clear and graphic style makes him "understood of the common people." To no one book is so much of the recent advance in artistic photography due as to "Pictorial Effect," which has been translated into other languages. The leading principles of art are clearly and tersely explained, and numerous illustrations elucidate the text.

In technical make-up the book is in every way worthy of its author and its publishers. Printed in good clear type on fine paper, with liberal margins and the unaccustomed luxury of a double line separating the text from the margin, it is an edition *de luxe* at a nominal price.

"NATURALISTIC PHOTOGRAPHY." By P. E. Emerson. New York: E. and F. Spon.

IN this new and much-commented-upon book by Doctor Emerson, the subject proper is led up to by a summary of all that photography has accomplished during its short life of fifty years. The author divides his book into three parts: Terminology and Argument, Technique and Practice, and Pictorial Art. In the first part, a thorough knowledge of art history is displayed, and the subject is treated in a masterly manner. It is written with a contagious enthusiasm for the subject, and is full of valuable information. In the technical and practical part, however, a lack of that thorough knowledge evinced in the previous chapters is shown. Great partiality is given to particular methods, the favorites of the author, as well as to particular objectives, cameras, etc. Much that has hitherto been considered valuable to photographers is utterly discarded as worthless by Dr. Emerson; as, for instance, he denounces all vignetting, and advises always to use a large plate, no matter what subject is to be photographed, and after completion, trim them down to the proper size and shape. These methods would never do for professional photographers. The author, justly enough, favors platinum printing; but, rather unfairly, we think, denounces every other method.

In the third book, Doctor Emerson gives a resumé of the previous chapters, and dwells especially on composition and decorative art. As a whole, the book appears to be the work of an artist, rather than a photographer, and, while a valuable book for any photographer to read, is not one that will replace many now in the field, that give him practical instruction for every-day work.

AN old friend of THE TIMES, who is also an expert photographer, expresses himself as in readiness to make lantern slides for amateurs. His address is at 66 Cranberry Street, Brooklyn, and we can safely say that anyone in search of a competent party to make slides from favorite negatives will be given satisfaction on applying here.

THE wonderful advances in photography which have been made possible by the dry plate process will be clearly and entertainingly treated in the May *Scribner*, by Professor John Trowbridge, of Harvard, who will illustrate some unique results by photographs taken under most peculiar conditions—as under water, by lamp and candle lights, and by lightning flashes.

Record of Photographic Patents.

401, 320. Photographing Instrument. George A. Cooke, Philadelphia, Pa.

401, 441. Method of mounting portraits. Philip G. Kramer jr., Detroit, Mich.

401, 510. Translucent films for use in the art of photo-engraving. Carl A. Müller, New York, N. Y.

Queries and Answers.

82 MRS. D. W. has sent us a very feeble and monotonous print of a beautiful marine subject. She inquires what is the best way to intensify the negative which is evidently so much over exposed?

82 *Answer.*—We do not advise intensifying in this case. Better make a transparency upon a Carbutt B plate, with short exposure and hydrochinon development. From that make a negative in the same manner. The original is evidently good enough to give a satisfactory duplicate by this method.

83 M., OF BROOKLYN, asks; "How can he prevent the breaking of the collodion film on Aristo paper?"

83 We reply that, the film may break by handling the print too roughly. A little glycerine in the wash water after toning, and also in the fixing bath will make the film more pliable.

84 ST. AUGUSTINE wants to know if Kodak negatives can be stripped without squeegeeing them upon a glass plate.

84 The glass support is necessary to keep the thin picture film in shape and position. You might strip without it, but you will never be able to apply the gelatine skin to it. To dry it evenly afterwards would be utterly impossible without the glass support.

85 N. B. S. knows nothing of photography, but being an electrotypist thinks his knowledge in this branch will much assist him to learn the art of photo-engraving. By reading a good book on the subject he feels confident he will be able to commence practicing.

85 Electrotypy has nothing whatever to do with photo-engraving, with the exception perhaps of the making of duplicate copies of the cut ready for printing. Our correspondent may learn a good deal by reading Dr. Wilson's book on photo-mechanical printing methods, but he should remember that before he can be a photo-engraver he must first be a photographer. We advise him to learn the art from a practical man.

86 NOVICE has made developer with equal parts of hydrochinon, sulphite and meta-bisulphite of soda; but it does not seem to work right. It requires a much longer time than his old pyro-developer.

86 Meta-bisulphite in large quantities restrains very forcibly. One part of it to four parts of hydrochinon is quite enough to preserve the solution.

87 M. LOMBARDI asks: "What causes ferrotype collodion films to blister when they are varnished?

87 The plate may be too hot, or the collodion too thin and not adhesive enough. Plates having been used previously, will show this defect when not properly cleaned.

88 MRS S. writes: "Have oiled my kodak negatives, but but they show the grain of the paper by printing from them. Now I want to strip them. Can it be done?

88 We do not think you will be able to strip them at all. The substratum of soft gelatine, which rests between the picture's film and the paper must be swelled first before the paper can be pulled off. The water certainly can not act through the oil.

89 DANIEL M.—"Will the collodion used for line work do equally well for half-tone negatives?"

89 Any good portrait collodion and a nearly neutral silver bath, 45 grains to the ounce, will do much better, at least for the reproduction of the original.

Ch Scolik

Druck v. F. Korgl Wien.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, MAY 3, 1889. No. 398.

CHARLES SCOLIK.

THE subject of our illustration this week is well known to American photographers in general and to the readers of THE PHOTOGRAPHIC TIMES in particular; for he has contributed to these columns in times past, articles that have been universally read with profit.* Charles Scolik, at present, is one of the leading photographic authorities on the continent of Europe. He is editor of the *Photographische Rundschau*, the organ of the Vienna Amateur Photographic Club; and has been associated with Dr. Frederick Mallmann, in charge of the experimental photographic laboratory at Vienna. A brief sketch of Herr Scolik's life will not be out of place at this time.

Charles Scolik was born in Vienna, March 16, 1854. He early evinced a disposition for the study of chemistry and physics; when only thirteen years of age leaving the jeweller to whom he had been apprenticed, to obtain a situation in a neighboring photographer's atelier. This photographer was no other than Carl Wrabetz, now a delegate to the Austrian Reichstag. Young Scolik served Herr Wrabetz as an apprentice, faithfully and intelligently, for some time; his master—at that time a young man—being an enthusiastic experimenter in our science. On completing his time of service, Charles Scolik found employment in various photographic establishments, at different times as printer, retoucher, &c., until we find him managing operator of a large gallery in the Hungarian town of Temesvar. In 1873, our subject travelled through Hungary, making photographs of the national costumes, on a commission from Herr Huerbach, for exhibition at the International Exhibition of Vienna. On completing this mission, other employment for a time did not offer itself, and Charles Scolik lived in great want for some time.

Later, he returned to his friend and former teacher, Herr Wrabetz, in Vienna, and soon became [illegible] of the celebrated painter, Franz Pau[illegible]. Here he made portrait studies for artists' purposes, but this occupation did not give him the time he desired for experimental work in scientific photography, and he gave up his art-work for a position as superintendent in one of Vienna's best galleries—that of Herr Kro[illegible]. He soon earned [illegible] an artist as well as [illegible]. It was about this time that the [illegible] gelatine plate was [illegible] first to recognize its value and for a time [illegible] attention to its practical working. He was one of the first to introduce it into every-day practice; and was soon given the management of a dry plate manufactory.

Dr. Emil Hornig, President of the Vienna Photographic Society, and editor of the *Photographische Correspondenz*, brought Scolik forward in photo[illegible] and his subsequent articles in [illegible] with interest by [illegible] lieutenant in [illegible] began to create [illegible] a success[illegible] known, [illegible] the invaluable color-[illegible] it was he, in connection [illegible] announced what the [illegible] were of the mysterious sensitizer [illegible] "[illegible]." With erythrosine plates [illegible] Scolik made the first successful portrait [illegible] gas and petroleum light—a [illegible] had been beyond the [illegible] processes.

After a somewhat extended [illegible] empire, Scolik established [illegible] of his own, being materially assisted by his friends, Carl Srna and Lieutenant David.

* See "The Printing Method of the Future, commenced on page 9[illegible] of the February 15th issue, 1889.

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Later, he returned to his friend and former teacher, Herr Wrabetz, in Vienna, and soon became partner of the celebrated painter, Franz Panzer. Here he made portrait studies for artists' purposes; but this occupation did not give him the time he desired for experimental work in scientific photography, and he gave up his art-work for a position as superintendent in one of Vienna's best galleries—that of Herr Kroh. He soon earned an envied reputation here as an artistic as well as a skillful photographer. It was about this time that the bromide of silver gelatine plate was brought forward as a substitute for the old wet collodion, and Scolik was one of the first to recognize its value, and for a time gave his undivided attention to its practical working. He was one of the first to introduce it into every-day practice; and was soon given the management of a dry plate manufactory.

Dr. Emil Hornig, President of the Vienna Photographic Society, and editor of the *Photographische Correspondenzen*, brought Scolik forward in photographic literature, and his subsequent articles in the *Correspondenzen* were read with interest by a large number. With Ludwig David, a lieutenant in the Austrian artillery, Scolik combined to write a book on modern photography, which has made itself felt in photographic circles. But it was not until color-sensitive methods began to create general attention, that Scolik's name as a successful scientific researcher became widely known, especially in England and America.

He it was who first introduced the invaluable color-sensitizer, erythrosine; and it was he, in connection with Dr. Mallman, who announced what the ingredients really were of the mysterious sensitizer known as "azaline." With erythrosine plates, Charles Scolik made the first successful portrait studies by gas and petroleum light—a task which theretofore had been beyond the reach of photographic processes.

After a somewhat extended tour through the German empire, Scolik established himself in a studio of his own, being materially assisted by his friends, Carl Srna and Lieutenant David.

* See "The Printing Method of the Future, commenced on page 97 of the February 15th issue, 1889.

When the Vienna Photographic Amateur Club was founded, Scolik was at once elected an honorary member, and intrusted with the editorship of its organ. At the late International Exhibition, under the auspices of this organization, Scolik distinguished himself by the platinum prints which he exhibited, they being made by a process based on that of Captain Pizzighelli. At present his attention is mainly given to this branch of photographic printing. Scolik has been decorated for his achievments in photography, and is the recipient of many premiums for the photographic results he has exhibited.

The negative from which our illustration is taken was made in Scolik's own studio, and the photogravure plate was prepared in the Imperial Military Institute of Vienna, over which Lieutenant-Colonel Ottomar Volkmer—well-known to readers of THE PHOTOGRAPHIC TIMES, and the "American Annual of Photography"—is one of technical directors. The impressions from the photogravure plate were made for us by the photogravure company of this city.

WE print this week the first of a short series of three papers, by Carl Schindl, on The Dusting-In Process. This process has lately been widely discussed in foreign photographic circles, and considable attention, as a result, is now being given to it here and elsewhere. We are glad to give our readers the valuable explanation of the process, with practical directions for working, which Herr Schindl is so well qualified to write.

THE DUSTING-IN PROCESS.

I.

INTRODUCTION AND PREPARATION OF THE SENSITIVE FILM.

NO OTHER process can be found within the domain of photography, by which so much can be accomplished, and which is of so wide reaching utility in amateur and professional work, as that known by the name of the Dusting-in Process, and which was first proposed by Obernetter.

The advantages offered by it in innumerable instances of difficulties, when all other means have failed to successfully correct a faulty or save an injured negative, are of so decidedly great importance, that we are led to believe the process is well known to all photographers, and practiced by many of them daily. Remarkable to say, however, this is by no means so ; for few are acquainted with it, and the process is scarcely known by name to the great majority. Thousands of valuable negatives, injured by accident, are discarded, and irretrievably lost, which, with the dusting-in process, might have been duplicated, yielding brilliant and faultless results.

We are all aware of the difficulty to expose a highly sensitive plate correctly upon a landscape. Such plates are more or less inclined to give feeble negatives ; a slight over-exposure will result in still less density and greater monotony, from which but flat prints can be obtained, without brilliancy, and devoid of all artistic effects. Attempts to intensify such over-exposed and feeble negatives without proper precautions, or preliminary operations, may ruin them entirely and result in total loss.*

Negatives of such feeble intensity and monotonous character, are not capable of producing satisfactory prints, notwithstanding all possible precautions and printing dodges. With the means offered by the dusting-in process, however, such feeble negatives can be duplicated and improved within a few hours. The copies can be made at the will of the operator, of higher density than the original, or its density be reduced; more brilliant or less so; local parts, but insufficiently illuminated, be developed to full extent and brought out better in fine details ; over-exposure and too long continued development, modified ; in fact, the whole negative can be corrected, improved and harmonized in artistic effects, which are feats impossible to accomplish by any other known method. Negatives when fogged, or when in consequence of irregularly coated plates are of uneven thickness and translucency, may be rendered clear and of perfect uniformity. The process is quite simple, and requires but few auxiliaries, in most cases those already in the possession of the photographic operator.

The reasons why the dusting-in process has been so rarely practiced are probably because the descriptions published in photographic journals and manuals have invariably omitted to mention details which are absolutely necessary to secure good results. Seemingly insignificant precautions in the practice of the work if not strictly observed, result in failures, and these have caused the process to be looked upon with scepticism and have discouraged a continuation of experiments. Process printers alone and other reproduction photographers have cultivated the method because of its efficiency in the production of reversed negatives. I will describe it now in all its details, but must call the attention of my readers to the fact that nothing

* In my book, "Die Kuenstlerische Photographie, 1889," the operations preliminary to the intensifying of negatives are minutely described. C. S.

superfluous or unimportant will be mentioned, and that only with a close observation of everything described can success be guaranteed.

The principle of the method is the same as that upon which carbon or pigment printing is based; the property of chromates to make gelatine, gum or sugar, more or less insoluble in water, when exposed to light in a dry state for a longer or shorter time. These substances will loose proportionately to the exposure the power to attract moisture from the air, and become deprived of viscosity. When a mixture of bichromate of ammonia and honey is spread upon a glass plate, dried and exposed under a negative to light; those parts under the transparent portions of the negative cease to be adhesive, refuse therefore to accept powdered graphite and remain transparent. The other parts, those resting under the opaque portions of the negative, and not acted upon by light remain in the natural condition, continue to absorb moisture and graphite will adhere to them. At the beginning of exposure the adhesive property of the substance is merely diminished; it is thoroughly destroyed by a continuous exposure to intensive light, hence it is evident that proportionate to the exposure the most delicate details and the highest intensity can be truthfully reproduced, and a negative copy, perfectly identical with the original, be made.

Generally, honey is employed for the purpose stated, and to render it more solid, gum arabic is added in the following proportions.

Gum arabic, pulverized.....	8 ounces.
White sugar...	15 "
Honey	4 "
Alcohol.....	4 "
Distilled water.....	20 "

After dissolving first the gum in the whole amount of water, the sugar and honey are added, slightly warmed, and when all is perfectly dissolved, the alcohol added and thoroughly shakened up. The liquid should be kept in well corked bottles, and as it improves by age, large quantities of it prepared at once.

The other liquid is a solution of one ounce of ammonia bichromate in ten ounces of distilled water. It is sensitive to light, and should be kept in the dark. Not being very durable, it is advisable to prepare only when wanted.

To prepare the solutions for coating the plates, take one ounce of the honey solution, put in a beaker glass, add two ounces of the chromate solution, and dilute with three ounces of distilled water, mix by stirring with a glass rod, and heat in a water bath to about from 100 to 124 deg. Fahr., filter into another similar glass vessel, while still warm; allow the solution to cool in a dark room, and let it stand for several hours (over night). When standing for a long time, little clots will separate, which must be removed by repeated filtration. The oftener the solution is filtered, the better it will act. With the final filtration the funnel should be placed obliquely against the beaker, so that its orifice touches the side of the glass. Thus the filtered liquid will run down the side of the glass, preventing the formation of air bells, which occur when the solution falls drop by drop. To prevent dust, the beaker should be well covered. In the next article on this subject I shall speak of coating and drying the plate, exposing and developing. *Carl Schiendl.*

THE ART SIDE OF PHOTOGRAPHY.

THERE is one abuse of language in reference to the æsthetic side of photography which I desire most emphatically and unqualifiedly to denounce, as much in the interest of good English as of correct ideas of art. It is the misuse of terms which are peculiar to art processes by applying them to photography, such as, for instance, calling a certain kind of photograph a "sketch," which is as appropriate as the misnomer of an acquaintance who desired to inform me that his wife drew, and put it in this way, "she makes etchings in pen and ink." These are extreme cases which common-sense or the least careful use of a dictionary would prevent, but it is not much better to talk of "rendering the sentiment of a landscape" by the use of a camera and lens, which is analogous to the turning out of poetry by machine. Photography gains nothing by the borrowing of the language of the painter, but the student has his ideas of art thereby confused and is prevented from cultivating it intelligently. Somebody says in the TIMES that "it may be safely said that it (photography) has given to art the greatest stimulus it has received in modern times," which is exactly the contrary of the truth, for photography helps an artist just as a crutch helps a pedestrian, only when he is incapable of getting on by the exercise of his unaided powers. The sentiment of a picture is in the artist and not in nature, and it is only by a poetic license that we speak of the sentiment of a natural scene, for what we mean is that the landscape to which we attribute the sentiment awakens in us, by some association, a certain feeling which underlies the impression made on the *sense*, and which we call a *sentiment*, but its existence is due, not to the object we see, but to the reflective faculty in the individual, as is shown by the indisputable fact that some people are impressed by a landscape or a picture while others

are not, though the objects of nature are equally apparent to all. Poetry is an affair of the individual and is in art what it is in literature—it consists not in giving facts but in the use that is made of the facts. The pathos (which is a better word for what we are considering than sentiment), is the expression of the emotion which is due to certain mental associations which cannot be defined or communicated except to sympathetic minds, *i. e.*, minds affected by a similar pathos. The more closely a painter sticks to nature the *lower* is his art, and on the contrary the more individual and poetic, *i. e.*, personal and emotional, he is in his work, the higher is his art.

These things become clearer by analogy. Compare, for instance, one of Alfred B. Street's versified descriptions of landscape with one of Lowell's "Appledore," and if in the least a lover of poetry you will see that while one is a mere *catalogue raisonné* of the objects the writer saw and which he seems to have written down on the spot, the other is informed throughout with human feeling; that the dumb nature, the mere landscape, was to the poet only the symbol and a reminder of subtle trains of thought and feeling which had their origin in the memory and in a wide range of sympathy with humanity and in the expression of which we feel the poet more than the scene he looked on. Now the first, if poetry, is poetry of the lowest order, the other if not of the highest order is only less than that where it is most realistic and least imaginative. The noblest landscapes we have, are those of Titian and Turner, but they are the furthest removed from the photographic, are indeed often utterly untrue, and never scrupulous about fidelity to nature.

The kind of art, then, if it ought to be called art except by courtesy, which the camera has helped on, is that which may be compared with the poetry of Street, and is in reality only the dead shell of art—it is the slavish imitation of nature which has more than any other cause led to the decay of painting and sculpture, and in this decay photography has no doubt had its part, though that decay began long before Daguerre and Talbot, for it began when the painter and sculptor began to depend on the imitation of the actual facts of nature rather than imagination and idealism, which is a kind of inspired memory. The kind of art which photography can emulate successfully is the very lowest, still life, and the kind of genre which consists in posing figures in a *tableau vivant* and painting them straight from nature; a form of art which is only above photography because it necessitates the use of drawing and color, or in general, of the capacity of designing. And here I am obliged to take up the doctrine of my friend Pringle whose articles I read always with interest, because, when in my opinion wrong he puts his ideas thoughtfully. He says (PHOTOGRAPHIC TIMES, Feb. 22d, '89) that "design may include choice as well as deliberate arrangement."

This statement standing alone is simply a dodging of the dictionary, for the word "design "means primarily, and exclusively in art language, a drawing, and in the profoundest sense in which we can employ it, as when we speak of design in creation being a proof of a creator, the meaning is strictly analogous to that in art. "Design" never means choice though in a secondary sense it means intention, as when we talk of a design to go to a certain place or do a certain thing, and again in a still more remote sense it means craft as when we speak of a designing young woman. When, therefore, Mr. Pringle goes on to say: "In photography the art of choosing plays a very important role, and from a certain point of view choice may tax the artistic capabilities of the photographer quite as much as may arrangements;" he only builds a logical conclusion on unsound premises, but the conclusion falls with the premises, for as choosing is not design there is no pretext for considering it art and all the reasoning on that basis is fallacious. When we come to recognise the true limitations of the art side of photography, we shall see that the waste of time and energy in trying to do what photography cannot do, is such that we shall get ahead faster if we admit that we cannot travel by that road.

I recommend for the ambitious aspirant the third and fourth paragraphs of Mr. Pringle's article I have been quoting from, as the plain common-sense of the subject. And I fully agree with the dictum, "a picture may be far better without any of the recipes laid down for us;" more than that, I maintain that any picture which is constructed on a recipe is a bad picture. But do not let us confuse terms—a photograph is a picture but it is not art in the sense in which we are using that word, and a picture is not necessarily art therefore. I do not object, then, to the following statement of my friend; "In the first place a picture must convey to our mind some definite expression, and every detail of the picture must tend to enhance the general effect," though the two members of the sentence do not belong together, expression relating to a head or human figure and effect, speaking broadly, to a landscape or to the light and shade or arrangement of the masses of a figure picture equally with a landscape. A landscape in

nature may induce sadness or rapture in the mind of the observer, but it is not itself sad or delighted or in any other way moved, and when, by poetic license, we say that the landscape is melancholly, we only mean that from some reason or other it makes us sad, as when we feel the gloom of fading life or strength suggested by the dying day or year. Autumn leaves are no more sad than those of spring, but when we see them we are made gloomy by thinking of the passing of summer with all its delights, the shortening of days and, as we grow older, the lapse of years. And so I return *da capo* and repeat that we only misuse words when we talk of the "expression" or "sentiment" of a natural scene, using words which only apply to the work of the artist and have no relevance to photography as they have none to nature. A photographic view can have neither sentiment nor expression.

Now let us come to the quality of expression as conveyed in the human figure, and especially in the face. What the artist does (if he is competent, and this we always suppose) is to supply to the face, which he draws from nature or his own imagination, the expression which he supposes in his character. If he tries to get this from the model he makes a caricature the moment he gets beyond what is habitual or characteristic of the individual. But if he only renders this he is simply a portrait painter; if he succeeds in conveying transient emotion he is a story, or history painter. And here is the distinction which we must draw in photographic work, for as the camera can only give what is in the model's face, the passing emotion put on to be photographed is invariably more or less a caricature though it may be only stagey and amusing. Thus the Ophelia of Mr. Robinson is not in the least the Ophelia of art; her expression is not that of madness but that of a young woman who is trying to scare some naughty boys out of the barnyard. It was not Robinson but the model who put it on, and so far as it could be art, she was the artist. If she had been a great dramatic artist and had posed for the picture the result *might* have been true and powerful but the photograph would have been, as photograph, no better—the art would not have been in the photographer, but in the sitter. But as a matter of fact the camera never does render the passing emotion for it cannot stop to be photographed. The instant you attempt to put it on it becomes caricature. And if it were possible, the merit would be in the model and not in the camera or in him who uses it. The limitations of photography are in the limits of portraiture, and noble enough they are, and satisfactory when well filled. But here again the camera can only get such expression as will come on the sitter's face and wait while the work is being done and the transient emotion will not do this, so that the photograph is simply at its best the expression of the character of the original found in his, or her, best mood. The portrait painter on the contrary may catch the flitting emotion, and when it has passed still retain it in memory so as to reproduce it faithfully, or he may choose from the phases of character which have passed before him, and by memory fix that which he finds best to express his view of the original. But all this is out of the reach of the camera. That must wait till the expression comes. The choice of the moment, and the posing of the head, and the lighting of it, are all that even the greatest artist could employ in using the camera, and all that photography could lend him. Mr. Pringle says again: "What we want in our portraiture is *expression* gained by pose, surroundings and play of emotions," but this again is unsound; we get expression as it is involved in character in portraiture but no play of emotions, which have nothing to do with portraiture and which as I have shown cannot be attained in photography. What we want in portraiture of any kind is *character* and nothing else, and I would substitute for Mr. Pringle's statement this: What we want in photography is character shown in pose, and display of individuality in the face, both thrown out by intelligent lighting. Any other expression than that, *i. e.*, transient expression, detracts from the value of a portrait.

All the fancy pursuits which divert the photographer from good portraiture are so many blinds leading him away from the true ideal of photography, for no matter what the material, be it landscape or figure, the real art which is in it is in straightforward, honest portraiture, rendering of facts. Therefore I again differ from Pringle when he says: "The fact is, that a picture (photographic) is a direct communication from artist to observer; it is, moreover, a communication of sentiment and not of fact; an engineer's plan is a direct communication of fact, but is not a picture" If this is said of the photograph, I take issue point blank—a photograph is nothing but a communication of fact and when it is attempted to make it anything else it becomes a curiosity or a caricature. It is the nursing and development of such errors about the art that leads to such nonsense as the following which I find in an article in the TIMES: "Study of pictures fills one with the sense of beauty; constant practice with the camera confers the ability to translate the sense of beauty into outward

form," which is the *reductio ad absurdum* of the notion that *photography is one of the arts of design.*

In another article I shall attempt to show what the *true art* in photography is, and how it differs from the arts of design.

W. J. Stillman.

ATHENS, March 30.

TWO PICTURES ON THE SAME PLATE.

IT would be interesting to know the exact number of amateur photographers in the United States at the present time.

This information would be of value as a comparison to the interest in photography a few years ago, if for no other reason.

The legions of dark-room knights have come upon the field without warning, and its votaries are from all classes and conditions of men. Indeed, we are a motley set; ranging from stripling to patriarch, and showing no partiality as to race or color. It would be hard to find another pastime wherein its devotees represent so wide a range of humanity.

The number of plates used by this army, the chemicals used or wasted, and the amount of money spent for outfits and accessories are themes for speculation.

In the exposure of all these plates, each one produces *two* pictures.

That picture which relates to the circumstances under which the negative was made is often the better one, and more worthy of being etched upon the film than the real one. It is a pity that we are without the means of photographing these stories, for if it were so, the volume would be one of the strangest literary conglomerations the world has ever known.

It is while looking over a quantity of negatives, made under various conditions, that this article is written; and, while the stories they tell are not startling, or even of unusual interest, it may be that listening to a few of them will not be tedious.

The first and smallest taken up is a very small plate—much less than the size adopted for lantern-slides, and is the fruit of an outing when the "Pocket" camera was first introduced by a firm in western New York.

Like all of one's early efforts the image is weak and foggy, and shows now not only the ravages of time, but also the devastation of hypo not eliminated. But there is enough of the image left to remind one of the sensation that little square box and feather-weight tripod created in a primitive town "way down east." It was in constant demand, and before the summer was over, hardly a child or aged person remained in the village who had not faced it, and had the promise of a print should the negative prove good. In this same box are other negatives of the same series, and the stories told by them are amusing and melancholy; melancholy, inasmuch that the person has passed from the realm of the photographer. Right here we are confronted by a negative that tells of our trying to pack a ruby lamp and a box of plates in proximity. Oil may do for troubled waters, but it has nothing soothing in its nature when the amateur realizes that he has ruined his choicest exposures with it.

The next ventures seem to have been more ambitious, for a larger plate is met. It is a 5x7, one of the popular sizes still in use. Here are a variety of experiences suggested, and the foremost seems to be that of a dreaded customs officer on the Canadian line, who insisted upon our outfit being made bare, and that the details of our business should be given him. So long as we were spared his effort to find the details upon the dozens of plates hidden beneath the camera, we were happy. Here is a suggestion of a picturesque town which a trainman had advised me to shun as I would a pestilence, "because," said he, knowingly, "you can't get any whiskey there." Ever since then I have been trying to solve the problem as to why he suspected that a humble photographer, traveling with a clerical companion, should need such advice. Next we are reminded of how deeply insulted a shy *habitant* was when we boldly offered to exchange coin for a picture of her. Then follow stories of trials with shutters, and the threats of an old witch to leave not one stone upon another until she had broken both our camera and the plate upon which we held her secure. One blushes for shame when another glass suggests an unfilled promise for prints to people who enabled you to secure real *pictures.* Happy the lot of him who has to blush only for his comrade's misdeeds!

These stories can never be printed and toned. To be sure we can relate them to our friends; but, after all, fearing we shall exaggerate, they will be like unto the prints we have not printed deep enough. If, on the contrary, we give them their true coloring. our friends will use the bromide of credulence, and our effort will have been a vain one.

It would be wrong to the craft to close without a word in reference to a common story—a conventional experience.

No amateur is so destitute of friends that he is not solicited to "take" a house, a horse, a dog, or a group. Such work is often distasteful, and he who

can elude the tempter successfully is a diplomat. The outside world has yet to learn on which side the compliment lies.

The national weakness is to have one's picture taken—when it is done free, and thus the life of the amateur will never be without persecution.

The amateur thrives and increases, but can yet vie with the organ-grinder in drawing a crowd of urchins. Is it not a common experience to be surrounded by a crowd of urchins when photographing near civilization? Usually they are very civil, thereby showing their respect for our pastime. One learns to overlook the shortcomings of mankind after having battled with the trials of the dark-room for a few years; yet even this has its limitations. The eye of a curious youngster pressed close to your lens while you are trying to focus, or the mis-step of the same urchin causing him to lose his balance, and the camera and operator to yield their position, are trifles. To be misunderstood—to have some one ask what you are "peddling" with your detective camera; to have a whiskered individual mistake your tripod for a new-fangled clothes-rack are more like trials. These and kindred experiences are enough to make one sigh for the blessed day when the amateur photographer may go in and out among people as unnoticed and unmolested as the bicycler or tennis player.

Howard D. Phelps.

Correspondence.

THE PHOTOGRAPHIC TIMES IN ENGLAND.

To the Editor of the PHOTOGRAPHIC TIMES.

Dear Sir: THE PHOTOGRAPHIC TIMES is read here with much interest. The copy you are good enough to mail each week finds a regular corner on the table of the Royal Literary and Scientific Institution, and after a week's sojourn there, goes the round of the members of the Bath Photographic Society. The illustrations are much praised, by many who know what to extol.

I noticed, in the issue of March 22d last, Mr. Dallett Fuguet is not convinced that Mr. Friese Greene's experiments of photographing with the eye are what they profess.

In conjunction with other members of the society I saw these remarkable results, and feel constrained to ask Mr. Fuguet whether the ultra violet rays of the spectrum can be seen? Certainly they can be photographed.

I will not ask your correspondent why he did not repeat the experiments, although he might have arrived at a different conclusion had he done so.

With kind regards,

Yours faithfully,

W. M. Ashman.

BATH, ENGLAND, April 9th, 1889.

AN OPEN LETTER.

The following communication has been sent us by Mr. Reed, of Boston, for publication in these columns:

LIVERPOOL, April 9, 1889.

Dear Sir: I beg to acknowledge the safe arrival of the set of slides "Boston Illustrated." They were exhibited at our meeting April 4th, and were much admired. The getting up of the whole thing is a model for imitation. I am requested by our association to write to you and tender our hearty thanks to the Boston Camera Club for the gift, and to say that we shall have much pleasure in accepting the trust, and in facilitating, in all ways, its full use. I have already a number of applications for the set. They are being exhibited in Manchester to-night; they will be in Birkenhead on Thursday, the 11th inst.; London Camera Club, 18th; Glasgow, 23d; Warrington, 30th; and I have applications from Gloucester and Hull, dates not yet arranged.

I confidently anticipate that the idea will be taken up, and that you will, in due course, receive similar sets of slides.

Believe me,

Yours very truly,

Walter A. Watts,

Hon. Secretary,

LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.

TO WM. GARRISON REED, BOSTON CAMERA CLUB.

THE PHOTO-GELATINE PROCESS FOR REPRODUCING BOOKS.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir: Is it possible to make an *exact* reproduction of a book by means of the photo-gelatine process? My attention was first attracted to the subject by the announcement of an encyclopædia which claimed to be an exact reproduction, by this process, of the original, at half price, etc. I took pains to examine it with some care, and found that the pages were nearly all more or less blurred, some of the cuts were so black that I could not tell what they were intended to represent, while others were so light that portions of them seemed to have vanished. The corresponding pages of the original which I afterwards examined were all clear and distinct. To what do you attribute this failure?

I have seen some extremely delicate specimens of photo-gelatine work, but they were fine pictures, carefully printed on a hand-press and were quite expensive. Has the process ever been applied successfully to the reproduction of an ordinary book, containing letter-press, wood-cuts, steel-plates, maps, etc., when the edition was so large as to require the use of power-presses?

Student.

NEW YORK CITY, April 19th, 1889.

IN reply to "Student," we will explain that the photo-gelatine ("wash-out") process is perfectly capable of correctly reproducing books, pamphlets and so forth: but that, in order to do so, not only is great skill necessary in the original photographing, development and printing, but also much time and patience are required, and considerable expense,

which make it very doubtful if a book can be reproduced much if any cheaper than the cost of the original; certainly not for half the price.

In order to do cheap work, cheap photographers must be employed, and cheap materials used; and when this is done, the result may be very far from accurate, and, probably, in the case to which "Student" alludes, this accounts for all the defects noticed in the reproduction. But let us briefly explain just how lack of skill may result in work that is not exact reproduction. And first, we will speak of the photographing.

In a book of the character described there is usually a variety of type—some very small, some quite large; some set "solid," some "leaded," etc. Some of the cuts may be composed of delicate light lines and fine shadings—others may require a deep black. For these reasons the exposure required for one page, will not be correct for another, and unless each page is photographed with proper regard to its individual requirements, the result will be in one case, over exposure and in another case under exposure. This, of course, will occasion sacrifice of detail, or gradation, or both; in one case giving, perhaps, too much contrast, and in another, not enough; so that the gelatine reproduction from the negative, even if exactly like the negative, will not be like the original page, because the negative itself is not like the original page, and the gelatine cannot reproduce what is not on the photographic negative.

Then, again, where wood-cuts or photo-engravings are interspersed throughout the printed matter on a page, it is necessary to photograph the illustrations separately, in order to give them the special treatment which they require. In some cases, it may even be necessary to make an enlarged copy of a wood-cut separately and go through the process of re-drawing, bleaching and finally reducing to the required dimensions in order to obtain an accurate reproduction. If photographed indiscriminately amidst the type, and more especially if, as is often done when cheapness is the main object, several pages are photographed at one time, it is easy to see how there may be a loss of detail in some places, too much density in another place, lack of a proper gradation, in another instance, and other inaccuracies; for, as we have explained, the time of exposure and development required, for one page, or even a part of one page, may not be at all correct for another part of the same page or a different page.

The collodion and silver baths must also be carefully prepared, as very much depends upon them. It requires experienced judgment to properly time the exposure, prepare the collodion and silver baths for the negative, and develop in accordance with the individual requirements of the special page or subject.

There is also room for discrepancy in printing upon the gelatine; for even if the negative be correct—unskilled or careless printing may seriously alter the original by overcoming the proper gradation of shading. Much depends upon the gelatine itself, however, which, though generally of a proper purity, should always be subjected to a process of rectification. This, of course, requires time and skill.

After all has been done, and a really good electrotype has been made from the gelatine reproduction, the work may even then be marred by poor printing and poor paper. Cheap, soft paper and bad presswork will not reproduce the fine details.

"The extremely delicate specimens," which "Student" alludes to, were evidently made by the Phototype process, which is sometimes spoken of as the gelatine process, butis entirely different from the "wash out" method, and is never used for reproducing books, as it is much more expensive and requires careful printing on a hand-press. In answer to "Student's" last question, we may say that, so far as our knowledge goes, the "wash out" gelatine process has only been successfully employed in the reproduction of books when there was no special regard to expense.

That the gelatine process has not come into general use for the reproduction of books is due, probably, not to any incapabilities in the process itself, but to the lack, at present, of any adoption of it by which the work can be done at a small expense.—*Editor of* THE PHOTOGRAPHIC TIMES.

Notes and News.

PHILALELPHIA A GOOD PLACE FOR THE NEXT CONVENTION OF THE P. A. OF A.—From a Philadelphia correspondent's report in a Western contemporary, we should judge he considered that city a good one for the next P. A. of A. We think so too.

AN INTERESTING HISTORICAL DOCUMENT PHOTOGRAPHED.—The *Baltimore News* states that a Northern tourist photographed at the Secretary of State's office one of the most remarkable documents existing among the records of South Carolina. It is the original deed made by the Casseque Indians in 1675 to the Lords Proprietors of Carolina, for all that tract of land which now constitutes what is known as the low country of South Carolina. The deed is made to "The Right Hon. Anthony, Earle of Shaftsbury, Lord Baron Ashley, of Wimborne, St. Giles, and Lord Cooper, of Pawleth, and to the rest of the lords proprietors of Carolina, for and in consideration of a valuable parcel of cloth,

hatchets, beads and other goods and manufactures now received at the hands of Andrew Percival, gent, in full satisfaction of and for these territories, lands and royalties," &c. The date of the deed is "the tenth day of March, in the year of our Lord one thousand six hundred and seventy-five, and in the twenty-eighth year of the reign of Charles II of Great Britain, France and Ireland, king, defender of the faith," &c.

WORD FROM JAPAN.—The following interesting information is extracted from a recent letter from Professor W. K. Burton, now of the Imperial University, at Tokio, Japan:

"Photography is flourishing here! The new photographic periodical, of which I sent you a copy some time ago, is already quite a success: and we are busy doing what we can to get up a photographic society. Among the foreign amateurs here, America is well represented, the American Consul-General, amongst others, being stricken with the craze * * * The changes that have taken place in this country in the last fifteen or twenty years, are of a magnitude, compared with which, the changes that have taken place in America since the Declaration of Independence, are trifling; that is to say, relatively to the importance of the two countries. During that time there has been a change from a state of feudalism, such as there was in England, in the middle ages, to a condition of enlightenment, or rather, perhaps, I should say, modernism, that is in many respects beyond that of any other country in the world."

A CAUTION.—Amateur photographers the world over, says the *N. Y. Times*, should be glad to see that the British Government by dispatching a powerful fleet to Tangier has secured the promise from Sultan Muley Hassan of the pecuniary indemnity for the Cape Juby affair. The peaceful agent of a British trading post, finding a picturesque camp of Moors establishing themselves near him, hurried thither with his camera, and made preparations for "taking" the group and their belongings. Whether it was that they suspected he had some infernal machine in operation, or whether he declined or was unable to give a satisfactory account of his purposes, at all events these were promptly checked by killing him. Then these subjects of the Sultan attacked the trading station. A favorite study of amateur photographers in all countries is the native inhabitant, and it is quite clear that to inflict death as the penalty for this study would soon put an end to a very harmless sort of diversion. The unlucky artist of Cape Juby became the subject of an international incident, but a precedent has been created, even if it took an iron-clad fleet to do it. British photographers may still be sacrificed for training their lenses on barbarous natives in out-of-the-way parts of the world, but they can feel sure that their relatives will get pecuniary indemnity.

NEW USES OF PHOTOGRAPHY.—Offical reports of land surveys and explorations are not very popular reading, and in some countries the aid of illustrations is called in to make them more attractive. The Canadian Department of the Interior expects hereafter to illustrate the reports of the scientific men who are still studying the great northern portion of the continent. The processes of making photographs and reproducing them in printer's ink have been so cheapened and improved that it is found they can be introduced in Government reports without largely enhancing the cost. Since dry plates came into use in photography with various processes of utilizing photographs to illustrate printed pages, the survey departments of every Europeon Government have established photograph offices. We have finely equipped illustrative departments in connection with the Coast and Lake Surveys, the Hydrographic Office, and the Geological Survey. In these offices the views taken by explorers are developed and multiplied, trees, plants, fossils, and other specimens are photographed, the wonders revealed by the microscope are caught for general inspection, and thus facilities for illustration have not only been greatly increased, but the cost of pictorial aids to study has been largely lessened. It is found for instance, that the quickest and cheapest way to enlarge or reduce maps and plans is by means of photography, and a great many maps are now cheaply produced for general circulation by photo-lithographic processes.—*New York Sun.*

CLOUD PHOTOGRAPHY.—At a meeting of the Royal Meteorological Society, reports the *Popular Science News*, Dr. A. Riggenbach, of Basle, read an interesting paper on a method of photographing cirryus clouds. Great difficulty is experienced in obtaining photographs of cirrous clouds, the reason being that the blue light of the sky acts with nearly the same activic energy as the white light of the clouds on the sensitive silver salts of the plate. What is wanted is that this blue light of the sky should be dulled, the light of the clouds being left unaffected, and this can be done by means of the analyzer of a polarizing apparatus. The light from the blue sky is partly polarized, and to the largest extent at the points which are situated 90 deg. from the sun; the plane of polorization passing through the points looked at, the sun, and the eye of the observer. On the other hand, the light coming from a cloud is only polorized to a slight extent. If an obsidian plate be placed before the lens of a photographic camera, so that its plane is inclined at an angle of 33 deg., to the optical axis of the lens, and the camera be placed so that the sun's rays shine perpendicularly on one of its sides, we then turn the whole apparatus around, in the direction in which the sun lies, as an axis, until a cirrous cloud is visible in the camera. If a sensitized plate be inserted, a picture of the cloud can be produced under the most favorable conditions possible. A still simpler mode of obtaining such cloud pictures is to use the surface of a lake as a polarizing mirror. The best clouds for such a purpose are at sunrise or sunset, at an altitude of about 87 deg., and in an azimuth either greater or less than that of the sun by 90 deg.

ART OF POPULAR EDUCATION, by Prof. James M. Hoppin. How art is a record of human achievement; historical illustrations; national value, and effect on individual life; special need of artistic training in America to offset the material tendency of life; architecture, parks, gardens, furniture; what our public buildings ought to be; place of art in higher, as well as in public education; its effect on style; the already visible influence of Cooper Union, the Dwight School in Boston, the Cincinnati School of Design, and the Metropolitan Museum of Art; need of art which shall illustrate American character and progress.

James M. Hoppin, Professor of the History of Art in

Yale University, was graduated at Yale in the class of 1840, at the Harvard Law School in 1842, and in the Andover Theological Seminary in 1845. Afterwards he studied in Europe and traveled in Greece and Palestine, He has been a preacher and a lecturer successively on theology and on art. In 1879 he resigned the chair of Pastoral Theology at Yale to become Professor of the History of Art. Among the books that he has written is "Old England, its Art, Scenery, and People."

W. S. Lilly wrote for the April number of *The Forum*, an essay on "The Ethics of Art," in which he set forth evidences of the deidealizing of life, as shown in modern art, by the prevalent material philosophy; and Prof. Charles Eliot Norton, of Harvard, in *The Forum* for March, gave "A Definition of the Fine Arts," pointing out, as Prof. Hoppin does, the necessity of higher artistic work in America.

ANCIENT DISCOVERIES WHICH LED TO THE MODERN ADVANCE OF THE ART.—Edward Elsworth read a very interesting paper before the Scientific Section of Vassar Institute, Monday evening. April 15th, on the advance of photography. "Photography is a child of science," said the speaker, "and it owes its development to years of paternal labor. Art has popularized it and established its commercial value. The discoloring action of rays of light upon different substances has been the subject of observation for many centuries. It is said that a photograph was found in the ruins of Ninevah. Pliny recorded the fact that yellow wax was bleached by exposure to sunlight. Fabricius, about the middle of the sixteenth century, in searching for gold, found that the lunar cornea, or horn silver, could be prepared by adding a solution of common salt to a solution of silver nitrate. He recorded the fact that this white compound turned black when exposed to the sunlight. No thought of utilizing this discovery seems to have occurred to him. In 1727 Schultze obtained copies of writing first upon paper, the surface of which had been prepared by chalk and nitrate of silver. The rays of sunlight passing through this comparatively transparent paper blackened the surface of the prepared paper beneath, except when intercepted by the ink forming the letters. Thus was another step made in the direction of the photography we no enjoy."

Mr. Ellsworth traced the history of this interesting discovery in minute detail. He recounted the experiments of Scheele, Caunt Rumford, Davy, Daguerre, and the later ones who contributed to the science.

Thanks to the French government for giving the benefits of Daguerre's discovery to the world. That scientist begun in 1824 the experiments which eventually led to the discovery of the Daguerreotype process. On Daguerre's learning that Niepce was working in the same direction as himself, the two formed a partnership in 1829. The discovery of daguerreotyping was announced in January, 1839, but the details of the process were not made known until August of the same year. It consists in exposing metal plate covered with iodide of silver for twenty minutes in a camera, the plate being afterwards transferred to a darkroom, and exposed to the vapor of mercury, which develops the latent image, it being afterward fixed. This was the first process of any practical value."

The dry-plate, silver prints, autotype, and collodion processes, printing methods, albumen paper, bromide paper, platinotype, and aristotype paper were fully explained.

Mr. Ellsworth exhibited some photographs which he had made by the different processes, which proved him to have a practical as well as a theoretical knowledge of his subject. He urged the cultivation of the interesting science.

MICHEL EUGENE CHEVREUL.—The following account of this eminent French scientist we reprint from a recent issue of *The American Lithographer and Printer:*

Michel Eugène Chevreul was born August 31, 1786, at Angers, in Central France, the old capital of the Duchy of Anjou, and received his education at the Ecole Centrale of that city, where he had as a schoolmate the distinguished anatomist, Béclard. His father was a successful physician, and directed his attention to physical science. In 1802 young Chevreul, then seventeen years old, went to Paris and obtained employment in the chemical manufactory of the eminent Vauquelin, where he soon became director of the laboratory. After filling the posts of preparator of chemistry at the Museum of Natural History (1810) and professor of the same branch in the Lycée Charlemagne (1813), he devoted himself to the almost unknown science of organic chemistry. As the result, he published in 1828 his great work, "Chemical Researches on Fat Substances of Animal Origin," which, according to Dumas, forms a perpetual model for chemists, and demonstrated the methods by which hundreds of millions of artificial substances may he prepared.

The publication of this work proved the magic *sesame* that at once opened the doors of all the leading European scientific societies to the young author, and secured him in 1844 the decoration of the Cross of the Legion of Honor, and twenty-nine years later, in 1852, the award by the French Society for the Encouragement of National Industry of the grand prize of 12,000 francs, ($2,400), founded by the Marquis of Argenteuil for the most valuable and useful discovery in the line of the sciences identified with the society. The world at large is indebted to Chevreul for stearine candles and oleic acid as used in the preparation of wool for cloth, by means of the knowledge disclosed in the above-mentioned work.

By his researches and experiments in another direction, however, Chevreul has been best known to the world for over the last half-century, and will be better remembered by lithographers, and that specialty was the science of colors. In 1824, he was elected by the Government as director of the dye works and professor of special chemistry at the national manufactory of Gobelin carpets, and thenceforth devoted himself chiefly to the science of colors, in which he distanced all competitors. On the death of Proust, in 1826, he succeeded to his chair in the chemical section of the Academy of Sciences, and in 1830 he replaced his old employer and teacher, Vauquelin, as professor of applied chemistry at the Museum of the Natural History. His lectures were chiefly devoted to the elucidation of the laws of contrast, harmony and blending of colors, and to this subject in its numerous aspects he con-

centrated a long series of memoirs presented to the Institute and published in the *Journal des Savants*.

A number of his works have been translated into English, German and other languages. The best known of his productions are "Lectures on Chemistry Applied to Dyeing" (two vols., 1828-31); "On the Law of the Simultaneous Contrast of Colors and the Distribution of Colored Objects Considered in Relation to Painting" (1839), accompanied by a splendid atlas; "On Colors and Their applications to the Industrial Arts by Means of Chromatic Circles" (1864), and a "History of Chemical Research," begun in 1856. He also wrote on sanitary subjects, on organic analysis (1824), on the optical effects of silken textures (1848), on the divining-rod and table-tipping (1854), on scientific method (1855) and on the prescription of drugs in medicine (1865). He wrote all the articles on chemistry in the "Dictionnaire des Sciences Naturelles," and edited, with comments, the "Photographic researches" of Nièpce de St. Victor (1855). It was at his suggestion the practice of charring the interior of water casks was adopted.

He was a member of international juries at the Universal Expositions of London (1851) and Paris (1855), and was awarded a premium by the former "for the benefit his labors had conferred upon industry." He was chosen a Fellow of the Royal Society many years since, was President of the French Agricultural Society, and several times Director of the Museum of Natural History, with which institution he had an almost life-long connection. As late as 1878 he was still lecturing there on chemistry, and in that year commenced the publication of a *résumé* of his views on colors, with the special object of refuting the modern theorizers who believe in only three primary colors, a doctrine which he strenuously opposed, maintaining intact the Newtonian hypotheses.

M. Chevreul would have completed his 103d year if he had lived until the 31st of August, and his friends had planned a glorious celebration for the anniversary that came, unfortunately, a few months too late for the famous scientist's vigorous span of life. He retained his activity until past his ninetieth year, and up to a few years ago he kept on experimenting and publishing. He was present in Paris during the reign of the Commune, and saved the manufactory of Gobelins from destruction. M. Chevreul was for many years almost bedridden, though he still pursued his studies, received and conversed with his friends, and discussed chemistry with unallayed interest.

He never drank to excess, never smoked, and never ate fish or drank milk except when mixed with other foods. His regular diet was strong soup, beefsteak, cutlet and coffee. Strange to say, his son, Henri Chevreul, died only a few weeks ago. The father was kept ignorant of his boy's death. The story is told that when about a year before the son, then sixty-nine, went to Paris from Dijon for medical advice, the elder Chevreul seemed to feel that he was personally insulted by the fact that his son showed such fragility of constitution. The family physician tried to explain the matter to the old scientist, but Chevreul was annoyed, and said that he always felt that he would never be able to raise the child.

M. Chevreul remembered Louis XVI., the Revolution, the Directoire, the First Empire, the First Restoration, the Hundred Days, the Restoration, the Legitimists, the Republic of '48, the Second Empire and the Third Republic.

Photographic Societies.

CASE SCHOOL CAMERA CLUB.

AT the regular meeting held Friday afternoon, April 19th, Fred. A. Coleman instructed the members in the art of making transferotypes and bromide prints. He gave a demonstration of the developing and mounting of transferotypes on opal glass, and also exhibited some fine bromide prints of landscapes which showed an artistic eye.

Milton B. Punnett,
Corresponding Secretary.

THE LOWELL CAMERA CLUB.

THE Lowell Camera Club held a special meeting April 16th, to consider the subject of Lantern-Slide Making, and to arrange for an exhibition of photographic work, and a club field-day. There were 50 present.

It was voted to hold an exhibition in the fall. The necessary committees were appointed for the exhibition and the field-day.

Mr. J. D. Gould read the paper on the subject for the evening. He showed the advantage that the reducing process has over the contact method. In regard to development he said all are agreed upon this—that there must not be the slightest trace of fog in parts to be shown upon the screen as high-lights; these must be clear glass. To get these results a rather short exposure is given, with less development than would be considered correct for a negative. A little detail is sacrificed to obtain contrast. To get clouds in slides he recommended using cloud negatives for an extra slide, removing the film from the parts of the cloud slide that come over the landscape to be shown, and then seal the two together in the ordinary way. He cautioned the beginners to be sure that both cover and slide are perfectly dry before sealing together.

He suggested that it would be of great interest to other clubs in the proposed New England exchange, if our club would work the coming summer with the idea of producing a series of slides illustrating Lowell and the surrounding country, showing the principal streets, the mills that have made the city what it is, and, not the least, the beautiful views that may be found all along the river's banks.

Much interest was manifested in the elaborate apparatus, made by himself, which Mr. Gould used to practically illustrate his subject. Some plates were exposed in this camera, and Mr. Charles Francis, who has had a good deal of experience in slide-making, developed the plates before the club. He used the oxalate and hydrochinon developers. He explained the process and spoke upon the merits of the developers used.

Mr. W. E. Badger used his lantern to show a large number of views upon the screen, from slides made by members of the club. Hon. Charles H. Allen furnished some very interesting slides, of views taken of the Hot Springs in the National Park.

This meeting closes the series of meetings of the club for the season.

The next regular meeting will be held in November.

George A. Nelson,
Secretary.

Our Editorial Table.

"Die Kuenstlerische Photographie," by C. Schiendl; Published by T. Hartleben, Vienna and Leipzig.

This is an interesting and instructive work, written somewhat after the manner of H. P. Robinson, but full of original ideas. The author is an experienced and practical photographer, and is fitted to advise those who are willing to learn how to make more attractive pictures when they photograph. The first and principal part of the book is devoted entirely to posing and lighting, the arrangement of a well-equiped *atalier*, and the photographing of simple portraits and groups, out-of-doors. The second, or technical part of the book, treats of various processes and methods. The book is a valuable addition to the library of a professional photographer, and should be read by all who are familiar with the German language.

Sun and Shade, for April, has come to hand, and, as usual, contains eight fine plates. The photogravure frontispiece possesses more than ordinary value, having been reproduced from a miniature of General Washington, painted by James Sharpless. This portrait was painted by the direct order of General Washington, in 1795, and was presented, by him, to the wife of Colonel Parke Curtis. His son, George Washington Parke Curtis, (adopted son of General Washington), in whose presence the sittings were made, often spoke of the likeness as very perfect, especially for the last four or five years of the General's life.

The photo-gelatine reproductions, from negatives by Ernest Edwards and W. J. Mozart, of the United States men-of-war, "Vandalia," "Nipsic," and "Trenton, which were lost in the hurricane of March 15th, at Apia, Samoa; are also very interesting at this time. The portrait of the "Vandalia" was made while that vessel was fitting out at the Brooklyn Navy Yard, for her ill-fated cruise; that of the "Trenton," while taking powder aboard, on the day of sailing from New York for the Pacific.

The "Double Quartette," and "The Quartette," by Franklin Harper, will please many.

"No Barrier," is the photographic study from nature, by F. A. Jackson, which was contained in "The Twelve Photographic Studies," published by the Scovill & Adams Company, not long ago. It is here printed in an agreeable green tint.

Record of Photographic Patents.

401,771. Apparatus for Coating Photographic Plates with Emulsion. Robert E. M. Bain, St. Louis, Mo.

401,802. Attachment for Photographic Cameras. Geo. D. Thompson, Lockland, Ohio.

401,807. Stereoscope. Hawley C. White, North Bennington, Vt.

401,946. Photographic Camera. Eugen Hackh, New York, N. Y.

Queries and Answers.

90 Miss Viola R. "broke a very valuable negative, of which only one blue print had been made; she tried to copy it but without success What shall I do to reproduce the print in some way?" she asks.

90 Copy through a yellow screen, upon a Carbutt B plate and develop with old hydrochinone developer.

91 Fred Myers has attempted to intensify negatives with bichloride of mercury and sulphite of soda. The film was thoroughly whitened. but the sulphite did not seem to have the least effect, no perceptibly higher density was produced.

91 The sulphite solution was too strong. It should not be above 5 per cent.

92 Seneca asks: "What is biborate of soda?"

92 *Answer.*—It is the ordinary borax of commerce. It is so called to distinguish it from the neutral borate of soda. In the former two ounces of boric acid are combined with the oxide of sodium, and in the neutral salt only one is united with the base.

93 Anxious Inquirer writes: "Can you give me some information on the double salt of hyposulphite of sodium and silver?"

93 *Answer.*—It is the substance that has given no end of trouble to photographers, and is one of the results of the fixing process. It is sensitive to light, under its action will separate sulphur and cause a sulphuration of the silver deposit. Negative or positive films containing this salt will ultimately turn yellow. To remove stains of that kind is impossible. To eliminate this salt from our productions is more important to their durability than that of the comparatively harmless hypo. As it is soluble in hypo, an excess of the fixing agent should always be present, when fixing is going on; or what is still better, subject the print or negative to a second freshly prepared hypo solution after fixing has been apparently completed. When the salt is dissolved, elimination is quite easily effected A Chautauqua student described the pressence of this salt by the sweet taste of the drippings from either negative or positive print.

94 D. G. S.—In answer to your letter we reply: A plate blacking at once all over, when coming into contact with the developer indicates that it has been exposed to an undue amount of light. The Carbutt B plate sens. No. 16, are noted for uniformity and reliability. With a Waterbury B, stop $\frac{f}{15}$ you will not require more than one or two seconds to make a well exposed negative of an open and well illuminated landscape.

95 Amateur asks: "What is tungstate of soda composed of, and why is it preferred in the gold toning bath?"

95 *Answer.*—Tungstate of soda is a combination of an oxide of the metal tungsten or wolfram, the tungstic acid, with oxide of sodium. It is of alkaline reaction, and added to the gold bath to neutralize acidity. It is said by many photographers that the tunstgate bath produces black tones on albumen paper much easier than borax, phosphate, or any other salt. There is no chemical reason we know of why this should be true

SUPPLEMENT

TO THE

PHOTOGRAPHIC TIMES.

FRIDAY. MAY 3, 1889.

THE P. A. OF A. TENTH ANNUAL CONVENTION.

HOTEL RATES AT BOSTON DURING THE CONVENTION.

To the Editor of THE PHOTOGRAPHIC TIMES :

DEAR SIR :—Geo. H. Hastings, Chairman of Committee on Hotels, has made the following report in the way of letters from the proprietors of several houses :

"THE BRUNSWICK."

P. A. of A.

We will make the rate for members of the Convention at $4 per day, each, Yours truly,

BARNS & DUNKLEE.

"UNITED STATES HOTEL."

Memoranda of rates to the delegates of the Photographers Association of America, August 6 to 10 : Rooms and full board, for 50 to 75, at $2 each. If two men in one room and in one bed, $2 each. Rooms only, $1 per day and upwards, according to size and location.

TILLY HAYNES.
FREDERICK KELSEY,
Attorney.

"AMERICAN HOUSE."

To P. A. OF A.

Gentlemen : We will be pleased to accommodate delegates to the Photographers' Convention to be held in Boston, August 6 to 10, for $2.50 and $3 per day, according to accommodation desired.

To those wishing rooms only and the privilege of taking meals at option, we could give rooms for from $1 each per day upwards.

Very truly yours,
HENRY B. RICE & CO.

"THE QUINCY."

MR. GEO. H HASTINGS.

Dear Sir : We can furnish for any part of your party, three meals and one lodging, consisting one day, for $3 per day for each person ; and if two beds in one room, two must occupy the same room.

Yours truly,
J. W. JONSON & CO.

"REVERE HOUSE."

Memoranda of rates to P. A. of A.: American plan, $3.00 per day ; European plan, rooms, $1.00 per day, and upwards ; Single rooms, two in one bed, 75cts. each person, and pro rata. J. F. MERROW & CO.

Yours truly,
H. MCMICHAEL.

BUFFALO, N. Y., April 24, 1889.

A SCHEME TO SECURE A PICTURE OF THE HEAVENS.—Sir Robert Hall in *Macmillan's* writes : "A combined effort is now being made to secure a representation of the entire surface of the heavens by photography.

A Congress met in Paris, under the presidencyof Admiral Mouchez, consisting of astronomers from all parts of the world, and the conditions under which this stupendous survey of the universe was to be undertaken were then decided on. The operations were divided among a number of observatories situated over the world, and each of them undertakes to photograph on plates of a uniform size a certain region of the heavens.

The work has been entered upon with the heartiest enthusiasm, and ere many years have elapsed we may anticipate being in possession of what will practically be a photograph of the entire heavens. This great piece of work will provide us with the means of making a reasonably complete inventory of the entire contents of that small portion of the universe which lies within the reach of our instruments. That all the stars which can be exhibited on long exposed plates shall ever be completely catalogued is a task as much beyond our power to obtain as it would be to obtain a descriptive list of the several pebbles on a sea beach, or of the several leaves in an ample forest. The more modest scheme has, however, been suggested of taking the two million brightest stars, and forming a complete catalogue of them, in which their brightness and their absolute positions in the heavens shall be given with all attainable precision. Even this is a sufficiently magnificent undertaking, but it is within the practical limits of scientific enterprise, and it ought to be done—it must be done. Not alone is it our manifest duty to obtain a comprehensive survey of that universe around us, but there are many other special astronomical problems that will be largely forwarded by its accomplishment. There are some problems indeed which must remain unsolved so long as this task remains unfulfilled.

To mention only a single one of the questions for which the great survey is imperatively demanded, I may refer to the intersellar motion of our system. It is well known that our sun, accompanied by the whole system of planets, is at present bound on a voyage through space. Astronomy presents no grander problem than the discovery of the circumstances of this voyage. Whence has our system come, whither is it bound, and with what speed? We can never learn such particulars as these without the information that the great survey would be of giving us.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, MAY 10, 1889. No. 399.

A GROUP OF ELEPHANTS.

OUR illustration this week, if somewhat different in character from the usual picture that embellishes these pages, will not be for that reason less welcome to our readers; for it shows not only excellent lens work and development, but a peculiar skill in the actual photographing. The negative was made by Mr. Alfred L. Simpson, a prominent member of the Society of Amateur Photographers of New York, and the subject is a group of Barnum's elephants, in Central Park. They were photographed with a Morrison "D Group" lens, full opening, on a Cramer No. 25 plate, with a Prosch shutter.

THE CENTENNIAL.

PHOTOGRAPHERS were busy during the three days of the late Centennial in New York. Indeed, they were busy in anticipation, for many days previous, and will be closely confined to their dark-rooms for weeks to come, in developing the exposures which they have made.

Thousands of plates and films were exposed. Cameras were to be seen focused upon the surging crowds and passing pageants, from every conceivable standpoint.

It was a harvest time for the plate-makers. We mounted to the top of the Domestic Building, corner of Broadway and Union Square, only to find that the spirit of excelsior had preceded us. From the summit of the tower, however, on the same building, we were above all competitors, and we here made general bird's-eye views of the city in its splendid decorations. The best views of the parades, however, were made from a lower standpoint.

On Tuesday, April 30th, the military procession proceeded from Wall Street, up Broadway to Washington Park, thence—beneath the majestic arch erected for the purpose—to Fourteenth Street, and made almost a complete circuit of Union Square, going off again at Fifteenth Street, and up Fifth Avenue to the Grand Reviewing Stand.

On Wednesday the grand civic and industrial parade marched in an opposite direction, so that views made from the same standpoint, of the two parades, present pleasing variety, while containing the same attractive features of surroundings in both. The decorated equestrian statue of Washington, rising out of flowers and ferns, and crowned with the laurel wreath, made an appropriate and beautiful object conspicuous in the foreground.

Monday was also a great day for the plate-makers. The Society of Amateur Photographers chartered the steamer "Philadelphia," from which to secure views of the great naval parade, and it was supplied with an armament of two hundred cameras for the occasion. On leaving Peck Slip, about 10 o'clock, we steamed down the East River to the Upper Bay, and then along the imposing line of war-ships, which the men-of-war at anchor in readiness for the parade, presented. Repeated broad-sides were fired at the majestic "Chicago," "Brooklyn," "Yantic," the old "Essex," "Boston" and other well-known iron-clads and men-of-war. The revenue cutters and steam yachts made an elegant appearance, and the background was crowded with river steamers of all sizes and descriptions, loaded to the very water's edge. When the "Dispatch," bearing the Presidential party, approached, the parade commenced amid prolonged salutes from the war-ships and the whistling of the crowded steamers. The committee in charge of the "Philadelphia," had corresponded with the Secretary of the Navy, in regard to its intention, and had received from Admiral Porter a prompt reply, advising those in charge of the steamer to keep up with the procession during its progress. The committee decided, however, to accept the permission granted by Admiral Porter, to lie off Bedloe's Island for the first reception pageant, and then steam along near the "Dispatch," to obtain a view of the landing at Wall Street.

"As the "Dispatch" progressed up the Bay, the various steamers fell into line and crowded forward, the war-ships manning their yards and saluting, as the President's vessel passed by. This was the grandest opportunity of all. The magnificent war-vessels in the foreground, partly enveloped in the smoke of their majestic salutes, and with the seamen aloft with uncovered heads, the "Dispatch" steaming along almost exactly parallel with the photographers' vessel, a splendid mass of river steamers, steam yachts and tugs of all sizes, crowded to their utmost capacity, and gayly decked from stem to stern with bunting, and in the background, the East River Bridge showing dimly on the horizon. A good view was also had of the President's landing, after which we were put ashore, and made ready for the next day.

We shall have some pictures of these thrilling scenes to show our readers, before long. The weather could not have been better, and everything seemed to favor the success of the Centennial in every respect.

CELLULOID AS A SUBSTITUTE FOR GROUND-GLASS.

CELLULOID has of late come into so wide-spread a use in photography, that we are not surprised to hear of its being proposed as a substitute for ground-glass. The specimens we have tested for this purpose, seem to answer very well. They are very light, being so extremely thin; and their infrangibility is especially commendable. How easily the focusing ground-glass may be broken in the rush of business, or the excitement of an exposure in the field, is well understood by all photographers. The celluloid screen cannot break, and it is not injured or even scratched by a fall. But probably its extremely fine and uniform character is of the greatest importance.

Photo-mechanical operators require the most absolute sharpness on their focusing screen, and resort to various methods for determining the exact focus on the ground-glass. With celluloid it will be found much easier to secure exact focus. The surface of the ground-glass, whether it has been produced by sand-blast or emery, presents at best a multitude confluent of minute conchoidal fractures. Every particle of the grinding medium breaks a small piece from the surface of the glass, the result of the whole operation being merely an endless series of very small fractures. Fine as these little fractures are, they nevertheless prevent the forming of an optically correct image; such as, for instance, the photo-engraver requires. These little fractures not only present different angles to each other, but are of various sizes and shapes, so that light is reflected from them in various directions. Considering, with this, the fact that for a large copying camera the ground-glass must be of great thickness; it is at once understood how the image can never appear absolutely sharp. The little fractures are, of course, invisible to the naked eye, but a magnifying glass will at once reveal their nature and show their possible effect. Now the thin mat celluloid plate overcomes this defect in the ground-glass focusing screen, and the image reflected upon it is exact enough for the most particular work.

To overcome this defect of ground-glass, an emulsion of baryta spread upon a plain glass plate, has been proposed; and this accomplishes the desired result. But there yet remains the frangibility and weight of glass, and it is here that the celluloid plate offers one of the greatest advantages. Celluloid screens are easily adjusted to the camera; and if properly inserted and fastened to the frame, will neither break nor bend. Rain and dampness they does not affect them, and heat will not soften them unless it be far above the most excessive heat of summer.

Celluloid films also offer advantages to the retoucher. They almost completely fill the long-felt want for a semi-transparent and finely-grained plate, by which means alone the retoucher is enabled to work in the finest shadows and details, equalize rough surfaces, reduce over-density, and, in general, accomplish the finest retouching.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—(*Concluded.*)

HYDRIODIC ACID.

Formula, HI: Combining weight, 128.

This is a colorless gas, having a pungent smell, and fuming when in contact with air. It is very soluble in water, and is readily decomposed by heat. The gaseous acid is prepared by placing water, potassium iodide, and iodine in a flask, then dropping in small fragments of phosphorus, and heating gently. If an aqueous solution of the acid only be required, the readiest mode is to pass sulphuretted hydrogen through water in which iodine is suspended, and filter off the sulphur which is liberated.

HYDROCHLORIC ACID.

Formula, HCl: Combining weight, 36½.

Pure HCl is a gas, usually prepared by acting on common salt with slightly diluted sulphuric acid. It is very soluble in water. Commercial hydro-

chloric acid has a yellow tint, owing to the presence of a little iron; the pure aqueous solution is colorless. It fumes when in contact with moist air; and if a glass rod be dipped in liquid ammonia, dense white fumes are seen when it is brought near HCl. But the best test for HCl, or any soluble chloride, is the white precipitate of silver chloride, which is produced by the addition of a drop of a solution of silver nitrate. This precipitate is insoluble in nitric acid, but soluble in ammonia.

Hydrochloric acid was formerly known as *muriatic acid.*

A weak solution of HCl (or, better, of HCl and alum) is very useful as a "clearer," removing the brown stain produced by the action of the pyro developer.

Hydrocyanic Acid (Prussic Acid).

Formula, HCN or HCy: Combining weight, 27.

Hydrocyanic acid is contained in bitter almonds, laurel leaves, etc., and it can be extracted from them by distillation. It is usually prepared by heating dilute sulphuric acid with potassium cyanide in a retort. It is intensely poisonous, so that it is dangerous even to inhale its vapor, and the greatest care should be used in experimenting with it. Hydrocyanic acid was discovered by Scheele, in 1782, and was long known as prussic acid. It cannot be kept for any length of time, but turns brown and decomposes; its odor is very characteristic, resembling that of peach blossoms, or oil of bitter almonds.

Hydrobromic Acid.

Formula, HBr: Combining weight, 81.

For laboratory purposes HBr is prepared by dropping bromine into water containing fragments of phosphorus. It is a colorless gas, very soluble in water.

Hydrofluoric Acid.

Formula, HF: Combining weight, 20.

Prepared by decomposing fluorspar with sulphuric acid, in platinum or lead vessels. HF is a colorless liquid whose most remarkable property is its power of corroding or etching glass. It must be kept in gutta percha bottles, or the dilute acid may be preserved in glass bottles coated inside with paraffin. The divisions on thermometers, glass measures, etc., are usually produced by coating the surface with paraffin, scratching off the parts required with a steel point and then submitting the glass to the action of vapor from hydrofluoric acid placed in a leaden trough.

A dilute solution of HF—about 1 to 20 of water—cleanses glass bottles and plates very effectively. The strong acid is so corrosive that it burns the skin dangerously should it come in contact with it; death has been caused by inhaling the fumes.

A ready method of using this acid to mark glass is to rub up equal parts of barium sulphate and ammonium fluoride in a mortar, adding enough HF to make a paste. Place the whole in a leaden or gutta-percha cup (an egg-cup paraffined over will answer) and add more acid till it is of the consistency of cream. The mixture may now be used with a quill-pen just like ink, leaving it a few minutes on the glass before washing off.

Marks upon glass produced by the action of HF have the great advantage over labels of being indelible.

Hydrochinone.

Formula, $C_6H_6O_2$: Combining weight, 110.

Hydrochinone—whose name has been spelt in many different ways, as hydroquinone, hydrokinon, etc.—is also known as quinol. Like pyrogallol, it is a benzine derivative, and, indeed, it only differs in chemical composition from that well-known substance in containing one atom less of oxygen (Pyro=$C_6H_6O_3$). Hydrochinone occurs naturally in the leaves of the arbutus and certain allied plants. Formerly it was prepared from quinic acid ($C_7H_{12}O_6$) by first converting the latter into kinone ($C_6H_4O_2$), and then treating the kinone with a reducing agent, such as sulphurous acid. It is now obtained far more cheaply by preparing the kinone from aniline by the action of sulphuric acid and potassium bichromate. Hydrochinone forms hexagonal, colorless or slightly yellowish crystals, which are soluble in water, alcohol or ether. It is inodorous, has a sweetish taste, and readily fuses.

In photography hydrochinone was introduced by Abney as a developer in 1880. Its principal advantage over pyrogallic acid is in the fact that it discolors the gelatine plates very little, not absorbing oxygen from the atmosphere so readily. It is suitable for developing either silver bromide or silver chloride films, and for instantaneous work it is especially useful. It does not require the presence of any restrainer, such as ammonium or potassium bromide, and potassium carbonate accompanies it better than ammonia. It should be kept dry, and mixed as required to a strength of from two to four grains per fluid ounce of developer.

Hydrochinone was first prepared by Caventon and Pelletier, in 1820. It melts at 336 deg. F.

Hydro-Sulphuric Acid—Sulphuretted Hydrogen.

Formula, H_2S: Combining weight, 34.

Hydro-suphuric acid is certainly better known under its familiar name of sulphuretted hydrogen—or "rotten-egg gas." It is almost always prepared by acting on iron sulphide with dilute sulphuric acid, but the operation should never be conducted in the dark-room, as the gas attacks the silver salts used by photographers.

The most valuable property of sulphuretted hydrogen is its power of combining with, and precipitating as insoluble sulphides, certain of the metals, among which is silver. For this reason photographers use it to recover silver from their residues. The H_2S gas is allowed to bubble through the vessel containing the waste liquids, when any silver which may be present falls to the bottom as a black powder—sulphide of silver. This is removed, dried and fused, when metallic silver is obtained.

Water absorbs about three times its volume of sulphuretted hydrogen, and the solution may be used instead of the gas. It has a poisonous effect when breathed.

Hydroxyl—Peroxide of Hydrogen.

Formula, H_2O_2: Combining weight, 34.

Hydroxyl is now prepared by dissolving moist hydrated barium peroxide in dilute sulphuric acid, filtering and evaporating *in vacuo* with sulphuric acid. As so obtained it is a colorless, syrupy liquid. It is remarkable in that it is both an oxidizing and a reducing agent. In the former capacity it converts black plumbic sulphide (PbS) into white plumbic sulphate ($PbSO_4$), and is, therefore, useful for cleaning oil paintings in which the white lead has become colored by the sulphurous fumes from gas, etc. It also bleaches organic coloring matters, changing the color of dark hair to yellow, so that, under the name of "*auricomus*," etc., it is used as a hair-dye.

But it is also a reducing agent, depriving certain compounds of the whole or part of their oxygen, when brought into contact with them. In this way it decomposes silver-oxide, forming silver, water, and oxygen

In photography, hydroxyl is used for removing the last traces of "hypo" from negatives and prints, which it does by oxidizing the hurtful hyposulphite into the harmless sulphate. Care must be taken, however, not to use too strong a solution, or to leave the objects in too long, or reduction will take place.

Hydroxylamine.

Formula, NH_3O. Combining weight, 33.

This compound, which may be considered as ammonia in which one atom of hydrogen is displaced by a compound atom of hydroxyl, has been prepared from nitric acid by the action of tin and hydrochloric acid. It is a powerful base, and one of its compounds—the hydrochloride of hydroxylamine*—has been proposed by Messrs. Spiller and Egli as a developing agent. Its cost is at present much greater than pyrogallic acid, but it has a great advantage in that it does not stain the gelatine plates. Dr. Divers has prepared hydrochloride of hydroxylamine by the direct action of hydrochloric acid on fulminating mercury, but the process requires to be conducted with great care, and is not one to be practised by the ordinary worker in photography. Still this is the less necessary, as the substance may now be obtained commercially. It seems specially suited for the development of gelatino-chloride films. Its chief drawback is a great tendency to cause "frilling."

Hypo-Chlorous Acid.

Formula, HClO. Combining weight, 52½.

Only the aqueous solution can be obtained, which is commonly effected by distilling a mixture of one part of nitric acid with two parts of bleaching powder. The solution so obtained is a yellow liquid which possesses powerful oxidizing properties. It also converts silver-oxide into silver-chloride, oxygen being evolved.

W. Jerome Harrison.

(*To be continued.*)

THE DUSTING-IN PROCESS.

II.

To Coat and Dry the Plate. Exposing and Developing.

A plane parallel glass plate, free from air bubbles, sand grains, streaks, or other faults, and larger than the copy to be printed from, is washed, dried and rubbed down either with dilute potassium water glass, or very thin collodion, till perfectly clear and bright. It is not immaterial which of the two cleaning media be used, as each of them serves its own special purpose.

The copied duplicate is a correct reproduction of the original, but is reversed. When it is desirable to have it in its original position, the copy must be turned, of which manipulation we shall speak

*Also known as hydroxylamine hydrochlorate; its formula is NH_3OHCl.

later on, as a second reproduction must be made from the first. If the negative has to be turned the glass should not be polished with water glass, as then the film adhers more tenaciously; collodion had better be employed. But if the negative should be printed from in its reversed condition, when no stripping and turning is required, then the diluted water glass is preferable. After clearing and polishing the glass plate, a sufficient quantity of bichromated honey is poured upon it, spread to its edges, the superfluous liquid allowed to drain by inclining the plate, and the surplus returned to a beaker glass.

After coating the plate is reared on edge; by changing the position, an equal division of the liquid upon the plate is promoted, and it should finally be laid horizontally, and by a slight rotating motion a uniform coating effected. When evenly coated the plate is dried at a temperature of from 122 deg. to 150 deg. Fahr.

Plates of small dimensions may be dried by the heat of a spirit lamp, but it is always difficult to effect in this manner a uniform heat and even drying of the plate. It is much better to dry the plate in an oven. A wooden box, in which the bottom has been substituted by a piece of Russia sheet-iron will serve well for the purpose. On its top a thermometer is attached, of which the Fahrenheit degrees 120, 140 and 150 are plainly readable, as the temperature is not required to rise any higher. To disperse heat evenly through the box, it is advisable to insert a second, a perforated bottom piece about an inch above the base. Little sticks of wood, fastened to the inside, will afford rest to the plates to be dried.

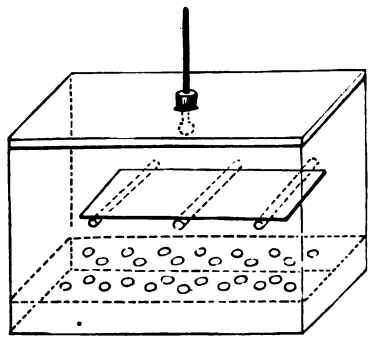


Fig. 1

Any soap or starch box, easily to be procured, can be converted into such a drying apparatus, as shown in Fig. 1. No accurate construction is required, only a uniformly diffused heat, when the plate is in a horizontal position.

If the plate has been coated to perfection, it is put into the drying box, where it rests upon the projections mentioned; the cover with thermometer attached above and heat of about 140 degrees allowed to act for from twenty to thirty minutes. During the time the plate is drying, preparations for printing may be made. The negative to be printed from is laid in the printing press film side up, the sensitive plate removed from the drying box, and while still warm placed film side upon the negative, covered with a piece of black paper, pliable printing pads, and, to secure absolute contact, the frame tightly closed.

All these manipulations, filtering of the solution, coating of the plate, drying and inserting the plate in the printing frame should be done in the dark room, by gas or lamp-light, with perfect exclusion of daylight.

Correct exposure is the first condition of success, and requires judgment and experience. The time depending much upon the character of the original negative; by proper exposure only satisfactory results will follow.

With long exposures, brilliant, hard, even glassy negatives may be brought forth, while with short exposures more delicate, feeble and monotonous negatives will result. The shorter the exposure the less decisive the copy.

To reproduce the character of the negative is therefore at the will of the operator. Differences in the time of exposure are, however, in some cases of not very great significance. Had we for example to copy a very thin negative, and desired to make a very brilliant duplicate of it, a comparatively long exposure would be required, although the feeble density of the original permits a free passage of light, but a short exposure would appear to be necessary. But when copying a very hard and dense plate, to change its character to that of softness and delicacy, a much longer exposure is requisite. The great density, and meagre translucency of the negative requires naturally a much longer exposure.

The difference in these exposures is indeed remarkable in either case, and corresponds with the time necessary to make an albumen print from either of the negatives. As a general guide, it may be mentioned, that with a negative of average quality an exposure of from four to ten minutes in direct sunlight is estimated to be correct, while in the diffused light of a cloudy day, 30 minutes may be required to obtain the same results. A few practical experiments will lead to the right path.

After exposure, the printing-frame, returned to the dark-room, is opened, and the plates are taken out to be developed. Before developing is pro-

ceeded with, however, certain conditions require our attention. In winter time, at a low temperature, the cold printing-frame and plate will soon cover with vaporous damp when removed to the warm developing-room. Graphite will then adhere to every part of the plate, and will present in a short time an even, uninterrupted black surface. To return the plate for a short time to the drying-oven becomes then necessary. The work conducted in a damp room requires the same precaution. When the atmosphere is dry, warming the plate, previous to development, is not necessary.

To develop the plate, it is laid upon a sheet of smooth white paper, and finely levigated and sifted graphite dusted upon it, and distributed over its whole surface, by means of a soft, short-haired badger brush of a size at least one inch in width. It must be done in circular motions, and with but slight pressure. The darker portions of the negatives will become visible at once, a continuous gentle motion of the brush will develop the middle tints gradually, if exposure has been correct, according to the density of the original. With over-exposures the darkest parts develop rapidly and increase in density, half-tones refuse to come, the duplicate is hard and glassy. When under-exposed the middle tints come simultaneously with the most intense portions, the graphite will adhere even to the lights, and the plate becomes feeble and monotonous.

Short exposures can be corrected, by returning the partly-developed plate to the oven, and continuing developing when the plate is slightly warmed. The results are, however, doubtful. Too long exposed plates will improve by removing the warmed plate to a moist atmosphere, and by rapid development. It is much better in all such doubtful cases, however, to make a new and more correct exposure.

Of insufficiently developed parts of the original negative lacking in uniform density, perfect copies cannot very well be expected. Foregrounds in landscape, dense foliage and the dark portions of the draperies in portraits require the following treatment: A low light (candle or lamp) is placed upon the operating table, and the negative about to be developed is held towards it in such a manner that the increase of the density, as it goes on, can be observed by transmitted light. When parts of it have acquired the desired strength, and others show yet a want of detail, the work upon the parts hanging back is continued with a small brush, till all is perfectly brought out. To accelerate the operation, the plate may be held for a short time in a damp atmosphere, or breathed upon at some distance, when enough moisture will precipitate, to assist in the development of the most delicate details. But where it is known, that large areas in the original are of such a nature as not to give any details, like the white sky in landscapes, or large portion of light buildings, or white draperies in portrait, the respective development must be at once modified. Very intense parts will naturally develop first; when brought out sufficiently they should not be touched again with the graphite brush, but the rest of the plate be attentively worked up to secure harmonious effect.

Local retarding and intensifying are the most advantageous parts of copying negatives by the dusting-in process. There are but few negatives made, especially in landscaping, that are correctly developed, not wanting in some parts detail, and over developed in others. Many of them are beyond being able to be corrected by either chemical or artistic retouching. With the dusting-in process, it is almost needless to say, the utmost caution is requisite to secure good results, and if the operation has been carried to excess corrections can not be made.

After the plate has been sufficiently developed, which must be judged of by transmitted light, it is removed to daylight for accurate inspection, the subdued light of the dark room affording no opportunity to observe it in all details. When the plate is found to be perfect in all parts, the adhering graphite powder is dusted off with a clean brush, or by means of a bellows, and if the negative is to retain its reversed position the reverse side of the plate is exposed for fifteen minutes to strong daylight, to solidify the undecomposed chromate, coated, with a two per cent. plain collodion, and, when set, is removed to a tray with water, which will dissolve all chromate still remaining in the film. The film adheres but very loosely to the glass support, and should be handled with great caution, be lifted from the water with care, drained off slowly, coated with a 1 per cent. gelatine or a 5 per cent. gum arabic solution and placed upon blotting paper in vertical position and allowed to dry.

But if the negative must be turned, or reversed into the position of the original plate, it should not be brought to daylight, but be dusted well in the dark room, laid in a tray with sufficient water, to stand about one inch or more above its surface. The film, a very tender and delicate pellicle, will soon be seen to lift from the glass plate, adhering only to the plate edges. With the aid of a knife or wooden spatula it is then completely detached, when it will float freely upon the water. Taking hold of it by two corners it is moved rapidly to the other

side of the tray, and turned by a dexterous movement of the hand. Now it floats in correct position upon the water. The glass plate is then lifted from the water the film held to it with the fingers on two corners, the water allowed to run from between glass plate and film, any possibly formed folds smoothed down and after all water has drained off coated with the above described gum or gelatine solution, and finally set aside to dry. With the exception of the corrections made, the negative is now identical with the original.

With negatives of small and medium dimensions there are but little difficulties in stripping and turning. When of larger sizes the difficulties increase amazingly, and much experience and dexterity is required to prevent dangers of tearing the thin film. It occurs frequently that the film adhers tenaciously to the plate or to some part of it, when invariably it is damaged. With large negatives it is therefore much better and safer to make a second copy from the first. The reverse side of the negative before being collodionised must then be thoroughly exposed to light and the whole operations of copying repeated. With the second copy additional corrections can be made and all danger of injury to the film is prevented. The second copy is in the position of the original negative.

In my next and concluding article onthis subject I shall recapitulate and give some hints for successful working.

Carl Schiendl.

HER PORTRAITS, OR PHOTOGRAPHING A PHANTOM.

I have been a photographer for some time, but my business has now dwindled down to almost nothing. The neighbors are unkind enough to say that I drink too much and don't tend to my business, but that is because they are jealous.

One day as I was eating my frugal lunch a very handsome lady entered the studio and asked me to take her picture, as her husband had been worrying her for some time to have some taken.

I obliged her, and had soon taken her in several positions. When I returned from the dark-room she had disappeared.

I was worried, thinking that perhaps I would never get my money, but I finished the pictures, nevertheless, in the hopes that some day she would drop in and pay for them.

And sure enough, a few days after they were finished the lady entered. She admired the portraits very much, though it struck me they were a little shadowy in general effect.

One of the portraits she finally selected from the rest.

"Put that in your showcase for luck," she said, "and write 'Margaret Arlington' beneath it."

Now, as you know, most private ladies would feel very angry to have their photographs exhibited; and it occurred to me that the lady might be an actress. I thanked her, and she held out to me a ten-dollar bill. My charge for the half-dozen was $6, and I ran down-stairs to get the change at the store in the lower part of the building, for I had not ten cents to my name. As I went I put the photograph in my case, that the lady might be pleased by seeing it as she passed out.

"Mr. Pillsbury," said I to the druggist, "will you kindly change this for me, so that I can give four to a customer?"

I held out the bill—or I thought I did.

"What is it?" said Pillsbury.

"Ten," said I.

"But where is it?"

I looked at the hand stretched out toward him. Certainly, I held nothing between the fingers. I looked on the counter. We both looked. The clerk helped. It was not to be found.

I rushed back, rummaging all over the bit of street between the doors, the halls, the passages. I got to the studio. What should I do if the money was really gone, and the lady waiting for her change?

I thought I would at least tell her about it. Perhaps I had not taken it from her hand.

"Madam," I began; but there was no one there. She was gone, but the five photographs lay upon the table.

It is a mysterious thing altogether. I made up my mind at last that it was an actress, who had played a trick to advertise herself, and had cleverly whipped the money out of my hand. But actresses are generally generous, liberal, and willing to pay for what they get, or to give anything they can spare; and, on the whole, I did not think I would take the picture out of the case.

It was well I did not. Sitters began to come from that moment, and every one remarked: "That photograph of the blonde lady in your case struck me as so beautiful that I came in," or words to that effect. I began to make money hand over hand, and I bore no grudge against the lady, I assure you. I would have been quite willing to give her five photographs and "thank you" into the bargain. And I always felt that I should hear something more about her.

I did.

A year from the time of her visit a gentleman walked into my studio—a tall man of fifty, wearing a large overcoat and a traveler's cap. He was very pale, and seemed agitated.

"Sir," said he, "you have a photograph of a beautiful blonde lady in the case below. Is the name written below it Margaret Arlington?"

"Yes," I said. "Yes, sir, that is the name."

"Do you know the lady?" he asked.

"Only to her sitting to me," said I. "Do you, sir?"

"It is my wife's portrait," said the gentleman, "and her name; but I did not know that she had had her photographs taken."

"This lady said that her husband was anxious to have her likeness," said I, "and that she way going away, and they would be separated a long time."

The gentleman turned pale.

"When did this happen?" he asked.

"A year ago," I answered.

"My wife has been dead five years," said the gentleman. "I suppose you will think me out of my mind; but last night I dreamt that I saw her, and she said to me: 'Walk up Broadway and look at all the photographs, and you will

see mine.' It was such a vivid dream that I obeyed, and that is my wife's face at your door, and her name upon it.

Then I sat down and told him the whole story. It was a queer one, as you must think; but we settled it between us that his wife's spirit really had returned to have a photograph taken.

I gave him the five pictures, the other he said she had given to me, and indeed it is the best show picture I have ever had, and he insisted on paying for them. I refused, but he left a hundred dollar bill on the table.

That is my queer story; everybody has one. No one else ever believes a word of another's queer story, but I assure you that this is only the solemn truth.

The photographer looked as if he had been drinking hard.—*Richmond State.*

Correspondence.

ELECTRICITY AND PHOTOGRAPHY.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir:—I notice in your March number, that you give a brief mention of the "Burglar Detector Flash Light Camera," and solicit a full description of same.

I enclose a newspaper clipping which explains the device pretty fairly. If you want further particulars I will gladly give them. I have had a preliminary examination made and there is "nothing approaching it on the records" at the patent office. I have applied for a patent and have received a certificate of the filing of the specifications and drawings. I wish to sell a manufacturing right or will sell quarter interest in patent, so as to get money to develope the device, as to getting it on the market.

Yours truly,

G. E. Davis.

DUBUQUE, IOWA, April 24, 1889.

The clipping reads as follows:

"Mr. George E. Davis, of the Novelty Iron Works, has been experimenting for over a year in flash light photography. He has been quite successful in his efforts as to pictorial results, but discovered that the magnesium powder used to produce the light was dangerous to play with. Last winter he had fingers and the thumb of one hand severely burned by the premature explosion of the flash-powder when taking a fire-side group one evening. Resolved not to be "bit" again. Mr. Davis began a series of experiments with electricity with the object of handling fire at a distance known to be safe. Being decidedly "amateurish" in the knowledge of electrical science, and having but limited opportunities to experiment outside of business hours, Mr. Davis found it rather up-hill business to adapt the "unknown power" to his purpose as an aid to the art photographic.

"The final outcome was an "infernal machine," which will light powder by electrical influence without fail and the operator may be on the next lot or on the other side of the Atlantic if necessary.

"Mr. H. A. Jordan, the photographer of this city, upon being shown this electrical contrivance for flashing powder, at once perceived its value for a far better purpose than mere picture taking.

"He conceived the idea of utilizing the flash light apparatus for photographing a burglar at night or any other time he might force his presence where not wanted. Mr. Davis accordingly constructed a camera with an automatic electrical "shutter" which is operated in conjunction with the flash-light machine. When a burglar enters a bank, store or office and is preparing to secure the coveted boodle, there suddenly occurs a "flash of lightning" and all is again dark. What has happened? When the burglar comes in contact with a certain "something" in the room, the camera opens its one eye (lens) like a faithful watch dog, the magnesium powder is ignited and the alarm for the police is turned in, all at the same instant.

"The result is a photograph made in the usual way except that the customer does not ask for prices and has no choice as to style of "sitting." The picture comes very handy for future reference in tracing up the criminal.

"The camera is concealed in the room and the lens is exposed by the silent opening of the "shutter" at time of flash and closing after the light is out. A number of cameras in different parts of the room may be operated simultaneously and thus a variety of views are made. These pictures are taken in about one hundredth part of a second.

* * * * * * * * * * * *

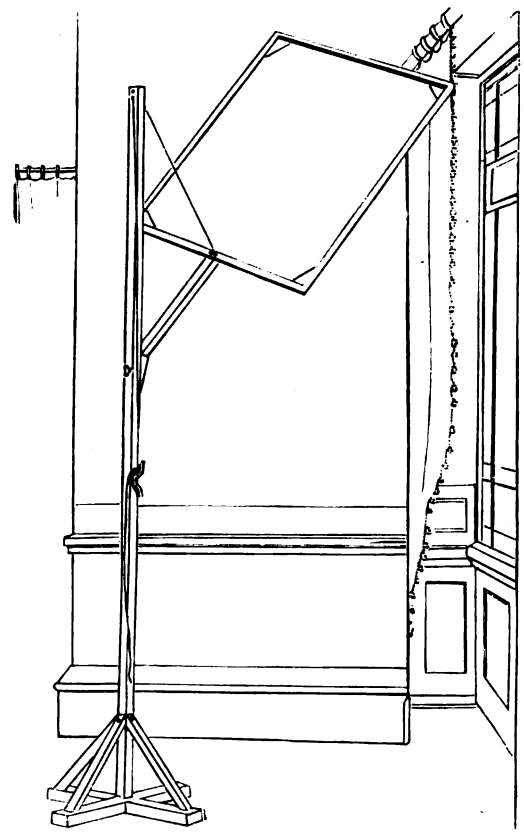
"Application for a patent has been made and the probability is that Davis & Jordan will find a veritable bonanza in this valuable device. It is proposed to use these machines in post-offices, mail and express cars, and for protecting money drawers by day or night. Several test negatives have been made with the "Burglar Detector" and all are good pictures, showing even the time of night by the clock in the room."

A CONVENIENT HEAD AND SIDE SCREEN.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Having received a great deal of valuable information from your esteemed journal, I desire to give a little in return, if you think it is worth publishing.

It is about a combination Head and Side Screen, and I enclose herewith a photograph of same, and will try to explain how it is made:



About one inch from the top of the upright is a hole with a strong cord through, tied to a screw-eye in the frame. On the side of the upright is a catch to fasten the other end to.

By pulling the cord, the screen can be brought up or down, and by loosening the thumb-screw, it can be brought from right to left, or in any position required, in a very few seconds.

I made mine myself; the materials did not cost fifty cents, and I find it to be as good as any I have ever seen.

I stained mine in walnut.

Yours respectfully,

A. Lundelius.

PORT JERVIS, N. Y., April 21, 1889.

AMONG THE BOOMERS.

PHOTOGRAPHING INDIANS UNDER DIFFICULTIES.

The following is from a letter recently published in the *Norristown Herald*:

"DALLAS, Texas, April 17.—The sleeper from Kansas City, Mo., to Arkansas City, Kansas (via Atchison, Topeka and Santa Fé R. R., which has run a branch road for the occasion), was crowded with a rough set of men bound for Oklahoma. They wore belts with villainous looking revolvers stuck in them, and the prospects for a pleasant trip looked rather unpromising; but there happened to be two bankers and their wives occupying berths next to mine, who proved congenial, and we naturally got acquainted at once, and formed a party of our own, and are now quartered at the same hotel, the Windsor.

"We reached Askansas City at 9.40 A. M. yesterday, and as the train stopped there four hours, we got a team and drove out among the camps of the "boomers." It seemed very much like old army times; the timber along the river was filled with tents and "prairie schooners" and such a motly crowd of men, women and children you never saw. I caught two photos of the camps.

"The town was so full of boomers that it was difficult to get around, and the tradespeople were reaping a rich harvest. Friday noon they are to start for Oklahoma, and upon reaching the boundary line the soldiers will order a "halt," and no one will be permitted to enter the coveted territory until 12 M. of the 22d. What a sight there will be—I would just like to see that procession.

"When we were well into the Indian Territory, I photographed a squad of Ponca Indians while the train stopped for water and another after we got in Oklahoma.

"It was nearly sunset then and two companies of soldiers were encamped there. They came up to the train, and gave orders that no one should leave the train.

"The conductor said if I dared venture to, he would wait for me to photograph them, so jumping off the rear platform, I was upon a little knoll, conveniently near, before anyone saw me except my party, who followed me out upon the platform.

"I caught the view in a minute, saluted the soldiers, as I jumped on, and we were off. At 10 P. M. we had reached the other border where we found another crowd of thousands. The night was fine, and the exciting scenes were very interesting.

"The weather here in Texas is charming, the foliage all out, roses in full bloom, and corn ankle high."

Notes and News.

CHICAGO CAMERA CLUB.—A prospectus, signed by about thirty prominent amateur photographers of Chicago, has been issued, inviting the co-operation of the other amateurs of that city, in forming a camera club. As there are probably over five hundred amateurs in Chicago, a successful organization may reasonably be expected.

CENTENNIAL PHOTOGRAPHS.—The Photo-Gravure Company, 853 Broadway, publishers of *Sun and Shade*, are preparing a Centennial number of that periodical, to contain photo-gravures from various negatives made during the three days of the Centennial Celebration. They invite all photographers who have such negatives in their possession, to submit them for selection for this purpose. Of course, full credit will be given for those that are used.

HENRY CLAY PRICE, well known as an expert in photography, and the popular author of *How to Make Pictures*, has recently received a bronze medal, as a war veteran of the Eighth Regiment, New York Militia. Mr. Price served his full term in this regiment, participating in Bull Run and many succeeding battles. As only actual war veterans are entitled to this bronze medal, it is no small honor to be the possessor of one of them.

A PHOTOGRAPHING PHONOGRAPH.—M. Leon Esquille, a Mexican, it is stated, has perfected a marvelous invention in electricity and photography. By speaking in a photophone transmitter, which consists of a highly-polished diaphragm, reflecting a ray of light, this ray of light is set into vibrations, and a photograph is made of it on a traveling band of sensitized paper. Now comes the wonderful part. If the image of this photographic tracing is projected by means of an electric arc or oxy-hydrogen light upon a selenium receiver, the original speech is then heard. It is evident that there is no limit to the development of this peculiar combination of methods.

HOME-MADE EDITIONS DE LUXE.—The newest application of amateur photography, says the New York *Sun*, is n the manufacture of home-made editions *de luxe* of short poems or stories Something that furnishes opportunity for picturesque tableaux, such as Whitcomb Riley's "Orphant Annie," is chosen, and, with the assistance of the amateur's family and friends, a series of tableaux, one for each verse of the poem, or more, if desired, are arranged and photographed. There is a deal of fun in this for the amateur and his friends both, and abundant opportunity for the display of ingenuity, taste, and artistic skill.

After the pictures are developed they are pasted upon sheets of heavy paper of convenient size and shape, and upon the broad margins of each sheet are written in fanciful style the verse or lines of the poem which the picture illustrates. The sheets are bound by being tied together at one edge or corner with ribbon, and upon the outside the title is lettered as artistically as possible.

Even a very plain and simple work of this sort is a curious and interesting souvenir, and there is no limit to the development of the idea in the direction of artistic beauty and cost. Plate or fancy papers of different colors, inks of various hues, crayon, charcoal, pencil, and oil or water colors can all be used in illuminating the text or in decorating the margins of the sheets, and in the matter of designing a title-page the artistic opportunities are unlimited.

MRS. CLEVELAND STILL THE FAVORITE,—"Whose picture finds the readiest sale with you?" was asked of a photograph dealer.

"Mrs. Cleveland's, by long odds."

"Do you have many calls for Mrs. Harrison's picture?"

"Not many. Mrs. Harrison's portrait will never become as popular with the American people as Mrs. Cleveland's was. Still, since the inauguration I have found quite a demand for the photographs of both General and Mrs. Harrison. Very few Indiana people come to the city without taking home the most attractive portraits of the new

occupants of the White House to be found. Mrs. Harrison is a handsome, dignified, elderly lady, with gray hair and clear-cut features, and she makes a fine picture; but, of course, she lacks those elements—youth, beauty, and romance—which have given Mrs. Cleveland's portrait the widest and most general circulation known since the time of Martha Washington."

THE CAMERA AS A COMPANION TO THE WHEEL.—The *Philadelphia Record* says there is a disposition among the wheelmen of that city to combine the pleasures of amateur photography with those derived from a spin on the wheel. The union of these two pleasures—one scientific and the other athletic—has been very rapid. At the present time fully one-fourth of the wheelmen of that city indulge in this companion hobby, and its growth is easily accounted for. Cyclers see more in the way of scenery and places of interest than do the votaries of any other recreation. It is believed among prominent cyclers of that city that the day is not far distant when a camera-box will become as common an accessory to a properly equipped bicycle as a bell, lamp, or any other necessary attachment.

A SCOVILL "DETECTIVE" IN THE TEMPLE OF BUDDHA.—In a recent issue of the *Pall Mall Budget* an interesting account is given of a fight for life, in the Temple of Buddha, during which a Scovill "Detective" camera played an important part. The narrative proceeds: Clearly the only thing to do was to get out of the place at any cost. Then I called my "boy," who was yelling and struggling to keep possession of my two cameras. He promptly relinquished them to the enemy and came. I told him that if he didn't stop jabbering I would knock his head off, and then I got him to quietly ask the best-looking of the monks for how much they would consent to let us go out. All this took but half a minute to do, and as soon as the crowd heard the question, the pugilistic gentleman was squelched by common consent. "Fifty dollars," was the conclusion arrived at after ten minutes' discussion. "Tell them we have not so much money with us, but they can come and get it from my house to-morrow morning." But they were much too wary to fall into such a palpable trap. So the argument continued, while Werner and I discussed the situation. "I have my revolver under my hand," I said, "if the worst comes." "For God's sake don't let them see it," he replied, "it would be certainly all up with us then." To bring the story to an end, however, at last my "boy" made a bargain with them and we were fleeced of several dollars at each gate that they could manage to lead us through before we got back to the street and our horses. I got a photograph, too after all, for just before the last gate there was a wonderfully pretty pavilion with a great bronze lion before it. So I took my Scovill camera from the "boy" and snapped it at the pavilion when I thought the crowd were not watching me.

AN ACID FIXING BATH WITHOUT TURBIDNESS.—We abstract the following from an article by A. Lainer, in *Photographische Correspondenzen*.

The causes of the yellowing of Pyro-Soda developed negatives—"an excess of bromide of potassium gives the negative a greenish-yellow color."

(1.) When negatives are fixed in very old hyposulphite solutions, or when the fixing agent is present but in minimal quantities double salt ($Ag_2S_2O_3+2Na_2S_2O_3$) which is but sparingly soluble is formed, remains in the film and leads to stains and general yellowing of the plate, by the formation of sulphide of silver (Ag_2S).

(2.) The evil may occur even by perfect fixing and abundance of the fixing agent. But if washing is done insufficiently after perfect fixing a soluble salt similar in composition to the first ($Ag_2S_2O_3+2Na_2S_2O_3$) will form, and by the action of carbon dioxide of the air sulphide of silver will be separated from it.

(3.) With pyro-soda developer traces of the pyro-gallol will always be introduced into the gelatine film. Pyro-gallol in the presence of strong alkalis combine energetically with oxygen, carbon dioxide and acetic acids form and a brown, humous matter deposited. Gelatine films assume in such baths a yellow tone, which is almost impossible to remove. Yellowing of negatives will also occur when negatives are exposed for a long time to air before they are fixed.

While the yellow tone caused as explained in 1 and 2 may be prevented simply by thorough washing, that of 3 can be removed only by an acid bath.

In a manner this method has long since become practical, for pyro-yellowed plates are universally immersed in an alum bath acidified with nitric acid, or washed with a citric acid solution before fixing. Also the mixed alum and hypo bath has a beneficial action, were it not that by slowly proceeding action aluminia and sulphur are set free in a very finely divided state, and cover the film with an impenetrable dust. This occurs especially with freshly prepared solution. To simplify matters, let us propose to add citric acid to the fixing bath directly. The separation of the brown, humous matter is much retarded by an acidulated bath, it remains clear and colorless for a long time, and provided the pyro developer has been correctly compounded, and the unfixed negatives are not unnecessarily exposed to air, they will acquire in it a handsome gray tone of good printing quality. Many experiments with a long series of inorganic and organic acids resulted as it was natural to suppose in a turbid bath. Through the action of the acid, hydrochloride for example, chloride of sodium is formed, and sulphurous acid set free, which being not permanent decomposes again into water, sulphur dioxide and sulphur, which causes turbidness.

$$Na_2S_2O_3+2HCl=2NaCl+SO_2+H_2O+S.$$

To avoid the indispensable sulphur separation occurring with an acid bath, I proceeded to acidify by an indirect method.

A sodium sulphite solution, as ordinarily used with pyro developer, is mixed with a certain amount of acid and then added to the hypo bath, which will remain clear and separate no sulphur. For such indirect acidification tartaric or citric acids are preferable. They can be kept in standard solutions of uniform concentration, while inorganic acids always varying in strength are not reliable, and a slight excess of them may lead to the separation of sulphur. An acidulated bath may be prepared by adding to 34 ounces of the fixing solution one ounce of a solution of tartaric acid 1 : 4 previously mixed two and a half ounces of a sulphite solution 1 : 4. If exigencies demand it the acid solution may be increased to one and a half ounce. But this is the maximum of acid and should not be exceeded. A freshly prepared bath works always better, hence it is not advisable to prepare large quantities of it at a time.

There is another yellow fog of a greenish hue, not affecting

the non-exposed or clear parts; it is of an entirely different nature, and is caused by an insufficient amount of sulphite in the developer, or when the negative has been developed with old pyro for a long time. The acid fixing-bath cannot remove that fog, but we must here resort to the acid alum-bath after fixing. The negative must, however, be thoroughly freed from hypo, without which sulphur separates and deposits upon the film.

Photographic Societies.

THE CINCINNATI CAMERA CLUB.

At the regular meeting of the Club, Monday night, April 1st, Dr. Carson in the chair, the Philadelphia slides were shown, and officers for the ensuing year were nominated.

The second meeting of the month held Monday night, April 15th, Mr. Prince in the chair, was largely attended, the St. Louis slides were shown. M. E. B. Johnson read an able criticism on the recent Annual Club Exhibition, using a number of slides to illustrate. Messrs. Kelley & Smith, manipulated the lantern. The following officers were chosen: President, George Bullock; Vice-President, Wm. Hubbell Fisher; Recording Secretary, Emery H. Barton; Corresponding Secretary, H. C. Fithian, N. W. corner Fifth and Walnut Sts., Cincinnati, O.; Treasurer, Aaron Prince; Librarian, Arch I. Carson.

H. C. Fithian,
Corresponding Secretary.

THE ROCHESTER CAMERA CLUB.

This club was organized January 3, 1889, with a charter membership of fifty, and the following gentlemen were elected officers for this year. President, G. H. Croughton; First Vice-President, George Rafter; Second Vice-President, Samuel H. Lowe; Secretary, Peter Mawdsley; Assistant Secretary, J. Lewis Willard; Treasurer, James Streeter.

Executive Committee—The President and Secretary *ex-officio*, Henry W. Mathews, James Streeter and H. E. Townley.

Finance Committee—E. W. Horne, Chairman; John Carey and A. S. Clackner.

At the regular meeting held January 17th the merits of several different flash lamps and compounds were tried, resulting in favor of the lamp burning pure magnesium. At the next meeting, held January 31st, the demonstration was a test of the quality of different developers, very little difference being seen between pyro and hydrochinon, decided by the president to be slightly in favor of pyro.

At the meeting of February 14th, the thanks of the Club were tendered to the publishers of the different journals for favors received, and the Secretary instructed to notify those interested. The Club was then entertained by a member, Mr. C. C. Goodale, with some lantern-slide views from negatives made by him during a trip to the Tropical Islands.

At the meeting held February 28th, several new names were added to the list of members. An offer of the Boston Camera Club of the loan of "Illustrated Boston" was read and accepted, and a committee of three was appointed to get up something similar for Rochester.

March 14, 1889—Four new names added to the Club, and a demonstration of the transferotype paper was successfully carried out.

On March 21st, the first lantern exhibition given by this club was held in Damascus Temple, and was very successful. On March 28th, the demonstration consisted of making of bromide enlargements by artificial light was finely shown by the President, Mr. G. H. Croughton.

The regular monthly meeting of the club, was held at their rooms on E. Main Street, Thursday evening, April 25th. President G. H. Croughton in the chair.

Minutes of the previous meeting having been read and confirmed, the communication was read from the New York Amateur Society, offering the use of their dark-room, etc., to any member of the club, who might visit New York during the Centennial. The routine business having been finished, the President gave a very interesting and instructive lecture, upon "Art in Photography." The lecture was illustrated by magic lantern views, the subjects being chosen especially to illustrate the points in the lecture upon linear composition and composition of light and shade.

In the course of his lecture Mr. Croughton said: That the first thing that an amateur possessed of a camera did, was to perfect himself in the chemical manipulation, but found when that was done that there was something more than clean manipulation required to make a picture. He went on to explain the different terms used by artists, and describing the qualities of breadth, concentration and composition, said that a photograph might have the artistic quality of focus, and yet not be photographically sharp in any one part; while another might be perfect as a photograph, sharp and distinct in every detail, and yet lacking in the essential qualities which make a picture.

This caused some discussion, Mr. Peter Mawdsley arguing that a photograph should be sharp in every plane, and that for himself in making a view, he wished to get the foreground, middle, and even the distant mountains, as sharp as it was possible to get them. Mr. Croughton argued that the special quality of concentration in the picture, was not an arbitrary art rule, but the result of centuries of studying by men who have given their lives to the study of nature and the representation of it pictorially.

That the human eye, being the most marvelous optical instrment, can adjust itself to different focuses with the greatest rapidity. And that if any of the members would try experiments, they would become convinced that if they fixed their eyes, say, for instance, upon an oak tree, making that the principle object of the picture, that is, concentrating their gaze entirely on that oak tree, they would see, it is true, the other parts of the landscape, but certainly not so sharp nor so distinct as the object upon which they were gazing. If they moved their eyes to any other part of the landscape, that point at once became the center of interest, and the other point, the oak tree at which they had been before looking, became subordinate to the central object of interest.

Several views were shown in which this principle was carried out in the photographs, and a lively discussion ensued. But in the end it appeared that the opinions were about unanimous, Mr. Mawdsley's objections being simply that if he wished to make a photographic transcript of a scene, he should use the smallest stop to get every part in focus. But if he was aiming at a photographic picture, he

should follow out the idea that Mr. Croughton had advocated.

The lecture was listened to with a great deal of attention, and many expressions of interest were elicited. Some slides made by different members were exhibited, and Mr. Croughton pointed out where improvements might have been made, by covering up portions of the slides, and in this connection he deprecated the adherence too rigidly to the photographic sizes, showing how a certain picture was vastly improved by making it a long, narrow picture, and cutting out obtrusive reflections in the water. One had been spoiled pictorially by the strict adherence to the regulations 8¼ square.

The lecture was a great success, being a masterly exposition of art rules, as applied to the taking of photographs in a manner which was understood by all.

Our Editorial Table.

PHOTOGRAPHIC PRINTING METHODS, by the Rev. W. H. Burbank; Second Edition; New York: The Scovill & Adams Company.

A second edition of this popular instruction book has long been in demand. More than five hundred copies of the book were sold within the first month after publication; which is an unprecedented sale for a photographic publication. The book has already been reviewed in these columns, and the present edition does not differ materially from the original issue of the book. It has been thoroughly revised by the author, and a portrait of the author, with a biographical sketch, has been added. The bromide print by the Eastman Dry Plate and Film Company, is from a picturesque negative, by W. J. Hickmott, entitled "Brook on Conway Meadows." That the book in its corrected form will be useful not only to the younger members of the fraternity—as the author modestly hopes—but also to the more experienced; we have no doubt. Substantially bound in cloth as before, the price remains the same—$1.

MR. EARLE, of the enterprising Company, which bears his name, Philadelphia, while on a recent visit to this city, favored us with a call, and showed the excellent magnesium flash lamp, invented by Mr. E. M. Pine. It is certainly very portable and effective, as well as perfectly safe, and cheap.

FROM Mr. E. Decker, Ex-President of the P. A. of A., we have received a couple of little photographs that are very good in design, pose and execution. They show a little boy and girl, and illustrate the two momentous monosyllables, "No" and "Yes." In the "Yes" the focus is somewhat sacrificed on the boy, to bring out more clearly the pretty face and form of the little girl.

Record of Photographic Patents.

402,154. Photographic Printing Frame. Willard H. Fuller, Passaic, N. J.

402,214. Photographic Plate Developing Tray. Thomas S. Wiles, Albany, N. Y.

402,279. Photographic Paper. Fredrick H. Rogers, Los Angeles, Cal.

402,512. Photographic Plate-Holding Apparatus. Jacob P. Decker, New York, N. Y.

WASTE OF TIME AND MONEY.—*She:* "What do you think of this fad of having the hand photographed?"

He: "I think a pretty girl can have her hand taken without going to the photographer's."—*Harper's Bazar.*

Queries and Answers.

96 E. A. SMITH writes: "I have a paper bath that is tinged a little yellow. I filter through cotton but it does not take the tinge out. Will you be so kind as to tell me in what way I can get rid of the fault and not injure the bath?"

96 *Answer.*—Filter through kaoline or calcined animal charcoal.

97 QUERIST asks: "Can you inform me how bromide of copper is made?

97 *Answer.*—Cupric bromide (Cu. Br. 2). When cupric oxide is dissolved in hydrochloric acid, and the solution allowed to stand in a vacuum over sulphuric acid, the anhydrous bromide separates out in dark crystals very similar to those of iodine. There are very deliquescent, and on heating in absence of air decompose into cuprous bromide and bromine, (Roscoe and Schorlimer).

98 W. W. H. writes as follows: A nitrate of silver bath containing 2 ounces of silver, 18 ounces of water, 2½ ounces of nitrate of ammonia, and 40 minims of strong ammonia, turns red litmus paper blue. According to some receipt the sensitizing bath should be slightly acid, and in order to make it so it was suggested that the addition of a few drops of citric acid would have the desired effect; consequently, not having citric acid dissolved, the writer added a very small lump. The effect of this was rather remarkable, as the bath at once clouded and became thoroughly impregnated with white flakes, which fell like snow, settling in the bottom of the large graduate. This bath when filtered did not seem to have lost any of its strength, as the hydrometer indicated between 50 and 60, the same as before the addition of the citric acid, consequently I suppose the precipitation of the white particles did not occasion any loss of silver. A piece of paper hastily sensitized in this bath and printed produced a very measerly print, that is, the print was covered with little red points or spots. Can you afford me any explanation of this, and can you also state whether the bath which always gave good satisfaction before the addition of citric acid is injured by its introduction, and what remedy there is for it.

98 *Answer.*—The silver bath is correctly compounded in the main, although there is more nitrate of ammonium in it than necessary, and the ammonia is probably in excess. About 60 grains of the former to 480 grains of silver is quite enough, and no more ammonia is needed than to cause a slight alkaline reaction. We reject acid baths because they never work well with all albumen paper, and tend to make blisters. When citric acid is added to an alkaline silver solution, citrate of silver (sparingly soluble) will form. All citrates are powerful restrainers; hence the spotted or measerly appearance of your paper. A substance that forms an insoluble silver salt (the flocculent deposit) must necessarily diminish the quantity of silver in solution, although with our inaccurately made solutions and the want of precision of our ordinary hydrometers, a loss of silver has not been detected in the present case. The printing bath, as it is now, should be rejected. All that can be done with it is to recover the silver by any of the well-known methods.

An Unwelcome Guest.

THE PHOTOGRAPHIC TIMES.

FRIDAY, MAY 17, [illegible] No. [illegible]

[illegible]

[illegible] The Photo[illegible] the Series [illegible] Two soldiers [illegible] quarters, where [illegible] to the [illegible] for pl[illegible] [illegible] cultivated.

JOSEPH [illegible] NIEPCE.

[illegible] generally drawn nearer [illegible] history [illegible] the history of photography [illegible] reference to [illegible] Joseph N[illegible] W. Jerome Harrison, [illegible] raphy, [illegible] asserts that [illegible] obtain [illegible] graph [illegible] Niepce to his [illegible] Daguerre, who [illegible] king in Paris [illegible] specif[illegible] correspondence w[illegible] that the latter [illegible] of Niepce for [illegible] which were his [illegible] that [illegible] to any one [illegible] but [illegible] Niepce [illegible] probably the claim to it. This would not be intended to [illegible] any disparagement to the important work [illegible] Daguerre [illegible] for his [illegible] art. The [illegible] two men was entirely different, and

can [illegible] compared. Niepce, however, as the [illegible] patient and unassuming investigator, is more [illegible] to be [illegible] estimated, [illegible] in comparing him with Daguerre and the other [illegible] of photography."

[illegible] Niepce [illegible] direct [illegible] his [illegible] many [illegible] which [illegible] processes.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, MAY 17, 1889. No. 400.

"AN UNWELCOME GUEST."

WE present with this issue of THE PHOTOGRAPHIC TIMES, another picture in the Series of Reproductions from Notable Paintings. "An Unwelcome Guest," tells its own story. Two soldiers have been ordered into a house, for quarters, where there are two pretty young girls; much to the evident distress of their mother or guardian. There is a lesson for photographers, in the grouping of this picture, that will not be lost on our readers. It is a picture entirely within the reach of the camera; and we see evidences that more of this kind of work is being done by photographers, every year. It is a field which we are glad to see is being cultivated.

JOSEPH NICÉPHORE NIEPCE.

As the approaching celebration of the semi-centennial of photography draws nearer, interest in the early history of our art, and in the men who did so much for it at the time, increases. Perhaps no name the history of photography is entitled to more honor than that of Joseph Nicéphore Niepce. W. Jerome Harrison, in his excellent "History of Photography," calls him "a patient photographer," and asserts that he was undoubedly "the first man to obtain a permanent photograph." The letters of Niepce to his brother, Claude, who remained in France while he was working in England, and more especially his famous correspondence with Dauguerre, certainly show that the latter owed very much to the researches of Niepce for the ultimate success of the process which bore his name. Harrison has truly stated, in the work already alluded to, that it is impossible to assign the title of "Inventor of Photography" to ary one man, but he thinks that Niepce has probably the best claim to it. This would not be intended to imply any disparagement to the important work which Daguerre did for his beloved art. The work of the two men was entirely different, and cannot, therefore, well be compared. Niepce, however, as the older, the more patient and unassuming investigator, is more likely to be underestimated, rather than given too much credit, in comparing him with Daguerre and the other "fathers of photography."

Joseph Nicéphore Niepce was born March 7th, 1765, at Chalons-sur-Saone. He was well educated by his parents, who intended him for the church; but at the outbreak of the revolution alltheir plans were overturned. Niepce entered the Army of the Republic in 1794, and participated in the expedition to Italy. His health breaking down soon after, he was compelled to retire from active service, and, marrying, he settled down at Chalons.

Niepce had experimented in various scientific directions, since childhood, and, in connection with his brother, Claude, succeeded in accomplishing many remarkable results; but it was not until about 1313 that he commenced his experiments which resulted in the discovery of heliographic processes.

In 1829 he formed the famous partnership with Daguerre, but was, unfortunately, prevented from completing his work, or even publishing his results, by death, in his sixty-eighth year.

Our illustration is from a copy of a bust which is said to be a good likeness of the man. Of his character—from the little that is known—we can only form a most favorable impression. His love for his brother, Claude, and for his family, is shown from his correspondence to be unusual. He was a warm friend of Daguerre.

His letter from Chalons, dated January 9th, 1829, to Daguerre, is interesting, as expressing the belief that photography in colors would some time be realized. He says:

"I have acquainted you with my heliographic researches. I expected to obtain a decisive result and one worthy presentation to you, but as yet, that hope has not been realized entirely. I will say, however, with some frankness, that I am nearer the goal to-day, which I long to reach, than ever before. You will perhaps remember the means of improvement which were indicated in my account. I have not neglected to apply them, and thus far I believe too firmly in them not to try them again when the return of good weather will allow me to resume my work. I have also ascertained from a few experiments with plate-glass, the possibility to imitate with the greatest variety and with all the advantage of illusion, the effect on the diorama, with the exception of the magic of colors. But, sir, though I have much doubted the possibility to represent objects in their natural colors, I am now inclined to believe that it can be done. Experience has actually given me on this subject some data which will, to some extent, support my conjectures and substantiate, also, Newton's theory on the colored rings. Notwithstanding, however, it would be with great temerity on my part that I gave my few premature results the importance which they are far from deserving; and if I should dare to communicate them to you, sir, with the frankness of confidence, it is that you may ignore nothing of the researches in which you take so great and constant an interest. In a few months I will pursue them, and, I trust with new assurance of success; providing, of course, that the season be more favorable than that of last year. I shall first confine myself to one application of my process, in order to sooner reach the goal. If I have this good fortune, sir, you may depend upon my eagerness to let you know it."

And Daguerre replies as follows:

PARIS, February 3d, 1828.

"*Sir:* Since your departure, I have made two paintings, one for the diorama, and the other for the exhibition of the salon. This kept me busy during all that period, and I could not continue my researches. I learn, with regret, that your occupations have deferred you from your interesting discovery, and that you have found no encouragement in England. But, comfort yourself! it will be different here, especially if you succeed in the results which you have a right to expect. I can assure you that it will not be looked upon here with the same indifference. If agreeable to you, I will indicate with great pleasure the best manner in which to take advantage of your results. I cannot conceal the anxiety to see the result of your experiments, for, if my discovery is based on a more incomprehensible principle, it is, nevertheless, certain that you you are far ahead in your results. This must necessarily encourage you."

In a letter to his brother, in 1816, Niepce described what the historian Harrison thinks was probably the first picture ever made with a camera.

"My object glass being broken, and being no longer able to use my camera, I made an artificial eye with Isidore's ring box, a little thing from sixteen to eighteen lines square. * * * * I placed this little apparatus in my work-room, facing the open window looking on to the pigeon-house. I made the experiment in the way you are acquainted with, and I saw on the white paper the whole of the pigeon-house seen from the window. * * * * One could distinguish the effects of the solar rays in the picture from the pigeon-house up to the window-sash. The possibility of painting by this means appears almost clear to me. * * * * I do not hide from myself that there are great difficulties, especially as regards fixing the colors, but with work and patience one can accomplish much."

In 1829, after the partnership was formed with Daguerre, in compliance with the agreement which they had made, Niepce published the following important statement concerning his processes of heliography. It is dated December 5th.

"The discovery which I have made, and to which I give the name of heliography, consists in producing spontaneously, by the action of light, with gradations of tints from black to white, the images received by the camera obscura. Light acts chemically upon bodies. It is absorbed; it combines with them, and communicates to them new properties Thus it augments the natural consistency of some of these bodies; it solidifies them even; and renders them more or less insoluble, according to the duration or intensity of its action. The substance which has succeeded best with me is asphaltum, dissolved in oil of lavender. A tablet of plated silver is to be highly polished on which a thin coating of the varnish is to be applied with a light roll of soft skin. The plate when dry may be immediately submitted to the action of light in the focus of the camera. But even after having been thus exposed a length of time sufficient for receiving the impressions of external objects, nothing is apparent to show that these impressions exist. The forms of the future picture remain still invisible. The next operation then is to disengage the shrouded imagery, and this is accomplished by a solvent, consisting of one part by volume of essential oil of lavender, and ten of oil of white petroleum. Into this liquid the exposed tablet is plunged, and the operator observing it by reflected light, begins to perceive the images of the objects to which it has been exposed, gradually unfolding their forms. The plate is then lifted out, allowed to drain, and well washed with water."

And with this valuable description we must conclude this brief account of the man and his work; but let us not omit to give Niepce his just due, in the approaching celebration of the semi-centennial of the art which he did so much to establish.

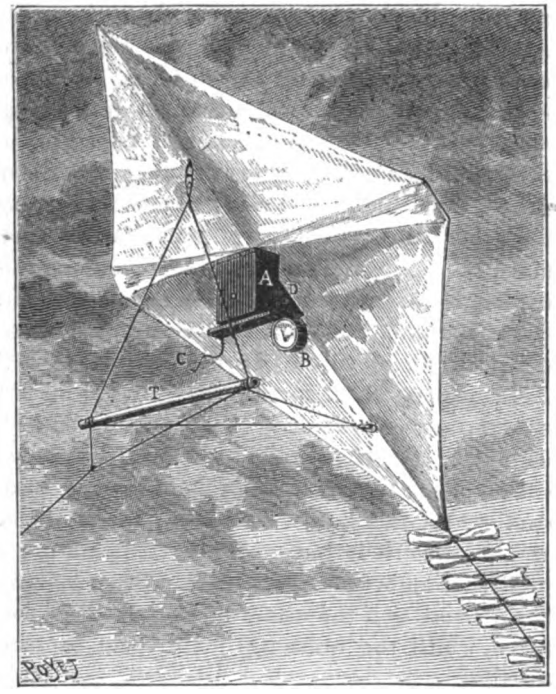
At a recent meeting of the *Societe Francaise de Photographie*, a communication was read from Mr. Gabriel Polland, accompanying the mould of a bust of Daguerre made by M. Paul Charpensier, father-in-law of Mr. Polland.

M. Charpensier, in presenting to the same society a bust, from the same mould, in 1864, said that he had often asked Daguerre, who was an intimate friend, to give him a sitting, but had always been refused. But three months before his death, he gave a sitting to two American photographers who came from New York to visit him at Bry-sur-Marne, and it was from their results that the bust, as well as a painted portrait, which was exhibited in 1878 at the Trocadero Palace, was made.

The American photographers referred to were the Meade Brothers, and their portrait of Daguerre, or a copy of it, was recently shown by Mr. Bogardus at a meeting of the Society of Amateur Photographers of New York, at which time also Dr. Laudy showed a photograph of the painting above referred to.

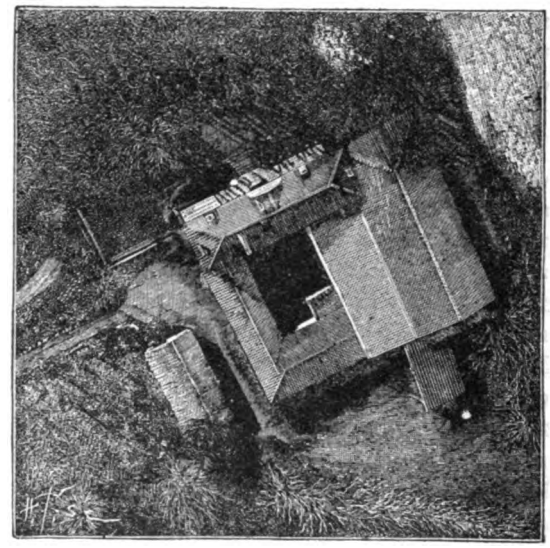
KITE-PHOTOGRAPHY.

We reproduce, with our acknowledgements to *La Nature*, cuts of the apparatus and results obtained by M. Arthur Batut, an able amateur, of Enlaure, France.



The kite is diamond-shaped, with a long tail, assuring stability when it has ascended into the regions of the clouds. The cord holding it to the earth is attached to the frame by a sort of trapeze, so arranged that the camera, *A*, which is also fastened to the frame by the triangular support, *D*, shall have an unobstructed range of whatever is below. The shutter, which is of the "drop" variety," working horizontally, being actuated by the two rubber bands, is liberated by the burning of a fuse, *C*, which burns through a thread holding the shutter on tension; the thread being burned releases the shutter, which in its flight across the opening of the lens also liberates a scrap of paper which, floating down, shows the manipulator that the exposure has taken place.

A self-registering barometer, *B*, is attached, to show the altitude attained.



The cut shows a result obtained by M. Batut, at the altitude of 127 metres, on February 13, 1889, at 11 A.M. It represents a plan view of a farm-house, with its outbuildings.

The kite employed is about 7½ feet in height; the camera weighed 1200 grams.

A PRACTICAL HINT.

How many have not been troubled to focus sharply in enlarging daguerretypes, tintypes or old photographs, and who has not spent considerable time and strained the eyes, until one could not see for tears, then, after developing, find the negative only partly taken?

My way to overcome all this is simply, after I have got the image in its proper place and size on the ground-glass—to have my boy hold a piece of printed white paper, (newspaper will do), over the original, when in a very short time I can focus as sharp and even as the lens is capable of doing.

A. Lundelius.

A FEW WORDS ON DR. R. E. VON GIESEN'S "IMPROVED METHOD FOR COLD EMULSIONS."*

Of all the excellent communications to the last edition of the "American Annual of Photography," I think that I have read with most interest that which bears the heading which I have placed within inverted commas above, and it is none the less interesting to me because I cannot by any means agree with all that the Doctor says. Perhaps a little space in the Photographic Times will not be entirely wasted in a very brief discussion of the points wherein I find that I cannot agree with Dr. Von Giesen, who will, I hope, believe that my disagreement does not at all prevent me from admiring the great amount of trouble that he has taken and the extreme care with which he appears to have worked out all his experiments.

At the very outset I would ask "why *cold* emulsification at all"? Dr. Von Giesen says that he believes the dictum of Dr. Eder, viz., "that cold emulsions prepared with ammonia are less sensitive than a cooked emulsion subsequently digested with ammonia"! Exactly! and it may be added that they are, in my own experience, much slower than emulsions made by converting only a *portion* of the silver nitrate to ammonia nitrate—say one-third—and emulsifying at a comparatively high temperature. Why, then, cold emulsification at all? It has no advantage over warm or hot emulsification that I know of, a distinct disadvantage is admitted by the Doctor, and, farther, there is the disadvantage that "cold" is the most completely indefinite term possible. What is cold? Anything between 32 deg. to about 80 deg. Fahr! I notice that, of one of the two emulsifying solutions Dr. Von Giesen directs that one be "allowed to cool" to a certain temperature, but that nothing is said as to what is to be the temperature of the other. Now, I say that there can be no more uniformity of result in working at low temperatures than in working at high, unless uniformity of temperature at the time of emulsification is secured.

The "cold emulsification" process I consider has another drawback. It is not what it pretended to be at all. In the original process the solution had to be heated, in the presence of ammonia, to melt the final gelantine, and there is no means of saying how much of the sensitiveness was gained at the time of this heating. I only profess to give an opinion that I cannot give absolute proof of, when I say that I believe that the greater part of all the sensitiveness that was got at all, was got at this stage of the work. Of course I recognize that, by neutralizing the ammonia before the addition of the gelatine in bulk, Dr. Von Giesen has got over this objection. On the other hand, however, he directs that the whole be digested after emulsification at a temperature that cannot, I think, be called "cold," namley 95 deg. to 90 deg. Fahr. In fact, the only thing that comes in any way under the heading of "cold" may be resolved into the fact that there is absolute uncertainty at the time of emulsification—the moment when a slight variation in temperature will influence the quality and sensitiveness of the emulsion more than at any other time—as to what the temperature of the solution is!

Now another point. I quite agree with Dr. Von Giesen, that, at any rate the full amount of ammonia that is needed to convert all the silver nitrate used in making an emulsion into ammonia nitrate is too much. It is, at least, where the amount of water used to dissolve the salts does not considerably exceed that commonly recommended in modern formulas. I cannot, however, at all agree with the Doctor as to the advisability of getting over the difficulty by simply adding ammonia to the solution of bromide. Liquor ammonia, under whatever name it is sold, whether as being of .88 specific gravity, ammonia fortissima B. P., or strong water of ammonia, U. S. P., is an article of varying strength even as it is purchased, but is of such exceedingly variable strength between the time that a bottle of it has first been opened, and that when it has had most of the liquid drawn off in small quantities at a time, that no formula involving the use of a merely measured quantity of liquid ammonia can be relied on to give uniform results. It would be necessary to make an estimation of the strength of the ammonia for every emulsion. If it be desired to use less ammonia than is enough to convert all the silver to ammonia nitrate, the thing to do is to convert only a *portion* of the nitrate of silver. It was, in fact, Mr. A. L. Henderson, whose formula we are now discussing, who first—so far as I know—pointed out the advantage, in certain cases, of converting only a portion of the silver, although he did not, I think, point out the fact that, if only a portion of the silver be converted, but a higher temperature of emulsification be given, the result will be as great sensitiveness as if the whole of the silver be converted, whilst the resulting quality will be much superior.

A further objection I have to the formula as it stands. Whilst I do not consider it advisable to let the whole quantity of the ammonia that is necessary to convert all the silver for making an emul-

* "The American Annual of Photography for 1889," page 84.

sion, come into contact with the bulk of the gelatine, I consider that with the small quantity recommended by Dr. Von Giesen—one-half to one-fifth part of that needed to convert all the silver according to the strength of the ammonia—it would be rather an advantage than otherwise to bring the whole of the gelatine into contact with it, a certain increase of sensitiveness, and a considerable increase of the power to give density being likely to result. But if it *is* considered advisable to neutralize the ammonia, I certainly do not approve of the way in which the Doctor proposes to do it. I have already pointed out that ammonia is a thing of most uncertain strength. Glacial acetic acid, even when it is sold as "glacial at 40 degs. Farh." is also a substance varying in strength considerably, although certainly not so much as ammonia. Taking the two uncertainties together it seems highly improbable that there should often be even an approach to neutralization, and, if there were any considerable excess of the acid the result would be a diminution in the sensitiveness of the emulsion.

I myself much prefer precipitation with alcohol to washing, for an emulsion, but I quite admit that there are drawbacks in the former process, and that it is a matter of opinion which is to be preferred.

Experience in emulsion making has shown me that *if certain conditions be strictly adhered to* others may be varied considerably, without producing appreciable variation in the results.

I consider that an emulsion of the highest sensitiveness, giving great density quite under control, and giving a complete absence from fog not often experienced in any but slow plates, may be made by any formula conforming to the following rules.

The bromide should be bromide of ammonium, and there should be an excess of from 12 to 15 per cent.

There should be, besides this, iodide of potassium to the extent of 2½ per cent. of the nitrate of silver.

The gelatine used at the time of emulsification must be very pure, should be soft rather than hard, and should weigh about 20 per cent. of the weight of the silver nitrate, although, in this respect, a great deal of latitude is certainly permissible without appreciable change in result.

The total amount of water used for mixing the two solutions should be about ten times as much by weight as the silver nitrate.

If we consider not the absolute quantity of the bromide and silver, but the quantity of the excess of the former only, it may be said that an alteration in the quantity of water used for dissolving the salts, will make more difference in the time necessary to gain sensitiveness than a proportionate alteration in any one of the constituents.

Only a portion of the silver nitrate should be converted into ammonia nitrate. I consider that one-third to four-tenths of the whole is a good proportion for a very rapid emulsion. This part has, of course, to be dissolved in a part of the above-mentioned water. It appears to make but little difference what proportion of the water is used to dissolve the silver. I prefer to use only a small portion, so that if the temperature of the silver solution is a little too great or too small the temperature of the whole immediately after emulsification will not vary appreciably. If only a small proportion of the water is used to dissolve this silver, the addition of the ammonia to convert to ammonia nitrate will raise the temperature and thus avoid the necessity of the somewhat troublesome proceeding of raising two solutions to the same temperature at the same time.

The portion of the silver nitrate not converted into ammonia nitrate should be used dry. With the proportion of ammonia nitrate of silver given above, a good temperature for emulsification will be 140 deg. Farh. (60 per cent.) and with this it will be found that the maximum sensitiveness has been reached in about 20 minutes. There is, however, no appreciable deterioration of quality if digestion be allowed to go on for a good deal longer, but the emulsion becomes a little thinner.

If any considerable quantity of emulsion is to be made it will be found that the temperature falls very little for 20 minutes or so after emulsification. If only a few ounces or less of silver are to be used the emulsifying vessel should be placed in a larger one full of water at a temperature of 140 deg. Fahr.

There is no advantage in adding the silver solution slowly, whilst there is a very great disadvantage in some cases, and especially those of emulsification at a high temperature, on account of the fact that the bromide of silver first formed has had time to ripen considerably before the last has been formed. On the other hand the agitation should be as violent as possible during the few seconds of actual emulsification and for a minute or two afterwards. This will secure great fineness of grain. The ammonia nitrate of silver is to be added first, the dry silver afterwards.

The bulk of the gelatine is to be added *dry* at the end of 20 minutes. It will be found that any of the modern emulsion sheet gelatines will melt quite readily if added in this way. A very great variation is permissible in the amount of gelatine that may be added with scarcely any appreciable corresponding variation in the quality or sensitive-

ness of the emulsion. It may vary from half the weight of the nitrate of silver used to twice the weight, and, if the precipitation process is used, so that the emulsion can be made up to any desired quantity with water, there is a good deal to be said for the plan of using a good deal more gelatine in summer than in winter.

As I say, I prefer to precipitate with alcohol, but if the emulsion is to be washed it should be cooled as quickly as possible after the bulk of the gelatine has been added. This is best done by freely stirring up lumps of ice with it till it stiffens.

I quite agrèe with Dr. Von Giesen as to the non-advisability of the use of alcohol in the emulsifying solutions, and this although I was, I believe, the first to suggest it, but I must, in justice to Mr. Henderson, bear witness to the fact that, using a very large proportion of alcohol in his emulsifying solutions he did, himself, get emulsions giving plates that would be reckoned exceptionally rapid at the present time even. I could never get the like results myself, but I should be the last to condemn a formula merely because I could not get the result that another man got, for, alas! I have known but too many cases in which operators putting in effect my own instructions, to all appearance with all care, have failed entirely or in part. Indeed, the differences in result that are got by different operators working to the same formulæ or instructions are sometimes so remarkable and inexplicable, that I have sometimes almost been induced to believe that a "personal equation" came in somewhere!

W. K. Burton.

THE DUSTING IN PROCESS.

III.

Hints and Recapitulation.

After perfect drying the plate can be varnished like an ordinary gelatine negative. Pin-holes, at times occurring in the darkest parts of the plate, when either the graphite has not been fine enough, or when too much force has been used when the graphite was applied, can be touched out in the ordinary way and upon the retouching desk.

To prepare graphite, so that it is in the utmost possible state of fineness, I take the commercial levigated article, a tin or paper box, divided into two equal parts, and put in the lower division the graphite to be sifted. On top of it I fasten a piece of fine muslin or batting cloth, and close the box by adjusting to it the upper part. By reversing the box, and putting it in slight motion up and down, the finest particles of graphite will be forced through the fabric.

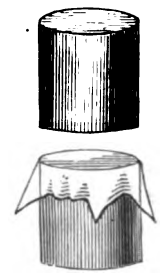


Fig. 2

Figure 2 will illustrate how to construct this simple but very useful little implement.

Closing the sifting box is necessary, because were sifting done with an open sieve, the very finest particles of graphite would be suspended in the air and be lost, would render breathing difficult, and would finally cover with a fine black dust every object in the room.

It is perhaps useful to recapitulate now all the conditions required to secure success.

(1) Material of perfect purity only should be employed for making the solutions. The ammonium bichromate must be chemically pure, and in bright, glistening crystals. Honey adulterated with sugar syrup will not answer. Gum arabic of the finest sort should only be used.

(2) The honey-sugar solution should be of a syrupy consistency, but be free from undissolved particles. It improves by age.

(3) The bichromate solution is best prepared immediately before use. It consists of 2 grams = 30½ grains of bichromate of ammonium dissolved in 20 c.c.m. = 5 drams 40 minims of distilled water, 10 c.c.m. = 2 drams 50 minims of the honey-sugar solution and 30 grams = 1 ounce 30 minims of distilled water.

(4) Heat the compound to from 40 degs. to 50 degs. C. = 104 degs. to 122 degrs. Fahr. After cooling and several hours standing, filter. Repeated filtering yields better and clearer results.

(5) When coating the plate, avoid carefully all air-bells. They are apt to cause incorrigible stains. During operating move slowly and cautiously, to avoid raising of dust.

(6) Draining the coated plate too much, or for too long a time will make the film thin and results finally in a hard and glassy negative. Thickly coated plates yield softer results, with fine details and rich on middle tints. Certain limits must be kept, as an excessively thick film will make the image dull and monotonous.

(7) Drying should not be done too rapidly, and not at a temperature of less than 50 deg. C = 120 deg. Fahr. Exposing to heat for about an hour is sufficient, heating the plate longer will make the film hard and resistant.

(8) The longer the film is exposed under the negative, the harder will be the image, short exposures give softer negatives, hence it is possible to make brilliant duplicate copies from feeble or foggy originals. Correct time of exposure is one of the most important conditions for success.

(9) If it is desired to produce a soft and delicate copy by short exposure, it is absolutely necessary to warm the plate before developing, when the general temperature is low. In summer time heating is not required.

(10) If the developed pellicle has to be turned, the glass plate, before being coated with the sensitive solution must be polished with collodion, and be kept in the dark room after development. But if it is to remain on the glass plate in reversed position, the plate had better be rubbed down with potassium water glass, and after developing the reverse side of the plate be exposed to direct sunlight for at least a quarter of an hour.

(11) The collodion should be free from water. Leather collodion, that means when 100 c.c.m. = 3 ounces, 4 drams, 20 minims of it contain one drop of castor oil is preferrable, although not absolutely necessary. After the collodion has been applied, it should be well set, and all ether alcohol be evaporated, before the plate is immersed in water.

(12) When a dusting in negative is not to be turned, and a second unreversed negative is to be made of it, the first copy must be carefully retouched and all pinholes be taken out, which can be best done with a sharply pointed stick of hard wood, dipped in India ink. Large black spots, which will but rarely occur when chemicals have been pure, and the solutions have been carefully filtered, can be taken out with the sharp point of a needle fastened to a holder. With the aid of a magnifying glass such spots can be blended down so well as to be scarcely perceptible.

The above detailed description and explanation I hope will be sufficient to enable a photographer to learn and to practice this in many respects inestimable process.

For the reproduction or duplication of lantern-slides the dusting-in process offers immense advantages. Diapositives of any kind should, however, not be developed with pure graphite, but to secure a more agreeable tone with a mixture of graphite and English rouge, levigated and sifted in the manner above described.

With diapositives the first reproduction will do, as the plate can be viewed from either side.

If a large edition of photographic prints is to be made from one negative, the work will be materially facilitated if duplicate negatives are made. They can be made at the rate of five to ten per day, and are in every way of the same quality as the original negative.

For want of a proper quality of fine hair-brush I have used with much success a small piece of very fine fur, about the size of a silver dollar, and glued

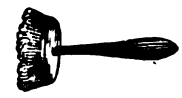


Fig. 3

to a piece of wood, provided with a handle. The fur should be short, the hair standing erect.* Powder puffs of eider down will answer very well for the development of plates of large dimension. For small work the surface covered by them is too large to follow the process attentively.

Carl Schiendl.

ORTHOCHROMATIC PHOTOGRAPHY AT NIGHT.

DURING the past winter I have photographed a great many interiors by flash-light, and as there was considerable difficulty in obtaining detail in dark colored furniture, etc., on an ordinary plate without using a very large charge of compound, which necessarily spoiled all the delicate tones, it occurred to me to try a *yellow* flash, and an orthochromatic plate.

The yellow flash compound was made as follows:

Metallic magnesium powdered.. ..... 1 part
Nitrate soda c. p,.....5 to 7 parts

Thoroughly mix with an ivory paper knife. With this compound I used Carbutt's "ortho" plates 23 sensitometer. The compound gives a penetrating yellow light to which the "ortho" plate is very sensitive, and it seems, in my experience, to act with precisely the same effect as a yellow screen in rendering color somewhere near its true value. There is full detail in the dark colors, and an evenness about the negative that I fail to obtain with the quickest plates and a white flash. Carbutt's 23 "ortho" is sufficiently quick with this yellow light, and is easier to handle in the dark-room than the more sensitive ortho plate.

* Sealskin or beaver.—*Translator.*

For interiors, copies of paintings, and even portraits, this method has proved very satisfactory.

The amount of compound required varies, of course, according to the size of the subject, 30 grains to an ounce are the extremes.

I was recently concerned in making a picture of the audience at the Grand Opera House, one of the largest theatres in the city, and with the yellow flash and a Carbutt "ortho" 23 sensitometer, I obtained a good negative, with excellent color value and detail from stage to door. This method has yielded bright, snappy pictures with good values on the difficult colors, and it has never been necessary to force for detail. Altogether, it has been a great improvement on work I had done previously, and if those interested should try it, I fancy, they will be pleased.

Edward W. Newcomb.

Notes and News.

AN OMISSION.—Mr. Lundelius writes, in reference to his communication on "a convenient head and side screen," (page 236, May 10th issue): "In the upright, about one foot from top is a slot cut through, 1½ foot long. A bolt is fastened in that small block, and goes through the slot in the upright with a thumb-screw and the end. Now by pulling the screw up or down the screen will go with it. Also the screen may be turned from right to left, and any desired position of the screen may be effected."

OBITUARY.—We learn with regret that David Cooper, the well-known photographic worker, who returned to his home at Jamaica, W. I., last October, in search of health, died there on the morning of April 5th. His services for photography have been many and useful, and he leaves many warm friends in photographic circles.

JAMES W. QUEEN & COMPANY, publishers of *Science of Photography*, have issued a circular stating that, owing to the continued illness of Mr. Joseph J. Fox, the managing editor of that journal, it has been decided to discontinue its publication. They offer to make good their indebtedness to all those subscribers whose subscriptions have not yet expired.

A VARNISH made with alcohol will get dull and spongy by the evaporation of the alcohol, which leaves water in the varnish, as all commercial alcohol contains water. It is, therefore, advisible to take a thin sheet of gelatine, cut it into strips, and put it into the varnish; it will absorb in the thin sheet most of the water, and the varnish can be used clear and bright till the last drop. The gelatine will get quite soft. It can then be taken out and used again.—*American Druggist.*

SHARPNESS.—This uneducated fondness for sharp detail extends also to photographs; the popular idea of a "good" photograph is that of one in which every item is rendered with an indiscriminating hardness. And if the surface of the photograph is then glazed and passed under the roller till it shines like patent-leather, it is generally accepted as still more perfect. It is not considered that the flower in this picture looks as if it were made of tin, that all suggestion of quality of texture, of atmospheric modifyings, have disappeared, so long as everything is seen it does not matter that nothing is seen rightly. The photograph that the artist prefers—and which the ordinary customer promptly rejects as "too dull"—is one, on the contrary, in which he can see some suggestion of air and space, of the qualities of bodies, of what he calls "tones"; he has no objection to detail, so long as it keeps its relative place, but when it becomes aggressive and disarranges the whole effect, he prefers that it should be suppressed.—*Art Interchange.*

MOUNTING PRINTS.—There are three systems by which prints may be mounted, all of them possessing advantages peculiar to themselves.

That in general use is the time-honored one of applying paste by means of a brush to the back of a wet pile of prints placed one on top of the other as a matter of convenience, and then deftly transfering each print thus treated from the top of the pile to the mount, upon which it is laid down in position and pressed into contact by a pad or rubber. No special precaution or care is requisite in carrying this system into effect beyond seeing that the paste is free from hard particles and is freshly prepared. Glue or gelatine, which is employed by some as a mountant in preference to starch or paste, requires more dexterity in its employment.

A second system, introduced about sixteen years ago, consists in sizing the mounts with any suitable adhesive of the gum or dextrine class, these being kept in a state of preparation always ready for use. The print requires no pasting or other treatment, but may be taken while simply in a wet or moist state and laid down in its place on the dry mount, followed by the rubbing requisite for insuring contact. This system is very convenient in many cases, especially for one who desires the occasional mounting of a few prints without having to experience the trouble of preparing paste, and going through the whole operations consequent upon the act. We are glad to know that mounts ready gummed are now commercially procurable. Those who desire to prepare mounts for themselves must be careful in selecting a gum of a suitable nature. It may be applied by a sponge or large flat brush, although preferably so by a little machine for the purpose, introduced by a Halifax firm, and exhibited at some of our societies a few years ago.

The third system is one which is adopted much more extensively in America than in this country, and is highly suitable when large quantities of prints are to be mounted. As witnessed in operation in the States six years ago, when many thousands of prints were undergoing this process, we specially noticed its neatness, the rapidity of its action, and the impossibility of producing cockling. The backs of the prints are coated with ordinary starch paste and allowed to dry. The prints are then trimmed and laid *in sit* on the paper (or card) mounts to which they are thenceforth to be permanently attached, which mounts, however, have first been rendered slightly damp. A number of prints thus prepared are then run through the rolling press, and the operation is complete.—*Scientific American.*

GRAINED NEGATIVES FOR ZINC ETCHING MADE WITHOUT A SCREEN.—Grained negatives for zinc etching can be made without a screen, by coating the plates with an emulsion containing sulphate of baryta in very fine powder and well shaken up before coating. Pictures are taken upon these plates and developed and fixed in the usual way, but the image, instead of being smooth and nice, will be covered with myriads of small pinholes. These negatives are used for printing on the zinc in bitumen, then etched in relief for type blocks.

Instead of sulphate of baryta, carbonate of soda, etc., may be used in the emulsion; and, after fixing, immersion in weak acid will develop the pinholes. The bromochloride emulsion may be used upon collotype plates, followed by drying them in the oven at a high temperature, exposing under a reversed negative. Develop and ink up as for the paper; pull the transfers upon ordinary lithograph transfer paper. To obtain a coarser grain, soaking in warm water will develop the reticulation.—W. T. WILKINSON, *in London Photographic News.*

THE FUTURE OF PHOTOGRAPHY.—The ease with which photographs can nowbe taken by any one is destined to have an important influence upon science, art and literature. It must not be supposed, however, that with the cheapness of material, and simplicity in applying it, perfection in the art of photography is any nearer to its votary than it was when the difficult wet plate was in vogue. Pictures can be taken more readily than formerly; but the conditions of light and composition remain as difficult as ever—and the amateur every year throws behind him his quickly taken photographs and discovers that art is still long.

The improvements in photography have resulted from the labors of the chemist rather than from those of the optician and the makers of lenses. Indeed one of the most remarkable features of photography is the simplicity of the apparatus which is necessary. The simplicity perhaps might have been foreseen by a careful study of the human eye. The eye of every person may be said to constitute a detective camera. The retina is the dry plate upon which all objects are focussed by means of the crystaline lens; the cavity behind this lens constitutes the camera, the iris and pupil the diaphragm, and the eyelid the drop-shutter. The latter, it is true, is a slow drop-shutter—not faster than a tenth of a second—whereas the drop-shutter that is employed to take an express train may move as fast as the one-hundredth of a second, or ten times as fast as the eyelid. The eye gives the brain a number of composite impressions of an object in motion, while the sensitive plate and the drop-shutter of the camera can give but one phase of the motions. It does not seem just, therefore, that the photographer should insist that the sculptor or artist should copy certain instantaneous attitudes of animals in motion, for the eye does not see them.—PROF. JOHN TROWBRIDGE in the May *Scribner's.*

AN ORDER HARD TO FILL.—*The Youth's Companion* tells how a Vermont photographer was asked to picture a man many miles away:

"What's that a picture of?" inquired a would be customer, holding up a photograph of the sun.

"That's a picture of the sun," the artist replied. "I took several views of its surface a few days ago."

"Sho!" said the visitor. "Aint the sun several million miles away?"

"Yes," replied the photographer, "but that don't make any difference. We get good views of it just the same."

"Wal, that beats me!" said the countryman. "You're jest the man I want. Jest give me a picter of my brother Sim, and I'll wait for it an pay ye what ye ask, 'lowin' it's reasonable."

"Certainly," said the photographer; bring your brother along."

"I can't," said the other.

"Why, where is he! I can't take his picture if he ain't here."

"Wal, he's in Boston."

"You don't think I can get his picture with him in Boston, do you?" asked the photographer.

"Wal, I don't see why," answered the man, "'cept you're an impostor. You can take a likeness of the sun millions of miles away, an' yet you can't take Sam 200 miles off. You can't impose on us country folks like that!" and he walked off in disgust.

THE OWNERSHIP OF A PHOTOGRAPH.—The following article on "Sitters and the Copyright in Photographs," by J. Harris Stone, in a recent issue of *The British Journal of Photography*, is so good that we reprint it *in toto*:

"The latest exposition of the law in copyright in photographs is contained in the case of *Pollard versus Photographic Company*, which is reported in the current [March] number of the Law Reports. The case is of considerable importance to portrait photographers, whether professional or amateur, the essential facts being these: The Photographic Company carry on business at Rochester, whither Mrs. Pollard went one day to have likenesses of herself taken from negatives made by assistants of the Company. Apparently when she sat for her likeness no special terms or conditions were mentioned between herself and the photographer, the transaction being one of the ordinary kind, thousands of which take place every day. Mrs. Pollard, who is presumably a lady of considerable attractions, subsequently found her physiognomy figuring upon and embellishing a Christmas card, with the subscription in leafy letters, 'A merry Christmas and a happy New Year,' and a copy of this card was exposed for sale in the shop window of the Company. Mrs. Pollard thereupon brought this action in the Chancery Division of the High Court to restrain the defendant company from selling or publicly exhibiting copies of her likeness, and has succeeded in obtaining a perpetual injunction against the company, who also had to pay the costs of the action. The judgment seems to be in accordance with common sense and natural justice, but the real interest to photographers lies in the arguments used by the counsel on either side, and in the marks of the learned judge before whom the case was argued.

Mrs. Pollard, as is usual with most sitters, had not registered any copyright in her photographs, so that the judgment in her favor depends in nowise on the copyright acts, the case being decided smiply on the common law rights of contract and property.

From the official report, which virtually now swells the law on the subject, it may be gathered that a photographer who has been employed by a customer to take a portrait is not justified in printing copies of such photograph for

his own use, and selling or disposing of them or publicly exhibiting them by way of advertisement or otherwise, unless the customer has given him an "implied" or "expressed" authority to do so. Now, the contract "implied" by law (there was no "express" contract) which was entered into between the parties when Mrs. Pollard sat to the photographer on this occasion was that he contracted not to use the negatives for any other purpose save for supplying her with copies. There is, therefore, a difference between a sitter who pays the operator for the photographs and the case where a snap-shot results in a likeness secured. In this latter instance there is no contract implied, or expressed to take the likeness; there is no consideration for the work and labor done; there is no money payment made to the photographer, and, therefore, it may be presumed that if the portrait thus acquired does not transgress the rules and regulations of the laws pertaining to libel, if it be not calculated to expose the person, for instance, to contempt or ridicule, the photographer may sell it or exhibit it. As one of the counsel argued for the defendant company in this case: "A person has no property in his own features; short of doing what is libellous or otherwise illegal there is no restriction on the photographer using his negative." From this it would appear to follow that where an amateur photographer gets a person to sit to him, the artist has a right to exhibit the portrait because there is no contract that copies are only to be supplied to the sitter. There may even be no contract to supply him with copies at all, and, further, there is no consideration, no *quid pro quo*. The sitter sits to please the artist, the artist takes with the full intention of exhibiting the result if it prove satisfactory. That the amateur photographer intends to make some such use of the negative would be in the contemplation of both parties at the interview, though not actually mentioned. This is different from the case of Mrs. Pollard, where Mr. Justice North says: "The phrase, 'a gross breach of faith,' used by Lord Justice Lindley in that case (Tuck & Sons *v.* Priester) applies with equal force to the present, when a lady's feelings are shocked by finding that the photographer she has employed to take her likeness for her own use is publicly exhibiting and selling copies thereof."

It was argued for the Photographic Company that inasmuch as the property in the glass negatives was in them, that they were only using their own property for a lawful purpose. In reply to which the learned judge observed: "But it is not a lawful purpose to employ it either in breach of faith or in breach of contract." This is the pith of the whole case—contract, breach of contract. Similarly there is a well-known case as old as 1758 (*Duke of Queensberry versus Shebbeare*), where the defendant was restrained by injunction from publishing a work, although a person had been expressly allowed by the owner to make and retain as his own a copy of the MS., which copy he had sold to the defendant; an agreement that the MS. was not to be published was here implied. So also a student may not publish a lecture which he hears and takes down in shorthand; and the receiver of a letter may not publish it without the writer's consent, although he might argue, like the photographer with respect to his glass and chemicals, that the property in the paper and ink is in him.

Though, as has been said, this case did not go off upon any law of copyright, still, as a matter of fact, the copyright in a photograph, where the sitter sits to the photographer in the usual way of business, is in the possession of the person whose features are portrayed. There is an act (25 and 26 Victoria, c. 68, s. 1) which provides that when the negative of any photograph shall be made or executed for or on behalf of any other person for a good or a valuable consideration, the photographer shall not retain the copyright thereof, unless it be expressly reserved to him by agreement *in writing*, signed by the person for on whose behalf the negative is made; the copyright in the photograph shall belong to the sitter. Therefore, if a photographer wishes to make any other use of a sitter's photograph other than supplying copies to the sitter's order, he should get the sitter to sign a *written* agreement that the copyright is thereby given to the photographer, who should pay something, even though a very small coin, for the same, and this sum should be mentioned in the agreement as the consideration.

But though the sitter paying for his photograph has thus a right to the copyright in his own features, by statute law he can bring no action against any one for infringement of his copyright *until* he has registered the same in the usual way at Stationers' Hall.

Photographic Societies.

COLUMBUS CAMERA CLUB.

Regular monthly meeting of the Club was held April 11th, with the President, Rev. G. W. Lincoln, in the chair.

After the usual report of standing committees, a communication was read from Secretary of the Boston Camera Club, stating that the Boston Slides would be in Columbus about June 1st.

A committee was therefore appointed to make arrangements for same and also for the annual Spring Outing of the Club.

The resignation of the Secretary, Mr. F. H. Howe, was presented and reluctantly accepted.

A rising vote of thanks was tendered Mr. Howe, for, to him, more than to any other member, is due the prosperous condition of the Club.

An interesting paper upon the use of Barium Hydrate in Hydrochinon developer was read by the President.

G. Y. Anderson,
Secretary.

THE PHOTOGRAPHIC SOCIETY OF CHICAGO.

THE regular monthly meeting of this society was held May 7th at their rooms in the Art Institute, with large attendance, the approaching exhibition appearing to bring the members out, President Judge Bradwell in the chair.

The Secretary produced the Charter of the Society. On motion it was accepted, and the Secretary instructed to have the same recorded.

The following were elected members: S. L. Stein, Milwaukee, Wis.; J. Moll, Chicago.

The Committee on Exhibition reported matters as being in a very forward condition, and indicating a perfect success. They had selected a design for the medals to be awarded, and they were now being made, the material being aluminum. Judge Bradwell hoped that the society would be pleased with the labors of the Committee on

Exhibition; they had, he knew, worked very hard to make a success. It now rested with the members to do their part. Photography was a growing art, every day it found some new application; it was making its way into places undreamed of a few years ago. It had even found its way into the Statute books of the State of Illinois, the word photography, or photographer, having never been mentioned in the law books of the State until this session of the Legislature, when a law was passed providing for the photographing of every convicted felon, and for the exchange of said photographs with the authorities of other States. This to some people might be a small matter, but it was an indication of progress.

Some specimens of "Aristo" paper were handed around, and elicited much admiration, the tone and finish being all that could be desired, the detail in the shadows and the modelling in portrait work far surpassing that of an albumen print. In answer to a query, Dr. Nicol said that "Aristo" paper was a printing out chloride of silver emulsion in collodion. The paper was coated with this emulsion, and dried when it was ready for use. The after manipulation was much the same as for albumen paper, although some liked to tone and fix in the same bath, the prints should be more durable than albumen, and from the specimens before them they could say that they were much finer in every way.

Mr. O. W. Hodges, the representative of M. A. Seed Dry Plate Company, exhibited a new celluloid film for positives. This film is not transparent like their well-known negative films, but is more like ivory in appearance. The finished print is very beautiful, and possesses a very high finish. The working of them is very much the same as for bromide paper.

Prof. Garrison wanted to know why a white enamelled ferrotype plate should not answer the same purpose as these films. It would, in his estimation, be much cheaper.

Dr. Nicol said there would be considerable difficulty in getting an enamel a white, as the specimen before them; in any case it would not be so permanent as the celluloid film, as it would soon yellow with age.

Mr. G. A. Douglass introduced to the notice of the society two books. "Naturalistic Photography," by Dr. P. H. Emerson; "The Chemistry of Photography," by Raphael Meldola, and the following pieces of apparatus:

"The "Aladdin" dark-room lamp. It is claimed for this lamp that it gives several times as much light as the ordinary ruby light, and that the character of the light is much more reposing to the eyesight and nerves. The "Aladdin" appears to be an ordinary Bunsen burner with a collar or wick of some refractory material, impregnated with some of the sodium salts. The light is certainly very pleasant, but how it would act on a Seed 26 or Eclipse 27 is a query.

The "Safety" Flash Igniter. This igniter can be used either for flash compounds, magnesium cartridges, or pure magnesium powder, on bed of gun cotton, more is claimed for the "Safety" than for any other flash-lamp at present in the market.

On motion it was resolved to change the meeting night of the society from the first to the second Tuesday of the month.

Mr. Douglass then lighted up his fire wick oil lantern, and projected upon the screen about 150 slides, the work of members and others, notably a collection of lightning flash pictures from Prof. Henry P. Curtis, Boston, Mass.

After a vote of thanks to Mr. Hodges and Mr. Douglass the society adjourned.

The Editorial Table.

UEBER AEHNLICHKEIT IN DER PORTRAIT PHOTOGRAPHIE, By Hans Arnold: Published by Karl Schwier, Weimar.

Those of our readers familiar with the German tongue, will find in this little volume much valuable advice as to photographing the human face. The anatomy of the human head, posing, lighting, etc., are admirably treated of as well as the use of head-rests, background, and retouching.

THE KNACK OF PICTURE TAKING, by Franklin Putnam, has come to our table, and is another one of the numerous little manuals written for the purpose of instructing beginners in amateur photography. The author, in this case, seems to be master of the subject which he undertakes to write about, and gives some very sensible advice and information. It sells for 40 cents, in paper covers.

THE LITHOGRAPHERS' AND PHOTOGRAPHERS' DIRECTORY, published by the Lithographers' Publishing Company, New York, makes its appearance in a second volume, and while we praise the efforts of editor and publishers in attempting to furnish the public with a complete and correct list of all connected with photography and the graphic arts in this, and (to a limited extent), also in foreign countries; we cannot help deploring the fact that, so far as photographers are concerned, the result is by no means what it should be. It contains many errors of omission and commission. We are aware of the difficulties to be encountered in such a compilation, and trust a later edition will correct the errors in the present one. The lithographers and photo-mechanical workers seem to have received more careful attention than photographers.

THE first number of the special organ of the Paris Exhibition, entitled *Useful Inventions*, has made its appearance. It seems to be a valuable magazine.

MR. JOHN REID, of Paterson, in a recent visit to our sanctum, showed some exceedingly fine photographs of locomotives; also a magnificent view of the new Washington Bridge which spans the Harlem. We shall probably reproduce one of the locomotive pictures in the PHOTOGRAPHIC TIMES, of early date, for the benefit of our readers.

From A. Farsari & Company, 16 Bund, Yokohama, we have received the fourth edition of "Keeling's Guide of Japan," which has been revised and enlarged by Mr. A. Farsari. It contains many useful hints for the intending traveller in this interesting country, together with its history, customs, festivals, roads, etc., ten maps, and much else that is of value and interest.

We have received a copy of the neat little book published by the Photographic Section of the Cincinnati Society of Natural History. It contains, besides a list of the officers, various committees, organization, etc.; a brief history of the Club itself, its constitution and by-laws, and the constitution of the American Lantern Slide Interchange; also a complete list of members, which numbers more than a hundred.

There is a vast amount of practical information, as well as much of the poetry and higher life of gardening and farming folk, valuable to all country dwellers, in *The American Garden* for May, which may be had of any newsdealer, or by sending 6 cts. for a specimen number (regular price 20 cts.) to the publisher at No. 10 Spruce street, New York.

THROUGH the courtesy of Mr. John Carbutt, we have been permitted to glance through "The Vassarion" for 1889. It is published by the Senior Class of Vassar College. Miss Carbutt is a promising student in this well-known young woman's college, and is president of the Camera Club which they have organized there. It consists of a dozen young-lady members, all of whom are active and enthusiastic amateurs. "The Annual," this year, contains considerable that is of photographic interest. Besides some clever lines on "The Kodak," there are numerous illustrations from negatives of picturesque and well-known localities about the college.

WE have to chronicle the appearance of two new photographic journals in the French language, the *Bulletin des Sociétés Photographiques de France* and *Les Annales Photographiques*.

The first is the official organ of the Photo-club de Paris, and several other societies, and is published under the direction of Mr. Gabriel Rougier, editor of *L'Amateur Photographe*, is published monthly, in similar shape and style. The first number has eight pages. The publication office is Place de L'Ecole de Medicine, 4 Rue Antonie Dubois.

The "Annales" is quarto in "format," edited by E. Beleurgey de Raymond, assisted by M. Charles de Thierry, member of the Société Française de Photographie, and published monthly at 8 Passage des Petites Ecuries, Paris. Each number contains 16 pages, and costs 25 centimes—5 cents.

Record of Photographic Patents.

402,680. Film supporting frame for photo-cameras. William H. Lewis, Brooklyn, N. Y.

402,711. Photographic camera. Erastus B. Barker, Newark, N. J.

402,806. Shutter for photographic camera. Ralph D. Cleveland and Charles A. Hoffman, Minneapolis, Minn.

402,827. Package for photographic plates. De Witt C. Hoover, Buffalo, N. Y.

402,961. Photographic plate handle or holder. William K. Moody, Boston, Mass.

403,061. Process of making iron prints by Photography. Charles R. McBlair and Alexander A. Raff, Washington, D. C.

Queries and Answers.

99 A. CORNELL: "Can I make instantaneous stereoscopic marine views with the Waterbury A lens?"

99 *Answer.*—You can, with stop F_{20} and a highly sensitive plate.

100 M. MANGOLD: "How can I recover silver from the old hyposulphite of soda bath?"

100 *Answer.*—By precipitation with sulphite of Potassium. (Hyper sulphuris). Collect the precipitate upon a filter, wash it well and dry. In that state send it to the refiner, who will give you better return than you can obtain by melting it yourself.

101 WEST VIRGINIA: "What is the matter with the pictures enclosed? I want black tones, and with my chemicals I can not get anything beyond a brick red."

101 *Answer.*—We presume you print on ready sensitized paper. If so, there is no difficulty in obtaining the tone you want. We advise you to read the "Photographic Instructor," where you will find on pages 44–58 the method of silver printing described in all details.

102 FRILL writes: (1) "What is the largest amount of ordinary alum water can dissolve at a temperature of 65 deg. F, and what is that of chrome alum? (2) How much saturated solution of chrome-alum should be added to the ordinary alum bath to arrest frilling, or to re-establish the solidity of the gelatine film after fixing? (3) If hardening of the film is the main object, should acid be added to the alum bath?"

102 *Answer.*—(1) The solubility of alum is as 9.5 : 100, or by other authority 1 : 10.5 at 59 deg. F. That of chrome-alum 1 : 7. (2) Mr. Carbutt says 8 per cent. (3) If the negative is tanned before fixing, it is better to omit the acid.

103 MRS. B. M. S.—"I use no other than ferrous oxalate developer for all purposes, and am well satisfied, were it not that sometimes the solution becomes turbid after mixing, and deposits a yellow precipitate. Will you kindly explain?"

103 *Answer.*—The ferrous oxalate proper is the yellow precipitate, it is soluble in a certain amount of potassium oxalate. If more of the iron solution is added than the potassium oxalate present is capable to keep in solution, it will separate as heretofore stated. One volume of sulphate of iron solution 1 : 3 and 4 volumes of saturated solution of potassium oxalate will make a clear solution. Slightly more iron will cause turbition.

104 M. A. T.: "Will you kindly describe how to make a sound and well-working silver bath for collodion positives, mainly lantern slides."

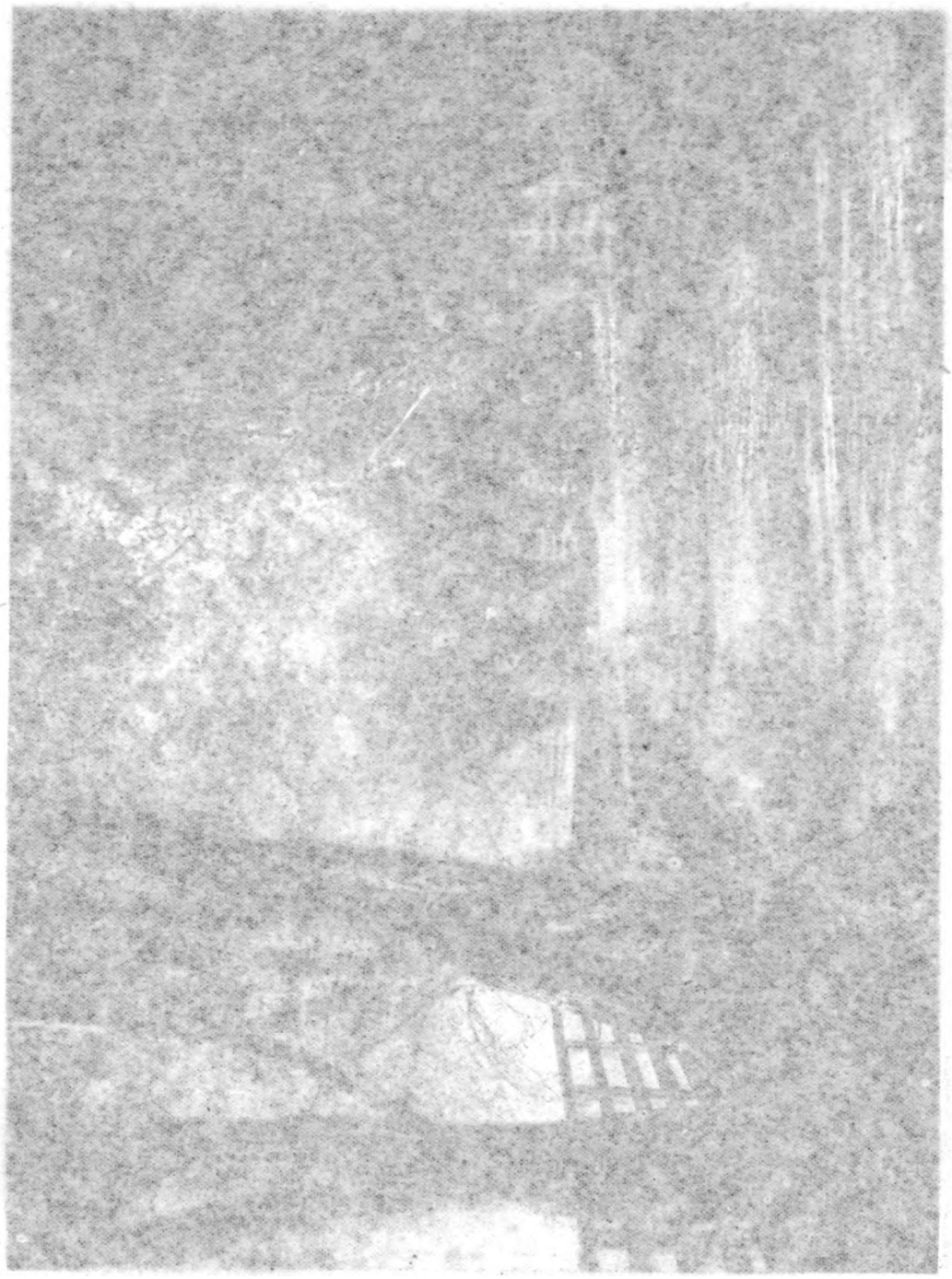
104 *Answer.*—Dissolve 1 ounce (480 grains) of nitrate of silver in 10 ounces, by measure, of distilled water. In another vessel precipitate a few grains of nitrate of silver with iodide of potassium, allow the precipitate to settle, wash several times and add it to the silver solution. (It is essential to prove the silver solution with that of the iodide of potassium.) The mixed bath may now be sunned for a day or two, when all organic matter will separate, and is then to be filtered. After filtering add enough nitric acid to slightly turn litmus paper red after 30 seconds immersion. This bath will work well provided the collodion is right.

NEGATIVE BY MRS. LEMINOS.

PHOTO GRAVURE CO. N.Y.

FROM NATURE.

THE GRAPHIC TIMES.



THE
PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, MAY 24, 1889. No. 401.

"FROM NATURE."

THE lovely bit of shaded road, which is photographed "from nature," by Mrs. Leminos, and which we were fortunate enough to secure for our readers, does not require any word of explanation or praise by us. The picture speaks for itself. It is simple in subject and treatment. The scene was selected so that it composes pleasantly in the photograph, and there is a charm furnished by the light and shade, which every one must feel. Mrs. Leminos, is evidently an artist. It is not often we find a more satisfying picture "from nature" to show our readers.

Mr. Edwards is entitled to credit for his admirable treatment of the subject, in photo-gravure. The tone chosen, in which to present it, is certainly most happy.

THE CHAUTAUQUA SCHOOL OF PHOTOGRAPHY.

SCHOOLS of photography are now springing up in various parts of this and foreign countries, and photography, as a study, is being introduced into many colleges and higher institutions of learning. Only a few years ago, after repeated attempts to establish schools of photography in various places, it was given up as impossible under the existing circumstances.

In 1886, when the Chautauqua University announced its intention of establishing a school of photography in connection with its College of Fine Arts, the scheme was universally looked upon as bound to fail; and the young school which was then started commenced its career, therefore, amid the greatest discouragements. It had, however, a remarkable growth from the very first. Now, it is, without doubt, the largest and most influential school of photography in the world. Its total number of students is one hundred and thirty-three, of which twenty-one remain in the corresponding classes from the class of 1887 and 1888; forty-four are in the corresponding class of current year; forty-one belong to the practicing class at Chautauqua, and twenty-seven are members of the local class at New York. These students represent nearly every State and Territory of the United States. The largest number, of course, is from New York—thirty-nine. Next comes Ohio with fifteen representatives. New Jersey has eleven, and Pennsylvania follows closely with ten. Massachusetts sends nine; California seven; and Connecticut, Michigan, and Indiana, each, five. Three come from each of the three States—Kentucky, Minnesota, and Illinois; while Maryland and Tennessee each claim two. The remaining thirteen members represent as many States and Territories, namely—Vermont, Alabama, New Hampshire, Oregon, South Carolina, Rhode Island, Nebraska, Florida, Missouri, Georgia, Mississippi, Utah, and Washington. One comes from Canada. Ninety-two of the entire number of students are men and boys, and forty-one are young women. Only seventeen are under the age of fifteen years. There are members of the corresponding class, and graduates still in connection with the school, who live in the following countries—Scotland, Turkey, Italy, Brazil, Dutch Guiana, Chili, China, and Japan.

Of course, this wonderful growth has not been effected without most devoted efforts on the part of the Superintendent, the Instructor, and the authorities of the Chautauqua University. Prof. Charles Ehrmann, especially, is entitled to unbounded credit for the conscientious and enthusiastic services which he has given to this school from its start.

Of the three hundred students who have been instructed since its establishment, the larger number, of course, have been amateurs; but many have entered its classes for the sake of gaining help by photographic knowledge, in their various vocations as engineers, draughtsmen, designers, engravers, or manufacturers. A dozen or more have actually

embraced photography as a profession on the completion of their studies.

The summer season of the school will open this year on the Assembly Grounds, July 2d. The answers to the examination questions, and the productions made by the various members of the graduating class this year, which have been sent in, show remarkable progress.

On answering correctly eighty per cent. of the fifty questions which are propounded to each student, and showing at least three finished photographs that are above average quality, at the completion of the course of study, each graduating student is presented with a diploma of the Chautauqua University, signed by the President and the Chancellor of the University, and by the Superintendent and the Instructor of the school.

Arrangements have recently been made for a post-graduate course in optics and chemistry to be formed at the close of the summer session at the Assembly Grounds this year.

In connection with the regular summer session of the school this year, there will be an exhibition of photographs, the work of graduates and ex-members, and of the prominent photographers in this and foreign countries, and this will be well worth seeing.

Prizes have been offered the members of the school this year as follows: For the best collection of not less than six landscapes or interiors, 5x8 inches or larger; a 6½x8½ Rapid Rectigraph Lens, by the Gundlach Optical Company. A prize copy of "A Quarter Century in Photography," by Dr. Edward L. Wilson, for the largest percentage of correctly-answered questions propounded by the Instructor is offered by the author of that excellent work; and the Editor of the PHOTOGRAPHIC TIMES offers the set of prize books —including Vols. I. and II. of "The American Annual of Photography" (being issues of 1887 and 1888), "Photographic Printing Methods," and "The Photographic Negative," by the Rev. W. H. Burbank, and "The Photographic Instructor"— which received the First Class Medal at the late International Amateur Exhibition at Vienna, for the best essay on any subject in which the students of this school have been instructed. The awards will be made on the Photographic Day, at the Chautauqua Assembly Grounds. The exact date of that day has not yet been definitely fixed. Full information concerning it, however, will be given our readers in a later issue.

EDITORIAL NOTES.

THOUGH rather early as yet to discuss the location of the next convention of the Photographers' Association of America, expression of opinion from several sources has already indicated Washington, D. C., as likely to be a favorite candidate in the competition for choice of location. The selection of a city for a convention, depends largely on the attendance at the gathering which makes the selection, so that it is difficult to determine now what place is likely to be selected. It will not be an extreme Western city, however, though very likely it may be west of the Alleghanies. Denver was quite widely spoken of at Minneapolis, for the convention to follow it, and it was then claimed by those in favor of Denver that that city was as accessible from the East as Minneapolis, and would draw more Western and Southern photographers. From Boston to Denver is rather a long stride, and will scarcely be taken next year, we think. Washington seems much the more likely place. It is accessible from the South as well as the East and North, and would be rather more favored by Chicago, Cincinnati and St. Louis photographers than Denver, though that city might be desirable for the succeeding convention. Washington, it will be remembered, had many strong advocates last year, when Boston was finally selected.

NOT long ago inquiries were made for a bleaching agent suitable for use with blue prints, and we recommended, at the time, oxalic acid for this purpose; but as a slight yellow tinge is retained on the paper after the use of this bleacher, it does not seem to be entirely desirable. We now learn from a contemporary that Guiguot has used molybiclic acid for this purpose, and has found it to be a good solvent for Prussian blue. The proportion of the solution which he uses is not stated, but we infer that but a small quantity of the acid is necessary in the bleaching. Molybdate of ammonium and tungstate of ammonium are likewise good solvents of Prussian blue.

COLONEL J. WATERHOUSE has recently made some very interesting orthromatic experiments with two new sensitizers for the red end of the spectrum, on gelatine dry plates. One is "alizarine blue," the solution of which has rather a greenish tint when dissolved in distilled water, and ammonia is added. The other is "anthracene blue;" its solution is of a bluer tint.

Used in the ordinary way for bathing dry plates, in a solution of a strength of 1 : 10,000 with about

one per cent. of liquid ammonia added, they both impart to the plates very strong sensitiveness for the region C to A of the spectrum, and on beyond to Z.

Though so strongly sensitive to red rays, they seem insensitive to yellow, and can be worked in an ordinary dark-room without serious fogging, though it would no doubt be better to work in total darkness.

For copying work, this dye seems to give increased sensitiveness to red.

The new dye, rhodamine, an amido-phenol phtalein, has also been tried as a substitute for the eosins in orthochromatic copying work. In color it resembles the bluest-shade eosins, such as cyanosin, but has a vivid scarlet fluorescence, which is not destroyed by acids, as is the case with the eosins, but on the contrary it is rather enhanced. Used in a 1 : 10,000 solution with one per cent. of ammonia, it sensitizes gelatine dry plates very strongly for the yellow rays of the spectrum about D, and a little below, toward the orange ; but as a sensitizer for orthromatic copying work it seems scarcely equal to erythrosin, and is nearer the yellow-shade eosins.

ON META-BISULPHITE OF POTASH.

SOME months ago I began a series of experiments to determine satisfactorily to myself, whether the claims made for the meta-bisulphite of potash, as a perfect preservative for pyrogallic acid in solution with other alkaline salts usually composing a developer, were well founded or not.

The article which I obtained after considerable difficulty, and which was and is now used in my experiments, it is but fair to state, is a compound of acid bisulphite and meta-bisulphite—the latter being in excess. The developer used was Ripley's pyro-potash without the citric acid. Several solutions were made in the proportions of one meta-bisulphite to one of pyro, one of meta to two of pyro, one of meta to two and a half of pyro (by weight), and so on. Immediately upon the solution of the meta-bisulphite in the pyro and sulphite solution of the developer, the solution assumed a light straw color, and has maintained that color to the present time, though some of the bottles have not been unstopped, and others freely used from, and all exposed to varying changes of light and temperature (from 34 degs. to 78 degs. Fahr.)

So far its claim as a very good preservative of pyro in solution has in my hands been maintained. In the proportion of one to one of meta-bisulphite and pyro, it was found to be a very powerful retarding agent, and oftentimes rendered development very tedious. In one to two of pyro, it also exerted a strong retarding action at first. Finally the proportion of one to two and a half (2½) of pyro was settled upon, and though apparently a retarding influence was at first noticed, the developer soon became very energetic and the development was concluded in about the usual time. The addition of the potash solution to the pyro and meta-bisulphite to complete the developer, changes the latter from a light straw color to a bright ruby. After developing from four to six plates in the same developer, a pellicle frequently formed upon it, and it appeared to become cloudy and slow. Do not on this account throw it away, but put it into a glass-stoppered bottle and find it the next day clear, and a very valuable developer to use on an over-exposed plate, or to begin on a plate, the amount of exposure of, you are uncertain. This developer has not as yet stained any plate in my hands, though I have frequently pressed the development much longer than I have dared to do before. The resultant negatives, as a rule, are of a warm brown color and are quick printers. It is, I think, decidedly advisable to continue the use of the sulphite of soda in the developer, and at the same time dispense with the various acids, and also the bromides. Should an over-exposed plate suddenly flash out, remove it at once to a tray of water, and watch the development as it proceeds, when it ceases, return it to the developer, and obtain all the density you require without trouble.

An accident revealed to me another result of the addition of the meta-bisulphite to the developer, much to my surprise and gratification, one that removes the reproach so often thrown on pyro. In endeavoring to save a plate from an upsetting and falling tray, my hands were covered by the developer, and my linen cuffs beautifully sprinkled. Mental remark: "Cuffs gone up, and beautiful hands to-morrow." But the hands presented no stains on the morrow, neither did the next week's wash show any ruined cuffs. I then immersed a linen cuff more than one-half in the developer, letting it remain there between three and four minutes, removed and dried it. It was superbly stained. Some hours after I soaked it in water for one hour, when almost all the stain had disappeared. Not having any boiling water at hand, consigned it to the weekly wash, and it was returned to me without a stain or blemish. Generally developing after 3 P.M., and having no longer any apprehension of stained hands or dirty-looking finger nails, I freely plunge my fingers into the developing-tray,

to remove the plate for examination, or final abstraction, resting assured that the morrow will find no stains.

John H. Janeway.

THE ÆSTHETIC SIDE OF PHOTOGRAPHY.

THE persistant claims of a class of photographers who aim at something more than the mere record of facts in their work, and pursue the æsthetic vein of naturalism sometimes to the sacrifice of the technical excellences of photography to be considered artists, demand a clear exposition of the relations between those excellencies and the qualities of art properly speaking. And in order that the artistic side of the photographer's work may be fully understood, properly followed out, and fairly appreciated, it is imperative that no confusion in the distinctions between what the photographer can do, and what he cannot do, with success, should cloud the judgment of the amateur or professional. This would hardly be necessary, were it not that when a thing becomes, for the moment, fashionable, the general, as even the particular, public mistakes the fashion for the beautiful, a radical mistake, for the beautiful is always the same, and the very existence of fashion implies continual change. There arises now and then a furore for what is called artistic photography in portraiture which is, in general, bad as photography, and only distinguished by a certain negligence in technical qualities, an appearance of the accidental in pose, something out of the conventional in the lighting, by being somewhat underexposed, and in a large way by something which suggests a picture in the general result. If it succeeds in producing the impression that it is a photograph of an old master it is triumphant, and the perpetrator thereof is put down as an artist. Now this is mere vagary. A photograph is a good or a bad photograph, as such, and is not made artistic by being bad as a photograph. It must be well lighted so as to tell its story completely, and well developed so as to bring out perfectly the results of the exposure, and the arrangement of the subject must be such as to give the best side of it if there is any difference. These are the qualities which mark the truly artistic photographer. If a photograph resembles an old master it is infallibly a bad photograph, though it may be a clever trick, and if bad it cannot be artistic even, *much less art.*

The so-called Rembrandt heads come within this rule, though the fashion in this case has a greater permanency than is usual in these eccentricities. The first requisite in a portrait photograph is that it should be a good likeness, and this the "Rembrandt" invariably sacrifices more or less. The second is that in any photograph of the figure involving the large relations of what are known as the "values," flesh should be broadly distinguished from the accessories and that it should be felt as luminous. If, in painting, this may be sometimes accomplished by the color, there is no justification for attempting to imitate in photographic monochrome the effect of the colorist, but in this respect the "Rembrandt" heads are misnamed for they have no resemblance to the portraits of that great portrait painter whose heads were in broad light with no black shadows in the flesh which is always luminous and generally made so in a high degree by the deep transparent background. The masterly modelling of Rembrandt's heads is not even suggested by these photographs in which the chief object seems to be to get as much shadow as possible in the head and as violent contrast between the small mass of light and the great mass of shadow; and the result is a mass of black shadow in the face which is not found in Rembrandt. I have in my possession a head of Emerson done in Boston somewhere about 1856, I know not by whom, which is in the real resemblance of the qualities of Rembrandt's work, as far as it is possible to render it in photography, the ideal of a photograph, the head in broad light, the modeling most complete and subtle, with shadows pale and full of detail, and the whole head thrown out by a very dark background. It is sufficiently out of focus to obliterate the minute wrinkles of the flesh and give it a broad quality which in artistic terms has no exact expression in English but is known by the Italian word "morbidezza," implying the peculiar softness and elasticity of flesh. If the term "art photography" was ever justified it is so in this head, but I have never heard any such pretension put forward in its favor and do not know who did it. The question of putting the plate out of focus for the photographing of large heads is one which has much to say for it as the most disagreeable quality of the photograph is the exaggeration of the detail of flesh and of defects in the features, but the doing of it is not art but depends on the lens. But the hardness caused by the microscopical detail may be avoided in another way, and one which does show taste if not art which are as nearly the same thing as photography permits. This is by a judicious lighting of the head.

In protraiture the qualities which we recognize as artistic because they are recognized as eminent qualities in art, are the exercises of correct judgment imposing the subject and especially the head so as to show the most characteristic view of it,

and the lighting of the head so as to show the features in their roundness and without losing any part of them in the blackness of exaggerated shadow. These are matters of taste, and taste may be increased by cultivation, but cannot be imparted even by the study of art. In fact, it continually happens that we see works of true art in which the element of taste is wofully deficient and others of a very weak and indifferent art in which it is notably present, so that even in painting and sculpture the possession of that quality does not determine the rank of the artist, nor does it in photography, however eminent, make the photograph a work of art. This must be distinctly understood before any discussion of, or education in, the artistic qualities of photography can be possible. A man of taste will always make a more attractive photograph than will one who has no taste, but the former may be a very bad photographer and the latter a very good one, and it is not edifying to confound the two. Calling things by their wrong names does no good to anyone, and to call photography art is simply misusing words. When this is recognized it will be easier to understand the relations between art and photography and to understand what can be taught and what cannot. If a man is an artist he will show it in the treatment of his subject, but one cannot study art in the camera and the belief to the contrary is a delusion which will waste the energies of all who believe it.

The study of art is no doubt a useful thing for a photographer but it must be followed with the pencil and in the picture galleries. When a man has learned in this way, what were the great qualities of the great portrait painters, he is better fitted to be a good portraitist in photography, but there is no other way of making the photographer an artist. In that way alone will he learn how to pose his subject and how the light may be made to adapt itself to the subject and bring out the character of it. Something may be learned by looking studiouslyat the engravings from the great masters of portraiture Titian, Van Dyke, Rembrandt, Rubens, Watts, Reynolds, Gainsborough, &c. &c., but the lesson can only be fully learned pencil in hand. If any photographer objects to the labor of this it is clear that he has little heart in his work. And the great lesson to be learned from the great portrait painters is that they never allowed any seeking of effect to interfere with the expression of the head, which the "Rembrandt" photographs constantly do. The pose and lighting which are the most artistic are those in which the character of the individual are most perfectly shown, and this is never the case when pictorial effect of light and shade are introduced. Black shadows in a head are simply vacancy and so are masses of broad, flat light, and the so-called "brilliant" pictures *i. e.* those in which the extremes of white and black are permitted in the flesh of the photograph, must of course sacrifice some of the good points of a head, for the highest lights of the flesh are never so white as white linen and the deepest shadows are not so dark that the "modeling" cannot be clearly seen or as dark as the shadows of ordinary drapery. The "brilliant" photographs are therefore distinctly non-artistic as opposed to the example of the greatest artists in their portraits to that of Titian, Velasquez and Rubens. In this respect the German photographers, as a general thing, surpass all the others in the world, probably for the reason that so many of them were trained artists who have taken up photography because painting is a less remunerative occupation. We find in their best work that the highest light in a head is considerably removed from white paper and that the deepest shadow in it is very far from black. This effect is obtained by a broad, all-round lighting in which all the flesh is more or less illuminated with a decided predominance of light on one side so that the highest light that is in the face shall be on the forehead and by preference on that side of the face of which the most is seen, *i. e.*, the side which is most fully in view, the side of the face which is turned from the camera being that on which the shadow falls. Now and then it happens that the photographer who knows this to be the best is tempted by the desire for variety to adopt a worse light because he gets tired of doing the same thing always. He should remember that his business is to do his best for the sitter and that what is stale to him is fresh to the person who wants the portrait. The most satisfactory protrait to the possessor is that which is the best likeness, not that which has the most pictorial effect, however this may be interesting as a photograph and the the business of the photographer is to consult the desires of his customers and make his reputation by pleasing them as well as by doing thoroughly good work.

With landscape work we have another standard owing to the fact that what people want in landscapes is in the main the beauty of the scene and not its fidelity, or in the cases where fidelity is the pre-requisite, it is because a portrait of the place is wanted in which case the rules of portraiture are equally applicable. Landscape photography will therefore be treated in reference to two considerations, pictorial effect, and fidelity to nature.

W. J. Stillman.

AMERICAN FILMS, vs. DRY PLATES FOR OUTDOOR PHOTOGRAPHY.

[Read before the Society of Amateur Photographers of New York.]

THE advantage of Eastman's American Films over ordinary glass dry-plates for out-door photography are many. First to be considered is weight. One gross American films, say 6½x8½ will weigh three pounds, and one 6½x8½ roll-holder, latest model, capable of holding forty-eight exposures, will weigh two pounds; total five pounds.

One gross 6½x8½ dry-plates will weigh not less than seventy-six pounds; and twelve double dry-plate holders of same size, will weigh nine pounds; total, eighty-five pounds. Making the glass dry-plate outfit weigh eighty pound more than the American film outfit.

The second advantage is compactness. One gross of 6½x8½ American film will not occupy more room than two dozen dry-plates, and the same size roll-holder no more than three double dry-plate holders.

The third advantage is no halation. When photographing interiors, where long exposures are required, and daylight is shining through the windows, also tree and foliage against the sky, in a landscape view, is where this advantage will be most appreciated.

The fourth advantage is the easy way the film negative can be packed away for future use, and the little room they occupy. Other advantages could be mentioned, such as durability, flexibility, and the practicability of printing from either side of the negative.

The Eastman American films of to-day, and what they were one or two years ago, are entirely a different thing. At that time there were hardships to be met with in the manipulations, that are now entirely overcome by the manufacturers; such as spots in the film; and then the paper would not always strip from the film, whereas now the stripping of the film is absolutely certain, providing the film is not over two years old; and even then, with the water hot enough, I will guarantee to strip it without any trouble. In every case that has come under my observation, where the amateur has laid claim to that the film could not be stripped the whole trouble was that the water was not hot enough. A prolonged soaking in a luke-warm water may prove disastrous to the film, as it is liable then to leave the glass, and this is not the end desired. I have yet to find a film that cannot be stripped with the proper treatment. Bring the water to the proper heat to dissolve the soluble sub-stratum in between the exposed insoluble film and paper, and lo! the paper will come off like magic, every time.

In case the development has been carried on for a long time, with a strong soda solution, the substratum is liable to become slightly tanned. In that case, soak the film negative for a short time in water containing a few drops of sulphuric acid. In fact I have applied the full strength acid to the back of negatives, just for a moment before immersing into the hot stripping water, and I think it possible to strip a paper negative that has no soluable substratum in between paper and film, with this method. I do not mean to say but what difficulties may arise in this as well as any other photographic process; but what I do claim, is that the Eastman American films of to day are as certain as any other photographic process, and that very fine results can be produced with it, and with more than 90 per cent less weight than the glass dry-plate process.

To the tourist and the view photographer this ought to be a serious consideration. The American films are now so sensitive that they can be used with any detective camera.

As I need a camera to make an exposure here this evening in order to demonstrate the developing and stripping of the film, the Kodak camera being of great interest to many, and as the films in this camera are the same as those used in the larger roll-holders, therefore I propose to use the Kodak with which to make this exposure, and I will use flash light to expose with, as that is considered a severe test on any of the so-called quick plates, as to rapidity. I wish to impress on your mind that I claim that these films are quick, uniform and reliable, and they can now be had for the larger size roll-holders.

Before I commence my demonstration I wish to make a few remarks about the Kodak; I guess you have all heard of this little wonder. Mr. Eastman, of the Eastman Dry Plate and Film Company, no doubt intended, when inventing the Kodak, to make photography a pleasure for the tourists and operators. I look on this instrument in a different light than some. I do not think it comes in competition with any other camera on this or the European market. It occupies a distinct sphere of usefulness that no other camera has attained. With this little instrument, you can make mementos of the different interesting points on your trip to Europe, to the mountains, or wherever your journey may take you, without making a drudge of yourself, or attracting every one's attention to yourself. The Kodak all loaded for operation, with one hundred exposures, will weigh less than two pounds, and is as you see a genteel little instru-

ment, that you need not feel ashamed to take anywhere. It can be taken into places that would be impossible to introduce your camera, plate-holder, tripod outfit, on account of its size and weight. With the Kodak you can make one hundred consecutive exposures, or you can stop and develop one, two, or any number. It will not take any longer to adjust the film again for future exposures than to reload a dry-plate holder.

I have met with a number of gentlemen that have understood the Eastman Company's advertisement to read, that it is absolutely necessary to expose the full hundred exposures before any one could be developed. Now, such is not the case, as I will show you here to-night. To make the exposure with the Kodak, as well as any other camera, the instrument must be held as still as possible, although the object to be photographed may move and yet get a sharp picture. The best way to hold

FIG. 1.

the Kodak still is to hold it in the left hand, lay the right hand on top and press the Kodak slightly against your person. Press the button with the thumb of the left hand, at the same time apply about an equal amount of pressure on the other side of the Kodak with the fingers (see Cut 1).

I have heard some complaints that some of the Kodak lenses did not cut as sharp as others, and I wish to state that in every case it was because the operator did not hold the Kodak properly and therefore not still when touching the button. The Kodak lenses are so severely tested before leaving the factory that the Eastman Company can in good faith assure you that they will all do the work as recommended.

To make interior pictures, it is necessary to give a time exposure. To do this, press the button repeatedly until the shutter refuses to revolve; stand in some dark place, facing the light; holding lens of Kodak against your person; remove the plug and open the shutter wide open with the finger; put on the cap, and you are ready for the operation.

With your permission I will now proceed to make the proposed flash light exposure develop and strip it. *G. D. Milburn.*

CLEANING UP OLD PLATES.

My attention was attracted some time since by a young man who was cleaning up old plates, and who was evidently finding it rather a tedious piece of work. As there may be others who spend unnecessary time on this operation, I may be allowed to draw the attention of amateurs to the following old laboratory friend, which stands us in good stead when we have a greasy or "smeary" glassware to clean.

Make a strong solution of bichromate of potash. This can be done by stirring the salt in warm water until no more will dissolve, or better by putting the water in a wide-mouthed jar, filling a percolating funnel with the salt and letting it hang partially submerged, supported by the collar of the neck of the jar. By this antique method the solution will go on by itself, and will not stop so long as any of the salt can be dissolved. To this solution is then added cautiously in a fine stream and stirring vigorously all the time concentrated commerical sulphuric acid (66 deg. B.). We now have a strong solution of chromic acid in a strong solution of sulphuric acid. The liquid gets very hot during the mixing. It is best to preserve it in bottles when cold.

To clean up plates, place them in a glass tray and pour upon them an amount of the mixture sufficient to cover them well. The hotter the mixture is the quicker will it act, so that when it is not freshly made up, and is hence cold, it is well to heat it up.

After a little time, depending on what sort of a plate it is, and what has been done to it, the film will be entirely dissolved or disintegrated. The plates are taken out and allowed to drain a moment, then held under the tap and washed off with a soft bristle-brush. The method will be found to be practical, rapid and efficient.

As the solution cuts organic matter so voraciously, it is fair to infer that it will not slight the fingers. Should the liquid get on the fingers, wash it off under the tap, scrub the place with dilute ammonia on a sponge, and wash again. Finish with soap. No danger need be feared with ordinary caution. The solution is really a strong battery liquid, and is handled daily in various strengths in large quantities without fear of accident.. When the liquid turns dark-green it is a proof that it is used up, and it may then be thrown away. *Peter T. Austen.*

TO REDUCE THE INTENSITY OF NEGATIVES.

LAY the plate in a pan of water for about five minutes. Then flow with Hall's Intensifier. Keep the solution on until the film is of a rich brown color. Then wash well and remove the brown color with a strong solution of hypo-soda. Wash well and dry. By repeating this operation several times the image may be entirely removed from the glass. *J. H. Hallenbeck.*

Correspondence.

A LETTER FROM EX-PRESIDENT DECKER.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I see by the May 10th number of the TIMES that you mention the little pictures sent to you called No! and Yes! They were *not* sent as samples of *fine* photography. They do show, however, that photographs may be made to tell a story, even in a dark day in December. In this case the little girl did say No! and then Yes! and the want of sharpness in the little boy is caused not by a want of focus, but because the little boy was speaking at the time of exposure, of course they show under-exposure, but remember it was a dark December day, and the exposure was not longer than one-quarter of a second.

I am glad to see the TIMES is prospering, as it should do, as nearly all the illustrations are gems, and alone worth more than the price of the journal.

Yours very truly,

E. Decker.

CLEVELAND, OHIO, May 14, 1889.

Notes and News.

NEW CLUBS.—The formation of a new Photographic Society at Duluth, Minn., is reported, it is to be called the "Duluth Actinics." The officers are as follows: Major James B. Quinn, U. S. A., President; S. L. Fraser, Vice-President; C. M. Gray, Treasurer; Frank S. Daggett, Secretary. They start in with a membership of thirty. There is also a flourishing club of amateurs in Iowa City, called the "Iowa City Camera Club," the officers and membership are not yet reported.

"THE CENTENNIAL CELEBRATION PICTURED BY THE CAMERA."—The Society of Amateur Photographers of New York, desiring to testify its interest in the project for the erection of a permanent memorial of the "Centennial Celebration of the Inauguration of George Washington as the first President of the United States," and wishing to give its friends and the public an opportunity to see the results obtained by the members of the Society in photographing the Naval, Military and Civic Parades, will give a Stereopticon Exhibition, at Chickering Hall, Tuesday evening, May 28th, 1889, at eight o'clock, in aid of the Washington Memorial Arch Fund. The skill of the photographic art in displaying the picturesqueness and artistic beauty of many of the scenes will be a surprise to the observer, and the records of the Detective Camera will reveal amusing and entertaining incidents of the recent Festival Days. The undertaking has the endorsement of the Finance Committee of the memorial Arch Fund, to whom the profits of the entertainment will be transferred. The admission is fifty cents; reserved seats, seventy-five cents.

Tickets may be purchased at the Hall or on the evening of the Exhibition, and from the Members of the Committee, and at the rooms of the Society, 122 West Thirty-sixth Street, from eight to ten o'clock every evening, until the Exhibition. J. Wells Champney, *Chairman*; Alfred L. Simpson; Fred'k C. Beach; Charles Simpson and Harry T. Duffield.

PHOTOGRAPHERS COMBINING.—It is reported that agents have been working in Boston, Buffalo, and elsewhere, to form, if possible, a combination closely resembling a trust. A clipping from the *Philadelphia Evening Star* of May 16th reads: "Bogardus, the celebrated photographer of New York, is one of the originators of the scheme. The association already has 40,000 members, and extends over a large territory, mostly east of here. An entrance fee of $2 is paid on joining, and 50 cents monthly thereafter. It is claimed that there is now $100,000 in the treasury. The photographers are graded according to excellence, and are allowed to charge for their work according to a scale established for the several grades.

"The usual plan of crushing out those who do not come into the association, it is understood, is to be pursued, that is, prices will be put temporarily at a rate so low that they cannot stand the competition. During the warfare the members of the association are to receive from the association the difference between the amount which they actually receive for their work and the regular list price. Employes are also allowed to join in the combination. Their wages are to be maintained by the association. It is said that most of the photographers in Buffalo have gone into the combination."

THE EXTENSION OF THE METRIC SYSTEM OF WEIGHTS AND MEASURES.—To any one who has had practical experience with the metric system it needs little argument to show its immense advantages over the barbaric system, or lack of system, of weights and measures in use in this country, but the great majority of our people dislike to make a change that for a short time would give some additional trouble, though forever after it would be an immense gain. It is indeed strange that a people so intelligent and so progressive should be willing to continue the use of such a hodge-podge of weights and measures as we designate by the name of the American, or, rather, the English system.

In a certain copper works we visited some time ago, the ore was mined by the "Cornish ton" of 2352 pounds; at the dressing works and furnaces the long ton of 2240 pounds was used, and after the copper left the furnaces it was counted by the net ton of 2000 pounds. In the coal and coke trade we have tons of 2240 and 2000 pounds, and bushels of 80, of 76, and of 40 pounds, to say nothing of the retailers' bushels and tons, which are what they make them. There are "hundredweights" of 100 pounds, and of 112 pounds. We have pounds of 12 ounces and of 16 ounces, and the ounces themselves differ, the avoirdupois and the troy weights being applied, the former to ordinary metals and things, the latter to gold, silver, platinum, and a few other things.

We have grains and drams and scruples, we have rods and poles and perches of many different sizes, and about twenty different "bushels," as applied to grain and other things.

So we might go on through that whole bewildering relic of barbarism, our "standards" of weights and measures—through a list that our children spend many a weary hour at school to learn, and which, when learned, are found to apply only locally, in one State or district one measure prevails, a few miles from there a different one.

Nevertheless, though the metric system, so admirable in its simplicity, is legal in this country and in Great Britain, and in many of the English colonies, and has been legal for many years, it seems to make but little progress in general use.

This is sometimes used as an argument against the metric system, but it is no more so than the fact that natural gas was known, its qualities fully described, its advantages in actual use at a few points fully shown, and its general use advocated in a few technical papers for about twenty years before its utilization at any but the few places where originally tested is an argument against its use.

The plain people do not know, and cannot appreciate, the advantages that the sole use of the metric system would bring them, and the mere legalization of the system simply adds another to the already formidable array of "standards" now in use. The government of the United States and of Great Britain could, by joint or concordant action, secure the universal adoption of this great blessing.

Even if our government were to require all transactions with it to be in the metric standards, is would greatly promote their general use. If, for example, the public lands were measured and all documents connected with them used the metric only, and all customs and other transactions with the government used mectric weights and measures it would tend greatly to popularize the use of the system. The Coast Survey already uses the metric measures, and it would be very easy for the government to conduct all its business in the system; then the public would soon adopt it. We are holding back while all the rest of the world is going on as is shown in the following paragraph:

At a meeting of the French Academie des Sciences, held on the 4th February last, M. de Malaroc, speaking on the subject of the extension of the metric system of weights and measures, said:

"In 1887, the countries where the decimal metric system is obligatory, have an aggregate population of 302 millions of people (302,589,297), an increase of 53 millions over 1877.

"The countries where the metric system is authorized by law as optional [England, usual British Colonies, Canada, United States] include 96,900,000 souls (96,996,499), an increase of 19 millions over 1877; and the countries where the metric system is legally admitted in principle or applied in part (for the Customs) (notably Russia, Turkey, British India) comprise a population of 395 milllions (395,282,090), an increase of 54 millions over 1877.

"To sum up, the metric system is legally recognized in the civilized world among 794 millions of people (794,817,796), an increase of 126 millions over 1877. This increase is due to the growth of the population of the countries which had already adopted the system, and to the adoption by new countries.

"These 794 millions of people represent a proportion of 61 per cent. of the population of the civilized world, that is to say, of countries which have official censuses and enumerations of the population and which have 1311 millions of inhabitants.

"China, Japan and Mexico have various systems, decimal but not metric; they represent a population of 474,000,000 of souls.

"Other civilized peoples, not included in the foregoing, have systems which are neither decimal nor metrical; they represent a small fraction of the civilized world, 42,000,000 of inhabitants!"—*Engineering and Mining Journal.*

BRONZE MEDAL FOR AMERICAN PHOTOGRAPHIC INSTRUCTION BOOKS.

We now show our readers reproductions of the bronze medal [both sides] which was awarded the following books at the late International Exhibition held under the auspices of the Amateur Photographic Club of Vienna: Volumes I. and II. of "The American Annual of Photography and Photographic Times Almanac" [being issues of 1887 and 1888]; "Photographic Methods," and "The Photographic Negative," by Rev. W. H. Burbank; and "The Photographic Instructor," edited by W. I. Lincoln Adams, with an appendix by Professor Charles Ehrmann.

The reproductions from this medal were rather difficult to make, as the raised head of Daguerre and the embossed lettering required a side light in order to preserve a

requisite plasticity, while the engraved letters would have been rendered more effectively if a front light could have been used. But where one subject requires two different methods of lighting, something must be sacrificed, and in this case, the head of Daguerre was thought most important. It is a bronze medal the exact size of the cut.

A CAMERA OBSCURA.—The photographer is the most contrary of men. He looks at everything upside down, says "yes" when you ask for a "negative," remains hungry after taking any number of "full plates," does most of his work in the dark yet never fears an "exposure," is always ready to change his "views" for money, makes serious charges and manufactures his own "proofs," never gets his patrons "full" when he takes them on a "bust," generally "stops" a picture before he begins it, and will cheerfully "take" all you have—yet feels insulted if you accuse him of having "picture" pocket.—*Drakes Magazine.*

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

MINUTES of the stated meeting held Wednesday evening, May 1, 1889, the President, Mr. Frederic Graff, in the chair.

The Secretary reported the receipt of a circular containing the programme of the International Congress of Photogtography, to be held in Paris, France, during the Exposition of 1889, and inviting the attendance of members thereto. It was also reported that a number of picture exhibits, by Mr. Frank M. Sutcliffe, at the late Exposition, had been presented by him to the Society, and a vote of thanks was passed for the same.

The Committee on Membership reported the election of the following active members: Dr. James J. Nelson, William A. Sullivan, John H. Bradway, Daniel W. Grafly, Dr. Samuel D. Risley, J. H. Hoovan, Walter R. Furness, Rev. Henry A. F. Hoyt, William Howard Turner, Joseph Gray Martin.

Mr. W. E. Barrows showed some excellent cabinet portraits made by means of the Welsback light, by Mr. Rockwood, New York.

Dr. Charles L. Mitchell showed and described Barnett's Universal Film Carrier, adapted for using celluloid films in ordinary plate-holders.

Mr. Morris Earle showed one of the Hawkeye Detective Cameras, fitted with a roll-holder for paper negatives, and also for use with ordinary holders containing glass plates or films.

He also showed some transparencies called by the makers (Messrs. Williams & Brown) "Linotypes." They were photographic prints on linen mounted as transparencies, with washes of color applied to the back, giving them a pleasing tinted effect.

Mr. Burrows showed an improvement on the flash-lamp exhibited by him at a recent meeting, in which the usual rubber tube and bulb were done away with. A spring, released at the proper moment, threw the flash powder upward and outward into the flame. This arrangement allowed the lamp to be constructed in very compact form. The lamp shown was adapted for use with ten to twelve grains of powder.

Adjourned.

Robert S. Redfield,
Secretary.

THE PHOTOGRAPHIC ASSOCIATION OF BROOKLYN.

A REGULAR meeting was held on Wednesday evening, May 8, 1889, with President Wagner in the chair.

The subject of the evening "Orthochromatic Photography" was presented in a very interesting lecture, by Mr. Oscar O. Litzko, the main points are as follows:

What I want to show is the manner in which this process has been tested. My employer, Mr. Bierstadt, has given me permission to show you some samples, and also his chart containing the spectrum colors; violet, indigo, blue, green, yellow, orange, red and black. This chart has been photographed in the orthochromatic and also in the ordinary way.

There are many ways of producing an orthochromatic effect. One is the use of a glass tank placed behind or in front of the lens, in which a coloring matter from either a vegetable or mineral product is placed. This tank or cell is, however, only for use in the studio, as for out-door photography we have a colored glass screen, so as not to be bothered with carrying colored solutions.

The tank is constructed as follows: Procure two pieces of best white plate-glass, about six inches square, between these a piece of rubber of the same size square, and about three-eighths of an inch thick. In the center of this rubber, cut out a circle about four inches in diameter, and from one of the corners to the center of the circle, cut out a narrow strip one-quarter inch wide, this serves as the mouth of the tank, the two pieces of glass and the rubber are cemented together with rubber cement, then to hold it together two brass flanges are used as a clamp, with four screws, of an equal distance apart, a thin sheet of rubber is on the glass side of the flanges to prevent direct contact with the glass, the center remaining clear for the rays of light to pass through solution and glass.

One of the best orthochromatic effects made through this tank is with a three grains to the ounce solution of bichromate of ammonium or bichromate potassium. In this method there is no preparation used on the plate, a common rapid dry-plate is exposed through this solution, the exposure, however, is about twenty times longer than it would be if you removed the tank with the yellow solution, or in other words if a dry-plate is exposed one minute without the yellow solution it would have to be exposed twenty minutes through a three grain solution of bichromate potassium or ammonium.

It produces wonderful results on an oil painting, or any highly colored object.

Another method, and the one best adapted for landscapes, is to bathe the plates in erythrosine, and then expose it through a yellow glass screen.

As an illustration, suppose we have before us a beautiful landscape. In the foreground beautiful foliage, in the centre a lake, in the distance hills with a bluish haze, appearing pleasing to the eye, also a nice sky with light clouds. Now make a plain negative, and see what has become of your clouds, hills, and the distance—not visible. Some photographers have been led to think that by underexposing, they retain the distance, but they sacrifice the foreground, besides it does not produce an orthochromatic effect.

But it is a good idea to expose longer on the foreground than you do on the distance. This can be done by raising

the cap of the lens skyward, and gradually shut off giving the foreground more exposure.

Plates are prepared for orthochromatic work as follows: Take any ordinary rapid dry-plate, place it in a bath containing

Distilled water	200 c. c.
Strong liquid ammonia	2 c. c.

Rock it for two minutes, work as dark as you possibly can. Now take it out, and place it in the second bath for one and a quarter minutes, and keep it rocking.

Have on hand for use a stock solution of

Distilled water	1000 parts
Erythrosine "Y brand"	1 part

Prepare second bath as follows:

Erythrosine stock solution	25 c. c.
Distilled water	175 c. c.
Strong water ammonia	4 c. c.

After removing the plate, dip it again face down to rinse off any particals of scum, etc., that may get in the bath accidentally. This bath may be used for one doz. 8x10, when it should be thrown away and fresh bath used.

After the plates come out of the last bath, they should be stood on clean blotting paper to absorb the excess of solution. I would also advise to use clean fingers. Pyro or hypo on the fingers is a drawback to success.

After plates have been drained place them in a cleaned rack in an absolute light-tight closet, with air holes, so constructed as to admit air, but no light. The plates will dry in from eight to twelve hours. They are best prepared in the evening, and if the closet is good, they will be dry in the morning.

After the plates are dry they may be packed face to face, with nothing between them, in a double cover paper box, and put in a dark closet, free from sulphuretted hydrogen gas until ready for use. I have kept plates for three months in this way, and they were in good condition. Great care should be used in developing these plates, as they are sensitive to the red. Get used to developing in a dark part of the dark-room. Occasionally you may look at the process of development in a little stronger light.

The exposure through the yellow screen, with an erythrosine plate, is about the same as if you had no orthochromatic plate, a plain plate instead, providing you are not using too dark a yellow on your screen. This can only be determined by experience. I will give to a common plate about four seconds, an orthochromatic plate under the same conditions five seconds.

The yellow glass screen is prepared as follows, take a piece of best plate glass, common cannot be used, clean it nicely, take another large plate glass, or any thing that is level and true; level it with a small spirit level. Now take the cleaned piece of glass and coat it with

AURENTIA COLLODION.

Ether	5 ounces
Alcohol	5 ounces
Cotton	60 grains

The aurentia to he added to suit your judgement; it takes a very small quantity to make an intense yellowish-red collodion. Pour it on the centre of the glass, flow it to the edges, and before it sets place it on the level glass, and allow it to set; when set put in a rack to dry.

Should it dry with ridges, the collodion may be too thick, and it must be thinned down with equal parts of alcohol and ether. A single piece of plate glass about one-eighth inch thick, coated with aurentia collodion, is all that is required with an erythrosine plate. Or after a piece has been successfully coated, and the piece of the same plate glass, and the same size, may be cemented together with balsam, having the coated aurentia side between the two glasses, the edges may then be bound with paper.

In using different colored solutions, collodion, etc., I have found that one will change the focus and the other not. With some screens you must focus with them in their positions, take away the screen and the picture appears out of focus. I cannot fully explain why it is, and for that reason will not make the attempt, experience alone can teach it.

Another thing that has been tried lately is to do away with the yellow glass screen, by substituting a yellow coating direct on the plate. We doubt the focus on an object that requires absolute sharpness. is somewhat affected by the use of a glass. We have been successful on a small scale, to coat the plate with the following yellow solution:

Place in a tray enough of a saturated solution of tropaeolin in wood alcohol to cover the plate, allow it to remain ten seconds; it is necessary that the plate should be bathed previously in erythrosine and dried. Before applying the tropaeolin, which being in alcohol, dries in a few minutes, have some blotting paper on hand, as the solution gathers in a pool, and leaves bad marks on the end of the plate. The plate can be developed in the usual way. Try it and see the results.

The next regular meeting will be held on Wednesday evening, May 22.

Charles M. Heid,
Secretary.

The Editorial Table.

THE CHEMISTRY OF PHOTOGRAPHY. By Raphael Mendola. New York: McMillan & Company.

This excellent book is a compilation of lectures which the author delivered at various times before students of the subjects; and thoroughly covers the ground treated of. Conscious of the importance of his work, the author says in the preface: "The operator who treats his art as though it consisted simply of a miscellaneous collection of recipes is bound to become superceded in this, as in all other departments of scientific industry, unless he has sufficien training in general principles to enable him to meet new and ever changing conditions."

To accomplish this, the present work will be a valuable aid, and we advise all those who desire to rise in their profession to procure and study a volume of this excellent book.

DIE PHOTOGRAMMETRIE ODER BILDMESSKUNST. Von Dr. C. Koppe. Weimar, 1889. Published by *Deutschen Photographen-Zeitung*. XI and 83; 7 tables; 8vo. New York: G. Stechert. $2.20.

This is the latest contribution to the literature of photography applied to surveying; and seems, from a casual examination, to treat the subject in the pains-taking way characteristic of German savants.

A detailed description of a "Photo-theodolite," constructed by the author, is given, with cuts of the apparatus, and plottings of the results obtained with it, in measuring and profiling the inaccessible side of the "Rosstrappefels" in the Hartz Mountains.

Other less complicated arrangements of ordinary cameras are also described.

Mr. C. Hempsted, Cochocton. O., has sent us two 5x8 landscapes on albumen paper. They were both well-selected views, well-lighted, and developed.

From Mr. C. H. Miller, of Philadelphia, we have received several attractive landscapes printed on aristotype, platinotope, and ordinary albumenized silver paper. The subjects are carefully selected and the prints are well made.

Mr. O. Pierre Havens, of Jacksonville, Fla., sends in some Cabinet portraits of very fine quality. They are artistically posed, well retouched, and elegantly mounted. We shall have a specimen of Mr. Havens work to show our readers in an early issue.

We have received No. 2 of *The Amateur World*, which is an illustrated weekly journal, devoted to amateur sports and pastimes, including photography. The current number contains portraits of the firm of Buchanan, Bromley & Company [W. B. Buchanan, A. H. Bromley, and Ben. Siedenback], accompanied by brief biographical sketches. There are also some interesting notes on photography, in the same issue.

Volume XII. of Alden's Manifold Cyclopedia is now issued. A careful inspection, prompted in part by a desire to satisfy ourselves, and partly in order that we might keep our readers correctly informed, convinces us that all the strong commendations which have been bestowed upon previous volumes is in equal measure due to this. It is, of course, published in the same handy form, and is just as convenient to use as its predecessors. This is no small matter, as all who have had occasion to consult the unwieldy volumes in which cyclopedias usually appear can testify. Passing to the contents of the book we find the same thoroughness and fidelity which has characterized the previous issues. The broad field has been carefully gleaned. The results of long-continued investigation are presented in an attractive and available form. Open it where you will, the book offers rich treasures of knowledge. This volumn takes the work from Dominis to Electric Clock. This work is a Dictionary as well as a Cyclopedia —a fact which adds greatly to its other merits. It seems almost incredible that such a work can be sold for 50 cents a volume in good cloth binding, or 65 cents in half Morocco, with 10 cents additional for postage, but that is all that is asked. A specimen volume may be ordered and returned if not satisfactory. John B. Alden, Publisher, New York, Chicago, San Francisco and Toronto.

Record of Photographic Patents.

408,476. Photographic Apparatus. Henry Kuhn, St. Louis, Mo.

Queries and Answers.

105 Tyro: "Can I make instantaneous pictures by the light of the full moon, using Cramer's 80 degree plates?"

105 *Answer.*—No. There is not light enough.

106 Miss Ella R.: "Has toned transferrotypes with urenium nitrate and ferricyanide of potassium, before stripping, but cannot get off the paper, no matter how hot the water may be?"

106 *Answer.*—Quite natural. The ferricyanide hardens the substructure of soft gelatine to such an extent that stripping becomes impossible.

107 R A. F. wants to know the effect of an increase of either alcohol or ether in the normal collodion compound of equal parts of the solvents.

107 *Answer.*—An excess of ether toughens the film by closing its pores. Sensitiveness is then much reduced, and the possibility of a highly intense negative excluded. Ferrotypes take more ether than alcohol, 8:2 for thin collodion for this reason. Too much alcohol makes the film soft, porous, and finally glutinous and rotten. Equal parts of ether and alcohol answer but for all purposes as long as they are of the desired purity.

108 A. T., of Georgia, wants to know: (1) For what purpose is albumen recommended as an addition to the silver printing bath? (2) How much of it should be used.

108 *Answer.*—(1) To keep the bath clear, prevent coloration, and thus softening of the albumen film. (2) Two grains of alum to one ounce of silver solution.

109 F. G. H.—If sulphurous gases arise from decomposed albumen, there certainly must be sulphur in it. Is it there in large quantities?

109 *Answer.*—The percentage composition of albumen averages about as follows:

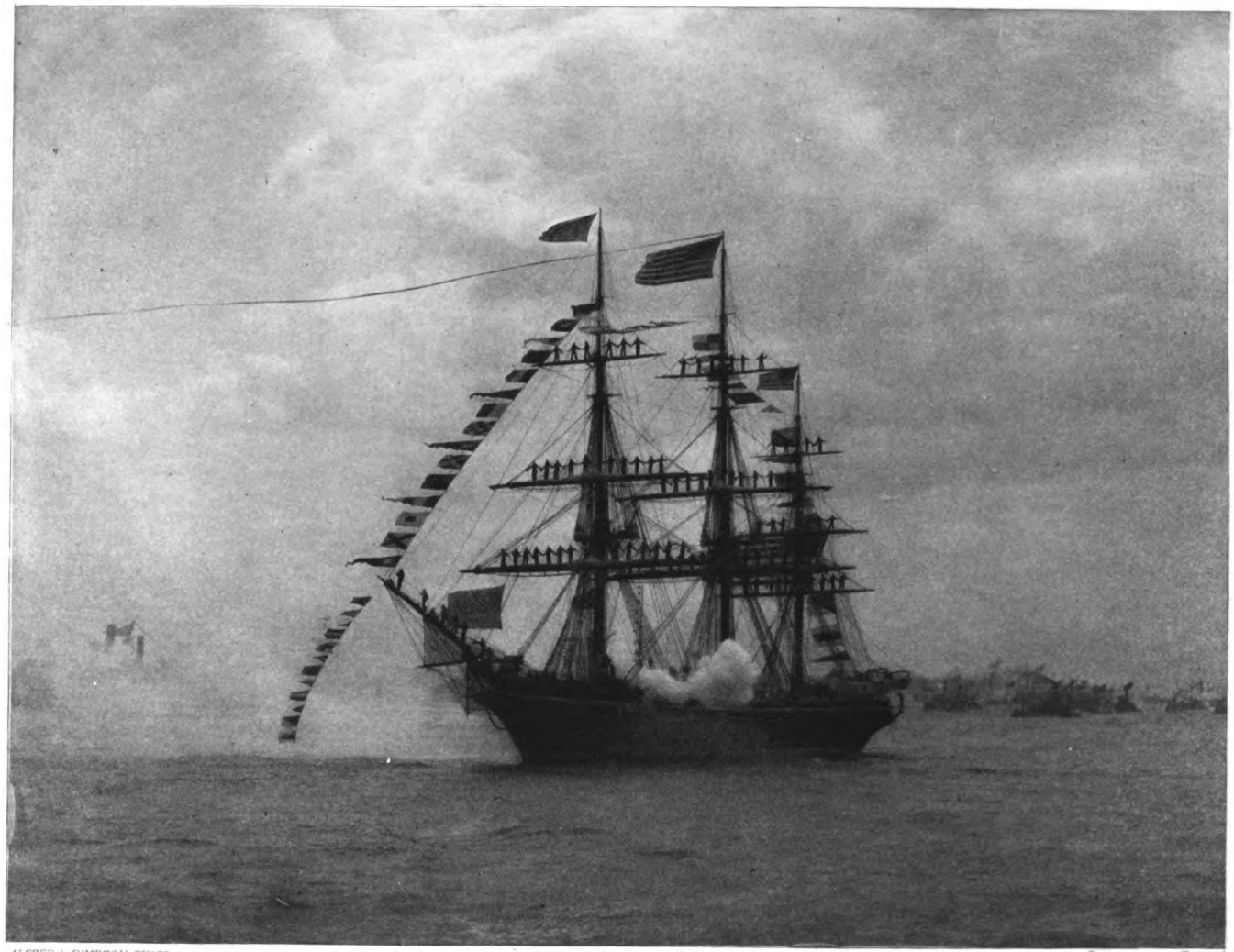
Carbon	53.4
Hydrogen	7.
Nitrogen	15.6
Oxygen	22.4
Sulphur	1.6

110 Printer.—How can neutral salts like acetates, borates, phosphates, or tungstates, neutralize in our chloride of gold toning baths?

110 *Answer.*—The salts used for the neutralisation of chloride of gold are not neutral, they react alkaline. Weak acids, when uniting with strong bases to salts, like those mentioned above, do not entirely destroy alkalinity. These alkaline salts may be used for the neutralisation of the acid gold. The weaker acid will then be driven off, and the stronger combined with the base.

111 Beginner.—Can Gelatine negatives be dried by heat and how long will it take to dry one well enough to print from it?

111 *Answer.*—Remove all superfluous water from the well washed negative by blotting, either with bibulous paper or a linen or cotton cloth Fibres adhering to the film may be brushed off after drying, but not before it. After all moisture have been absorbed as much as possible, hold the negative over a register, a stove or some other heat source, the glass side towards it. It will take from five to ten minutes before a 5 x 8 or 6½ x 8½ negative is perfectly dry.



ALFRED L. SIMPSON, PHOTO. PHOTO-GRAVURE CO. N.Y.

U.S.S. BROOKLYN.

THE PHOTOGRAPHIC TIMES.

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THE GREAT NAVAL PARADE.

FULFILLING our promise of a few weeks ago, we show our readers, this week, one of the best pictures made during the recent celebration in this city. The negative was made by Mr. Alfred L. Simpson, author of the excellent Group of Elephants, which attracted so much favorable attention in these columns not long ago. Mr. Simpson used a Cramer plate in this instance, with a Prosch shutter, and developed with a pyro and potash developer known as the "Hoover" developer. The exposure was made from the steamer "Philadelphia" (which was chartered by the Society of Amateur Photographers of New York), on the day of the great naval parade, Monday, April 29th. It shows the majestic flagship "Brooklyn" in the foreground, with the other men-of-war and various excursion boats in the distance.

EDITORIAL NOTES.

WE call attention to the communication on "A New 'Flash' Lamp," by C. C. Schirm, which appears in another column of this issue. Herr Schirm is a photographic artist and scientist of Breslau, Germany, of more than ordinary experience. The excellence of his lamp, and the methods he employs for using magnesium light in the studio for every-day professional work, have commended themselves to the leading authorities in Germany. The specimens which he sent with the interesting description of his lamp, are better, as a collection, than any set of pictures made by artificial light which we have yet had the privilege to examine. They consist mainly of portraits, many of which are made with a single achromatic lens and with the light furnished by only six to eight grains of the pure magnesium metal. Herr Schirm and Herr Van Delden (a well-known professional in Germany) are about to establish a photographic studio for professional purposes, where daylight will be entirely dispensed with and the magnesium, as used by Herr Schirm, alone relied upon. The half-jocular prophecy which Herr Gaedicke, one of the earliest workers in this field, made in "The American Annual of Photography for 1888," seems really about to be fulfilled. The first studio to actually employ the uniform magnesium light for all purposes, which is to be established by these two eminent workers, will undoubtedly be followed by others abroad, where the light is rarely so good or uniform as it is in this country.

THE ivory varnish spoken of in these columns some weeks ago, and which is known in Europe under the name of Zapone, seems to be gaining friends in all parts of the world where photography is practiced. It is really a solution of celluloid in amyl acetate. Col. Waterhouse, of Calcutta, prepares it by dissolving three parts, by weight, of ordinary collodion wool in one hundred parts, by measure, of amyl acetate. The varnish certainly possesses many excellent qualities, especially for gelatine transfers; but it is not applicable to collodion films, and hardly to the flexible films with celluloid for a support.

THE salt bath, according to Dr. Stolze, who has recently been experimenting with it, is not only profitably employed after the fixing of prints, but also immediately subsequent to the combined fixing and toning bath, and, indeed, after any gold toning bath. Prints that are removed from the gold bath to pure water, will continue to change color for some time, especially when two or more lie closely together. When, however, the print is placed in a 10 per cent. salt solution instead of in pure water for toning, the process is at once arrested and the proper shade is secured.

COLOR-SENSITIVE emulsion should contain very little gelatine and be thinly coated upon the glass plate. It is not well to add the dye directly to the

emulsion, neither is it advisable to bathe the coated plate in a solution of the dye-stuff; for the solution is reduced by every succeeding plate, and a uniform color-sensitiveness is, therefore, difficult to obtain. When the dye is added directly to the emulsion, there are well known difficulties occurring which it is not easy to overcome. It is now generally admitted by orthochromatists, that the best way to color-sensitize a plate is to bathe it in a solution of uniform strength after having been coated with emulsion in the usual way.

SINCE Her Imperial Highness, the gracious Archduchess Maria Theresa of Austria, deigned to show publicly the great interest which she has taken in photography, an enthusiasm for picture making seems to have rapidly spread among the scions of royalty. Frequent mention is made in the foreign photographic journals of Prince This or Duke That, who has recently purchased an amateur's outfit. The latest acquisition to the photographic ranks from the nobility, we learn, is a sister of Germany's Emperor, and she has consented to patronize the Jubilee Exhibition which will be held in Berlin, next summer, in commemoration of photography's semi-centennial.

PRISCILLA.

THE Photographers' Association of America have opened an extended field for photographers, by offering a prize each year for the best photograph, or collection of photographs, illustrating some well-known and suitable poem. The "Hiawatha" pictures, last year, while varying largely in style and excellence, were all suggestive and instructive. The "Evangeline" competition, this year, promises to be still more successful in this particular line, as the poem is more suitable for photographic illustration, and will undoubtedly call out a larger number, and, on the whole, better class of pictures. One poem suggests another, and having once started in this kind of work, the photographer is broadened in his ideas of art, and, from illustrating picturesque lines, finds it easier to make pictures of the subjects that daily visit his professional studio. The pleasure and instruction gained in thus illustrating poems, commends itself especially to amateurs, who, as a rule, have much time and means to expend in the pursuit of their favorite occupation. We have reason to believe that our quotations from "Evangeline," accompanied by illustrative cuts [published several weeks ago]*, have excited considerable activity among amateur photographers, as well as among those who intend to compete for the Association's grand prize; and therefore, the suggestion of further subjects, in the equally suitable poem, by Longfellow, "The Courtship of Miles Standish," may seem proper at this time. We offer, as suggestions merely, the accompanying cuts from negatives that were made in an ordinary drawing-room lighted simply by the usual side windows. The poem is full of lines that suggest pictures which are entirely within the scope of a camera to depict.

First, there is the picture of the two friends in their simple dwelling in Plymouth.

"In the Old Colony Days, in Plymouth the land of the Pilgrims,
To and fro in a room of his simple and primitive dwelling,
Clad in doublet and hose, and boots of Cordovan leather,
Strode, with a martial air, Miles Standish the Puritan Captain.
Buried in thought he seemed, with his hands behind him, and pausing
Ever and anon to behold his glittering weapons of warfare,
Hanging in shining array along the walls of his chamber—
Cutlass and corslet of steel, and his rusty sword of Damascus,
Curved at the point and inscribed with its mystic Arabic sentence,
While underneath, in a corner, were fowling-piece, musket and matchlock.
Short of stature he was, but strongly built and athletic,
Broad in the shoulders, deep-chested, with muscles and sinews of iron;
Brown as a nut was his face, but his russet beard was already
Flaked with patches of snow, as hedges sometimes in November.
Near him was seated John Alden, his friend, and household companion,
Writing with diligent speed at a table of pine by the window;
Fair-haired, azure-eyed, with delicate Saxon complexion,
Having the dew of his youth, and the beauty thereof, as the captives
Whom St. Gregory saw, and exclaimed, 'Not Angles, but Angels.'
Youngest of all was he of the men who came in the May Flower."

There are several groups which may be made from the description of these friends, in the first canto, and in the second there are several more quite as effective, and easy to photograph. In the third chapter, Alden goes on his strange errand, to ask the hand, for his friend, of her whom he himself loved, and presents more than one picture on the way.

"As he drew near the door, the musical voice of Priscilla
Singing the hundredth Psalm, the grand old Puritan anthem,"

was heard by the devoted youth.

"Then, as he opened the door, he beheld the form of the maiden
Seated beside her wheel and the carded wool like a snow-drift
Piled at her knee, her left hand feeding the ravenous spindle,

* Page 168, April 5th issue.

While with the right she sped, or reversed the wheel in its motion.
Open wide on her lap lay the well-worn psalm-book of Ainsworth,

Printed in Amsterdam, the words and the music together,
Rough-hewn, angular notes, like stones in the wall of a churchyard,
Darkened and overhung by the running vine of the verses.
Such was the book from whose pages she sang the old Puritan anthem,
She, the Puritan girl, in the solitude of the forest,
Making the humble house and the modest apparel of homespun
Beautiful with her beauty, and rich with the wealth of her being!"

Then follows the picture of the lovers talking together of the "Birds and the beautiful spring-time," until the youth, "the dexterous writer of letters," in his embarrassment and dismay, blurts out the choloric Captain's proffer of marriage as bluntly as the old soldier himself would have said it. All are familiar with the Rogers' group which illustrates the scene which shortly follows: "*Why don't you speak for yourself, John?*"

John is "perplexed and bewildered," and returns to the Captain, only to be misunderstood by him, and wronged. The Captain rushes off in rage to the Council, which has assembled to return a fitting answer to the Indian's challenge which has just been received; and it presents a striking picture.

"Men in the middle of life, austere and grave in deportment,
Only one of them old, the hill that was nearest to heaven,
Covered with snow, but erect, the excellent Elder of Plymouth.
God had sifted three kingdoms to find the wheat for this planting,
Then had sifted the wheat, as the living seed of a nation;
So say the chronicles old, and such is the faith of the people!
Near them was standing an Indian, in attitude stern and defiant,
Naked down to the waist and grim and ferocious in aspect;
While on the table before them was lying unopened a Bible,
Ponderous, bound in leather, brass-studded, printed in Holland,
And beside it outstretched the skin of a rattlesnake glittered,
Filled, like a quiver, with arrows; a signal and challenge of warfare,
Brought by the Indian, and speaking with arrowy tongues of defiance,
This Miles Standish beheld, as he entered, and heard them debating."

Alden decides to sail for England in the return of the "May Flower," and is only deterred by Priscilla herself, whom he sees

"Standing dejected among them, unconscious of all that was passing,
Fixed with her eyes upon his, as if she devined his intention,
Fixed with a look so sad, so reproachful, imploring, and patient,
That with a sudden revulsion his heart recoiled from its purpose,"

and he exclaimed, "Here I remain!"

The sixth canto describes more pretty scenes, in which Priscilla and Alden play the important parts; and "The March of Miles Standish" presents as many more pictures, if of a somewhat different character.

In the eighth canto, we return to the lovers, who are

"Led by illusions romantic and subtle deceptions of fancy,
Pleasure disguised as duty, and love in the semblance of friendship.
* * * * * * *
So as she sat at her wheel one afternoon in the autumn,
Alden, who opposite sat, and was watching her dexterous fingers,
As if the thread she was spinning were that of his life and his fortune,
After a pause in their talk, thus spake to the sound of the spindle.
'Truly, Priscilla,' he said, 'when I see you spinning and spinning,
Never idle a moment, but thrifty and thonghtful of others,
Suddenly you are transformed, are visibly changed in a moment;
You are no longer Priscilla, but Bertha the Beautiful Spinner.'"

And what a charming picture is described in the following lines:

"'Come, you must not be idle; if I am a pattern for housewives,
Show yourself equally worthy of being the model of husbands.
Hold this skein on your hands, while I wind it ready for knitting;
Then who knows but hereafter, when fashions have changed and the manners,
Fathers may talk to their sons of the good old times of John Alden!'
Thus, with a jest and a laugh, the skein on his hands she adjusted,
He sitting awkwardly there, with his arms extended before him.

She standing gracefully erect, and winding the thread from his fingers,

Sometimes chiding a little his clumsy manner of holding,
Sometimes touching his hands, as she disentangled expertly
Twist or knot in the yarn, unawares—for how could she help it?—
Sending electricals thrills through every nerve in his body."

"The Wedding-Day" naturally follows soon after, and is beautifully described in the last canto. We have space left but for a few of the lines:

"Onward the bridal procession now moved to their new habitation,
Happy husband and wife, and friends conversing together.
Pleasantly murmured the brook, as they crossed the ford in the forest,
Pleased with the image that passed, like a dream of love through its bosom,
Tremulous, floating in air, o'er the depths of the azure abysses.
Down through the golden leaves the sun was pouring his splendors,
Gleaming on purple grapes, that, from branches above them suspended,
Mingled their odorous breath with the balm of the pine and the fir-tree,
Wild and sweet as the clusters that grew in the valley of Eschol.
Like a picture it seemed of the primitive, pastoral ages,
Fresh with the youth of the world, and recalling Rebecca and Isaac,
Old, and yet ever new, and simple and beautiful always,
Love immortal and young in the endless succession of lovers.
So through the Plymouth woods passed onward the bridal procession."

The study of a poem which is well illustrated by skilled artists, is a great help to any photographer. "The Courtship of Miles Standish," has been excellently illustrated by such artists as Boughton, Meirell, Reinhart, Perkins, Hitchcock, Sharpleigh, and others. This edition is beautifully published by Houghton, Mifflin & Company, in quarto, the drawings of the artists being reproduced in phototype. It also contains notes that are very helpful in explaining the various pictures described. There are other and cheaper editions of course, and the reading of even an unillustrated edition of a picturesque poem will be found to suggest much that is broadening to the photographer. We hope that the forthcoming competition for the "Evangeline" prize, and the suggestions offered in this brief presentation of "Priscilla," will result in stimulating the ambition of photographers to cultivate somewhat this field for subjects; to read more widely, and to study illustrated editions of poems that are within the range of the camera to depict, for it will be found to help them in many ways.

ART VS. MECHANICS.

Two friends are out in the early spring sunshine for a day's pleasure. One is a sketcher, and carries lightly the implements of his art, while the other, being but an amateur photographer, is burdened with a hand camera, only. During the course of their ramble they come to the banks of a little purling brook whose pleasant voice, the soft breeze, and the general attractiveness of the surroundings, induce a halt. The sketcher chooses a spot from which is promised a suitable subject for his pencil, and immediately begins work. He with the camera has also made his selection, after careful study, but is not quite satisfied with the probable result. Intending to make an instantaneous exposure, as the lighting justifies it, he would like some human object or animal to give life and motive to his picture. The sketcher, who, of course, can add whatever shall please his fancy or his taste may dictate, is rapidly sketching his background while his companion is deliberating.

About thirty feet from where the friends are stationed, the brook is spanned by a rustic footbridge in the form of a rather narrow piece of hewn timber. A short distance down stream two children are playing near the water edge, with long sticks, in imitation of fishing. Here is what the "manager of the camera" requires. Approaching

the children he tries to persuade them to cross the little bridge for him. "Let the smaller one go first," he says, "and you who are older, watch very carefully that he does not fall." So they cross the bridge. The faltering footsteps of the younger, the watchful solicitude of the elder, supplying the idea—the motive which will render the representation of a picture. The young man of the pencil is now ready to remember all that he will ever find it possible for him to recall, of the scene presented as the children cross. The man with the camera waits until the requirements, according to his conception of the pictorial, are complied with, and snaps the shutter. Up to this point both have worked conformably to the nature of the implements used to secure their results. More has been possible to the sketcher, for he could omit, so that greater skill, of a certain sort, has been demanded from the photographer, who must include all or none. Our friends, upon reaching home, will each complete his picture. The sketcher, be his talent, skill, genius never so great, cannot hope to have caught, or in large degree to have reproduced, the life and action of those figures, or the expression of each face; the photographer has secured both. The work of the sketcher is art; the work of the photographer is not art, we are told—"only mechanics." Yet it has been written, and truly, it seems to me: "The three constituent elements of a picture are idea, subject or form, and expression. The idea is the thought to be conveyed; the subject is the vehicle of conveyance; and the expression is the manner in which it is conveyed." Are these three elements impossible to photography? I say No. *Frederick A. Jackson.*

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XIII.

Iodine.

Symbol I. Combining Weight, 127.

The elementary body iodine was discovered by Courtois, of Paris, in 1812. He obtained it from kelp—the ashes of certain seaweeds, which contain the iodides of sodium and magnesium. Iodine is prepared in a precisely similar way to bromine and chlorine, its fellow halogens, by heating an iodide—usually potassium iodide—with sulphuric acid and black oxide of manganese.

$$2KI + MnO_2 + 2H_2SO_4 = I_2 + K_2SO_4 + MnSO_4 + 2H_2O.$$

Iodine is usually seen as bluish-black scales, having a somewhat metallic lustre. It melts at 239 deg. Fahr., and at 400 deg. Fahr. is converted into a beautiful violet-colored vapor. Iodine is but very slightly soluble in water, but readily dissolves in alcohol, in carbon-bisulphide, or in chloroform. *Free* iodine forms a blue compound with starch, and this furnishes a well-known test. To make this test a drop of potassium iodide solution is added to some very dilute starch-paste. If a drop or two of chlorine water is then added to the mixture, some iodine will be liberated, and will unite with the starch to form a blue compound. This blue compound, once formed, is itself a delicate test for "hypo," the latter substance discharging the blue color. A solution of iodine in water can be obtained, if to the water is first added some iodide of potassium. This solution has been recommended by Vogel and by Chapman Jones as a hypo eliminator. "After fixing as usual, wash the prints in three or four changes of water, and then place them in water colored by the iodine solution to about the tint of pale sherry, and replace this iodine water with fresh as may be necessary, until the prints show a slight but persistent blue color. This blue is especially visible on the back, and shows excess of iodine, and therefore absence of hypo. To get rid of the blue color, rinse the prints in a solution of sulphite of soda and carbonate of soda, made very weak indeed (a few drops of a strong solution to a pint or a quart of water), and then wash them in two or three changes of clean water and dry. The iodine solution must not be used in a metallic vessel."

Iridium Tetra-Chloride.

Formula, $IrCl_4$. Combining weight, 335.

Iridium is an intensely hard metal which Is found in small quantities mixed with platinum. it is now used to make the indestructible points of pens. There are three chlorides of iridium, but the most interesting is the tetra-chloride, which is produced by dissolving finely-divided iridium in aqua regia, heating and evaporating to dryness. The $IrCl_4$ so obtained is a black, deliquescent, amorphous substance which dissolves in water, forming a reddish-yellow solution. It combines with ammonium to form ammonium chlor-iridiate. An aqueous solution of the latter salt is naturally of a pale-yellow color, but when exposed to light it becomes white, and then changes to purple, violet, and lastly assumes a beautiful blue tint.

Iron Acetate.

Formula, $Fe(C_2H_3O_2)_3 + 4H_2O$. Combining weight, 246.

There are two acetates of iron, ferrous acetate, which has the formula given above, and ferric acetate, $Fe_2(C_2H_3O_2)_6$. It is the ferrous salt—the protacetate of iron—which is used in photography.

When iron is dissolved in acetic acid and the solution evaporated *in vacuo*, greenish-white crystals of ferrous acetate, very soluble in water, are produced. It can also be obtained by acting on sugar of lead (lead acetate) with carbonate of iron, or by the combination of ferrous sulphate (green vitriol) and calcium acetate. Under the name of "black liquor," or "iron liquor," it is largely used as a mordant in calico-printing.

Iron-Ammonium Citrate.

Prepared by dissolving two parts of freshly-precipitated ferric hydrate in three parts of citric acid, and passing ammonia through the mixture until it is saturated. On evaporating, a yellowish mass of ammonia-citrate of iron will be obtained, which is insoluble in strong, but soluble in weak alcohol of 40 per cent.

Iron-Ammonium Sulphate.

Formula, $Fe\,SO_4.\,(NH_4)_2SO_4 + 6H_2O$. Combining weight, $284+108=392$.

Prepared by dissolving 38 parts of ferrous sulphate with 33 parts of ammonium sulphate in the minimum quantity of hot water. When the solution is filtered and allowed to crystallize it forms transparent bluish-green crystals, which are soluble in five parts of cold or two of hot water. It is a very stable substance, and hence is frequently used instead of ferrous sulphate for analytical purposes.

(Iron): Ferric Nitrate.

Formula, $Fe_2(NO_3)_6$. Combining weight, 484.

Ferric nitrate is formed by dissolving iron in nitric acid. On evaporating the solution it deposits colorless crystals which contain a large amount (12 or 18 molecules) of water of crystallization. These crystals deliquesce rapidly in air, and dissolve in water to form a brown liquid, which is decomposed by boiling.

(Iron): Ferric Oxalate.

Formula, $Fe_2(C_2O_4)_3$. Combining weight, 376.

Prepared by dissolving ferric hydrate ($Fe_2(HO)_6$) in a solution of oxalic acid. It is very soluble in water. Its use in photography depends mainly on the fact that by exposure to light it is reduced to ferrous oxalate. The paper employed in the platinotype printing process is prepared with ferric oxalate.

(Iron): Ferric Sulphate.

Formula, $F_2(SO_4)+9H_2O$. Combining weight, $404+162=566$.

Ferric sulphate can be prepared by oxidizing ferrous sulphate with nitric acid. Ten parts of the ferrous salt are dissolved in water with four parts of sulphuric acid, and nitric acid is then added to the hot solution. On evaporation, the anhydrous ferric salt is obtained as a white powder.

(Iron): Ferrous Bromide.

Formula, $FeBr_2+6H_2O$. Combining weight, $216+108=324$.

A solution of ferrous bromide can be made by dissolving iron in hydrobromic acid. By evaporating this solution, green crystals of the salt can be obtained.

(Iron): Ferrous Chloride.

Formula, $FeCl_2$. Combining weight, 127.

Prepared by dissolving iron in hydrochloric acid and evaporating *in vacuo*, when bluish-green crystals having the composition $FeCl_2+4H_2O$ are obtained. These deliquesce and decompose in air. They are very soluble in water and in alcohol.

(Iron): Ferrous Iodide.

Formula, FeI_2+4H_2O. Combining weight, $310+72=382$.

Prepared by digesting iron filings and iodine in water. When the colorless aqueous solution so obtained is exposed to air it decomposes; but this may be prevented by the addition of a little sugar. On evaporation, green crystals of ferrous iodide containing four equivalents of water are obtained. The anhydrous salt can be obtained by heating iron filings with iodine in a closed porcelain crucible.

(Iron): Ferrous Nitrate.

Formula, $Fe(NO_3)_2+6H_2O$. Combining weight, $180+108=288$.

Prepared by adding barium nitrate to ferrous sulphate and evaporating *in vacuo*. The crystals so obtained are very soluble in water. This salt is very unstable, quickly absorbing oxygen and passing into ferric nitrate.

(Iron Perchloride): Ferric Chloride.

Formula, Fe_2Cl_6. Combining weight, 325

Perchloride of iron, or ferric chloride, is obtained by dissolving peroxide of iron (Fe_2O_3) in hydrochloric acid. The solution is yellow when dilute, reddish-brown when concentrated. By passing chlorine over red-hot iron wire, brilliant red crystals of anhydrous perchloride of iron are produced. These are very soluble in water, alcohol, or ether.

(Iron Protosulphate): Ferrous Sulphate.

Formula, $FeSO_4+7H_2O$. Combining weight, $152+126=278$.

Protosulphate of iron, or ferrous sulphate, is commercially known as copperas, or green vitriol. The pure salt can be obtained by dissolving pure iron wire in sulphuric acid, but it is made on a large scale by exposing heaps of moistened iron pyrites (FeS_2) to the action of the air. As usually seen it consists of green crystals, readily soluble in water, almost insoluble in alcohol. All the ferrous compounds combine readily with oxygen, and when ferrous sulphate is left in contact with air, as in a partly-filled bottle of the aqueous solution, the salt absorbs oxygen and is converted into ferric sulphate. The change is indicated by the alteration of color from green to yellowish-brown. It may be retarded or prevented by adding two or three drops of sulphuric acid, or by keeping a little clean iron wire in the bottle. The bottle should also be kept quite full and well corked.

Ferrous sulphate was introduced as a developing agent by Robert Hunt, in 1844. It was largely used both in the calotype and in the collodion processes. As an ingredient for making the ferrous oxalate developer, ferrous sulphate is still largely used.

Kaolin (China Clay).

Formula, $Al_2Si_2O_7+2H_2O$. Combining weight, 258.

Kaolin, or China clay, is a silicate of alumina, produced by the disintegration of the felspar which is an essential ingredient of all granites. It is an extremely fine white powder, which is frequently used to clear, or decolorize, solutions of nitrate of silver, such as the negative bath in the wet collodion process, which have become brown, owing to the presence of albumen or other organic matter. It is a natural product, known as China clay or porcelain clay, occurring plentifully in regions where granitic rocks abound.

W. Jerome Harrison.

(*To be continued.*)

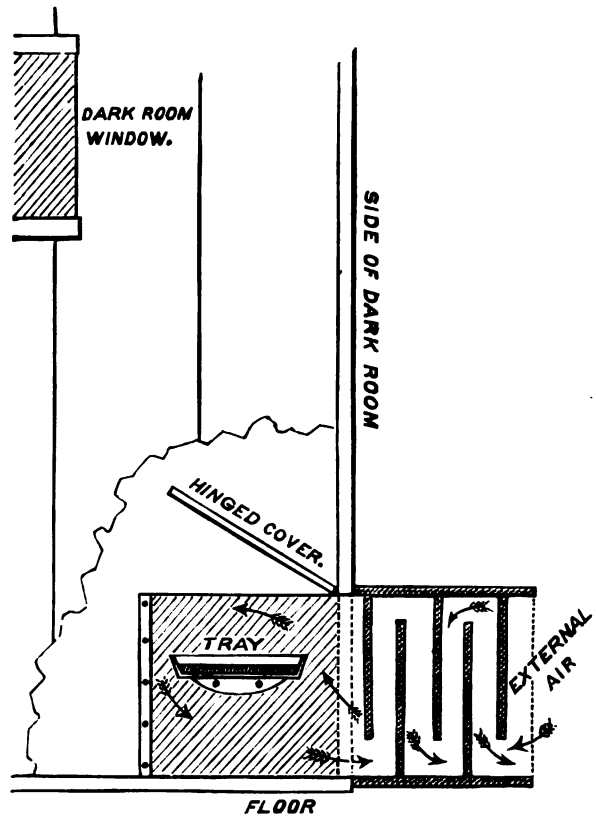
CYANIDE FUMES.

The fact that cyanide of potassium is a poison of the most violent kind, and that the fumes of a solution of cyanide are also poisonous when inhaled, cannot be denied, yet hundreds of photographers are constantly inhaling the fumes of cyanide in their dark rooms, and yet rarely give the matter a thought unless their attention is called to it by failing health, or acute sickness.

At this season of the year, when many ferrotype operators like myself, are working in tents, etc., with tight wooden dark rooms barely large enough to turn around in, it becomes positively dangerous to inhale the amount of fumes which accumulate from an open tray of cyanide, or even from a glass bath, the summer heat greatly increasing the amount of fumes passing off.

For my own use I have devised a simple apparatus whereby I have attained to a large extent freedom from the objectionable fumes, and while there may be nothing new about it, if this short article serves to call the attention of photographers to the matter in question, something will be gained.

I have placed in the corner of my dark room a tight wooden box, with a hinged cover; in the box is a skeleton shelf, which supports the tray of cyanide, and allows air to pass all around it; with a compass saw I cut out the side of the dark room covered by the box, and fasten on the outside a box, open at both ends, and containing pieces of



wood as shown in the drawing, which, while they allow the passage of air (my dark room is in a tent) practically shut off all light; the cover of the box containing tray is kept down at all times except when putting in or taking out a plate.

In many cases the same object could be gained by dispensing with the outside box containing the light-excluding strips, and boring a number of auger holes through the side of the dark room into the box, and covering these loosely with a sheet of yellow or ruby paper. In dark rooms indoors by

connecting the cyanide-box with the chimney-flue by means of a tin or iron pipe, the same object might be obtained.

In the summer of 1888 I was attacked with a train of symptoms which a physician pronounced cyanide poisoning, and which in a large measure disappeared after putting in the ventilating-box in question. *C. L. Woolley.*

Correspondence.

A NEW MAGNESIUM LAMP.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Being a constant reader of your esteemed journal, THE PHOTOGRAPHIC TIMES, and noting therein the many accidents and often highly ungratifying results experienced in the use of magnesium flash-light, and reading numberless advertisements of compounds, cartridges, and completed apparatus which require incredible qualities of magnesium powder, I must declare that I was somewhat astonished at the (excuse the expression) awkwardness with which this branch of photography is treated in a land generally so much ahead of us slow-coaches of the "Old World," especially in regard to mechanical and technical inventions and experiences. Allow me therefore to communicate to you some, perhaps, interesting experiences made over here with magnesium flash-light and some improvements in its use which have so clearly put forth its utility that leading photographers are beginning to consider the advantages of its exclusive use instead of daylight.

About two years ago, in making some experiments with pure magnesium powder as to the most perfect way of combustion without addition of explosive mixtures or gases, and with the greatest simplicity as to the apparatus used, I soon came to the result that an infinitely small quantity blown by not too sharp atmospheric pressure not *obliquely* but *axially* through a *long* flame as produced by a Bunsen gas burner, or specially constructed spirit lamp will more than suffice to give any quantity of actinic light necessary for photographing with good lenses and good sensitive plates.

I soon constructed a small apparatus, consisting of two spirit lamps on light portable stands, in which by joining both lamps by means of narrow india-rubber tubes to one and the same pneumatic ball, I could at the same instant produce a flash in both lamps, standing at my photographic apparatus, and so catch my little boy laughing at a joke I made, of which scene I enclose a print. I am sorry to say it is none of the best, as it is the last one remaining.

You will scarcely believe me when I tell you that the whole amount of magnesium powder used in both lamps *together* was four centigrammes (four hundredths of a gram), and the lens used only a good landscape lens.

On account of this minimal quantity of powder used, no smoke could in any way be noticed, and even after about a dozen flashes in our small parlor, I could only tell by the, to me, well known *smell* of the burnt magnesia that there must have been some smoke.

The apparatus was then improved so as to increase its portability and sureness of action, and about a year from that time Prof. Dr. Eder, head of the School of Photography in Vienna, took portraits with great success and has introduced it into his school.

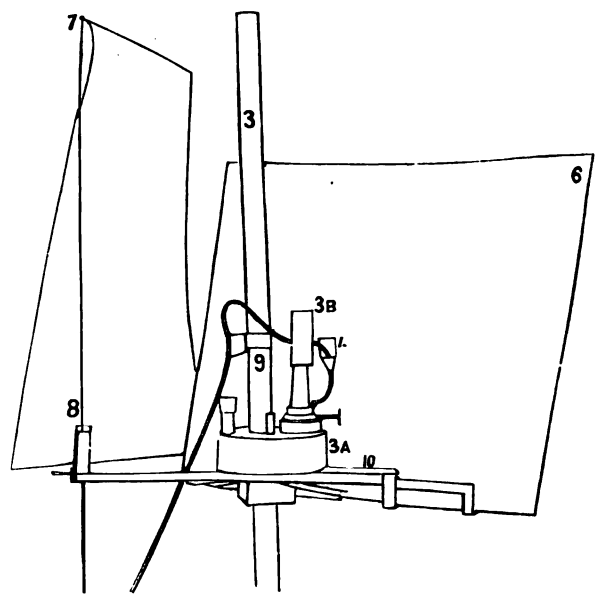
By increasing the number of lamps, which can all at the same time be put into action by pressure on the pneumatic ball, any desired quantity of light can be produced, and it can be so well regulated and with such ease that the results can, with a little practice, be foreseen with greater surety than in using daylight.

The use of my apparatus is now spreading, and although our photographers are very slow in trying anything new, they are beginning to comprehend the advantages of this way of using magnesium flash-light, and our first photographer here, Mr. Van Delden, manager of a large establish ment, who for a long time considered all kinds of magnesium lamps as mere toys for amateurs, was, through a trial of the apparatus described, which he was forced to make at a large festival here, so completely convinced of the great advantages and easiness in regulation of the light that he has, in building new premises, decided on using the flash-light exclusively and entirely, and to renounce daylight.

In course of the féte he made forty exposures, using eight lamps and about ten grammes of magnesium powder altogether, and all forty exposures, without exception, proved to be perfect.

To give you an idea of the construction of the apparatus I enclose two prints, showing the less recent form of the lamps, as the wood cuts of the recently improved form have not yet come to hand.

Print *A* shows a single lamp.

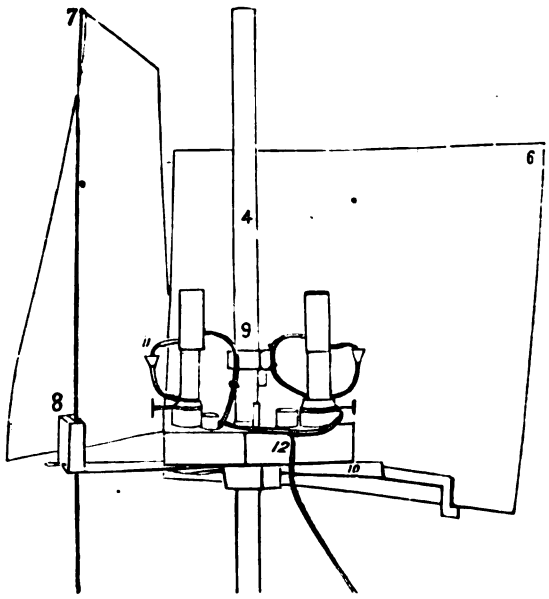


A.—SINGLE LAMP.

8 is the stand, 8*a* the lamp for spirits of wine, 8*b* the burner with a small chimney to increase length of flame. (The chimney has proved superfluous and is no more in use).

11 is a small funnel in which the magnesium powder is filled, and after this the brass end of the tube connected with the pressure ball is inserted.

The clamp 9 prevents the tube forming sharp angles. 6, 7, 8, and 10 are clamps, and screens inserted in these for the regulation and distribution of the light.



B.—Duplex Lamp.

Fig. *B* shows the duplex lamp.

The numbers are the same as in Fig. *A*.

2 is the photographic apparatus, 5 the pressure ball joined at 12 to both lamps, 1 seat for person to be photographed, 13 foot of stand, 14 wires to fix the stand in the

The burner of the lamp is a circular petroleum burner, and the brass tube carrying the funnel 11 and turned upwards at its other end is inserted into the triangular opening at the lower end of the burner.

Yours very truly,

C. C. Schirm.

Breslau, Germany, March 24, 1889.

Notes and News.

Erratum.—In answer to Query 100, page 252, hyper sulphuris should read hepar sulphuris.

Exhibition of the Photographic Society of Chicago.—The first annual exhibition of the Photographic Society of Chicago, consisting of work by leading professionals and amateurs from abroad as well as in this country, was opened May 15th at the Art Institute, and continued until May 20th. The display of photographs occupied three rooms on the second floor, covering almost every foot of available space; and the interest shown in the exhibition by the general public as well as by photographers was great, judging from the excellent attendance throughout the entire exhibition.

In a later issue we shall announce the prize-winners, and speak more in detail of the exhibition.

Exhibition of the Yonkers Photographic Club.—The first exhibition of photographs by the Yonkers Photographic Club, was held in their rooms in the Deyo Building, Warburton Avenue, from May 17th to 24th inclusive. The pictures were well arranged by the Hanging Committee, T. D. R. Eschmann, R. Eickemeyer, Jr., and G. J. Stengel; and a neat catalogue of the one hundred and seven exhibits was prepared by it. Prominent among the exhibitors were the following well-known amateurs: D. Goodsell, T. L. Jabine, R. Eickmeyer, Jr., W. Olmsted, C. H. Martin, J. W. Alexander, T. S. Oxholm, A. R. Taylor, O. C. Beer, J. B. Platt, G. L. Morse, T. A. Walsh, S. Hedding Fitch, W. Blackburn, F. Crowther, William M. Warner, J. G. Affleck, H. W. Parton, W. B. Nye, G. J. Stengel, R. M. Reeves and S. S. Clark. The work was all creditable, and the exhibit, as a whole, very successful.

Gustav Cramer arrived safely in this city, from Europe, *en route* for his home in St. Louis, last week, looking well, and apparently in the best of spirits. His journey abroad has evidently been beneficial to him in every respect, and he comes back prepared to serve the fraternity in the manufacture of dry-plates, more efficiently, even, than in the past.

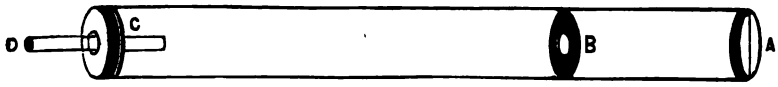
Ingenious Photography.—Among the many ingenious applications of the phonograph, a means has been devised by which every blast of the engine's whistle is recorded, together with the exact time at which it occurs. This device will be valuable to the railroad companies in protecting them from the exaggerated pretensions of persons who are injured on the track. It is interesting to recall the fact that Emerson, as far back as 1851, foretold in a way what Edison has brought to pass. "The sun pains," he said, "presently we shall organize the echo, as we now do the shadows."—*N. Y. Telegram.*

A Telescope Made from Photographic Lenses.—The following is reprinted from "The American Annual of Photography, and Photographic Times Almanac for 1889," by request:

Most photographers do not know that an excellent telescope can be constructed out of the lenses in common use in their galleries, but such is the case. The back lens of an ordinary portrait combination makes a very good objective, while a useful eye-piece can be made of an ordinary short-focused plano-convex lens, costing but a few cents.

A telescope consists of two principal parts, the objective and the eye-piece, the former being very costly. A well-finished objective, three inches in diameter, is worth at least fifty dollars. The simplest way to construct a telescope is as follows: Unscrew the back lens of any good portrait combination, and hold it in the sun over a table or bench until the small, bright spot indicates the exact focus, then measure the distance from the lens to the point of focus, and have a tinner make a tin tube, perfectly straight, and just large enough to fit the cell containing the lens, and about three inches shorter than the distance from the lens to the focal point. This tin tube should be blackened on the inside to prevent reflection. This can be done by dissolving a little glue in alcohol and adding lampblack. After thoroughly blacking the inside of the tube, insert the cell containing the objective in the front end of it; then, about eight inches behind, place a

stop, similar to those used in portrait lenses; the opening should be about one inch in diameter. In the other end of the tube, a close-fitting block of wood should be placed, with a one-inch augur hole exactly in the center. This hole is to accommodate a smaller sliding-tube containing the eye-piece. The following diagram shows the position of the several parts:



A, is the objective. B, the stop, or diaphragm. C, the small sliding-tube, containing eye-piece. D, the eye-piece. For perfect vision, the eye-piece should rest exactly in the focus of the objective; this can be accomplished by sliding the little tube forward or backward until a perfect focus is obtained.

The simplest form of eye-piece is a single plano-convex lens, of about one inch focal length, carefully adjusted, with the convex side towards the objective. Such a lens may be obtained at any optician's for about seventy-five cents, and although it gives but a very narrow field of vision, it gives very clear definition, and is quite satisfactory when properly adjusted. A better eye-piece, and one giving much larger field of vision, is made as follows: Take two small plano-convex lenses, one with a focal length of 1¼ inches, and the other -inch. Place the larger one in front of smaller, leaving one-inch space between them. Adjust them so that their centers are exactly opposite each other, and place them firmly in the end of the sliding-tube, as shown in the diagram. If the photographer does not care to make his own eye-piece, he can buy one of an optician for two or three dollars.

The eye-pieces just described are known as "celestial." They show the objects inverted, and are used only upon celestial objects, as the sun, moon and stars. The "terrestrial" eye-pieces are much more complicated, and an inexperienced hand would not succeed in constructing one properly.

To find what power the telescope possesses, divide the focal length of the objective by the focal length of the eye-piece. Thus, if the focal length of the objective is thirty inches, and the eye-piece is one inch, the power will be thirty diameters. If the focal length of the eye-piece be only a half-inch, the power will be sixty diameters, etc. Possibly some one will observe that the portrait lenses are not properly corrected for astronomical purposes. That is very true, but still very good results may be obtained.

With a Darlot lens (4-4 size) I have distinctly seen the four moons of Jupiter, the lunar mountains, and resolved some of the easy star clusters into separate stars. I have often wished that I owned one of those long-focused lenses. What a grand telescope it would make!

To all who possess such an instrument, let me say, lose no time in constructing a telescope, and you will be abundantly repaid in pleasure and instruction as you learn to use it. It is something more than a passing pleasure, to sweep the sky on a clear, dark night, with a telescope of moderate power. As your eye glances through the instrument, and you see what appear to be but little wisps of light resolved into separate stars, and your powers of vision extended far beyond the limits of unassisted eyesight, you will feel well repaid for all the labor and patience that it requires to make a telescope. One hour spent viewing the moon on a cloudless night with such an instrument as described above will make an impression long to be remembered. High mountain ranges and circular craters stand out distinctly when seen through a telescope made with a common 4-4 Darlot lens. To get the best view, however, the moon should not be full (nor the observer either), but a crescent or half-moon, for then the shadows fall aslant, bringing every object out in fine relief. Venus is, also, a fine object, showing the same phases as the moon, only no mountains can be seen, simply a crescent, then half-full, gibbous, and lastly full. Mention might be made of Jupiter and his moons, of the Pleiades, nebula in Orion, and many other objects of interest, but space forbids.

In the foregoing instructions, nothing was said about a tripod to rest and steady the telescope on, for each photographer can devise something that will do. Suffice to say, that it should be so arranged that the instrument can be moved freely in any direction, and stopped and made rigid at any point, with a thumbscrew, or some such device.

In closing, let me urge the fraternity to undertake the pleasant and highly instructive task of making a telescope, and peering into the starry depths beyond the range of common vision. It will be a recreation of the highest order, and will well repay you for the trouble and slight expense.

E. S. Hall.

Photographic Societies.

THE NEW ORLEANS CAMERA CLUB.

THE regular monthly meeting of the New Orleans Camera Club was held at Tulane Hall, Vice-President Hincks in the chair, and thirteen members present.

The committee on club-room reported progress.

The applications for membership of Messrs. Atwood Violet, L. Frigerio, W. D. Stella and W. B. Krumbhaar, Jr., were received, and they were duly elected.

The prize committee awarded the following prizes:

For best negative and print of subject selected, viz.: West End Hotel, best instantaneous picture of animated beings, and best flash-light picture, the prizes were awarded to Mr. Jos. A. Hincks, vice-president of the club.

For the best and most original composition, Mr. Geo. W. Weingart, Jr.

For best lantern-slide, Mr. R. H. Palfrey.

The flash-light picture, entitled "Mediation," by Mr. Hincks, and the composition and lantern-slide, by Messrs. Weingart and Palfrey, were especially noticeable as works of art.

It was only regretted that so few of the members entered the competition.

THE CINCINNATI CAMERA CLUB.

THE first meeting of the month was held at the rooms of the Club, Monday evening, May 6th; Mr. Bullock in the chair.

In the absence of the Secretary the minutes were omitted and Mr. Kelley appointed Secretary *pro tem.*

One new member was elected.

A motion prevailed, as the sense of the Club, that its interests would be best subserved by a declination of

prizes of money value to members for work done on the annual excursion.

A suggestion was adopted that the Excursion Committee offer diplomas for two or more grades of work done on the annual excursion, and that prints of the same be framed and hung in the club-rooms with proper mention.

Mr. Bullock, after addressing the Committee on the work expected of them, read a paper on composition generally, and the duties of the Exhibition Committee specifically, especially with reference to lantern slides.

The paper was intelligently and carefully prepared, and was well received, although not altogether concurrently. The subject started a lively discussion and more may be expected from it.

The reports of Treasurer and Librarian showed the Club to be in general good condition, forty-five new members received during the year making a total to date of one hundred and eighteen.

At the close of the meeting refreshments were served to the members and their friends, making the evening one of pleasure as well as profit.

The second meeting of the month, May 20th, opened with the President and Secretary in their places.

Two members were elected.

The Excursion Committee stated their arrangements for the Outing on May 30th.

Mr. Kelley read a paper following the papers of Messrs. Johnson, and Bullock at previous meetings. Mr. Kelley, while not ignoring the interesting thought that selections should be governed by the technical and general excellence. Those papers provoked a good-natured and desirable discussion.

Dr. Le Boutillier followed, advancing the merits of pictures with life in them, because they were apt to meet applause.

Mr. Fisher advanced novelty as a very desirable feature.

Mr. Peck heretically advanced the view that, as we cannot all be great artists, if the photograph is good and the maker and his friends are satisfied with it, it ought to be accepted.

Mr. Johnson, not disputing anyone, thought that the exhibitions each year should show study and improvement as to general excellence.

The Chairman of the Exhibition Committee rose to motion the thanks of the Club to Mr. Kelley and the members taking part in the discussion, giving assurance that each and all the ideas advanced would be considered in their selections.

The Chicago slides were shown at the close of the discussion, following which Mr. Prince gave practical demonstrations with positive films.

Mr. Bullock also showed samples of his work with same.

At a late hour the meeting adjourned.

H. C. Fithian,
Cor. Secretary.

THE HOBOKEN CAMERA CLUB.

THIS young and promising association celebrated the opening of their new rooms at 140 Washington Street, on Wednesday evening, May 15th, at which quarters they are now permanently established, and ready to welcome all amateurs. The evening was pleasantly spent, the members indulging in speeches and refreshments, and flash pictures were made by several of the club, which were developed and proved satisfactory.

Great efforts are being made to have the dark-room a first-class one in every particular, with all possible conveniences and appliances introduced. The club has a novel idea in practice, by which a permanent committee on instruction is ready to give gratuitous instruction to all members who are not familiar with the science of photography. This point was found essential, as some persons would naturally shrink from asking to become a member of a society with whose objects they are entirely ignorant.

The Hoboken Camera Club will meet weekly at their rooms during the summer, and there are many projected entertainments for the fall and winter months.

F. H. Muench,
Secretary.

THE PACIFIC COAST PHOTOGRAPHIC AMATEUR ASSOCIATION.

AT the regular monthly meeting of the Association, held May 9th, President E. M. Runyon occupied the chair, Major Heuer acting as Secretary *pro tem.*

The Committee on the Exhibition of "Illustrated Boston" made an interesting report. Over seven hundred people had filled the hall of the Association of California Pioneers. Every seat was filled and many had been turned away because there was not even standing room left. The audience had been highly appreciative, and as there were many Bostonians present, scenes familiar to them were greeted with applause.

The Committee on the preparation of the slides and the paper to illustrate and describe "Glimpses of California," reported some progress. The work had been completely mapped out, and so soon as gentlemen having certain negatives would send in slides and prints of them, the collection would be completed and the lecture ready for delivery; negatives of those subjects not possessed by the Society were being made. In one instance a gentleman had volunteered to secure a negative of the San Diego Mission, the first settlement of the Spanish Missionaries in California. This offer will be appreciated when it is understood that to do this means a trip of 500 miles.

At the conclusion of the business of the evening, which included the naming of committees and the appointment of Corresponding Secretary for the ensuing year, Dr. Max Boelte, prefaced the exhibition of new dark-room lamp by remarks upon the various experiments of Burton and others towards securing a safe light for the dark-room.

Various negatives were exhibited which had been developed after long exposure to the flame of the lamp. They were without trace of fog, while other negatives exposed under similar circumstances to other dark-room lights were quite badly fogged.

The construction of the lamp is very simple, consisting of a Bunsen burner, around the tube of which and projecting at the top is placed a cylinder of asbestos and sodium. The supply of air is regulated by a simple valve underneath until the flame is seen to be entirely non-actinic or free from blue rays. To improve the lamp and for further protection an amber colored chimney is used. To those amateurs fortunate enough to have gas in their dark-rooms this lamp will be a blessing.

The Doctor also exhibited a flash-lamp. It somewhat resembles an argand burner in appearance. The principle

is so simple that one wonders why it has not suggested itself to every one making flash-light pictures.

An air pressure bulb is attached by a rubber tube to a cylinder. In this cylinder is placed a piston containing a lighted punk. Over it is a stand holding the magnesium powder spread on gun cotton. A pressure on the bulb forces the lighted punk into contact with the cotton and complete ignition of the powder results.

Dr. A. P. Whittel, a corresponding member of the Society recently described in a very interesting letter his trip to Europe by way of Panama. His letters of introduction from the President of the P. C. A. P. A. were presented to the English Societies, and he met with a most cordial reception. This suggests that whenever a member of a Society is about to travel, he should request from the officers of his association general letters of introduction. Such endorsements when presented cannot but result in pleasant acquaintances aside from the use of dark-room privileges. Speaking of our Association, I can say that should the readers of this bring letters or introduce themselves to our Secretary, Mr. G. Knight White, 89 Flood Building, San Francisco, they will be cordially received.

To conclude the evening, a number of interesting foreign slides belonging to a private collection were thrown on the screen. Among them was a slide of the new cruiser "Charleston," taken as she was on her way to Santa Barbara Channel for her trial trip.

A. J. Treat,
Cor. Secretary.

The Editorial Table.

We have received from the publishers, Houghton, Mifflin & Co., excellent portraits of the writers Whittier, Holmes and Hawthorne. These portraits are all good likenesses, but they are more; they are engravings of photographs which were so skillfully and artistically made that the results are pictures as well as portraits. Each might be studied with profit by photographic portraitists who desire to improve in their profession.

Writing for the Press, by Robert Luce, is a manual for editors, reporters, correspondents and printers, which no one of that large class can afford to do without. That a third edition had been called for so soon after its original issue, speaks well for the high value which the class, to which it appeals, has placed upon the little book. The present edition has been revised and enlarged. It contains at the back, a fairly complete list of books about writing, and useful to writers. It is published by the Writer Company, of Boston, and is priced at the low figure of fifty cents.

Record of Photographic Patents.

408,574. Photographic Camera. Charles E. Burlingam, Boston, Mass.

408,467. Photographic Cabinet. John Cornish, Boston, Mass.

408,887. Picture Exhibitor. George D. Knipp, Stuttgart, Germany.

AN EPIGRAM.

From the German.

Easy enough it is to write photographers' journals;
Paper and pens are cheap and so is the ink to use with them.
Subjects are plenty and questions, on which to write wisely and freely:
But readers, alas!—it is not so easy to make them or keep them!
So, it befalls, that publishers failing to get them,
The youthful effusions are brought to an untimely ending; and
Mourning with tearful face, we sing, *Requiescat in pace.*

Rhymesmith.

Queries and Answers.

112 M. P. Bowers.—Where can I find a detailed descripton how to find the strength of a silver bath by volumetric analysis?

112 *Answer.*—In Dr. Vogel's "Handbook of Photography."

113 Anxious Inquirer.—What are the proportions of Gold in Chloride of Gold and in Chloride of Gold and Sodium.

113 *Answer.*—Commercial Chloride of Gold contains from 40 to 45 per cent Metallic Gold, and the Chloride of Gold and Sodium from 17 to 22 per cent.

114 Northfield.—Which are the most durable orthochromatic plates, those colored in the emulsion or those bathed in the color solution.

114 *Answer.*—This query must be answered in favor of the former, although bathed plates prepared in our own laboratory have kept well and without the least deterioration or black margins for as long as 86 days, which is long enough for all practical purposes.

115 Quiz writes:—It is a well-known fact that with the acromatic lens the chemical rays come to a focus sooner than the visual rays. I have been told that if, after having obtained the ordinary focus, the ground-glass is pushed slightly forward, a sharper picture will result. Is this so?

115 With lenses of modern construction chemical and optical foci are coincident, and there is no need therefore to push the ground glass forward after focus is taken.

116 In reply to D. F. F.'s rather long communication, we will explain that (1) the bright and transparent margin around the most developed parts of the image, is evidently a reverse halation. Similar effects have been observed in the earliest times of Daguerreotypy and Photography, but satisfactory explanations have as yet not been given. Mr. Burton has said reverse action may take place with much overexposed plates and with the use of an excess of bromide in the developer. Recently we have heard that Mr. Schumann has observed a total reverse of the image on cyanin plates, and ascribes the effect entirely to the presence of the organic dye. Thus you see some of the theories proposed. (2) The metallic iridescence is caused by too strong alkaline solution. It is caused evidently by a very finely-divided silver deposit, a relative, perhaps, to the dichroic green fog. (3) The granular appearance, too, may be traced to an excess of alkali. It looks like a frill in its incipiency.

SUPPLEMENT

TO THE

PHOTOGRAPHIC TIMES.

FRIDAY, MAY 31, 1889.

THE FORTHCOMING BOSTON CONVENTION.

As the tenth annual convention of the P. A. of A. approaches, interest in the preparations to celebrate the fiftieth anniversary of Daguerre's discovery increases, and our readers will, therefore, be glad to hear from the President and Secretary of the association, in the letters which follow.

Above we show an excellent picture of the immense building in which the convention is to be held. Every indication points to a decided success. First let us hear what President McMichael has to report:

PRESIDENT MCMICHAEL'S LETTER.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir: There is no longer a doubt but that the grand Semi-Centennial celebration of photography to be held under the auspices of the Photographers Association of America will be a success. Encouraging news from every quarter indicates that the largest gathering of the photographic fraternity that has ever been known, will assemble in Boston on the sixth of next August.

We have been credibly informed that there is a great deal of silent preparation being made to capture some of the semi-centennial awards. Everything tends to show that the contest will be sharp and spirited, more especially for the "grand award," which will be not only valuable intrinsically, but being a small fortune to the lucky man.

In addition to the grand display of art photographs which are to enter for competition this year, we are promised rare specimens that have won prizes during the life of the P. A. of A., as well as a number of collections of the most celebrated pictures made during the last half-century.

In the photographic merchants' department the space has never been taken so rapidly, or in such large quantities. A letter from Secretary Scott informs me that all the thirty thousand square feet on the main floor have been taken, and we are obliged to put a number on the second floor.

The great manufacturing establishments of The Scovill & Adams Company and E. & H. T. Anthony & Co., of New York, and the Blair Camera Co., of Boston, have informed me that they have been making extensive preparations for the past year, to have the grandest and most complete display of photographic apparatus ever put on the market.

The Eastman Dry Plate and Film Co. says: "Tell the photographers that we will make a larger exhibit than ever before, and our awards more costly and greater in number than at any previous convention."

G. W. Entrekin, of burnisher fame, tells us that he is going to ship burnishers to Boston by the ton that will show all the latest improvements.

The well known house of Smith & Patterson, Chicago, have taken nearly twelve hundred square feet, and "Tom" Patterson says they are going to ship most of their store down to Boston, including their burnisher.

L. W. Seavey has built a new studio that he might be able to get out the great amount and variety of backgrounds and accessories that he intends to exhibit.

The Stanly & Harvard Dry Plate Co. tell us they will shortly announce some elegant prizes for the best collection of photographs on their respective plates.

The Acme Burnisher Co., of Syracuse, N. Y., say they will soon make known something new and startling in the way of an award for the best collection of art-photographs at the Boston Convention.

A letter from Mr. Althans, Manager of Cramer Dry Plate Works, says that Mr. Cramer will return about the first of June, and will be on hand to make a grand display and help celebrate.

These are only a few of the good things that are promised for the photographers who attend the Convention, and others will be announced as soon as we are informed.

Geo. H. Hastings, First Vice-president, says that Codman & Co., Benj'n French & Co., and the Blair Camera Co. will unite with the photographers of Boston to do all in their power to make the Tenth Annual Convention a complete success.

A letter from Tiffany & Co., of New York, says that the

silver badges for members will be in the hands of the Treasurer about the first of June, and I would advise all of those members who want to attend the opening ceremonies on the morning of August the 6th, to send in their dues, and Treasurer Carlisle will send them a badge with receipt. This will avoid the great rush on the opening day.

I would also announce that the headquarters of the Executive Committee will be in the Tremont House; rates, $2.50 and $3.00 per day—$4.00 including bath. Many of the older members of the Association will recognize in the proprietor, Mr. Harris, their former host at the Buffalo Convention, when they made the "Genesee" their headquarters. Mr. Harris promises to do everything in his power to make our visit to Boston a pleasant one.

Very truly yours,

H. McMichael.

BUFFALO, May 22, 1889.

LETTER FROM THE SECRETARY.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Thinking that perhaps the photographers throughout the country would like to know something in regard to the progress and preparations being made for the coming Convention, to be held at Boston, August 6th to 10th inclusive, I will say, that from the present outlook the Tenth Annual Convention and Semi-Centennial of Photography will far excel anything of the kind that the Convention has ever known. Everything points to a booming success, and a large attendance. All seem to be anxious to attend this the 50th anniversary of our art, and hard indeed are many photographers working to bring home with them a semi-centennial medal.

All may judge of the interest being taken, when at the present writing, out of our 80,000 square feet of space, in stock-dealers' department, there only remains part of one small section not taken; so great has been the demand for space, that almost all has been disposed of by telegraph, nearly every State, from Maine to California, being represented.

Many of the dealers assert that their display will far excel all former attempts.

And certainly a more elegant building could not be found, both for the dealers, as well as for the photographic display, being large, roomy and well lighted.

As to the photographer, many of the more enterprising ones are writing for space. All seem to be more than ever interested this year. And well they may be, for a more elegant line of prizes have never before been offered. The bronze figure alone will be a fortune to the lucky photographer who gets it.

Then come the gold medals, of artistic design and workmanship, and as pure as gold can make them, being 24 karets fine. These are made by the well-known and popular firm of Tiffany & Co., New York. All may look for something fine in the way of medals.

The badges will be entirely different from those used at former conventions.

Made of metallic silver, in the shape of a button similar to the G. A. R. badge, with Daguerre's head stamped in bold relief on the front. Every photographer throughout the land should possess one of these. Remember, it will be your only chance to obtain a semi-centennial badge. And whether you attend the Convention or not, send in your name and dues, and receive one of these souvenirs.

There are many other attractions, too numerous to mention, that will tend to make the Boston Convention a decided success.

Yours truly,

O. P. Scott.

Office of the Secretary of P. A. of A.

CHICAGO, May 20th, 1880.

A HANDSOME PRIZE CUP FOR BROMIDE PRINTS.—The Eastman Dry Plate and Film Company are having the Whiting Company, silver-smiths, of New York, get up a very handsome silver cup, valued at one hundred and fifty dollars, which they propose to offer as a prize for the best exhibition of bromide prints at the Boston Convention of the P. A. of A. The conditions for competition will be as follows:

First: The prints shall not be less than six in number.

Second: They shall not be framed.

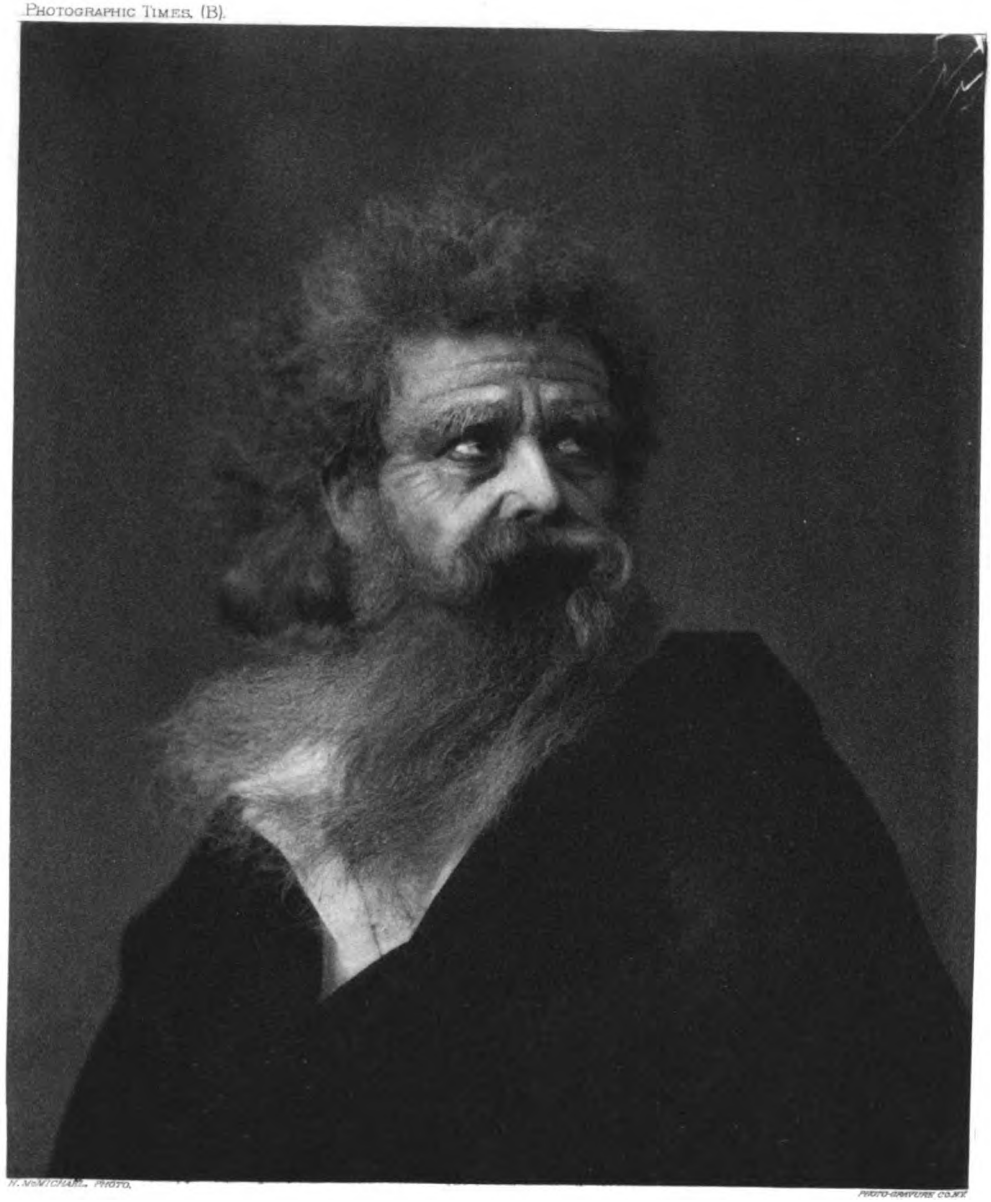
Third: They may be either contact prints or enlargements.

Fourth: The prize will be awarded to the collection showing the greatest skill in manipulating the paper.

Undoubtedly this will call out a large competition among the many users of Eastman's excellent bromide paper.

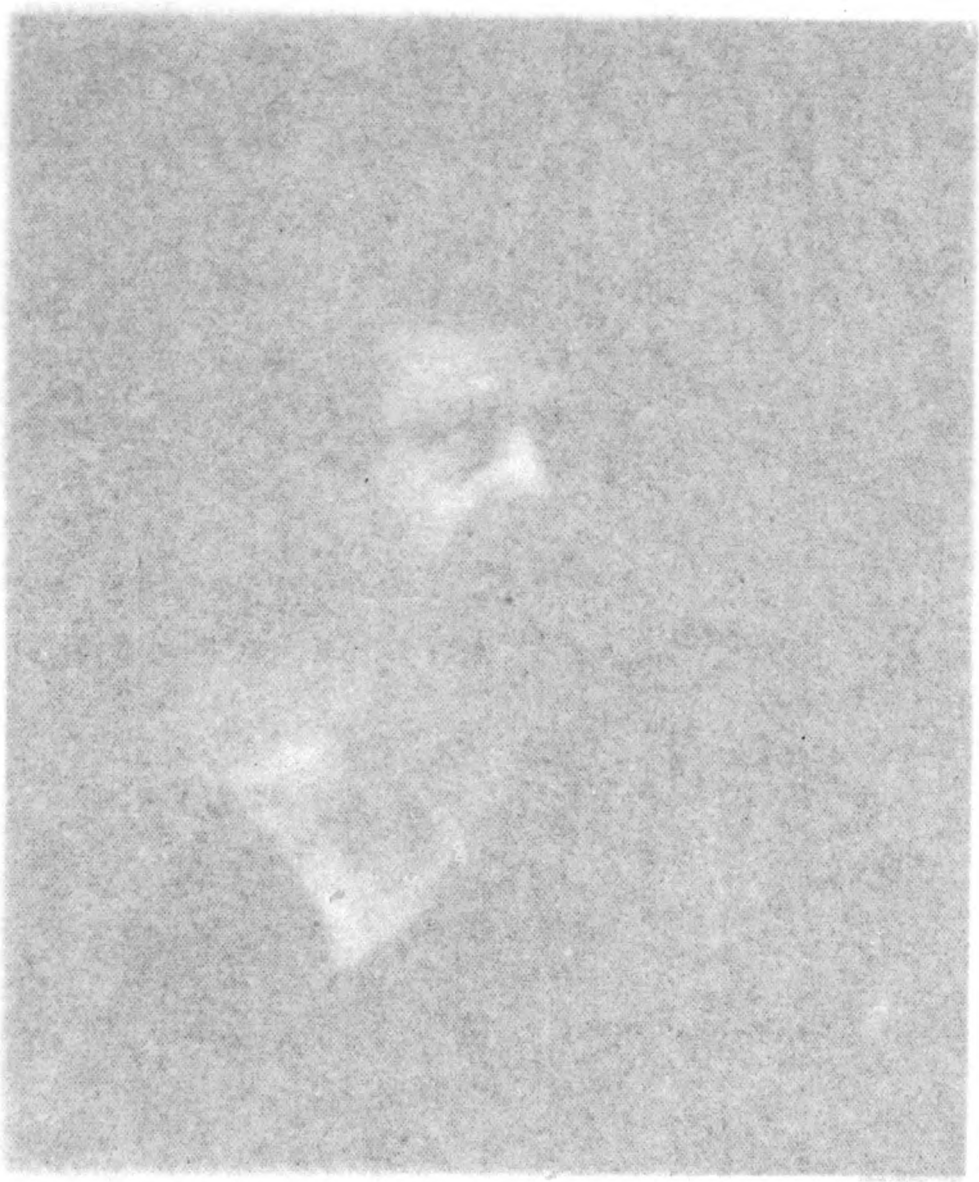
Other prizes will be announced later, and further and complete information will be published from time to time previous to the Convention.

FACTS ABOUT SALT.—There are many interesting facts connected with salt which it is well sometimes to remember. To begin with the name itself, a curious fact is to be noted. Salt was formerly regarded as a compound resulting from the union of hydrochloric (or, as it used to be called, muriatic) acid and soda, and hence the generic term of salt was applied to all substances produced by the combination of a base with an acid. Sir Humphry Davy, however, showed that during their action on each other both the acid and the alkali underwent decomposition, and that while water is formed by the union of the oxygen of the alkali and the hydrogen of the acid, the sodium of the former combines with the chlorine of the latter to form chloride of sodium, and this term is the scientific designation of salt, which, paradoxical as it may seem, is not a salt. Chloride of sodium must be considered economically under two heads, relating respectively to sea or bay salt, and to rock or mineral salt. The one is probably derived from the other, most rock salt deposits bearing evidence of having been formed at remote geological periods by the evaporation from the sea. At one time nearly the whole of the salt used as food and for industrial purposes was obtained from the sea, and in many countries where the climate is dry and warm, and which have a convenient seaboard, a great quantity of salt is still so obtained. In Portugal more than 250,000 tons are annually produced, and the same quantity approximately is obtained on the Atlantic and Mediterranean coasts of France. Spain has salt works in the Balearic Islands, the Bay of Cadiz, and elsewhere, which turn out annually 300,000 tons, and even the small seaboard of Austria produces 70,000 to 100,000 tons.—*London Standard.*



H. McMICHAEL, PHOTO. PHOTO-GRAVURE CO.N.Y.

THE STORM.



THE PHOTOGRAPHIC TIMES.

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KING LEAR ON THE HEATH.

"Blow, wind, and crack your cheeks! Rage! Blow!
You sulphurous and thought-executing fires,
Vaunt-couriers to oak-cleaving thunderbolts,
Singe my white head!"—*King Lear, Act III., Scene 2.*

Our photogravure this week is from Mr. McMichael's negative, entitled, "The Storm," and from which he has exhibited prints on several occasions, and always with the greatest acceptance on the part of the public. At Minneapolis, last July, it won one of the highest awards offered by the Photographer's Association of America, and was universally admired, both for its artistic conception and almost faultless execution. In our own opinion, it is one of the best specimens of photographic portraiture which has ever been shown in this country. The subject who sat to Mr. McMichael for the picture, was Charles Collins, an actor of some repute, who has been seen in Edwin Booth's support.

A recent letter from Mr. McMichael concerning this pictnre reads:

"I see my 'Storm' picture has been published by the 'Theatre' in New York. It is now being modified in bronze. It was in my collection at last convention and I received a bronze medal from the association, also the 'Acme' award for best collection at the convention."

It will probably be exhibited once more at Boston, next summer.

DAGUERREOTYPY.

THE appearance of the brief account of Joseph Nicéphore Niepce's life and work, in THE PHOTOGRAPHIC TIMES a few weeks ago, has been amply justified by the interest which it has aroused in our readers.

As the time set apart for celebrating the semi-centennial of photography draws nearer at hand, a more lively interest is manifested every day in the men and methods which made our approaching semi-centennial possible.

It may seem strange, at first thought, that Daguerre's own process is not familiarly understood by every disciple of the camera; but the fact is, very few professional photographers, and still fewer amateurs, are familiar with the working details of the process. This is undoubtedly because Daguerreotypy fell into disuse so many years ago, and before photography was practised at all as a pastime. It will be profitable, therefore, to at least briefly recall the beautiful old process at this time.

Shortly after the details of Daguerre's invention were announced in the United States by Professor S. F. B. Morse, of New York, who was at the time of the discovery residing in Paris, American investigators commenced a series of experiments which resulted in considerably improving and advancing the new art. Some of the earliest workers in this field were Doctor Chilton, Professor J. J. Mapes, Professor S. F. B. Morse, of New York; Doctor Goddard, Mr. Cornelius, and others of Philadelphia; and Mr. Southworth, Professor Plumbe, Alexander S. Wolcott, and John Johnson.

The first plates were all made in France. They were of hammered copper, and silvered on one side by a process not generally known. They were originally made six and a half by eight and a half inches in size, and were then cut into halves and quarters. Thus originated the terms "whole" plate, "half" and "quarter" plate which are used at the present time in connection with gelatine emulsion plates. As soon as Americans began to manufacture copper plates for Daguerreotypy, they increased the size to eight by ten, which was called "extra whole size," and to eleven by fourteen, or "double whole size."

The Scovill Manufacturing Company, of Waterbury, Connecticut, were the first to manufacture Daguerreotype plates in this country. They were soon followed by Holmes, Booth & Haydens, and for some times these were the only two American manufacturers of the copper plates. Mr. John Johnson speaks, in the second volume of *Humphries Journal* (1851), of some of the difficulties experienced in this country at first to obtain

suitable plates: "It was a very rare thing to be able to procure an even surface," he writes, "from the fact that a pure surface of silver could scarcely be obtained. * * * Accordingly, we directed Messrs. Scovills, of Connecticut, to prepare a silver-plated metal with pure silver; it fortunately proved to be a good article, but, unfortunately, a pound of this metal (early in 1840) cost the orund sum of nine dollars."

These rolled-silver plates were prepared as follows: A thin plate of silver was soldered on one side of a brick of copper, and then rolled down thin. The plates were cut from the metal, stamped to flatten them, and then polished with rouge on a rag-wheel. The same method was employed by both the Scovill Manufacturing Company and Holmes, Booth & Haydens. The plates thus prepared were never superceded or improved for the purpose of daguerretypy, though many were the attempts made.

The plates coming from the manufactory were silvered on one side only, as was said, and, the silver coat being very light, they were always re-galvanized before actually being used. The plate was first thoroughly cleaned by rubbing it with finely levigated tripoli and a few drops of olive oil. A tuft of cotton or canton flannel was used for the purpose. Any oily matter left on the plate interfered with the subsequent operations, especially the galvanizing; so that alcohol diluted with water, and occasionally with a few drops of ammonia, was employed to remove the oil. After cleaning, the plate was buffed and re-galvanized. Buffing was accomplished in the following manner:

The cleaned plate was set in a moveable clamp in a heavy wooden block, on the lower side of which was a hole that fitted snugly to a pin projecting from a vice attached to a work-bench. Shive, of Philadelphia, made these blocks. The block and plate firmly secured, buffing was commenced. The first buffs consisted of a round piece of wood, covered with flannel and velvet, in which has been rubbed fine charcoal dust or rouge. Later this pad was replaced by the hand buff—a stick of wood twelve to eighteen inches in length and three inches wide, and also covered with canton flannel, velvet, or soft leather. With the fine charcoal powder, or a *nostrum* sold at the time under the name of "Magic Buff," the work was done more effectively and with greater ease than at first. After the hand buff, came the buff-wheel, which was about twelve inches broad and thirty-six inches in diameter. The broad circumference of this wheel was covered with a very fine wash-leather, and rubbed in with rouge of the very finest quality.. The wheel was generally propelled by means of a treadle, though, in a few instances, steam was employed. The plate was held against the rigid surface of the wheel till it was rubbed perfectly bright and free from scratches. It took several minutes to buff a plate thoroughly.

After the buffing, the plate was galvanized in an ordinary cyanide of potassium trough, with a silver anode and a Bunsen battery. When silver enough had precipitated upon the plate to give its surface a uniform bluish-gray color, the plate was removed from the bath, well washed, dried over a spirit lamp, and put away in a box for safe keeping.

Before sensitizing the plate it was again buffed with much care, dusted off and coated. Two boxes were used for the coating, one containing the iodine and the other the bromine. The plate was first subjected to the vapors of iodine until a sufficient amount of iodide of silver had formed, and then bromine fumes were applied, to accelerate. I. H. Cucher, one of the earliest writers on daguerreotypy, describes the method as used by most American operators. He says: "I tinge the plate over the first box containing the dry iodine, to a color from deep canary yellow to orange. In the second box, containing the dry bromine accelerator, the plate is given a deep purple or plum color, and it is then repassed to the iodine box about half the time it took to produce the canary or orange color."

The bromine was used in either an aqueous solution, or dry. In solution, it never gained much favor among Americans. It was in the dry form, under the name of "Magic Quick," that it gained its immense popularity. It was prepared by satu-

rating a pound of dry lime (burned oyster shells were much used), with ordinary alcohol, and then reduced to a perfectly dry powder. This powder was put in a glass-stoppered bottle, and shaken up well with an ounce of bromine If the vapors of bromine were prevalent, more lime was added until all the bromine was neutralized and the powder assumed a reddish-brown color. The coated plate increased in sensitiveness by standing, but only to a limited degree. After several hours, the coated surface became spotted, and sensitiveness decreased.

When Daguerreotypy was practiced, lenses did not receive as much attention as they do now. The great object then was to produce a picture in the quickest possible time, and objectives of the very shortest focus and of immense diameter were, therefore, used.

After exposing the plate, it was developed by the vapors of mercury. The developing apparatus consisted of an inverted iron cone to the apex of which a bulb for holding the mercury was attached. One side of the developing apparatus had a thermometer divided into centigrades. When, from the heat of a spirit lamp, the thermometer indicated ninety degrees, the mercury began to evaporate, and developing could, therefore, be proceeded with. The open side of the cone was enclosed with an iron frame to which kits were fitted of the various plate sizes. In these kit frames the plates were placed for development.

After development, the plate was fixed with hyposulphite of soda, washed well, dried, put up in a neat velvet case, and finally delivered.

Gilding the plate was later practiced, and was considered a great improvement. It was accomplished by bending up the corners of the plate so that a miniature tray was formed capable of holding a certain amount of the gilding solution. This solution consisted of either a diluted mixture of chloride of gold and hypo-sulphite of sodium or a solution of a hypo-sulphite of gold and sodium, sold under the French name of "Sel d'or." After heating this solution up to the boiling point, the plate was well washed, and dried by the heat of a spirit lamp. Gilded Daguerreotypes could be colored by dry dust colors, but this did not improve the artistic quality of the plate very much.

Our illustration gives a good idea of an old-time Daguerreotype establishment.

The days of Daguerreotypy have undoubtedly past never to return, but no one who has ever turned a buff-wheel or handled the coating boxes, will forget the pleasant and profitable times of the Daguerreotype.

EDITORIAL NOTES.

THE Society for the Cultivation of Photography, in Berlin, recently discussed the cause and cure of the dark margins which so frequently appear on gelatine emulsion plates. The experiments of E. Vogel, Jr., seem to show that the defect is caused by hyposulphite of soda in the wrapping paper. Plates wrapped in waxed paper showed no margins, while other plates of the same emulsion, wrapped in ordinary paper, were disfigured by the dark lines. Plates coated with a carefully prepared emulsion, showed margins, after having been wrapped in paper for only eight days; while other plates of the same emulsion, that had remained upon the drying rack, showed none. Another member doubted the soundness of these explanations, because he had found that plates wrapped in bleached paper showed the same defect; but a gaseous substance arising from this kind of paper might possibly account for the dark margins in this case. It was also thought that the black margins might be due to improperly cleansed plate edges, for with cut plates the dark margins have not been observed. The defect is probably due to impurities contained in paper wrappers, pasteboard supports, etc., as well as to the unclean glass edges of many plates.

THE AMERICAN ANNUAL OF PHOTOGRAPHY AND PHOTOGRAPHIC TIMES ALMANAC FOR 1890, thus early promises to be an exceptionally fine number. Valuable contributions from eminent workers at home and abroad, have already been sent in, and six full-page pictorial illustrations have been selected by the publishers, for this volume. Both the illustrative and the reading matter will be of a very high order, and only the best of both will be published. The "Annual" will be out this year earlier than ever before,—in fact, as early in the fall as all the information and statistics for the year can be collected. All readers of THE PHOTOGRAPHIC TIMES are invited to contribute the result of their best work for "The American Annual of Photography.

PHOTOGRAPH OR PICTURE?

THE earnest photographer, leaving behind him flowing rivers of spoilt developer and mountains—with fog-enshrouded summits—of unsuccessful plates, finally emerges on a plateau—the land of Good Negatives. He finds that now he has learned enough to feel sure of all his manipulations; tech-

nical excellence is his, and he basks in the sunshine thereof.

But there comes a day when his content disappears, and he finds that what he had thought the summit is only a spur. This sunshine is dimmed by the sudden suspicion that his work is only mechanical—that it has no artistic qualities. Perhaps it is the criticism of some artistic friend, perhaps the sight of better works, that opens his eyes. It takes a long while sometimes to realize that there are better things than clear negatives with merciless definition showing every hair or every leaf; and to dislodge superstitions about extremely small stops and extraordinarily fast plates being in some way the key to success. But the amateur who has chosen photography not as a mere aid to some other occupation or study, but seriously for itself, soon finds his artistic ambition stirring. Then it galls him when he hears some one say of an illustration—"ah, very tame, inartistic; evidently done from a photograph;" or when he finds a painting contemptuously spoken of as "photographic." He is pained and surprised to hear the poor sun-picture's name used as a reproach and a byword by some caustic connoisseur.

This seems ingratitude, considering the usefulness of this quiet, efficient servant—Cinderella of the arts. The term itself is cheap, but the implication is that a photograph is necessarily inartistic, mere mechanical copying without intelligence behind it: and must as long as it is a photograph, have certain qualities that stamp it as hopelessly inferior.

It is perfectly true that there are qualities in most photographs that are essentially unpictorial. It is quite as true that pictures, in the most exacting sense of the term, may be made with the camera. In a very rough way I should like to note down a few suggestions looking toward the securing of pictorial quality. They tell perhaps as much what to avoid as what to do, and are more in the line of practical comments on present apparatus and processes than of high æsthetic instruction.

The absolute beginning and foundation of everything is the lens. If this is not good, then all aspirations for good work must be smothered. The most strikingly un-picture-like quality of the photograph is the uncompromising way in which it gives us perspective. With a landscape lens, at best the distance, that is perhaps the most charming part of the picture, is much diminished on the plate. The ordinary sizes of lens must do this, in order to handle objects in the foreground. They would not cover enough field here if constructed otherwise. But when we come to the lenses used in detective cameras, of the cheaper sort, we meet with worse things still. The wide-angled lenses must be used in this case—with a great mouth to swallow everything—and they shut up the perspective in a way that is often nothing less than appalling. A figure across the street seems infinitely removed, while a horse that has come a little too near will go off from a gigantic head to a ridiculously inadequate pair of hind-legs. A picture to satisfy must look *reasonable*. Anything that contradicts or varies from the common experience of the eye is displeasing. There are many subtle ways in which the lens may do this, and as a result the picture "does'nt look natural." Hence the first requisite is a lens that will see and put on the plate things about as the eye itself sees them. It cannot entirely do this, as the eye changes its focus constantly, while the lens can only cover a certain depth; but it can practically do it, as any good lens will show.

Perhaps the whole subject might be summed up in the advice to get the thing as the eye sees it. It will not be bad for the photographer to study up the eye in any of the several shorter manuals on the subject—there is an excellent one in the International Scientific Series. He will know already that the eye itself is a wonderfully complete camera; let him look up the action of its lens and diaphragm, its depth of focus, angle of view, and how much it can cover—sharply—at one time. Then let him investigate how near his lenses come to presenting a similar image.

One little point about using the detective cameras is, to hold them up by the face, or nearly as high as the eye, if you wish to get natural perspective. The difference in a near figure taken thus, and one in which the camera was held under the arm or slung by the side, is to an artist very perceptible.

A lens which would *not* "cut to the corners" of a plate, if distortion were only not the necessary concomitant, would be a good thing in landscape or genre. It would give, in other words, a natural vignetting effect. "Noisy" corners are one of the chief faults of the photograph.

And here we may pass to the plate with the remark that this noise—too much presented at once—is another grand defect of the photograph, that has the rare fault of giving us too much for our money. An artist once remarked, examining a landscape photograph: "Yes, it is a beautiful thing, but there are seventeen different pictures in it. I would rather have one at a time." The plate may be cut or masked, but it is far better if possible to put the picture on it correctly at first, so that this

need not be done. Part of the greatest art is the art of leaving out: we can always see more than we can use or want; synthesis and suggestion must come in. If the photographic amateur can get an idea of what breadth and simplicity mean—he can only do so from pictures, never from words—his prospects of doing interesting work will be brilliant. To take an example, the pictures of Mr. Dumont are familiar to the readers of the TIMES. Note how free they are from obtrusive detail and swarming accessory; a harmonious unity, never too much of anything. Mr. Robinson and Mr. Sutcliffe both know how to omit and suppress as well as how to construct; the latter is especially remarkable for his power to see things in mass.

The soft plate, that graciously blends and softens its subject, should be the ideal in development. The hard plate, its reverse, with its dense opaque whites piled high and clear, and scarcely veiled glass for its blocks, is the thing generally to be avoided, and a good word may be said, in passing, for slow development. *Fred Hart Wilson.*

(*To be continued.*)

A MODIFICATION OF DEVELOPMENT WITH TWO SOLUTIONS.

IN connection with the two-solution method of developing there is a danger to the incipient negative quite as great as any which may attend other methods.

The use of two solutions kept wholly separate, or mixed only toward the middle or end of development—either "No. 1" or "No. 2" being given precedence according to a preconceived judgment of the exposure—places the developing on a basis equally, or, more uncertain than the exposing.

It must be well known that an exposed plate may be soaked for a very considerable time in pyro solution *per se*, or likewise in soda solution, without producing a developing action, but the characteristic effect may then be produced almost instantly by a very trifling addition of the absent solution. In truth the effect is very often so excessive, or is so far misjudged as to injure the plate beyond cure.

The difficulty is to know with any reasonable degree of certainty when the proper effect has been engendered so that the result may be the best attainable.

The action of a developer used in this manner may be fitly compared with the effort to row a boat which is too heavily loaded at the bow. You may "get there," but only through much difficulty and uncertainty.

Then, to consider the matter further, it is quite possible that the plate may have received an unknown exposure; attendant conditions may not have been well judged, or the sensitiveness of the plate may not have been known or considered:—under any or all of these possible circumstances the liability to stray from the requisite development is greatly augmented.

It should not require many experiences of the possibilities here outlined to convince any one of the advantages of "tentative development"—when limited by a possibility of knowing at the earliest moment just what the plate has suffered, and consequently the timely remedy.

Does not the following recommend itself as offering a simple means to the desired end? Using a given formula, take the normal "dose" of that solution which seems, from a consideration of the memoranda as to exposure, etc, to be mainly required, and then add but just enough of the other solution to act like the spark which starts a conflagration. Then dilute the mixture with an equal, double or triple amount of water according to the greater or lesser sensitiveness of the plate.

This addition of the second solution in such very small proportion is like our red light; it produces very little effect of its own, but it enables one to see what is "going on."

By this treatment the plate is placed in rigid probation, and time is secured during development in which to make such changes in the process as may be needed.

Note the dilution which is advised; it is this which subdues undue violence and obviates the probable uncontrollable action of an undiluted primal solution when the second is added, or requires to be increased.

It may be well to remark that a plate which is developed as suggested with a minimum dose of pyro, may have sufficient density before fixing, but is liable to lose somewhat in that bath. In fact, it seems to me that plates developed with the least quantity of either pyro or alkali are prone to weaken in the fixing, even when apparently properly developed.

When a correct exposure has almost to a certainty been given, it is needless to make any notable departure from a familiar formula or method, but for those whose knowledge of exposing and developing is unsupported by experience, and in cases of uncertainty generally this method of developing would seem to offer a useful crutch.

C. D. Cheney.

AMERICA THROUGH AN AMERICAN LENS.

II.

ABOUT WASHINGTON.

Although our journey like the poet's was writ with a sunbeam, and hence, of course, photographic, I have but one piece of practical advice to give to the amateur who visits this city of public buildings, celebrities and equestrian statues. Since you cannot take everything, use judgement before you take anything. We put General Custer's motto on our slides, resolved "never to draw without reason, nor to shield without honor." Alas! and alas! We wasted plates on the halatingly situated White House—it faces south—we caught quarter segments of bicyclists' wheels whirling past on the Avenue, we developed sections of overcoats instead of senators hurrying into the herdics, and worst of all, we slept too late every morning to get the Capitol in its most becoming sunrise light. Then, after humbly buying of the darkeys the guide-book views—

"Here's your souvenir albums, Missis."

"All the public buildings for a quarter!"

"Portraits of Mrs. Cleveland, Mrs. Harrison and Baby McKee"—

we took a new departure for tourists and went into alleys where ash-men and cooks who-go-home live, and tried for some "Uncle Tom's Cabin" sketches. Perhaps we did not allow for the accessory blackness a crowd of negroes casts, for all these *genre* pictures of local color were under-exposed. Somewhat disheartened, we returned to the world, and strolling through the parks, squeezed the rubber bulb's detective attachment impartially at black and white. By so doing we emphasized the rules never to attempt an instantaneous shot in a shaded place, and never, never take a girl walking towards you. Half discouraged we wandered beyond the Capitol to see the darkey on his native heath and here we made our first picture.

Three old women, sifting ashes in a field, their bent figures relieved against a striated afternoon sky, reminded us oddly and incongruously of Millais' "Angelus." The foreground a rough snow-covered meadow suggested a rocky beach, while the distance might have been the limitless Atlantic, had not the prison where Guiteau was hung, towered up a mile away. We tried to throw it into desirable blurred out of focusness, but owing to the curse of a too good lens, it came up sharp and clear. We had a time to coax one old darkey to stand up, so as to be posed according to correct Pringle group rules, as she evidently cared nothing for art principles.

"Stand up, Aunty," we shouted, "we want to take your picture."

"Sho! Honey—I'm done too old for picters."

"Please, stand, and I will give you five cents."

"You go 'long."

"We want to take your picture back to New York with us, do stand up."

"A lady, like me, thet has her acquaintances in New York don't want no likeness made when she's sifting ashes in her ole cloes."

"Ah, please—here's ten cents."

"I done reckon if you could spare a levy."

The bribe was given, and we got in exchange the little sketch below—three peasants by the sad, sad sea, hearing the vesper bell are kneeling down to pray. One rises before the rest, thinking perchance that "Since there is so much work to be done under foot, that the Lord will forgive her for not spending many minutes on her knees."

Our last view was of Joaquin Miller's cabin which stands on the outskirts of Washington so that this poet-laureate of the West, may overlook what he calls the "red city." Here he lived many years, and although we could not get an interior, a neighbor came out and told us from which point photographers usually took theexterior view. I confess with shame, that the only plate which gave us satisfaction was the one taken from "the usual point," but of course we tried all other sides of the house first. I was not very familiar with Miller's writings, but while waiting for my plates to fix—and "Crembuttly's" are slow—found a biographical sketch, which I briefly condense below.

This poet of the Sierras is said to be a son of Miller—the great Millerite—his mother is a poetess and has (who has not?) a trunkful of unpublished poems. He enlisted as a private in our war, rose to sergeant, went to England, was received with great favor, made some money but lost more, and on his return built this log-cabin on a fellow officer's

place. He has lately sold his cabin and is living on a ranche in Calfornia, writing the life of Christ in rhyme and awaiting the Last Day. He has been married several times, and has a daughter on the stage and a boy of great beauty and genius who gives public readings at the tender age of twelve years. Joaquin Miller belongs to the Walt Whitman school, and is so unusual in his verse that one hardly knows whether it is sense or nonsense.

He has immortalized prairie life in a long poem on a ship found in the sand-desert of Arizona, but is this prose or poetry?

"'It looks so like a sea,' said he.
He pulled his beard, and he did say:
"'It looks just like a dried-up sea.'
Again he pulled that beard of his,
And said no other thing than this."

He says he has been true to his West and blazed out a trail for others to follow him. Perhaps his sweetest verses are those on To-Morrow, which, though not closely allied to photography *per se*, may interest photographers who, like ourselves, once in a very great while, come out of the dark-room and think the thoughts of other people. Trusting some PHOTOGRAPHIC TIMES readers have these lucid intervals, I give them now this chance to look, not through my lens, but through a poet's.

"O day of all days for reform!
Convenient day of promises!
Hold back the shadows of the storm.
O blest To-Morrow, chiefest friend,
Let not thy mystery be less—
But lead us blindfold to the end!
O thou To-Morrow—mystery—
O day that ever runs before!
What hast thy hidden hand in store,
For mine, To-Morrow, and for me!
O thou, To-Morrow, what hast thou,
In store to make me bear the now?"

Adelaide Skeel.

Correspondence.

COLORED POSITIVE PAPER FOR PHOTOGRAPHY.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir: Amongst the studies as to how to make photography artistic which seem to occupy the attention of so many writers on photography, I wonder that the question of tinted paper for prints has not found a larger place. The use of the mauve albumenized paper is to my feeling the worst offence a photographer can commit, and I invariably refuse to keep or purchase a picture on it or admit that the photographer is a man of taste without which [*i. e.*, taste] he cannot put in even the claim that Mr. Pringle would allow him. There is good reason why no tint should be allowed the paper on which a photograph is to be printed, and that is, that the tint on the lights diminishes the brilliancy of the print. The highest lights in the print ought to be pure white and any lowering of their pitch is so much loss in the scale of light and dark, but in the case of a very faint warm tint there is a certain compensation in the warmth, while the mauve is a cold, lifeless tint, appropriate possibly for the portrait of a dead king lying in state, though even there I should not use it, but for portraits of living people it is simply horrible. Nor is there the slightest reason for giving the paper a tint when it is desired to give the print a warm tint, as it can be given better in the toning of it without lowering the brilliancy of the picture.

If you want to see how much the lights are lowered on a tinted paper take a water-color pencil and touch a point of Chinese white on the lights of the finished photograph. In a landscape there is a conceivable advantage in a faint tint like that which would be produced by a delicate wash of yellow ochre, as it prevents sunshine from being absolutely colorless, which it very rarely is in nature. This tint may easily be produced by the following device, which is neither art nor painting, but a good dodge. Cut a mask exactly the size of the mounted print out of strong letter-paper so that it shall cover the mount precisely, leaving the print exposed. Then take a card box a trifle larger than the face of the print and two or three inches deep, or if the print is a very large one and the card box not convenient, make a shallow one of wood with neither top nor bottom. Now lay the print on this, face down as a cover, and see that the mask covers the print exactly and, making a hole in the side of the box large enough to let in the end of a tobacco pipe, blow a good puff of smoke into the box. Take it off in an hour, more or less according to the amount of smoke, as you will learn in one or two trials to judge, and you will find your print faintly toned like an old engraving, while the mount is left perfectly white or whatever tint it had before.

I never knew a person of recognized taste whose taste was not offended by the mauve paper. A vulgar taste is pleased by it because it finds a suggestion of color in it. This is just what a photograph should not have—a tone is admissible but a tinted photograph is as bad taste as a colored one and may be much more offensive.

Yours truly,

W. J. Stillman.

ATHENS, GREECE, May 16th, 1889.

THE "OLD TIMERS."

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir :—In view of the approaching convention, would it not be very interesting to have the names of the "old-timers" who are still living, brought out, with the leading facts concerning each? I know of no better way to get at this, than for THE PHOTOGRAPHIC TIMES to request the names of the old Daguerreotypers, their ages, and the date of their starting in the profession. I will start the ball rolling by giving my own.

I began in July, 1842, aged eighteen, and have been at it ever since.

Yours truly,

E. Long.

QUINCY, Ill., May 22, 1889.

[We think the suggestion in the above communication an excellent one, and trust that all old Daguerreotypers will be as public-spirited as the veteran, E. Long. in coming forward and recounting briefly the facts of their connection with photography. The result will be extremely interesting.

We may add that Mr. Long is one of the oldest living customers of The Scovill & Adams Company—formerly the Photographic Department of the Scovill Manufacturing Company,—he having purchased his first bill of goods of J. M. L. and W. H. Scovill, in September of 1847. Mr Long was then located in St. Louis.

Editor of THE PHOTOGRAPHIC TIMES.]

CELLULOID A SUBSTITUTE FOR GROUND GLASS.

To the Editor of the PHOTOGRAPHIC TIMES.

Dear Sir :—Some time ago in attempting to clean the emulsion off a Carbutt Film it seemed when I looked through it to have a surface like ground glass, to try it I inserted it in my empty plate holder and it proved to be an excellent substitute for ground glass. Several times since I have tried it and found that to get a perfect surface it must not be scraped in any way but removed with boiling water. Thinking this may be of some interest to your readers, I remain,

Yours truly,

Robert C. MacCullod.

Toronto, Canada, May 27th 1889.

[We give space to the above with pleasure, but call attention to the brief editorial on page 23 of May 10th, issue 1889.—*Editor* PHOTOGRAPHIC TIMES.]

A WORD FROM PROFESSOR BURTON.

MR DEAR ADAMS:

* * * * * It has been to me ever since I came here, a thing fearful and wonderful to coutemplate—the way in which the various companies that deliver goods here—especially from Europe—manage their business. At times, the goods come just on the heels of the letter stating that they have been sent off. At other times, they are two, three or four months behind the letters, and no explanation is extractable from any one, except the pretty evident one that "They did not come any sooner." As often as not, the shippers send no note or bill of lading, or anything, whereby the goods can be claimed. In that case, they lie in Yokohama for an indefinite length of time, and would, I imagine, lie till they rotted, did not one go down and actually look them out. * * *

Everything is going well with me here. We are having the most delightful spring weather now; it will continue charming until the middle of July, when the alternative will be to sit and swelter here, or go off to the mountains.

In a few days there will be a preliminary meeting of the Photographic Society of Japan. I shall send you a short note of it for the TIMES.

With kind regards, believe me,

Yours very truly,

W. K. Burton.

TOKIO, Japan, May 3, 1889.

Notes and News.

FOR THE WASHINGTON MEMORIAL ARCH FUND.—Tuesday evening, May 25th, the Society of Amateur Photographers gave a lantern exhibition in Chickering Hall, the proceeds of which were contributed to the Washington Memorial Arch Fund. President Canfield opened the entertainment by introducing the Rev. Robert Collyer, who delivered a brief address upon the life of George Washington. J. Wells Champney, Chairman of the Committee which had the entertainment in charge, was then introduced, and announced the slides as they were thrown upon the screen. Mr. F. C. Beach presided at the lantern; and the slides projected were very good ones, being selected from a large number sent in for the purpose. In the various pauses of the evening, the audience was entertained by music on the great organ; and, altogether, the evening was a most delighful one. The committee is to be congratulated upon the success of the entertainment,

PHOTOGRAPHY APPLIED TO THE PREDICTION OF THE WEATHER.—With regard to the accident which occurred to the war vessels at Apia, says the *British Journal of Photography*, it might be advisable to refer once more to the theory of Dr. Zenger, of Prague, who suggested to make use of photography for the prediction of the weather. "According to the Doctor, photographs of the sun taken on orthochromatic plates offer a most infallible means to indicate with almost absolute certainty the approaching atmospheric and subterranean disturbances at least 24 hours before their setting in. In these photographs zones are often to be seen around the sun's disk—*i. e.*, rings of circular or elliptical form, of white or grayish color—and if these zones appear of very large diameter, and of unusual heaviness, this indicates that violent storms, thunder storms, or magnetical disturbances will set in at the place of observation. At every ship's station should therefore be established a small photographic laboratory, in which photographs of the sun could be taken as often as possible. A much more reliable prediction of the weather would be afforded by this means than by the aid of the barometer now generally in use for this purpose, and precautions could therefore be taken in good time."

BEST POSITION FOR RAY-FILTERS.—That ray-filters attached immediately in front or on the back of the objective will disturb the focus is a fact well known, and for

that reason focusing is invariably done through the ray-filter. Another inconvenience consequent to the use of ray-filters is a certain want of sharpness quite impossible to correct in any way. If the colored glass plate is not perfectly plane parallel prismatic color dispersion must follow, insignificant, perhaps, in itself, but sufficient to destroy absolute sharpness. An incorrectly polished glass surface, the imperceptible unevenness of the colored collodion film, or veins in the glass will also destroy sharpness.

These ill-effects may be almost entirely avoided if the ray-filter, as Schumann has recommended, is not connected with the objective, but placed immediately before the sensitive film. It is tried by placing the light-filter that way, deviations and deflections of light are not only much promoted, but become greater on account of such large filters to cover the whole of a plate as used for practical work are quite difficult to obtain in true plane parallel conditions, or free from glass veins. The distance between sensitive plate and filter being, however, practically like now, ill-effects arising escape observation almost entirely. — *Wochenblatt.*

THE REASON WHY.—A leading New York photographer, who, by the way, was young, handsome and unmarried, was once asked if he were ever impressed by the dazzling beauty of some of his subjects. "No," was his reply; "I arrange them in front of my camera as if they were mere articles of furniture."

THE STOLEN PHOTOGRAPH.

"CERTAINLY I do hear voices," and the young man slackened his horse's pace to listen. All was silence. "Twitter of birds, probably," he said, with a smile, "but it sounded wonderfully like the chatter of girls. If it was not, it was surely some old-feathered wives telling the latest gossip of bird-dom," and he laughed to himself over the sarcasm implied.

Morris Phelps was enjoying a week's holiday from law duties, and hot, dusty New York was pushed as much out of thought as out of sight by the lovely country through which he was riding. His knapsack swung from his saddle, and beside it the case containing his camera. That told its own story. He had been bitten, too, and was a victim to the photographic craze, if any amateur ever was.

Carefully packed were dozens of charming pictures which he had taken on this ride through Orange County. It was his dream to let them await developing until the first cool days of early fall should come; then, before the season's gaieties began, he would be in his snug bachelor quarters enjoying cigar and open fire, and at his leisure to look over the many views he had secured.

It would be such a delight to him over again—this pleasant week. How each plate would have a separate interest, and how satisfactory it would be to have something more substantial than treacherous memories of the views which had delighted him.

He had stopped his horse on the wood bordered road just beyond Houghton Farm. He was on high ground, and through clearings he could look out on a wondrous prospect. The Catskills in hazy outline limited the far horizon. The Hudson River, way to the north, glimmered like a lake; the city on its banks, with its church spires pointing to heaven seemed hardly more than a little hamlet. Right below him lay the plain with well-tilled farm lands and green woods, and as he looked down on its quiet charm he found himself reciting the words of Jean Ingelow:

> "Half drowned in sleepy peace it lay,
> As satiate with the boundless play
> Of sunshine on its green array,
> And clear-cut hills of gloomy blue
> To keep it safe rose up behind,
> As with a charm'd ring to bind
> The grassy sea where clouds might find
> A place to bring their shadows to."

He looked at his watch. Yes, there was time to illustrate this lovely stanza, and he turned for his camera. Alas! the one plate left was adapted especially for portraiture. He had used more than he had intended at Houghton Farm. The pretty house, the trim stables and barns, everything numbered, and models of neatness and picturesqueness in their coats of red paint had been far too tempting subjects to resist. On seeing them he had exclaimed: "Red coats, now and for ever, whether on man or man's habitation—the very idea of changing the British uniform!"

One picture after another had been taken, the last a pastoral idyl—the flock of sheep with the great shepherd dog guarding them. All these had been delightful, but his munition was now exhausted, and his trunk with a supply was at Cornwall miles away; so shutting his eyes to the alluring prospect, he rode on.

After a little he came upon something which suggested the frivolous world of girls. There was a small horse with close-cut mane and docked tail attached to a stylish oak cart. The animal was tethered insecurely by one of the lines, and was browsing on the rich turf.

"What careless girls to leave such a respectable turnout on this lonely road. I wonder where they are?" He headed his horse to the edge of the road. Below in a little clearing sat, or rather lounged, two exceedingly pretty young women. They looked very cool and attractive—so attractive that Morris bethought himself of his one remaining plate. "I might as well have one view from this hill-top," he said—not a very honorable thing to do—but if they will look so confoundedly picturesque they must pay the penalty."

Unconscious of the admiration they were exciting, the girls continued their reading. With his opera-glass, Morris could see one volume was a copy of Lowell's poems. The New England poet was a favorite of his, and many times that day he had quoted from him.

"If she likes Lowell she is a sensible girl," he muttered; "wish she was as pretty as the other one," and yet, as he spoke, he looked admiringly on the soft, brown hair; and the profile, that was outlined against the background of dark cedar was, after all, bewitchingly curved.

Both were dressed in black, the other girl had wonderful masses of shiny, flaxen hair, crowning her well-shaped head; her face was like that of some finely chiselled statue. A Greek goddess, living and breathing in the Cornwall hills, and she was devouring a Franklin Square novel!

The camera was adjusted, the models focused, and the instantaneous plate exposed. The light was excellent, and the amateur photographer almost shouted with joy. It was ideal posing because perfectly natural and unconscious.

"This is the best hit I've ever made in portraiture," he whispered, exultantly.

The Greek goddess, with her Franklin Square, started, lifting her eyes, she peered into the mass of green foliage, through which a moment before Morris had pointed his camera. She was conscious of some intruding presence, who does not believe in mesmeric influence? Springing to her feet, she exclaimed: "The sun is nearly down! Come, dear, we must hurry. I did not know we had stayed so late."

The young man above heard the words, and hurried too, quietly packing away the plate which held its precious image, he mounted his horse and rode swiftly off, and soon found himself amid a merry group of friends at the hotel. Did he tell them of the last bit of photographic work? Not he.

* * * * * * *

Mary Scott Boyd.

(*To be continued.*)

Photographic Societies.

EXHIBITION OF THE PHOTOGRAPHIC SOCIETY OF CHICAGO.

LIST OF PRIZES.

We, the committee of Awards of the first annual exhibition of the Photographic Society of Chicago, do hereby award the following prizes, etc., to persons exhibiting.

FOREIGN PROFESSIONALS.

Class A.—Portraits and Genre Pictures by Professionals.

No. 1. First prize—Medal, W. W. Winter, Derby, England; "My Mama."

"Honorable Mention," Frank M. Sutcliffe, Whitby, England.

1st. "A Bit of News."

2nd. "A Bonny Lass."

No. 4.—"Honorable Mention," Mr. and Mrs. Anckhorn, Arbroath, Scotland, for collection of great merit.

Class C.—Landscape and Marine.

No. 1. Landscape. First prize. Medal, Frank M. Sutcliffe, Whitby, England; "Dinner Time."

No. 1. "Honorable Mention," Frank M. Sutcliffe, Whitby, England; "Whitby Harbor."

First prize. Medal, F. P. Gibson, Hexham, England, for collection of ten landscapes.

Class F.—Instantaneous.

First prize. Frank M. Sutcliffe, Whitby, England; "Water Rats."

Class G.—Animals.

First prize. Frank M. Sutcliffe, Whitby, England; "Sheep."

FOREIGN AMATEURS.

Exhibit not for competition.

Edward Sanger Shepherd, 64 Warwick Road, Maida Vale, W. London, collection of Cloud Studies and Lightning.

AMERICAN EXHIBITORS.

Class A.—Portraits and Genre Pictures by Professionals.

No. 1. First prize. Medal, D. R. Clark, Chicago; collection of Portrait 14x17 and larger.

No. 2. First prize. Medal, S. L. Stein, Milwaukee, Wis.; collection of Panels Portraits.

No. 3. Medal, E. L. Fowler, Chicago; collection of Cabinets.

No. 4. "Honorable Mention," E. L. Fowler, Chicago: collection of small Panel Portraits.

No. 3. "Honorable Mention," C. F. O'Keefe, Fort Madison, Iowa: collection of Cabinet Portraits.

Theodore Endean, Cleveland, Ohio, collection of Portraits of a high order of merit, entitled to prize if competing.

Class B.—Portraits and Genre Pictures by Amateurs who complete the pictures. This includes Composition, Exposure, Developing, Printing, Toning, etc.

No. 1. First prize. Medal, G. B. Wood, Philadelphia, Pa.; collection of Genre pictures—silver and platinum.

No. 1. First prize. Medal; Mrs. N. Gray Bartlett, Chicago; collection of portraits and genre pictures—platinum.

No. 2. "Honorable mention." Mrs. Frederick A. Delano, Edgewater, Ill; collection of portraits and genre pictures—silver and bromides.

Class C.—Landscape and Marine.

No. 1. Professional. First Prize, Medal, J. W. Taylor, Chicago. Collection of Landscapes.

No. 2. Amateurs. First Prize, Medal, S. W. Burnham. Lick Observatory, Mt. Hamilton, Cal. Collection of Landscapes.

No. 2. "Honorable Mention." G. B. Wood, Philadelphia, Pa. Collection of Landscapes and Marines.

No. 3. First Prize. Medal, Miss C. E. Sears, Boston, Mass. Marines.

No. 3. "Honorable Mention." E. Burton Holmes, for Landscape work meriting Prize if competing.

Class D.—Flash-Light Photography.

No. 1. Professionals. First Prize, Medal, H. B. Chamberlin, Shullsburg, Wis. Collection of Portraits.

No. 1. "Honorable Mention." P. B. Greene, Chicago. Collection of Portraits.

No. 1. Amateur. First Prize, Medal, S. Ward. New York, N. Y. Collection of Genre Portraits.

Class E.—Detective Camera Work.

First Prize. Medal, F. K. Morrill, Chicago.

Class F.—Instantaneous.

Professional. First Prize. Medal, Jno. L. Stettinius, Cincinnati, O.

Amateur. "Honorable Mention." J. W. Taylor, Chicago. 'American Derby."

"Honorable Mention." M. L. Scudder, Jr., Chicago. Collection of Mexican views of Bull Fights, etc.

Class G.—Animals.

First Prize. Medal, G. A. Nelson, Lowell, Mass. Amateur.

"Honorable Mention." J. H. Smith, Chicago. Amateur.

Class H.—Kodak.

First Prize. Medal, J. G. Steward, Chicago. Collection of Views in Yucatan.

Class I. Transparencies.

No. 1. For Window.

No. 2. Lantern.

First Prize. Medal, F. D. Foss, Chicago.

"Honorable Mention." C. B. Moore, Philadelphia, Pa.

Class J.—Photo-Micrography. No Exhibit.

Class K.—The best negatives on Celluloid Films.

First Prize. Medal, J. W. Buehler, Chicago.

"Honorable Mention." M. A. Seed, Dry Plate Co., St Louis, meriting prize if competing.

Class L.—Platinum Prints.

No. 1. Black.

No. 2. Sepia.

No. 1. First prize. Medal, Willis & Clements, Philadelphia, Pa.

No. 2. First prize. Medal, Geo. B. Wood, Philadelphia, Pa.

Class M.—Best Prints on Linen, Silk, or any Fabric. No exhibit.

Class N.—Bromide Enlargements done by Exhibitor.

First prize. Medal, G. H. Liddell, Chicago. Professional.

Class O.—Bromide Prints. Contact.

No. 1. Professionals. No exhibit.

No. 2. Amateurs.

No. 2. First prize. Medal, Jno. L. Stettinius, Cincinnati, O.

Class P.—Photo Zinc Etching for Newspaper. Done by staff of paper. No exhibit.

Class Q.—Lego Photography. No exhibit.

Class R.—Celestial Photography.

First prize. Medal, S. W. Burnham, Lick Observatory, Mount Hamilton, Cal. Collection of Photographs of Moon and Eclipse of Sun. Collection of Window Transparencies of Moon.

Class S.—Medico-Photography. No exhibit.

Class T.—Prison and Police Photography. First prize. Medal, J. Maul, Chicago. Professional.

"Honorable Mention." S. W. Wetmore, Collection from Illinois State Penitentiary, Joliet, Ill.

Class U.—Photo-Mechanical Printing.

First prize. Medal, W. A. Cooper, Chicago.

Class V.—Exhibit of Orthochromatic Photography.

Class W.—Dealers Prizes.

Class X.—Air Brush Work.

First prize. Medal, Mrs. Hattie Bradwell, Chicago.

Class Z.—Meteorlogical Photography.

A. H. Binden, Boston, Mass., Photographs of Lightning.

G. B. Davis, Dubuque, Iowa. Photographs of Lightning.

Not for Competition. "Honorable Mention" from the Committee of Awards.

Mr. C. Arcouet, Aurora, Ill., deserves special mention for fine colleclion of fancy pictures of children.

CLASS W.—DEALERS PRIZES.

Lilliput prize, $25.00 in gold for best pictures made with Lilliput Camera, awarded to Wells B. Sizer, Chicago.

Harvard prize, $50.00 in gold for best Portrait work on Harvard Plates. No award.

Harvard prize, $25.00 in gold for best Landscape or Marines, awarded to J. H. Smith, Chicago.

The Blair Camera Co.'s prize, 5x7 English Compact Camera Box, awarded to O. P. Scott (Professional) Chicago, for best general display of Portraits from Cabinets to Life Size.

Stanley Bros. Dry Plate Co. prize, $50.00 gold Medal for best collection of portraits; negative made on the Stanley Plate, awarded to W. A. Howe, Chicago.

$25.00 gold Medal for best collection of Landscape negatives made on a Stanley Plate, awarded to J. H. Smith, Chicago.

$25.00 gold Medal for best collection of Interiors made on a Stanley Plate, awarded to J. W. Taylor, Chicago.

Gayton A. Douglass & Co. prize, Lavarne Ortho-panactinic Lens with Iris Diaphragm and Laverne shutter for 5x8 plate, value $48.00 for best collection of Bizzighelli Platinum Prints, awarded to Mrs. N. Gray Bartlett, Chicago.

Sweet, Wallach & Co. prize 8x10 Imperial Lens for the best display on the McGowan Dry Ferrotype Plate, awarded to McGowan.

The Eastman Dry Plate and Film Co. prize, Kodak Camera complete, for the best collection of not less than 25 Kodak pictures, awarded to W. H. Walmsley.

N. C. Thayer & Co. prize, $50.00 in cash, for best collection of cabinets awarded to E. L. Fowler, Chicago, Professional.

H. F. SPREAD,
GEO. T. CHARLES,
W. B. E. SHUFELDT,
Committee of Awards.

Report of committee on Class I, No. 2, Lantern Slides. Medal to H. A. Latimer, of Boston Camera Club.

Honorable mention to Robert S. Harley of Chicago.

H. D. GARRISON,
C. F. MATTETON,
JAMES GARDNER,
} *Committee.*

CASE SCHOOL CAMERA CLUB.

At a special meeting of the club held Friday afternoon, May 24th, Lafayette D. Vorce made a composite photo of about 10 or 12 of the students. His plan was to stretch a wire with a knot on it and have each student in his turn sit so as to have the knot come on the bridge of his nose. Owing to the want of a good head-rest the picture was not so complete a success as it might have been. This will no doubt be the last meeting of club this school year as examinations soon take place.

Milton B. Punnett,
Corresponding Secretary.

The Editorial Table.

CRUISINGS IN THE CASCADES, and other Hunting Adventures, by G. O. Shields, (Coquina), is a narrative of travel, exploration, hunting, fishing, and amateur photography, that will be welcomed by a large class of readers. The book contains special chapters on Hunting the Grizzly Bear, Buffalo, Elk, Antelope, Rocky Mountain Goat and Deer; also on Trouting in the Rocky Mountains; a Montana Round-up; Life among the Cow-boys, and much that is of interest to amateur photographers. The illustrations are, for the most part, made from photographs, and are one of the chief charms of the book. Those who have read "Rustlings in the Rockies," by the same author, are familiar with the charm of his style.

The book is published by Rand, McNally & Company, Chicago; in cloth; at $2.00.

THE initial number of the *American Amateur Photographer* has not yet made its appearance, but we have received from the Rev. W. H. Burbank, the publisher, and one of its editors, a blue print *fac simile* of its attractive cover. We understand from Mr. Burbank that a goodly number of subscribers have already come forward, and that the little magazine is starting with a promising advertising patronage.

WE have received from Mr. S. R. Stoddard, Glens Falls, N.Y., publisher of the famous Adirondack Views, a very fine flash-light photograph of the Washington Memorial Arch. It is a 6½ x 8½, and is especially well made under the difficult circumstances which Mr. Stoddard had to contend with. The light effect is particularly effective.

WE have received two orthochromatic studies by Mr. John Carbutt, made upon his own excellent color-sensitive plates, and with a light yellow ray filter. Mr. Carbutt does not need praise from us on the good quality of his work, but we may properly compliment him on his color-sensitive plates. By them, yellow, orange and green are remarkably well reproduced, and even bright red is copied far better than by any other commercial orthochromatic plates which we have experimented with.

WE are indebted to Mr. Douglass, Treasurer of The Photographic Society of Chicago, for a copy of the catalogue of the recent exhibition held under the auspices of that Society. From the large number of errors in the catalogue, we regret to observe that the book was very carelessly printed. There seems to have been literally no proof-reading at all.

The number of exhibits was four hundred and three, most of which were from Chicago, though a few were from other cities and abroad.

FROM O. Pierre Havens, of Jacksonville, Fla., we have received an interesting collection of 5 x 8 photographs, showing two sides of Southern life. There are magnificent views of Druid Hill Park, Baltimore, Mount Vernon Place, etc., and pictures of cabin life in Florida. All are very interesting and all are uniformly well done.

M. B. BRADY, the veteran photographer and one of the earliest daguerreotypists in this city, called upon us recently, and interested us greatly in his talk of old times and men. Mr. Brady is looking hale and hearty, and, we trust, will live many years yet to tell the younger members of the fraternity some of the trials and triumphs of the veterans.

MR. CRAMER brought us from abroad the illustrated journal of the Paris Expostion, for which we feel greatly indebted to him. It is full of valuable information concerning the Exhibition; but what is of most interest to us are the illustrations.

Record of Photographic Patents.

408,994. Photographic Camera. James H. Ford, New York, N. Y., and Max Jurnick, Jersey City, N. J.

SUFFICIENT TO MAKE AN IMPRESSION.

Yes, there are her features, her brow, and her hair,
And her eyes with a look so seraphic;
Her nose, and her mouth, with the smile that is there,
Truly caught by the art photographic.

Yet why should she borrow such aid from the skies,
When by many a bosom's confession,
Hér own lovely face, and the light of her eyes,
Are sufficient to make an impression?

— *Tom Hood.*

Queries and Answers.

117 WARREN A. RICHARDS wishes to know if there is any formula by which to photograph on wood by emulsion. He says: "I have several other silver methods, but I believe there is one by emulsion that is quicker and better than the rest; there are silver, sodium, and silver white in it, I believe, and the block is prepared first with heated gelatine, and wipes dry by the hand, then the emulsion is put on and spread evenly with the hand, and it is ready to print after fuming a little with ammonia. It may be toned, bnt it is not necessary. Have you anything like this?"

117 *Answer.*—We do not know of an emulsion process for this purpose. We think you will find what you wish in the Standard Formula No. 156, page 282 of "The American Annual of Photography for 1889."

118 R. VÒLBARD asks how many prints can be toned with fifteen grains of chloride of gold and a bottle of French azotate.

118 *Answer.*—(1) With one grain of pure chloride of gold, ten 5x8 pieces of albumen paper can be toned. With chloride of gold and sodium, double the quantity may be toned. (2) The quantity of French azotate required depends upon the acidity of the gold solution. Add the azotate until red litmus paper turns blûe.

119 W. PERKINS asks for a formula for making "flash"-light powder.

119 *Answer.*—The "flash"-light compounds used in photographic supply stores are generally the property of the manufacturers. The following are good and servicable mixtures:

GAEDICKE'S.

1. Magnesium	16.47 per cent.
Chlorate of potassium	71.05 per cent.
Sulphite of antimony	12.48 per cent.
	100.00 per cent.
2. Magnesium	20.63 per cent.
Chlorate of potassium	67.22 per cent.
Sugar	12.15 per cent.
	100.00 per cent.
3. Magnesium	40.00 per cent.
Permanganate of potassium	40.00 per cent.
Peroxide of barium	20.00 per cent.
	100.00 per cent.

We advise you not to attempt to mix these powders. Why do you not take the powder manufactured by The Scovill & Adams Company? It is positively non-explosive and non-poisonous, and furnishes a splendid light.

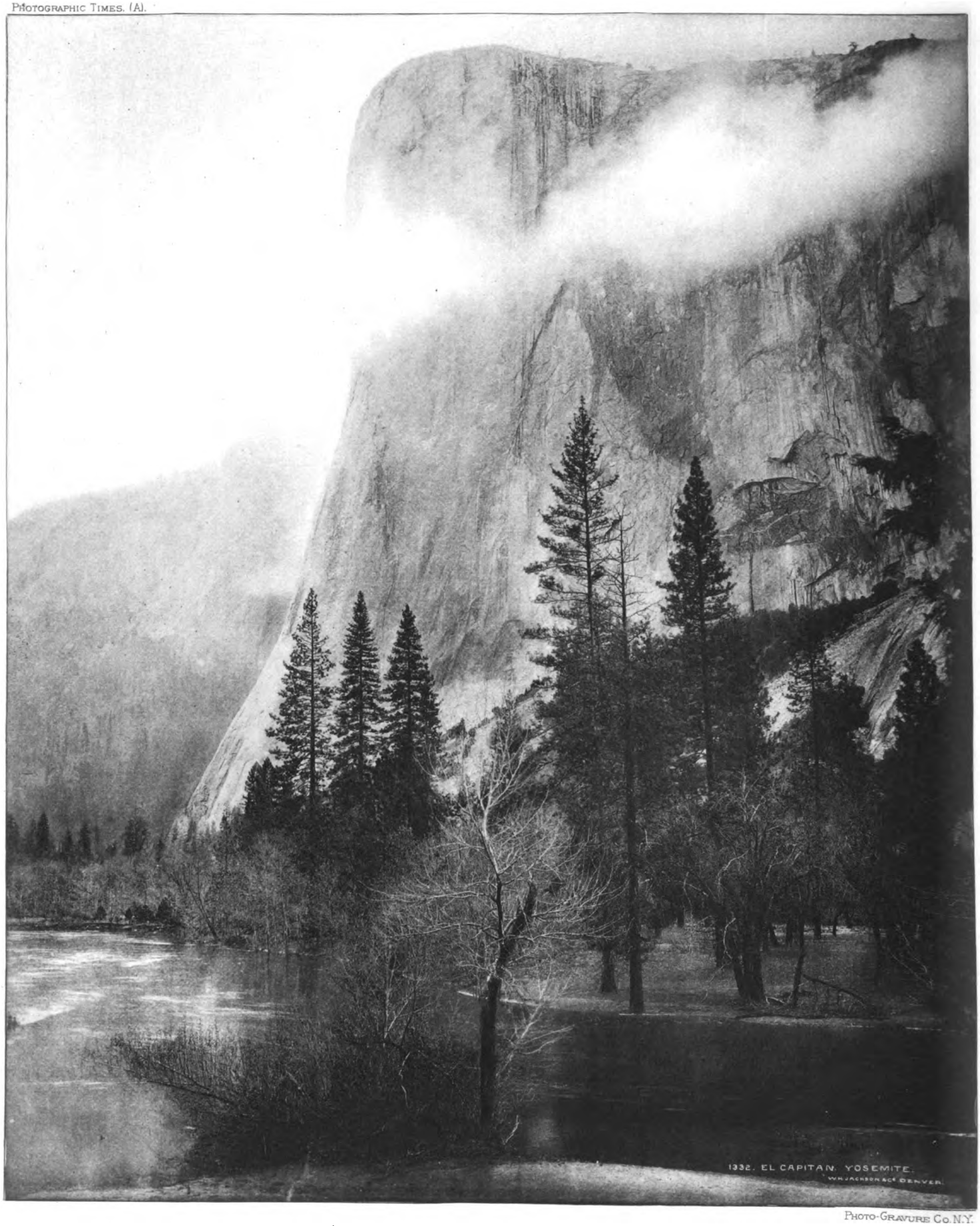


PHOTO-GRAVURE CO. N.Y.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, JUNE 14, 1889. No. 404.

EL CAPITAN.

IT is not often we have so magnificent a landscape subject to present to our readers. "The Great Falls of the Yellowstone," by the same author, which embellished these columns several months ago, while equally good in technical treatment, is scarcely so imposing a subject as El Capitan. One is a fitting companion to the other, and both are notable scenes in our great National Park. In this class of work Mr. Jackson is without a rival in this country. This picture is one of the collection of Twelve Photographic Studies published by the Scovill & Adams Company.

THE ACTION OF LIGHT ON CERTAIN SALTS OF SILVER.

THE number of substances that are "sensitive to light" in the sense that an action of light more or less prolonged produces some change in them is very great indeed. In fact, it might probably be said that the greater number of substances are sensitive to light to a greater or less extent. Every one knows how frequently, if one portion of almost any article is exposed for long to sunshine whilst the rest is protected, it is found that after a time —seconds, minutes, hours, days, weeks, or years, as the case may be—there is a change of color in the unprotected part. It has become either darker or lighter. We bleach clothing by placing it in the sun. Paper, wood, almost all live vegetable matter, our own skins, even window-glass, are all more or less sensitive to light.

Certain substances have shown this quality of sensitiveness more than others, and have for that reason been used in photography. Notable amongst these are certain salts of silver.

It was known at a very early date that if crystals of silver nitrate were scattered on a piece of paper or any light-colored leather, and if this paper or leather were placed in the sun, a black spot was vrey soon produced wherever a crystal of the silver salt lay. From this it was concluded by many that nitrate of silver was sensitive to light, and the idea is one that has at the present day so great a hold on the popular mind that it is somewhat difficult to remove it. As a matter of fact, silver nitrate, lunar caustic, or as it is sometimes called simply "caustic," is a substance which is not at all sensitive to light. It is, however, a substance readily decomposed, forming other silver salts, with bodies both inorganic and organic, many of which salts are sensitive to light. In the case, for example, of the paper or leather, some organic salt of silver was produced by the contact of the silver nitrate with the paper or leather, and this organic salt was sensitive to light.

This brings us on to consider the meaning of the word "decomposition," and of the phrase "double decomposition."

The atomic theory explains that matter is supposed to consist of atoms built up into systems or molecules, as the chemist calls them. In all compound substances these molecules consist each of atoms of at least two different kinds, there being one atom or more of each kind. Decomposition consists simply of a disassociation of these atoms. To take a very simple example: Water consists of hydrogen and oxygen. In each molecule there are two atoms of hydrogen and one of oxygen, or, as it is commonly expressed, each molecule consists of H_2O. This remains true whether the water be in the form of a solid (ice), a liquid, or of a gas (steam); but let us pass a current of electricity through the water. It will be found that it now gives off bubbles of oxygen and of hydrogen gas. The electricity has caused the atoms of the molecules to be disassociated, and the substance is decomposed.

Many substances are decomposable by heat. This is the case, for example, with all ores from which the metals can be reduced by heat alone. Many substances there are which slowly decompose at ordinary temperatures and in ordinary circumstances without external stimulous. For ex-

ample: if we remove the cork from a bottle of carbonate of ammonium, we shall observe a distinct smell of ammonai. The carbonate is a compound of oxygen, carbon and ammonia—the latter itself a compound of nitrogen and hydrogen—and the smell simply indicates that the atoms of nitrogen and hydrogen are separating themselves from the rest in the form of molecules of ammonia, and are escaping into the air, that the carbonate of ammonia is spontaneously decomposing.

There are many substances again which will not sponstaneously decompose in darkness, but which readily decompose in the presence of light. In connection with photography we naturally consider, especially, the case of the salts of silver, which act in this way; but must first consider how they are produced, by double decomposition.

Let us suppose two hypothetical substances, the molecules of one consisting of one atom of *a* and one of *b*, those of the other consisting of an atom of *x* and another of *y*. The first substance we shall call *a b*, the second *x y*.

It is necessary to prelude further remarks by pointing out that all compounds exist by the action of "chemical affinity" between the atoms forming the molecules. The question of "chemical affinity is really a very deep one, not entirely understood by any one, and closely connected with "heat of combination." Here it will be sufficient for our purpose if we simply conceive of it as an actual attraction between particles of different kinds. In fact, no word can better express the idea than the word "affinity" itself.

The affinity of one atom for other atoms of different kinds varies, and the greater the affinity the more stable (less easily decomposable) is the compound substance produced.

Now, it might well happen that the atom *a* has a greater affinity for the atom *x* than it has for *b*, and that the atom *b* has a greater affinity for *y* than it has for *a*; or we might on the other hand suppose that the affinity of *a* for *x* is so over-poweringly great that all other affinities between any two of the four substances, *a*, *b*, *x* and *y*, are entirely overpowered, and may be left out of consideration altogether.

If either of these suppositions be correct, and if the compound substance *a b* be brought into close contact with that of *x y*—as by dissolving both in water and mixing the solutions, *a* will pass over to *x* forming a compound *a x*, and—except in the case where the *b* and *y* have no affinity for each other, when they will fly off in the "free" or uncombined state—*b* will form a second compound with *y* called *b y*. This action is termed double decomposition, and would be represented by this formula:

$$a\,b + x\,y = a\,x + b\,y.$$

In very many cases of double decomposition, brought about by the common method of dissolving the two original salts in water and mixing tl em, one of the two salts resulting from the double decomposition is soluble, the other is insoluble. Indeed, in the case of salts dissolved in water, there is some close connection between the chemical affinity and the amount of solubility. The consequences are that one falls in the form of a precipitate, the other remains in solution, and they can easily be separated.

It is necessary now to go somewhat further and consider the results of mixing proportionately different quantities of two substances which mutually decompose each other. We shall have for this purpose briefly to explain the meaning of atomic weight.

It has been found that when two or more elementary bodies combine to make a compound body, they combine only in some definite proportion, that, for example, when *x* and *y* combine to make *x y*, there is always (say) twice as great a weight of *x* as of *y*, that if there be more than twice this weight present, the "excess" merely remains out of composition, that if there be of *y* more than half as much by weight as of *x*, the excess again simply remains out of composition. This being the case, and the assumption being that *x y* consists of molecules consisting each of one atom *x* and one atom *y*, it is necessary to further suppose that these atoms have each a definite weight, that of *x* being twice as great as that of *y*, and that the weight of all atoms of the same elementary substance is always the same. To discover the actual weight of any atom is quite out of the question, but it has been possible, by comparing the different weights of various elementary substances needed to form certain compounds to assign *relative* weights to the atoms of all elementary substances.

Hydrogen is commonly taken as the unit, as its atom is relatively the lightest as yet investigated. The weight of all other atoms are therefore expressed in terms of the weight of an atom of hydrogen.

We must guard ourselves against assuming as a matter of certainty that the "atomic weights," which are of undoubted practical use in chemistry, represent even the *relative* weights of actual atoms. To return to our hypothetical substance *x y* for example, we assume a combination of one atom of *x*

with one of y, but, as we can not see an atom we can never be certain that the compound does not really consist, for example, of two atoms of x, each of only half the weight that we assumed, with one of y. All we can do is to observe closely the manner in which x combines with other substances, and form a judgment from that. Should anything arise to cause us at some time to conclude that the compound which we have called $x\ y$ should really be written $x_2\ y$, no serious practical disturbances need arise from the discovery. We simply assign to x half the atomic weight that it had before, and in whatever compounds it appears, assume that there are two atoms of it for every one that we assumed before. But we must wait until next week to conclude our consideration of this interesting subject.

PHOTOGRAPH OR PICTURE.

II.

THE paper on which the photograph is printed tells greatly for or against its pictorial quality. The very common ideal, a print toned to a purple and then finished with a gloss that rivals that of the burnished dove, can hardly be too carefully avoided. The tone should vary with the picture. A soft rich gray, even a rather faint gray tone, is often much preferable in a portrait to the tones of a too distinct purplish or reddish tinge; the brown tint, or the deep blue-blacks that come with long toning, are sometimes very valuable for landscapes. The superlatively finished papers give a depth to exceedingly sharp and detailed subjects, but experiment should rather turn in the direction of the matt surface papers. Some of the most beautiful landscape prints I have ever seen were on plain salted drawing paper, toned in grays. They were unusually soft and delicate in quality, and the color gave them that likeness to an engraving that is held up by certain English writers as a thing much to be desired, and which certainly has much charm. The blue-print paper will give pleasing results with many negatives, sometimes adding much to their pictorial quality by suppressing over-abundant detail. It is interesting to take prints from the same negative on blue and on silver paper, as a lesson in the difference of things seen in mass and things seen in detail. A great deal is to be said also for the platinum print, in which I have seen some of the most charming landscape work exquisitely rendered.

The silver paper is undoubtedly the most delicate of all both in rendering the drawing of a subject and in its range of color. But some negatives give a better effect when printed for strength. The unvarying delicacy, the gentle transitions of tones that do not rise to pure white or quite get down to black, in silver, give rather a flat and monotonous effect in negatives that are themselves rather weak, and lack contrast. Bromide paper is still worse in this respect; it never gets down to a rich satisfying black, but only reaches a gray—so that very commonly the bromide print has a decidedly washed-out appearance. To mass tones and give contrast, retouching may be freely resorted to; it may be best done, perhaps, on the back of the plate. Authority enough can be cited to support this, as it is practised both by Braun and Goupil; the former establishment especially, in the reproduction of paintings, in some cases almost paints another picture on the back of the plate.

CUT 1.

But it is always preferable to go right at first if possible. Light is our pencil, and it is better to draw with that than to paint the plate. Artistically speaking, the photograph may be considered as a black-and-white, drawn by the sun. The artistic photographer should conceive clearly this idea. It is the sunlight that makes his picture for him. The illuminated portion is the picture. Every painter knows this, and the maxim "load your lights, let alone your shadows." It is only the light that is really seen; deep shadow is almost unnoticed by any but the technical eye; so much so that many good people think that shadow is black. Of course one does not notice darkness. How strongly this is so any one may find out by looking closely at an oil painting and noting how much of the texture of the canvas is visible in the light, and how much in the shadows. It was well exemplified in a charming study of Millet's, the "Bather," now in this country, of which we give a small sketch in black and white. Only the high-lights—the whites that come against black in the cut—were really painted. The rest was the canvas, partly hidden

merely brushed over with dark reds and browns. Hence let the photographer remember, above all in portraiture, to consider how the light falls. Take a grassy field, or a mass of foliage, lighted directly by the sun. It is all flattened, uniform, uninteresting. Wait till the evening or morning, when the light falls at an angle. Then everything casts a shadow; the expanse of grass is varied and broken up, the foliage is full of the play of light and shade, and a picture is possible. In portraiture, take the unnatural appearance of faces behind the footlights; they are lighted from below, the lights are in unaccustomed places. Again, an open-air portrait is apt to be flat and without fine modeling; light comes from everywhere. The studio is simply a place where the artist can control his light; get just the quantity he wants in the way he wants it. It is not necessary to have in the amateur's practice all the complicated system of shades and curtains, screens and reflectors, of the professional; but they are there for a purpose. The greatest quality of the good photographer, particularly of the portraitist, is this ability to handle his pencil of light as he wishes.

Again, another quality of the good black-and-white is the successful use of contrast—a constant play of light and dark against each other, with one dominant sparkle at the principal point of interest. It is one of the good old rules that the point of interest should hold the strongest contrast in the picture. The eye always instantly looks for and rests on this, and it is one of the defects of the photograph that it often does not satisfy this search. It may have half-a-dozen equal points of contrast, which is equivalent to having none. If arranging a subject, think where the eye ought to look, and there construct your telling bit of dark and light; if before landscape, find what you really want, what it is that particularly makes the charm for you, and get that into the middle of your plate, and do not get too much around it, or you may find that there are rival attractions in some gleaming leafage or glittering bit of water. I have seen an excellently arranged landscape spoiled by the unfortunate presence, conspicuously in the foreground, of a too-well lighted and glossy bit of laurel.

I do not at all recommend the silhouette style of plate, or the much-misunderstood "Rembrandt" effect; but I would urge the effort to get a bit of good, honest black and white into the plate now and then, if possible—just one bit. It will give the last touch of crispness to a "snappy" plate, and will emphasize the delicacy of a soft one. It need not be large, but it should be decided.

Our tailpiece, a sketch of a fragment of Rembrandt's etching, "Dr. Faustus," illustrates excellently the points noted in the last few paragraphs.

CUT 2.

The sage is astonished by the apparition in his study of a mystic disk of light. Notice how the great master has made his pencil of light draw for him, and how directly the eye goes to the upturned face. The rough cut will teach more than volumes of words.

Fred. Hart Wilson.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—*Continued from page* 271.

LEAD ACETATE.

Formula, $Pb(C_2H_3O_2)_2+3H_2O$. Combining weight, 378.

Prepared by dissolving litharge (lead monoxide) in acetic acid. From its appearance and its sweet (though also astringent) taste, lead acetate is commonly known as *sugar of lead.* The crystals are soluble in a little more than their own weight of water; soluble also in alcohol. The aqueous solution is frequently milky, from the presence, or formation, of lead carbonate. Lead acetate was found a useful addition, by the early experimenters, to the gallic acid they used for developing pictures on paper. By its use the details of the picture were brought out more rapidly and more clearly.

LEAD CHLORIDE.

Formula, $PbCl_2$. Combining weight, 242.

Prepared by dissolving lead oxide or carbonate in hydrochloric acid. It is but slightly soluble in

cold, though more so in hot, water, from which (on cooling) it is deposited in white silky needles.

Lead Ferrocyanide.

Formula, $Pb_2Fe(CN)_6+3H_2O$. Combining weight, 624+54=678.

A white precipitate of lead ferrocyanide is formed when a solution of potassium ferrocyanide is mixed with one of lead nitrate. The salt parts with its water of crystallization when heated. It is insoluble in water; partly soluble in hot ammonia; very soluble in a hot solution of ammonium chloride.

Lead Nitrate.

Formula, $Pb(NO_3)_2$. Combining weight, 330½.

Prepared by dissolving litharge (PbO) in hot dilute nitric acid. On cooling and evaporating milk-white octahedral crystals of lead nitrate are obtained. It is soluble in water; but very slightly soluble in alcohol.

Lithium Bromide.

Formula, LiBr. Combining weight, 87.

Prepared by dissolving lithium carbonate, or lithia (Li_2O) in hydrobromic acid. It is very soluble in water or alcohol.

Lithium Iodide.

Formula, $LiI+3H_2O$. Combining weight, 134+54=188.

The elementary body, lithium, was discovered in 1817, though the pure metal was not isolated till 1855, by Bunsen. It is the lightest known solid. Although very rare in any quantity, yet minute traces of the salts of lithium occur almost everywhere in water, soil, animals and plants. The only lithium compound which has been used in photography is lithium iodide, which may be obtained by dissolving lithium hydrate or carbonate in hydriodic acid. Another method is, mix strong solutions of calcium iodide and lithium sulphate, evaporate to dryness, and treat the residue with alcohol, which will dissolve out the lithium iodide. The long, slender crystals of lithium iodide are so very deliquescent, and the pure salt is so expensive, that it has not come into use for iodizing collodion, for which it is otherwise well suited, being more readily soluble in alcohol than the iodide of potassium generally employed.

Magnesium.

Symbol, Mg. Atomic weight, 24.

Metallic magnesium is a silvery, lustrous metal, which soon tarnishes in moist air. It is manufactured in large quantities from the chloride, and is chiefly sold as "ribbon," "wire," or in the powdered state. It has a great affinity for oxygen, and when it is ignited (which may be effected by simply holding it in the flame of a candle) it produces a bluish-white light of dazzling brilliancy. This magnesium light is very rich in actinic rays, and hence it has been largely used for photographing dark interiors, as caves, etc., and for photography at night. Bunsen and Roscoe found that while the light-giving value of direct sunlight is 524 times greater than that of burning magnesium, its chemical value is only 36 times as great. A burning magnesium wire about one-twenty-sixth of an inch in thickness gives as much light as 74 stearin candles weighing five to the pound.

A convenient lamp is sold which pushes out the metallic ribbon as fast as it is consumed, and so maintains a fairly constant light. A substitute for this is to use a few inches of a narrow tin tube—a pea-shooter, for instance—and pass the ribbon through it. The tube can be held in the hand, and the ribbon pushed through steadily while it burns at the far end. The white smoke produced is *magnesia, i. e.* magnesium oxide.

The latest development of the magnesium light in photography is its use in the form of powder either alone or spread upon gun-cotton, or mixed with oxidizing substances, such as chlorate of potash. Fifteen grains of the powdered metal intimately mixed with half its weight of gun-cotton, and burnt at a distance of six or eight feet from the sitter, will give a flash of such brightness that an instantaneous portrait can be readily secured.

Magnesium Bromide.

Formula, $MgBr_2$. Combining weight, 184.

This substance is found in sea water and in saline springs. It is deposited as needle-shaped crystals, having the composition $MgBr_2+6H_2O$, when magnesia is heated in hydrobromic acid. By heat these crystals are decomposed into the substances from which they were produced.

Magnesium Carbonate.

Formula, $MgCO_3$. Combining weight, 84.

Magnesium carbonate occurs in nature as the mineral called *magnesite.* It is soluble in water saturated with carbonic acid gas, the solubility increasing rapidly with the pressure.

The *magnesia alba* of druggists is a mixture of several complex carbonates of magnesium. It is a bulky white powder, soluble in ammoniacal solutions.

Magnesium Iodide.

Formula, MgI_2. Combining weight, 278.

This substance occurs in sea water, and in brine springs. It can be prepared by dissolving magnesia in hydriodic acid. It forms crystals which deliquesce in air, and decompose when heated, iodine being liberated.

Magnesium Nitrate.

Formula, $Mg(NO_3)_2+6H_2O$. Combining weight, 148+108=256.

This salt occurs in the mother-liquor from the saltpetre manufacture. It can be prepared by dissolving *magnesia alba* in nitric acid. Its prismatic crystals deliquesce in air. They are soluble in half their weight in water; soluble also in alcohol.

Magnesium Sulphate.

Formula, $MgSO_4+7H_2O$. Combining weight, 120+126=246.

Magnesium sulphate is familiarly known as "Epsom salts," from its occurrence in the water of a mineral spring at Epsom. It is now chiefly obtained from a mineral called *kieserite*, which occurs in layers in the salt-beds at Stassfurt. It is usually sold as a white crystalline powder, which is very soluble in water, but insoluble in alcohol.

The addition of Epsom salts to the fixing-bath is found to check, or prevent, the "frilling" to which certain dry-plates are more or less subject.

W. Jerome Harrison.

(*To be continued.*)

BLISTERS.

It is at this season of the year that the photographers' greatest pest—blisters—make their appearance.

There is no known remedy, to my knowledge, after a blister is once formed, so what follows will be devoted more to the prevention than to the cure of the malady. Hard water seems to be productive of these little pests, and warm weather augments the disease. There are as many "cures" for blisters as there are remedies for ague in the Wabash Valley.

The following is a general compilation of the most popular and effective ones. The reader can take his choice or use all, as suits him best.

1. Add to the fixing bath methylated spirits; the quantity varies from 5 to 15 per cent. Can only be found by experiment. Dilution of the fixing bath is also very efficacious.

2. Put some salt in the fixing bath when you mix it. It will prevent blisters and is not harmful to the finished print.

3. Leave the prints in the fixing bath ten minutes, then gradually dilute the bath, leaving the prints in five minutes longer, and then let a stream of running water gradually displace the diluted fixing solution.

4. A strong salt bath after fixing has generally given relief. Let it be understood that the main cause of blisters is the sudden removal of the print from the dense hypo solution to the specifically light water. A contraction of the albumen film taking place, raises blisters all over the paper print. Temperature has much to do with the formation of blisters, and it will never do to change one's prints suddenly from cold liquids to a warm water, or *vice versa*. The addition of ammonia to the wash water we can not recommend, as it softens the film of albumen all over the print.

5. Certain conditions are required to produce blisters; viz.: a thick, dry, horny film of albumen, and either a weak solution of silver or a short time of floating; just as you avoid these you avoid blisters. The remedy is, thoroughly coagulate the albumen on the paper; then try your best, and you cannot produce blistered prints.

6. When blistering has appeared, or is feared, remove the prints so soon as toned to a bath consisting of one gallon of water to which one ounce of ammonia has been added, and leave the prints in this solution for about ten minutes before fixing. Add one dram of ammonia to each pint of fixing bath, and after fixing remove the prints from the hypo bath to a strong salt bath which contains one ounce of ammonia to every gallon of water.

7. After toning, and before fixing, put the prints for a few minutes in a bath of water twenty ounces, acetic acid one ounce. Rinse once or twice and fix as usual.

Remarks.

The true cause of blisters is probably in the paper.

Adding salt to the fixing bath given in No. 2 has never been a success in the writer's hands.

In No. 4, salt is recommended in the first wash water after fixing. Blisters generally make their appearance in the fixing bath, and of course can not be cured by any subsequent treatment. I have but very little faith in salt, even as a preventative or cure.

No. 6 has nearly always been successful in the writer's hands, and was my favorite till No. 7 was published or re-published.

The acid seems to toughen the albumen; the

print is brighter, and paper that yielded some blisters with No. 6, was entirely free from them in No. 7.

In experimenting with No. 7, the prints were removed directly from the acid bath to the fixing bath containing the usual amount of ammonia and yet not a single blister appeared. If its record still continues good the acid bath, between toning and fixing, will soon become the favorite cure for these annoying little pests.

J. R. Swain.

THE STOLEN PHOTOGRAPH.

Continued from page 288.

"Stop a minute, what a confounded hurry you are in to-night? Here I have been chasing you half a dozen blocks," and a stout, good natured-looking, little man held out his hand to Morris Phelps, who laughingly answered: "Poor, little Jim. I forget you invariably come upon a fellow in this way. I ought to look about me when I come out of the office, and not have you racing up Broadway at a 2.40 gait. It is bad for you, man."

They both laughed and walked leisurely along. Suddenly Morris exclaimed: "Look here, Jim, dine with me at the club, and afterwards we will go round to my rooms and I will show you some of those pictures I took last summer. I am having such good times developing them. I labeled their envelopes, but never consult the pencillings until after I have watched the picture evolve itself, and the views are all so good, so characteristic, that I can name every one. Photography is a wonderful art. My hours of daylight are so few, I never try the printing. Rockwood has it done for me, and I have a capital collection."

Having mounted his *hobby*, he rode on for a little while, but at last, as Jim was not over-responsive, he dismounted, and they talked of other things.

A little later, in front of the blazing pine knots, in Morris' room, the two friends lighted their cigars, and with all the delightful sensations which a comfortable dinner invariably gives a man, sat down for a thoroughly good evening. They puffed away in silence for a few moments. Jim was the first to speak, and it was with evident embarrassment that he said: "I have something to tell you." He stopped—Morris elevated his eye-brows and waited—while Jim sent a cloud of smoke in rings over his head, and they both watched until the last frail circlet dissolved into nothingness.

Then Jim responded to Morris's sympathetic "Out with it," by saying, in a matter-of-fact way, which a second before would have seemed impossible, "I am going to be married to-morrow night, and I want you for witness, or best man, or whatever you choose to call it."

"The deuce, you do!" and Morris flung his cigar into the fire, and stood before his friend.

That he was surprised, but mildly expressed it—he was dumbfounded, and very indignant, too; and Jim was not unprepared for his emphatic words, "Jim, you are a fool?" He half laughed at his friend, as he towered above him in his displeasure.

Morris saw the smile, and continued: "What do you mean by marrying—on your income? You do not know what you are doing; with your penchant for ease, and your love of good living, how will you get along with a wife? bah! they are not worth the sacrifice. Will you be content with old suits, shabby hats, second-rate boarding-houses, and every other discomfort, for the sake of a woman? I say, Jim—can't you speak? are you struck mute?" for his friend was silent, and the blue smoke still curled about his head.

Then Jim Harris did speak; and the very sound of his voice startled Morris—as he exclaimed: "I have let you talk to me, as, by heaven, no other man should do. I would break your head, if I thought you really meant what you say. Underneath your slurring words, I know there is lurking an honest belief in the worth and loveliness of woman. If it was not so, you would not be my friend."

Morris lifted his brows contemptuously, as if doubting his friend's sanity; but the look was lost on Jim, who continued: "Yes, I am going to be married. I have met the one woman in the world for me."

Scoff as Morris might, he knew his friend was in earnest—and, when he asked "Do you care to hear of her?" he nodded assent, and resumed his chair.

Jim Harris in earnest was a man to be admired and respected; and now, as he told a story full of romance and complications, Morris listened, and grew confident every moment that his friend was enthralled if ever man was; and, if a lover's praises were to be credited, to as sweet and beautiful a woman as the city held. Nina Hilton, and her cousin, Helen Murray, were both orphaned nieces, of a wealthy bachelor, Thomas Murray, well-known in New York society as a man of kind impulses, but governed by a headstrong determination which led him to do and say numbers of odd things, which were reported through the clubs, and in the drawing-rooms, and were very entertaining—as entertaining as the old man himself could be, if he chose to win popularity. For the last three years, the two girls had been adopted in his home. They were both in mourning, and so had few visitors. Old Mr. Murray rather desired they should be quiet until they were ready to enter society—the rumor said his elegant house would then be renovated, and the two beautiful nieces should "burst upon society, and take people by storm."

Morris had heard of the girls, but had never seen them, and did not know how one had infatuated his friend. It was soon explained. Years before, when Nina Hilton was a very young girl, they had met at a quiet farm-house in New Hampshire, and her beauty and grace had won Jim Harris's affections. Too proud to offer his heart without a fortune, he fled ignominiously away from that country town, and in New York had worked and battled with adversity until he had a competency, though it was not what Mr. Murray thought sufficient for the man whom one of his heiresses should marry. In New York the old acquaintance of the New Hampshire hills had been renewed, and Nina had gladly promised to marry her poor but devoted lover. Old Mr. Murray was obdurate, and had engaged state-rooms on the "Servia," and within a few weeks he was to convey his two nieces to Europe, where, in the gay life which he felt would be alluring even to a love-sick young woman, Nina would forget the lawyer and would marry some one of the nobility, and certainly, if any American girl was worthy a title, beautiful Nina Hilton was. But she preferred poverty with love, and to-morrow night, in a quiet little church, with only her cousin,

Helen Murray and Jim's friend Morris, the two were to be married.

Jim was interested in the story he told. The love he did not care to hide beamed from every feature. As he spoke of Nina's devotion his homely face grew positively handsome. Morris, who had hitherto laughed at him as a prosy, unsentimental fellow, was astonished. He could not sympathize in this rapture, for he was thoroughly heart-free himself, and love was an unknown quantity in the problem of his life.

For some hours the two friends talked of the future which to one opened so full of bright anticipations. "I know my income which has supported me generously will not do the same for two that it has for one, but I have enough to *make a home* and keep my wife in comfort, and we will not be without luxuries altogether. We'll dine you, old fellow, most sumptuously some night, just to prove we have not forgotten what style is"—and Jim laughed in the fullness of joy.

"How about cigars, and theatre, and the club, and all the new books, etc.?" suggested Morris, a little wickedly—adding: "For my part, I shall enjoy asking you, after three months even have gone by, if *it pays*. You are very earnest now, but you are blind."

Jim jumped up and started for his coat. "I trust you will come to my wedding in a better frame of mind. Your cynicism is so evidently the graft of an element foreign to your frank, loving nature, that I will trust to seeing it die out before long, and you yourself happily married. The best of men are bettered by marrying, and you know it, and girls are not vain and fickle, as you try to believe they are. They are capable of making sacrifices for the men they love, and if they show a little worldly wisdom, and will not for mere love, take a handsome fellow who cannot support them, I, for one, and all true men will uphold me, say they are right, and men, knowing this, will strive by true, *earnest work*, to be able to offer a home, and if to do it they have to deny self a little, they are so much the worthier of that home where a noble, loving woman will gladly preside. Good-night, I'm done."

He shook Morris's hand, buttoned his coat closely about his throat, and drawing his hat well down over his ears, for it was cold and blustering, he strode out into the night.

"Quite a sermon from old Jim," said Morris, as he lighted another cigar, and sat down to meditation. "I believe I almost envy him, he seems so thoroughly happy. Queer, I never have suspected this before," as his thoughts dwelt on the story he had just heard.

The pleasant bachelor days were at an end for Jim, and no doubt the old intimacy, which had been so dear to them both, would suffer abatement. Nina Hilton as Nina Harris would take the place of Jim's old friends, this last reflection was uncomfortable; Morris found himself growing gloomy over the out-look, for he loved Jim, as he loved no one else in the world. To divert his thoughts, he turned to photography. "Poor old Jim, he was so full of his own interests, he forgot all about my "hobby" as he calls it! Morris laughed rather sadly, this indifference was only the beginning of the end. After a while in watching the development of some of his last summer's work he forgot the present and lived in that most delightful past.

The sights and sounds, the green trees full of singing birds, were all before him; but what was this that appeared on the glass?—something beside trees and sky. Yes, it was that stolen picture, and there were the two pretty girls on the mountain side.

Mary Scott Boyd.

(*To be continued.*)

Notes and News.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS has arranged for the introduction of the electric light into its dark room; it is expected that all will be in readiness for the meeting of June 11th; the wiring is all done, but there may be delay about obtaining the permit from the Board of Electrical Control.

THE SECOND CHICKERING HALL ENTERTAINMENT of the Society of Amateur Photographers netted the gratifying amount of three hundred and seventy-two dollars and seventy-four cents, which has been handed to the Chairman of the Washington Memorial Arch Fund, who acknowledged it with complimentary words for its suceess.

THE FORTHCOMING BOSTON CONVENTION OF THE P. A. OF A.—A WORD FROM THE WEST.—The following is quoted from a personal letter to the Editor of "THE PHOTOGRAPHIC TIMES" from Mr. Gayton A. Douglass, photographic merchant of Chicago. "Very glad to hear you speak so encouragingly of the Boston Convention. I think as you do that it will turn out almost to a man the whole east and the middle states and have a large delegation from the west. * * * * I certainly shall be on hand if I can leave my business."

PHOTOGRAPHED IN BED.—It is reported that a Boston amateur recently made a novel picture of himself by an ingenious arrangement of camera and clock-work. A plate was exposed on himself while in bed and asleep at 6 o'clock in the morning; the result is said to be excellent.

ALL OVER THE LAND.—Now that the mrmteethe or and camera prices have lowered, the voice of the amateur photographer is heard all over the land, and innocent people meandering about the city or leasurely surveying nature in the suburbs, are brought up short with a frantic appeal of some wild-eyed female. "Oh, *don't* move; I'm *not* a professional, and I'm not going to sell them, and I'll send you one if you'll give me your address; and you'll spoil the picture if you move, and add *so* much to it if you stand still, and that fence needs *something* on it." And you remain motionless to pass down to posterity as "that fool on the fence." Or some ambitious manufacturer is having his place of business taken, and his new six-horse team, and by a painful combination of circumstances and a lack of agility, you also pass down to posterity on a twelve-inch calendar, with the New Year compliments of the firm, as the female type-writer of the company.

PHOTOGRAPHING BY HEAT.—It may be said that photographs can be taken by heat as well as by light. The action of the shorter waves of energy which we call light is quicker and sooner manifest to the eye than the action

of the long waves which we call heat; but the invisible heat rays in the solar spectrum have been photographed. The slow action of heat in changing the molecular state of bodies is well known. It is probable that an emulsion could be formed which would give an image of a hot black kettle in a dark chamber. The element of time, however, would probably be an important one.

Indeed we are often presented with evidences of the picture-making facility of heat rays. A fern-leaf upon ice is soon represented, by the difference of molecular action. A stationary carriage-wheel standing in the sun upon the frozen ground is found to have left its photograph upon the ground when it moves on.—*Prof. John Trowbridge in the May Scribner.*

To Recover Gold from the Toning Bath.—Filter the solution into a white-glass flask or bottle, make alkaline with sodium carbonate, add, drop by drop, a concentrated alcoholic solution of fuchsin (anilin red) until the liquid is of a deep strawberry color. The flask is then exposed to sunlight six or eight hours, at the end of which all the gold present will have been precipitated of a dark violet color, and the liquor will have become colorless. Decant the liquor and keep the flask and its precipitate until a fresh quantity of solution has to be precipitated, continuing until the deposit is sufficiently large to make it worth while to remove it. It is then tranferred to a filter, washed, dried, and burned with the filter. The residue, containing the filter ash, is dissolved at a gentle heat in aqua regia, filtered, and the solution evaporated to dryness. The impurity caused by the filter ash is too insignificant to be regarded.—*N. E. Drug.*

To Color-sensitize a Coated Plate.—Herr Obernetter, in "Eder's Year-book," describes as follows his method: First rinse the plate under a rose till the water runs uniformly over the film; then pour upon it the dye solution in such a manner as to cover the plate completely with so much solution that it runs from its corners and edges. A good sensitizing solution is 500, distilled water 50, erythrosine solution (1.1000) 50, nitrate of silver solution (1.1000) 3, aqua ammonia. The solution is certainly cheap enough, but is very good. Plates coated with it require, without a ray-filter, about the same time of exposure as a non-dyed plate, and with the color screen, and according to its intensity from two to ten times as long.

These plates may be very well developed with hydrochinon or a diluted pyro soda solution, but it must be done in very much subdued ruby light or which is better in total darkness. After a few minutes of action, the plate may be examined in brighter light.

A most interesting proof of the efficiency of these plates is a photograph of a sheaf of rockets taken instantaneously, of course, and perfect in every detail, while a plain plate of the same emulsion exposed simultaneously showed scarcely any effect.

Adhesive for Mounting Purposes.—Many photographers use nothing but rather thin glue, which, however, should be made from a material free from any elements of putrescent fermentation, and not acid. The glue sold as French medal glue is generally clear, not in a state of incipient decomposition, and free from acidity. Half a pound in a quart of water is a convenient strength. Milk may be used instead of water, and is said to keep the glue from becoming brittle. An addition of sugar—say one-fourth of the weight of the glue—is perhaps more effective. The use of glycerine is open to objection. The following preparation is useful for gumming large sheets of paper, which may be kept on hand ready for use; when wetted they will stick well on glass: Starch two drachms, white sugar one onuce, Gum Arabic two drachms, to be boiled with a sufficient quantity of water. The same mixture can be used in making adhesive mounts upon which moist prints will adhere by pressure only.—*Photo. News.*

Photographing Flowers.—The editor of our esteemed contemporary, *The American Journal of Photography*, says that modern photography is a veritable Briareus—its thousand and one arms embrace almost every subject, and its votaries can limit themselves to any of its special branches without fear of exhausting the capabilities in the particular scope or function. A visit to our photographic exhibitions at once makes manifest the proficiencies of the specialist.

We find examples of the experts in instantaneous photography, in photy-micrography, in helichromy, in landscape, in genre, in figure, in composition, but withal there is one department which, strange to say, seems to attract few—the photography of flowers. Flowers, so beautiful and varied by themselves, and capable of such variety of lovely combinations, truly offer a broad scope to the exercise of the taste, and deserve a better treatment from the amateur.

It must be confessed there are certain difficulties attending the successful reproduction of the lovely colors of the flowers in their true tone relations. We know that one of the shortcomings of ordinary photography is its inability to properly translate the tone values of the colors as they appear to the eye. The bright carnation of the rose, the golden splendor of the daffodil, when translated by the ordinary sensitive film are profaned to a dull black. If, therefore, we arrange our bouquet of flowers so as to have the bright reds and yellows for the high lights, we shall find that the sensitive plate inverts the color relation. How shall we overcome the difficulty? We think we hear the gentle advice to use orthochromatic plates. True, we might employ the color-sensitive film, and thus secure a truer relation of the tone values of the colors, but the successful manipulation of the orthochromatic process is attended with many difficulties, and the results are not invariably good. So that the amateur, after experiencing several attacks from an invincible fog, is tempted to forsake the field, and to seek the aid of the old trustworthy heterochromatic plates.

The inability of the ordinary gelatine plates to represent yellows and blues and reds in true relation is not a very serious obstacle to the successful photography of flowers. Nature is so lavish in her largeness of gradations of the same color, that one has ample scope for selecting such tint as shall give in the photograph any desired shade. That is to say, a certain shade of yellow or red, which to the eye is accounted a light shade of the particular color, when photographed, give a most agreeable deep gray, corresponding to what is normally a darker shade of the color. The photographic tones are much lower than in nature, but it is just for the reason that they are suited for the deeper half-shadows or the deepest shadows. These tones are not what they actually are, but just what we want them to be.

Blue flowers, according to their depth of color, will take white or pale gray, and may therefore be harmoniously grouped with the white flowers—in managing the high lights.

The dark blues, the pale buffs, the light lemons, purples, light and dark, violets, lavenders, lilacs, together with pink and tea roses, make a rich variety of pleasing half lights. Experience teaches what shade a color will take when photographed, which will vary with the amount of light to which it is exposed.

For instance, a dark blue flower will take white, or nearly white, in a strong light, but placed in the shadow of other flowers it comes out gray in the photograph. One must always have on his photographic eye when arranging flowers to be photographed.

In selecting white flowers give the preference to those having the surface broken up so as to catch shadows, like the button daisy, the aster, the chrysanthemum. When one is anxious to have a few ox-eye daisies in the bouquet, he appreciates the superiority of the orthochromatic plate, but he need not despair of conquering this difficulty. The mound of gold set round with milk-white rays is very beautiful to look upon, and the photograph does give us the lovely damascene of the petals, but alas, the golden centre is tarnished.

Now, a little device—an art which does mend nature—comes to our aid. We need but carefully dust over the centre of the daisy with a little finely powdered chalk, until the proper dilution is reached. We have so photographed a bunch of daisies as to deceive a maker of orthochromatic plates into the belief that eosine or erythrosin had correctly given us the yellow tone value. So much for the color of the flowers; now a word about the arrangement of the grouping.

The first thing to consider is the proper massing of the ights and shades. Any arrangement which gives an alternation of light and dark flowers is unpleasant—the bouquet has a spotty appearance, and is without proper relief.

The grouping should always be so managed that the bouquet is divided diagonally into two main divisions of principal light and shade, the transition into each being gradual, the dark blending into the light, the light into the dark.

A good way to secure this massing of lights and shadows is to make use of the foliage for the shadows. There is an infinite variety of shades in the green of leaves, so that the gradations, if studied with the photographic eye, which here is much superior to the orthochromatic film, are very easy to secure.

After completing the arrangement of the shadows, any part which you think would be improved by a little lighting up may be enlivened by moistening with water, so as to cause it to reflect more light, and so take on a lighter tint.

Should you desire to imitate dew drops, lightly sprinkle the leaves or flowers with a little water, but have a special care not to wet your background, or you will have an unsightly spot in the photographs as evidence of your carelessness.

When we first began to photograph flowers, we went to great pains in fastening them up against an upright background by means of pins, and strings, and tacks, etc , but a happy accident suggested to us a much better plan. We had laid some flowers down upon a table, and noticing how beautifully they arranged themselves with the careless grace of nature, the thought at once occurred to let them lie just as they were, and to make the camera point down at them.

We will not speak of our device for fixing the camera so as to come directly over the centre of the bouquet, without casting a shadow on the ground, but shall say that we found it necessary either to have a rather tight-fitting cap on our lens, or to make the exposure by means of a drop shutter with the gum band removed.

The most effective background is a smooth, dull surface terra-cotta paper of the proper depth to give relief to the flowers. The principal light should illuminate the flower from one side only, the top light being cut off by a screen. This plan of illumination gives the most pleasing shadows. The sun should not be allowed to shine directly upon the flowers for a two-fold reason : the contrasts would be too harsh and the flowers would wilt. Rapid plates do not give quite as good results as slow plates. but if the wind persists in playing with the blossoms, it is better to make use of the quick plates. Give full time to the plate, and in developing secure the proper softness of the high lights before you work for density.

Beautiful composition pictures may be made by arranging the flowers in vases or urns, which are, of course, placed upright on a table with plain paper or drapery hangings for backgrounds. The reflections from the rounded surfaces are most beautiful if the light is properly managed, but harsh, unpleasant reflections result from want of knowledge or care in this particular. Study well every part of the group before making the exposure. Flash light, contrary to what one might reasonably expect, gives most charming results as a source of illumination for vases of flowers; indeed, the magnesium seems to have a certain orthochromatic value, especially in the case of reds.

We think Mr. Piffard, or else Herr Gaedecke, suggested the mixing of a certain percentage of common salt with magnesium, to give a yellowish flame. We find that a mixture of salt and Blitz-powder gives tolerably good tone values for reds and blues, without the use of the yellow screen.

There is a practical side to flower photography, which might be of interest to the professional in getting up new and attractive designs. Floral borders to photographs might prove attractive to the public.

Negatives could be made, for instance, of a frame wreathed around with flowers, and the space within the frame be used for printing-in from a second negative a bust picture. All that is necessary is to opaque the space within the frame, which will suffer the sensitive paper beneath it to remain unaffected by the light, and when the flower border is printed sufficiently, to mask it over to prevent further action of the light, while the head from the second negative is printing on the unaffected space—a simple process of double printing which requires but little care to achieve most beautiful results.

Photographic Societies.

THE PROVIDENCE CAMERA CLUB.

We have examined the catalogue of the Fifth Annual Exhibition of Photography by the Providence Camera Club with considerable interest. It contains several pictorial illustrations by various processes and considerable information of value.

The catalogue shows 202 exhibits, which, of course, mean a much larger number of individual pictures, besides over 100 Lantern Slides. It is a very good showing for so young a club. It was not organized until the latter part of 1883, and the first exhibition was given in the fall of 1884. This proved such a gratifying success that the custom has become established of giving an exhibition every year to show the advancement made by the members. The facilities which are now provided in the new rooms of the club promise a useful future.

The rooms which this exhibition opens, offer accommodations long desired by the amateur photographers of Providence and vicinity. The club room is amply lighted for portraiture, and necessary accessories will be provided, which will no doubt stimulate this particular line of picture making. At one end of the room is a permanent hard finish wall screen upon which to project lantern slides; for this purpose the club hopes, at no distant day, to have a lantern of its own; until such time the deficiency will be met by the members who already possess lanterns. In this room a reading table will be supplied with the leading photographic publications. The dark-room is the most important feature of the accommodations. It is protected by double doors, so that entrance may be had at any time without admitting white light. The arrangements for lighting have received careful attention, three windows in the partition, immediately above and in front of the developing sink, are glazed on the outside with ruby glass, and on the inside with plain glass, forming a pocket several inches deep; in this pocket three screens covered with orange paper are hung with counter weights, allowing the operator to modify the light at will. These screens in connection with the ruby light gives a safe and pleasant illumination of the dark-room. The source of light is a row of incandescent electric lamps encased on the outside of the ruby glass, so that their light will shine only into the dark-room. The use of artificial light gives a uniform illumination at all times. The developing sink of soapstone is large and deep, and provided with washing boxes and an ample supply of water. On the side opposite the sink is a series of lockers for the use of the members. In the window at the east end of the room is placed an enlarging camera and easel. It is believed this apparatus will prove a valuable acquisition to the Club, and that the mechanical difficulties of making lantern slides and enlargements will be reduced to a minimum.

PHOTOGRAPHIC EXCURSION OF CONNECTICUT AMATEURS.

Amateur Photographers of Hartford, New Haven, Springfield, Meriden, Waterbury and other Connecticut towns united in an excursion along the Derby extension of the New Haven & Derby Railroad, Thursday, May 30th. About seventy-five amateurs participated in the excursion and it was estimated that $10,000 worth of photographic apparatus was carried. Altogether 358 exposures were made notwithstanding the inclement weather. It was decided that an album should be made from the negatives secured from the outing and be presented to the railroad company as a mark of appreciation of the courtesy which was extended by them to the excursionists.

A TELLTALE.

A tale thou tell'st, camera,
Of beauteous forms and laughing eyes
And lips made but for kisses,
Yet more, alas, of lines disguised—
Of "bones taken out," of touched-up lies—
Of foolish vanity: yes, yes,
Thou art a telltale.

Thou paint'st the looks of lovers fond
That they may give to sweethearts true,
But oft thou takest them unawares
And then tell'st tales that they will rue—
Of love misplaced on some scapegrace,
Of "other girls"—ah me,
Thou art a telltale.

Thou makest a living presentment
Of meadow, hill and dale,
Of beauteous nature and God's greatness
Thou tell'st many a tale
Of wondrous truth and beauty everywhere,
Ergo, e'en thus, my loved companion—
Thou art but still a telltale.

(*D.*)

The Editorial Table.

"MODERN PRACTICE OF RETOUCHING NEGATIVES."—Not often is a new edition of a photographic instruction book demanded so soon after its issue as is true in the case of the manual we are considering. Another edition of 1000 copies of this popular book has been required and is now ready. It is the fifth edition. We note no differences in it from the fourth edition except some minor corrections and some added advertisements. The price remains the same; in paper covers, 50 cents; library edition, 75 cents.

THE INTERNATIONAL ANNUAL OF ANTHONY'S PHOTOGRAPHIC BULLETIN FOR 1889.

Vol. II. of this publication has made its appearance and contains much of interest and value to photographers. The frontispiece is from a portrait negative by Falk, printed on an English aristotype paper. It also contains a phototype by Kurtz, of Newport Rocks, by O. H. Perry; the portrait of Miss Lillian Seccombe, reproduced in photophane from a negative by Harold Baker; of Birmingham; a Moss-Type and one or two other "Process" prints. Among the contributors are some of the best known names in photographic circles. The volume shows improvement over the first issue of the "International Annual."

THE second number of *Photographic News*, the new Japanese paper edited by Prof. W. K. Burton, has arrived, and is undoubtedly as interesting and valuable as the first number. It contains several illustrations, and the frontispiece shows the interior of a Japanese building.

The only thing we can read in the whole magazine is the word "Scovill," which is printed in good enough English on two of the cuts, showing the magnesium cartridge and how it is used.

SUN AND SHADE for May is the centennial number, and strikes us as a little better than any preceding issue. It contains eleven plates, most of which are by the photo-gelatine process. The official invitation by Tiffany is reproduced in photogravure, and is certainly an interesting and beautiful plate. Then follows a *fac-simile* of the address presented to President Harrison by the civic, industrial, and commercial bodies of New York City with the silver case and scroll. There are excellent portraits of the Orators and Grand Marshals grouped on another page, and these are followed by a group of Governors. Then come various pictures made on the water of the sail from Elizabethport to New York, and another group of the great naval parade. Two other pages are devoted to the military parade and three to the grand civic procession. Altogether it is a notable number and one worthy of preservation as an historical souvenir.

The number sells for fifty cents, and notice is given that on and after August 20th, the subscription price of *Sun and Shade* will be $4.00 per year; single copies, 40 cents. Until that date, however, subscriptions will be received at the present rates for Nos. 5 to 16, viz., $3.00; single or sample copies, 30 cents.

BAYARD TAYLOR'S FAMOUS BOOK.—"Views Afoot, or Europe Seen with Knapsack and Staff," by Bayard Taylor, the most popular book of travels ever published by an American author, of which large editions have been sold at $1.50, is now published in a handsome, big-type, cloth-bound volume of 481 pages, at the remarkably low price of 50 cents, or three copies for $1.10, post paid. This price is to continue till July 1, only. It is one of Alden's *literary revolution* schemes to attract attention to his large catalogue of standard books. He ought to sell a million copies. No traveller ever saw more than Taylor, or told his adventures in more vivid language. His pen-pictures are charming, his book an American classic. Aside from its literary merit, this story of the plucky lad who was determined to see Europe with or without means, serves as an inspiration to all young men to rise above their surroundings and make a like success of life. You may order the book direct, or through any bookseller or newsdealer. John B. Alden, publisher, New York, Chicago, or Atlanta.

Record of Photographic Patents.

16,701. Trade Mark. Appliances for taking photographs. C. Spiro.

404,375. Shutter for photographic cameras. Robert E. M. Bain, St. Louis, Mo.

404,396. Camera stand. William H. Fuller, Passaic, N. J. Assign. to the Scovill Mfg. Co., of New York, N. Y.

404,534. Photographers' retouching machine. Laura O. Girvin and John Loff, Chicago, Ill.

404,605. Rack for washing and drying photographic plates. Walter S. Cullen, Kearney, N. J.

Queries and Answers.

120 FRED. C. PARKER wishes further information than is contained in Mr. Brown's article in "The American Annual of Photography for 1889," on the recovery of the gold in an old tungstate bath.

120 *Answer.*—Mr. Brown's article is so very explicit that additional explanation seems almost unnecessary. The chloride of lime should be fresh and dry, and this method may be employed not only with tungstate, but also with borate, acetate, or carbonate gold baths. After adding the chloride of lime, the bath should be filtered and tested for acidity as usual.

121 THEO. VON GERICHTEN would like to know how an amateur can make his own paste, aud whether the solutions for Eastman's transferotype paper have to be filtered through cotton. He says: "My iron solution and potash solution have a sediment; should I take the clear solution, or filter it?"

121 *Answer.*—(1) A very good paste for mounting photographs is starch paste, which any one can make. (2) All your solutions should be filtered. If that of oxalate of potassium has a white deposit, it is doubtless oxalate of lime caused by calcareous water; and if the iron solution shows a reddish-yellow precipitate, add a few drops of sulphuric acid.

122 In reply to D. Hovey's Sons:—The largest picture you can make of a Silver dollar with the Scholars Outfit will be about the size of a Dime. The least costly apparatus we can advise for your purpose is to take a 5 x 8 Favorite outfit and replace the Waterbury B lens with a Waterbury A.

To make an object in natural size with the B lens requires a distance of 21⅛ inches between lens and ground glass. With an A lens the bellows of the 5 x 8 camera is long enough.

123 J. J. M. writes: Will you please send directions for making ambrotypes (v. s.), the developer, etc., to complete a picture; or how I can obtain it. I cannot obtain it in Springfield. I received your answer last time in Hartford; hope I will derive as much success from this as from the other.

123 *Answer.*—Detailed information on this subject is given in "The Ferrotyper's Guide," 75 c.: The Scovill & Adams Company.

124 ORTHO writes: Will you please give me a formula to make yellow collodion for ray filters?

124 *Answer.*—Make a strong alcoholic tincture of turmeric, filter, and substitute it for the alcohol when making the collodion. Or take 1 ounce of the turmeric tincture, 1 ounce of ether and 10 grains of gun cotton. The effect of the ray filter depends much on the shade of yellow. For portraits and landscapes a lighter shade will suffice; for reproductions of oil paintings with much blue and violet the yellow should be darker.

125 WHAT is the function of the sulphate of ammonium in the fixing bath, and why is it substituted for the ordinary alum?

125 *Answer.*—Sulphate of ammonia is recommended as an addition to the fixing bath for Aristo prints; hardens the film as ordinary alum does, but does not decompose hyposulphite of soda with a separation of sulphur. It is far better to add sulphate of ammonia instead of alum.

J.V. Carstens pinx. 1889. Kupferdruck v. J.B. Obernetter, München.

Flucht vor dem Feind.

J. V. Carstens pinx. 1889. Kupferdruck v. J. B. Obernetter, München.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, JUNE 21, 1889. No. 405.

PROTECTION FROM THE INVADER.

WE present in this issue of the journal an orthochromatic reproduction of J. V. Carsten's famous painting, entitled "Flucht vor dem Feind." It is a spirited picture, full of interest and very instructive to art students. Under the direction of the venerable Abbé old and young monks of a Dominican monastery are about to bury the treasures of Church and Convent to save them temporarily at least, from the cupidity of the advancing Prussian host.

The cliché from which our illustration is printed is one of J. B. Obernetter's, of Munich, Germany, a *Kupferdruck* as he terms it, or as we should say, a photo-copper plate engraving. Herr Obernetter described his method of photo-engraving in the "American Annual of Photography" for 1888.

THE ACTION OF LIGHT ON CERTAIN SALTS OF SILVER.

WE continue in this issue the consideration of this interesting subject from where we were obliged to break off last week on account of limited space.

The change in nomenclature spoken of last week as a matter of fact took place in connection with a number of substances some years ago, and we have the old and the new atomic weights and nomenclature. For a little time after the change there was some confusion, it being impossible to be quite sure whether the old or the new nomenclature was being used; but very soon the old systems died out, and confusion ceased. It will probably make the case of the double decompositions producing sometimes silver salts most clear, if we take an actual example. I give here a short list of substances, with their symbols and atomic weights. It should be thoroughly under stood from the explanation that has already been given.

Substance.	Symbol.	Atomic Weight.
Silver,	Ag,	108.
Nitrogen,	N,	14.
Oxygen,	O,	16.
Sodium,	Na,	23.
Chlorine,	Cl,	35.5.
Silver nitrate,	$AgNO_3$,	170.
Chloride of sodium,	NaCl,	58.5.
Chloride of silver,	AgCl,	143.5.
Nitrate of sodium,	$NaNO_3$,	85.

We now substitute for the hypothetical elements *a*, *b*, *x*, *y*, silver (Ag), nitric acid (NO_3), chlorine (Cl) and sodium (Na).

The first two of these constitute, when combined, silver nitrate ($AgNO_3$), the second two sodium chloride (NaCl), and these two substances satisfy the conditions for double decomposition. The silver of the silver nitrate has so strong an affinity for the chlorine of the chloride of sodium that if the two substances, the nitrate of silver and the chloride of sodium be brought into close contact, the silver and the chlorine will combine, forming chloride of silver (AgCl), and leaving separate the nitric acid and the sodium which will unite to form nitrate of sodium. This is expressed by the chemical formula :—

Nitrate of Silver + Chloride of Sodium = Chloride of Silver + Nitrate of Sodium

$$AgNO_3 + NaCl = AgCl + NaNO_3$$

This is a case in which, whilst both the substances that are started with are soluble in water, *one* of the two resulting substances is soluble, the other not. The nitrate of sodium produced is soluble in water, the chloride of silver is insoluble. As a consequence, if solutions of nitrate of silver and of chloride of sodium be mixed, the result will be a precipitate of chloride of silver, whilst the nitrate of sodium will remain in solution. The solution may be poured off from the chloride of silver, and, by evaporation of the water, the nitrate of sodium might be got in the form of crystals, were it desired.

As chloride of silver is of definite composition, each molecule consisting of one atom of chlorine and one atom of silver, and as these atoms have definite weights, 35.5 and 108, it is evident that, unless there is to be no overplus of one substance

or another, quantities of chlorine and of silver having relative weights of 35.5 and 108 must be provided. To provide these, the chlorine in chloride of sodium and the silver in nitrate of silver needs that these substances be provided in weights having the proportion of 58.5 and 170. If we have, relatively, more of either of these substances, what is over remains in solution after the mixture, and is said to be "in excess."

The chloride of silver, which may be produced in the way that has just been described, is one of the salts of silver which are sensitive to light. We shall now consider a few actual experiments which are of the very simplest nature.

The numbers 10 and 29 bear to each other as nearly as may be the same proportions as 35.5 and 108. If, therefore, we take 10 grains of chloride of sodium (common salt), and 29 grains of silver nitrate, dissolve each in a little water and pour the one solution into the vessel containing the other, so as to mix them, we will have a certain quantity of chloride of silver produced, and shall have excess of neither chloride of sodium or nitrate of silver. The weight of chloride of silver produced will be, as nearly as possible, 24½ grains.

It will readily be understood that it is impossible to so strike the quantities of nitrate of silver and chloride of sodium as to give *absolutely* no excess of one or another, nor in photographic matters is it commonly desirable to come even as near to striking the exact quantities as possible. It is common to work with a distinct excess of one or the other.

Let us, therefore, take the cases of chloride of silver produced in the presence of excess of nitrate of silver and in the presence of excess of chloride of sodium.

We make up, in four test tubes, the following solutions :

No. 1.—Nitrate of silver ..... 30 grains
Water.... ....about half an ounce
No. 2.—Chloride of sodium..... 10 grains
Water.....about half an ounce
No. 3.—Nitrate of silver .... 29 grains
Water.....about half an ounce
No. 4.—Chloride of sodium..... .... 15 grains
Water.....about half an ounce

It will be seen that Nos. 1 and 2 provide an excess of about 6 grains of nitrate of silver, Nos 3 and 4 an excess of 5 grains of chloride of sodium.

We now mix No. 2 solution with No. 1, and No. 4 with No. 3. In each case we get a thick white precipitate of chloride of silver, the first in presence of excess of nitrate of silver, the second in presence of excess of chloride of sodium.

We may pour off the water which is over each precipitate, and we take the two test tubes into a bright light. It will be seen that the chloride turns color quickly in both cases, but that the chloride which is in presence of free nitrate of silver darkens more quickly than that which is in presence of free chloride of sodium, and darkens to a deeper color.

This action may be taken as a typical photographic action. What this dark substance produced exactly is, is a question as yet barely settled. It has been stated by Abney to be sub-chloride of silver formed by two molecules of chloride of silver give off one atom of chlorine, the remainder combining to form a molecule consisting of two atoms of silver and one of chlorine, thus :

$$2\,(Ag\,Cl) = Ag_2\,Cl + Cl.$$

Recent experiments of Carey Lea tend to show that the substance is a compound of a certain portion of sub-chloride of silver with a certain other portion of unaltered chloride, the combination being of the nature of that in those substances known as lakes, where alumina enters into a combination of a curious nature with coloring matters.

At present the theory just mentioned has not long been enunciated, but so far nothing has been brought forward to throw doubt on the results of the eminent investigator, and his theory appears likely to revolutionize entirely our preconceived notions of many photographic notions. It is too soon, however, to accept the matter without reservation, nor is it necessary to our present purpose that we accept any particular theory as to the precise nature of the molecular change that takes place under the influence of light. One thing we do know is that it is accompanied by an evolution of chlorine. Chlorine is parted with by the silver chloride, and now comes the explanation of the difference in action of that chloride when in presence of excess of silver metals, and that in presence of excess of sodium chloride.

It has been found that no darkening of silver chloride takes place unless there is some substance to take up the chlorine as it passes off. Almost any substance absorbs chlorine to a greater or less degree ; but Abney has proved that in absolute vacuum and in contact with glass only, silver chloride is not sensitive to light at all.

The air, or the moisture in it, will absorb chlorine to a greater or less extent, and so chloride of silver is sensitive to light in all ordinary circumstances ; but it has its sensitiveness greatly exalted when it is in presence of some substance which quickly absorbs chlorine. Now, nitrate of silver

is such a substance. Nitrate of silver is in fact decomposed by chlorine, chlorides of silver being formed and nitric acid set free. Chloride of sodium is not such a substance. Hence, the comparatively rapid darkening of the chloride of silver in presence of the silver nitrate.

Many other substances besides silver nitrate have the effect of absorbing chlorine, but few absorb it more greedily. If, however, before it has been exposed to light, we wash the silver chloride formed in presence of excess of chloride of sodium, spread it out and put a drop of beer on it, it will be found that where the beer is, the darkening will be much more rapid than in other places, lees, in common with many other organic substances, having the power of absorbing chlorine.

Chloride of silver is one of three salts of silver which are those chiefly used in photography. They are the haloids, chloride of silver, bromide of silver, and iodide of silver. They act in many respects similarly under the action of light. Thus they all darken in presence of free silver nitrate. The iodide differs from the others in as much as it does not darken when not in the presence of some powerful iodine absolvent. They are all capable of forming a latent image, and can all be formed in a similar way, that is, by mixing silver nitrate solution with the soluble salt formed with the halogen (iodine, bromide, or chlorine) and sodium, potassium, ammonium, etc.

Certain organic compounds of silver—such, for example, as albuminate and citrate of silver—are much used in photography, but always, or nearly always, along with, and merely supplementary to, the iodide bromide or chloride.

EDITORIAL NOTES.

A MONTH or two ago we described a new reducing agent of very remarkable powers, but quite recently M. Péchard's investigations into the properties a new molybdenum compound quite throw into the shade the amidogen hydrate of Drs. Curtins and Gray on account of the singular photographic properties of the former compound. Berzelius long ago found out that molybdic acid readily dissolved in a hot solution of oxalic acid; but it was reserved to M. Pécard to investigate the products of this action, and discover the remarkable qualities we speak of. The compound produced by the action of these two chemicals is a distinct acid with the formula $C_2H_2O_4$, MoO_3, H_2O, to which the name oxalo-molybdic acid is given, and it is sensitive to light in a peculiar fashion. In the crystaline form, in which it is easily obtainable, it is, when perfectly free from moisture. quite stable, in the dark, or in full sunshine; but, if at all moist, the action of light is to produce a bluish coloration. The singular part is that a solution of the crystals is quite insensitive to the solar rays, in which respect we are reminded of the action of light upon sensitized carbon tissue, which may be taken into full daylight when quite wet; but when dry is about three times more sensitive than ordinary sensitized albumen paper.

THE best mode of observing the action of this new substance is to spread it upon paper, and allow it to become apparently "dry"; exposed to the sun a blue color is quickly produced. A print in indigo can be made by immersing a sheet of paper in a saturated solution of the oxalo-molybdicacel, then allowing it to dry in the dark. This placed under an average negative will yield a clear print in blue, sharp and distinct, in about ten minutes. If the print be placed in water it rapidly disappears; but the inage may be preserved by exposing the print to a gentle heat, and when it comes out of the same the blue color is then displaced by a black, which appears to be permanent.

HERE we have a bona fide, actual working process for producing sun pictures by an entirely novel plan. To prepare the substance, molybdic acid is added, almost to saturation, to a hot solution of oxalic acid, and the liquid evaporated down, when a crop of crystals of this new salt will be produced. A better method is to evaporate the solution till it becomes of a syrupy consistency, and then to dissolve this product in dilute nitric acid, afterwards allowing the liquid to evaporate in a dessicator. Fine crystals are then formed.

WE note that among the prizes for the Field Day competition, which was recently held under the auspices of the Providence Camera Club, was one year's subscription to *Sun and Shade*, and a copy of "Photographic Printing Methods," by W. H. Burbank. This is an excellent idea put into practice, and much better than the giving of diplomas or medals, which are of no use in themselves. We shall hope to see it adopted by other clubs. The publishers of this journal will offer a year's subscription to it with pleasureas a prize to be competed for under similar circumstances.

ODDLY enough as the last copies of "The American Annual of Photography for 1889" are being taken up, the sale of the 1888 American Annual is becoming more lively. We account for

this by the desire which the excellence of the current Annual excites in the reader's mind to obtain the previous issue, and if possible to complete the set of this excellent publication.

At the final examination of the U. S. Infantry and Cavalry School at Fort Leavenworth, among the other studies in which the students were examined was photography. Upon conclusion of the examination the staff fixes the relative examination of the officers in each study of the entire school course of two years, and also in general merit as determined by the staff reports, giving each of the terms in which the course has been divided. The importance of photography in military operations has demanded that it should be taught as carefully as engineering, military hygiene, hippology, and the other necessary studies in a Military School.

THE EASTMAN TRANSPARENT FILM.

The substitution of paper for glass as a support to the sensitive film was a marked step in advance. Then came the American film for negatives, which, when completed, has many advantages over glass, particularly in lightness and portability.

But this required the rather tedious process of transferring, and celluloid was hailed as a still greater improvement. It was transparent, light, and required no stripping. It, however, could not seem to be made thin enough, or in large enough sheets to be used on a roll-holder.

The Eastman Company now announce that it has overcome all difficulties and can mauufacture sheets of absolute uniformity of thinness fifty feet in length and only three one-thousandths of an inch in thickness. This enables them to apply their new transparent film to the roll-holder and the Kodak, and places in the hands of both professional and amateur photographers a vastly improved process.

The specimen sheet which we have seen seems to be all that Mr. Eastman claims for it ; certainly, the negative made on it, which he showed, is all that could be desired.

THE ART IN PHOTOGRAPHY.

There is one essential distinction between the photographic picture and that which is the production of design, *i. e.* of legitimate art, which is that in the former the best results ever attained are clearly due to happy accidents while in the latter they are more or less due to the taste and intention of the artist, even when of the lowest order of work which can be properly considered art in the distinctive sense of the term *i. e.* in *genre* and "still-life" as we term the groups of inanimate objects, dead game, bric-a-brac, vases of flowers etc., etc., of which it may be said that they differ from photographs mainly by having color and in being done by hand. As the study of the qualities of this kind of art furnishes the best means of distinguishing the really artistic from the mechanical excellencies, I propose to take them up in detail and at some length, relatively, and then return to the points of photography which are what may be called *artistic* though not *art.* I have before said that there is a broad distinction in the use of the word "art" by the general public which is made narrower and more precise as we come to the more critical consideration of the subject ; and this is that when we use the word without qualification we mean the arts of design in some form, and that when we apply it to some purely technical operation we always qualify it by the designation of the operation ; as for instance when we speak of a school of Art we mean a school where drawing and painting, or modelling, are taught ; but when we speak of *the arts* we mean the processes of manufacture in general as distinguished from the sciences or processes of discovery, as when we talk of the art of the tinsmith or the art of felting wool for hats, or the art of opening oysters and we call a man "an artist in his way" when he does any of these things dexterously and well, and we mean by it that he is skillful and nothing more, and nobody would designate a good hatter as an "artist" unless he was, besides being a maker of good hats, an inventor and designer of new forms of hats in which case the title would be due to his designs and not to the excellence of his manufacture.

Now let us look at the still-life painter. He arranges certain objects in order and makes a group which shall be the subject of his picture. We say that it is "artistically" arranged when it is well composed or grouped so as to make an agreeable picture, as painted, but if it is arranged by one person and painted by another we do not say that the first is the artist and the second only a machine, but we recognize as the "artist" the one who actually painted the picture. We have here the form of art which least calls for the use of brains or training in the arts of design but there have been painters who have risen to great eminence in it, of whom I may instance Monginot and Phillipe Rousseau in France and Preyer in Dusseldorf and artists who follow this line are ranked according to their powers of drawing and coloring and especially the mastery of the execution, the accuracy

of delineation being an unimportant quality in the eyes of the student of art. The extreme minuteness of which photography gives us the unapproachable perfection is not a quality much esteemed in the world of sound criticism but on the contrary is considered as a mechanical excellence and the indication of want of mastery of the material, while the qualities of rapidity and certainty of execution are esteemed as the most desirable in that particular walk of art. The more like a photograph therefore a picture may be, the more mechanical and less artistic it is, and the less estimable as art, until we come down to certain types which are in sound criticism considered as unworthy notice as mere slavish copying.

In landscape the same holds true except that as we cannot arrange the view we must depend on the accidents of nature and we are only to be accredited with the choice of the subject. We have it is true the composition negatives of which Mr. Robinson has made such an ingenious use in his composition landscapes, but these are not works of art in the proper sense of the term but of extremely clever printing and great ingenuity—very curious in fact and often very attractive but not works of design. What the photograph can do in the way of rendering the human form (apart from portraiture, which I shall consider by itself) is in the way of instantaneous work, and compositions in the vein of genre of which kind Robinson's "Dawn and Eve," if that is the right name, is certainly the most successful thing I have ever seen and of which (to use examples at hand) "An old Shaver" in a late number of the PHOTOGRAPHIC TIMES is an admirable one, and, illustrating the point in question is another print "In Disgrace" which is a photograph from a picture the two furnishing me with the text I need to make my explanation on. The former might, in all its essential qualities have been a painting and the latter a photograph, so far as we can see from the prints, but in that case the "Old Shaver" would have been the work of art and the "In Disgrace" would not. And the reason is this :—the art is not in the posing a model or in photographing it but in the actual design, *i. e.*, the drawing and color, by the use of which the idea was given expression and this in the photograph would have been the work of a mechanical process and not of the processes of the arts of design. If the color had been simply the exact reproduction of the color of nature as a photograph would have rendered it if the photograph could render color, and the exact copying of the detail as the photograph can render it; the art of the thing would still be of a very low order because it would still be only copying what was set before the painter and would not involve the use of any of the higher qualities of art. It is in fact only a kind of still life and is therefore to be judged by the same rule, but we suppose for the drawing of the human figure and features a greater power of design and a far more thorough training than is required for the delineation of the "*nature morte*" as the French call still-life, and the quality of the art in any work is ranked according; firstly, to the imagination and mental power involved in it; and after, according to the technical powers shown, which are, in work of this kind, the lowest which come within the category of the artistic qualities. As a law which only admits apparent, but not real, exceptions it is only the men destitute of the high art faculties who can give themselves to this literal reproduction of nature and their work has comparatively little value. Great painters have given themselves to it when young and as a matter of discipline of the hand and eye but have never continued in it after their powers were developed.

The artistic qualities of photography are not then to be sought in the emulation of works like "In Disgrace" but in the perfection of the technical qualities which are proper to photography. The exercises of taste is a common element in all the arts as well as in fine art and does not form a distinction by which any person can claim to be an artist, the more as some very great artists have been gifted with very little of that desirable quality but the possession of it by the photographer is of great value in the general result and fairly entitles him to be considered artistic. And in the first place let us dismiss a certain class of work which is much lauded by people who avowedly do not like photographs at all and who consider that a certain slovenliness and accidental way of using the chemicals and a want of sharpness and hap-hazard arrangement of the subject make a photograph artistic. It is difficult to see how a bad photograph can be any more artistic than a good one, but the fact is that to some people the excessive sharpness of the print is disagreeable and they like most what is most like the photograph of a picture, especially an old master. There is a certain charm in an accidental look in a picture and some of the happiest things any man can see are the results of instantaneous exposures in street groups etc., but these things are more than any others the result of a chance and so not to be considered as design in any sense of the word but at most only as judicious choice between the moments offered, and their treatment is in every respect obligatory. All that

the photographer can do after having caught the happy moment is to exercise his judgment and skill in the development, and here he begins to show what I consider the most important of the qualities which constitute the artistic side of the business. If any photographer is to be considered an artist it must be the operator who knows how to so adopt the development to the exposure that the best possible results shall be got from an exposure over which he had no control, for this is the most important part of the complex operations which produce a photograph and it is a form of technical skill which belongs peculiarly to photography. This is one of the forms of "the art which is in photography." It is not an art of design but an art of technical excellence, and it is, in all branches of the pursuit in which the arrangement of the subject of the picture is beyond the control of the photographer, as in most out-of-door work, of such importance that no man who has not mastered it can be said to be, not merely an artistic, but not even a good, photographer. Where the nature of the subject is such that the exposure can be regulated the good operator has full opportunity for the display of his skill and by his judgment in exposure and his skill in development gives us the highest artistic qualities which can be given in a photograph. If to this contribution we add taste in the selection of the point of view and the light on the subject, we have all the art which can be bestowed on the making of out-door photography. The making of combination pictures by the use of several negatives, and even the printing in of skies from cloud negatives, I regard not as art but as artifice and though often extremely amusing and curious from a technical point of view, these practices interfere with the most essential quality of a good photograph, viz.: the unity which is the inseparable attribute of nature and the obedience to which is one of the most rigorous necessities of all forms of art be it an art of design or of reproduction. You may just as well make up a face of two negatives as a landscape—it is only the difficulty of detection due to the want of acuteness in the observer which makes the difference. The practice of retouching negatives is so far from artistic that it is conducive to the ruin of photography and should be rigorously excluded from the practice of those who desire to do artistic work.

The excellences of a landscape photograph (and this includes all out-door work, whether marine or instantaneous, only excepting out-door portraits and animals) are these: 1st the tasteful selection of the subject with regard to the point of view and the effect of light; 2nd a well judged exposure which permits the bringing out of all the details of the shadows without losing the high lights or veiling the small masses of absolute shadow which it is always necessary to retain for the best effect; and 3d and lastly, the careful and judicious development which leaves the negative clear and bright, with the smallest bits of absolute black in the shadows and the least blank white in the lights so that the great mass of the picture shall be between the extremes, and as broad as possible in the distribution of the secondary masses or as painters generally say, with as much half-tint as possible. The details should be found everywhere even in the high lights and in the deepest shadows. The introduction of figures I consider to be generally a defect rather than an excellence and only admissible when the figures introduced belong to the view as when cattle come in a meadow or rustic figures in a village but in either case if the figures show that they are posed and put there to be photographed their introduction is an injury to the picture. Cattle cannot be made to look conscious so that they generally help the effectiveness of a photograph where they are appropriate but human beings are on the contrary almost invariably made to show that they are put there to be taken and when this is the case the figure is a blot in the view and had better have been left out altogether. The best landscape photographs I have ever seen had no figures in them and the most thoroughly artistic photographer I ever knew, Russell Manners Gordon, never made a combination print or considered the dodges of double printing, &c. &c., legitimate.

I have left out of the consideration of the class of landscapes the architectural view, as to which I have something to say which, with the discussion of the qualities of the most imporant branch of photography, portraiture, I shall take up in another and, I hope, a final article, saving the obligation to reply to any impeachment of the validity of the views I have here expressed. But before leaving landscape altogether I must allude to the counsel given by one of your contributors, to look for poetic subjects for photography in sunset effects. This is in my opinion simple nonsense for the value of sunset effects is in their color which the photograph does not suggest. In fact the photograph of a sunset after the sun is below the horizon is like one of a day without sunlight *i. e.* an overcast day in which there is no distinct shadow and if you want the effect of twilight you can get it on any clouded day when is more light along the horizon than in the zenith. Trees are often best rendered

in a cloudy day because the sunlight on the polished leaves has the effect of openings through which the sky or a white object is seen and the peculiar quality of foliage is lost in this glitter. But with this exception landscape is always better with direct sunshine.

W. J. Stillman.

ATHENS, GREECE, April 21st.

THE EMULSION PROCESS OF PHOTOGRAPHY

[Read before the Bath Photographic Society.]

THE abundance of material which has so far engrossed our attention must, I imagine, be singularly gratifying to the promoters and well-wishers of this energetic society, as well as proving highly instructive to all of us who have been fortunate enough to attend the meetings. This state of things can only be achieved where self motives do not govern, and the mutual desire to help each other, as expressed in the first paragraph of our prospectus, "The general interchange of views and ideas as to the progress of the art," is honestly carried out. It would be absurd for anyone to state that this condition is not generally observed, and I trust that, as years roll on, the solid advice given by that well-known representative of science, James Glaisher, F.R.S., when he presided over the deliberations of the founders in September last, will be kept steadfastly in view. To-night it is pleasant to note we have already got through more work than would suffice as an average at some other society meetings, and I am afraid that the time I am occupying would be more advantageously spent on another topic less comprehensive than the emulsion process of photography. And here let me state that, in introducing the subject placed on the notice paper, it was the intention to review some of the capabilities of emulsions for the information of inexperienced members of this society, rather than to deal with any one process in all its details. A general idea gathered, detailed papers relating to a specific subject may then be of increased interest, and we are fortunate enough to have experts amongst us who will doubtless lend their assistance when requested so to do.

What is an emulsion? An emulsion has been defined as oil divided and held in suspension in water by means of mucilage, or some other colloid body; but we photographers use the term to signify the complete suspension of any powder which is insoluble in the vehicle chosen; the latter must, however, possess the quality of drying at moderate temperatures. The proposal to employ such an emulsion, as we understand it, composed of certain metallic sensitive salts supported in a convenient vehicle, is probably within the recollection of some present, although I think it dates back fully thirty-five years. According to Dr. Eder, in "Modern Dry-Plates," published in 1881, Gaudin, as far back as 1853, wrote the first papers on the subject of a collodion emulsion, in which he alluded to analagous experiments he had then made with albumen and *gelatine*.

Following up this gentleman's experiments, we find a few years later, 1861, he published a collodion emulsion process, in which silver iodide and silver chloride is described, and to which he gave the name of photogen. He also suggested the spreading of a chloride of silver collodion emulsion on paper, as a substitute for printing on albumen paper, but it does not appear that he achieved any marked advantages over the processes then in general use, even if the results were of equal utility. It, however, serves to indicate the starting point from which many later modifications and improvements originated. The practical advance may be said to have commenced four years later, when the collodio-chloride process of Simpson, and the collodio-bromide of Sayce and Bolton, were published. The first-named was designed for printing positives right out upon paper or glass, and the second was intended for the production of negatives. In neither case was the silver halogen employed in a pure state; organic compounds were associated with them. To-day both are in use for the making of positive images on glass, that containing chloride being employed on paper as well. It is a question which of the two important and well-defined processes have, or may eventually, most influence the progress of photography. If we follow either, it leads us up to the methods practised at the present time. The collodio-chloride emulsion process of Simpson as first published were incomplete, but with the improvements of Swan, Bovey, Tunney, and others, a high degree of efficiency was reached, and an adaptation we find in the so-called Aristotype paper, now commercially issued in Germany and America, and imported into this the country where it originated. The present success of this method of printing on a paper coated with a sensitive emulsion, which will retain its properties unimpaired for a considerable time, and then yield excellent results, is rather due to the nature of the paper basis which supports the emulsion, than the particular collodion or sensitizing compounds emulsified. I have never been able in this connection to trace any chemical influence exerted by collodion in combining with silver, as albumen and

gelatine undoubtedly does. This is no drawback, as suitably prepared silver compounds darken in daylight with sufficient rapidity for the ordinary purposes of printing out, and yield rich positives, which can afterwards be modified in color if desired by the action of the toning bath.

W. M. Ashman.

(*To be continued.*)

THE STOLEN PHOTOGRAPH.

Continued from page 298.

"I wish I could work in colors. What a subject for an artist." 'The Greek goddess' had the 'Franklin Square;' my 'Nut-brown maid' was dreaming over Lowell," and laughing at his innocent little plot to carry off two such charming young women, he softly quoted:

"The vision of scarce a moment,
And hardly marked at the time,
It comes unbidden to haunt me
Like a scrap of ballad rhyme."

It was certainly a lovely picture. "I will make a print to-morrow if it takes me all the day to get a ray of sunlight, and give it to Jim, so that in his beatific state he can have nothing to worry him, he will see there is hope for me, a young man who is *entirely prejudiced* against women, would not go about the country seeking unknown subjects." And he laughed heartily. "Quite a joke; my best work is of strangers—rather happy, though. I shall not have them begging me to get two or three dozen copies apiece struck off for distribution among their friends, as Christmas cards perhaps. A girl has such a weakness for photographs, no matter how homely she is. *Someone* wants her face, she thinks; and so she strews her pictures broadcast. This plate and all the copies from it are my very own, however;" and for awhile he sat looking down on his work with something more than photographic enthusiasm.

The clock struck twelve; he started, put by his traps, and was soon in an uneasy world of dreams, from which he was aroused by the sunlight streaming into his room. He looked about—he was at home. Yes, it was a relief to find that he had not been officiating at a wedding, and that he was not really the bridegroom that they made him out to be in the spirit world.

"Jim's matrimonial prospects have quite upset me," he said to himself. The day did not prove as fair as the morning promised, and by six o'clock, the hour Jim had appointed, a cold wind was blowing, the rain falling steadily—everything most forbidding. So thought Morris as he neared the little Madison Avenue church. He put down his umbrella and stood out in the storm. There is true satisfaction sometimes in being as uncomfortable as possible, and Morris was experiencing all that luxury as the rain fell from his hat-brim and trickled down inside his collar. "Yes, Jim was a fool." There was a sound of wheels, and two carriages turned the corner and came splashing up through the mud. Out of the first stepped an elderly man. "The knot-tier" whistled Morris, as he hastened down to assist his friend, who jumped from the other, followed by two much waterproofed and veiled young women.

"Quite a romantic night for a wedding," he said, with an effort to be very bright and jolly, as people are supposed to be on such occasions. The figure at his side and under shelter of the umbrella he had raised, when he he found himself officiating as gallant, made no answer to his playful sally.

They were soon in the church; the clergyman took his place, and the ladies divested themselves of their multitudinous wraps. Then it was that Morris felt the chords of his throat tighten, his eyes starting from their sockets. Had the girls jumped out of his pocket? He clapped his hands over it to feel. The envelope was there, but by him stood the living, breathing originals. They were changed, however; the faces were sad and earnest; the idle summer hours had flitted by; poem and novel, with their fascinations, were forgotten, and life with its sober realities opened upon them. Which was the bride, the "Greek goddess" or the "Nut-brown Maid" whom he had escorted into the building?

He was not long in doubt—the marriage service was performed, and with a tender light in her glorious violet eyes, the flaxen haired Nina Hilton stood a happy wife. Very happy she was. No one could doubt it, even if the romantic courtship had terminated in a quiet, rather sad little wedding, in an obscure church, with only two loving friends to congratulate them. It was enough, and as they went out into the rain Jim said, with a loving glance at his beautiful bride, "I am the proudest man in Christendom to-night." There was something so heartfelt in his words, notwithstanding the apparent incongruities of the whole affair, that Morris felt reproached at his own inclination to laugh. A more forlorn water-soaked bridal party could not well have been imagined. As the young man turned away to hide a smile his eyes encountered a pair of brown ones, which, notwithstanding they were full of unshed tears, still held enough amusement to challenge his own spirit of fun. "We are rather forgotten; are you to go home alone?" he said, pointing to the happy couple who, apparently, were oblivious to the fact that their friends were left behind in the church. Helen Murray laughed. She was certainly a very pretty girl, and when she answered, "This was the arrangement. One of my uncle's servants is on the box with the driver."

Morris exclaimed impetuously, "Will you not allow me to be your escort? You know I am Jim's friend," he added, as she hesitated a moment. "I know it," came the answer; "I am glad to have you accompany me home, but I hesitated in saying so, fearing I must appear rude. I cannot ask you in to-night. My uncle, as I presume you know, objected to Nina's marriage." Her lips quivered, and she turned away, and Morris, full of sympathy for her sorrow, made no answer, but with a quiet gentleness helped her into the carriage, and they were soon driving through the rain and wind.

How strange it was that he should be sitting there by the side of that girl who was so unconscious that, long weeks before, he had in his photographic zeal, stolen a picture of her pretty face, and even now treasured it in his pocket. They talked like old friends, and because from a full heart the mouth speaketh. Helen found herself telling of Nina, and their quiet life together. After a time she said, "I know she is very happy, and I am not selfish enough to

wish it had been otherwise, for I love Jim, and am sure he will guard her right lovingly, but I cannot help feeling the change in my own life. You know, I am to leave for France with my uncle. We were to have sailed on the 'Servia,' but I do not know now how our plans will be arranged. We are to break up our home, which is not half home without Nina. Do not think me a perfect child," she said, as if angry with the emotion she could not hide; and Morris answered softly, "I can appreciate your loss, you feel 'The many make the household, but only one the home'"

The girl turned quickly and said with a sad smile, "You love Lowell, too?" He nodded. The quotation had been made half to test her familiarity with the beauties of the volume over which she had dreamed that July day, and her ready appreciation was gratifying.

Morris recited well, and he knew it, and knew besides, when his listener was pleased. For a moment he told in verse a bit of a legend. Helen's rapt attention flattered, and when he ceased, she said, "What charming words; something of Lowell's that is new to me" He had given her one of a few fugitive poems he had come across, and told her so, adding, "I believe I have an envelope with some cuttings in my pocket now. They are little verses which have taken my fancy at odd times. I should be very much pleased to have you look them over;" and he handed her the envelope.

The carriage stopped. "Are we at home?" and in the girl's voice, as she asked the question, there was a regretful cadence that did not escape Morris' quick ear. He was sorry too.

"I want to thank you for cheering me this evening," she added, "I did not need you as protector, for Old Martin is a host, but I did need some one to drive away loneliness, you have done that." There was just a little quiver in the voice, but she smiled bravely and held out her hand, as he clasped it firmly in his own a moment and looked down on the pale little face, Morris felt his task had been an easy one and he would gladly play consoler again, and so he asked and received the ready permission that he might call upon her very soon and learn if she had heard from the absent Jim and his wife. "Of course all brides write" he said, "but the groom will not put pen to paper that I know, so you will have to relieve my anxiety as to their well-being," and with her laughing "good night" as a response, Morris was off and soon at home.

Mary Scott Boyd.

(*To be continued.*)

Correspondence.

AN INEXPENSIVE MAGNESIUM FLASH-LIGHT APPARATUS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I was interested in reading the description of the Flash Lamp by C. C. Schirm, in No. 402 of the TIMES, and as I have been using a lamp which I have made, and which covers the same principle, though of slightly different detail, I enclose a descriptive sketch, thinking it may be of use to many, as it is so easily constructed, and at so little expense, mine costing me but 70 cents, outside of my own labor. Last night I made an exposure with it, using, I think, not over 1 grain of metallic magnesium, powdered, not weighed.

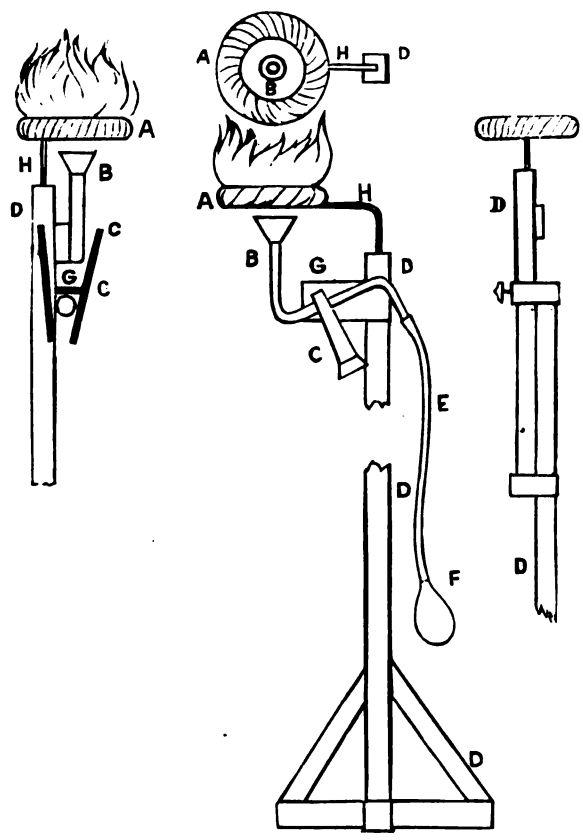
Carbutt's Eclipse Film, Sens. 27.

Euryscope Lens, Stop f_8.

Subject, two children, about nine feet from the light. The plate was apparently fully exposed, and developed up quickly and well.

To Use.—The charge of pure metallic magnesium powder is poured into the mouth of tube B, which is then adjusted directly under the centre of ring A.

Ring A is to be wet with alcohol and lighted—when exposure may be made by a light pressure on the bulb F.



C. Ordinary printing-clip.

A. Ring of asbestos wicking, made by winding asbestos wicking around a wire ring or support, the long end of which, H, is bent to go in a hole in top of D, and so support A in operation.

B. Tube for magnesium, which is fastened to arm, G, by clamp C, and is therefore easily removable, for filling or adjustment.

D. Stand for supporting the above.

E. Rubber Tube.

F. Pneumatic Bulb.

The tube B is held in position by an ordinary printing-clip C, consequently it can be easily centred under A, which also swings on H, and renders adjustment easier.

A screen or reflector may be easily attached to the top of stand D.

I think a trial will convince any one of its great convenience and economy. I think the enclosed diagram will make its construction and use clear to you.

Yours truly,

F. E. Fairbanks.

FITCHBURG, Mass., June 7, 1889.

FROM PHILADELPHIA TO BOSTON.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: If agreeable to you, in the interest of photographers from Pennsylvania, the West and South, wishing to attend the Convention at Boston next August, will you kindly insert the following notice in Convention notes in THE TIMES.

TRIP TO BOSTON CONVENTION.

A capital chance to escape from the heat of railroad travel, but get there just the same, is to take advantage of the special excursion from Philadelphia on the Steamer "Norman," and enjoy the cooling breezes of the sea instead. All that go by this most delightful route will have plenty of time to get on a good sea sick, being forty-eight hours on the ocean.

If you want to join us on this voyage, make up your mind quickly, as this is a very popular summer route, and the staterooms are always taken for weeks in advance. The fare for the round trip, including meals and berth in stateroom, is only $18.00. The "Norman" sails from Philadelphia at 12 noon, Friday, August 2d. If parties desiring to go will advise us before July 10th, and send check for $18.00, we will obtain the tickets and staterooms for them.

Yours very truly,

Buchanan, Bromley & Co.

PHILADELPHIA, June 12, 1889.

P.S.—I have made this trip several times and can testify that it is a most delightful voyage, with gentlemanly officers and crew, plenty to eat and drink, and a good opportunity to look out for whales and sharks.

For my part, I would not go by any other route.

W. P. Buchanan.

PROVIDENCE LETTER.

To the Editor of the PHOTOGRAPHIC TIMES.

Dear Sir: The exhibition was the most successful ever given by the club. About one thousand visitors attended the exhibit.

The Field Day Excursion brought out sixteen cameras. and a party of twenty; and we had a most enjoyable trip. Many good views were taken.

Our club has just got fairly into their new rooms.

Yours very truly,

J. E. Davison,
Sec'y Providence Camera Club.

PROVIDENCE, June 12, 1889.

ONE MORE FOR OUR SIDE.

To the Editor of the PHOTOGRAPHIC TIMES:

Dear Sir: * * * * I am very much pleased indeed with the prints of my portrait in No. 398 of the PHOTOGRAPHIC TIMES. The extremely fine detail and softness of the copperplate prints as there printed really astonished me. and I must confess the work is done better than it could have been done even here in Vienna. This most excellent piece of work is an ornament to your interesting journal. * * * * Yours very truly,

Charles Scolik.

VIENNA, May 23, 1889.

Notes and News.

AN INTERESTING SCIENTIFIC PHOTOGRAPH.—A photograph of the great nebula in Andromeda has recently been taken by Mr. Roberts, of Liverpool, and it shows that stupendous cosmical mass in an entirely new light. It is now seen to be composed of a huge central mass encircled by ring within ring, and presented in an inclined position to our line of sight so that its outline is strongly elliptical.

FLASH-LIGHT PHOTOGRAPHS WANTED.—The editor of the PHOTOGRAPHIC TIMES invites all photographers who have flash-light negatives suitable for illustrating an article on the subject, to send him prints, or proofs from the same, for examination and selection. Of course full credit will be given the photographer whose work is used, and the negatives will be returned promptly and uninjured.

PHOTOGRAPHING FOUR GENERATIONS.—In the Red Parlor of the White House a Washington photographer took a picture of four generations of the Harrison family. The Rev. Dr. Scott sat on the extreme right of the group, Mrs. Harrison and Mrs. McKee came next, and the famous Baby Benjamin Harrison McKee completed the gathering. The latter did his best, it is said, to make the affair a failure, and if it had not been for "the instantaneous process" he would have succeeded. There is a difference of eighty-eight years between the generations represented in the picture. Dr. Scott is ninety and Baby McKee only two years of age.

A NOBLE ENTERPRIZE FOR AMATEUR PHOTOGRAPHERS.—A large-hearted contributor who signs himself "B," writes as follows to the *Harrisburg Telegram:* "There is every reason to believe considerable money will be needed to relieve the suffering in our city occasioned by the flood, and I would suggest the following as one means by which quite a sum could be raised: There were hundreds of photographs taken by both professionals and amateurs, of scenes and incidents, which, if placed in one collection at a suitable point, would attract numbers of people at a small admission fee. Copies of the pictures could be placed on sale and should sell rapidly. The Harrisburg Camera Club could take charge of the exhibition and invite every one who had made a picture to contribute a copy, and it would then remain for our photographers to show their generosity to make the exhibition a success."

PUT TO WORK.—There has been a deluge of amateur photographers around the ruins at Johnstown it is reported, and they became such a nuisance that General Hastings ordered the guards to arrest them. The guards swooped down upon the terrified photographers accordingly, and made them go to work with the laborers for two hours, when they were released. They promised to leave town immediately—a promise that was religiously carried out.

CEMENT FOR CELLULOID.—According to the *Neueste Erfindungen und Erfahrungen*, glacial acetic acid may be used for cementing celluloid. The fractured surfaces are to be moistened with it, and then pressed together for some time.

POTASSII SULPHOCYANIDUM PURISSIMUM (KALIUM RHODANATUM. CNSK).—White crystals yielding a clear solution with water and with warm absolute alcohol (1 in 10).

The aqueous solution (1 in 20) should not be affected within five minutes by chloride of barium (abs. of sulphuric acid).

On adding a little diluted hydrochloric acid (1 c.c. of HCl, sp. gr. 1.190, mixed with 10 c.c. of water) to the solution of the salt (1 in 20), it should remain entirely colorless (abs. of iron).

Addition of sulphide of ammonium to the aqueous solution should produce neither a precipitate nor brown color (abs. of other heavy metals).

Note.—Dr. Krauch states that he often found traces of lead and iron even in the purest specimens of the salt obtainable in commerce.

HOW HE WAS PHOTOGRAPHED.—An amusing incident is told of one Mike Carroll, who was recently photographed under rather peculiar circumstances in a small Connecticut village: Mr. Carroll is a man with a fascinating brogue which escaped the notice of the revenue officer when the owner imported it from Cork. He is of portly proportions and was an athlete in his younger days; always good humored when sober and exceedingly humorous at all other times. A portable photograph gallery was put together in the village last Wednesday, and the villagers became enthusiastic. Mike, after imbibing freely, visited the gallery. A contract was finally made and Mike sat down for his photo. "Now keep perfectly still," said the man with the camera. "Keep still is it," said Mike. "Naythur you nor the likes o' you can make me keep still." "But I can't take a good picture unless you sit still." "Well, it's me that's payin' for the picture, isn't it?" asked Mike, "an' if it is I'll sit whichever way I like, an' say whatever I plase, too." By way of emphasis, Mike rose from his seat and sat down again with all his combined force and weight. The chair was on casters, and Mike, in rising, moved it away. As he sat down he grazed the edge and went to the floor. Certain fastenings of the frail structure gave way, and in the jar two corners of the building tumbled in on Mike just as the photographer caught the scene. It is said there was a great demand for the photographs at seventy-five cents each.

AMATEUR PHOTOGRAPHY AND ITS POSSIBILITIES.—In a recent number of *Science*, Miss Laura M. Marquand gives some excellent advice for Amateur photographers who affect imitations of the old masters, especially in the field of portraiture and groups. She says:

Take some fine head painted by an old master, study the light and shade upon it, the character of the face, the quality of the background. Then choose from among your friends one whose type is somewhat like that of the one in the picture, and arrange with great care the light on head and face, and neck and shoulders. The arrangement of each detail of the drapery is also important; and, with such care, there is nothing to prevent your getting an interesting negative. If there is a dimness over the picture, and you want to carry out even that idea, you can do so by putting your lens slightly out of focus. That will eliminate some of the detail, and produce the desired softness and dimness.

Try the same person in many poses, if you can get some one to sit for you who will willingly lend himself for a time to your experiments. Try a head bent down, as if in meditation or prayer, with a strong side-light on the face, no reflected light on the head, and the whole against a gray background. Then try the same head upturned in profile, with no reflected light, and with a black background. Then, again, try a full face, with strong light and shade, and with a different background still, and see how much you have made from the same person.

You can produce quite different effects by the careful management of the light from one high side-light, either using the upper half of the window by curtaining the lower half, or using the lower half and having a direct side-light upon your sitter; or, yet again, by leaving the whole window uncurtained. You must always be very careful about reflected lights, which are an important part of picture-making. One way of reflecting is by arranging a screen on the shadow-side of your sitter, and throwing over that a sheet. By putting the screen, so arranged, very near to the sitter, you will get a full, even, reflected light. By moving it away, a lesser light will be cast over the shadow of the face. Sometimes a looking-glass is used: but that produces an unnatural light, which is not so desirable as the reflection from a duller surface. There is a very easy way of throwing a little light under the brow and nose and chin. It may be done by laying a card or an open book in the lap of the sitter, or by asking him to hold one in the right position. Do not be afraid, however, of shadows. Learn to manage them skillfully, making them heavy enough to give force and character where needed, and light enough to bring out delicate lines in their places.

Try now to imitate, in part or in detail, a Holbein portrait of a child. Arrange your light as in the chosen picture; and if the child have a fair, smooth skin, a most charming effect of finished surface can be made with a mellow, rich light flooding the little face. Always there is danger that some point will be overlooked in the arranging, some spot of light or shade forgotten, and there is where much thought is needed. Think your picture well out beforehand, so as not to keep the sitter unnecessarily long. When the time arrives for the taking, arrange quickly and deftly your subject, having the means of reflecting light and darkening background near at hand, your camera in good order, your lens clean. Then hope for the best, and take off the cap. Always there are disappointments in store. It would be strange if there were not. But also there is the certainty of making the disappointments less by sufficient care.

From the older painters, come down a few centuries to more modern ones. Take, for instance, one of Sir Joshua Reynolds's pictures of a child. Here, indeed, is a charming field for you to enter upon.

It is not necessary to keep to heads in this matter of imitation. Try figures and groups, if you like. But the more you have in your picture, the more difficult it will be. The best way is to begin with a head, simply lighted, and work with that until you get a fair imitation of some good picture.

If you have a quick-working lens, try a picture with a baby in it. This is an ambitious thing to do. But take one of Andrea del Sarto's pictures of the "Madonna and

Child," and plan to make a photograph as nearly like it as possible. One sometimes sees faces of the Madonna type—gentle, mild-eyed women, with pure, delicately cut features. Have the woman dressed like the one in your picture; the lights, backgrounds, and all accessories carefully arranged, except the little child, who should be introduced at the last moment, and posed as nearly as possible like the child in the picture. Then focus quickly, and take your picture. You should do this thing very well, or not at all. It needs great skill; and a careful study of composition and light and shade should go first.

There are charming Van Dykes to imitate, Rembrandts, Holbeins, Andrea del Sartos, Copleys, and Stuarts. There are also some exquisite modern pictures which it would do you no harm to study. If you are an art-student, you can help your art very much by studying pictures in this way. You will learn how persons far wiser than you, have managed their light and shade, how beautifully they have posed their subjects, how they have taken thought of every important line.

This of which I have written is a branch of photography which has been but little attempted, and it is certainly worth notice; worth entering upon, if your taste leads you in this way, with earnestness and enthusiasm.

The Editorial Table.

DAS PHOTOGRAPHIEREN—A handbook for Amateurs and Professionals. By T. F. Schmid. A. Hartleben, Vienna and Leipzig.

The editor, who from his practical essays translated from *Photographische Correspondensen* is not unknown to our readers, has in this book condensed the most important operations and manipulations in photography. His descriptions are clear, and well written. The chapters on optics are especially interesting, and convey much useful knowledge. Mr. Schmid devotes but a short space to ortho-chromatic photography, but is explicit in detailing different printing processes.

MR. RICHARD PAULUSSEN, of Margarethenhof, Vienna, presents us with specimen copies of his beautiful photogravures. Among them we admire especially a highly interesting portrait of Emperor Francis Joseph, reproduced from a crayon drawing, a group of peasant girls from life, and copies from oil paintings.

Mr. Paulussen solicits orders from this side of the Atlantic, and his charges are low; he offers every possible facility to publishers or illustrators, and his work is of the highest order.

The specimens received may be seen at the editorial rooms of this journal.

Record of Photographic Patents.

404,814. Photograph Print Mounter. John W. Alldridge, Waterbury, Conn.

405,130. Mount for Photographs. Richard H. L. Talcott, Boston, Mass.

Queries and Answers.

126 In reply to "Experimenter's" rather lengthy query, we will explain that, to copy positives direct from drawings upon tracing cloth or paper, Poitevin's original method, variously modified, has held its own to the present day. He dissolved 10 grams of ferric chloride and 8 grams of tartaric acid in 100 c.c.m of water. The paper is floated upon the solution for a few minutes, dried by gentle heat, and printed upon. Liesegang prefers Cola's formula with gelatin.

Water	300 c.c.m
Gelatin	10 grams
Ferric chloride in solution of syrupy consistency	20 c.c.m
Tartaric acid	10 grams
Ferric sulphate	10 grams

Large rolls of paper should be coated by machine, constructed for that purpose (Liesegang Lichtpaus ver fahren, page 49). For paper of small dimensions floating, or the application with the Buckle's brush, will answer. Dry by gentle heat, and keep the paper under pressure, well guarded from light, air and moisture. On exposure to light the greenish-yellow color of the paper will vanish, and only those parts protected by the black lines of the original drawing will retain color. As soon as the ground appears white, remove the copy from the printing frame and immerse in a bath consisting of 20 grains of gallic acid, 200 c.c. alcohol, and 1 litre of water, when the greenish-yellow lines will turn at once to a violet-black. Thorough washing in plain water will finish the print. The paper is not very durable, and should not be prepared in large quantities. The so-called Gallus paper found occasionally in photographic supply-stores, is probably prepared by the foregoing formula.

127 PHOTO-ENGRAVER.—Collodion negatives intensified with bromide of copper turn streaky at times, as soon as the silver solution is poured over it. What is the cause and how can it be prevented?

127 *Answer.*—Wash the negative well after the copper solution and drain thoroughly. Do not pour the silver solution over the plate, but immerse it in a tray holding the silver. Do not take the silver solution from the negative bath, but make a fresh solution not stronger than 1 : 30, without acidifying it.

128 IN reply to J. J. W.: Your chloride of gold is perfectly pure. The reasons why you cannot obtain black tones with it must be looked for elsewhere, possibly in your own way of working. Ready-sensitized paper should be fumed for thirty minutes in the vapors of ammonia before printing; to do this hang the paper in a closed box (an old trunk or something like that); set a tray or cup containing strong ammonia under the paper, and close the lid. After thirty minutes the paper is ready for printing. The prints of sufficient depth are then washed in several waters, to the last of which a little of concentrated solution of sal soda should be added. If the toning bath is prepared strictly according to the formula you cannot fail, but to be on the sure side it would be safe to test for acidity. If litmus paper turns red in the gold bath, add more of the French azotate till the blue color remains. With such a bath, from five to eight minutes is sufficient to tone a print to violet black.

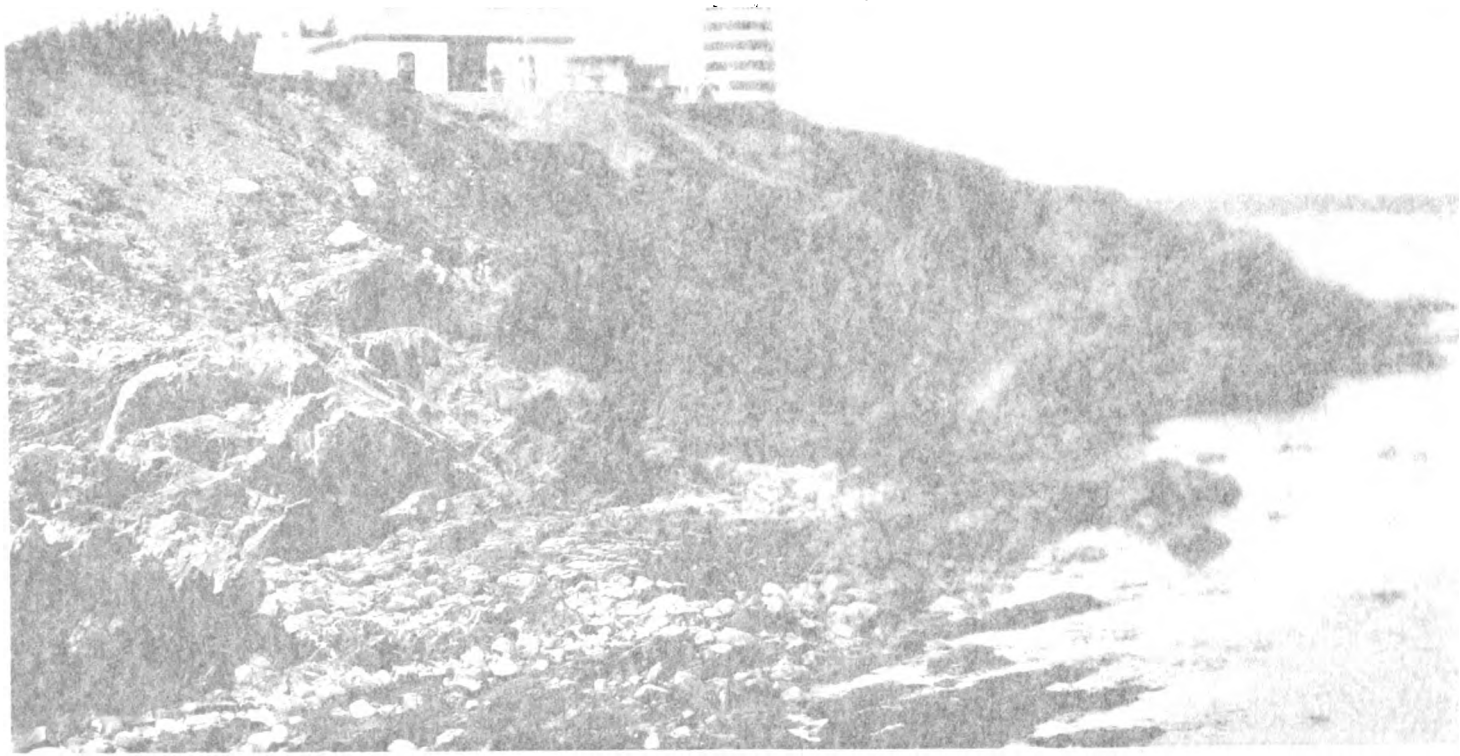
QUODDY HEAD AND LIGHT.

LUBEC, MAINE.

The Extreme Eastern point of land in the
UNITED STATES.

PHOTO-GRAVURE CO. N. Y.

EDITORIAL NOTES.



THE
PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, JUNE 28, 1889. No. 406.

"QUODDY HEAD."

AS THE sub-title on our pictorial supplement of this week states, Quoddy Head, near Lubec, Maine, is the extreme eastern point of land in the United States. As such, it is very interesting; but, apart from this fact, the picture is an excellent specimen of landscape photography at its best. The negative was made by Mr. Henry G. Peabody, dealer in amateur photographic supplies at Boston, Mass., and is one of a series which he made on Allen & Rowell's "stripping" plates, to illustrate a subscription book on "Main Coast Scenery." This attractive publication contains about fifty 8x10 photo-gravures from Mr. Peabody's negatives, with literary contributions by the poet Whittier, Celia Thaxter, Arlo Bates, Mrs. Chandler, and others.

Mr. Peabody writes as follows of the interesting locality:

"Quoddy Head," the extreme easterly apex of the United States, is a bold, rocky promontory, jutting out into the waters of the Bay of Fundy. The last thirty miles of coast, before reaching the "Head" present one succession of grand and imposing headlands, gray and desolate, continually swept by the swift tidal currents for which Fundy's waters are noted. Upon a broad level plateau, considerably lower than the highest elevation of the "Head" stands West Quoddy Light, its picturesque Balmoral tower, alternately striped in red and white, presenting a very striking appearance as one approaches from seaward.

In the distance is seen the beautiful island of Campobello, while directly opposite the "Head," and nine miles out in the Bay of Fundy, come the vast cliffs of Grand Manan, presenting an unbroken stretch of perpendicular wall, twenty miles in length, and from 300 to 400 feet in height."

Our reproduction is made by Mr. Edwards' excellent photo-gelatine process.

EDITORIAL NOTES.

OUR readers generally would be incredulous if we were to state, without qualification or explanation, that silver was not soluble in nitric acid, and they would tender their own experience to the contrary; yet, as a matter of strict accuracy, this assertion is perfectly true, as pointed out lately at a meeting of the London Chemical Society. The important point in this matter is that the acid must be free from nitrous acid, the silver pure—conditions almost impossible to find co-existent. And, again, the moment any solvent action was started, be it on ever so slight a scale, it would continue on account of the production of nitrous acid as part of the ensuing reactions.

At a lecture lately given upon a marine topic the qualities of varnish came under discussion. The lecturer, Professor V. B. Lewis, said: "We are apt to think of a coating of varnish as being perfectly homogeneous; but on examining it through a microscope it is seen to be full of minute capillary tubes, which become gradually enlarged by the action of water, * * * whilst moisture and dissolved gases find their way * * * through it. The application of several coats of varnish tends to diminish this evil, as in many cases the holes in the first coat will not correspond with those in the second, so each succeeding coat will tend to make the coating more and more impervious." Here we have an explanation of many hitherto mysterious causes of disaster with varnished negatives, which have hitherto been unexplained. Now how is it that through an apparently solid skin of vitreous-looking coating of shellac, the silver from sensitized paper at times will go completely through and utterly ruin the picture beneath? and nothing will really cure a negative stained through to the film. The answer is now plain; the silvered surface has been slightly damp, and a portion has gradually found its way through and then formed a permanent compound with the gelatine that nothing short of what would destroy the image itself will remove.

SOME people have lately been recommending an aqueous solution of shellac for varnishing negatives instead of the usual spirituous varnish; borax

being recommended for the purpose of making the shellac soluble in water. We must say, however, that if an aqueous solution be required, the best substance to use is ammonia, as that is all driven off by the action of heat, or at the ordinary temperature of the atmosphere. When a small quantity of such solution is needed the readiest way of obtaining it is to add to ordinary shellac varnish about two per cent. of strong ammonia solution. The varnish may then be mixed in water in all proportions without any precipitation, even to the extent of a slight milkiness taking place.

THE acid fixing bath described by Professor A. Lainer in THE PHOTOGRAPHIC TIMES No. 399, page 238, proves to be exactly what was claimed for it. The negatives fixed in this bath came out with excellent color, and are perfectly free from yellow stains.

A contemporary asserts that one part of sulphite of soda without acidification, and five parts of hypo-sulphite of soda, will give the same effect, the tones being quite equal to those of a wet collodion plate; and this comparison was made by an old collodion operator.

WORK on "The American Annual of Photography for 1889" goes on bravely. The intrinsic value of the fourth volume already promises to exceed even that of its three predecessors. The great interest which the photographic public take in this work, is shown by the fact that before the usual invitations have been sent out authors have sent in their voluntary contributions, not only in this country, but also from England and Europe.

THE ART IN PHOTOGRAPHY.

IT is in portraiture that photography has its noblest field, and that in which it can show the most of such artistic quality as is possible to it, and, properly speaking, it is all that it can do—be it portrait of hill or oak or man, the last being the highest walk, as it is in painting. Whatever artistic faculty a man may have will find its most undeniable and recognizable expression in his management of the portrait. Some of the most eminent portrait photographers have been trained portrait painters before they took up photography, and there is much that a photographer may learn from the practice of the great painters.

The excellencies of a photographic portrait are the following: Judicious posing of the model; good lighting; correct exposure; clean development; free from fog on one hand, and from exaggerated contrast of density with vacant masses of shadow on the other. These are the qualities which make a photograph artistic (and which, if anything could, would show a photographer to be an artist), and not the imitation of what can be better done by the painter. A portrait marked with these characteristics in the highest degree is the noblest result of which photography is capable.

Let us take these qualities in turn and see what they amount to. Judicious posing of the model means the putting him or her in the attitude which is most characteristic of the individual, or, in other words, that which is most natural and easy, and which most expresses the habit and ways of thinking and acting peculiar, or, as we say, characteristic of him or her. It will not do to pose the model in a conventional and graceful attitude which makes a pretty arrangement of lines, or, as they put it, composes prettily, for even in painting no true artist cares for this. Every person, even a child, has certain attitudes and actions which betray the mental action and habits of action or reflection, and we always say of them when we see them, that such a shrug, or such a pose, was "so like Soandso," and we can recognize our friends as far as we can see them sometimes by little characteristics of the shoulders, of hands, or a peculiar cast of the head on the shoulders. Some people have peculiar ways of looking at you, out from under the brow or sidewise, or with the head thrown back and seeming to be sighting you along the nose; they look at you with the full face, or, perhaps, they have a habit of not looking people in the face when they speak or are spoken to, and all these things, so far as they are permanent characteristics are betrayed in the habitual pose. The gift of a great portrait painter is to be able to find these things out at once, so that from the first sitting the character of the sitter is shown. He puts his sitter in the pose which tells the story, for his insight into human nature is such that he reads the story in a short conversation. He don't turn the head round and round and see from which side it is most like an antique statue, as the little artist does, or arrange the subject prettily in the posing chair, for he knows that the head and shoulders and the action the figure may take tell something of the sitter which the face does not, and that they are part of the likeness; and all this is within the power of the photographer to give if he is capable and will give the study. But it wants brains and quick perceptions, and the power of reading human nature. These do not make an artist, but they help to make him great if he is one.

The lighting of the head is a more technical quality, and as such is more or less to be imparted by instruction or acquired by study, and therefore no photographer should be ignorant of it. The best lighting in general is that which puts the head in a broad mass of somewhat subdued light with very little deep shadow and only points of high light, and in which the head as a whole shall be felt as a mass of light, but so rendering the modelling that it seems round and luminous as a mass. No part of the flesh should be black, for we always feel flesh to be luminous—little sharp shadows under the nostrils and the ears set off the general light, but the so-called styles which, like the "Rembrandt," make the lighted portions luminous by the opposition with exaggerated shadows are not artistic, for they sacrifice the character of the sitter to the pictorial effect. The use of reflectors is of the highest utility in this respect, and there was a time when the American photographers were at the head of the profession in their management of reflectors, and that was when they had full common-sense views on the matter and before the pursuit of fancy lightings and pictorial effects had begun to bother their brains. At the present the Germans, who have generally had more or less artistic training take lead of all that I know in the way of lighting.

The so-called pictorial backgrounds have not actually to do with the lighting of a head or figure but they often interfere with good effect, and they are generally vulgar and an injury to the portrait. The entire background should be as simple and unobtrusive as possible, so as not to distract the eye from the head; and all the "property" additions to the portrait are to my mind vulgar and clap-trappy. The great portrait painters, Titian, Tintoret, Raphael, etc., generally give simple, flat backgrounds to their portraits, or if they introduced other objects they were for the purpose of showing the character, profession, or political position of the individual; or if they introduced landscape, as did Velasquez, it is for the sake of color in the large canvasses and because they loved landscape and painted it well, but the general rule with all the portrait painters of the great epoch is to give plain backgrounds, evidently because anything that drew attention from the head was an injury. This plain background is the most effective when it is of a middle tint, so as to relieve the head in light as a mass and yet not interfere with the deep shadows and the darker masses of the draperies, etc., etc. In general, and noting that there is a difference to be noted between the treatment of a dark or a light head, the lighter and more luminous the mass of the flesh in the head is the better the head will be, so long as the high lights are not buried or the modelling lost in any part. A dark head will be felt as such rather by the great difference between the high lights and the mass of the flesh than by the depth of the tint in which it is rendered. The high lights on flesh should always be even a little lower than the light on white drapery.

But the lighting and exposure are intimately connected so that a dexterous operator can sometimes get a luminous head out of a very poor lighting. He does this by giving a long exposure and restraining the development so as to make the shadows paler than they would be with a short exposure. An accurate exposure requires the highest quality of judgment and after the eye for the pose, this is the rarest gift of the photographer. And in this respect landscape and portrait are alike—they require for the best results an ample exposure so as to bring out all the middle tints of the picture and detail in the deeper shadows, leaving only the minutest points of absolute black in the print, and if possible no vacant white in the lights. And the connexion between the exposure and the development is so intimate that one must always more or less depend on the other. Perhaps more good exposures are spoiled by hasty or careless development than any other cause and I might say even that more photographs are spoiled by it than all other causes put together. A clean, careful, deliberate, development, checking the over-exposed and pushing the under-exposed, bringing up the lights to the correct density without veiling the deepest shadow and giving a print that is neither weak in the darks or burnt out or blank in the lights, is an accomplishment which marks technical ability more than any other thing in the production of a photograph.

It is the union of all these qualities which constitute, such as it is, "The Art in Photography" and not the dodges and devices of masking and double printing, putting in backgrounds by the dusting on process or any other, or combining things that nature never meant to go together, skies of one day with landscapes of another, all of which things are ingenious and surprising and even very clever sometimes but which generally lose their chief value when we know how they were done and so become mere curiosities. These are the qualities we should encourage and reward in the profession or in the amateur, for they are the really artistic qualities, and though we shall only delude ourselves by treating them as art in the sense in which we apply that word to design,

we should recognize them as the standard of effort and attainment, and not make ourselves to be laughed at by people who know what the arts of design really are, by borrowing the feathers of a different kind of bird. To be a good photographer is no fool's job and there is a large proportion of the painters and sculptors of our day who have the right to call themselves artists in the sense in which the word is used by the world at large, and especially by the art-world, which has a perfect right to determine its own nomenclature, who are not half the use to the world that a good photographer is. A photographer who has in an eminent degree the qualities I have enumerated and discussed above will make his reputation and be honored, and will even become rich, and he need not be concerned whether he is recognized as an artist by his neighbors, who won't ask whether he is or not, and if besides being a photographer he is recognized to be an artist he need not be in a hurry to put it on his sign, it is better to let people find it out. The barber round the corner calls himself "an artist in hair," and if he chooses to insist on it I shall not disturb him, but it is clear that a definition that includes everything defines nothing, and that if we are all artists the painter and sculptor and designer must find some other designation.

W. J. Stillman.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—(*Continued.*)

Mercury (Quicksilver).

Symbol, Hg. Combining weight, 200.

Mercury, whose symbol, Hg, is derived from the name *hydrargyrum* applied to it by Pliny, is commonly called quicksilver. It is found, combined with sulphur, as *cinnabar* (mercuric sulphide), in the famous mines of Almaden in Spain, Idria in Carniola, and in California. The mercury of commerce usually contains small quantities of other metals, as iron, lead, and zinc. It may be freed from these by distillation, or by treatment with dilute nitric acid.

Pure mercury is a silvery-white metal, freezing at—103 deg. Fahr., and boiling at 675 deg. Fahr. It combines with many of the other metals to form alloys which are called amalgams.

Mercury volatilizes at all temperatures, but, of course, the rapidity of volatilization increases as the temperature increases. It is on this fact that its use as a developer in the daguerreotype process depends. The exposed silver plate is placed over a dish of warm mercury, and the latter metal combines with those parts of the plate which have been affected by light.

[The volatilization of mercury at ordinary temperatures may be well shown by putting a little mercury in a test-tube, inserting a loose plug of cotton-wool in the top of the tube, and then suspending it in a large vessel full of sulphuretted hydrogen. A deposit of mercury sulphide will slowly form around *the top* of the tube].

Mercury Bichloride.

Formula, $HgCl_2$. Combining weight, 271.

Bichloride of mercury, or mercuric chloride, is familiarly known as corrosive sublimate. It is usually prepared by heating a mixture of mercury sulphate and common salt. Its colorless crystals are soluble in fifteen parts of cold or two of hot water. The addition of a little ammonium chloride to the cold water increases its power to dissolve the mercury salt. It is soluble in alcohol and in ether, and is a violent poison.

In photography, corrosive sublimate is largely used for intensifying. The thin negative is soaked in a saturated solution until it turns white (owing to the formation of calomel (Hg_2Cl_2) and silver chloride), and then in a weak solution of ammonia until black.

Mercury Sub-chloride.

Formula, Hg_2Cl_2. Combining weight, 471.

Mercury sub-chloride, or mercurous chloride, is the *calomel* of druggists. It is prepared by heating mercury with mercury bichloride. It is insoluble in water, alcohol, and cold dilute acids. When exposed to light it turns gray, owing to the separation of metallic mercury.

Mercury Iodide.

Formula, HgI_2. Combining weight, 454.

Mercuric iodide is formed when solutions of potassium iodide and of mercuric chloride are mixed together. It appears first as a yellow precipitate, but this rapidly changes to scarlet. It is soluble in excess of either of the solutions from which it is formed, more especially in excess of potassium iodide.

Mercuric iodide, followed by ammonia, forms an excellent intensifier for gelatine negatives.

There is also a *mercurous iodide*, Hg_2I_2, which is formed by mixing solutions of potassium iodide and mercurous nitrate. It is of a greenish-yellow color.

Mercury Mon-Oxide.

Formula, HgO. Combining weight, 216.

Mercury mon-oxide is also called mercuric oxide, red oxide of mercury, or red precipitate. It can be obtained by heating mercury to a temperature rather below its boiling point for several weeks in a glass flask with a long neck. Commercially, it is prepared by heating a mixture of mercury and mercuric nitrate. It is usually seen as a bright red crystalline powder, but it can be obtained of an orange-yellow hue by adding caustic soda to a solution of a mercuric salt. Mercury mon-oxide is a poisonous substance, slightly soluble in water. When heated it darkens, but resumes its original tint on cooling. By strong heat, it is broken up into mercury and oxygen.

Naphtha.

True naphtha is a hydro-carbon which occurs naturally as "*mineral naphtha*" in the rocks of Pennsylvania and Canada, and less abundantly in certain parts of Europe and Asia.

Coal naphtha is a nearly identical substance, obtained by distillation from coal during the manufacture of coal-gas. Naphtha is a clear, limpid, oily liquid, which burns with a bright, smoky flame. It will not mix with water, but is a good solvent for caoutchouc (India rubber).

Owing to its freedom from oxygen, it is used to protect the metals, sodium and potassium, from the air, the bottles in which they are preserved being kept full of naphtha.

The term "wood naphtha" or "vegetable naphtha," is sometimes applied to "wood spirit" (methyl alcohol), but this is a misapplication, as the latter is a very different substance.

W. Jerome Harrison.

(*To be continued.*)

A CURE FOR BLISTERS.

In the June 14th issue of The Times I read an article on "Blisters," which contained the statement that for blisters once formed there is no remedy. Let me suggest a cure which has never failed me in a single instance, and I have probably had my full share of annoyance from this trouble.

Lay a piece of clean blotting-paper on a table. Take a blistered print from the water, and lay it face up on the blotting-paper. Now gently place another piece of blotting-paper over the print, with one hand hold all together firmly at one end, so they cannot slip, and with the tips of the fingers of the other hand begin rubbing the upper blotter *very lightly*, and with a rotary motion. Gradually increase the pressure and finish by rubbing quite hard with the flat hand.

I have had prints literally covered with pin-head blisters, and others with blisters as large as a dime, but have never failed to reduce them by this method, and have never lost a print. The blisters disappear, the albumen is effectually and permanently restored to contact, and no trace of the trouble is left.

My usual plan is to let the prints alone until washing is completed, and then reduce the blisters.

T. B. Simmons.

ANOTHER REMEDY FOR BLISTERS.

In looking over The Times I saw different remedies mentioned for blisters, and I venture to give mine.

When I make up my fixing bath I pour boiling water over the hypo to dissolve it. Then put in cold water till it is luke warm, and it is ready to use. This has saved me hundreds of prints.

W. Wurtenberg.

HYDROCHINON AND CELLULOID FILMS.

The following developer, taken from one of the English journals, seems to be possessed of considerable merit; it is by far the best of any of the many I have tried.

It works about as fast as the average pyro developer and can be used for quite a number of plates; it does not carry into the fixing bath the amount of stain that follows the use of pyro, and will bring out more, decidedly more, when underexposure has been the fault, that I have been able to obtain with pyro.

1. Hydrochinon .....160 grains
   Sodium sulphite.....960 grains
   Citric acid..... 60 grains
   Bromide potassium..... 30 grains
   Add water to make ..... 20 fluid ounces
2. Sodium hydrate.....160 grains
   Add water to make..... 20 fluid ounces

For use, equal parts of each. For full timed exposures I would reduce considerably with water.

It has doubtless been observed by those who use films that, when laid in hypo bath to fix, that they often rise up in center coming out of the solution, thus leaving a strip the length of film unfixed. This floating is, no doubt, due to the density of the hypo solution; lay them face down on the hypo; they will float; fix evenly and quickly.

Charles Wager Hull.

THE EMULSION PROCESS OF PHOTOGRAPHY.

(*Continued from page* 310 *and concluded.*)

Differing as regards the vehicle and the method of preparation, we have an analogous process for printing-out positives by means of silver chloride in conjunction with organic substances, combined and emulsified in a practically colorless gelatine, the strength of which may vary between ten and forty grains of the colloid to each ounce of water. Prints of this nature were first made in 1866, and described by Palmer in the *Photographic News* at the time; but no practical use appears to have been made of the information then given. Captain Abney, in his Cantor Lectures, drew especial attention to the possibilities of this process, and gave formulæ. An extended series of experiments on many organic compounds combined with silver chloride emulsified in gelatine, and spread on white surfaces, were jointly carried out a year or two ago by R. Offard and myself, and the results embodied in a series of articles specially written by us for the pages of the *Photographic News;* doubtless the conclusions we arrived at, and the manipulatory details given, are familiar to those who have opportunity to study these subjects, and need not be further referred to here. Like the collodio-chloride emulsion, the mixture compounded by an improved formula can be spread thinly upon any non-absorbent surface, such as opal or strong paper previously covered with a substratum. This may consist of arrowroot, or a ten per cent. plain gelatine solution rendered partially insoluble with chrome alum. An emulsion of barium sulphate in gelatine makes a capital covering for the paper, and is non-absorbent if the correct amount of chrome alum has been added. Aqueous solutions of resins are likewise suitable in cases where a smooth polished surface is a desideratum. Upon any of these substratums the liquefied and sensitive emulsion is spread in an apartment shielded from the influence of daylight, and, as soon as dry, is ready for printing. If, however, matt surface prints are required, then there is no necessity to use any preliminary coating whatever, as the absorption of a liquid emulsion containing thirty or forty grains of gelatine per fluid ounce is not very considerable, even with porous paper.

The preparation of the sensitive emulsion is such an extremely easy matter that no one need hesitate to attempt a few experiments in this direction. I think there is much more to be discovered about this interesting process, for we have by no means exhausted the combinations which are reasonably likely to be beneficial in producing an effective and rapid printing surface. The chief obstacle is a liability for insolubility to occur some time after the emulsion has been prepared. Potassium salts are apt to bring this condition about very quickly, thus spoiling the emulsion entirely. Some other agents act in a similar manner—often before it is possible to coat the intended surface. As regards rapidity of action, an emulsion can readily be prepared which will have twice the printing speed of sensitized carbon tissue, or of platinotype, and consequently five or six times that of layers of ordinary silver chloride in coagulated albumen. Further, the process is absolutely unfettered by any restrictive conditions, which is rather remarkable in these days of patents.

I will now proceed to make an emulsion of the kind referred to, in order to illustrate how simple is the method of preparation. I will use for convenience a citrate of salt as my organifier, although nearly all the vegetable acids in some form or other can be introduced. These mostly present special characteristics, some useful, others to be avoided.

We have here, then, the materials—gelatine, silver nitrate, and an alkaline chloride—and as the kind of organic salt we wish to form is of some importance, we will make ours a citrate for the occasion, with citric acid and ammonia. We must bear in mind that citric acid added to a solution of silver nitrate does not produce silver citrate, but only acidified silver nitrate. It is, however, another matter if we use a citrate salt such as ammonium, magnesium, or sodium citrate, for then the nitric acid, in combination with the silver, leaves the metal for the alkaline base, and the result is an interchange by which we get a compound of silver and citric acid—silver citrate and the corresponding alkaline nitrate.

We will take twenty grains of citric acid in 100 minims of water, and, to produce ammonium citrate—a deliquescent salt—add sufficient strong ammonia to nearly neutralize the acid, leaving litmus paper still decidedly red, which, for convenience, we call A. In another vessel, B, we take forty-five grains of gelatine dissolved in one ounce of water, and mix with A. We next take forty-five grains of gelatine, six and a half grains of ammonium chloride, and dissolve in one ounce of water; Solution C. Then forty grains of silver nitrate dissolved in 180 minims of water to form Solution D. C and D are next mixed (not in daylight), then altogether at a temperature very little above melting point.

The emulsion now formed contains a slight excess of silver nitrate, and more nitrate of ammo-

nia than we desire, so in order to get rid of it, we let it set into a stiff jelly, then break it up into shreds by pressing the solid mass through the meshes of coarse canvas, or cut it up into small pellets with a silver spoon. In this condition washing out the soluble saltscan be readily effected. Citrate of silver, which is formed in the foregoing reaction, is soluble in water, and as it is undesirable to remove this from the emulsion, only brief washes in two or three changes of water are admissable. This given the excess of water is drained off, the shreddy pieces collected, rinsed in alcohol, and then melted, strained through fine cambric, spread on glass, paper, or any non-absorbent smooth white surface, levelled, set, dried, and printed. The remainder of the operations are—washing, toning, fixing, and again washing the prints, as in the case of ordinary sensitized paper. Positives produced in this manner will tone well in a borax bath, and if paper prints are dried in contact with glass previously rubbed over with French chalk, will leave the surface when dry with a very high polish and considerable translucency.

Returning again to the collodio-bromide, we have here a process which yields some of the finest positives on glass, obtainable by any method. Especially well does it answer for lantern transparencies, the inherent slowness being no drawback for such work.

A normal collodion composed of a high temperature cotton dissolved in ether and alcohol is bromised with a cadmium or ammonium salt, and another collodion containing silver nitrate is mixed therewith, to form an emulsion of silver bromide. The solvents are then evaporated and the soluble salt ammonium nitrate, the result of the reaction, is removed by washing, the pellicle is re-dissolved, and is then ready for coating glass surfaces. The emulsion is not suitable for printing right out, but is amenable to the influences of a developer. Alkaline pyrogallol is usually employed, but the ferrous-citro-oxalate developer recommended by Abney yields a perfectly black and vigorous transparent image, which can be toned by any of the recognized methods.

Following an analogous treatment here, and displacing collodion in this case as we have already done in connection with the chloride process of Simpson, we emulsify our silver bromine in gelatine instead of collodion by adding silver nitrate and soluble bromide thereto, and as a result get at least an equal speed. If by copious washing we remove the nitrate salt resulting from the reaction of silver nitrate upon a soluble bromide, some increase in the rapidity has taken place; but if we omit the washing, and alter the physical condition of the supporting colloid by setting up a decomposing influence in the gelatine—such as a high temperature, or the action of an alkali produces—a marked change at once sets in, but ceases upon the removal of the nitrate salt. The molecules of silver bromide as at first formed are pretty evenly distributed, and of equal size throughout the mixture, and if a little of the newly formed emulsion were spread on glass, and examined by transmitted daylight, the film would be almost certain to appear red, especially if the precaution of slightly acidifying the gelatine has been adopted at starting.

It is impossible to preserve an emulsion in this state very long, neither is it desirable to do so. Decomposition sets in with liberation of free ammonia, and after the lapse of a few days, such an emulsion compounded without an antiseptic would have become perfectly putrid. In the meantime the silver bromide would also undergo a change in size and color. An agglomeration of the molecules takes place, and the now coarse silver bromide, if examined by transmitted light appears of a bluish grey.

Besides this slow method of altering the character of the silver haloid in the cold state, there is a plan by which the same effect can be brought about, namely, by the addition of free ammonia, either with or without the application of external heat, excepting that the emulsion under treatment must not be in a solidified state when the addition of ammonia is made.

There is also the most reliable plan of any for general practice, namely: heating or boiling the mixture until the desired change has taken place; but in either case it is beneficial to use only a minimum quantity of water, and the lowest proportion of gelatine capable of suspending the silver, the remainder being added when making up bulk before washing. In the process as given to the world by Bennett, the whole quantity of gelatine was subjected to a temperature not exceeding 90 deg. F. for several hours to obtain a rather slow plate, and for days to acquire a greater rapidity; but now the same result may be obtained in half-an-hour, provided the bulk of the gelatine which gives body to the film is added after sensitiveness has been gained.

When a thin film examined as referred to appears reddish, sensitiveness is seldom very great, but directly this has become changed, the maturing process need not further be prolonged. The point at which the ripening or gaining of rapidity is gen-

erally considered to have reached its climax for practical purposes is when a thin film of the emulsion spread on glass, and examined in the wet state by the plan already mentioned, appears of a bluish grey. Beyond this point there is considerable danger in continuing the action, as fog may intervene, and it is often really difficult to distinguish between exalted sensitiveness, and foggy images, in a delicately balanced dry plate. For this reason, perhaps, more than any other, the English makers of dry plates have a tendency to keep the speed of their ordinary plates down to fifteen or eighteen degrees by standard sensitometer test, rather than issue an emulsion of higher sensitiveness. Now, I presume most of us know that plates called extra sensitive are quoted by manufacturers at an increased price, but why this higher rate should be charged does not seem very apparent. Perhaps the truth is, that some rapid plates require more skill and judgment in order to attain a brilliant negative therefrom, whereas a slow plate possesses so much latitude that the liability of error is minimized to a large extent, and therefore the moderately slow plate is found to be the most successful upon the whole to popularize. It has over and over again been demonstrated that the actual cost involved in the preparation of rapid dry plates is but a fraction of the excess charged, and surely if it were a question of requiring two grains more or less of silver 2s. 6d. per ounce to make it slow or quick acting, the difference now charged I maintain is excessive.

It is not necessary for me to quote particulars of plate-making to-night, for it is a subject which would occupy your attention for a whole evening; and as the mere illustration of compounding a bromide emulsion now would not adequately demonstrate the process as it ought to be done before this society. I will not attempt it, but any question which may arise concerning it in discussion I will do my best to answer.

In closing, I will just remark that that the staining of the silver bromide films or the incorporation of certain dyes in an emulsion to render the character of the sensitiveness more in harmony with some colors is a subject which is of the greatest importance to photographers; but as we are told to prepare such emulsions in England at present is not permitted by the proprietors of patent rights except under special arrangement, I am afraid we shall not get a demonstration of making orthochromatic plates just yet.

W. M. Ashman.

THE STOLEN PHOTOGRAPH.

(*Continued from page* 310 *and concluded.*)

His own comfortable rooms were warm and bright, everything that money could buy was thrown about in lavish *bachelor order*, but the owner of all was out of tune. "Home sweet, sweet home!" he whistled, and there was an amount of sarcasm in his utterance which would have frightened him could he have heard it. "Jim can sing that, not I; they say because 'birds have their nest, they have their song.' I have the nest, but I think the other must be wanting," and Morris having divested himself of his wet coat sat down in front of the blazing fire.

His thoughts quickly reviewed the events of the evening. Weddings are not very cheerful affairs, the one pre-eminent charm of the past hours was his pleasant drive home with the "Nut brown maid." "Curious world, this, that I should come across those two pretty girls again. It is a piece of luck a far more romantic fellow should have." Recalling the sad faces, he jumped for his coat. "I'll look at my picture. What would old Jim have said if he had known I, all the time, held in my possesion a picture of his wife and his new cousin."

He plunged his hand into his pocket—the envelope was not there. He felt anxiously about in the many places of stowing away, found in every orthodox coat. Where was it? At last he smiled all over, and reseated himself for a treat. He drew forth the printed cutting, Lowell's beautiful poem, still another, and another. He saw it all. He had given Miss Murray the wrong envelope. What should he do? What could he say in vindication of himself? What an outrageous thing it would seem to the girl. She would think he intended to show her that she was not unknown to him, and how highly would she rate him after the impertinence of stealing a picture. He was not a boy to be guilty of such a prank, and glory in it. It was derogatory to his dignity of thirty odd years, and he was mortified and indignant, and was ready to confound photography as a nuisance of an art. It was too late to go and apologize, and then, too, she had intimated that he would not be welcome until after a day or two, so he must wait. A note would never do, only a verbal explanation could show the affair in its true light. How many worries an active imagination can entail upon a man. People pretend to say only a woman's mind suggests the thousand and one improbable situations in which the doing or not doing of an act could possibly put her. But I claim a man is just as ready to imagine all sorts of dire consequences. Morris certainly did.

The next day his thoughts were directed into another channel, and he forgot weddings and pictures for the time being. Every hour was precious, his interest in a suit which involved some English lands required his immediate start for London. It was Friday; by the next morning at five o'clock he must set sail for Liverpool. He had no time to call upon Miss Murray, even if he had been welcome. The thought of her probable impression of him came on him once so strongly, that he wrote a little note, telling of his trip abroad, and begging that upon his return he might "call and explain an apparent rudeness."

Saturday was a dark, stormy day. The early sailing and the rough seas demoralized the majority of the passengers of the "Aurania." Only a few men were seen on deck. The second day out the deadlights on the port side were ordered closed, and everything was battened down. The

ship charts read a daily record of "Gales," and "Stiff Gales.' On the third day it was reported that a man was very dangerously ill on board—"a case of apoplexy induced by previous excitement." Rumors of this reached Morris's ears. It was a Mr. Murray, some one said, and his only daughter was very ill, and unable to be with him. One day more, and the man died. There was as much sympathy felt for the poor daughter as a crowd of wretchedly sick people could muster. Only a dozen or more passengers were well—Morris among the number; also, a very sweet old lady, who, notwithstanding the heavy seas, proved herself an excellent sailor.

She and Morris had been very good friends, and were much together. At the time of the death, old Mrs. Taylor was very anxious to see the sick daughter and comfort her if possible. Morris favored this, and, handing her his card, he said: "If she has no friends, and I can be of service, do say I shall gladly aid her."

The old lady went off on her errand of mercy; hardly half an hour later, as Morris was walking up and down the deck, and enjoying the sunshine, she appeared in a state of great excitement. Her first words were startling, "She is not his daughter at all, she is so glad you are on board, and she wants to see you." These irrelevant words were soon explained, and to Morris' great surprise, he found himself as a fellow-passenger with the "Nut Brown Maid." The girl whom he had brought home from that sad little wedding was now alone on the wide seas, and he was her only protector. Her uncle, upon hearing of Nina's marriage had immediately started for Europe intending to cut off any possibility of his meeting the niece who had so disappointed him. He was an irascible man, his temper never the best, was thoroughly aroused, and as he lay fuming in his berth he probably had quickened the fatal stroke of apoplexy which had long threatened him.

It was the last day on board, a pale-looking girl, wrapped in heavy furs, was sitting on the deck. An old lady was bustling about her, and Morris Phelps was their attendant. Some way the girl was very helpless; her grief at Mr. Murray's death; her loneliness and the strange circumstances of her start from America, all appealed very strongly to Morris' heart. He felt quite as if she belonged to him, and yet she did not; and if she did not, when old Mrs. Taylor left them at Liverpool, for she was bound directly for Paris, on important business, what could he do for her?

There came one thought to his mind, and it sent the blood coursing through his veins. What would Jim say, and only a week before he had scoffed at marriage.

He thought of the luxurious rooms which had seemed so lonely that night after Jim had left, and lonelier still when he had returned after the wedding. "It is not good that the man should be alone," the Bible had said, and he began to think it was true. There was Jim married—and there was he himself wanting to be; yes, really wanting to marry sweet Helen Murray. Morris had fallen in love in genuine earnest. Those who do not believe in love at-first sight would have marveled at the zeal with which he hovered over the pretty young girl. She herself was very happy, as happy as she could be under the circumstances, and in a certain way happier than she had ever been in her life before. In the midst of her unutterable loneliness and desolation, this friend had come to her, and the feeling of gratitude, coupled with the romantic associations of their first and last meetings, had deepened into a much warmer sentiment, which she tried very bravely to stifle.

It was quite enough that he was by her side, relieving her of every care, and arranging all those matters which the sudden death of her uncle, and the necessity for her return to America, made absolutely essential.

They were in the North Western Hotel at Liverpool. Dear old Mrs. Taylor was obliged to start for the Continent, and before she left Morris wished to claim the right to care for Helen Murray. He dreaded to startle her with the sudden proposition, or force her to do what she might ever after regret, and so he hesitated, and Helen tried to look indifferent, and very independent, and they might have gone on in that way, and never have learned each other's hearts had not vexing business claims, which so often interfere with love affairs, but not in this case, suddenly made all of the uncertain future very clear and bright. A servant entered with a telegraphic dispatch: "Cable received this morning, You are needed immediately. Delay will lose all," were the words Morris read. They were from his solicitors. "I must start directly for London," he said. Helen's face changed color, a sad look crept into her dark eyes. Perhaps she feared to betray her feelings, for she rose, and crossed to the window.

Morris sprang to his feet and followed her. His own strong love for the girl made him forget any former scruple. Now he *must* speak. He felt her start, and a sudden thrill pass through her entire frame, as he laid his hand on her shoulder, "my darling," he exclaimed, "forgive my presumption, let me care for you, for I love you!" Her eyes were overflowing with tears and her voice broken and husky as she turned to him saying "I thank you very much and appreciate your kindness but I cannot have you marry me from a sense of pity," here she broke down utterly, and in some satisfactory way Morris quieted her grief and in turn grew very joyful as she confessed that the love would not be *all on one side*. Mrs. Taylor and an English clergyman with his wife, both friends of Morris, were soon brought together, and a little wedding ceremony took place in that great hotel and as the service ended Morris bent over his wife and kissed her, saying "I can say with Jim now *I am* the happiest man in Christendom."

A few weeks later, Nina and Jim, who only knew of the sorrowful side to Helen's trip and of her return by one of the White Star line, were at the docks to meet her. The whole air seemed full of funeral knells. Nina drew closer to her husband's side. She felt very safe in his care; but poor Helen was alone, and he whom they both had loved was being brought back to his "narrow home." The great house where they once had lived would be shut to them for ever, but Helen should never feel the need of a home while Jim and Nina lived.

With kind words of welcome hovering on their lips they awaited the steamer's landing. From among the crowd of passengers two people whom they had never dreamed of seeing together, suddenly loomed before them and they looked very comfortable and very happy. The gentleman had an air of proprietorship, and the lady looked as if she accepted his attentions as her due. A moment later there were kisses and hand-shakings and smiles and tears, and incoherent questions and answers. At last it was understood, but it was not until long after the bell had tolled

for the funeral of Mr. Murray, and his nieces had followed as true mourners to the grave, that all the story was told.

In each home there is a pretty colored photograph which both girls value very much, but which their husbands value more. The men never have settled the matter between them as to which is the prettier of the two girls in that stolen picture, and it will always be a source of dispute, for Jim thinks the "Greek goddess" the most beautiful woman in the world, and Morris, looking lovingly from the picture to one of the originals, says there never was a sweeter, dearer wife than the "Nut-Brown Maid."

Mary Scott Boyd.

Correspondence.

FROM PHILADELPHIA TO BOSTON.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: If agreeable to you, in the interest of photographers from Pennsylvania, the West and South, wishing to attend the Convention at Boston next August, will you kindly insert the following notice in Convention notes in THE TIMES.

TRIP TO BOSTON CONVENTION.

A capital chance to escape from the heat of railroad travel, but get there just the same, is to take advantage of the special excursion from Philadelphia on the Steamer "Norman," and enjoy the cooling breezes of the sea instead. All that go by this most delightful route will have plenty of time to get on a good sea sick, being forty-eight hours on the ocean.

If you want to join us on this voyage, make up your mind quickly, as this is a very popular summer route, and the staterooms are always taken for weeks in advance. The fare for the round trip, including meals and berth in stateroom, is only $18. The "Norman" sails from Philadelphia at 12 noon, Friday, August 2d. If parties desiring to go will advise us before July 10th, and send check for $18.00, we will obtain the tickets and staterooms for them.

Yours very truly,

Buchanan, Bromley & Co.

PHILADELPHIA, June 12, 1889.

P. S.—I have made this trip several times and can testify that it is a most delightful voyage, with gentlemanly officers and crew, plenty to eat and drink, and a good opportunity to look out for whales and sharks.

For my part, I would not go by any other route.

W. P. Buchanan.

Notes and News.

PROFESSOR CHARLES EHRMANN, of the Chautauqua School of Photography, has left for the Assembly Grounds on the shores of beautiful Lake Chautauqua. His instruction of the summer classes will begin at once, and, as in former years, regular reports of the progress made at Chautauqua will be published in THE PHOTOGRAPHIC TIMES.

WILLIAM BELL, our old friend from Philadelphia, sailed for Europe, June 19th, for the purpose of studying orthromatic methods in Vienna, Munich, and other cities where advanced work has been done in this branch of photography. He will probably be gone several months, and we wish him all success.

WEDDED.—A. Hazin, with R. Broude & Company, photographic merchants of Pittsburgh, Pa., and Rachel Goldstein, were married Sunday afternoon, June 23d, at the residence of the bride's parents in Nashville, Tenn. A pleasant reception followed the ceremony.

MISS LONGFELLOW.—Among the earliest and most enthusiastic lady photographers in this country is Miss Alice M. Longfellow, the daughter of the poet. She began using the camera more than a dozen years ago, and her collection of views contains many from the vicinity of Boston and along the coasts of Massachusetts and Maine.

PHOTOGRAPHIC SOCIETIES.—It is estimated that there are one hundred and ten photographic societies now active, in the British Isles. A low estimate places the number in this country at seventy-five.

PHOTOGRAPHIC EXCURSIONS.—The Photographic Department of the Brooklyn Institute has arranged for several excursions this summer. Their first excursion took place June 22d, when it visited Irvington for the purpose of photographing the historic section about Sleepy Hollow. Bay Ridge and Fort Hamilton will be photographed on July 6th, and two weeks later, an excursion will be taken up the Harlem River.

DER DEUTSCHE PHOTOGRAPHEN VEREIN, under the presidency of Carl Schwier, will hold its eighteenth convention in Weimar, Germany, from July 30th to August 2nd. It will suitably celebrate the semi-centennial of photography, and offers valuable premiums to successful competitors in the exhibition of photographs.

CORRECTED.—In referring to the magnificent picture, El Capitan, which was presented in the June 14th issue of the PHOTOGRAPHIC TIMES, we were printed to say that it was a companion to The Great Falls of the Yellowstone, "*by the same author*," which embellished these columns several months ago. Of course, the latter was by F. J. Haynes, of Fargo: and El Capitan is very far from the National Park.

CURIOUS REVELATION OF A PHOTOGRAPH.—The *Scientific American* of recent date tells of a photograph of a curious hen's egg which was recently sent to it. It was a double egg. It appeared to be an ordinary egg united; it was cooked and broken open, when, to the surprise of every one, instead of finding a yelk, it was discovered that there was a perfectly formed egg within the outer shell. The inner egg seemed to be perfect, and contained the usual white wall and the inner yelk, which was, however, quite small.

A SET BACK.—According to *Munsey's Weekly*, amateur photography has received a set-back in Geneseo, N. Y., where a beginner has had to take to his bed to recover from the treatment accorded him by one of his subjects whom his camera depicted as having four ears, one eye, and a nose divided into sections like a bamboo rod. The ama-

teur was willing to apologize for the depravity of his camera but hadn't time.

How Chevreul was Photographed.—In a popular comedy, recently played in this city, an impressive individual in the action proved to be not an incognito diplomat, but a determined photographer in disguise—with alleged commissions from the Emperor of Brazil. A true story is told about a photographer in real life, employed by that sovereign. The late centenarian, M. Chevreul, although one of the patrons of photography, refused, during the greater part of his long life, to have his picture taken. Not until 1883, when in his ninety-seventh year, did he overcome this antipathy. It happened, as he wrote a friend, in the following manner:

"I entered the carriage to go to the Institute, when a gentleman in the politest manner possible addressed me: 'Monsieur Chevreul, you can do me the greatest service.' I replied that I was in a great hurry, but he persisted and begged permission to accompany me in my carriage. I acceded to his request. He had scarcely taken his seat at my side, however, when he said. 'Monsieur Chevreul, you can be my fortune or my ruin. I am a photographer.' I trembled, but he added: 'The Emperor of Brazil (you know Dom Pedro, who is a true savant, and who decorated me with the Order of the Rose) wishes to have your photograph, and if I succeed in obtaining your permission, my future is assured.' I could not resist him, and in the name of Dom Pedro accompanied the photographer to his studio."—*The Independent.*

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A stated meeting of the Society was held Wednesday evening, June 5, 1889, with the President, Frederic Graff, in the Chair.

The Secretary reported the death of Mr. Charles F. Butler, a member of the Society, who was lost in the disastrous flood at Johnstown, Pa., on May 31st. Mr. Butler held the position of Assistant Treasurer in the Cambria Iron Company, having removed his residence from Philadelphia to Johnstown within a recent period.

The Excursion Committee, through its Chairman, Mr. Samuel Sartain, made a report suggesting a series of three one-day excursions on Saturdays, June 15th, 22d, and 29th, probably to different points on Brandywine Creek, Pa. On motion of Mr. Rosengarten, the Committee was authorized to arrange and carry out all details of such a programme as proposed above.

The Committee on Joint Exhibition presented its report.

The Treasurer's report showed a balance to be placed to the credit of the Society over and above all expenses on account of the Exhibition of about $250.

On motion of Mr. Wood the report was accepted, and the funds in the hands of the Committee were ordered to be turned over to the Treasurer.

Dr. Mitchell moved that a vote of thanks be tendered to the Committee for their labors on behalf of the Society, and also to the Board of Judges for their efficient and valuable services. Carried.

Mr. Bullock, for the Committee, also reported that the exhibits of Messrs. W. W. Winter, of Derby, and Auty, of Tynemouth, Eng., had been presented to the Society, for which votes of thanks were passed.

Mr. J. G. Martin showed one of Beck's new combination lenses, arranged for foci of 5, 7, and 9 inches, and for plates from 4x5 to 5x8 inches. He also showed a small lens of 4 inch focus, and a wide-angle lens 11 inch focus, for 14x17 plates. All these lenses were supplied with the Iris diaphragm.

A number of excellent pictures made with the use of Pine's flash-light apparatus were also shown by Mr. Martin.

Dr. Mitchell described two brands of Aristotype paper, with which he had been experimenting; one of American make, coated, be believed, with a collodion emulsion, and a foreign paper coated with gelatine. He illustrated his remarks with several prints made on the two varieties of paper.

Mr. Graff showed a circular which was of interest in connection with the revival in the use of magnesium light in photography. It was dated March 18, 1869, and consisted of an invitation to be present at a practical test of "Proctor's Patent Night Photography Invention. A cut on the circular showed a tent-like structure, forming an apartment in which the sitter was evidently placed and illuminated by the burning magnesium. Through a large, round opening in the end of the tent a portrait camera was pointed, with which the picture was taken.

He also showed some interesting prints made by Tabor, of San Francisco, of an eclipse of the sun.

Adjourned.

Robert S. Redfield,
Secretary.

LOWELL CAMERA CLUB.

The Lowell Camera Club held its first field day June 13th. An excursion on a barge to Beaver Brook and through the picturesque suburbs north of the city to Richardson's Brook was the field covered. The committee of arrangements selected the subjects, which were photographed by each member from his own standpoint.

On the way to Richardson's Brook the party stopped to get a cattle picture. A fine herd of cattle in a field afforded a great variety of pleasing groups. A good deal of care was necessary before each photographer was able to secure a satisfactory picture. One of the most desirable groups dispersed just as an anxious artist was about to draw his slide. Finally all succeeded in exposing plates upon good subjects for animal pictures.

Richardson's Brook is a favorite resort for artists with brush or camera. Good pictures stand out at every turn of the stream. Here the club spent some time on more brook views, and ended the day's work by each member taking a group picture of the party. Sets of the pictures taken on this field day are to be printed for joint exhibition.

George A. Nelson,
Secretary.

COLUMBUS CAMERA CLUB.

On the 28th of June "Illustrated Boston" was exhibited to the members of our Club and their friends, and was very much enjoyed and praised by all.

Our Club is hard at work, and by next fall we hope to have "Illustrated Columbus" ready for the road.

G. Y. Anderson,
Secretary.

The Editorial Table.

A DICTIONARY OF PHOTOGRAPHY. By E. J. Wall. American Edition. The Scovill & Adams Company: New York. Cloth bound, $1.50.

Our readers will be glad to learn that an American edition of this useful book is to be within their reach. It is by far the best dictionary of photography which ever has been brought out, and though written by an Englishman, it will be found quite complete and valuable to American photographers—both professional and amateur. Its definitions are clear and concise, and are arranged in such a way that any term used in photographic language or literature may quickly and easily be found. It is a photographic cyclopedia that will be invaluable to photographers for reference purposes. It should be in every photographer's library and within his reach while he works. The definitions are fully illustrated by diagrams and cuts, and it is printed on supersized and calendared paper, and bound neatly in cloth, uniform with the other volumes of the Scovill Photographic Series. Sent, postpaid to any address, on receipt of price, in a neat paper mailing case.

DER LICHTDRUCK UND DIE PHOTOLITHOGRAPHIE. By Dr. Julius Schnauss. Fourth Edition. E. Liesegang: Düsseldorf.

A correct description of the lichtdruck or phototype process in all of its bearings, utensils, preparation of plates, and especially the work on hand and power press is minutely given. The book is embellished with several plates and numerous cuts.

We understand that the editor is about to translate this useful little work into English, which would increase its circulation and the practical usefulness manifested by its former editions.

DER KOHLE DRUCK (CARBON PRINTING). By Dr. Paul Liesegang. E. Liesegang: Düsseldorf.

The ninth German edition of the book, while twelve have been issued in the French and English language. Of late carbon printing has been brought forward again in several American ateliers. Those not perfectly familiar with the process will find in Dr. Liesegang's book a reliable instructor in all of its details.

WE have received from Gayton A. Douglass & Company a copy of the "Chemistry of Photography," by Meldola, which was reviewed in these columns not long ago. We can only repeat what we then said, that it is an excellent work and that it is receiving the hearty welcome which it deserves, not only from professional photographers who wish to understand the scientific principles on which their art is based, but also by chemists and physicists who find in it no small matter for thought and study. We understand that Mr. Douglass has the book for sale. It will be sent postpaid on receipt of price.

OUR old friend, Dr. George L. Sinclair, of Halifax, sends us a number of very pretty marines, made with the Waterbury "Detective" Camera. They all show an artistic taste and a skilled judgment, and are well developed and printed.

Record of Photographic Patents.

405,321. Coin Operated Stereoscope. Clara F. Patterson, New York, N. Y.

405,454. Roller-holder for Photographic Films. Louis H. Bannister, Assign. to the Eastman Dry Plate and Film Company, Rochester, N. Y.

405,463. Device for Setting or Cooling Photographic Emulsions. James W. T. Cadett, Ashstead, County of Surrey, Eng.

Queries and Answers.

129 R. S. G., Connecticut, asks: "How much meta bisulphite of potassium should be put with one ounce of pyrogallol?"

129 *Answer.*—One-quarter of an ounce.

130 W. N. says that several negatives intensified with iodide of mercury, Edwards' formula, have faded so much that no print can be made from them. "How can I restore the printing quality," he writes.

130 *Answer.*—Try a solution of Schlippe's salt, 5 : 100, and add a few drops of ammonia, which will turn the deposit to a rusty brown; or redevelop with ferrous oxalate, and a few drops of nitrate of silver solution, which will turn the yellow color to steel gray, and restore intensity.

131 PORTSMOUTH.—What is the cause of iridiscent borders appearing on negatives after development, and how can they be prevented?

131 *Answer.*—Forcing development by excess of alkali. The effect is more likely to occur with very old and highly sensitive plates. The deposit resembles much green fog; it can be wiped off with a dry linen rag.

132 MICHAEL F. L.—Can you recommend a really good lens for photo-mechanical work, which will make copies of the size of a newspaper page, rectilinear, and perfectly sharp?

132 *Answer.*—We do not know of a better lens for the purpose stated than the Steinheil Wide-angle Aplanat Series, No. VI. To cover the page of a newspaper, the picture should be not less than 17x15 inches. The No. 3 of that series will do that. Its focal length is 23⅝ inches, the diameter of the circle covered nearly 24 inches, within which a square of 17x17 will be perfectly sharp. To work with such a lens, a camera with long bellows is wanted. To copy an object in its natural size the distance between ground-glass and optical centre must be 49½ inches.

133 GREENOCK F.—How long should a bromide of silver gelatine emulsion (Eder's formula) be boiled before its highest sensitiveness is attained?

133 *Answer.*—A few drops of fresh emulsion spread upon a glass plate shows by transmitted light a distinct red color. According to Dr. Van Monkhoven, continuous heating transforms the ordinary bromide of silver to its most sensitive, the green modification. When the emulsion has become bluish-green looked at by transmitted light, boiling may be interrupted.

W. I. LINCOLN ADAMS, PHOTO.

PHOTO-GRAVURE CO. N.Y.

NEW JERSEY WOODLANDS.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, JU…

NEW JERSEY WOODS.

O… frontis… of this week is … of New Jersey woodlands. It … graded by Mr. W. E. Linco… from his home in Montclair. … of natural scenery about … the Orange Hills throughout … It … with Bronx River views and … Central Park. … delicacy of foliage or … the … play of … through the … and on the brush wood, reo… of the … of "Summer," by Willis G. Clar…

> "The … melted into thee,
> Fair Summer, and thy gentle reign is here;
> Thy … robes are on each leafy tree;
> … thy voice is rich and clear."

The photograph was made early in the pres… summer, … Morrison wide-angle lens … We think the appropriate green tint … Mr. … has selected for printing the … is worthy of attention.

THE FORTHCOMING CONVENTION OF THE P. A. OF A.

… the indications for … vention more positive or numerous … at present in regard to the forth… Convention of the P. A. of A. As … nearer at hand, the prospects grow … and the interest of photographers in … tion—which will this year be also a … celebration—… enthusiasm … representatives of the New England … assured that the East will attend … and one of our number who has recent… from a Western trip, declares that … west of the Mississippi even are taking an … interest in the convention this year. The … dealers are active in preparing to exhibit their … goods, and photographers throughout the country …

Photo-Gravure Co. N.Y.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, JULY 5, 1889. No. 407.

NEW JERSEY WOODLANDS.

OUR frontispiece this week is a characteristic bit of New Jersey woodlands. It was discovered and photographed by Mr. W. I. Lincoln Adams not far from his home in Montclair. Such charming bits of natural scenery abound on both slopes of the Orange Hills throughout their entire length. Hither the city amateur is invited when he is surfeited with Bronx River views and those in Central Park. The delicacy of foliage of "New Jersey Woodlands," and the gentle play of sunlight through the leaves and on the brush-wood, remind us of the lines on "Summer," by Willis G. Clark:

"The Spring's gay promise melted into thee,
Fair Summer! and thy gentle reign is here;
Thy emerald robes are on each leafy tree;
In the blue sky thy voice is rich and clear."

The photograph was made early in the present summer, a Morrison wide-angle lens being employed. We think the appropriate green tint which Mr. Edwards has selected for printing the photogravure is worthy of attention.

THE FORTHCOMING CONVENTION OF THE P. A. OF A.

NEVER were the indications for a successful convention more positive or numerous than they are at present in regard to the forthcoming Boston Convention of the P. A. of A. As the time draws nearer at hand, the prospects grow still brighter, and the interest of photographers in the convention—which will this year be also a semi-centennial celebration—amounts to enthusiasm. From our representatives in the New England States, we are assured that the East will attend almost to a man; and one of our number who has recently returned from a Western trip, declares that photographers west of the Mississippi even are taken an unusual interest in the convention this year. The Western dealers are active in preparing to exhibit their goods, and photographers throughout the country are putting their best foot forward to win honorable recognition in the competitive exhibitions.

We have already referred to the grand award, which will be not only intrinsically valuable, but, as an advertisement to the lucky winner, will be worth much more; and in this issue we show our readers an illustration of the magnificent prize.

As has already been explained, it is The Roman Wrestlers in bronze, which was originally exhibited in the Paris Salon with the highest honors.

Our other cuts show the medal designs, and the silver badge which every member will receive this year. The medals are made by the well-known firm of Tiffany & Company, of New York, and are of the finest gold. Their artistic design speaks for itself. The badges will be made in the shape of a

button, similar to the G. A. R. badge, of metallic silver, and as a semi-centennial souvenir, will be worthy of preservation.

In addition to the regular medals and awards by the Association, there are many other prizes offered for competition by manufacturing firms and dealers.

The papers and discussions promise to be very interesting and helpful, and we are sure that no one who attends the Convention of the P. A. of A. this year at Boston will regret the time or money thus spent.

EDITORIAL NOTES.

THE last word has by no means been said upon isochromatic, or orthochromatic, plates, for, quite recently, a paper by M. G. Lipman was read before the Paris Academy of Sciences explaining a novel mode of using this kind of plate so as to get true values.

After describing the results of exposing an ordinary plate to a colored image, how in the endeavor to obtain a true rendering of green, for example, blue is given about forty times too long a time, and so on, he points out that, although great attention has been given to the subject, and Vogel, Obernetter, Attout-Tailfer, and others, have given us isochromatic plates, we are far from being satisfied, although we obtain now far greater sensitiveness to red and yellow, and he then proceeds to describe his own method of obtaining just values with these plates: "I place before the objective," he says, "a blue glass, and expose for the slight time necessary for the blue rays to make their impression upon the plate. Then, without otherwise altering the apparatus, and taking care not to disturb it, I substitute for the blue a green glass, and I continue the exposure long enough for the green in its turn to impress the plate strongly. The green glass has been chosen with the greatest care, so as not to allow the slightest trace of blue to pass through. Under these conditions one can give to the green rays the necessary exposure, without having any fear of the blue, this time quite eliminated. Finally the green glass is displaced by a red one, also chosen with the utmost care, to prevent the least trace of either blue or green passing through. The final result of this triple exposure is to give clear photographs without spots, and in which green leaves, yellow or red drapery, etc, in lieu of giving "brown shades," are rendered with the correctness and delicacy of a good engraving."

M. LIPPMAN'S practice is no doubt very good, and capable of giving good hints as to working; but the *cœur leger* with which he speaks of green and red glasses that do not let pass a trace of blue will strike those who are familiar with the use of the spectroscope as indicating inexperience. A red glass that will allow neither blue nor green to pass through would be just what is wanted for dark-room work; but in effect is next to impossible to obtain. We have passed some hundreds of examples before our spectroscope; but have not found one in which the above rays were totally extinguished when a strong white light was placed behind. Speaking of spectroscopes, it is astonishing that they do not form a more common accompaniment of a photographic outfit than is at present the case. The price can scarcely be the cause, for ten to fifteen dollars ought to procure a reliable instrument, that can be carried in the vest pocket.

HERR ALFRED STEIGLITZ recently published a formula for toning aristo prints with platinum, which works very well and yields a number of different tones. The prints are more durable than

those toned with gold, as platinum is not effected by sulphuretted hydrogen or other gases. The formula is as foilows :

a.—Oxalate of potassium..... 8 ounces
Phosphate of potassium..... 1½ ounces
Water..... .....34 ounces

b.—Potassium, platino-chloride .....15 grains
Water .... 5 drams

The bath is formed by mixing six volumes of *a* with one volume of *b*. The prints must be washed before immersion in the toning bath, and in other particulars the toning is accomplished as usual with aristo prints.

Doctor F. Mallmann has succeeded in intensifying gelatine negatives with old hydrochinon developer instead of with ammonia or sodium sulphite, after being whitened with ammonia and chloride of mercury, and being thoroughly washed. The hydrochinon developer produces extreme intensity of a bluish-black color.

A PECULIAR PROPERTY OF CYANINE.

Cyanine has been largely employed for photographic purposes, and invariably as a sensitizer for red, as it has proved to be the best medium thus far discovered for these rays. It has become still more interesting since Burbank, in the *American Journal of Photography*, 1888, Vol. IX, page 304, explained a method to photograph with it the infra red rays of the spectrum.

Recently I resumed my work with cyanine emulsion plates, and have found cyanine to possess very peculiar properties, heretofore unknown. I undertook to photograph the sun-spectrum from Fraunhofer line A to P. The plates were of my own make, were dyed in the emulsion with cyanine and developed with pyro-soda. My dark room illumination is the same I have used now for several years. The globe of the lamp is covered with three thicknesses of brown tissue paper, and the light is that of a flame from a stearin candle, six of which go to make a pound.

My plates were feebly sensitised. Yellow and orange of my spectra appeared therefore last and long after blue had developed to its fullest intensity. By closely examining the plate still remaining in the developer, and in close proximity to the light source, I was not a little astonished to notice that the negative was changing gradually to a positive. The spectrum band became glassy and transparent, the non-lighted parts of the plate began to blacken, and the more distinctly marked Fraunhofer lines turned black and opaque.

This seemingly reverse action of light, I was first inclined to think was one of those occasionally occurring transformations of a negative into a positive, which even by the most scrupulous attention to the same conditions we have not been able to produce at will. A second plate, exposed to the sun-spectrum, immediately after the first had been developed, showed the same phenomena of reversed action; and continued experiments proved that all the plates coated at the same time with the same emulsion had a tendency toward the same end.

Later, I found other emulsion-dyed-cyanine plates to have the same property of reversing light action, and, understanding well, that we had more to consider than a mere exceptional occurrence, I experimented with much attention to learn how far cyanine is instrumental to produce these effects, or whether they can be ascribed to other causes.

A long series of observations, made during development of such plates, have led to the following conclusions: A bromide of silver gelatine emulsion plate dyed with cyanine, will always produce a negative by development, provided it is sufficiently protected from the action of light rays emanating from the light source which illuminates a dark room. A ruby-glazed lantern does not afford sufficient light protection. Cyanine plates are most sensitive to the ruby rays, and, in fact, more so than to the blue rays from the same source —lamp or candle light. With a careful light filtration these rays will at a distance of one-third of a metre (13 to 14 inches) cease to act. No better light has been found in my experience than that made by covering the lamp shades with three thicknesses of brown tissue paper.

A thoroughly developed negative, while still resting in the developer, and when brought nearer to the filtered rays of the light source heretofore described, or when exposed to it for several minutes and in close proximity, will produce a fading of the most developed parts and a slight fogging plate of the whole. The contrasts of brightness will vanish more and more, the plate assumes a feeble character, and as long as the plate is viewed by reflected light, one is inclined to believe the negative is utterly ruined. By inspecting the plate, however, by transmitted light, it will be seen at once how the original negativity of the plate has entirely changed, and that it has become a positive. By continued developing the positive character will gain in strength and intensity with-without a re-occurrence of the reversing.

The slowly proceeding reversing may be carefully

watched, the more so, as after light action has been completed the plate can be brought closely to the lamp without any injury. The uniformity of the process enables the development of plates without being specially prepared, or to finish those that are partly positives, while other portions have already assumed a positive character.

During the reversal of the negative, a very remarkably large amount of silver is taken from the plate by the developer, and is deposited on the bottom of the tray as a fine powder of metallic lustre. To remove this deposit speedily and carefully from the tray is highly important. When allowed to float in the developing solution it is very apt to settle firmly upon the gelatine film, from which it can be removed only by vigorous and long-continued rubbing with the finger. When deposited upon the film these fine particles of metallic silver assumed the shape and form of marbly veins (Schlieren) giving the plate a most unfavorable appearance. Perfect cleaning of the tray after every operation prevents these formations.

Emulsion dyed cyanine plates have no tendency to fog; still glass-clear shadows are quite difficult to obtain when subjected to the reverse action of light. The positive attained will frequently be slightly hazy. I have, however, made a perfectly clear positive of the sun-spectrum, with well-defined and distinct black and opaque Fraunhofer lines.

The emulsion used for these experiments had been dyed with cyanine, not after washing, as is usually done, but previous to it. After mixing the bromine gelatine with ammonio-oxide of silver (Eder's method) I added to each 1000 c.c.m. (3½ ounces) of emulsion, 50 minims of an alcoholic solution of cyanine (1:500) and mixed well by repeated shaking. Remarkable to say, the cyanine does not seem to suffer by washing, the color of the emulsion, a pale rose, remaining unaltered. When adding cyanine to the ammonio-oxide of silver, the results are the same. In spectrum light this emulsion gives about the same general effect, although a slight variation in color sensitiveness from that dyed after mixing, may possibly be obserbed. *Victor Schumann.*

THE BRUCE PHOTOGRAPHIC TELESCOPE.

THE Astronomical Observatory of Harvard College has received from Miss C. W. Bruce, of New York, a gift of fifty thousand dollars ($50,000), to be applied "to the construction of a photographic telescope having an objective of about twenty-four inches aperture with a focal length of about eleven feet, and of the character described by the director of the observatory in his circular of November last; also to secure its use under favorable climatic conditions in such a way as in his judgment will best advance astronomical science."

This instrument will differ from other large telescopes in the construction of its object-glass, which will be a compound lens of the form used by photographers and known as the portrait lens. The focal length of such a lens is very small compared with its diameter, and much fainter stars can be photographed in consequence. The advantage is even greater in photographing nebulæ or other faint surfaces. Moreover, this form of lens will enable each photographic plate to cover an area several times as great as that which is covered by an instrument of the usual form. The time required to photograph the entire sky is reduced in the same proportion. A telescope of the proposed form, having an aperture of eight inches, has been in constant use in Cambridge for the last four years, and is now in Peru photographing the southern stars. It has proved useful for a great variety of researches. Stars have been photographed with it too faint to be visible in the fifteen-inch refractor of the observatory. Its short focal length enables it to photograph as faint stars as any which can be taken with an excellent photographic telescope having an aperture of thirteen inches. The eight-inch telescope will photograph stars about two magnitudes fainter than can be taken with a similar instrument having an aperture of four inches. A corresponding advantage is anticipated from the increase of the aperture to twenty-four inches. Each photograph will be thirteen inches on a side, and will cover a portion of the sky five degrees square, on a scale of one minute to a millimetre. The dimensions will be the same as those of the standard charts of Chacornac and Peters. The entire sky would be depicted upon about two thousand such charts.

It is very important that the best possible location should be found for such an instrument. In Europe and in the eastern portion of the United States, where nine-tenths of the principal observatories of the world are situated, it is cloudy for a large portion of the year. Great advantages are expected from a location where clouds and haze are seldom seen.

This generous gift offers an opportunity for useful work such as seldom occurs. It is expected that the Bruce Photographic Telescope will exert an important influence upon astronomical science by the large amount of material that it will furnish.

Edward C. Pickering.

SOME THOUGHTS ON SUMMER LANDSCAPE WORK.

MANY an eager photographer in this vacation season is looking over his apparatus, and filling his plateholders with plates or films, in anticipation of his summer's outing. More plates will probably be exposed during the next three months than at any other season of the year. The tripod will plant its spiked feet on turf and moss and sand; mountain and lake, river and forest, will be confronted by the lens, and record made of many a pleasant hour. But there will be, it is to be feared, the usual number of plates made which, when the pictorial harvest is winnowed over in the fall, will not seem quite satisfactory to their author. "It was a pretty place, but somehow this isn't a very successful picture of it," will be the verdict of cooler thought; or, even worse, "What did I take that for?" Association often makes a certain scene interesting, but it cannot make it picturesque. But even when the subject possesses the latter quality, the photograph may fall disappointingly short of memory—taken too hastily, perhaps, or without sufficient search for e ry best point of view, and care as to composition.

Landscape is from one standpoint the particularly strong point of photography, and yet from another its weakest. Considered as a recording agency, the camera will far surpass the utmost effort of even an English water-colorist in its delicate detail. It almost begins where the artist must leave off. Yet again the work of the lens on a landscape may be completely inartistic. It will give far too much—everything is smothered by obtrusive detail, there is nowhere to look, there are a dozen pictures instead of one. On the good side, I have seen a bit of landscape whose interest lay in the charming contrasts of varied leafage, the rushes along the edge of a brook, the grass and weeds of the field around it, and the silvery streamers of a few old willows on the bank. It could not possibly have been rendered by a painter, this charm of infinitely fine detail; but the photograph was delightful in its delicate harmonies. But perhaps the interest of the landscape lies in the arrangement of its masses of greens and browns, the broad stretch of its fields, the bulk of its hills; yet small stop and sharp lighting bring out overpowering detail in the foreground, the distance diminishes fatally and it is all "leaves, nothing but leaves." If its charm is in color, the camera may be powerless. This is more especially to be remembered in the spring and fall, when if the ordinary, non-color-sensitive plate is used, the beautiful pale yellow-greens of the early leaves come out as dark as the tree trunks, or absolute silhouettes against the sky; while, of course, the reds and yellows of autumn equally refuse to come in their true value on the plate. But even in full midsummer foliage, more may depend on different values of green than is apparent. Grasses and weeds, charming in nature, reduced to the dark uniformity of the photograph may give quite another impression. Every art has its weaker side, and photography, that can go so far beyond the others in many respects, has its corresponding limitations. The photographer cannot strive too earnestly to cultivate the faculty of picture-seeing, of visualizing them before his mind's eye as they will be when finished photographs; and must remember that what he will eventually see on silver paper will be a very different thing from what he now sees on the ground-glass.

A rough classification of the landscape photograph, with especial regard to those which deal with trees and herbage, might, I think, be made, under two heads—those whose interest is entirely in mass, and those in which it is in detail as well. The first are more comparable to painting; the latter are peculiarly photography's, only made possible by it, and never attempted in painting—save by the pre-Raphaelites, who succeeded in producing work that was neither one thing nor the other. I would call attention to the latter class, for I do not think either artists or laymen recognize enough the peculiar charm of the beautiful detail photography gives. When it is properly treated, in its place, it is quite an unique kind of art. Examples will explain more effectively what is meant than many words; as such may be cited Mr. Montgomery's "Still Waters," in the issue of the TIMES of April 5th; and as a counter-example of skillful massing and suppression of detail, the platinotype in the issue of February 22d, by Willis & Clement.

The broad, simple, painting-like effect is nevertheless quite within the reach of photography. By skillful choice of lighting, sometimes even by breaking one of the most authoritative precepts of the young photographer, and photographing nearly against the sun, mass may be secured, or he may arise like Corot in the morning while it is yet night, and try some effects in the mists of early morning. Without resorting to these extremes, simplicity may still be secured if only the photographer will make sure of a central point of sufficient interest to hold its own, and endeavor to keep the components of his picture in good, large, primary divisions; in these, definite detail will do no harm if it is only in its place, properly subordinate. If it

takes the form of millions of sharply-cut leaves, or of weeds and rocks conspicuously and confusingly diversifying the foreground, it cannot but hurt the general effect of the picture.

But the delicate rather than the broad photograph is the characteristic product of the camera. Of these it may be proud, for they are all its own; it surpasses all other processes of art in this line. In pictures of this class the camera renders, as nothing else can, the delightful delicacies of leaf, and blade, and twig, the textures of tree-trunk and rock, the lines of bough and stem. These are the pictures that show rich masses of summer leafage, or the subtle and inimitable lines and curves of bare or ice-crusted twigs and limbs in winter; the northern cedar turned with creepers, or the southern live-oak, with its festoons and pennants of moss.

The distinction should be realized. If the portion of the scene that strikes is found on analysis to be the detail of things near by, let that be boldly taken and made the most of, and let the picture depend upon it. But if the interest be on things farther off, the foreground naturally must not interfere with them, but should be simple and unobtrusive. A great many crimes are committed in the name of the foreground, which would be praiseworthy work had too much not been attempted. Some of the most dainty and artistic work I have ever seen was some studies of English hedgerows by Mr. George Smith, of London. Only weeds, grasses and flowers, faithfully transcribed by the lens; but every spot carefully selected, and with exquisite result. They were extreme cases, for the field covered by the lens was hardly as large as a table top, but that is why they were good. The actually interesting and pictorially valuable had been recognized; only just that taken; and no attempt made to include all the surrounding fields, hills and woods.

Fred. Hart Wilson.

A NEW METHOD OF STRIPPING AMERICAN FILMS.

INSTEAD of stripping from glass plates, take celluloid, such as are used with the Carbutt flexible films, and without any previous preparation squeegee the negative upon them and dry. Strip the paper in the usual manner, and without the application of a gelatine skin dry.

The negative will be recovered on the celluloid support, but on account of its thinness and transparency it may be printed with the celluloid side next to the sensitive paper.

The credit for this innovation is due to a friend of mine, who requests me to have it published in your valuable journal.

I have read with much interest the article by Mr. W. J. Stillman and Andrew Pringle, and others, on the Art Side of Photography, and am anxious to know in what art consists, whether in the conception and arrangement of the subject, or in the proper use of pencil and brush.

Philip F. Fulmer, Jr.

AMERICA THROUGH AN AMERICAN LENS.

III.

BRIGHT SHADOWS ON LONG ISLAND.

"SO THE Tiny Woman closed the shutters of the cottage window and fastened the door, and trembling from head to foot for fear that any one should suspect her, opened a very secret place and showed the Princess a shadow. It was bright to look at, and she was proud of it, with all her heart, as a great, great treasure. She said that nobody missed it, that nobody was the worse for it, and that it was kept back and stolen from no one. * * * *

"At last, one day the Princess was informed that the Tiny Woman was dead, so she went in at once to search for the treasured shadow. But there was no sign of it to be found anywhere—it had sunk quietly into the Tiny Woman's grave—and she and it were at rest forever."

This old fairy story ends rather badly for anyone who hates the idea of leaving a shadow undeveloped. Suppose the Princess, who had everything she wanted and more besides, had bought an eight-ounce bottle of hydrochinon for thirty cents, and had said to the Tiny Woman—"Come let us see if we can't get a good picture of this plate," would not that have been more satisfactory to readers of the PHOTOGRAPHIC TIMES?

Last summer, on Long Island, we met two enthusiastic amateurs whom we called The Princess and the Tiny Woman, not only because one was tall and queenly and the other wondrously small, but because both spent their time catching the shadows of those of us who passed by, and both watched over these same shadows as if they thought them great, great treasures. Surely, we were none the worse because they had them, unless, after development, they exhibited them on blue paper, as remembrances of ourselves!

These amateurs were fortunate in finding an annex to their hotel bedroom, in the shape of a cottage with four windowless rooms under its eaves. Here were their secret hiding places for our stolen shadows, here they brought up brightness out of

darkness. The rooms were finished with mahogany paneled doors taken years before from the state-rooms of the wrecked "Franklin" and were thoroughly light-tight. They used one for developing one for plate storing and holder filling, another for bromiding and the fourth for a dressing room. Their arrangements were primitive but satisfactory. A table was made by placing a board across two high boxes, and running water obtained by running themselves a quarter of a mile to a spring carrying a bucket between them, *à la Jacques et Gille*. They set out pans and measures, bottles and filters, borrowed a broken nosed teapot from a neighbor and went to work as proud as the rich New Yorker across the salt creek whose dark room is lined with black Lyons velvet. At first they used a paper lantern advertised as the smallest, cheapest, lightest, neatest, cleanest, safest light in the market, but after this Paragon burnt up and the amateurs escaped with their lives but minus a half developed plate, they sent to Boston, for a "Ruby Oil Non-Actmic" which "smelt to heaven" till a tallow dip was substituted for the offending kerosene. As every one knows exactly how far a little candle throws its beams in this naughty world, it was not long before another plan was tried. An eight by ten panel was removed from the mahogany door, the space covered with yellow post-office paper, and a lamp on a shelf put outside. This was abandoned because neither enthusiast wished to remain outside to fire up, so a starch box with a pane of ruby glass let in and a lamp inside was considered the final illuminator.

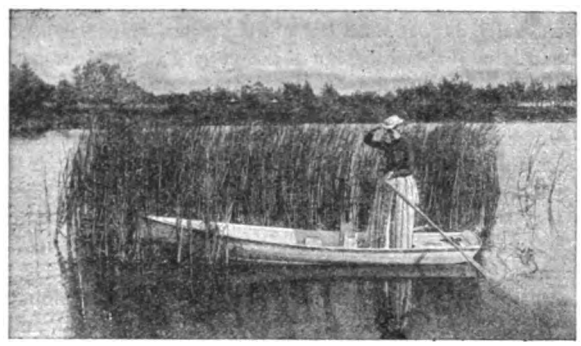
The Princess and the Tiny Woman were stopping at one of those popular south-side places on the Great South Bay where the poets' wish:

"Oh that life were endless sailing,
Sailing on a summer sea,"

is realized to the letter, since here everyone crosses to the beach in the morning, goes to see a yacht race after dinner, and takes a moonlight sail before going to bed. Our amateurs followed the fashion, always carrying the easily detected "detectives," and although they sometimes wished to avoid the public stare and constant cry—"Take me." they braved it out, having no curtained post-chaise such as hid the famous Turner, nor portable fence such as protects the easel of the French student at Etertât. It seemed to our amateurs that no shutter or plate was swift enough to take the sun-lit beach at noon, but by dint of much stopping down a few white-crested waves were caught at that critical moment of breaking into feathery foam. They decided that a sailboat must be viewed from the shady side, with the sun shining through the canvas, and moreover, that one must know something of nautical life, before he can make a characteristic picture of a vessel. The best bits in the way of marine sketches were those facing inland, of people strolling on the sand-dune bluffs, of children playing in a beached dory, and of a couple reclining under a white umbrella, reading a book upside down. They were oftener successful late in the afternoon, when the sun was low, and the latitude allowed for errors in exposure wider, and this was particularly the case when time-pictures were attempted.

Several technically good negatives were artistic failures, because the light was not centralized on the main figures, while other views intended for transparencies missed their aim, because they did not "carry well." One needs to look back into a picture if it is to be looked through; thus a church aisle or woodland road gives better results than portraiture or groups. Again, in making transferotypes by single transfer, left-hand becomes right in a way most confusing to any one familiar with the locality. The Princess showed us a print of Evangeline looking for Gabriel, and then in a transfer—the same girl turned the other way, having apparently given up the sad search for her lover.

The Tiny Woman's prize picture, which is given below, is a chance shadow, taken from a girl



THE TINY WOMAN'S PRIZE PICTURE.

paddling among some rushes, seeking vainly for that "swan's nest among the reeds."

"Pushing through the elm tree copse,
Winding up the stream, light hearted,
Where the osier pathway leads,
Past the boughs she stoops—and stops."

This closes the series, and soon after the secret cupboard in the cottage was deserted; but we, who peeped in to search for the treasures, found no sign of anything but broken glass and pyro stains.

Adelaide Skeel.

GRANDMOTHER'S ALBUM.

Well dear, you've seen all my treasures,
The flowers I wore at the ball,
The grand old family heir-looms,
The jewels, the laces—and all.

And now I'll show you my album,
[Although it is faded and old]
For memories still cling around it
Which make it more precious than gold.

See! this is my mother's portrait,
And here is my lover so brave,
And these are the friends of my girlhood
Who now lie in the silent grave.

This stern-faced man is my father—
He was always tender to me—
And these are my two bonny boys
Who were drowned in the cruel sea.

On every page of this Album
Smiles the face of a dear dead friend,
And when I am weary or lonely
Sad pleasures these pictures doth lend.

So, though it is yellow'd with age,
Its covers old-fashioned and torn,
Yet 'far above jewels I prize it,
And over each picture I mourn.

K. E. B.

Notes and News.

Breeze Lawn, at Hunter, N. Y., in the Catskill Mountains, Proprietor, S. H. Scripture, advertises a well-constructed dark-room, with running water, which has been constructed especially for the free use of amateur and professional photographers who happen to be guests at the house.

Other hotels similarly furnished, will be announced in these columns, on acquainting the editor with the facts.

David Tucker has decided to retire from the firm of Tucker & Butts, in which he has so many years been prominently identified, and with such marked success. Here is a rare chance for some one with money to engage in a profitable business, long-established, and with the best of reputations. Mr. Tucker's address is No. 37 Court Street, Buffalo, N. Y.

The Mystic Camera Club, of Medford, Mass., was organized June 4th, 1889. Meetings will be held on the first Tuesday in each month; the annual meeting will be on the first Tuesday in January. The officers for the ensuing year are as follows: George L. Stone, President; George E. Davenport, Vice-President: J. F. Johnson, Secretary and Treasurer.

Duluth Actinics.—About twenty photographers met at the office of the Van Dusen-Eliot Company, to take final steps toward the formation of an amateur club. A Committee on Constitution and By-Laws reported rules similar to those of many old Eastern organizations, which were adopted. A name, "Duluth Actinics," was chosen, that being thought broad enough to cover all branches of the art. Officers were elected as follows: Major Joseph B. Quinn, President; S. L. Frazer, Vice-President; F. S. Daggett, Secretary, and C. M. Gray, Treasurer. The regular nights of meetings were fixed for the first and third Tuesdays of each month, the first a business session, the second a meeting devoted to conversation, the exhibition of local and foreign plates, views, etc. The association starts with thirty members, all of them enthusiastic and cultivated amateurs. They expect to increase the membership to fifty in the near future. Among the objects of the Actinics is to advance photography by an interchange of ideas, to assist the various members, and, by no means least, to exchange lantern pictures of scenery at and near Duluth, with other societies throughout the country. The club will secure rooms, put in lanterns, a dark room, and experiment in many ways, and cannot fail to be a benefit to its members and the city.

A Unique Photographic Result.—The Bryant Literary Union of this city has recently issued an interesting photographic work. Under the direction of Mr. Wallace Bruce, every rod of both shores of the Hudson River, from New York to Albany, was photographed from mid-stream. From these 800 negatives photo-engravings were made, and these were skillfully joined together in a continuous panorama some eighty feet long. Both shores are shown together, the river itself occupying the centre of the pages of the book into which the engravings have been bound. It is a singularly complete and realistic pictorial guide-book of this great river, and will be appreciated, both by those who are familiar with the scenes portrayed, and by those to whom the land of Hendrick Hudson and Rip Van Winkle is yet an undiscovered country.

Photographing Patterns.—Sterling Elliot sends to the *American Machinist* the following plan for keeping track of patterns:

"Spread a white paper on the floor, lay patterns on it in proper order, place on each pattern a small square of white paper on which is painted a black plain figure, beginning with one, two, three, etc.; these may be cut from an old calendar, or painted purposely. Directly over the patterns suspend by any suitable means a photographic camera, and you have it. From the negative thus obtained, make two blue prints; send one to the foundry, and the old problem of marking patterns is not only solved, but lost patterns are much more easily found; for a pattern, unlike an actress, resembles its photograph every time."

Sending a Map or Picture by Telegraph.—The *facsimile* telegraph, by which manuscript, maps, or pictures may be transmitted, is a species of the automatic method already described, in which the receiver is actuated synchronously with its transmitter. By Lenoir's method a picture or map is outlined with insulating ink upon the cylindrical surface of a rotating drum, which revolves under a point having a slow movement along the axis of the cylinder, and thus the conducting point goes over the cylindrical surface of a spiral path. The etectrical circuit will be broken by every ink-mark on the cylinder which is in its path, and thereby corresponding marks are made in a spiral line by an ink-marker upon a drum at the receiving

end. To produce these outlines it is only necessary that the two drums is rotated in unison. This system is of little utility, there being no apparent demand for fac-simile transmission, particularly at so great an expense of speed, for it will be seen that instead of making a character of the alphabet by a very few seperate pulses, as is done by Morse, the number must be greatly increased. Many dots become necessary to show the outlines of the more complex characters.

The pantelegraph is an interesting type of the fac-simile method. In this form the movements of a pen in the writer's hand produce corresponding movements of a pen at the distant station, and thereby a fac-simile record. —From "The Telegraph of To-day," by Charles L. Buckingham, fn July *Scribner.*

A PHOTOGRAPHIC TRUST.—For some weeks a breeze seems to have been bearing, throughout the length and breadth of the land, whisperings of the formation or proposed formation of something in the nature of a "trust," that is expected to have some wonderful influence for good on the position and prospects of the photographic fraternity. But the title is in bad odor with all but the few whose pockets the organizations it represents are intended to fill, and so the irrepressible A. Bogardus, who confesses himself to be its president, and is supposed to have been its originator, buckles on his armor in its defense, without, in our opinion, in any degree mending the matter.

Ignoring the malodorous "trust," he says—and emphasizes the statement by a pretty free use of italics—that, after great deliberation, the prime movers in the matter have combined and formed a "Photographers' and Artists' Mutual Benefit Association," the avowed object being a determination to stop, if possible, "rate-cutting and its attendant evils." There may be something more and behind this, as the writer rather mysteriously says he only gives the facts *so far as they are made public.* There may, we say, be something behind this that will really be a benefit to the photographic fraternity. The P. and A. M. B. A. may so win the confidence of the great body of the people as to enable it to establish an examining board—mainly of the second class of members, the artists, of course, whose diploma shall be a guarantee of the ability both technically and artistically, but especially artistically, of the holders. Or it may establish a school, or many schools, where, under competent teachers, such technical and art knowledge may be obtained. Or the association, recognizing the scientific basis of the art, may equip suitable laboratories, and subsidize sufficiently able experimenters to look into, and, if possible, resolve the various difficulties that still cast a shadow over photography; to, for example, explain the nature of the latent image: explode, or make practicable the photography in color craze: discover a unit of light by which the true relative sensitiveness of plates may be ascertained; or otherwise settle the hundred and one other questions, one or other of which daily crop up to bother the photographer, whether he calls himself amateur or professional.

If, however, the association aims at none of these things, but means to confine itself and its operations to the object indicated by its president, that is, to stop *rate cutting*, then we have no hesitation in saying that it will spend its money in vain and its strength for naught. Is there, or can there be a "rate" in the prices charged for photographs? The answer will depend on the view that is taken of photography. If by a photograph we understand merely a representation of what may be placed before the lens, as in the case of the ballet girl on tip-toe with skirts lifted to a level with her head, noticed on another page; then its value may be fixed at a cent for so many square inches. When, however, it takes the form of the "fisher-girl," noticed on the same page, the *rate* idea is altogether out of the question, as the value is dependent upon the status, ability, and popularity of the author. Even A. Bogardus and the members of the P. and A. M. B. A. must have heard of Sir Frederick Leighton and Millais, each of whom get dollars by the thousand for a portrait; and although they may not have heard, they know of the existence of Tom Brush and Ben Palette, who are always willing to paint the landlord and his wife for a week's board, and to add the daughter for an unlimited supply of beer. The absurdity of those four *artists* entering into a league to establish a "rate" of prices for their work will be evident to the most obtuse reader, and a little consideration will show the equal absurdity, although in a less degree, of the attempt to fix a rate among photographers and photographic artists.

If, therefore, there is no "rate," there can be no cutting, and as the prevention of "rate cutting" is the sole avowed purpose of the P. and A. M. B. A., it is left without a leg to stand upon.

It may be, however, that A. Bogardus and his satellites, in speaking of "rate cutting" mean merely reduction in prices, and that the efforts of the organization are to be directed against that. If so, then we have no hesitation in predicting for the association a most signal failure. Trusts or combinations, or by whatever other name they may be known, having for their object the artificial increase in the price of anything, are only possible so long as the thing sought to be influenced is kept out of the open market by protection. The most rabid protectionist can hardly hope to see photography protected, as that could only be done by something like a return to the ancient system of monopolies, and we doubt whether there be a single member of the combination bold enough to advocate that.

With photography free to all, with workable outfits at such prices as they may now be bought for, and with which any one of average ability may, after a few lessons and a little practice, make pictures that will, as yet, unfortunately, please a large proportion of the people, it would be as easy to sweep back the advancing tide as to reverse the laws of political economy, which are as unchangeable as the everlasting hills, and which declare that photographic prices, like the values of all other things, are and ever shall be dependent on the relation to each other of the "supply and demand."

Do we, then, undervalue the possibilities of the proposed combination, and counsel our readers to sit quietly down and content themselves with the present average scale of prices obtainable for their work? By no means. If the P. and A. M. B. A., with its alleged large funds at its back, will establish in various centres throughout the country, institutions where photographers may acquire sound art training and receive certificates of qualification after proper examination, and from which influence would emanate that would teach the people generally how to appreciate the higher-class work, prices would adjust themselves without abnormal effort of any kind.

It is true that there will always be a residuum of the people who will be pleased with inferior work, and always a few of the untrained artisans who will supply it at prices only a little in advance of the cost of material; but the great body of good men, then, will, as do the small body of high-class workers now, be able to command prices according to the nature and value of their work.

Art is different from manufacture inasmuch as for it there can be no exact standard or value computation, the individuality of the artist entering into and influencing the work, and the individuality of the buyer or employer being an important factor in his decision as to the style that he most highly appreciates.

When our ideal of photography, as thus indicated, is reached—and the P. and A. M. B. A. may do much to bring it about—it will be with it as it is with painting, although, of course, in a much less degree. A man's work will be recognized by its style or individuality, and there will be as many styles as there are artists, while an educated and appreciative public will no longer go to the gallery that turns out the greatest number of square inches of picture to the dollar, but to the artist whose style and class of work pleases them best.—*The Beacon.*

Photographic Societies.

NEW ORLEANS CAMERA CBUB.

THE regular monthly meeting of this club was. held Wednesday evening, June 19, at the office of the genial Treasurer, P. E. Carriere; President Hicks in the chair, and sixteen members present.

The financial reports of Messrs. Geo. Bullock and F. C. Beach, managers of the American Lantern Slide Interchange, were received, also valuable suggestions regarding work to be contributed next year, when no doubt all the work submitted by the various photographic societies of the United States will far excell in artistic merit, interesting features and technical qualities those of last year.

The committee appointed to look for suituable club-rooms reported through their chairman, Mr. T. W. Castleman, and asked for further t me, which was granted.

The committee on outing to Bilozi over the line of the Louisville and Nashville Railroad, after mature deliberation, recommended a postponement until later in the fall, and it was so decided.

The resignation of Mr. J. B. Labouisse was accepted with regrets. Mr. Labouisse leaves shortly for Boston to complete a course of study in practical electricity.

The applications for membership of Messrs. L. A. Jung, W. M. Rhodus and Louis E. Cormier were received, and they were duly elected.

The report of Treasurer P. E. Carriere was read and showed a handsome balance in the treasury.

The report of Secretary Charles H. Fenner was received, and showed sixty-four active, four corresponding and nine honorary members.

The regular weekly meetings have been dispensed with until permanent quarters are secured.

In the fall the club proposes to give a grand lantern-slide exhibition for its own benefit, the proceeds of the benefit to be used in furnishing and fitting up the new quarters, which by that time it hopes to possess. It goes without saying that a club having as many staunch friends and admirers as the N. O. C. C has, will realize a handsome sum.

PROVIDENCE CAMERA CLUB.

AT the regular meeting, June 18th, "The Blackstone Valley" was selected as the subject for the next lantern lecture by the club. It is intended to work up this field during the summer and fall, and in the coming winter give a public exhibition ofter the plan of the Narragansett Bay yxhibition given last winter. At this meeting rules were adoptad, to govern the New England Lantern-slide Exchange, and will be forwarded upon application to societies interested.

J. E. Davison,
Secretary.

P. C. A. P. A.

THE regular monthly meeting of the P. C. A. P. A. was held June 6th, with Prest. Runyon in the chair and Mr. Knight White as secretary.

A resolution was passed admitting ten members at fifty dollars each to life membership, the proceeds to be used as a room fund.

Mr. Eckert, of the Mechanics' Institute, appeared before the Association, to see if the members would not be willing to give a slide entertainment during the Mechanics' Fair. While the members showed a lively disposition to do as requested so far as they could, the proposition was left to the Executive Committee, with power to act

In response to the prize competition for studies suggested by Longfellow's 'Building of the Ship," only two pictures were received. It is to be regretted that they were withdrawn on account of non-competition, for they were both excellent. Had there been lively competitien, it had been the intention of the Association to publish the study considered by the judges as the best, and to furnish each member with a copy made by reproduction. The original was to be framed and hung upon the walls of the rooms of the Association.

This suggests that did each association in this country give a subject for competition among its own members, publish the photograph of the successful competitor, and exchange with the different societies, artistic effort would be stimulated, each member would try to rival his fellow, and each society would endeavor to reproduce that picture which should be finally decided to be the most successful of all presented.

A committtee was appointed to revise the constitution and by-laws of the Association. This important work is necessary because of the rapidly increasing membership. At present none but amateurs can become amateurs, and there are certain restrictions against any member selling his work. In the revision it will probably be decided whether it is advisable to admit professional photographers, and also whether there is a sufficient number of lady amateurs in San Francisco to warrant the society in making special provisions and arrangements for their membership.

A. J. Treat,
Corresponding Secretary.

CINCINNATI CAMERA CLUB.

THE club took their annual "Outing," May 30th, and nothwithstanding a heavy rain, about 30 attended. It was a poor photographic day, but those who went were amply repaid by the social enjoyment of the occasion.

Our first meeting in June was well attended. Mr. Bullock occupied the chair. It was suggested that the club take a number of outings during the summer months, to be conducted by volunteer members. This met with great favor, and immediately the excursions were provided for. Mr. Johnson showed a circular level which was of great interest, and was pronounced of advantage to the worker, both for its accuracy and convenience.

Mr. Barton read a paper on composition, with charcoal illustrations. On June 17th the second meeting was called to order with Vice-President Fisher in the chair. A question of having one meeting instead of two, for the months of July and August was brought up and decided that as the times for meetings were fixed by a constitutional provision, no action should be taken. Prints from negatives made at the outing were shown, and it is remarkable that bad as the day was, many choice pictures were made, notably those of Messrs. Johnson, Collier, Gilbert, Bartlett, and others. Mr. Howard Kingsbury, of the Philadelphia Society, entertained the club with a paper on Luray Cave, and the theory of its formation, with lantern illustrations. Mr. Kingsbury showed himself to be thoroughly competent to handle the subject, both descriptively and illustratively. All the pictures were made by the use of the electric light, some requiring twelve hours exposure, giving some idea of the time and patience exercised to secure them. A vote of thanks was tendered by the club, coupled with an invitation to meet with us again. The club adjourned early, and spent a social hour before separating.

H. C. Fithian,
Corresponding Secretary.

The Editorial Table.

JOHNSTOWN PICTURES, BY LANGILL & DARLING.—Messrs. Langill & Darling, photographers, 10 East Fourteenth Street, New York, are certainly nothing if not enterprising. Their pictures of the famous blizzard are well-known to all, and are still enjoying a lively sale. Not inferior to these pictures, in technical excellence and historic interest, are those which they made of the late Washington Centennial in this city. Their greatest success, however, is to be found in their Johnstown pictures.

Mr. Langill started at once, on receipt of the first news of the disaster, and was the first photographer at the scene of the terrible flood. It required indomitable will and great physical endurance to reach the devastated valley so soon after the terrible disaster, but Mr. Langill overcame all difficulties, traversing part of the distance with horse, and even on foot, fording the swollen streams, often at the risk of his life, to obtain this historical set of Johnstown views. They are 8x10 inches in size, and about thirty in number. They show general views of the debris, the principal streets, as they appear immediately after the flood; groups of the stricken inhabitants receiving their rations; dynamite explosions in the debris—in fact, every view of interest in the ruined city.

The entire set is sold for $15, the single copies being priced at 75 cents.

In an early issue of THE PHOTOGRAPHIC TIMES, we shall have a photo-gravure roproduction of one of these interesting historical pictures.

MANUEL PRATIQUE DE PHOTOGRAPHIE. Par A. Rossignol. 2 vols., sm. 8vo, pp. ii., 254 and 251. 8 plates, and cuts in text. 1889. Paris, Octave Doin; New York, F. W. Christern. $2.40.

These form Vols. 1 and 2 of the Bibliothèque de L'Amateur Photographie.

TRAITÉ PRATIQUE DE PHOTOGRAPHIE SUR ÉMAIL, SUR PORCELAIN, ET SUR VERRE. Par Geymet. Paris, 1889, Gauthier Villars. 8vo, paper, pp. 108. New York, F. W. Christern, 67c.

HELIOGRAPHIE VITRIFIABLE; TEMPERATURES, SUPPORTS PERFECTIONNÉS, FEUX DE COLORIS. Par Geymet. Paris, 1889, Gauthier Villars. 8vo, paper, pp. 118. New York, Christern, 75c.

TRAITÉ DE GALVANOPLASTIE ET D'ÉLECTROLYSE. Par Geymet. Paris, 1889, Gauthier Fils. 8vo, pp. 279. New York, Christern, $1.35.

NOUVEAU GUIDE PRATIQUE DU PHOTOGRAPHE AMATEUR. Par G. Vieulle. 2d edition. Entirely re-written. Paris, 1889, Gauthier Villars. 8vo, pp. ix., and 138. New York, Christern, 82c.

DER LICHT-DRUCK UND DIE PHOTOLITHOGRAPHIE. Von Dr. Jul. Schnauss. 4th edition, enlarged, with 28 cuts and 4 plates. 8vo, paper, pp. 170. Düsseldorf, 1889, Ed. Liesegang. New York, Stechert, $1.50.

DER KOHLE-DRUCK UND DESSEN ANWENDUNG BEIM VERGROESSERUNGS VERFAHREN. Von Dr. Paul E. Liesegang. Ninth edition. Düsseldorf, Ed. Liesegang., 8vo, paper, pp. 144. 1889. New York, Stechert, 95c.

DIE PROJECTIONS-KUNST 9th edition. 119 cuts. Düsseldorf, 1889, Ed. Liesegang. Paper, 8vo, pp. 288. New York, Stechert, $1.85.

DAS ARBEITER MIT GELATINE EMULSION PLATTEN. J. F. Schmid, Vienna, 1889. Pp. 111, paper, 8vo. New York, Stechert, $1.10.

DIE AMATEUR PHOTOGRAPHIE ein lehr und handbuch für kunstler, Gelehrte, militärpersonen, architekten, ingenieure, etc. Zur schnellen und sicheren erkernung der Photographie von Robert Talbot. Berlin, 1889. Romain Talbot. 1 mark. New York, Stechert, 40c. pp. 61, paper.

THE first number, Volume I. of *The Optical Magic Lantern Journal and Photographic Enlarger* has come to hand. It is published by Taylor Brothers, Salisbury Square, Fleet Street, London, E. C., and edited, we understand, by Mr. J. Hay Taylor, son of J. Traill Taylor, editor of the *British Journal of Photography*. The contents of the first number are interesting and instructive; and though laboring under rather a cumbersome title, we think the little journal will be a success.

NUMBER X of *Sun and Shade* (the June number) has made its appearance, and contains eight photo-gravure plates that are highly interesting.

"Skirmishers," from a painting by P. Grolleron, leads the number, after which follows a portrait of Carl Schurz, from a negative from life. "Sunday Morning," from a negative by E. P. Griswold. "Cupid's Kiss," from a painting by W. J. Martino. "The Old Mill," from nature, by John E. Dumont. "Clear and Cool," from an etching. "In the Studio," a composition from life, by O. K. Coast, and "A View of Johnstown," made June 1, 1889, by W. S. Bell & Company, of Pittsburgh.

ANOTHER batch of cabinets has come from O. Pierre Havens, of Jacksonville, Fla., and they are in every way fully up to all the other work which we have seen from this gifted artist. His child pictures, especially, are delightful. We shall soon present an example in these columns, and "The Annual of Photography" for this year is to be embellished, also, with one of Mr. Havens' lovely child pictures.

FROM Shepherd & Tyler, we have received a number of phototypes that are deserving the highest praise. The view of Upper Yesemite Fall, by W. B. Tyler, is especially to be commended. The photographic work is without fault, and the phototype does the negative full justice.

There are specimens of out-door groups, architectural pictures and landscapes—all well done.

WE have received from General Joseph E. Brown, U. S. A., an "aristo" print from an "ivory" celluloid film negative, which is worthy of more than a passing notice. The negative was exposed with a Morrison view lens, directly at a window through which unobscured morning sunlight was shining, purposely to test halation. It was developed with hydrochinon, and the "aristo" print shows scarcely any, if the slightest, halation, and the negative is fully developed in every part.

WE have received from Mr. Seth C. Jones, the genial representative of the Eastman Dry Plate and Film Company, a highly interesting collection of Kodak pictures made with magnesium flash-light in the Chinese quarters of San Francisco. Many of them are pictures that hitherto have been beyond the reach of photographers. They show the "Heathen Chinee" in various characteristic occupations; and are all equally well done. Mr. Jones is entitled to, and receives our congratulations for his success with the Kodak camera. The little Kodak also deserves the highest praise for the efficiency with which it may be worked under the most trying circumstances.

CORRECT DIAGNOSIS.—Doctor (feeling patient's pulse)—"What is your husband's business?" Patient's Wife——"He is a merchant." D.—"Has he been overworking himself of late?" P. W.—"Not that I am aware of." D. (musingly)—"Singular." P.W.—"He bought an amateur photographer's outfit last week, and he has been busy ever since trying to make a picture." D.—"H'm! Brain fever."—*Boston Courier.*

Queries and Answers.

134 OXYGEN would like to have a good formula for making lantern slides by the albumen process.

134 *Answer.*—See Prof. E. Stebbin's method in Wilson's Photographics, page 312, No. 354.

135 AMPERE.—What is the difference in the time of exposuse between diffused daylight and an electric arc light of about 2,000 candle power?

135 *Answer.*—Dr. Eder states that when 2½ seconds are sufficient for a full exposure in diffused light, 6 seconds are required by electric arc light of 1,800 candle power. By our own experience we have found the proportion to be as 1 to 7.

136 YOUNG PRINTER.—What is arrowroot paper, and how is it prepared?

136 *Answer.*—Arrowroot paper is non-albumenized paper without gloss, and is used mainly to be retouched or painted upon with India ink or water colors. Plain Rives or Saxe paper is prepared on one side with a solution of 8 drams of chloride of sodium, 1 grain of citric acid, and 7 ounces of distilled water, in which 120 grains of Bermuda arrowroot have been dissolved by boiling. When cold the solution is spread on the one side of the paper by means of a soft sponge or Buckle brush, or tuft of cotton, care being taken to avoid air bubbles and streaks. When dry the paper is sensitized with a neutral ten per cent. solution of nitrate of silver and toned and fixed in the same manner as albumen paper. The gold bath should, however be very considerably weaker.

137 RACCOON, OHIO.—What is the proper time of exposure for Carbutt B. plates? What is a sensitometer?

137 *Answer.*—(1) The time of exposure is determined not alone by the sensitiveness of the plate, but also by the focal length of the lens. We are not informed of the kind of lens you are using, but infer it to be the Waterbury A. If that is so, a Carbutt B plate, and the lens stopped with an $\frac{f}{32}$ diaphragm, an object in sunlight, and at a distance of 50, 60 feet or more, would require an exposure of from 3 to 5 seconds. For an indoor portrait, take stop $\frac{f}{16}$ and expose for 15 to 25 seconds, according to conditions of light, subject, etc. (2) The sensitometer is an instrument by which the relative sensitiveness of plates, films, or paper is fixed. A great variety of differently constructed, and differently acting sensitometers have been accepted, and are used by practitioners. It should be understood, however, that not two of these instruments act alike. It occurs, therefore, that plates manufactured by A, who uses a W. sensitometer may indicate a sensitometer of 35 deg., while B's plates, who determines the grade of sensitiveness by an instrument of his own construction may indicate 27 deg, while in reality the sensitiveness of both plates is alike. As long as not all manufacturers will unite upon the use of one standard system of measuring, the sensitometer degrees printed upon plate packages can give but little information, and are rather misleading, and a source of confusion. As you are interested in the Carbutt plate we advise you to read his article on the subject in "Amerieau Annual of Photography for 1889," page 208.

E. M. PINE, PHOTO. PHOTO-GRAVURE CO. N.Y.

A FLASH-LIGHT INTERIOR.

E. M. PINK, PHOTO.

PHOTO-GRAVURE CO. N.Y.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, JULY 12, 1889. No. 408.

A FLASH-LIGHT INTERIOR.

OUR frontispiece this week is an excellent example of an ingenious method of photographing interiors by means of magnesium light.

The negative was made by Mr. E. M. Pine, of Philadelphia, inventor of the excellent magnesium lamp which bears his name. We are indebted to Messrs. Morris Earle & Company, photographic merchants, of Philadelphia, for the negative as well as for the description which follows :

" It was desired that a photograph be taken of a suite of rooms in Trymby Hunt & Co 's large show rooms, Market St., Philadelphia. There was no day-light to make the exposure by, and it occurred that a magnesium light would be desirable ; but with the long series of rooms one flash would have been useless, hence it was concluded that a number of exposures in separate rooms would make the exposure for the entire plate satisfactory. The camera was placed in a room from which could be seen, through the doors of the various rooms, a mirror at the back end of the vista. Separate flashes were made of fifteen grains of pure magnesium powder in Pine's flash-lamp, and two exposures from opposite sides of each room were made so that the shadows in every instance were softened and a satisfactorily timed exposure obtained, the lens being capped between the exposures, focusing having been done previous to the original exposure and registered on the bed of the camera for each distance of the separate rooms from the camera. After the first exposure the back of the camera was run back to focus No. 2, and so on until four exposures were made on one plate. The development came up satisfactorily, and made, as the print shows it, a well timed exposure throughout. This picture having been shown to an engraver, he remarked immediately on the sharpness of distance from foreground to background, and that such an exposure in halls and dwellings would be of great use in their work, enabling them to engrave without the difficulty of extra work of sharpening up the background previous to engraving. The exposure was made on a Cramer plate, sensitometer sixty, with a wide-angle Beck Autograph Lens, $6\frac{1}{2}$x$8\frac{1}{2}$, $\frac{f}{16}$ stop, with cap exposure."

MAGNESIUM LAMPS.

IN another column will be found a description of an ingenious pocket " flash " lamp, by Chevalier August von Löhr ; and in recent numbers of THE PHOTOGRAPHIC TIMES we have printed descriptions of magnesium lamps and clever methods for making photographs with them. We recall the inexpensive " flash " light apparatus by F. E. Fairbanks, which appeared in the June 21st issue, page 311 ; and a new magnesium lamp by C. C. Schirm, on page 272 of the May 31st issue. The " flash " light interior which embellishes this issue of THE PHOTOGRAPHIC TIMES was made by the Pine magnesium lamp, which has also been commented on in these columns. Of making magnesium lamps, as well as the compounding of developers and the making of books, there seems truly to be no end.

When Gaedicke & Miethe—to whom credit is due for making the first successful magnesium " flash " light pictures—announced their method, sulphide of antimony and chlorate of potassium were used in connection with their magnesium powder. Modifications of this " flash " light compound were then made on all sides, but with few exceptions they were all more or less objectionable. Some contained highly explosive substances, while others were dangerous from the poisonous nature of the compound ; still others produced so great a volume of smoke when burned that a second exposure was impossible until a long time had elapsed after the first one had been made.

When it was suggested to burn pure magnesium in an alcohol or other flame, and rely upon the oxygen supplied by the strong current of air, instead of adding the dangerous and poisonous substances which had hitherto been used, a new impulse was given to the manufacture of magnesium

lamps. Harrison loaded a goose-quill with magnesium powder and blew it through the flame of a candle, which simple method suggested the construction of blast lamps.

While all the blast lamps are based upon the same principle, they vary in the details of their construction. The simpler a lamp, however, the better. When a large quantity of the powdered metal is thrown in a mass through the flame it does not all consume. A long slit in the recepticle from which the magnesium is blown, requires a very large flame in order to burn all the powder, and if the tube from which the magnesium is blown is too long and narrow, but little more than half of the magnesium is ejected by one blast. Some lamps are constructed so that the flame is forced upon the powder. With the Schirm lamp an exceedingly small amount of magnesium is sufficient to furnish an excellent light; but the six or eight grains of metal employed are completely consumed. To entirely burn all the magnesium placed in the lamp should be the main consideration in the construction of this apparatus, and it will be found that a much less quantity of the metal is required than has generally been supposed.

In Von Löhr's lamp the double trough of burning alcohol serves to consume every particle of the magnesium; the stray grains that escape the inner flame being received by the outer ring and burned there. It is the perfect combustion of the whole amount of magnesium that produces the effective light. With an imperfect or but partial combustion, the light will be proportionately defective, and this is the chief fault with many of the lamps we have examined.

EDITORIAL NOTES.

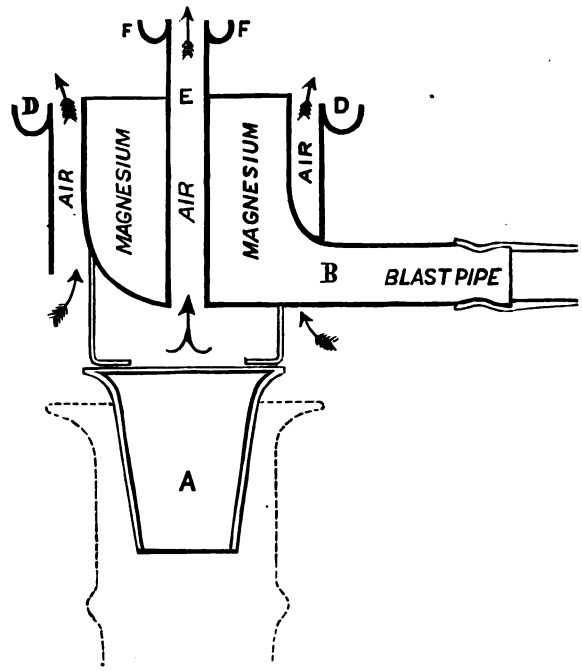
Eikonogen is the name of a new developing agent discovered by Dr. M. Andresen, of Berlin. The advantages which are claimed for it over other developing agents are great activity in development and the latitude it allows in exposure. Instantaneous exposures, and plates exposed fifty or a hundred times too long, produce equally good results when specially treated with this developer The substance is absolutely non-poisonous, and its solution is said to be far more durable than that of pyrogallol or hydrochinone. It does not stain the fingers. We expect to have samples of eikonogen soon, and after experimenting with them shall be able to describe more in detail its nature and properties.

Pyrokatechin, another new developing agent, is attracting attention everywhere in photographic circles. It is said to give the negative a fine neutral tone and excellent printing qualities. With it, fog never occurs, even at low temperature—forty or fifty degrees Fahr. When the plate is in the developing solution, its sensitiveness is much reduced, so that the work can be done in subdued daylight, or the light of an unprotected gas flame at a distance of three feet or so. It is cheaper than any developer now in the market, and, like eikonogen, does not stain the fingers.

It is to be hoped that members of the P. A. of A. will not wait until they arrive in Boston before paying their annual dues, as, usually, so great a number put off this important matter, that great delay is occasioned on the first day of the convention in paying the amount and receiving badges for admittance. This year the crowd will be greater than ever before, and, judging from past years, not more than one-half will be able to reach the treasurer's box in time to participate in the exercises of the first day, unless this important matter is attended to before the convention.

It will be well for photographers not members, who intend to join this year, to send their initiation fee to the treasurer, G. M. Carlisle, M.D., at Providence, Rhode Island. He will promptly send them a receipt, with a member's badge which will give admittance to any part of the exhibition building. A word to the wise is sufficient!

LÖHR'S POCKET FLASH LAMP.



The apparatus made of hammered or welded brass (by no means soldered) is attached with its

lower end to an ordinary candlestick, or other suitable carrier. To B is fastened a rubber tube with mouthpiece, through which a powerful current of air can be forced by blowing, by single or double air blast.

The circular troughs F and D are filled with alcohol, or a mixture of alcohol and benzine, either with or without a cotton wick. The receptacle B contains pure magnesium powder, and will hold from 5 to 6 grammes of it. The alcohol being ignited and burning with full force, a current of air is forced through the tube, when a perfect combustion of the magnesium will take place, and a powerfully actinic light is evolved.

Through the air blast the powdered magnesium is forced in the direction of the trough, dispersed laterally by the air passing through the central tube E, and consumed perfectly by the flame, nourished with oxygen passing through the air tubes *a a*.

This simple contrivance may be easily constructed by any tinsmith, it is cheap enough, and occupies so little room, that it may be carried in the pocket.

The flash-light produced by this lamp is of high power, and gives invariably full exposures. On account of its great actinic force, the source of light may be removed from the subject *ab libitum*, thus avoiding extremely strong shadows without the necessity of employing reflectors or side screens.

The lamp has not been patented. Whoever wants to use it is welcome to do so, and it is hoped will be pleased with it.

Chevalier August von Löhr.

VIENNA.

DECOUDUN'S PHOTOMETER.

I HOPE the editor will pardon me if I enumerate a few of the many uses of this little instrument. It will give the correct time of exposure to be given to any subject. But is most useful in copying and enlarging, and in taking dark interiors. The time indicated by the photometer is for plates of ordinary rapidity. Only one-half the time should be given when very rapid plates are used, and ten times the time when making transferotypes or bromides in the copying camera. It is also very useful in taking out-door views.

The instrument is for sale by most stock dealers and the directions accompanying the same are very explicit.

The reader is also referred to page 216 of the PHOTOGRAPHIC TIMES' "Annual for 1889," for further instruction.

J. R. Swain.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—(*Continued.*)

NITRIC ACID.

Formula, HNO_3. Combining weight, 63.

Nitric acid—often called *aqua fortis*—is prepared by distilling potassium nitrate with strong sulphuric acid.

Commercial nitric acid has a yellow color, owing to the presence of nitric peroxide; the pure acid is colorless. The yellow color can be destroyed by blowing air through the acid. It is a very corrosive liquid, producing dangerous wounds if it comes in contact with the skin. The dilute acid colors the skin, nails, clothes, etc., of a bright yellow color. Nitric acid is a very powerful oxidizing substance—that is, it readily parts with some of its oxygen to other bodies. It attacks all ordinary metals, except gold and platinum, forming a series of salts called nitrates, which are soluble in water.

Nitric acid fumes strongly when exposed to the air, and has an irritating odor. It can be distinguished from other acids by the red fumes which are given off when it is poured on copper.

NITRO-HYDROCHLORIC ACID—AQUA REGIA.

Neither nitric nor hydrochloric acid alone is able to dissolve gold or platinum. Yet a mixture of these acids—to which the name of *aqua regia* has been given—readily dissolves either of these "noble" metals. The reason is that by the mixing of the acids *chlorine* is set free, and this nascent chlorine unites with the metals to form chlorides, which are soluble.

The mixture should be made in the proportion of one of nitric to three of hydrochloric acid, and, to lessen the violence of the action, an equal quantity of water may be added.

NITROUS ACID.

Formula, HNO_2. Combining weight, 47.

This is a very unstable substance, prepared by passing nitrous-anhydride into water. Sometimes it acts as a reducing agent, precipitating gold and mercury from solutions; at others it exhibits oxidizing properties, liberating oxygen and becoming reduced to nitric oxide and water. Nitrous acid forms a series of salts called *nitrites*, which behave similarly to the acid, but are much more stable. These nitrites can be distinguished from *nitrates* by the reddish fumes they evolve when treated with dilute acids.

OXALIC ACID.

Formula, $C_2H_2O_4+2H_2O$. Combining weight, $90+36=126$.

Oxalic acid, combined more especially with potas-

sium, occurs plentifully in the vegetable kingdom, as in the leaves of the wood-sorrel, the stalks of rhubarb, etc. It is now made in large quantities by the action of caustic potash on sawdust; but for experimental purposes, a small quantity is best prepared by acting upon sugar or starch with nitric acid.

Oxalic acid is not very soluble in cold water, but more so in warm water and in alcohol. The solution is very poisonous, and, as the crystals are much like those of Epsom salts, it has been the cause of many accidents. The best remedy is the administration of powdered chalk suspended in water.

Oxalic acid is much used in calico printing, and for taking ink stains out of linen. It is also employed for cleaning brass and leather.

When crystallized, it forms prisms, whose composition is $C_2H_2O_4+2H_2O$. By heating to 212 deg. Fahr., the water of crystallization is driven off, and a white powder remains. Oxalic acid forms two classes of salts called normal or alkaline oxalates, and acid oxalates. The former are all soluble, the latter generally insoluble, in water.

Ozone.

Symbol, O_3. Molecular weight, 48.

In 1840, Schönbein showed that ozone is an allotropic form of oxygen. Each molecule of ordinary oxygen contains two atoms, while in the molecule of ozone three atoms are crowded together, so that any volume of ozone weighs half as much again as the same volume of oxygen.

Ozone is now usually produced by submitting oxygen to the silent electrical discharge. It may be detected by the blue coloration which it produces in paper that has been dipped first into starch paste and then into potassium iodide solution.

Ozone is a very powerful oxidizing agent, releasing readily its third atom of oxygen. Thus both silver and mercury, upon which oxygen has little or no effect, are quickly tarnished by ozone.

Holmes' ozone bleach is a substance sold commercially (it is an alkaline hypochlorite), which is an effective reducer for over-dense negatives.

Phosphoric Acid.

There are three distinct substances, to each of which the term "phosphoric acid" has been more or less frequently applied.

Meta-Phosphoric Acid, HPO_3, combining weight 80, is produced when phosphoric anhydride (P_2O_5), the white powder produced by burning phosphorus in oxygen), is dissolved in cold water.

Phosphoric Acid, H_3PO_4, combining weight 98, is best obtained by distilling nitric acid with amorphous phosphorus. It is used in photography in Willis' aniline process for the copying of plans.

Phosphoric acid forms a series of salts called phosphates, which are distinguished by the *yellow* precipitate they give with solutions of silver nitrate.

Pyro-Phosphoric Acid, $H_4P_2O_7$, combining weight 178, is obtained—as the name implies—by heating phosphoric acid until water is driven off.

Phosphoric (or Ortho-Phosphoric) Acid.

Formula, H_3PO_4. Combining Weight, 98.

This acid can be prepared by heating red phosphorus in a retort with common strong nitric acid. On a large scale it is made by dissolving bone-ash in sulphuric or hydrochloric acid. In commercial phosphoric acid, arsenic acid is frequently p esent as an impurity.

Pure phosphoric acid forms colorless crystals, which are very soluble in water. The solution tastes intensely sour, and reddens blue litmus. It is not poisonous. The best test for phosphoric acid is molybdate of ammonia, an acid solution of which is turned yellow by phosphoric acid. When heated to a dull red in a platinum crucible, phosphoric acid is converted into a transparent mass of metaphosphoric acid—HPO_3; this is the *glacial phosphoric acid* of druggists. By long continued heat phosphoric acid may be changed finally into another modification, called pyro-phosphoric acid—$H_4P_2O_7$.

A solution of the ordinary, or ortho-phosphoric acid is used in Willis' aniline process.

Photo-Salts.

During the year 1887, Mr. Carey Lea, of Philadelphia, published, in the *American Journal of Science*, the results of a long series of researches upon the nature of the change effected by light upon the haloid salts of silver. Previously, Mr. Lea had been the principal advocate of the theory which states that "the first effect produced by light is simply a physical change, predisposing the elements of the silver haloid to dissociation, so that when a reducing agent (the developer) is applied, the molecules so affected yield more quickly to its influence."

The other, or chemical theory of development, declared that the effect of light was to remove some of the haloid element—the chlorine, bromine, etc.—combined with the silver, leaving a subsalt, which was readily reduced by the developer.

$2\ AgCl$	=	Ag_2Cl	+	Cl
Silver chloride	*yields*	silver sub-chloride	and	chlorine

Mr. Lea's later researches led him to believe in a modification of this chemical theory. He finds that light decomposes a small part of the silver salt, *and that the subsalt then forms a molecular combination with the unaltered salt.* To such a molecular combination Lea applies the name of a "photo-salt," and speaks of "photochloride of silver," or "photobromide of silver," as the case may be. The proportion of the "subsalt" in the combination may vary from a very minute quantity up to eight or nine per cent. These photo-salts exhibit a wide range of coloration, from white through pink, and purple to black. The typical photochloride of silver is of a magnificent red hue. It is possible that the way to "photography in colors" lies through these photo-salts. A very important part of Mr. Lea's discovery lies in the fact that he has been able to prepare these photo-salts chemically, without the action of light.

W. Jerome Harrison.

(*To be continued.*)

ART: ITS BEARINGS ON PHOTOGRAPHY.

[Read before the Bristol Camera Society.]

It is the essential nature of art to deal with two distinct worlds—the spiritual or religious one, and the earthly one. Many clever writers have compared art with a book; in one sense it is a book; but one of the greatest importance, as its contents are for the greatest part historical—in fact, we may safely speak of art as a history, inasmuch as it deals so very largely with events past for many hundreds of years. But art is even beyond a book; it is, as it were, a camera, which, on looking into, we see a perfect image of the soul; its aspirations after which are noble and good, its mighty passions, its conflicts with evil, its doubts and its joys, and (using Whyke Bayliss' words) "like as a mirror to the soul, so art is also a record and a witness of the glory of the natural creation."

Again, art is a language; but not a language which is confined to England, France, Germany, or any other Continental power; it has its resting-place all over the world, even the barbaric races discourse with the language of art. Look at the Japanese and the Chinese, and see how they treat this universal language; certainly they localize it, but still it is readily readable. Take a bird's-eye view, and endeavor to see how and where it originated, and you will find how extensive the use of it has always been, and how at the present time it is extending—and extending on every side. Art may still further be described as poetry. It is actually the poetry of the soul, which reads at its best when health, happiness, and contentment are ours. It is impossible to produce it when trouble, care, and anxiety hold us, as it were, tightly bound. The mere attempt to produce a work of art, or soul poetry (if I may use the term), will be a complete failure if attempted under the last-mentioned conditions, as art belongs to the quiet moods of life.

E. J. Poynter, R.A., in one of his lectures, says, "The qualities of mind required to produce a work of art are two, the power of design and the power of imitation." He further tells that the power of design is also divided into two kinds, constructive and ornamental.

The fitness of Mr. Poynter's remarks is felt by us all, and I fear that the want of the qualities is regretted by most of us every time we have to undertake an art work of even small importance.

Take the first quality—design, which is always the foremost difficulty we have to encounter. In arranging our compositions we, of course, take into consideration the constructive value of our picture, or whatever art work it may be, and if we are sketching from nature we ofttimes find ourselves at a loss as to how to introduce or dispose of the objects before us, with which we are wishful to form our composition. We are apt to move about from place to place with the idea of blocking out little things which we think are likely to obtrude, and we endeavor to see other little things and effects which we imagine will be of more service to our work; but usually throughout all this manœuvring we are entirely ignorant of the constructive quality for which we should aim. In our endeavors to obtain a pretty picture we forget the different values which are required, be they composed of objects or lights and shadows. If we knew how to balance one object by another, or understood how each ray of light brought about its corresponding value in shadow, considerable time would be saved and better work be done.

The ornamental quality spoken of by Mr. Poynter does not bear so directly upon the composition of landscape as it does on figure composition or arrangement of conventional objects. Yet it is not to be entirely overlooked, even in landscape; its virtue should be felt by us in arranging our subjects to agreeably fill given shapes, or in the distribution of light and shadow, or again in the symmetry of certain lines, etc.

Now we come to the quality of imitation. In landscape painting this quality is of the greatest value; we cannot hope to accomplish any great work unless we most studiously copy the noble works of nature. Portraiture, of course, relies

almost solely upon imitation, although other qualities are doubtless required. In still-life painting imitation supplies our every want. Before leaving this quality I should add that if the student carefully adheres to the rules laid down by nature his work is certain to be of high merit, for imitation, if cleverly done, is a sure means of giving realism, and true realism is one of the highest forms of art.

Realism should always be thoroughly displayed in all compositions; it will at once impress the mind of the critic with the story you wish to tell; it will give force and strength to your work, and will appeal to the sympathy of the soul; it will bring out the dignity of conception, the pathos of sentiment, and will give such character to your work that it will imprint on the memory the leading thought upon which you have based your whole mind.

After realism we come to idealism. If realism is one of the highest forms of art, then surely idealism is the highest.

A great painter once said, "My duty is sobriety. I could by two strokes of my brush make an expression of extreme intensity, but I should gain nothing by it, for it would not be nearer to nature. If I am to paint truly I must also paint soberly. Whilst I wield the power of producing mournfulness by turning down a lip, or merriment by turning it up, I must use it to walk with nature soberly, producing an effect real and ideal at one and the same time."

It has the power of giving a most poetic rendering of a most matter-of-fact subject; by it we can call smiles on the most solemn faces, and bring forth tears from eyes which a moment before brightly shone with joy. Again, idealism can be used for disposing of some of the hardness which realism is apt to give us, and, what is more important still, idealism deals with things spiritual. We are indebted to it for such glorious works as Michael Angelo, Raphael, Rubens, and others of the old school left behind for our study and admiration. The many beautiful conceptions of the Holy Family, and pictures of a similar class, are all due to idealism and its great co-helper, realism.

Simplicity also comes to the front when we are dealing with composition. The ancient Greeks in their compositions considered simplicity as a characteristic of perfection, and this idea is evidently carried out by our great artists and sculptors of to-day. If the Greeks were right, and we have every reason to believe that they were, then we must seek the same virtue for our works.

The one great point in favor of simplicity is that it prevents confusion; it gives to each figure or object a position, and there it has to remain; there is no stepping out of place and jumbling together, as we often see in pictures where simplicity has been overlooked. It acts as a means of quieting down, and gives an understandable meaning to the dullest observer. This feature bears directly upon photography in several ways; first, in the subject itself, again in use of backgrounds, again in quality of light and shadow, and further still in the arrangement of light and shadow. The old-fashioned photograph invariably suffered from hardness of tone as well as exaggeration in the light and shadows, and generally failed to do more than remotely suggest what it attempted to represent; and even now those representing living persons are so stiff and generally uninteresting as to leave much to be desired, although they arrive at a stage considerably nearer to life.

Following on in the train of art, we encounter another great treasure called "expression." It would be interesting for us to see how the Greeks availed themselves of this treasure, and then to compare their use of it to the many uses to which it was applied during the period of mediæval art.

We find that they have one idea in common, that is, they take the human figure as the exponent of what they want to express. But beyond doing that they appear in a great degree to separate; the ideas of the Greeks, as it were, turned into a cold channel, whilst the ideas of the mediævalist turned into a hot one. This breach is mostly attributed to the different uses of expression.

Classic art relies upon its wonderful beauty and strength for whatever it has to tell, but it fails to tell us enough; it stops short at the very point where we are most anxious for it to proceed. Of life, the one great theme, it tells us very little; we have the manifestation of life, but beyond that we receive nearly nothing. The Greeks have left for our instruction and admiration objects of art which are perfectly invaluable, objects which in the smallest detail contain evidence of the most charming beauty, whilst the grandeur of mass and truthful simplicity of composition place their works in the foremost rank of art. But apart from their beauty, how do these wonderful works appeal to our sympathies? Personally I feel a something which prevents any direct response as it were from my soul; there is a want of touch with our emotions which stops us from being able to accept them as of living people. Yet how is this! The forms are most beautifully and accurately executed, the proportions are unquestionably perfect, they possess every member of the body as we do, and yet there is that unfathomable something which causes us to stop short of acceptance.

What is this something? If it is not the fault of the form, then it must be the fault of expression. This is where I think the fault steps in; these most perfect examples of the sculptor's ability simply appear to us as stone because that one quality which gives life has been withheld. Sorrow and pain are only depicted on one or two examples; yet how can we feel compassion, or where is our sympathy, two most noble emotions, which act as a godly tie of one human being to another? There can be no compassion without the existence of sorrow, no deep sympathy without suffering. Yet the Greeks must have thought these unworthy subjects to receive perpetual remembrance in art. It was by the careful avoidance of such appealing emotions as these that the Greeks lost the one touch of nature which makes the whole world akin.

Now let us take a look at the art of the mediæval period, and we see for ourselves that, instead of being content with a cold grandeur, as were their predecessors, they go almost to the other extreme, and aim for life with all its passions. At the same time, they by no means overlooked or undervalued the grandeur of classic art, but they felt the want of touch with their sympathies, so straightway earnestly introduced into their pictures and statues that which had been previously left out.

Expression is the very soul of art. First, the expression of action, which gives force and meaning to our figures, and, in many cases, is even more important than the expression of the face. Take, for instance, a picture, statue, or photograph. Although each may be most cleverly handled in the execution, yet if expression is wanting how uninteresting they become. How accurately does even the quietest attitude express the character, spirit, and intention of the man, and how easily different passion are expressed and detected.

The power of portraying expression lies entirely with you. It is only for you to imagine yourself to be the very person whose position you are aiming to give, and if you can vividly realize the character you will naturally fall into the proper position.

Again, in the expression of the face, it is almost impossible for any master to help you. It is the artist himself who feels the very sentiment he wishes to express, be it either grief, mirth, fear, hatred, and so on.

I have heard it remarked that amateurs take better photographs than professionals. In landscape work this, to my mind is very true, and even in portraiture (that is, if we are to regard photography as an untouched print) the amateur is again in advance of the professional, for the reason that it too often happens that the professional photographer merely uses his negative as a kind of base upon which he is to set to work; and unfortunately he does set to work, with the result that the negative is retouched in such a manner that it is transformed from what was originally a photograph into a piece of stippled work, which either gives the portrait the appearance of polished marble, or is so coarse as to resemble a bad case of small-pox, and when we come to look for the expression—well, I will leave you to imagine how that has fared. I fear from what we are in the habit of seeing of professional work that it is more a matter of pounds, shillings, and pence with him than sentiment, and yet it is the sentiment which gives a sterling value and an irresistible charm to our works.

The Archbishop of York, in a recent address on art, made the following remarks:

"He sometimes saw in shop windows portraits of an elderly statesman, who had in reality furrows on his face, which were the wounds of the battle of life, the marks of victories won or conflicts gone through. But the photographer took care that none of these furrows should be seen. Touch after touch was made upon the negative, until at last the face was reduced to the condition of something that had been boiled. For himself, he declined to part with his wrinkles; they were the character of the man."

Look at the different faces we see every day of our lives. Often and often we pass faces by which contain the most charming beauty, so far as regularity of features go, yet we never take any further notice of them beyond giving them one passing glance. How is this? We are all anxious to admire beauty when we see it, and yet here we are passing it by without a regret. It is another case of classic art—there is nothing in the face that appeals to our sentiment. But meet a face which contains expression, and then we are not inclined to pass it by? No; we are like our fathers of the mediæval period, we have had our sympathies aroused, and we have become interested. It is only by this quality of sentiment that a firm alliance is formed with the affections in all works of art. And it is to strengthen this alliance that the photographer should make his aim. His productions are now used by the etcher, the engraver, and the lithographer, and are certain to be more used in the future than they are at the present time, for the reason that photography has two great advantages over the old system, namely, cheapness and greater accuracy of detail.

In conclusion, I would impress upon all present that art is nothing but divine sentiment. If you have not the power to ably produce a work of art,

you have that which is next to it, you have the power to love art, and in exercising that love you are giving life to a divine passion which elevates to the highest degree.

John Fisher.

TRANSLATION OF ENGLISH FORMULÆ INTO THE METRIC SYSTEM.

[A Communication to the London Photographic Club.]

As requested by the chairman at the last meeting, I have put on paper the remarks I then made respecting the translation of our old formulæ into the metric system, now definitely adopted by the Club. I am sure to many they will be quite superfluous, but to some few may be acceptable, and as the Photographic Club has now formally decided to use in future only the metric system of weights and measures, I venture again to suggest what I consider one of the simplest methods of translating with the least possible trouble any of our existing formulæ.

I take it for granted that every one using any formula has always liked to know what proportion the various constituents in it bear to one another, so that if occasion requires he can vary any of them according to circumstances. In our old system this has generally been expressed by the number of grains or minims contained in each ounce of liquid used—in my own practice for many years I have exclusively used the grain as the only unit for both liquids and solids—and I propose to show by an example how formulæ thus expressed is immediately translated into the metric measures, without the figures losing their old familiar look and sound, which they certainly will do if they are literally translated.

For instance, take one of the simplest formulæ for pyro development, viz.:

One ounce of liquid containing—

Pyro	2 grains.
Sulphite	8 "
Ammonia	4 "
Bromide	1 grain.

Ten ounces of this of course contains—

Pyro	20 grains.
Sulphite	80 "
Ammonia	40 "
Bromide	10 "

If we now literally translate this it will read—

Pyro	1·296 grammes.
Sulphite	5·184 "
Ammonia	2·592 c.c.
Bromide	·648 gramme.

Made up with water to a bulk of 283·5 c.c. nearly.

In this form it certainty does not convey to our minds the proportion that each ingredient bears to the others in so definite and simple a manner as does the original formula.

Now what I mentioned last week, and I am almost ashamed to do so again, is to leave the formula alone, and let it translate itself by at once calling all the quantities grammes when it will read—

Pyro	2 grammes.	
Sulphite	8 "	
Ammonia	4 "	or c.c.
Bromide	1 gramme,	

and the bulk of solution 437·5 c. c.

This bulk of solution will be about fifteen times greater than our old-fashioned ounce, but the figures remain almost without fractions, and can be easily multiplied or subdivided if larger or smaller quantities are required.

I have little doubt but that if any one habitually using the metric system had originated such a formula as that used for example, the bulk would have been made up to 500 c. c., or perhaps the amounts of all the ingredients doubled, and made up to 1,000 c.c., as I notice in foreign formulæ an almost total absence of the awkward fractions that occur when translating from one system to another.

In connection with this subject perhaps I may be allowed to suggest the advisability of always making up the total of any new formula to a definite measure, such as 100, 500 or 1,000 c.c., instead of, as is often the case, adding the quantities of the various ingredients to a given bulk of liquid.

Alexander Cowan.

MR. HOBBIE'S REMARKABLE OBSERVATIONS OF A SOLAR ECLIPSE.

Mr. Titus Hobbie cultivated science seriously and devotedly, if not professionally. The total eclipse of the sun of January 1, 1889, was an event he had anticipated as hopefully as a girl anticipates her coming-out ball. But Mr. Hobbie was afflicted with the proverbial guilelessness of learned men, and before he knew what was happening to him a party of seven people, whom he did not in the least want, proclaimed themselves his assistant observers, and accompanied him to the spot he had selected for making his great observations. Each of the seven considered that a solar eclipse offered individual opportunities not to be neglected. There was Mr. Snap, on whom amateur photography had just broken out, and he was rampant to "take" everything from a cat in convulsions to a solar eclipse.

There was Mrs. Rush, a seasoned widow, eager to capture Mr. Hobbie, who was a rich bachelor as well as an earnest scientist.

Then Miss Settle, a maiden of long standing joined the party in order to circumvent the widow.

Mrs. Panel, a pursuer of decorative art, thought she might find some new effects in a solar eclipse, and Miss

Bubble, pretty and girly-girly, fancied she would be doing something sensational.

Susceptible young Mr. Spring, in the first stage of his twentieth infatuation, was an inevitable accompaniment to Miss Bubble.

Mr. Chatterly, who dined out a great deal, and believed conversation was his line, resolved to store up a solar phenomenon among his experiences for jocular reference, if nothing better. Thus this rare combination of interested auxiliaries surrounded and overwhelmed Mr. Hobbie on the day of all days that he would like to have them farthest away from him. But there was no salvation for him. They were all there, with a confusion of bags, baskets, inane questions, and maddening suggestions. The spectacle began, the moon was already a smutch on the face of the sun. Despairing, but submissive, Mr. Hobbie stood at his telescope, with which he intended to photograph the corona, and rehearsed the two assistants, who had captured him, in their duties. At certain signals Mrs. Rush was to remove and replace the telescope "cap"; Miss Settle was to receive and hand up photographic plates in a certain order. An infinitesimal deviation from the rule was surest death to the observations.

"Rely on me, Mr. Hobbie," entreated Mrs. Rush, "my interest in your success is an intense as your own."

Miss Settle: "You can depend upon my steadiness, Mr. Hobbie. No mistake of mine will bring about disaster to your pictures."

"Mr. Snap, with his camera adjusted according to a plan from an astronomical journal, engaged Mr. Chatterly to time the exposures of plates, and Miss Bubble, who must play she was an astronomer, too, would hand the plates to the photographer.

Mr. Spring, with a stop-watch, was to time the totality, and Mrs. Panel, with a box of colored pencils, a sketch, and a text-book of astronomy, open at a glaring picture of the eclipse of 1858, set on a rock, ready for action.

The moon was bulging across the sun's visage. The thrilling moment of totality approached. The observers were at their places, looking as self-assured and self-conscious as amateur actors before the rising of the curtain—except Mr. Hobbie, who was crushed and nervous under his burden of assistants.

The moon put out the last ray of sunlight, and there followed an instantaneous and entire obscuration of ideas among those stationed there to fire on the fleeing totality. Signs and signals and movements collided distinctively.

Mr. Hobbie: "Time! for heaven's sake don't shake the telescope! Mark! The plate-holder in your other hand.'

Mrs. Rush: "Gracious! 'mark,' is it! What dropped? or 'time'? or, oh? I remember! Yes!"

Mrs. Panel: "Where is the corona? I don't see any streamers. What do they begin with? That can't be—"

Miss Bubble: "Is this the real eclipse now? Isn't any more coming? There's a chicken: why don't it go to roost? And that cow; she doesn't bellow a bit. A lot of things haven't happened that they told me about. Now, Mr. Chatterly, it's not so very funny and it's not as dark as a tunnel at all."

Mr. Snap, frantically: "Not your piece of smoked glass, Miss Bubble! Plate E! E!! E!!! second in box. There's a slide smashed!"

Mr. Chatterly: "What's it now! five seconds or fifteen? Call it a go anyway."

Mrs. Panel: "Oh! now I do see something to draw. There! that must be the corona, Mr. Hobbie."

Mr. Hobbie, whirled in a scientific frenzy out of his life-long propriety: "Corona be hanged! It's the sun, and I have only two plates out of the six I arranged for."

It was the sun, grinning from behind the moon. with demoniac satire, on the disordered and demoralized party of observers.

Mr. Hobbie, white with emotion: "It seemed much more rapid than calculated duration. What was the totality, Spring?"

Spring, removing his gaze from Miss Bubble and feeling about for his ideas: "Totality? Oh! ten minutes, ten and three-quarter seconds."

Mr. Hobbie, in stifled tones: "Sir, you are the sole possessor of the largest totality on record. I congratulate you!"

Miss Settle, in triumphant exclamation: "Mrs. Rush, what has happened to your head and the telescope?"

The telescope cap sits rakishly on the top of Mrs. Rush's bonnet, while a long kid glove swings jauntily over the object-glass.

Mr. Hobbie, after an interval of paralyzed horror: "This is the result of my labors, calculations, scientific hopes; this is what I obtain as my observation of the total solar eclipse of January 1, 1889—three fingers of a glove on two fogged plates."

Mrs. Panel, holding up her sketch-book and announcing with pride and conviction: "This corona wasn't at all like the corona of 1858."

Mr. Snap, agitatingly making notes: "What was that last exposure, Chatterly?"

Mr. Chatterly, lighting a cigar: "Fifteen or twenty seconds, I forget which."

Mr. Snap: "After the sun was blazing out at us, and a lightning quick plate! There's nothing but eternal blackness on that plate! What's that glass on the ground?"

Miss Bubble, with her prettiest baby stare: "That? Oh! it fell out when I was stuffing the concern in the box. One doesn't matter much, does it?"

Mr. Snap, wreck and ruin and desperation in his voice: "One doesn't matter when, Jupiter Olympus! I haven't got any! and I was counting on a good corona to get even on that instantaneous dog fight picture Jones got last week!"

Mr. Hobbie, glaring at the female members of the party with a Hannibal-at-the-altar expression of face: "Snap, the next solar eclipse we will station ourselves, telescope, camera, stop-watch, and no other attachments, in the centre of the Pacific ocean."

T. A. Atte-Mere,
In the N. O. Pycayune.

Notes and News.

THE ANNUAL EXHIBITION OF THE PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN will open by a *conversazione* on Saturday, September 28, and will close on Wednesday, November 13.

Medals will be placed at the disposal of the judges for artistic, scientific, and technical excellence, and for tranparencies and apparatus.

The judges elected by the Society are Messrs. W. Bed-

ford, V. Blanchard, Geo. Davison, W. England, J. Gale Henry P. Robinson, and J. Traill Taylor.

Further particulars will be duly announced.

A PICTURE OF THE MOON, photographed at the Lick Observatory by the great telescope, was sent to a member of the Royal Astronomical Society in London. The recipient acknowleges its receipt and speaks in the highest terms of the work of the telescope. The photograph is the best the astonomer has ever seen.

THE LATEST WRINKLE in house painting is reported to be forwarding the photograph of the house to a company manufacturing prepared paints. It then passes into the hands of an expert, who selects the colors, and forwards instructions as to how they shall be put on.

TRUSTS.—*Apropos* the P. A. M. B. A., a friend sends us the following clipping from the *Philadelphia Ledger*:

"A combination of farmers in the vicinity of Evansville, Ill, by which they agree to purchase from but one store in a town, the owner agreeing in turn to sell at a net profit of 10 per cent, is said to have seriously embarrassed a number of merchants, and to destroy competition."

ONE AMATEUR.—There are various sorts of annoyances connected with amateur photography, but the man who bought one of the small cameras the other day and, understanding that it was ready for business, spent a morning in taking shots at what he thought might be eligible views, and then, starting to develop his plates, found the holders empty, no plates having been put into the camera before it was sold, thinks he has touched the bottom of the deepest abyss of vexation in the photograph business.

NEGATIVES DEVELOPED DURING EXPOSURE.—M. Tondeur has again shown negatives developed during the camera exposure. He contents himself, in order to obtain this result, with immersing the plate in hydroquinone developer and draining it; then he exposes it in the camera. If the time of exposure is sufficiently long, the development is completed simultaneously; if, on the other hand, the negative has been taken instantaneously, it must be left the necessary time for development. What escapes us for the moment is the practical application to be made of this method of action. However this may be, it is well to take notice of everything fresh, the question of application being one ulterior to that of the possibilities that may be in store.—*Leon Vidal, in the Photo. News.*

APPARATUS FOR AUTOMATIC PHOTOGRAPHY.—Mr. Enjalbert, who has already furnished proofs of his ingenuity in contrivances, has worked out a very curious automatic apparatus, in which all the operations are mechanically effected by an electromotive engine. This apparatus is prepared for the Paris Exhibition, where it will be seen in work; but we have been favored with an opportunity for inspecting it and seeing it in action. It is certainly a marvel of ingenuity. The apparatus is started by placing a ten centime piece in it, and the subject having placed himself in the prescribed place, a ferrotype plate is coated with collodion, bathed, and adjusted to the focus of the lens, when the exposure is made. It is then led into a developing solution, fixed, and washed, and in a very short space of time the portrait comes out of an opening in the machine, accompanied by a small frame in which to place it. The ingenuity required to work out all these operations automatically is truly astonishing.—*The Scientific American.*

PHOTOGRAPHING ON WOOD.—The following method, taken from the *Revue Photographique* (translated in the *Photographisches Archiv*), can be recommended as a good one: 8 grammes of gelatine are soaked in 500 c. c. of water, dissolved on a water bath, and 8 grammes of white soap are added to it gradually, well stirring all the time. The mixture is filtered through muslin, a little zinc white added to it, and then rubbed well into the wood block and allowed to dry. The film should be as thin and even as possible. When dried, the following solution is applied to the wood by the aid of a broad brush:

Albumen	30 grammes
Chloride of ammonia	1·2 grammes
Citric acid	0 2 grammes
Water	24 c. c

The albumen is beaten up to a froth, allowed to settle, and then is added the water, the chloride of ammonia, and the citric acid, exactly in order given here. When dry the film should be sensitized by pouring on the following solution, spreading it with a glass rod:

Nitrate of silver	3·2 grammes
Water	31 c. c.

The excess of this sensitizing solution is poured off and allowed to dry again. Printing is effected as usual in the printing frame. It is not necessary to over-print. When sufficiently printed, the wood block is held with its surface for three minutes in a diluted solution of common salt. The print will become only slightly paler in it. Wash and fix for four or five minutes in a concentrated hypo solution, wash again for ten minutes in running water, and allow to dry.

PHOTOGRAPHY APPLIED TO THE PREDICTION OF THE WEATHER.—With regard to the accident which has occurred to the German Navy at Apia, it might be advisable to refer once more to the theory of Dr. Zenger, of Prague, who suggested, as it will be remembered, to make use of photography for the prediction of the weather. According to the doctor, photographs of the sun taken on orthochromatic plates offer a most infallible means to indicate with almost absolute certainty the approaching atmospheric and subterranean disturbances at least twenty-four hours before their setting in. In these photographs zones are often to be seen around the sun's disk—*i. e.*, rings of circular or elliptical form, of white or grayish color—and if these zones appear of very large diameter, and of unusual heaviness, this indicates that violent storms, thunderstorms, or magnetical disturbauces will soon set in at the place of observation. At every ship's station should therefore be established a small photographic laboratory, in which photographs of the sun could be taken as often as possible. A much more reliable prediction of the weather would be afforded by this means than by the aid of the barometer now generally in use for this purpose, and precautions could therefore be taken in good time.—*H. E. Gunther, in Photo. News.*

IT is a well-known fact, states the *Brooklyn World*, that resemblances which exist between persons are often inten-

sified to a puzzling extent when the persons in question are photographed. A curious case in point has lately been recorded in regard to Mr. Alma Tadema and Mr. Du Maurier, between whom there is a striking resemblance. Mr. Du Maurier was one day at a dinner party, when a lady next him expressed surprise that he could ever be mistaken for Mr. Alma Tadema, for she could not see the slightest likeness. Afterwards she said, "Oh, I bought your photograph the other day, would you mind putting your autograph to it?" Mr. Du Maurier said he had no objection, and the photograph subsequently was produced. Mr. Du Maurier took it up, looked at it, sighed, and laid it on the table: "That," said he, "is Mr. Alma Tadema's portrait."

MAYOR GRANT had a Union Square photographer take an instantaneous portrait of him last week, says the *N. Y. Sun*, and a little later received a photograph of himself bound in Russian leather, with a full description of who he is, where he lives, and what his occupation is. Commissioner Croker sat before the camera after the Mayor, and Justice Peter Mitchell, Delancy Kane, and other well-known New Yorkers also gave the photographer a chance to get snap shots at them. They all got cards like that presented to Mayor Grant.

The photographs are an idea conceived by P. T. Wall, of the Hotelmen's Association, and they are intended for the use of travellers. They are stamped and authenticated, and are a guarantee on their face of the identity of the holder when he applies to have a check cashed or asks for accommodations at any foreign hotel.

"THE ACTUAL THEORY and the first principles of photography," said recently one of the high photographic lights of the town, "are generally understood; that is, they are not misunderstood at all. The art of the photographer, using the word in its true sense, people lose sight of. They think of him simply as a machine for placing them in a strong light, telling them 'look pleasant, please,' and exposing the plates. That, although working with different materials and in a different way he must have the art, tendencies, and be the artist as much as the portrait painter is, is something that never enters their heads.

"And this is why. In making an exposure it is not the object that is photographed, but simply the light that falls upon it. This is the cardinal principle of photography, strange as it may appear. And, stranger still, hundreds of the professional photographers, as they wheel the machine about to catch a better light on the object, are ignorant of it. Not but that one of these may not at times hit upon a capital likeness. That often happens. But he does not understand the principles of his art.

"Now, to explain. What does the art photographer (I make the distinction) do the very first thing when he starts out to take a photograph? Why, just as the portrait painter does. He makes a swift, yet comprehensive, study of every feature, and the face as a whole. He knows that only parts of the face can be taken, and all the rest must fall upon the plate in shadow, and it is his art that leads him to determine what those parts shall be, so to best catch the expression, the personality. The portrait painter does no more in this direction. The medium is different, and he has a palette of colors to depend upon, while the photographer is reduced to tones and tints of black and white alone.

"Will you have proofs of this? Here are two. Have you ever carefully noticed the full-length photograph of a man in which the shoes are visible? What you saw in the picture was a gleam, a suggestion, as it were, the light of the polish. The remainder of the shoe was in shadow, for it was the light and not the object that was photographed. Again, to furnish a tangible proof of the correctness of this theory of photography, I made a series of photographs of a plaster bust. There were a dozen pictures taken under exactly similar conditions, camera and light being unchanged in every particular. I simply moved apparatus and subject about, made my exposures from different points of view. At each of these the light fell differently upon the features. Upon the development of the negatives the pictures were hardly recognizable as being of the same object.

"That explains why it is that some people never 'take well,' as they call it. It is because in the photographer's arrangement these portions of the features on which the light falls are not just what is necessary to give the expression. And the make-up of the expression differs in every individual case. A good likeness is possible to every one, but it might just so happen that one's expression will never be caught. The poorest of the craft may catch it on chance, the very best may never exactly get it, but the odds are decidedly in the favor of him who is a student of lights and faces, and who well understands the theory of photographic art.—*N. Y. Times.*

Photographic Societies.

THE LYNN CAMERA CLUB.

THE Lynn Camera Club has removed from its recent quarters at 347 Union Street, and stored its goods until it can obtain more suitable quarters. A syndicate of members is now being formed to build a two-story club house at 40 Broad Street. The rooms will be finished with special reference to the convenience and comfort of members, and will have sky and side lights for taking portraits, with suitable backgrounds to be furnished by the club. The dark-room will receive special attention in the manner of construction, and will be large and receive the best of ventilation, which will be a decided advantage to those wishing to use it during the summer months. It will be fitted with a large sink, lockers and such other conveniences as the club may be able to add. The club-room will be large enough to accommodate a goodly number at slide exhibitions, and will have a screen for that purpose at one end. The building will be wired for incandescent lighting, and it is probable that the light will be used in the near future. There are already a number of amateurs who have signified their intention of joining the club as soon as new rooms are obtained, and the committee are desirous of increasing the applications to the largest possible number for election at the first meeting held in the new rooms. Amateurs wishing to join are requested to hand their names to any member of the club, or send name to either member of the Committee on Membership, viz.:—W. H. Drew, 404 Union Street; E. E. Bacheller, 40 Broad Street; J. W. Gibboney, care of T. H. Electric Co. Members of other clubs who are stopping in the city can be accommodated with a room for changing plates by application to the treasurer, at 40 Broad. The club is more than ever alive to the increasing interest in the art of photography,

and intends to have quarters that will be a credit to the members and compare favorably with those of the larger cities.

The Editorial Table.

We wish to congratulate all parties concerned with *The American Amateur Photographer*, on the appearance of its initial number. The two illustrations which it contains of the great naval parade, April 29th, are, alone, worth the price asked for the journal. One is by our friend, Alfred L. Simpson, author of the magnificent portrait of the U. S. S. Brooklyn, which embellished these columns not long ago, and the other is from a no less excellent negative by Richard H. Lawrence. The articles, for the most part, are interesting reading, and a goodly number of advertisements testifies to the business enterprise of the publisher.

The little magazine is edited by the Rev. W. H. Burbank and Mr. F. C. Beach. It is published by Mr. Burbank, from Brunswick, Maine.

The Prize Tour number of *The Amateur Photographer*, edited by Charles W. Hastings, has made its appearance. It contains six whole page pictures, and a much larger number of smaller general illustrations, together with the accounts of the prize tours, and other interesting reading matter. We note that our friend, Alfred Stieglitz carries off one of the prizes with a highly interesting view of Chioggia. We shall present our readers with one of Herr Stieglitz' picturesque foreign views in an early issue of The Photographic Times.

"The Knack," which has already been reviewed in these columns, is now advertised by The Scovill & Adams Company, who, we understand, has bought the entire edition. It is an excellent little book priced at only 40 cents, the instruction being brief but explicit. It is commended especially for dealers in amateurs' supplies, who, by buying a number of copies, may have their advertising card printed upon the back cover, and thus secure a cheap and effective medium from which also they may derive an excellent profit by the sale of copies at retail.

Mr. George Rockwood, of this city, has issued a portrait of Mrs. Ella Wheeler Wilcox, the poetess, which that lady declares is the best likeness she ever had made. We understand that Mr. Rockwood has these excellent portraits for sale at a nominal price. Many will be glad of this opportunity to procure one.

Queries and Answers.

138 Mabel.—I have found several times that hydrochinone developer in one solution will stain the plate to an ugly yellow. Alum and citric, oxalic, muriatic or other acids fail to clear the plates. As they are all lantern slides they are useless in the present condition; how can I save them?

138 *Answer.*—The yellow stains are caused by the developer, which in all probability does not contain enough preservative, or which has been oxidized by long exposure to air. The stains may yield to a bath of sulphurous acid.

139 A. B. H.—What is the matter with these plates? They were developed with the utmost care, and in a very much subdued ruby light, still, as you will observe, they are all foggy on one end, while the other is as clear as can be.

139 *Answer.*—Your plates are not fogged; they are light struck. Light has probably entered by carelessly removing or reinserting the slide of the plate-holder.

140 Peter Lane sends a 5x8 of a church with high steeple. The upper ends of the plate are cut off; no light has acted there. It can not be the fault of the lens, for similar defects have never occurred before. What is it?

140 *Answer.*—By moving the sliding front too much the objective is so far shifted from the centre of the plate to cover it up to its extremities.

141 Chatham Corners.—Will you kindly publish the formula for pyro and soda developer as written on the black-board of the Photographic Times laboratory? At my last visit I took a copy of it, but lost it.

141 *Answer.*—

A.—Granulated Sulphite of Soda..... 3 ounces.
Metabisulphite of soda..... ½ ounce.
Dissolve in distilled water..... 32 ounces.
And add finally pyro..... 1 ounce.

B.—Crystallized sal soda..... 1 pound.
Water enough to make a bulk of.... 32 ounces.

To one ounce of water take one dram of each A and B. Of the B solution add gradually small portions till developing proceeds uniformly. In case of necessity restrain with bromide of potassium 1:9.

142 R. Schirm.—Can an incandescent electric light of 16 candle power be used to illuminate a dark-room, and how should it be shaded to develop highly sensitive plates by its light?

142 *Answer.*—Incandescent light is by itself very rich on yellow rays, but not non-actinic enough to be used for developing. If you cannot replace the white glass bulb, covering the filament with one of ruby color, it would do quite well to cover it with a ruby globe, or glass lantern of the same color. The usual precautions in regard to actinic light should not be neglected.

143 Ephraim Romig asks us to explain the cause of red spots on two prints which he encloses.

143 *Answer.*—They are caused by greasy matter on the surface of the collodion film, owing to careless handling of the paper. Before toning, wash the prints in a weak alkaline solution, and remove the alkali by subsequent washing in pure water.

144 Debevoise.—Can photographs be taken by gas light, screened with a blue or violet glass? Would it decrease the time of exposure?

144 *Answer.*—We hardly think anything would be gained by a blue or violet screen, because of the great richness of yellow rays in the gas flame.

145 Inquirer.—Is the yellow light of the Gaedicke dark-room sodium lamp non-actinic enough for the developing of highly sensitive plates?

145 *Answer.*—We have developed Seed 23 and Cramer 50 and 60 degs. plates by the light of the Gaedicke lamp, the developing tray in close proximity. Result, perfectly clear plates without a vestige of fog. For orthochromatic plates we retain the ruby light shaded with two thicknesses of brown tissue paper.

CHILDHOOD.

temperatures has been looked upon suspiciously by a certain class of old operators.

Dr. Stolze, criticising Prof. Burton's method, is of the opinion that the easier elimination is mainly due to draining the hypo bath from the prints. Much hypo solution is carried to the washing water by removing the prints singly. The amount of hypo left in or adhering to the print is reduced to minimum by draining, facilitating elimination proportionately. A still better method he thinks would be to transfer the prints after draining to a ten per cent solution of common salt, then drain again, wash in pure water, and transfer to the salt bath, and repeat the operation several times, when all hypo will be removed from the print. Dr. Stolze seems to base his method upon another published in the *British Journal*, to effect perfect washing of negatives after the application of mercuric bichloride for intensifying purposes. The reasons why mercury-intensified negatives are so short-lived must be looked for in the presence of mercury which has not been thoroughly removed before the subsequent operations. If the negative, after having been whitened is removed to a salt bath, the remaining mercury solution will be forced out by dialysis, and a more soluble double salt than the bichloride be formed. In similar manner a salt bath will force the hypo. from the print, and with the subsequent washing in pure water, effect a thorough elimination of the fixing soda.

EDITORIAL NOTES.

OVER-EXPOSED hydrochinon developed negatives have recently been shown to us in alarming numbers. Good hydrochinon negatives are but rarely seen, in proportion to the great amount of hydrochinon which is sold and the large number of people who insist upon using no other developer. Most of the hydrochinon negatives which we have seen are over-exposed and over-developed. Restraining over-exposed hydrochinon plates with bromide is not reliable; an acid developer is more controllable, and citric acid is probably the best for the purpose. Beginners do not usually resort to old developer when over-exposure is suspected or when it becomes apparent; but merely dilute the solution. That retards the process, but does not overcome the trouble. Developing with the ingredients in one solution is objectionable, because such developer cannot be well controlled except in the case of old solutions. The amount of alkali judiciously added to the reducing agent controls its action; when all is mixed in one solution we cannot expect to do what we might with an intelligently-compounded developer. We have seen instantaneous exposures developed with hydrochinon in one solution appear to be helplessly over-exposed; when an intelligent development might have produced a good negative. Although we have never advocated hydrochinon for all purposes, we do acknowledge its good qualities for certain kinds of slow work. An English contemporary states that a certain hydrochinon compound acts with eight to ten times greater energy than that of an ordinary pyrogallic developer. Thus the doctors disagree.

THE advances made by Americans in orthochromatic photography are greater than is generally understood, otherwise we scarcely think professional operators would show so great reluctance in adopting the method for general work. The means to reproduce color values correctly may now be in the hands of all. The dyes to color-sensitize emulsions, or to impart the property to ready-coated plates—in fact, ready-prepared solutions for these purposes are now sold in our supply houses; and Mr. Carbutt's orthochromatic plates of excellent quality have become favorably known throughout the photographic world. Still, there are very few who adopt these interesting and useful methods in their professional work. Those who have adopted them for practical work are profiting thereby. Several of the Chautauqua scholars will exhibit, on their Commencement Day, excellent orthochromatic studies; among them will be a bunch of chrysanthemums, the reproduction of a crazy-quilt, and several landscapes with beautiful foliage and cloud effects. Unsurpassable in this work is Mr. William Kurtz, of Madison Square, who has adopted the azaline process for general work in his extensive reproduction establishment. Whoever still doubts the capabilities of an orthochromatic plate, should inspect Mr. Kurtz' accomplishments. The difficulties encountered with ordinary processes to reproduce the variously-colored objects, have been successfully overcome. That happily-proportioned compound, azaline, a mixture of cyanine and chinoline red, has now been in use for several years. Not only is green, in its various shades, yellow, and orange, correctly reproduced by its aid; but also fiery scarlet, crimson, and the difficult vermillion.

OUR CHAUTAUQUA LETTER.

THE Assembly grounds have again been thrown open for the reception of the throng of people, who, thirsting for knowledge, assemble here every

summer. It is quite early in the season, and although many instructors and students are on the grounds now, none of the classes, with the exception of my own, are open to receive scholars. The incessant rains of the last three weeks have put everything backwards, and the consequences do not fail to become apparent. Roads must be filled up, roofs mended, whole buildings be put in repair, and the College buildings and class rooms arranged in condition to hold school or to lecture in. Fourth of July was particularly celebrated here as elsewhere, but it also interfered to some extent with the openings of schools, and nothing will be done in earnest before Monday, July 8.

Many improvements have been made on the grounds since last year. On the site of the chapel, removed to the other side of Clark Avenue, and near the amphitheatre, Dr. Flood has erected a spacious and solid building for the offices and salesrooms of the *Chautauqua Herald*, and other publications. The Kellog Memorial Hall, on the N. W. corner of Pratt and Vincent Avenues is a beautiful structure in the Norman style. Here will congregate the W. C. T. U., rooms have been set aside for the Kindergarten, and all special classes conducted by lady teachers will find their home here. In fact the Hall is intended to be occupied by females only. The old Chautauqua R. R. Depot has been torn down, but no new building of any description put up in its place. The trains of the C. L. R. R. run still directly to the grounds, but as there is no shelter, or other convenience of any kind for passengers, or the housing of luggage or freight, to come that way is connected with many inconveniences. Passengers landing at Maysville are much better provided by taking the comfortable boat, then making the rest of the journey by rail.

A new Noah's ark has been built on Palestine Avenue, near the woodyard, a structure much resembling the old, though modernized to some extent, and of more solid construction. Like its predecessors, it is intended to be used as a free dormitory for students of but limited means. In its immediate neighborhood, a new village as it were has sprung up. There are new cottages, many tents, and a large number of old buildings moved to the locality, among them Professor E. Spring's studio.

Our own premises have been much improved and enlarged. Through the acquisition of adjoining rooms, we have been enabled to enlarge the laboratory, and to provide it with such facilities, that six persons can develop in it at one time. A printing room with south-eastern exposure, and sufficient water supply has been added, and arrangements made for enlarging and transparency printing.

Many friends of the school have contributed specimens to adorn the walls of our rooms. Highly encouraging is the exhibition of work, made by members of the different classes, representing the different methods taught during the course of instruction. Without several who still expected to contribute, there are now forty-two exhibitors, showing work that can vie with that of experienced amateurs and professionals; bits of scenery in Connecticut and on Long Island Sound, forest views in the Adirondacks, interiors and landscapes on the coast of Maine, splendid views of the Minnehaha Falls and the upper Mississippi, and several fine collections of various subjects which create universal admiration.

A jury to award to the best of these collections the premium offered generously by the Gundlach Optical Company has been appointed. It consists of Profs. E. Knaufft, E. Spring and Frank Beard, all excellent judges of artistic work.

We also exhibit photographic chemicals, prepared by members of the class. Among them chloride of gold, potassium oxalate and potassium ferric oxalate, respectively recovered from old toning bath and old ferrous oxalate developer, nitrate of silver, chloride of copper, and several others.

Three essays compete for the premium offered by the editor of PHOTOGRAPHIC TIMES. The subjects are: (1) Difficulties occurring with ready sensitized albumen paper. (2) Hydrochinon development. (3) Utilization of old ferrous oxalate. The winner will be published in THE PHOTOGRAPHIC TIMES.

On Independence day I opened school with four students. The prospects for a numerous class are good, and when all have concluded what study to take up, we may again double the number of the previous class.

For the last few days we have had beautiful clear and bright weather. A gentle breeze comes over from Lake Erie, the roads have dried up, and there is every opportunity for beginners who work with the popular and reliable Carbutt B plate, to make sharp pictures of forest scenes, of the gigantic trees surrounding us everywhere.

In my next I will give a description of our laboratories, and the methods of working we have adopted.

Charles Ehrmann,
Instructor Chautauqua School of Photography.
CHAUTAUQUA ASSEMBLY GROUNDS, July 5, 1889.

THE PICTORIAL POSSIBILITIES OF THE CAMERA.

(In Figure Work.)

The removal of mechanical difficulties brings more and more travelers on the photographic road. With their wonderful facilities, we should expect wonderful results. But there is rather a tendency to fall into a jog-trot on the highway, the ruts are so broad and deep. Many trot thus along, "firing off" their load of plates promiscuously, half-way done before they think where they are going. Fewer are those who go slowly, reasoning as they go, and fitting themselves to make a journey long enough to take them up into the mountains of art. There are more who are content with "photography reduced to four motions," than there are who study principles, analyse the art of the painter, consider processes and their capabilities, think over everything, from light to printing-paper —and then endeavor to make something characteristic and artistic out of their work.

The photographer has had the gospel of picture-making fairly well preached to him. He is by this time as well up in "the jargon of art" as most of its critics; he knows something of composition and chiaroscuro, and even realizes the desirability of an intellectual as well as a mechanical excellence in his work. He frequents the galleries, and studies books on the principles of art. That he does this to some purpose every exhibition bears witness. The Committee of the National Association, in wise recognition of these tendencies, offer him fame and substantial purses for artistic compositions illustrative of great poems. Yet although exhortation has been copious, and in the cases of some illustrious few, such as Mr. H. P. Robinson, preaching has been complemented by excellent practice, we still find many monotonous pounders on the highway and strays in the ditch.

That it is perfectly possible to make pictures of high artistic merit with the camera, the work of many photographers has proved. Yet its full possibilities have hardly yet been brought out. Every method of artistic expression has peculiar and individual capabilities of its own; it can do certain things better than anything else can do them. And it is best, with a clear realization of this, to keep the right thing in the right place, find and utilize its powers, acknowledge its corresponding weaknesses, and not ask it to do the work of something else. It is a technical crime to use a tool out of its place—"cutting blocks with a razor" —to employ one means to render a thing when another will do it better. The misused diligence that constructs, and the misled or missing intelligence that admires, the "Graveyard Scene, made entirely of colored wools by a child of six," or the "Execution of Charles I., 44x28, all done with a common steel pen," are neither of a very high order. Certain classes of subjects the camera can render as nothing else can; it should be used for these, and in them the best capabilities of photographic processes brought out, standing on their own merits, without imitation.

Ordinary photographic work, like any other trade work, is necessarily on rather a commonplace level. Its standard is fixed by the patron, who is often ignorant, more than by the artist, who must please by his art and produce what will sell, if he would live by it. Yet not even he is entirely confined by the set rules of commercial portraiture, much less the many others who are not professionals. Yet many, utterly free, seem to voluntarily adopt this standard of mediocrity, and strive to produce work as much like the every-day, salable shop-photograph as possible. Although I believe in technical excellence as I believe in hpyosulphite of soda as a fixative, I am not sure that fog and under exposure are not better than this. Again, those who begin to burn with the divine fire of art will insist on going back to the ideals of former decades, and attempting imaginary and historical subjects, Judiths and Juliets; difficult enough to put on canvas, which may fix the creations of the brain; impossible for the plate, which only can record what is actually before it.

Every art has its hedging impossibilities, and the photographic, with marvelous positive qualities, has its negative side as well. If pictures of past events and imaginary characters are to be attempted, lens and plate are not the means to be used to realize them. The camera is a solid instrument of wood and brass, inclined to naturalism, and the ideality and imagination that temporarily shroud themselves under its focusing-cloth must be large to counteract this tendency. But this is no cause of complaint, for the tendency is that of the age, and in the modern French school of painting, admitted to lead the world, men are to be found whose work meets that of the camera half-way in its refined realism. The illustrative subject with a sentimental title had better be thrown overboard. There are so many other things more worth doing, and that are so much more satisfactory when done.

It has all the real modern world before it where to choose—the confusion of the street and its thousand incidents and accidents, all the flickering expressions of the city; the deep peace and richer depth of character of the country. There is all

child-life, and the life of the home, which the camera can handle perfectly, showing people as they really are, in their natural everyday environment. As for life outside, every reader of the TIMES who has ever looked over a lot of detective camera photographs must appreciate how many wonderful things there are that the camera, and the camera alone, can secure. This is, perhaps, the photographic picture, *par excellence*, in figure work. They sometimes surprise the trained artist with valuable lessons in composition, and novel effects of light. They are not posed pictures, but have that action and vivid reality that are so rare, though so much sought after in paintings. It is a curious thing that they are very often the result of a happy accident; although that in reality simply means that their maker was looking for something else, with his perceptions clouded by the shop-photograph ideal, or some other. They are too frequent to be really accidental; they are indications of the right road for pictorial photography. Even when they are the result of fog, or under-exposure, or dim focus, they bear a lesson. But it is art that can catch the very spirit of life, that can make even out of a group of men at a corner, or a woman stooping to look in a shop window, a thing of artistic quality, full of character and of interest.

The life of the home again offers compositions of wide human interest, real, and escaping completely the stiffness of the studio. I remember seeing in London a most charming series of photographs, taken in the different rooms of an English country house, of the wife and daughter of the owner. In their house costumes, at their ordinary occupations and amusements; in the library, sitting at the table piled with books and papers; at the piano in the drawing-room, at the hall windows. The result, with beautiful women and a handsome house, was not only interesting, but pictorially delightful. One of my photographs I value most, more than reproduction of Parisian paintings, or pictures of abbey and palace, is a simple half-length of a little girl with a kitten. It is as simple as possible, a frail, blonde little girl, her hair combed back, in her dark dress and white apron, sitting with her kitten in her lap. It has more of the nameless quality of an early Italian master than of a photograph of to-day, and the man who made it has not called it "Meditation," or any other fictitious title, but simply writes under it "My Little Girl and Kitten."

With the idea well fixed on his mind then that the camera has its own peculiar class of picture, should the photographer go to work. Let him cultivate a quick eye to see a picture. He will see figures in action or in repose, and will feel instinctively how at one moment the effect is pictorial and pleasing, at another loose and uninteresting. Let him analyze the qualities that give one effect and the other. Let him study the "happy accidents" that he will find in instantaneous photographs, analyze their attraction, fix the points in his mind; and then when he goes about to make a picture his eye will be quicker to see, and his mind to conceive it; he can convert happy accident into skillful purposed effect. The work of good painters, and the illustrated journals, are to be studied; the photographer noting how the painter goes to work to make a picture, going back to the conception and imagining how he himself would proceed in the rendering of a similar subject, always remembering that he is working with a somewhat different standard, and with other tools than those of the painter. Good illustrations of modern subjects are a very suggestive and instructive study, the brush here being so nearly in competition with the work of the camera. Let him study the capabilities of his lens, his plates, of developing and printing processes. Let him always, above all, not only look at, but analyze, study and reason over the best photographic work—best in the artistic, not in the commercial sense—which is accessible. The operations of photography are easy and mechanical now-a-days, but in making a picture by their means, a great deal more thought than manual labor is required to carry the attempt through to success. In this as elsewhere, "brains will tell."

Lastly, let the photographer who has ambitions strive for style in his photographic work—something that shall mark the work as his own, an individual point of view. Let him avoid the rut; see for himself, strike out a new formula, if he can, to render his own impression. His own way of looking at things is the best; an individual, personal flavor gives rare savor to a picture; art that has this is never uninteresting; it constitutes a great part of the power of such men as Millet, Breton, and Jacquet, George Fuller and Abbott Thayer. Let him go to his work without reminescences, without filling his head with the methods of other men, but let him learn to see first of all, and then try hard to render what he sees as he sees it himself—his own impressions, bringing out to this end the best possibilities of the means that have been given him.

Frederic Hart Wilson.

A PHOTOGRAPHIC TRAMP.

THERE is nothing criminal about being an amateur photographer. No civilized country has a law against amateur photography, although in France and in Germany, and other semi-barbarous countries, they arrest a man if he photographs too near to their fortifications. Still the general tendency of modern cameras is towards concealment. There is a camera made which a person can put under his vest and the lens take the place of a vest button. Other cameras are done up like parcels, or take the form of a satchel, or some other unobtrusive shape, so that the general passer-by may not know that the man he meets is an amateur photographer. The trouble with the cameras that I have named is that they are generally too small to take a picture that is at all satisfactory. Some of them have no focussing glass, and no arrangement for letting a person know what sort of a picture he is taking. Now I use a camera that takes a picture four by five inches, which I think is the smallest size that is of any service to a man, although some get along with what is known as the lantern size, a size of plate that is large enough to take a picture that will go into a stereopticon.

The other day I bought a brand new valise in which to conceal my photographing apparatus, and instead of the long alpenstock tripod which I have carried heretofore, I bought what is known as "the Daisy tripod," which folds up into a very small compass, and can be packed away in a valise that is about eighteen inches long.

The whole outfit goes into a very ordinary sized valise, and a person moves through a world like an ordinary traveler who has a few boiled shirts and clean collars and cuffs with him.

One very hot day I found myself in Cincinnati, with the forenoon to spare. I had seen Cincinnati often enough, but had never had a view of the suburbs. Cincinnati, as everybody knows, is down in a hole, and is surrounded by hills. If you speak to a Cincinnatian reproachfully about the humiliating position his city occupies, he will answer:

"Oh, yes, but you ought to see the suburbs; the suburbs in Cincinnati are the grandest in the world."

Cincinnati suburbs are on the hill tops, as they are called, and extend for miles around the city. There are two ways of getting up on the hill tops. One is an ordinary incline railway, the platforms of some of which are so large that a street car and a couple of horses drive right on it, and are wafted to the skies; and when the car gets up there it goes along for eight or ten miles out in the country. Another way of reaching the suburbs is by the ordinary cable car, which winds up to the hill tops by following streets that zig-zag their way up the elevation.

I asked a number of Cincinnati men which the principal suburb was, and it seemed to be generally agreed that Clifton was the best for a stranger to see. The particular cable line I patronized took me across Clifton Avenue, and there I got off.

Clifton is an aristocratic suburb that is conducted as a sort of suburban club. No person is allowed to get a lot there who is not acceptable as a neighbor to the rest of the residents, and when he does get a lot he must build a house that will cost over a certain amount, and comply with a lot of rules and regulations, all tending to make the place very exclusive, and all that.

Clifton Avenue is a wide street, kept in perfect condition, and is bordered on each side by fine trees. It runs straight along for a bit, then drops down into a valley, rises on the other side unimpaired, winds along for a long distance, and then seems to come to an abrupt conclusion at a fine house that bars the way.

On each side are great park-like lawns, with here and there a palace owned by some aristocratic citizen, who has made his money on hogs or beer. So ungrateful are these aristocrats that now no beer wagon is allowed along Clifton avenue, and no hog—that is, no four-legged one—is permitted to walk on that street.

I opened the valise at one point where there was a fine view of a grand mansion away back among noble trees, and as I set my camera there came from a palace nearer the road a troop of merry, well-dressed children, who raced down the lawn, and cried:

"Please, mister, won't you photograph us?"

"Yes."

"Are you going to take Mr. Blank's house?"

"Yes."

"And may we stand here and be in the picture?"

"Yes."

"Oh, thank you."

At this moment the voice of propriety and aristocracy came from out of the vine-shaded veranda, from some unseen guardian, and in a tone of reproach was uttered the one word:

"Children!"

The unfortunate little girls had forgotten for the moment that they were rich, and they had rashly taken up with a wandering photographer. Here was a chance for great fun, but it was denied them. They had to sacrifice fun to the proprieties, and with longing, lingering and regretful glance at the camera, they slowly departed up to the mansion, and from the shaded porch took furtive glances at the forbidden photographer.

It is better to be born lucky than rich, especially when a person is young.

Now, the thing that got me into trouble at Clifton was the distaste I have for twice going over the same road. I did not want to go back to Cincinnati over the cable line that I had come out on. I thought I would walk through the place, and that I would come to some other line and go in that way, and thus see more of the surrounding country.

The day became hotter and hotter. The valise became heavier and heavier. I passed an academy. Public school would be too plebeian a name for an institution that was to teach the children of such wealthy people as live in Clifton, so they call the place an academy. Then there was an aristocratic church. Finally I met some one, and said to him:

"How far is it to a street car line?"

"Oh, you're going the wrong way. The cable cars are a few miles in the other direction."

"Yes, I know. I came that way, and I want to go back another."

"That's your best way back to town. I don't know how far it is to another line this way—five miles, I guess."

I thought I was good for five miles, so I tramped along. The next person I accosted made it four miles and a half, and the next four miles. I was polishing off the distance in good shape, and so was satisfied. Finally Clifton avenue came to an abrupt and untimely end, and the street that branched off was called Lafayette avenue, I think. It went at right angles to Clifton, and was equally beautiful. After a tiresome trudge, I came to a gang of

men fixing the road. Among them was a civil engineer taking a sight through his telescope, which stood on the usual tripod.

"How far is it to a street car line?" I asked.

"The nearest street car line is at Cummingsville. You had better go back and take the cable road."

"Good heavens! Don't say that. It must be twenty miles to the cable road."

"Not quite so far. But it's five miles and a half to Cummingsville."

"Oh, see here," I said, "you've got to do better than that. A man miles back told me it was only five miles then and I have been offered Cummingsville at four and a half and four miles since that time. Make it three and a half, like a good fellow."

"Can't do it, my boy. You see, I've measured every inch of the way. They couldn't deliver Cummingsville at that rate. I'll tell you the very best I can do; I will take twenty rods from the five and a half. I'll let you have the cable cars at five and a quarter, and not so much up-hill work at that."

"I wouldn't have the cable cars at any figure: it's Cummingsville or bust with me."

"You'll find the ville a long time cumming," said the surveyor, and after he said that I left.

From that time forth the valise weighed a ton. But I soon came on a view that was worth all the toil. There was a tremendous ravine, and a small lake at the bottom. On the other bank was a private residence that looked like a castle on the Rhine. Further on the view became even more extended. The road was now at the top of a steep hill. At the bottom ran a canal, and beyond that was a town. Away in the blue distance stretched a long valley, and the outlook reminded me of some of the minor ravines of Switzerland. I was wishing the town at my feet was Cummingsville, when I came on some more road makers.

"What town is that below there?" I asked.

"Cummingsville," was the reply.

"Thunder! It can't be very far there."

"About five miles by the road; about a quarter of a mile down the hill."

"Then I'm going down the hill."

"They won't let you. It'll be trespassing."

"Trespassing be hanged. I'm not going to walk five miles to a place when I can get there in a quarter of a mile. Here goes for Cummingsville!" With that, I swung my ton and a half valise over the garden wall and started down the steep hill. As I neared the bottom, I noticed a man coming to head me off. As he came within hearing distance, I said:

"Oh, I know all about it. I'm trespassing and doing it deliberately. You can arrest me if you want to. I don't object. In fact I would rather like it, for I'm dead tired out and you'll have to take me to town in the patrol wagon."

"I don't object to your trespassing," he said, calmly, "I merely wanted to know if you knew where you were going?"

"I'm going to Cummingsville."

"Really? Then may I ask can you swim?"

"Certainly. Why?"

"Well, you'll have to. There is no bridge within five or six miles, and you'll have to get across the canal before you get to Cummingsville."

"What's the matter with my going along the bank of the canal till I come to bridge?"

"Nothing, except that the tow path is on the other side, and to go along the canal you will have to climb about a score of fences, some of which are made to prevent people from doing just what you propose. Then there are a dozen hedges, which you can't possibly get over and which would tear your clothes from your back if you tried to go through. That's all."

I sat down on the green sward and groaned.

"Take my advice and climb the hill again. It's your only chance."

"You don't want a hired man, do you? I'd rather stay here for the rest of my natural life than try to climb that hill. The only consolation I would have would be that when I got up there I might massacre some of those road makers who induced me to come down."

The darkest time is before the dawn. Just at this moment a canal boat came along. I shouted to the man at the wheel in spite of the restriction there is generally in vogue about speaking to that individual, and asked him if he could slew his craft near enough the shore for me to get on board. He did so and I swung on my two ton valise and got on after.

"See here," I said "what will you charge to take me to Cincinnati?"

'Twenty-five cents," was the reply.

"All right," I agreed, "I'll make myself comfortable, for I'm very tired."

"Do," said the man,

After we had gone about a mile he said:

"That don't include board, you know."

I was nearly asleep and started up.

"What don't?"

"The twenty-five cents."

"Oh, all right."

"I think it's a mighty cheap ride as it is."

"It's only five cents on the street car."

"Yes, but you see we go to Toledo first. We won't get to Cincinnati for three weeks."

"What!"

He was kind enough to swing his boat to the shore and let me get off. The photographic valise weighed three tons during the dreary tramp along the tow path to Cummingsville.—*Luke Sharp, in the Detroit Free Press.*

Notes and News.

PHOTOGRAPHERS OF JOHNSTOWN.—From our friends in Pittsburgh we learn that the following photographers living in Conemaugh Valley when the great flood occurred were saved: E. A. Zimmerman, Wesley Green, G. Green, Edward L. Buber, Charles Burgraff, Mr. Davis, of the firm of Caddy & Davis; but Mrs. Davis and three children were lost; also George Statler, an artist, was lost.

FIRE.—A fire occurred in the factory of The Scovill & Adams Company, in New Haven, Conn., Wednesday evening, July 10, considerably damaging the building designated as Building E, and completely destroying the contents. As this is only one of thirteen buildings which constitute the New Haven factory of The Scovill & Adams Company, the conflagration will not in the least interfere with the regular business of that company.

How the fire originated is a mystery, probably spontaneous combustion, or a spark ignited by friction, during the day, and smouldering in the sawdust, was the cause. The loss is fully covered by insurance.

ART STUDENTS' LEAGUE OF NEW YORK.—The season of 1889-90 will open October 7th, and continue until May 31st.

Mr. Augustus St. Gaudens has consented to assume the instructorship of the Modelling Class, and will continue the supervision of the same throughout the year.

A room will be set aside exclusively for Still-life Painting under Mr. Chase.

The Women's Afternoon Life Class will be continued with Mr. B. R. Fitz as instructor.

The Preparatory Antique Class has been found of great value, enabling the League to maintain a higher standard in the other classes, and to direct from the start the method of study. No examination is required before entering this class, and students are advanced as soon as qualified to work in higher classes.

Students contemplating a course of art study abroad will find that a year or more at the league will be of great advantage in familiarizing them with the best methods of study, and especially in the more careful elementary training afforded here.

Workers in the various branches of industrial and decorative art will find in the evening classes of the League advantages for improvement and progress in artistic knowledge superior to any afforded elsewhere. The evening Antique, Life, Costume and Composition Classes are maintained especially for those thus employed during the day.

Mr. Horace Bradley, who served the league so ably as President during the past year, has been engaged as Director of the School for this season. He will exercise a general supervision of the school and represent the President and Board of Control.

For further information address SUSAN M. KETCHAM, Corresponding Secretary.

LIGHTNING PHOTOGRAPHS.—In response to an invitation sent out by the council of the English Meteorological Society, more than 100 photographs of lightning flashes were received by the society. Thirteen of the most remarkable of these have been reproduced in the June number of *Knowledge*. They show knotted lightning, ribbon lightning, and flashes which appear like a delicate curtain of lace suspended in the air.

THE "WET" PROCESS.—A Williamsport paper says: "A dude wanted to be photographed standing on a raft in the middle of a flooded street. He hired a photographer and a man to carry him to the raft, so that his feet would not get wet. Some railroaders, for harmless diversion, jumped on the raft and sunk it, compelling the dude, with ill-concealed rage, to wade out in water to his middle."

"WILD LIFE IN THE FAR WEST."—The following excerpt from the *Mining Journal*, of Negaunee, Michigan, has all the breeziness and spice that characterize the paragraphs professing to emanate from the "Arizona Kicker," which go the rounds of the press, and possesses the additional merit of being perfectly genuine. It shows that the life of even the most enterprising "tent operator" is not a perfectly smooth one.

"A tent photographer who set his stakes near the engine-house Saturday and proposed to do business on a cheap basis here for a season, has since concluded to leave for Marquette. The license demanded of him in Negaunee made him "tired," so he will quit us. Marquette can have him. There is room here for a photograph gallery, but tent operators—whether they pull teeth or take pictures—are not wanted in Negaunee."

The idea of speaking so slightingly of both dental and photographic artists!

PHOTOGRAPHY AND BRIDES.—From the fact that nearly every bride whom the writer noticed, during a recent visit to Niagara, carried a Kodak, it would seem that the detective camera finds a place among wedding gifts. Not only the brides, but a large proportion of the other visitors have cameras. In spite of this, the tourist is constantly importuned to sit for his picture. No sooner does he cross to the Canadian side of the river than a photographer rushes after him, exhibiting a framed picture, representing a couple seated on a rustic settee, with the falls as a background, and he is assured that it will only take a moment to perpetuate his form with the same surroundings. Go down to the whirlpool, and another artist awaits the unlucky traveler. The results are hardly artistic, in most cases showing the sitters in "woodeny" attitudes, somewhat suggestive of the puppets in a child's Noah's ark, while, as a contrast, the raging torrent forms a distant background. It is the same process to which W. D. Howells alluded some years ago in "Their Wedding Journey."—*Boston Herald.*

PHOTOGRAPHY APPLIED TO THE BALANCE.—Photography is utilized in the construction of a new balance which has lately been brought before the scientific world. In this novel instrument of precision, after the weight has been roughly approximated, instead of continuing the trials in the usual manner, the beam is allowed to come to rest, which it quickly does by means of an ingenious air buffer, and then the extent of the bending of the beam through the difference of the weights is observed by a microscope fitted with a network of parallel cross wires directed to a small micrometer fixed at the end of the beam. This micrometer is made by a photographic process, and carries figures and lines distant from one-twentieth to one-fiftieth of a millimetre apart. The introduction of Bunge's short-beam balance—comparatively speaking a few years ago—almost revolutionized weighing operations, owing to the despatch with which they could be carried on; it remains to be seen whether the new instrument, in which photography plays a part, will be an epoch-marking one.—*From the British Journal of Photography.*

PHOTOGRAPHING COMPRESSED AIR JETS.—According to *Industrie Zeitung*, of Riga, Russia, Professor Salcher and Riegler recently conducted an interesting series of experiments with the view of photographing a rifle ball in its flight after having been fired. A careful study of the photograph obtained is said to show waves in the air similar to those produced in water by a rapidly moving vessel. Encouraged by the success of the trials, and recognizing the fact that in the use of compressed air there are many yet unknown phenomena, Prof. Salcher under-

took to photograph jets of compressed air, issuing from small orifices. The air used was at pressures of 13, 16 and 18 atmospheres, and the opening from which it escaped measured 0.2 inches in diameter. Details and results are not given, but, when published, will, no doubt, be of considerable scientific interest. In any event photography of the invisible may be said to have been successfully accomplished. We may add here that the electric spark was used for the purpose of illumination in the course of the trials.

SULPHUROUS ACID AS A DISINFECTANT.—Dubief and Bruhl have carried on experiments in the bacteriological laboratory of the Cochin Hospital in Paris on disinfection by means of sulphurous anhydride. Their results are: (1) Tube cultures of germs are always destroyed when enough SO_2 is used. This is due to the SO_2 dissolved. (2) The number of germs in a room was always less after sulphuration than before, and the difference was greater as the humidity was greater. (3) Of the micro-organisms present in the air the mucors were destroyed first, then the micrococci, and finally the bacteria. From these results it is concluded that sulphurous anhydride has an evident microbicidal action on the germs in the air; that this action is especially manifest when the medium is saturated with aqueous vapor; that it acts above all on the spores of germs, and that employed in the pure state it can destroy, when its action is prolonged, even dry germs.—*The Parmac. Era.*

Correspondence.

RAIL RATES TO BOSTON—EXHIBITORS, ETC.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: You might say through your journal that all railroads have granted a rate of a fair and one-third for round trip to Boston and return, good from any point, thereby giving all who wish to attend the Convention a chance to get the rate from their starting point. Tickets good for three days before opening of Convention and three days after closing of same before leaving Boston for return trip.

This will give all a chance to see the Hub and surrounding points of interest.

Yours truly,

O. P. Scott.

CHICAGO, July 13, 1889.

Under same date, Secretary Scott writes as follows concerning the Photographic Manufacturers and Dealers Department of the forthcoming Convention and the amount of space which already has been rented:

Benj. French & Co., Boston, 1,000 square feet; Genert, N. Y., 800 square feet; Eagle Plate, 892 square feet; Acme Burnisher, 252 square feet; Eastman, 1,134; Smith & Pattson & Allen Bros., 1,134; Blair Camera Co., 1,564 square feet; E. & H. T. Anthony & Co., 1,134 square feet; Entrekin Burnisher, 972 square feet; Stanly, D. P., 1,134 square feet; The Scovill & Adams Co., 1,134 square feet; Cramer, D. P., 660 square feet; Somerville, 440 square feet; Bryant, Laport, Ind., 704; Carl Mons & Co., 176 square feet; C. B. Richards & Co., 168 square feet; A. M. Collins, 480 square feet; White, Chair Manufacturer, Worcester, 288 square feet; Geo. Murphy, 288 square feet; Codman & Co. and Harvard Dry Plate, 1,764 square feet; Wilson-Hood-Cheyney Co., 288 square feet; Endeau Chair Co., 288 square feet; Schultz, Photo Equipment Co., 480 square feet; E. A. Gilbert, 108 square feet; Packard Bros., B. G., 912 square feet; M. A. Seed & Co., 912 square feet.

I have about twenty others that are not located. I should say that there are five or six thousand feet taken, probably more, that are to go on upper floor, such as Seavey, Newcomb Frame Co., Boston Furniture Co., Jos. E. Knapp, and a number of others.

Cannot locate and give them what they want until I see the building again.

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF JAPAN.*

A MEETING of the Photographic Society of Japan was held on Friday, June 7th, at the Chamber of Commerce, Tokio. Professor Kikuchi took the chair at 4 P. M. His Excellency, Viscount Enomoto, Minister of Education, was elected to the post of President of the Society by acclamation.

After some formal business, the special business of the meeting was begun. This was a demonstration, by Mr. K. Ogawa, of Willis's platinotype process. The capabilities of the process were shown by a set of mounted prints that were hung on the walls of the room. The appearance of a platinotype print is quite different from that of an ordinary photograph. The image is of an engraving black, and there is a complete absence of any surface gloss. The prints have, moreover, the inestimable advantage of being absolutely permanent, in the sense that they cannot be destroyed but by the destruction of the paper support. The process of coating the paper was shown, and that of development was demonstrated on some prints that had previously been exposed to daylight in printing frames in the usual way. There was a good attendance of those interested in the "black art," and they all took a keen interest in seeing the magic way in which the picture appears in the developing solution.

Mr. Ogawa spoke chiefly in Japanese, and some additional explanation was given by Professor W. K. Burton. It was explained that the paper was coated with a mixture of certain iron and platinum salts, that the light in the printing frame affected the former, which, in its turn, had the power, when dissolved by the developer, of reducing the platinum salt to the metallic state, so that an image in metallic platinum in a very fine state of division, or "platinum black," as it is commonly called, resulted.

The Society will shortly hold a camera "field day," when, if favored with fine weather, a very pleasant excursion is to be expected.

* Concerning this Society Prof. W. K. Burton wrote as follows, under date of June 4th to the editor of the *Japan Mail:*

I ask leave to tell your readers that the Photographic Society of Japan has now been duly constituted. There are, already, nearly sixty members, of whom very nearly one half are Japanese. There are a few professional photographers, but the great majority are amateurs. I am glad to be able to state that His Excellency Viscount Enomoto, Minister of Education for Japan, has consented to be nominated as President. The Vice-Presidents are Professor D. Kikuchi, M. A. Cantab, Director of the College of Science, Imperial University, and Dr. W. S. Bigelow; the Secretaries are Professors H. Ishikawa and W. K. Burton, and the Treasurer is Mr. T. Asanuma, of Honcho, Tokio.

These are all ex-officio members of the Committee, and besides them there are Professor C. D. West and Mr. Kajima Masanosuke.

The next meeting will be on Friday, June 7th, at 4 P. M., at the Chamber of Commerce (Shoko-kai) in Kobikicho (east side of Central Telegraph Office), Tokio. The subject will be a demonstration of the working of the Platinotype Printing Process of Willis, from the coating of the paper to the completion of the print, given by Mr. K. Ogawa. This beautiful process is now being worked for the first time on a large scale in this country, and it is believed that the demonstration will be of great interest.

All communications concerning the Society should be directed either to Mr. Ishikawa, at No. 5 Minami Nabecho, Ichome, Tokio, or to myself at the address given below.

I am, sir, yours, etc.,

W. K. Burton,

COLLEGE OF ENGINEERING, Imperial University, Tokio.

DUBUQUE CAMERA CLUB.

ABOUT twenty of the amateur photographers of the city met on Tuesday evening, July 2d, at the book store of Harger & Blish. Prof. Irish was called to the chair, and George Davis was made secretary. The committee on organization made their report, which, after some discussion and alterations, was adopted.

Officers were elected as follows:

Prof. Irish, President.

C. T. Bush, Vice-President.

George Davis, Secretary.

H. Wilging, Treasurer.

Joseph Early, Will Tice, and B. M. Harger, Executive Committee.

The "Dubuque Camera Club" was adopted as the name of the organization. The regular meetings are to be held on the first Tuesday of each month.

PHOTOGRAPHERS' AND ARTISTS' MUTUAL BENEFIT ASSOCIATION.—The following statement was handed us for publication, by Mr. N. B. Thayer, the "General Manager of Agents of the G. C. of the P. and A. M. B. A.," with a copy of the Constitution and By-Laws, which we append:

Having received numerous letters of inquiry concerning the Photographers' and Artists' Mutual Benefit Association, and its plans and purposes, we desire to state to the fraternity: That in the first place said Association is being organized, and is calculated to embrace in its membership every respectable and worthy photographer and artist in the country.

The Grand Council of said Association might be termed the executive committee of the Association.

It is duly incorporated under the laws of the State of New York, so as to be able to sue, be sued, and to transact all business necessary for the successful management of the affairs of the Association. The Association was inspired by the general complaint which prevails throughout the land against the unreasonable and ruinous reduction in prices below the figure at which first-class work can be produced.

The public who appreciate and love art join with the artist in the demand that the prices shall not be forced below the figure for which good work can be done. The practice of some photographers to exhaust their own resources by forcing prices below the cost of production, in order to drive their neighbors out of the business cannot be called fair competition and is degrading to the profession. The purpose of this Association is to stop this practice, and to cause to be established among its members a graded scale of prices, that will be fair and equitable, and enable each to receive a fair and reasonable compensation over the cost of production.

It has a bureau of information concerning photographers and artists, and the needs and requirements of the profession, by which it is enabled to assist the applicant—either for help or for a situation—and to aid members in the improvement of their work.

It proposes to help dignify the profession and enable it to command the respect of the public, and as soon as practicable to require those who engage in the profession to obtain certificates of competent experts as to their qualifications.

It further purposes, to be at all times on the alert and ready to assist the struggling photographer and artist, and to use its influence and strength in crushing out any and all evils that may tend to degrade or injure the profession. "In unity there is strength," and from the enthusiastic and hearty support which has been accorded this movement throughout the land, we are convinced that it came none too soon, and can be pushed none too fast. We are aware that reforms are seldom effected without meeting objectors who say "it cannot be done." To such we wish to say now, that we have the ways and means to accomplish the objects and aims of the Association.

Different cases will require different treatment; just what plans will be pursued in each case, of course, we will not be expected to make public. But all may rest assured that the plans are well formed and bound to succeed. We propose to protect the members of this Association, and guarantee them against any loss by fidelity to the order.

There is no turning back. This Association has its work to perform and will do it honorably and fearlessly.

ABRAHAM BOGARDUS,
President.

FRANK E. CADY,
Secretary.

P. S. RYDER,
Treasurer.

CONSTITUTION.

ARTICLE I

NAME, ETC.

SECTION 1. This body is and shall be called Grand Council of the Photographers' and Artists' Mutual Benefit Association, and shall be composed of the persons who executed the certificate of incorporation, and all other persons who shall be eligible according to, and complying with, the Constitution and By-laws of said Association, and be duly initiated therein.

ARTICLE II.

SESSIONS.

SECTION 1. The Grand Council shall meet annually, on the second Monday in March, at 2 o'clock P. M., at such place as may be agreed upon at each preceding session, and shall continue to meet from day to day (except Sundays and legal holidays) until all the business before it is disposed of.

The place of meeting of the Grand Council shall be as a majority thereof may by ballot determine.

SEC. 2. The President of the Grand Council shall call special sessions thereof whenever he may deem it necessary, but five days' notice must be given thereof to each member of the Grand Council.

ARTICLE III.

OFFICERS AND ELECTIONS.

SECTION 1. The officers of said corporation shall consist of a President, Vice-President, Secretary, Treasurer, and a Board of Trustees, to consist of five members, all of whom shall serve for a term of one year or until their successors are duly installed and qualified.

SEC. 2. Should vacancies occur among the officers by death, resignation, or otherwise, during recess, the Board of Trustees, or a majority thereof, shall appoint a member of the Council to fill the vacancy, until the next session, regular or special, of the Council, when such vacancy shall be filled by election.

SEC. 3. The officers of said Grand Council shall be elected at the first session of said Council by the persons eligible to said Grand Council, as stated in Article I., Section 1 of this Constitution, and thereafter by those entitled to vote in this Council, at the time prescribed in the order of business.

SEC. 4. There shall be appropriated, to pay the salaries of officers, the sum of five cents (5) from the initiation fee and monthly dues of each member of the Photographers' and Artists' Mutual Benefit Association, which sum shall be the maximum amount that can be taken for such purpose.

ARTICLE IV.

QUORUM AND VOTING.

SECTION 1. A majority of the members of said Grand Council shall constitute a quorum.

SEC. 2. A majority of the legal votes of the members present, and entitled to vote, shall decide all questions in this Council, except amendments to the laws, appeals from rulings and decisions of the President, during recess or in any Council meeting, or expenditures or appropriation of moneys, to determine any of which shall require a vote of three-fifths of the members present and entitled to vote.

SEC. 3. Each officer and every member of said Grand Council (who shall not be legally suspended from such Council and participation in its affairs, as provided by the code of procedure of said Council) shall be entitled to vote on every question.

SEC. 4. Voting herein shall be by ball, written ballot or voice, and the ayes and nays, when called for by two members, shall be taken and entered on the record, but votes for officers shall be by written ballot.

The President shall appoint three tellers when necessary.

ARTICLE V.

CODE OF PROCEDURE, ETC.

SECTION 1. The Grand Council may make such rules of order as may be necessary for the regulation of its sessions and for securing good order and dispatch of business.

SEC. 2. The Grand Council shall have power to adopt a code of procedure for the trial and punishment of members charged with offenses against the laws of the Association.

SEC. 3. This Grand Council shall make such by-laws, rules of order and order of business, and code of procedure as it may deem expedient under this Constitution, and any by-law thereof conflicting herewith is hereby declared null and void.

ARTICLE VI.

SEAL.

SECTION 1. This Council shall have an official seal having an appropriate device thereon.

ARTICLE VII.

ALTERATIONS AND AMENDMENTS.

SECTION 1. Alterations and amendments to this Constitution may be made at any regular meeting of the Grand Council by a vote of two-thirds of the members present and entitled to vote at such meeting.

SEC. 2. The Grand Council may adopt such regulations and general laws as may be deemed necessary for the welfare of the Association, not inconsistent with the provisions of this Constitution, and alter, amend, or abrogate the same.

BY-LAWS.

ARTICLE I.

ELECTION OF OFFICERS.

SECTION 1. Any legal member present may nominate any eligible member for any elective office by open nomination.

SEC. 2. All legal members of the Grand Council (who have not been suspended according to law), shall be entitled to vote.

A majority of the votes cast shall be necessary for an election.

After the polls are closed the votes shall be counted by three members of the Council, appointed as tellers by the President, whose duty it shall be to announce the result of the balloting.

SEC. 3. Any member of this Council (who shall be in good standing and not suspended as provided by law), shall be eligible to any office in the gift of the Council after its organization and election of its first officers.

SEC. 4. The installation of officers shall be after the business of the session, at which the election takes place, has been completed.

All officers shall hold office from one session until the next, and until their successors are installed and fully qualified.

SEC. 5. Should any of the Council officers-elect fail to be present for installation, the President may install them as soon as possible thereafter.

ARTICLE II.

DUTIES OF OFFICERS.

SECTION 1. The President of the Council shall preside at all sessions of the Council; enforce order and decorum; decide all questions of order without debate, subject, however, to an appeal to the Council by two members; appoint Council officers pro tem. in case of temporary absence of any of the Council officers; sign all orders drawn upon the Treasurer for such sums as may be ordered by the Council, and sign all other papers as may require his signature to authenticate them.

He shall exercise a general supervision over the Association, appoint all committees not otherwise provided for, present and cause to be read his report at the stated sessions of the Council.

He shall call the Vice-President to the Chair during the discussion of any question before the Council on which he may desire to speak. He shall, at the annual session, appoint the following committees:

1. On Laws and their Supervision.
2. On Appeals and Grievances.
3. On Finance.
4. On Science and Art.
5. On Printing and Supplies.

He shall, at the annual session, present a report of his acts during the recess of the Council.

He may exercise, as occasion may require, all the rights pertaining to his high office, in accordance with the laws and usages of the Association. He shall have a watchful supervision over all the affairs of this Association and see that all the constitutional enactments, rules and edicts of the Grand Council are duly and promptly observed, and that the work and discipline of the Association everywhere are uniform.

He shall call special sessions of the Council when he deems it necessary.

He shall designate one of the officers of the Grand Council, residing in the State of New York, upon whom legal process can be served, in accordance with the laws of that State.

He shall approve of the bonds of the Trustees and cause to be executed, and to securely preserve and keep the official bonds and securities of all officers of this Council.

He shall discharge the executive functions of the Council in the interval between sessions.

It is hereby expressly declared to be the law, that whatever the Council could do while in session, except elect officers, alter or amend the Constitution, the President, with a majority of the Board of Trustees, can do during recess.

He shall be ex-officio a member of all committees.

SEC. 2. The Vice-President shall assist the President, and in his absence shall preside, and in case of the removal, death, resignation, or inability of the President, that office and its duties shall devolve on the Vice-President.

SEC. 3. The Secretary shall keep a just and true record of all the proceedings of the Grand Council at each session; he shall keep a true record of all members of the Association.

He shall preserve the archives, have charge of the seal, books, papers, and other properties of the Grand Council, and shall deliver the same to his successor when qualified or when required to do so by this Council; he shall officially notify all members of the Grand Council of all meetings thereof aud carry on all the necessary correspondence of the Council.

He shall, at each session, present to the Grand Council a report of the general condition of the Association; receive all moneys due the Council and pay them over monthly to the Treasurer, taking his receipt therefor, and keep a correct and true account of the same; draw all orders on the Treasurer for such moneys as may be voted by the Council or as may be ordered by the President and a majority of the Board of Trustees in recess, and attest the same, besides all other official papers and documents; he shall report in writing at regular sessions, and at any time when so required by the Council or Trustees, the condition of the funds of the Council; he shall keep a record of all securities received by him from the Trustees and deposited by him with the Treasurer for safe keeping; he shall deliver the books to the Finance Committee whenever it may demand them; he shall give bond in the sum named by the Council or during recess by the Board of Trustees; his bond may be increased from time to time by the Council or its Board of Trustees.

He shall have power to provide himself at the expense of the Grand Council with such books, papers, stationery, and postage as are necessary for the proper fulfillment of his duties, and he shall perform such other duties as may be required by the laws and regulations of the

society and as the Grand Council or the Board of Trustees may from time to time direct.

SEC. 4. The Treasurer shall receive from the Secretary all moneys received by him for the use of the Association, giving his receipt therefor; pay all orders drawn on him by the President and properly attested by the Secretary and stamped with the seal of the Grand Council, and none others; keep the accounts in a proper manner, showing the amounts and sources of receipts, and the amounts and purposes of disbursements, and shall give a statement thereof in writing at the annual session or whenever requested to do so by the Grand Council or its Board of Trustees. Before entering upon the duties of his office he shall give such security for the faithful performance of his duties as the Grand Council or its Trustees may deem satisfactory, which bond may be increased during recess by the Trustees, and deliver the books to the Finance Committee for examination whenever it may demand them.

At the expiration of his term of office he shall deliver all books, papers, and moneys (belonging to the Council, and in his possession, or for which he is responsible), to his successor, when declared qualified by the President.

In making his annual report he shall state the total amount of money received by him and from what source, together with the amount expended, to whom paid, the date of payment and for what purpose, the name of the person or persons receiving said moneys to be given in connection with the number of warrant or order drawn.

The Treasurer shall furnish his report to the Committee on Finance at least one week before the meeting of the Council.

SEC. 5. The Trustees shall have supervision of the Funds and charge of all properties of the Council.

They shall give their bonds to be approved by the President. The Board of Trustees, by majority thereof, shall approve of the bonds of all other officers.

ARTICLE III.

MEMBERSHIP.

SECTION 1. Any person of good moral character, who shall comply with the rules and secret workings for the initiation of members, shall be entitled to membership in the Grand Council.

The Editorial Table.

THE POINTER, for June, 1889, contains a reproduction in color, from a negative by Havens, of Jacksonville, Florida. It is entitled, "Who said Watermillions?" and shows a little negro boy in characteristic pose and expression.

FROM James Irving Maxson, of Maxson & Co., photographic merchants at Westerly, R. I., we have received an excellent 5x8 mounted photograph of the brig, "Toronto," of Windsor, wrecked amid the breakers at Watch Hill, R. I., Thanksgiving Day, 1886.

The negative was made by E. H. Babcock, of Westerly, R. I., and is not unlike the coast view presented in THE PHOTOGRAPHIC TIMES of April 19th, by Mr. J. F. Cowee. This view was made with a Waterbury lens and an ordinary amateur's outfit. It is an excellent picture of a very interesting subject.

THE MAGAZINE OF AMERICAN HISTORY opens its July number—the beginning of its twenty-second volume—with a "Story of the Washington Centennial," illustrated from photographs by amateurs and other artists, executed during the progress of the celebration. It is safe to say that no great public event was ever before seized in all its interesting particulars, and placed before the popular eye, with such felicitous results. The truthful pictures of the scenes are rendered doubly attractive and valuable through the portraits of the distinguished characters in our national life of to-day appearing in them. The view of the assemblage on the steps of the Sub-treasury Building in Wall Street is good, and every reader will be able to recognize in the picture the distinguished men present whose faces are best known.—*Science.*

VISITOR (to butler, who is showing him through the picture gallery of the old mansion): "That's a fine portrait. Is it an old master?"

Butler: "No. That's the old missus."—*Exchange.*

Queries and Answers.

146 N. B. P.—How can I remove pyro stains from the fingers?

146 *Answer.*—By soaking them for a while in dilute hydrochloric acid, 1 : 6.

147 MISS P. B., OF ALABAMA.—What is the shortest time a negative can be washed thoroughly in running water?

147 *Answer.*—From two to three hours.

148 A. B., of Elmira: What would be the effect if Eau de Javelle or zinc hyposulphite in strong solutions be applied to negative or positive, would it reduce density in either case?

148 *Answer.*—It would most certainly. In fact if too strong it will destroy the whole silver deposit.

149 PERCY FERGUSSON.—Having read that sodium chloride, when added to the developer, is a good remedy against frilling. I am anxious to know in what proportions it is used?

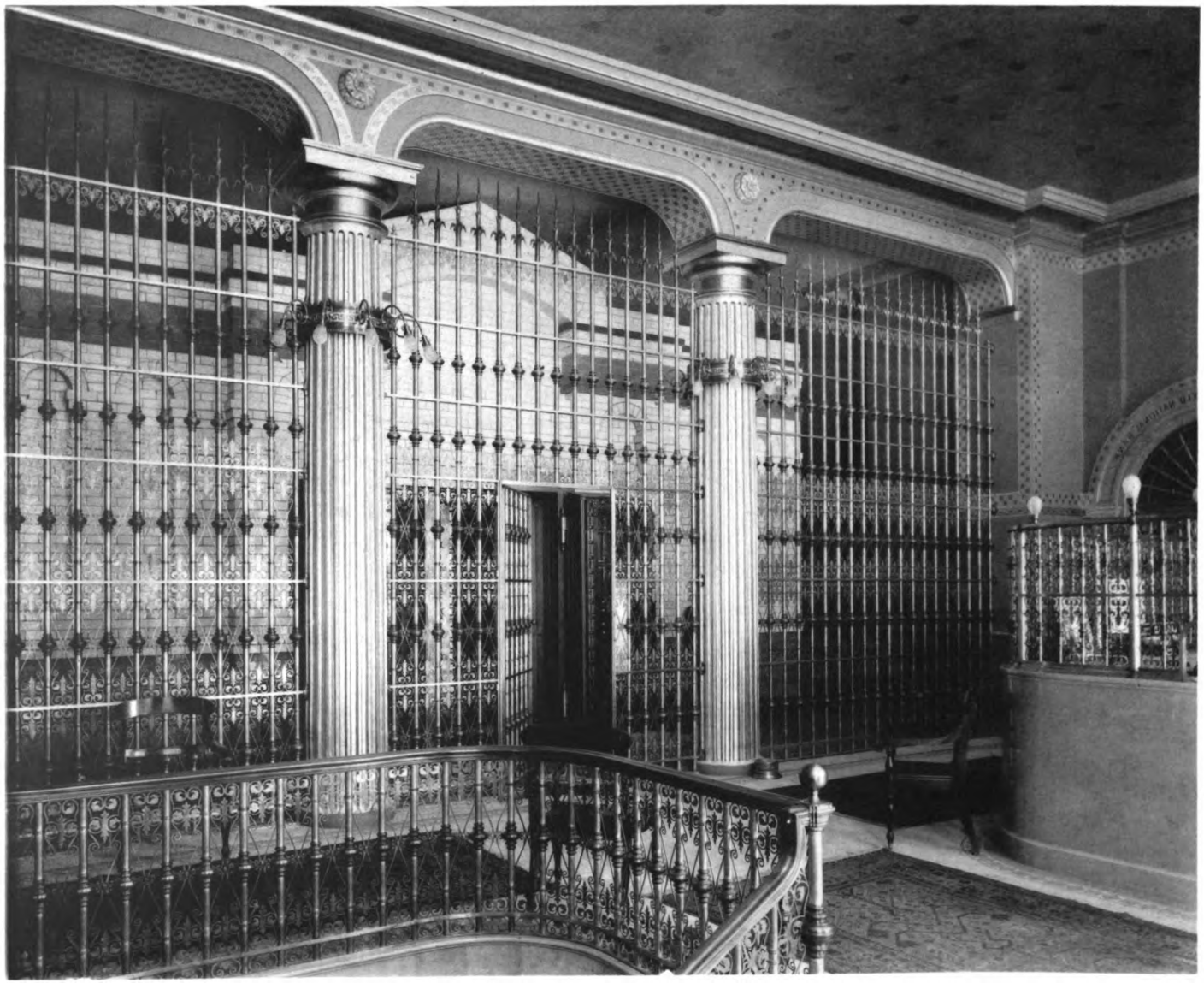
149 *Answer.*—We cannot recommend chloride of sodium as an antifrill. Besides being a restrainer, it rather tends to soften a gelatine film. As the salts of magnesium harden such matter, you might try chloride of magnesium, which probably may have the same effect as the sulphate salt. Take one-quarter ounce of saturated solution to four ounces developer. If it acts at all as you desire, in these proportions it will be strong enough.

150 71ST REGIMENT.—When varnishing gelatine negatives with Mountfort's varnish, a white deposit will settle upon the plate, and make it unfit to print from. I have spoiled in this manner several very valuable negatives, Is there a way to remove the white deposit?

150 *Answer.*—That is by no means the fault of your varnish, which, by the way, is one of the best we know of. If your negative is not perfectly dry, the same effects will occur with any alcoholic varnish. To expel all moisture from the film, heat it slightly before the varnish is applied. To remove the white deposit from the negative bath in two or three changes of alcohol.

151 EXPERIMENTER.—Can you advise me how to wash emulsion well and comfortably without constructing extensive washing apparatus. I am trying to make my own plates, but being an amateur only, do not wish to experiment on very large scale.

151 *Answer.*—Take an earthen teapot, place in it the emulsion, reduced to shreds, or pressed into nodules. Close the opening by fastening to it a double piece of embroidery canvass, and connect the spout of the teapot with the reservoir holding the ice-water by means of a rubber hose. By allowing a continuous stream of water to run through the pot about two hours, from twelve to twenty-four ounces of emulsion may be washed to perfection.



INTERIOR OF THE GARFIELD SAFE DEPOSIT VAULTS,

MASONIC TEMPLE BUILDING, NEW YORK.

C. D. ARNOLD, Photographer

THE
APHIC TIMES.

JLY 26, 1889. No. 410.

sembling collodion wet plates. In solution with hites it is durable and has about the same erties as other developing agents. Herr Kin- n does not endorse its claimed virtue of re- he time of exposure, although *Photographen gen* has it that an exposure of one second ith eikonogen is equal to three seconds inon. With short exposure and long e negatives are but weak and feeble, t tanning properties of eikonogen. tives require intensifying in the e cannot predict a great popu- t among American operators.

F PHOTOGRAPHY.

-(*Continued.*)

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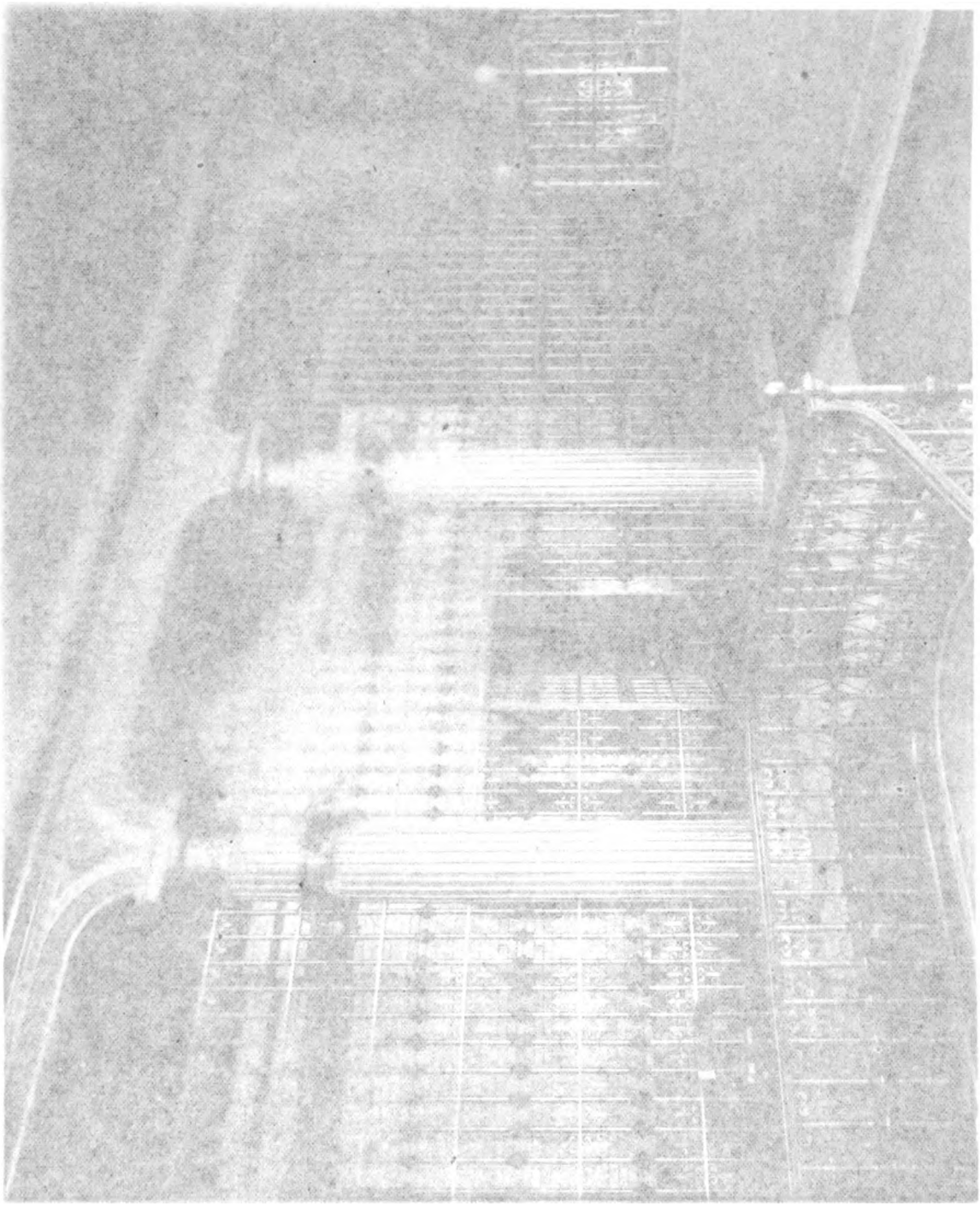


THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, JULY 26, 1889. No. 410.

A BANK INTERIOR.

OUR full-page illustration this week, shows the office and entrance to the safe deposit vaults of The Garfield Safe Deposit Company in the Masonic Temple Building, New York.

The negative was made by C. D. Arnold, and was selected for its conspicuous technical excellencies. Though of a difficult subject, the photograph is in every particular entirely satisfactory, and is, therefore, worthy of a place in the series which appears in THE PHOTOGRAPHIC TIMES.

EDITORIAL NOTES.

JOURNAL DE L'INDUSTRIE PHOTOGR. describes a rather complicated contrivance, for the washing of prints of large dimensions in vertical position. The idea should by no means be rejected, but the apparatus might be improved upon.

A water tank of sufficient depth to submerge in it vertically a full sheet of albumenized paper, needs only to be furnished with a number of thin wooden cross pieces, an inch or less apart, upon which the end of the sheet might be held by Adt clips. When the tank is full of water the paper will not tear, but be much easier freed from hypo. by a gentle stream of water running through the tank, than if the prints float horizontally, and in close proximity to each other.

EIKONOGEN, the new developing agent, seems really to do what is claimed for it. Herr C. Kindermann, of Hamburg, a well-known photographer and a very cautious man, relates in *Deutsche Photographen Zeitung* what he knows about the efficiency of this new agent. The chemical nature of the substance is not known, though we learn from other sources that it is supposed to be a derivative of naphthalin. In the development of details in whites as well as the deepest shadows, eikonogen, he says, surpasses any other medium, the negatives resulting being perfectly clear, quick printers, resembling collodion wet plates. In solution with sulphites it is durable and has about the same properties as other developing agents. Herr Kindermann does not endorse its claimed virtue of reducing the time of exposure, although *Photographen Mittheilungen* has it that an exposure of one second developed with eikonogen is equal to three seconds with hydrochinon. With short exposure and long development, the negatives are but weak and feeble, owing to the great tanning properties of eikonogen. If then these negatives require intensifying in the majority of cases, we cannot predict a great popularity of the new agent among American operators.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—(*Continued.*)

PLATINUM.

Symbol, Pt. Combining weight, 194.

Platinum is found only in the metallic state. Grains and nuggets of this metal occur in the sands of rivers in the Ural Mountains, Borneo, California, etc. It is a white, very malleable and ductile metal, which never tarnishes, since platinum does not combine directly with oxygen at any temperature.

No single acid can dissolve platinum, but aqua regia, or any liquid capable of evolving chlorine will attack it. The high fusing-point of platinum—about 4,000 deg. Fahr.—and its power of resisting chemical action, specially fit it for use in the chemical laboratory, and render it serviceable to the photographer. Platinum crucibles, basins, spatulas foil and wire are frequently required. Platinum crucibles should never be put naked into a coke or charcoal fire, but always placed within a covered earthen crucible. They should never be used for melting any of the oxides of a readily fusible metal, such as lead or tin, as these metals will combine with the platinum and form an alloy, and the vessel will be destroyed.

PLATINUM TETRACHLORIDE (PLATINIC CHLORIDE).

Formula, $PtCl_4+5H_2O$. Combining weight, 336+90=426.

Prepared by dissolving platinum in aqua regia and evaporating several times, each time adding hydrochloric acid. A compound having the formula $PtCl_4, {}_2HCl$ is thus obtained, from which the hydrochloric acid may be expelled by heat. Platinic chloride forms red crystals, which are soluble in water, producing an orange-colored solution. When strongly heated, platinic chloride parts with two atoms of chlorine and is reduced to platinous chloride, $PtCl_2$. Platinic chloride combines with other chlorides, especially those of the alkali metals, to form a series of double chlorides, which vary greatly in their solubility. Potassium platinic chloride ($PtCl_4$, 2KCl), for example, is insoluble in water, while sodium platinic chloride ($PtCl_4$, 2NaCl), is readily soluble. The former salt—more generally known, perhaps, as potassium chloroplatinite—is largely used in the platinotype process.

POTASSIUM.

Symbol, K. Atomic weight, 39.

Metallic potassium was first obtained by Davy, in 1807. He decomposed caustic potash by a strong current of electricity, and obtained a silvery-white, soft metal, which tarnished instantly on exposure to air, owing to its great affinity for oxygen. For this reason potassium is usually kept in some liquid which contains no oxygen, as petroleum. Potassium decomposes water at all temperatures, forming potassium hydrate (caustic potash), and liberating hydrogen, the energy of the chemical combination being sufficient to inflame the hydrogen.

POTASSIUM BICHROMATE.

Formula $K_2Cr_2O_7$. Combining Weight, 294.

The chromium compounds are obtained by heating chrome iron ore with potash carbonate, by which means a soluble yellow chromate, K_2CrO_4, is formed. When sulphuric acid sufficient to combine with half the potassium in the yellow salt is added, the *bichromate* of potash is formed, and crystallizes out in large red crystals as the solution cools. Potassium bichromate dissolves in ten parts of cold water, but is much more soluble in hot water. It is insoluble in alcohol, and is very poisonous.

When bichromate of potash is mixed with an organic substance, such as gelatine, and exposed to light, it becomes dark-colored, owing to the liberation of oxygen, and the consequent reduction of the bichromate to chromic oxide, Cr_2O_3. A further effect is that the gelatine is rendered insoluble in water, and non-absorbent. Advantage is taken of this in the carbon printing process in photography, powdered carbon being mixed with the bichromatized gelatine, which is then exposed to light beneath a negative, and finally washed in hot water. The portions unacted on by light are dissolved away, while the insoluble parts remain to form the picture. Potassium bichromate has a very injurious effect upon the skin if there be any cuts or scratches through which it can enter.

POTASSIUM BROMIDE.

Formula KBr. Combining Weight, 119.

Prepared by dissolving bromine in caustic potash, whereby a mixture of bromide and bromate of potash is produced. This is evaporated down to dryness, and gently ignited to drive off the oxygen, by which the bromate is reduced to bromide also. Potassium bromide forms clear cubical crystals, which are readily soluble in water, slightly soluble in alcohol. It is a favorite restraining agent in the ordinary pyro developer, preventing any action upon the silver bromide which has not been affected by light, and steadying and regulating the decomposition of that which has.

POTASSIUM CARBONATE.

Formula K_2CO_3. Combining Weight, 138.

Carbonate of potash was formerly known as salts of tartar, "potashes," or "pearl-ash." The original source of this potash salt was the ashes which resulted from the burning of wood or other vegetable matter. When such ashes were boiled in pots the carbonate of potash was extracted from them, and it was then easily obtained in the solid state by evaporating the water. Of late years much has been obtained from beet-root, and from the potassium sulphate, which occurs in such vast deposits at Stassfurt, in Germany.

The "pearl-ash" of commerce contains small quantities of sodium carbonate, and potassium sulphate, etc. Potassium carbonate is a white deliquescent substance, very soluble in water, but insoluble in alcohol. Owing to its affinity for water, it is employed in removing the last traces of water from alcohol. It is a strongly alkaline salt.

"Potash"—as K_2CO_3 is familiarly called—is largely used to render alkaline the pyro developer. It must be carefully distinguished from the acid potassium bicarbonate, (bicarbonate of potash), $KHCO_3$.

POTASSIUM CHLORATE.

Formula, $KClO_3$. Combining weight, 122½.

Chlorate of potash can be made by passing chlo-

rine into a strong solution of caustic potash or of potassium carbonate. It is now largely manufactured by passing first chlorine and then potassium chloride into milk of lime.

Chlorate of potash forms flat, shining crystals having an acid and cooling taste, like nitre.

When heated to about 670 deg. Fahr., they decompose, and all the oxygen is liberated; hence this salt is largely used as a source of oxygen gas. By mixing with the chlorate of potash one-fifth of its weight of black oxide of manganese, the heat required to liberate the oxygen is greatly reduced. One pound of the salt should produce four cubic feet of oxygen. As the commercial chlorate always contains small quantities of chlorine, it should be purified by passing it through two wash bottles partly filled with water, in which a little caustic potash or potassium carbonate has been dissolved, before it is allowed to enter the bag in which it is to be stored.

Potassium Chloride.

Formula, KCl. Combining weight, 74½.

Chloride of potash is much like rock-salt in appearance and properties. Thick beds of potash-salts occur near Stassfurt, probably formed by the drying up of some old lake or inland sea. It forms colorless cubes, which are soluble in three parts of cold water; more soluble in hot water, but insoluble in alcohol.

Potassium Cyanide.

Formula, KCN (or KCy). Combining weight, 65.

Prepared by fusing dry ferrocyanide of potassium with potassium carbonate in an iron crucible.

The iron separates and sinks to the bottom, when the liquid potassium cyanide can be poured off, and being allowed to cool, solidifies to a white cake, which can be broken up for use. Owing to imperfect mixture or fusion, potassium carbonate is frequently present, as an impurity, in the commercial salt; but its presence is not directly harmful.

Cyanide of potassium emits an odor of prussic acid, and gives off that substance freely when any acid is added to it; it is highly poisonous. The aqueous solution dissolves gold and silver, forming double cyanides, which are largely used for electro-gilding and electro-plating. Potassium cyanide was largely used as a fixing agent during the "wet collodion epoch" of photography, but for gelatine plates it has been displaced by hyposulphite of soda.

Potassium Ferricyanide (Red Prussiate of Potash).

Formula, K_3FeCy_6. Combining weight, 329.

Prepared by passing chlorine gas through a solution of potassium ferrocyanide; the latter loses one atom of potassium and is converted into the ferricyanide. This salt forms beautiful red crystals, which are soluble in two and one-half parts of cold, or one and one-half of boiling water; insoluble in alcohol.

Potassium Ferrocyanide (Yellow Prussiate of Potash).

Formula, $K_4FeCy_6+3H_2O$. Combining weight, 368+54=422.

Prepared commercially by heating nitrogenous organic matter—as horns, hide-parings, etc.—with potashes and iron filings. The fused mass is heated with water, which, on evaporation, then yields tough yellow crystals. It is soluble in four parts of cold, or two parts of hot water; insoluble in alcohol.

Potassium Fluoride.

Formula KF. Combining Weight, 58.

Fluoride of potash is made by neutralizing hydrofluoric acid with caustic potash. The cubical crystals have a saline taste and deliquesce in air.

W. Jerome Harrison.

(*To be continued*).

ON ALLOTROPIC FORMS OF SILVER.

Silver is capable of existing in allotropic forms possessing qualities differing greatly from those of normal silver. There are three such forms, or rather modifications of one form, differing from each other in many respects, but all more nearly related to each other than any one of them to normal silver. One of these forms is soluble in water, passing readily to an insoluble form; and this last may, by the simple presence of a neutral substance exercising no chemical action upon it, recover its solubility. Another form closely resembles gold in its color and lustre.

Whether metallic silver shall be reduced from its compounds in its normal or in an allotropic form depends upon the reducing agent employed, so that it cannot be said with any certainty whether it exists in its compounds in its ordinary or in an allotropic condition; the latter alternative seems at least equally probable.

These allotropic forms of silver are broadly distinguished from normal silver by color, by properties, and by chemical reactions. They not improbably represent a more active condition of silver, of which common or normal silver may be a polymerized form. Something analogous has already been observed with other metals—lead and copper.

Much having been written, especially within the last few years, on the products of reduction of

silver compounds, a brief summary of what has appeared may be desirable before proceeding further. The study of this subject has led to remarkable divergencies of opinion on the part of the chemists engaged in it. Almost all the views advanced have been successively disproved by each subsequent publication. It follows that what has taken place in text-books is almost wholly incorrect.

The earliest experimental work was Faraday's, but his product has been proved to be a mixture. The next was the well-known paper of Wöhler, published in 1839. It is not my purpose here to enter upon a criticism of this memoir. If this illustrious chemist succeeded in obtaining by the the means employed a true citrate of silver hemioxide—as would appear from his analysis—no chemist since his time seems to have done so. The next publication to Wöhler's was that of Von Bibra, who used Wöhler's method, and whilst affirming that he obtained a similar citrate, found an entirely different constitution for the corresponding chloride; for instead of obtaining a hemichloride, Ag_2Cl, he gives, as the result of fifteen concordant analysis, the constitution of his product as Ag_4Cl_3. A citrate to yield such a chloride (if such a chloride exists), by the simple action of hydrochloric acid, could scarcely have the constitution assigned to it by both Wöhler and Von Bibra.

In 1882 Pillitz published two papers. He commences by disputing the probability of the existence of Ag_4O, on grounds of valency; namely, as implying that oxygen may be quadrivalent. Although it is very doubtful that any one has up to the present time succeeded in obtaining Ag_4O, the argument seems futile, as are many arguments deduced from supposed laws of valency. Similar reasoning would make Ag_2Cl impossible, which substance undoubtedly exists, and it would also deny the existence of K_2Cl, which stands upon such authority as that of Rose, Kirchoff, and Bunsen. Pillitz carefully examined the so-called hemioxide precipitated by alkaline solutions of antimony and tin and could find no trace of Ag_4O in any of them. He did not examine Wöhler's products.

The first person to deny categorically the existence of Wöhler's series of hemi-compounds appears to have been Dr. Spencer Newbury. In two interesting papers he describes a repetition of Wöhler's methods, and declares it to be impossible to obtain products of constant composition. The red solution taken by Wöhler to be argentous citrate Dr. Newbury concludes to be a suspension of finely divided silver. Muthmann, after a careful examination of Rautenberg's products, concludes that that chemist was wholly in error in asserting the formation of compounds of chromic, molybdic, and tungstic acids with silver hemioxide. He next studies the red liquid obtained by Wöhler's process, and comes to the same conclusion as Newbury, that it consists of finely divided silver suspended in water. I shall not dispute the correctness of this opinion in the case of the liquid examined by these two chemists; at the same time I cannot accept the tests of solution employed by Muthmann. That a substance will not pass through a dialyser shows that it is colloidal, and is no proof whatever that it is not in solution. Animal charcoal takes up many substances from true solutions. Decolorization by animal charcoal is no proof whatever that the color removed was not in true solution. By freezing, the molecular condition of a substance may be changed. Muthmann found that when the red liquid was mixed with gum-water and preciptated with alcohol the precipitated gum carried down with it the red substance, thence deducing that it was only in suspension. A solution of litmus was mixed with gum-water and precipitated by alcohol, the mass of the litmus went down with the gum, a trace only appearing in the filtrate. With Hoffmann's violet the same result. Yet no one, I think, will assert that these two substances do not make true solutions in water. Even, however, if these arguments could be admitted, they would not apply to the solutions presently to be described, which can be proved by optical means to be true solutions. I propose presently to show that silver may exist in a perfectly soluble form, dissolving easily and abundantly in water. Starting from this, it may show all degrees of solubility down to absolute insolubility; still, however, existing in an allotropic form and quite distinct from normal or ordinary silver. The solutions formed are as perfect as those of any other soluble substance.

Wöhler's process was next repeated by G. H. Bailey and G. J. Foster, who came to the conclusion that no citrate of hemioxide was formed, and that Wöhler's results must be neglected.

Von der Pfordten endeavored to obtain hemicomponds of silver by acting on the nitrates with an alkaline solution of sodium tartrate, and also with phosphorous acid. His determinations were made volumetrically, based on an opinion that a permanganate solution acidified with sulphuric acid would dissolve silver hemioxide but not metallic silver. Previously to receiving his paper I had found that sulphuric acid, even when diluted with ten times its bulk of water, was capable of acting

upon finely divided normal silver and of dissolving an easily recognizable quantity.

Von der Pfordten's conclusions were thus vitiated entirely. It should, however, be remarked that the difficulties of the subject are extremely great. In his last paper this chemist abandons his views as to the existence of silver hemioxide, so that at present the formation of Ag_4O by Wöhler's method, or by any other known method, is admitted by no one. That such an oxide may exist appears by no means improbable. The existence of Ag_3Cl and K_2Cl seems almost to involve that of Ag_4O and K_4O. This latter product Davy believed that he had obtained. The black substance which Von der Pfordten formerly regarded as Ag_4O he now takes to be silver hydrate, Ag_4H_2O.

The reduction products described by Von der Pfordten are strongly distinguished from those which I shall presently describe by two decisive reactions:—

1. None of his products could be amalgamated with mercury, all of mine readily amalgamate.

2. None of my products give off the slightest trace of gas when treated with dilute sulphuric acid; all of his do so.

Moreover, the difference of appearance is extremely great.

Early in the year 1886 I took up the study of the reduction products of silver in connection with that of the protosalts. I commenced with Wöhlers process, giving it up after a few trials as affording no satisfactory results, and sought for a more reliable means. This I found (in March, 1886), in a reaction which I still use, namely, the reduction of silver citrate by ferrous citrate. At first, however, the results obtained were most enigmatical, the products very unstable and impossible to purify. Much time was lost, and the matter was given up more than once as impracticable. Eventually, by great modifications in the proportions, stable products, and capable of a fair amount of purification, were got. Even the earlier and less pure forms were beautiful; the purer are hardly surpassed by any known chemical products.

The forms of allotropic silver which I have obtained may be classified as follows:—

A. Soluble, deep red in solution, mat-lilac, blue or green while moist; brilliant bluish-green metallic when dry.

B. Insoluble, derived from A, dark reddish-brown while moist; when dry, somewhat resembling A.

C. Gold-silver; dark bronze whilst wet; when dry exactly resembling metallic gold in burnished lumps.

Of this form there is a variety which is copper-colored, insoluble in water, and appears to have no corresponding soluble form.

M. Carey Lea.

(*To be continued*).

THE MAKING OF LANTERN SLIDES.

[A Talk before the Society of Amateur Photographers of New York.]

DURING the past winter I had occasion to make a number of slides for Professor Cromwell, when he exhibited at the Grand Opera House. While doing that, an old theory, to my mind, was exploded. That is, that the nearer the lantern is to the screen, the denser the slide should be. His pictures, as you may well know, are enlarged up to about 75 feet square. The lantern is placed fully 100 feet from the screen, and the slides which I first made went to pieces; they were too thin. I couldn't account for it; but went to work and made denser slides, with no better results. I soon found out that it was not density which was required, but the color. The slide should be absolutely clear in the shadows and lights. Since then I have experimented with a great many developers; the effects of five having been shown here by the lantern, and I have decided in favor of antipyrine. I use it the same as I would hydrochinon—that is, take antipyrine, dissolve it in sulphite of soda solution, then make an alkali, the best alkali being caustic potash, the most active. Develop your plate. I have a brass plate about five inches in diameter. This is attached to a wheel, under which is a lamp. The plate is heated and a centrifugal motion given to the plate, and while the plate is in motion the gelatine upon the plate is slightly softened, so that all the relief of development entirely disappears, leaving the gelatine free from veiling, which is often the case with gelatine slides. After that I used to varnish with collodion, which I have long since discontinued. I take an ordinary varnish, add to it one or two chemicals, which are not commercial and in stock houses, but which can be obtained in drug stores the same as antipyrine; make a water varnish and varnish the plate while wet, and then place away to dry, which gives a beautiful, clear slide, as you can see by these which I pass around. They are free from grain and with apparently no density at all. But the lack of density is made up in the clearness of the lights and the clearness of the shadows. The reducing agent, antipyrine, is very slow, requiring at least thirty minutes to produce a slide. This, commercially, would be out of the way, as a man would starve to death making slides as a matter of neces-

sity; but for the amateur who wants beautiful work on dry plates, he can do it.

My next attempt after using this antipyrine was to try acetanelid. This is a very insoluble chemical. I find it reduces much quicker on a slide plate than the antipyrine, but the deposit of silver is much coarser. That you can see from the slide exhibited. The formula that I have used with acetanelid is practically the same as the other.

Of late I have been experimenting somewhat with collodion emulsions. Mr. Newcombe, of the Scovill & Adams Company, has been at work all winter in that direction. He has now an emulsion which more closely resembles the wet plate than any I have seen yet, in which a bath is used.

With the collodion emulsion the great trouble seems to be that the film is too thick, and with it you get too strong a contrast. You take a very thin negative, one slightly under time, and with collodion emulsion you get a negative beautifully clear in the lights and beautifully clear in the shadows, providing you don't develop the plate too quickly; and the great trouble with the wet plate process is, that you are apt to have the developer too powerful, especially when pyro and alkalis are used. Iron is a little slower in its action, and you are not apt to get this strength in the slide. The objection to iron seems to be that it does not penetrate the collodion, and experiments made lately in that direction seem to be entirely in favor of pyro as a developer. I have a slide here which illustrates this emulsion of which I speak. As to hydroquinone being used as a developer for lantern slides, the formula which I use in one containing a great deal of sulphite, the alkalis used being phosphate of soda and caustics. After the slide has been developed, I make a solution of carbonate of barium in water, which is poured over the slide, which acts as a cleaner.

With hydroquinone as a developer for slides, the color which you get has a tendency more to warm tones, unless the negative be very dense, and for that reason I do not like it; I find that in slides, if you get a brownish-black or a color with a trace of pink in it, it is much prettier and will show to much better advantage on a large screen with the lantern a good distance from it than one containing the slightly reddish tone which hydroquinone gives. For that reason I use old developer with splendid results on dry plates, getting tones ranging from a warm tone to a blue-black. The blue-black can be obtained by making a solution of iron, say 60 deg. by the hydrometer, and adding to it from two to three drachms of sulphuric acid. Make a solution of oxalate of potash, and add to that oxalic acid, both being put together in the usual way for oxalate developer, and then adding a little more sulphuric to the developer you will get a tone ranging on the green-blue, which you see in the exhibited slide, which gives it apparently no density, but on the screen it shows a pretty effect.

If you have a tray of 5x8 inches, and you develop in it two slides, you can have the proportion of two ounces of oxalate to two drachms of iron solution. The sulphuric acid gives the cold greenish effect upon the Carbutt plate. I have used it on the Eastman plate; but you are not as sure of the tone on that plate, as that is a bromide of silver plate. For that reason the Carbutt plate gives the blue-black tone much easier. The method of developing these slides—quick development—seems to give the best results without graining. The usual method of producing slides has been by daylight; but I discarded that about six months ago, owing partially to my being so placed that I could use daylight, and partially because I wished to experiment in another direction. I have since been using magnesium light altogether. There is a certain quality to the light used in making slides by magnesium that you don't get by daylight. For instance, you are exposing a plate to daylight. Your lens is slightly stopped down, and you make the exposure. The negative may not be even. You try to cut off the light here and there, and your light penetrates the shadows of the negative quicker than it does the lights, and the light detail is only obtained at the expense of the shadows. When you develop that plate your shadows come first. Your lights lack the detail which we like to see in them, and the result is a sort of halation which runs through the plate and produces a sort of fogginess. Your slide is not clear and does not show clear glass like the wet plate. The use of the magnesium ribbon prevents this, and you can set the light from any point. You can favor the sky or the shadows. One of the principal causes of halation is the light coming in around the edge of the plate and working its way into the plate as you develop. This can be prevented by making a mat, which you place in front of the slide before it is finished. This keeps all rays away from the plate, with the exception of those which pass through the negative. The result is that the glass around the plate is perfectly clear and the light cannot work in where you do not want.

Now as to the apparatus I employ in producing slides. It is so simple I think I will describe it. In the first place, I use an ordinary Scovill camera.

I have the kits ranged in a frame in a box 5x8, and in case some good-natured friend loans me an 11x14 negative, I can reduce that. If I am not using daylight I take a printing frame, which is the only handy thing I have in the house, 11x14. Over that I place two or three sheets of cepa skin. Behind that is a little box with the negatives in it. Just beyond that is the camera with the lens. Now, in using the magnesium ribbon, I use only two or three inches of it. When everything is in readiness to expose, I have two or three little sheets of cepa skin. With the negative in its place, I hold that so as to simply allow the magnesium to come on those portions of the slide I desire. When the slide is developed you get that tone so much desired on dry plates, and you do not get that fogginess in the lights you would get with daylight, because the exposure is rapid—that is, in comparison to daylight. It is this way. You expose by daylight. If you can do it and take your time, you will get a very good slide, free from this fogginess; but if you expose longer, for the reasons named, then the result is contrary.

For focusing I place a lamp just back of the diffusing screen, and that illuminates the negative sufficient for focusing. Any lamp will do. The mat on the slides prevents that halation which I spoke of, and enables you to work without covering your camera or the box which holds the negative. There is light passing between the camera and the negative, but this mat so cuts off outside rays that you only get the light that passes through the camera. In all copying and reducing cameras there is always a place in which you put your hand and remove the cap. There are always rays of light around which are not used. If you will protect by a mat you don't get these on the plate, and you don't get the action of them when you come to develop. *A. Peebles Smith.*

UNIVERSAL FORMULA FOR CALCULATING EXPOSURES FOR ENLARGING AND REDUCING.

[London Camera Club.]

ANY formula which will reduce exposure to practical certainty is welcome. The author of this paper has worked out a formula for finding the correct exposure for enlarging and reducing, which is simple to use. Necessity led to the calculation, for its appears that no such formula exists. The writer is indebted to Prof. Flemming for suggesting a modification which simplifies the result:

Let I=the area of the image (*i. e.*, the sensitized paper or plate).

O=the area of object (*i. e.*, the negative).

F=focal length, or conjugate, measured from O to the optical centre of lens in inches.

f=solar focus of the lens in inches.

K=a constant multiplier, to make up for loss of light in passing through the medium (if any) placed between the light and negative, and in passing through the lens.

C=contact exposure in seconds, supposing that the medium (if any) placed between the light and negative is removed, and the sensitized paper or plate is placed in contact with the negative, all other conditions remaining the same. (It is evident that, by regulating the quantity of light and varying its distance from the negative, C may be made any value, and can be easily determined by experiment).

e=required exposure in seconds.

E=required exposure in minutes.

S=diameter of stop employed in inches.

n=number of diameters of I contained in diameter of O.

Now consider the following diagram, which speaks for itself:

Let light fall on O, and confine our attention to a point of light at A; this ray, on passing, spreads out in all directions, and only cone of these rays passes the lens limited by the size of S. The relation between the whole of the rays and this cone may be thus expressed: Suppose a hemisphere to exist on the lens side of O, with A as centre and F as radius, then it is evident that—

$$\frac{\text{Whole of light}}{\text{Light passing lens}} = \frac{\text{Surface of hemisphere}}{\text{Portion of surface of hemisphere bounded by stop aperture.}}$$

The enumerator=$2\pi F^2$, and the denominator=$\pi(\frac{1}{2}S)^2$ (for the area of the stop aperture and the portion of the hemisphere limited by the aperture of the stop are virtually the same, the area being small).

Thus we may express the above relation by—

$$\frac{2\pi F^2}{\pi(\frac{1}{2}S)^2} = \frac{8F^2}{S^2}$$

This is one of the exposure factors, because the smaller is S the larger the fracture becomes, and consequently increased exposure. The other factor is $\frac{I}{O}$, for the exposure will vary in this ratio; hence—

$$\text{Exposure factors} = \frac{8F^2I}{S^2O}$$

Taking K and c into account—

$$e=8\ KC\ \frac{F^2I}{S^2O} \text{ and } E=\frac{2\ KC\ F^2I}{15\ S^2O}$$

Since $\frac{O}{I}=n^2$, $\therefore \frac{I}{O}=\frac{1}{n^2}$; and, as well known, $F=(n+1)f$, $\therefore e=8\ KC\left\{\frac{n+1}{n}\cdot\frac{f}{S}\right\}^2$

Let c be made 1 second, and K=2, that is loss= 50 per cent., made up thus: say 10 to 15 per cent. for absorption and reflection of light in passing through the lens, and 30 to 40 per cent. for loss of light due to the ground glass or other material interposed between light and negative.

$$\text{Then } e=16\left\{\frac{n+1}{n}\cdot\frac{f}{S}\right\}^2$$

$$=\left\{4\cdot\frac{n+1}{n}\cdot\frac{f}{S}\right\}$$

To find E let $\frac{1}{60}$ be taken as 4, which is near enough for practice.

$$\text{Then } E=\left\{\frac{1}{2}\cdot\frac{n+1}{n}\cdot\frac{f}{S}\right\}^2$$

This formula gives results in minutes, and is easy to apply as well as to remember.

EXAMPLE.

A lantern plate has to be made from a whole-plate negative. Arrange matters so that C=1 second. Everything being properly adjusted, find exposure in minutes; n may be taken as 3.

Let f=8 inches, and S=$\frac{3}{4}$ inch.

$$\text{Then } E=\left(\frac{1}{2}\cdot\frac{3+1}{3}\cdot\frac{8}{\frac{3}{4}}\right)^2=\left(\frac{2}{3}\cdot\frac{32}{3}\right)^2=\frac{64^2}{9^2};\ \frac{64}{9}$$

may be taken as 7 for a practical result.

Then expose in 49 minutes.—ANSWER.

If c=2, 3, etc., then the result must be multiplied by 2, 3, etc.

Note.—When condensers are employed with a powerful source of light C becomes a small fraction, ·7 or even ·01. The best way to proceed in such cases is the following: Obtain the correct exposure in seconds, for one case, by experiment, and let this be called e'.

$$\text{Then } e'=8\ KC\left\{\frac{n+1}{n}\cdot\frac{f}{S}\right\}^2$$

In this method of working the loss by absorption may be taken as 20 per cent.

Thus K=1·2,

$$\text{and } e'=C\ 9{\cdot}6\left\{\frac{n+1}{n}\cdot\frac{f}{S}\right\}^2$$

$$\text{and } C=\frac{e'}{9{\cdot}6}\left\{\frac{n}{n+1}\cdot\frac{S}{f}\right\}^2$$

Since the values for e', n, S, and f are known, a known value is found for C. This once found, C becomes a constant for the condenser and lamp with which the experiment was made. The density of the negative has to be taken into account, but if a medium negative be used for this experiment, very little judgment is required to make the necessary allowance. Or the values for C may be obtained with two or three negatives of varying densities, so as to eliminate "judgment" altogether.

Note.—In accordance with Mr. Elder's suggestion the further simplifications of the formulæ are now given.

For general work—

$$e=8\ KC\left\{\frac{n+1}{n}\cdot R\right\}^2 \qquad (1)$$

and for condenser—

$$e=9{\cdot}6\ C\left\{\frac{n+1}{n}\cdot R\right\}^2 \qquad (11)$$

Thus the usual ratio numbers on the stops may be employed, and if these are marked on the decimal system, then let S=number on stop; and since $R=\sqrt{10S}$, and 10×9·6=approx. 100 and $\sqrt{80}$=approx. 9, we obtain—

$$e=KCS\left\{9\cdot\frac{n+1}{n}\right\}^2 \qquad (1)$$

$$e=CS\left\{10\cdot\frac{n+1}{n}\right\}^2 \qquad (11)$$

Sir David Salomons.

Correspondence.

INSTRUCTIONS TO DELEGATES.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir: In addition to the article I sent you in regard to the railroad rates, will you kindly publish the following, and oblige,

Yours, etc.,

O. P. Scott,
Secretary.

Dear Sir: Through the courtesy of the Central Traffic Association, persons attending the Tenth Annual Convention of the Photographers' Association of America, to be held at Boston, commencing August 6th, will be granted a reduction in their return railroad fare only, under the following circumstances and conditions:

First. Each person must purchase (not more than three days prior to the date of the meeting nor later than three days after the commencement of the meeting) a first-class ticket (either unlimited or limited) to the place of meeting, for which he will pay the regular tariff fare, and upon

request the ticket agent will issue to him a certificate of such purchase (Form 2), properly filled up and signed by said ticket agent.

Second. If through tickets cannot be procured at the starting point, the person will purchase to the nearest point where such through tickets can be obtained, and there repurchase through to place of meeting, requesting a certificate properly filled out by the agent at the point where repurchase is made.

Third. Tickets for the return journey will be sold by the ticket agents at the place of meeting at one-third the highest limited fare, only to those holding certificates (Form 2), signed by the ticket agent at point where through ticket to the place of meeting was purchased, and countersigned by the Secretary or Clerk of the Convention, certifying that the holder has been in attendance upon the Convention.

Fourth. It is absolutely necessary that a certificate be procured, as it indicates that full fare has been paid for the going journey, and that the person is therefore entitled to the excursion fare returning. It will also determine the route via which the ticket for return journey should be sold, and without it no reduction will be made, as the rule of the Association is that "No refund of fare can be expected because of failure of the parties to obtain certificates."

Fifth. Tickets for return journey will be furnished only on certificates procured not more than three days before the meeting assembles, nor later than three days after the commencement of the meeting, and will be available for continuous passage only; no stop over privileges being allowed on tickets sold at less than full fares. Certificates will not be honored unless presented within three days after the date of the adjournment of the Convention.

Sixth. Ticket agents will be instructed that excursion fares will not be available unless the holders of certificates are properly identified, as above described, by the Secretary or Clerk, on the certificate, which identification includes the statement that fifty or more persons, who have purchased full fare tickets for the going passage, and hold properly receipted certificates, have been in attendance at the meeting.

The certificates are not transferable, and the signature affixed at the starting, point, compared with the signature to the receipt, will enable the ticket agent to detect any attempted transfer.

N. B. Please read carefully the above instructions, be particular to have the certificates properly filled and certified by the railroad agent from whom you purchase your going ticket to the place of meeting, as the reduction on return will apply only to the point at which such through ticket was purchased.

Yours truly,

O. P. Scott,
Secretary.

Notes and News.

THE AMSTERDAM AMATEUR FOTOGRAFEN VEREENIGUNG invites American photographers to exhibit specimens of their photographic work in a forthcoming competitive exhibition. The contributions should be presented before October 15, 1889, and sent to Guy de Coral, Secretary, 64 Leidschegracht, Amsterdam, Holland. The premiums offered are silver and gold medals.

DECISIONS BY THE APPRAISER.—At a meeting of the Board of Appraisers, July 16th, Albumen or Photographic Paper heretofore classed by the department as dutiable at 15 per cent. as manufactured paper, was classified as a paper not otherwise provided for and dutiable at 25 per cent.

An importer of this city had appealed to the Secretary of the Treasury from a decision of the Appraiser at this port classifying dry plates for use by photographers as partly manufactured goods at a duty of 45 per cent. The appellant asserted that the rightful tariff was 25 per cent. The action of the Appraiser was sustained.

TO PHOTOGRAPH THE ECLIPSE.—The Navy Department is now engaged in perfecting arrangements for observing the total eclipse of the sun which occurs on December 21. The line of totality will be in South Africa, and a station will be erected at St. Paul de Loando. Captain R. S. Phythian and Professor Asaph Hall and Simon Newcomb have been appointed a board to map out the necessary work. An appropriation of $5000 was made for this purpose by the last Congress. The commissioner will go by mail steamer to Rio de Janeiro and from there proceed to Africa in the man-of-war "Richmond." A party from Harvard University will also go out under the direction of Professor Edward C. Pickering. They will locate at the northwest coast of South America near French Guiana. The observatory people are now working up the results of the January eclipse in California. Prof. Holden, who had charge of the work, has made a partial report, and the photographs of the corona are said to be exceedingly fine.

PHOTOGRAPH OF A MIRAGE.—A special from San Francisco says: "A wonderful photograph of Arctic mirage has just been received from Professor Richard D. Willoughby, the pioneer miner scientist of Alaska. It was taken at Glacier Bay, and represents a mysterious ærial city. The view is apparently taken from some spot on a hill. In the foreground is a graveled walk, a stone fence, a rustic seat and a child at play. Beyond the stone wall are the roofs of houses with clumps of trees at the sides. In the distance are the half-completed towers of a cathedral and several tall public buildings, while far away, enveloped in what appears to be a cloud-like atmosphere, are tall smokestacks and towers of churches. The steeple of architecture is decidedly modern. A hundred people or more were shown the photograph. Some regarded it as a fraud, while others believed it the genuine photographic result of a mirage. The mysterious town has been named the Silent City. The best informed people in San Francisco say that the picture may be that of Victoria, B. C., or Montreal. Most likely the latter, as there is a cathedral there resembling the one in the view. Some photographic experts think that the picture was produced by a trick similar to the one so-called spirit photograph. This, however, is stoutly denied by those who know Prof. Willoughby. He was the first American who found gold in Alaska, and for fifteen years has been a prominent resident of that Territory."

HOME-MADE APPARATUS.—The time required to get ready the old-fashioned apparatus makes it utterly impossible for a teacher in a public school to use it. Again, the time required for the manipulation of it in the class, causes

the pupil's mind to wander to other thoughts than that of the principle which is to be illustrated. Add to this the fact that home-made apparatus is so suggestive of scientific principles that, while the student is making it, his mind is constantly learning something new, and we have ground for the statement that home-made apparatus economizes time sufficiently to make it practicable to teach science experimentally in the public schools.

Perhaps the chief argument in favor of home-made apparatus is what might be called the manual-training argument—*i. e.*, the argument of its educational value to the student who constructs it. It is always noticeable that the student who makes his own apparatus is not only liable to get a better comprehension of the principles which it illustrates, but his mind is thereby stimulated to inquire into many kindred principles.—PROF. JOHN F. WOODHULL, *in the Popular Science Monthly for August.*

PRESIDENT HENRY MORTON, in his article on "Electricity in Lighting," in the August *Scribner's*, will describe the actual processes of manufacturing dynamos and incandescent lights as carried on in some of the largest factories in this country. The illustrations add very much to these descriptions, as they are made from instantaneous photographs taken while the men and women are at work.

RATIONAL DEVELOPMENT.—Although the work made by the average photographer has improved since dry-plates have been introduced, yet a vast amount of bad work is yet to be seen, much of it made by men who were leaders in the wet-plate days. Yet it must be admitted that pictures are now made that could not be equaled with wet-plates. I attribute the success and failure in dry-plate work to the knowledge of one class and the ignorance of the other concerning development and the use of developers. Not half of the photographers and operators know the use of the various ingredients used in making a developer. This assertion has been repeatedly made by men who come in contact with the fraternity all over the country. As a rule it is safe to follow the instructions given with whichever plates are used, although it is not absolutely necessary to stick to this as an iron-clad rule. The soda formulas just now are in the majority, and seem to give more general satisfaction than any other. The tendency just now seems to be to secure a developer that will develope an image on a dry-plate in the same time that was necessary with a wet-plate. This has brought out the process vender, who reaps many a fifty-dollar lump for his hydroquinone formula that will do this. The work done by such a rapid developer is as a rule hard and blocky, and does not possess the delicate shadings, gradations and half-tones that are obtained by use of a mild, gentle developer. I think this intensely rapid development a mistake, and only fit to be used on black-and-white subjects, that need contrasts and density. I admit it was some time before I became convinced of the merits of very slow development with a fresh, weak solution, but I have seen such fine results in other processes as well as in gelatine plates that I am now convinced that for fine, delicate work, in which there is half-tone detail in the shadows as well as in the high lights, without flatness, a mild developer will always give the best results, unless poor plates are used. My favorite formula is:

Make a solution of sulphite of soda to test 60 by the hydrometer, and a solution of sal-soda to test 22. Take

4 oz. sulphite 4 oz. sal-soda	For alkaline stock.
Pyro, 1 oz. Water, 12 oz. Oxalic acid, 10 grs.	For pyro stock.
Alkaline solution, 8 oz. Pyro, 8 drams.	For development.

This starts the image within 30 seconds when exposure has been right, and keeps adding to the density so gradually that any changes deemed necessary in the pyro, acid or alkali can readily be made without fear of the plate being lost.

I believe that by following a slow method of development fewer plates are wasted, and a better quality is secured, and the work of an establishment becomes more regular. I do not rely much on formulæ, believing that unless the proportions are badly exaggerated, good results will follow, and that the operator should study the action of the developer just as he did his collodion bath, and not rely too closely on the formula, but more on observation, study, and experience. There is a tendency to expect everything from the plates. Of course all plates are not good; some, according to their manner of making, act entirely differently from those of a previous batch, as a rule, the plates on the market now show a very high quality, and give fine results. Bad plates are the exception, and I can safely say that I have not had two dozen in my hands during the past year. I think it will pay the operator to take a little more time and get the best results. The employment of a mild developer is especially recommended in using a slower brand of plate, such as Carbutt's A and B, as density can readily be obtained in either of these, and pyro should be sparingly used. For copying line work and drawings, and for general landscape, they hold a place entirely their own.—W. H. RAU *in the American Journal of Photography.*

LIGHTNING PHOTOGRAPHS.—When Benjamin Franklin, something after the manner of Prometheus, brought down fire from the heavens with a kite-string, he added considerably to the store of human knowledge. But if amateur photography had been in vogue 137 years ago, no doubt he would have been able to tell us more than he did about atmospheric electricity, or at least its wonderful manifestation in the shape of lightning. Some curious features of this phenomenon, not formerly recognized, have only within a few years been revealed, and through the help of a camera. Records thus made in different parts of the globe were recently collected by the Royal Meteorological Society, and are discussed in the current number of *Knowledge.*

So long ago as 1856 James Nasmyth told the British Association for the Advancement of Science that the thunderbolt's course was not zigzagged, as artists for centuries had represented, but sinuous like a river; and he also declared that lightning sometimes had forks or branches. This was the result of singularly keen observation. Photographs, however, corroborate his views in a marvelous way. These show that the streak which travels with marvelous velocity is as full of kinks as a map of the Mississippi, and that apparently, like Lowell's mill-stream, "it goes wandering at its own will"; while, at

times, the ramifications suggest a diagram of an uprooted tree.

A feature which would have eluded much sharper eyes than Nasmyth's, however, is brought out by photography; the ribbon-like appearance of some lightning flashes. These, instead of conforming to the popular idea of a slender (perhaps round) streak, are flat bands, much folded and contorted, to be sure, but of appreciable width, and crossed by fine parallel lines or stripes, highly suggestive of familiar auroral phenomena.

A puzzling discovery made by one observer, who had left his photographic plate exposed long enough to take several flashes—this was at night—was a dark streak in addition to four bright ones. Its conformation is unmistakably that of lightning. The possible explanation that this development was due to "over-exposure," is discredited by Secretary Marriott, of the Royal Meteorological Society, and Mr. Ranyard, who seem to favor this other view: that a thunderbolt which had flown across the heavens before the lens was uncapped produced nitrous oxide along its path, thus obscuring that line when the next flash came after the plate was exposed. No similar case was found in the collection; and no one, probably, ever heard of black lightning before; but this does not preclude the occurrence being paralleled in the future. It is surprising that not one picture among the hundred or more on which the article in *Knowledge* was based showed lightning in its globular form; for this type is not very rare, and, quite unlike the flash, the ball lasts not only seconds, but sometimes even minutes, rolling along slowly like a spent cannon-shot. Information upon this important branch of the subject is the more desirable since opinions differ greatly as to the distinctiveness of globular lightning. That Catholic church over in Brooklyn which was nearly destroyed a fortnight ago seemed, from the testimony of observers, to have been a victim of this form of electricity. Certainly a fiery globe was seen on the roof before the disaster. And a Russian scientist who attempted to repeat Franklin's experiments, three months after the Quaker statesman-philosopher made them, was killed by what is described as a "ball of lightning."

Yet the preponderance of belief is to the effect that this phenomenon is harmless. Here, clearly, is a useful and fascinating field of research for owners of small cameras. —*N. Y. Tribune.*

Photographic Societies.

THE WILMINGTON CAMERA CLUB.

THE following officers were elected by the members of the Wilmington Camera Club, on Saturday evening, July 18th, at the meeting at the residence of A. D. Poole, Seventh and West streets: President, Colonel Christian Febiger; Vice-President, Alfred D. Poole; Treasurer, J. Robinson Moore; Secretary, John H. Danby. A committee comprising A. D. Poole, Lewis P. Bush, Jr., and John H. Danby was appointed on Rules and By-laws. Samuel Bancroft, Jr., sent to the meeting for inspection a remarkably fine collection of prints on linen. They were examined with great interest. Colonel Febiger also exhibited some excellent gelatine film negatives.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held Wednesday evening, July 3, 1889, with Mr. Samuel Sartain in the Chair.

The Secretary announced the death, on June 20th, of Mr. Joseph J. Fox, a member of the Society, and late editor of *Science of Photography.*

The Committee on Lantern Slides presented the following report:

"Your Committee on Lantern Slides respectfully report that a detailed statement of the affairs of the American Lantern Slide Interchange has been received from the Manager, Mr. George Bullock, of Cincinnati. This includes an account of the expenses of the Interchange, and a report of the number of slides contributed by the nine societies to the series of the season just passed. It is probable that the Executive Committee will meet during the present month to make arrangements for the current year.

"Our report upon slides shown at the conversational meetings of the Society, covers two months. At the May meeting the slides of the Cincinnati Camera Club were shown. Mr. Rau also exhibited some fine views of the naval parade during the Centennial celebration in New York of the imauguration of the Federal Government and of the first President. Mr. Dillon showed several figure studies and landscapes, which were much enjoyed. Mr. Redfield, on behalf of Mr. Charles R. Pancoast, exhibited a choice collection of slides made by him on gelatine dry plates.

"At the June meeting Mr. Rau showed about forty slides from negatives of the Johnstown disaster, secured soon after the event. They were a timely and highly interesting record of the physical effects of the great flood. Mr. Fellows also showed some slides of the same subject from negatives made by Mr. Dillon. He also threw upon the screen a number of foreign views and flash-light studies. Mr. Wood had several of his admirable figure studies."

The Committee on Membership reported the election of the following active members: John C. Breuker, John P. O'Brien, Washington Van Dusen, John F. Simons, Dr. Henry Weston, Leib Harrison Dulles, John D. Bliss.

Mr. Sartain reported for the Committee on Excursions that two "Day" excursions had been given, one on June 15th to Chadd's Ford and along the Brandywine, and one on the following Saturday on Chester Creek, from Cheyney Station to Darlington, both of which were fairly attended.

Mr. J. M. Walmsley exhibited a negative made on the new Eastman flexible film. In reply to a question as to the use of the films in cut sheets, he said that difficulty would be found in using them in that way, and he thought the manufacturers had announced that the films should be used in continuous sheets in the roll-holders. Adjourned.

Edmund Sterling,
Secretary pro tem.

The Editorial Table.

We have received, through Prof. Ehrmann at Chautauqua, from our old friend and correspondent, Mr. Thomas Kennedy, of New Brighton, Pa., a very fine collection of lantern-slides. "Ice Gorge on the Beaver River" and "On Brady's Run," both winter landscapes, and remarkable for the fine detail in the snow and ice. They were made on collodion emulsion, and show the highest skill on the part of the operator.

The Popular Science Monthly for August, 1889.—The August number of *The Popular Science Monthly* opens with an article on "The Spirit of Manual Training," by Prof. C. H. Henderson, who says that, if the manual training school escapes being dominated by mere shop-skill, as well as by mere book-learning, it will furnish the best all-around education yet devised. There is another paper in this issue on "Agnosticism and Christianity," by Prof. Huxley, in which he reviews the chief points of his controversy with Dr. Wace, and sharply criticises some of Cardinal Newman's writings. "Life in the Solomon Islands" is described by Mr. C. M. Woodford, with a number of pictures. As the natives of this group are head-hunters, life with them seems to have some uncertainties. A similar article is "Savage Life in South America," by Captain John Page. A. G. Warner, Ph. D., discusses "Scientific Charity," and maintains that scientific methods applied to charitable work will merely guide our sympathies and not thwart them. "The Influence of Race in History" is pointed out by M. Gustave Le Bon, who shows that it explains why one conquest led to a brilliant civilization, and why another brought in an era of disorder. Mr. W. H. Larrabee describes "The Stone Age in Heathen Sweden," with many implements and structures of stone. Samuel Sheldon, Ph. D., contributes a paper on "Electrical Waves," describing recent experiments which indicate that electricity is conveyed in waves like light. Felix L. Oswald, M.D., has a suggestive article on "The Wastes of Modern Civilization," in which he points out that the resources of the modern world are being used up with little regard for their replenishment, or in making useless and even harmful products. In "The Defensive Armor of Plants," M. Henry de Varigny describes the various means plants have for protecting themselves against their enemies. Prof. John F. Woodhull has a good word for "Home-made Apparatus," which he says is more generally available and more effective than complex and expensive contrivances. The customs of "Blood-Vengeance and Pardon in Albania" are described by Herr J. Okiê. Under the title "Mr. Mallock on Optimism," Mr. W. D. Le Sueur criticises the recently expressed opinion of that writer that no hopeful outlook for the race is furnished by science. A "Sketch" and a portrait are given of Lavoisier, remarkable both for his important work in chemistry and the tragic ending of his career. The scientific lessons of "The Johnstown Disaster" are pointed out in an editorial, and the other departments are marked by their usual variety.

New York: D. Appleton & Company. Fifty cents a number, $5 a year.

Queries and Answers.

152 "Springfield" says; "I have trouble with my prints. After getting a fine tone and washing I fix them in one to five hypo; when immersed they lose their tone entirely, assuming a dingy, faded yellow cast, also looking smoky, and do not recover again. My hypo solution is kept in a Mason fruit jar with zinc top. I notice the zinc has become corroded by action of hypo; can this be the cause of the trouble? Prints made upon acid paper fare worse than those of neutral or alkaline bath."

152 *Answer.*—It is quite probable that your surmise is correct. Prints of the same tone as yours, and of a dirty yellow color where they should be white, have been shown us several times, and the cause of the discolorization has been traced invariably to contact with metallic zinc. The corroding of the zinc doubtless leads to a sulphuration of the silver print.

In return, we ask a question of you: How long are your prints left in the hypo bath, and what is its reaction?

158 Miss W. S. D.—Some of my prints, after being fixed, are put in clear water, when they begin to turn of a muddy yellow color after standing in daylight for half an hour or more. These yellow stains are not visible on the whole print, but only in some parts. What is wrong?

158 *Answer.*—The prints have not been properly fixed; either your hypo is too old, not strong enough, or the prints have not remained long enough in the bath. If your fixing bath reacts acid, such stains may easily occur, because through the action of acid, hydrosulphuric acid, and, eventually, sulphide of silver may form. Never use the same bath twice for the fixing of paper prints, test the hypo solution for acidity, and if it is in such state add a small amount of aqua ammonia. During fixing keep the prints moving. With these precautions your trouble will not occur again.

154 James Pendleton.—I am using the pyro ammonia with much success, and would be entirely satisfied with it were it not that owing to an excess of ammonia, some of my negatives are fearfullly green fogged. There are several subjects on such plates that cannot be retaken. How can I save the plates?

154 *Answer.*—This question has been answered several times. Immerse the plate perfectly free from hypo in a weak bath of perchloride of iron, to which a little bromide of potassium may be added, till the silver deposit is converted into chloride. Wash and redevelop with ferrous oxalate. The density of the plate will gain somewhat, but it will be perfectly clear and transparent in the shadow parts.

155 Fixing Bath.—For what reason is cyanide of potassium not employed for the fixing of gelatine plates? I should think with it the negative need not be washed as long as after a hypo bath has been used.

155 *Answer.*—You are right in a measure. But our commercial cyanide of potassium invariably contains a good deal of hydrate or carbonate of potassium, at times as much as 30 per cent. The effect of such alkaline solution upon the gelatine plate is obvious. Could a chemically pure cyanide of potas sium be got as cheaply as the ordinary article, no objection would be raised to its use.

H McMichael

THE PHOTOGRAPHIC TIMES.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, AUGUST 2, 1889. No. 411.

H. McMICHAEL.

OUR frontispiece illustration this week is an excellent portrait of the President of the Photographers' Association of America. It is from a negative made in Mr. McMichael's own studio, and, in his own opinion, is one of the best portraits he has ever had made. Beside the interest which attaches to this portrait as being the likeness of the most prominent photographer in this country at the present time, it is an example of portraiture that may be studied with profit by all photographers, and is a fair representative of the photographic work done in Mr. McMichael's own studio at Buffalo. Our readers are already familiar with the superior figure pictures which Mr. McMichael has shown. His superb exhibition at the Boston Convention is, perhaps, the most complete he has ever made.

H. McMichael was born in Norfolk County, Ontario, in 1844. The first twenty-one years of his life was spent on a farm, but from that time onward he has been a photographer. At first following the profession in Hamilton and other Canadian towns, Mr. McMichael soon decided to enter a larger field, and went to Buffalo in 1871, and opened a studio on Main Street, where he has been located ever since.

His connection with the Photographers' Association of America is as brief as it has been brilliant. In 1884 he joined that body, and attended its convention in Cincinnati, but that year making no exhibit. There it was decided to hold the convention of 1885 in Buffalo, and Mr. McMichael was chosen Local and Recording Secretary. At the Buffalo Convention he made his first exhibit, and took the first prize of one hundred dollars.

At that convention he was elected General Secretary, and at the convention following, held at St. Louis, declined the proffered re-election. His management of the office gave the widest spread satisfaction, and the association cleared more money than all the photographic conventions ever held in America had done before. At St. Louis he took the first prize of one hundred dollars in gold and a silver medal, on his general exhibit. The next year, at Chicago, he took the first gold medal, and one hundred dollars in gold. Last year, at Minneapolis, as is well known, he took the first cash prize for general work, and a medal, and was there unanimously elected President of the Association by acclamation, amid the greatest enthusiasm. In the history of the Association he is the only man who has been thus honored. His management of the association since then is well known to all. It is what all have expected, and the success of the present semi-centennial of photography's birth, is the crowning event in Mr. McMichael's brilliant photographic career.

In addition to the Association medals and prizes which have been awarded to Mr. McMichael, our President has been honored in Canada and abroad. The first gold medal of Canada, in 1886, and again in 1887, was given to him for his magnificent portrait work at the International Exposition at Toronto. In 1887, the first prize offered by the Canadian Photographers' Association was won by him, and in January, 1888, he received one of two silver medals offered by the Photographic Society of India, at its exposition held under the auspices of Lord Dufferin. It was a prize for portraits, open to the photographers of the world.

THE CONVENTION.

When this reaches our readers, many, we trust, will be making active preparations to attend the convention in Boston. It opens Tuesday morning August 6th, and closes with an appropriate celebration of the Semi-Centennial of Photography, Saturday, August 10th. It will pay to attend this convention, even at a considerable sacrifice. Never before have so great preparations been made to interest and instruct visiting photographers. Educating papers will be read, and instructive discussion will follow which will be of greatest value to photog-

raphers. The exhibition of photographs by our best and most prominent professionals, as well as by many amateurs; the display of latest improvements in photographic apparatus, by manufacturers and dealers; and the attractions of Boston and its vicinity will alone repay any photographer attending. But, in addition to this, he has a chance to win a valuable medal, or the Grand Prize itself—"The Roman Wrestlers." This magnificent bronze group has already been described in these columns, as well as the medals which are offered by the Association. Many valuable prizes have been offered for competition, by the manufacturers and dealers. These, too, and the rules and regulations governing the competitions, have been announced in these columns.

The official programme follows, as well as other information concerning the convention. Take this copy to the convention for reference. It will also be an appropriate souvenir of the occassion.

We shall hope and expect to greet a larger number of our friends at Boston, next Thursday, than has ever been assembled before at a photographic convention. On, then, to Boston! This is our last word until we meet you there!

PROGRAMME.

FIRST DAY.

1. Address of welcome by J. F. Ryder, Cleveland, O.
2. Calling of the meeting to order.
3. Roll call.
4. Reading of the minutes of the last meeting.
5. Report of special and standing committees.
6. Selection of location for 1890.
7. Appointment of committee on nominations.
8. Report of the committees on awards.
9. The President's annual report.

SECOND DAY.

1. Reading of communications.
2. Unfinished business.
3. Report of the committee on nominations.
4. Report of special committees.
5. New business.

THIRD DAY.

1. The reading of communications.
2. Unfinished business.
3. New business.
4. The election of officers.

FOURTH DAY.

1. The reading of communications.
2. Reports of committees.
3. Unfinished business.
4. New business.
5. Announcement of awards.
6. Closing ceremonies.

LIST OF OFFICERS OF THE P. A. OF A. SINCE ITS FOUNDATION.

1880.—Convention held in Chicago, Ill. J. F. Ryder, President; H. Rocher, Treasurer; A. J. W. Coplin, Secretary.

1881.—Convention held in New York, N. Y. John Carbutt, President; A. Hesler, Treasurer; Gayton A. Douglass, Secretary; Vice-Presidents from every State.

1882.—Convention held in Indianapolis, Ind. Joshua Smith, President; Jno. E. Beebe, Treasurer; J. D. Cadwallader, Secretary.

1883.—Convention held in Milwaukee, Wis. J. Beebe, President; J. A. Read, Treasurer; W. W. Sherman, Secretary.

1884.—Convention held in Cincinnati, O. J. H. Kent, President; W. A. Armstrong, Treasurer; A. Weingartner, Secretary.

1885.—Convention held in Buffalo, N. Y. Jas. Landy, President; G. M. Carlisle, Treasurer; H. McMichael, Secretary.

1886.—Convention held in St. Louis, Mo. W. H. Potter, President; G. M. Carlisle, Treasurer; H. McMichael, Secretary.

1887.—Convention held in Chicago, Ill. G. Cramer, President; G. M. Carlisle, Treasurer; H. S. Bellsmith, Secretary.

1888.—Convention held in Minneapolis, Minn. E. Decker, President; G. M. Carlisle, Treasurer; W. H. Potter, Secretary.

1889.—Present Officers: H. McMichael, President; Geo. H. Hastings, First Vice-President; J. M. Appleton, Second Vice-President; O. P. Scott Secretary; G. M. Carlisle, Treasurer.

EDITORIAL NOTES.

We have received many inquiries concerning the location of the Convention of the P. A. of A. for next year, as well as the probable candidates for office. Though we are in a position to hear all the latest news and gossip concerning photographic matters, we do not always deem it proper to communicate all that we hear to the readers of The Photographic Times. In regard to the location for the next Convention, however, we may repeat what we have already said in these columns. Washington seems to be in much favor, though Kansas City, and even Denver, have been advocated by Western photographers, who are in hopes that the Convention will be held west of the Mississippi next year, because it was located so far east

this year; and Washington is not nearly so popular now as it was a few months ago. Rochester is spoken of, and, latterly, the beautiful city of Hartford, Conn., where photographers would be sure of a hearty welcome and the best of treatment while there. Providence, R. I., also is strongly advocated by a number of photographers, as it is a very accessable city.

Several prominent photographers have been mentioned in connection with the Presidency of the P. A. of A. for the ensuing year. Charles Stuart, of Hartford, is very strong with Eastern photographers, and so is George Barker, of Niagara Falls. W. H. Jackson, of Denver, Col., is a popular Western candidate; and many seem to think that our present Vice-President, J. M. Appleton, is worthy of promotion. It is impossible to say, of course, who is the strongest candidate. That remains to be seen after the photographers have actually been assembled in Convention. One thing is certain, however, and that is, that the Photographers' Association of America cannot make a mistake by electing any one of the candidates here mentioned.

THE publishers of "The American Annual of Photography and Photographic Times Almanac" announce that the entire edition of eight thousand copies of the 1889 issue has been sold; not a single copy is left to fill the urgent orders which continue to come in. There are a few copies in the hands of dealers, we understand, but these are going very fast. Those dealers who have any copies left will confer a favor upon our readers by notifying us to that effect, that we may inform those who are in search of copies, where they may procure them. We understand that a few copies of the second edition of the 1887 and 1888 "Annual" are left, but they are growing every day more scarce. The publishers also inform us that the issue of 1890 is in active preparation and will be superior to any of the previous numbers. Several very fine negatives have already been decided upon for illustrating this issue.

PROGRESSIVE PHOTOGRAPHY.

CELLULOID POSITIVES.

PERHAPS no greater improvement in photography can be chronicled for 1888–9 than the introduction of sheet celluloid as a substitute for glass. In supporting the film of gelatino-bromide for making negatives, its acceptance was spontaneous, and especially acceptable to those traveling long distances, as the saving of both weight and bulk is very great, while the quality of the negatives fully equals those made on glass plates, and where halation would be met with on glass, the celluloid film is singularly free from it.

Now that the celluloid films for negatives has got firmly established, we have turned our attention to the use of the same material in a modified form on which to produce positives by contact and exposure to a lamp or gas flame for a few seconds, and subsequent development.

The celluloid for positives is opaque, one grade is of a delicate sea shell pink, another white, and a third of the tone of ivory. On this material coated with a suitable and special emulsion positives of great beauty are easily obtained, and after drying and varnishing with the new papyroxyline varnish may be considered among the most permanent pictures the photographer can produce, as the image is hermetically sealed from the action of gasses in the atmosphere. Specimens of the new positive process will be on exhibition at Boston, and can also be seen at the warerooms of The Scovill & Adams Company, New York.

It is to the production of these positives we now ask the reader's attention.

To meet with success in the making of these beautiful positives, it is necessary that the following conditions are carried out. 1. That the back of the negative is cleaned from all extraneous matter, and that a glass for the printing frame is free from specks and bubbles. 2. Clean developing trays, and fresh, clear hyposolution for fixing. As we recommend Hydrochinon for developer, it is necessary that neither trays that have been used for Pyro, nor Hypo solution that has fixed Pyro developed negatives be used, if you wish your positives to be free from stains and discoloration.

The positives may be produced either as vignettes, or with a margin of clear film; the first is secured by placing a vignetting mask, attached to glass of printing on the outside; the Weymouth vignettes answer the purpose. To produce the positives with full background and clear margin, a mask with suitable opening is placed between negative and film, and as exactitude is required to produce the best result, we will describe in detail our mode of securing a uniform width of margin to the positive, we will take a very popular size, the Cabinet; for a mask we use thin label paper of vermillion red color, 6x8 inches in size, with a Robinson trimmer and guide cut out the opening, 4x5½, either oval or round cornered, or, if desired, square at corners with rule and knife, on the white side of the paper draw a line on top and one side half an inch from edge of opening take two strips of card board ⅛ of

an inch wide and 3 inches long, fasten to mask just allowing pencil mark to show; this will form a right angle into which the positive film will register and duplicate exposures can be made and a uniform clear margin given to each picture; turn the mask over, and on it lay the negative, and when in position attach mask to negative, *temporarily*, with narrow strips of gum paper, so that the same mask may with care be kept and used on other negatives; lay the negative and mask in a deep 6½x8½ printing frame, lay a 5x7 Carbutt Positive Film on negative and in register with the guides, place a piece of felt or cloth over and secure the back, expose to the light of an Argand lamp or gas flame, at a distance of four feet, for 5 to 8 seconds; for developer either use Carbutt's one solution hydrochinon and water, equal parts, and a few drops of bromide of sodium (after using place in separate bottle for future use), or 1 ounce of A., 1 ounce of B., and 4 ounces of water, of the following formula.

a.	Warm distilled water	20 ounces
	Sulphite soda crystals	4 ounces
	Sulphuric acid	1 drachm
	Hydrochinon	360 grains
	Potassium bromide	30 grains
	Water to make up to	30 ounces
b.	Caustic soda in stick	1 ounce
	Water to make	30 ounces
	ACCELORATOR.	
c.	Caustic soda	1 ounce
	Water to make	10 ounces
	RESTRAINER.	
d.	Bromide of potass	½ ounce
	Water	5 ounces

Developer.—Take of *a* 1 ounce, *b* 1 ounce, water 2 to 4 ounces—the first for instantaneous and short exposures, and the latter for time exposures. For lantern transparancies 1 ounce *a*, 1 ounce *b*, water 4 ounces, *d* ½ drachm.

These proportions we have found to give very fine results on properly timed exposures. To correct errors in exposures, or inequalities of light and shade existing in the negative, we may have to resort to a little dodging, which can be worked as follows: it is as well to anticipate these things, for your picture may be lost, if these auxiliaries had to got ready at the time they were needed, therefore you have ready in a small glass a little of the full strength single solution, or a small quantity of the double solution, in another glass have a 10 grain solution bromide of sodium or potassium, and two tufts of absorbent cotton, place on a piece of *glass*, not on your developer stained table or shelf, now if your picture shows signs of the darkest portions developing out too strong before the high lights have got their half tones, pour off the developer, and with the tuft of cotton dipped in the bromide go over the *dark* portions of the positives and arrest the development, allowing it to continue in the high lights, judgment must decide whether to help on the high lights with the other tuft of cotton and the developer used, or the stronger developer, these corrective measures are given because we believe they will be found useful, but with a first-class negative, proper exposure and well proportioned developer, results that cannot help but satisfy will be the result. After thoroughly washing off the developer, place in the clearing and hardening solution for from three to five minutes, Alum 2 ounces, water 30 ounces, citric acid ½ ounce; and after again washing for not less than three minutes place in fixing solution ten minutes, Hyposulphite soda 5 ounces, water 20 ounces, to insure perfect clearance from bromide—and hyposulphite of silver—for it is the latter that discolors the films of both negatives and positives after exposure to light. The fixing should be followed by a thorough washing in running water for one or two hours; then immerse for five minutes in water 25 ounces, glycerine 1 ounce, before removing from this bath go over the surface with tuft of absorbent cotton, then quickly pass the film through a dish of clean water and hang up with metal clip by one corner to dry, when dry lay on piece of card so that the lower side overhangs the card, hold to card by upper corner with a metal clip, so that the clip just catches it, then flow over the surface, Kristaline varnish, remove from card and hang up until varnish is dry and your positive is finished.

John Carbutt.

WAYNE JUNCTION, Philadelphia.

A QUICK DEVELOPER.

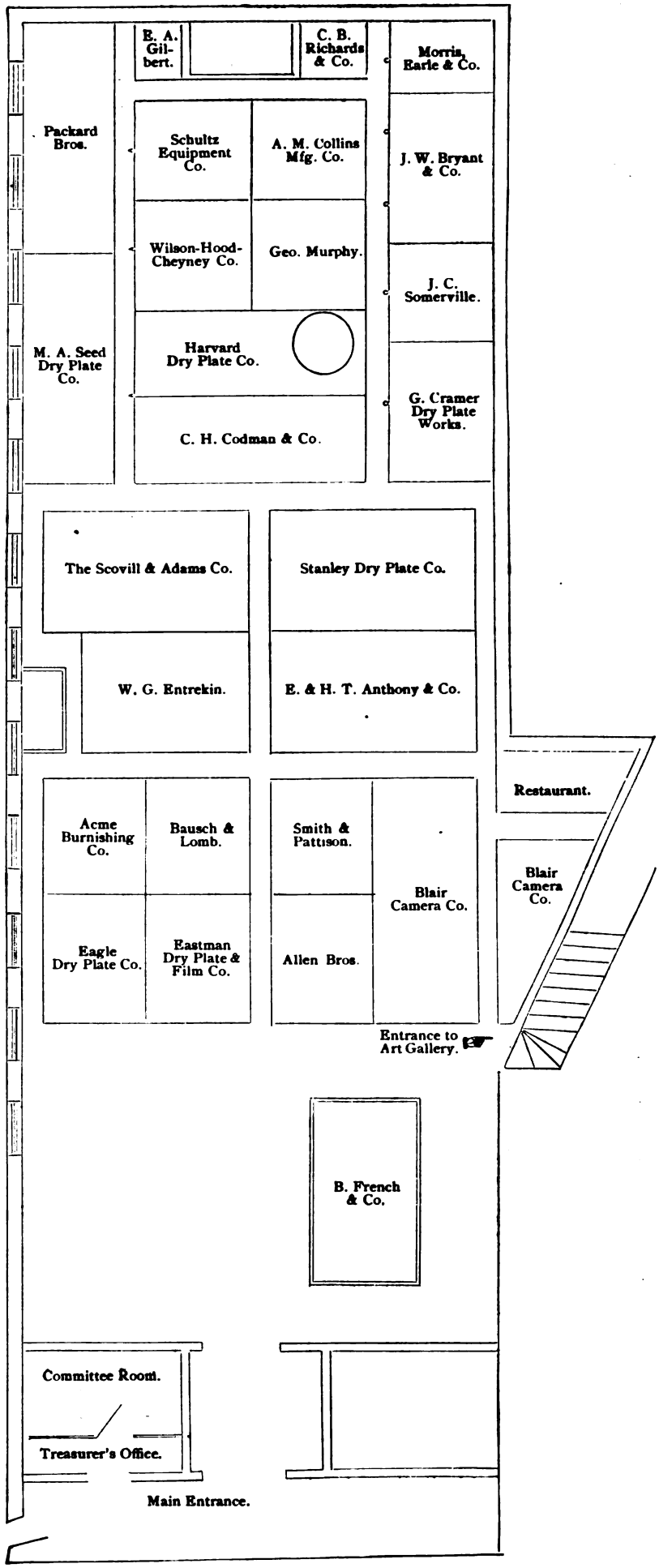
THE following formula was given me recently by a professional friend, who remarked that it gave the best results he had ever obtained, especially with instantaneous, or very quick, exposures:

	A.	
	Sulphite of soda	6 ounces
	Water	64 ounces
	Bromide potash	1 ounce
	Aq. ammonia F.	2 ounces
	Soda biborate	100 grains
	B.	
	Pyro	1 ounce
	Sulphuric acid	20 drops
	Water	6 ounces

For use take of

	A	1 ounce
	B	2 drams
	Water	3 ounces

DIRECTORY OF THE MANUFACTURERS' AND DEALERS' EXHIBITION.



It is best to begin developing with half the quantity of *A* called for, gradually adding the remainder if the image does not come up in the usual way.

The combination was new to me in the additions of borax to the alkaline solution. I have not seen the formula published, although you may be familiar with it. I have for years been a potash man, but confess that with this developer I have obtained, with quick exposures especially, better negatives than I ever got before, and would recommend it.

It is much quicker in its action than either potash or soda, and those of us who have become accustomed to the gradual and somewhat slow appearance of the image under the use of those alkalies, must be cautious, beginning with half the amount of *A* solution.

The negatives are good prints, and generally of the desirable slate color.

It is well not to have the solution too cold, a temperature of from 60 deg to 80 deg. being best.

Geo. L. Sinclair.

HALIFAX, N. S.

ON ALLOTROPIC FORMS OF SILVER.

(*Continued from page* 367.)

PROPERTIES POSSESSED BY ALL THE VARIETIES IN COMMON, AND DISTINGUISHING THEM ALL FROM NORMAL SILVER.

All these forms have several remarkable properties in common.

1. *That of drying with their particles in optical contact, and consequently forming a continuous film.*—If either is taken in a pasty condition and is spread evenly over paper with a fine brush it takes on spontaneously in drying a lustre as high as that of metallic leaf. C, when so treated, would be taken for gold leaf, but this property is much better seen by brushing the pasty substance over glass. When dry, an absolutely perfect mirror is obtained. The particles next the glass, seen through the glass, are as perfectly continuous as those of mercury amalgam, and the mirror is as good. A and B form bluish-green mirrors; C, gold or copper-colored mirrors.

2. *The halogen reactions.*—When any of these allotropic forms of silver are brushed over paper, and the resulting metallic films are exposed to the action of any haloid in solution, very beautiful colorations are obtained. The experiment succeeds best with substances that easily give up the halogen, such as sodium hypochlorite, ferric chloride, iodine dissolved in potassium iodide, &c. But indications are also obtained with alkaline salts, such as ammonium chloride, &c., though more slowly and less brilliantly. With sodium hypochlorite the colors are often magnificent, intense shades with metallic reflections reminding one of the colors of a peacock's tail. Blue is the predominating tint. These are interference colors, caused by thin films; but whether of a normal silver haloid or a hemi-salt cannot be said. When silver leaf (normal silver) is fastened to paper and a trial made the contrast is very striking. This matter will be more particularly examined in the second part of this paper, and is mentioned here as one of the reactions distinguishing allotropic from ordinary silver.

3. *The action of Acids.*—The stronger acids, even when much diluted, instantly convert the allotropic forms of silver into normal gray silver; even acetic acid, not too much diluted, does this. It is important to remark that this change takes place absolutely without the separation of gas. I have more than once watched the whole operation with a lens, and have never seen the minutest bubble escape.

4. *Physical condition.*—All these allotropic forms of silver are easily reduced to an impalpable powder. One is surprised to see what is apparently solid burnished metal break easily to pieces, and by moderate trituration to yield a fine powder.

A.—SOLUBLE ALLOTROPIC SILVER.

A solution of ferrous citrate added to one of a silver salt produces instantly a deep red liquid (ferrous tartrate gives the same reaction, but is less advantageous). These red solutions may either exhibit tolerable permanency, or may decolorize, letting fall a black precipitate. It is not necessary to prepare the ferrous salt in an isolated form, a mixture of ferrous sulphate and sodic citrate answers perfectly.

When, however, concentrated solutions are used with a large excess of ferrous sulphate and a still larger one of alkaline citrate, the liquid turns almost completely black. It should be stirred very thoroughly for several minutes, to make sure that the whole of the precipitated silver citrate is acted upon by the iron. After standing for ten or fifteen minutes the liquid may be decanted, and will leave a large quantity of a heavy precipitate of a fine lilac-blue color. It is best to adhere closely to certain proportions. Of a ten per cent. solution of silver nitrate 200 c.c. may be placed in a precipitating jar. In another vessel are mixed 200 c.c. of a thirty per cent. solution of pure ferrous sulphate, and 280 c.c. of a forty per cent. solution of sodic citrate. (The same quantity of ferrous sulphate or

of sodic citrate in a larger quantity of water will occasion much loss of the silver product). I think some advantage is gained by neutralizing the ferrous solution, which has a strong acid reaction, with solution of sodium hydroxide, as much may be added as will not cause a permanent precipitate. To the quantities already given add about 50 c.c. of a ten per cent. soda solution. The reaction takes place equally well without the soda, but I think the product is a little more stable with it. The mixed solution is to be added at once to the silver solution.

The beautiful lilac shade of the precipitate is rather ephemeral. It remains for some time if the precipitate is left under the mother water; but when thrown upon a filter it is scarcely uncovered before the lilac shade disappears, and the precipitate takes a deep blue color without losing its solubility. It may be washed either on a filter or by decantation with any saline solution in which it is insoluble, and which does not affect it too much. On the whole, ammonic nitrate does best, but sodic-nitrate, citrate, or sulphate may be used, or the corresponding ammonia salts. Although in pure water the precipitate instantly dissolves with an intense blood-red color, the presence of five or ten per cent. of any of these salts renders it perfectly insoluble. I have usually proceeded by adding to the precipitate (after decanting the mother water as completely as may be, and removing as much more with a pipette) a moderate amount of water; for the above quantities about 150 c.c. Much less would dissolve the precipitate but for the salts present; this much will dissolve the greater part but not the whole, which is not necessary. A little of a saturated solution of ammonic nitrate is added, just enough to effect complete precipitation.

As the material appears continually to change, the amount of washing needed must depend on the object in view. If wanted for analysis, the washing must be repeated many times until ferric salt ceases to come away, but no amount of washing will entirely eliminate it. After seven or eight solutions in pure water, and as many precipitations, the material is to be thrown on a filter, the liquid forced out as completely as possible with a pump, and then the ammonic nitrate washed out with ninety-five per cent. of alcohol until the filtrate leaves nothing on evaporation. The substance at this point is still soluble, though much less so than at first. During the washing the solubility slowly but steadily diminishes, a fact rendered noticeable by less and less ammonic nitrate being required to precipitate it from its solution.

Analysis.—The product, after thorough washing, as above described, with alcohol, was dried at ordinary temperatures or a little above, and was then reduced to very fine powder, and washed again with water as long as anything dissolved. It was then dried at 100 deg. C. in a water bath. Three silver determinations were made:—

A_1	97·31 per cent. silver.
A_2	97·18 " "
B	97·21 " "

A_1 and A_2 were made with different portions of the same material; B with different material prepared in exactly the same way.

The substance, therefore, contained on an average 97·27 per cent. of silver. The nature of the residue would decide whether the material was silver with a certain amount of impurity firmly attached to it, or whether we had to do with silver in chemical combination with other elements.

The filtrate from the silver chloride in analysis A_2, was evaporated to dryness, and was found to contain chiefly iron and citric acid. The iron was thrown down as sulphide, redissolved in nitric acid, precipitated hot, washed with boiling water, and gave 0·8947. The residue, therefore, consisted of ferric oxide and citric acid, probably in the form of ferric citrate, and attached so strongly that even the very careful and prolonged washings given failed to remove them. Stronger means would be required than could be used without altering the condition of the substance. The conclusion, therefore seemed to be justified that the material consisted of uncombined silver mixed simply with impurity.

To verify this conclusion by additional evidence, the substance was examined as to its behavior when heated. For if any other element were chemically combined with the silver, it would only be (in view of the high percentage of silver) hydrogen or oxygen. We might have to do with a hydride, analagous to Wurtz's hydride of copper; or possibly an oxide; but not probably, as Ag_4O would contain only 96·43 per cent. of silver.

The presence of either hydrogen or oxygen in combination with silver seems to be pretty certainly negatived by the action of dilute sulphuric acid on this (and the other two substances, B and C, to be described farther on). They are all converted into gray metallic silver without the slightest escape of gas. This seems tolerably conclusive in itself, and the result of exposing a great number of specimens of all the forms A, B, and C to the action of heat was equally so. As the object was to expose the fresh and moist material to a gradually increasing heat, from that of boiling water to a low red

heat without interrupting the process, the following arrangement was found convenient:

A piece of Bohemian glass tube about six inches long was sealed in the lamp at one end; the other closed with a rubber cork, through which passed a small gas delivery tube; and another tube passing into a small test tube partly filled with water, and having another tube through the cork passing under the surface of the water, thus preventing regurgitation. The material was thus first exposed for some hours to a heat of about 150 deg. C., in a chloride of calcium bath; this was next removed, and the heat continued to low redness. Only traces of gas were evolved, and this was found to be in all of the many trials made, carbonic acid, derived from the citric acid, adhering. This treatment was repeated many times with all the different varieties of the substance, and with the same result. The temperature was always raised sufficiently high to ensure the complete conversion of the material into normal gray silver, but in no case was oxygen or hydrogen set free.

It could not be overlooked that in all these trials the material had passed into an insoluble form before the silver determination was made. There remained, therefore, this possibility, that the silver, so long as soluble, might be in combination with citric acid, and that its change to the insoluble condition was caused by its separating from the citric acid. It seemed desirable that this view should be tested. As the object was to determine the condition of the silver in the substance as originally formed, avoiding, as far as possible, to change that form by attempts at purification, the only course available was to determine the ratio between the silver on the one hand and the citric acid on the other, either excluding from the determination, or else removing, that portion of the citric acid which was combined with sodium (sodic citrate being used in excess) or with iron. The first attempt was to exclude without removing it, by using Wolcott Gibb's ingenious method of precipitating the base by hydrogen sulphide, and determining the acid thus set free in a solution originally neutral. It was ascertained by careful experiment on weighed quantities of pure anhydrous citric acid that exact filtration could be made with the aid of phenolphthalein. The silver was next redissolved and estimated as chloride. A large number of determinations were made, but the method proved unsatisfactory. It was found that portions of the same material operated upon separately gave different (even widely different) results. In fact, this very discordance was in itself a proof that no stoichiometrical combination existed between the silver and the citric acid.

M. Carey Lea.

(*To be continued*).

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—(*Continued.*)

Potassium Hydrate (Caustic Potash).

Formula, KHO. Combining weight, 56.

Caustic potash—or "potash," as it is sometimes termed—is formed when metallic potassium is placed in water. It is usually prepared by adding slacked lime (calcium hydrate) to a rather weak hot solution of potassium carbonate. Chalk is formed, which sinks to the bottom, and the clear liquid is decanted and evaporated to dryness, when the caustic potash remains as a hard, white, brittle solid. Lastly, it is fused, and cast into sticks, in which state it is usually sold.

Potassium hydrate is a powerful alkali, burning the skin, and neutralizing acids. It is largely used in soap-making. Since it is very deliquescent the sticks should be kept in a stoppered bottle. Caustic potash dissolves in about half its weight of water. Caustic potash works admirably with hydrochinon as a developer for gelatine dry plates.

Potassium Iodide.

Formula, KI. Combining Weight, 166.

Prepared by digesting iodine with water and iron filings, and then adding potassium carbonate. It crystalizes in cubes which are very soluble in water, slightly soluble in alcohol. The pure salt should be neutral, but as usually met with, it has an alkaline reaction. The aqueous solution dissolves iodine freely.

Potassium Meta-bisulphite.

Formula, K_2SO_3, SA_2. Combining Weight, 222.

This salt may be obtained by passing sulphurous anhydride in excess into a solution of potassium carbonate, and adding alcohol. Care must be taken to keep the sulphurous anhydride in excess, or else the normal sulphite will be formed. The meta-bisulphite of potash was introduced in 1887 by Messrs. Mawson & Swan as a preservative of pyro when in solution.

Potassium Nitrate.

Formula, KNO_3. Combining weight, 101

Nitrate of potash, familiarly known as "nitre," or "saltpetre," forms a surface-deposit on the soil of many hot countries, as Bengal, Egypt, etc. It is also prepared by mixing solutions of sodium nitrate and potassium chloride.

Potassium nitrate is soluble in five parts of cold, and in its own weight of hot water. It contains nearly half its weight of oxygen, with which it readily parts when heated with any combustible substance. For this reason nitre is much used in the manufacture of gunpowder and fire-works.

Potassium chloride is frequently present in ordinary nitre. Its presence may be detected by the white precipitate produced by the addition of a few drops of silver nitrate.

Potassium Nitrite.

Formula, KNO_2. Combining weight, 85.

Potassium nitrite can be produced by heating the nitrate until part of its oxygen is driven off. This decomposition takes place more readily when some oxidizable metal, such as lead, is present.

Nitrite of potash forms small, white crystals, which deliquesce in air, and are insoluble in absolute alcohol.

The use, in photography, of KNO_2 depends mainly on the fact that it is a halogen absorbent. Bromide paper, treated with a solution of potash nitrite, forms an excellent actinometer. The paper should be soaked for ten minutes in a ten per cent. solution, and allowed to dry slowly in the dark. In strong sunlight, such paper will attain its deepest color—indigo blue—in twenty-five seconds.

Potassium Oxalate.

Formula, $K_2C_2O_4+2H_2O$. Combining weight, $176+36=212$.

The *neutral* oxalate of potash (which is the salt employed by photographers) is prepared by neutralizing oxalic acid with potassium carbonate. It crystallizes in transparent prisms, which dissolve in three parts of water. When heated, the crystals part with their water of crystallization and become white and opaque. The binoxalate, or acid oxalate of potash, can be distinguished by the sour taste of its crystals; its formula is C_2HKO_4. It is also known as *salt of sorrel*, from its occurrence in that plant.

The neutral potassium oxalate is employed in the preparation of ferrous oxalate, which is largely used as a developer for paper negatives and transparencies, and—on the continent—for gelatine dry-plates also.

Potassium Permanganate.

Formula, $KMnO_4$. Combining weight, 158.

Permanganate of potash is made by pouring boiling water on potassium manganate, and filtering through asbestos or glass-wool. Its prismatic crystals are red by transmitted, but black by reflected light. It is soluble in sixteen parts of water, and the solution—sold as "Condy's Fluid"—is a well-known disinfectant. Potassium permanganate is a useful oxidizing agent.

Potassium Sulphate.

Formula, K_2SO_4. Combining weight, 174.

Potassium sulphate is largely produced, as a bye-product, in the manufacture of bichromate of potash and other substances. It forms colorless crystals, which dissolve in ten parts of cold or four of boiling water.

Potassium Silver Cyanide.

Formula, $KAg(CN)_2$. Combining weight, 200.

This substance crystallizes in feathery tufts or hexagonal prisms. It is soluble in four parts of water, and is unaffected by light.

Potassium Sulphide.

Formula, K_2S. Combining weight, 110.

Potassium and sulphur combine in several proportions, of which the mono-sulphide, K_2S, is perhaps the best known. It can be made by dividing a saturated solution of caustic potash into two parts, passing sulphuretted hydrogen through one part and then adding the other half. It is an alkaline, caustic body.

Potassium Sulpho-Cyanide.

Formula, KS (CN). Combining weight, 97.

Prepared by heating yellow prussiate of potash with carbonate of potash and sulphur, and boiling the mass with alcohol. It is a transparent, crystalline substance, very soluble in water. When five parts of the salt are dissolved in four parts (by weight) of water, a temperature of—4 degs. Fahr. is produced. Sulpho-cyanide of potassium has been used as a fixing agent, especially for positive pictures, in place of hyposulphite of soda. It is present in human saliva, a fact which may affect the permanency of photographs that have had the tongue passed over them (a common practice), in order to induce the glossy surface to take tints or colors more readily.

Prussian Blue; $Fe_4(FeCy_6)_3$.

There are several varieties of this useful substance, which is largely employed in painting. When a ferric salt is added to potassium ferrocyanide a blue precipitate of *soluble Prussian blue*, $Fe_4K_2Cy_{12}$, is produced. This substance dissolves in pure water, but is insoluble in saline solutions. By adding ferric chloride to a solution of soluble Prussian blue a deep blue powder is precipitated, which is *insoluble Prussian blue*, Fe_7Cy_{18}, and this is the ordinary, or commercial article. It is sold in cubical

dark-blue lumps, and is insoluble in water, and in weak acids. It is soluble in oxalic acid, forming a dark-blue liquid, which is used as an ink.

PYROGALLIC ACID; (PYROGALLOL).

Formula, $C_6H_6O_3$. Combining weight, 126.

Pyrogallic acid—as the name implies—is prepared from gallic acid by the action of heat. The gallic acid may be placed in a porcelain crucible, over the top of which a piece of blotting-paper is then tied, the whole being covered and surmounted by a paper cone. With a Bunsen burner, or spirit-lamp, the temperature is then raised to 350 deg., when the gallic acid is decomposed into pyrogallic acid—which rises through the pores of the blotting-paper and settles on the inside of the paper cap—and carbonic acid gas, which escapes. The great draw-back to this—and indeed to most methods of preparing the substance—is that a large part of the gallic acid is decomposed into metagallic acid, $C_6H_4O_2$, so that only about one-fifth of the gallic acid is converted into pyrogallic acid.

An improvement introduced by Liebig is to mix powdered pumice with the gallic acid, and pass a slow stream of carbonic acid gas over the mixture so as to remove the pyrogallic acid before it has had time to become over-heated. By this method the yield is nearly doubled, but is still less than half the possible amount. For an experiment on a small scale the best method is that devised by Prof. Thorpe, of heating gallic acid in glycerine (150 grains to each ounce) in a glass retort. The temperature of the liquid must not rise above 400 deg. Fahr. The heat drives off carbonic acid gas, and a solution of pyrogallic acid in glycerine is left behind, which will "keep" for months. For preparing "pyro" on a large scale, an aqueous solution of gallic acid is heated to 400 deg. Fahr. in a closed vessel for thirty minutes. The solution is then boiled with animal charcoal, filtered and evaporated to dryness. The solid residue so obtained is then distilled by gently heating it in a vacuum. In this way nearly all the gallic is converted into pyrogallic acid.

Pyrogallic acid has not the characteristic properties of an acid—it has a bitter, not a sour taste; and it does not redden blue litmus—hence chemists do not consider it a true acid, and in chemical text-books it is now termed "pyrogallol," but it is familiarly known to photographers as "pyro."

Pyrogallol forms brilliant crystalline plates, which break up into a fine feathery powder, so light as to be scattered by a breath. It is extremely soluble in water, alcohol and ether. It melts at 239 deg. Fahr., and when the liquid boils it gives off a colorless, irritating vapor. Aqueous solutions of pyro abstract oxygen from the atmosphere, and from the air dissolved in the water, quickly turning brown and becoming useless to the photographer. The addition of a little citric or nitric acid retards this change. A solution in glycerine and alcohol keeps fairly well. When the solution of pyro is rendered alkaline, it becomes first yellow and then brown, a fact which distinguishes it from gallic acid, which undergoes no such change. With solutions of pure ferrous salts pyrogallol gives a fine blue tint, which the least trace of a ferric salt changes to green.

Pyro is an active reducing agent, absorbing oxygen so eagerly that it decomposes most of the salts of the "noble metals"—gold, silver, and platinum. For this reason it has been in constant use in photography for the last forty years, and its price has been reduced as the demand for it became greater, from 10*s.* to 15*s.* per ounce, to a shilling or even less. Owing to its power of absorbing oxygen, pyrogallic acid is always used for that purpose in gas analysis.

W. Jerome Harrison.

(*To be continued*).

THE RETOUCHER'S POINT.

I watched her pencil glide about,
I also watched the hand that hid it,
I paused a moment, half in doubt,
Then boldly asked her how she did it.

She laughed, and gave a gay retort,
As still her fingers kept their pace,—
Yet while she crushed my heart in sport,
She deftly rounded out my face.

And cleared my brow of every care,
And put such fire in my eyes!
And squared my chin and smoothed my hair,—
I gazed upon her in surprise.

And when 'twas done I said to her,
"An easy thing 'twould be to live
If shown by some philosopher
That Life is like a Negative."

Then, smiling, cried the pretty maid:
"I'll prove it to you very pat;
There's naught in life but 'light' and 'shade,'
Though sometimes we pronounce it 'flat.'

"And then again we find it 'sharp,'
Or 'blank' or 'clouded'—men have rhymed
Of youths the gods take to their heart,
And then you see its 'under-timed.'

"And then——" "I yield the palm to you;
Your doctrine's sound at every point."
She tossed her head—"That's nothing new;
Retouchers often make a point."

Jennie R. Skidmore.

ON PHOTOGRAPHING CHILDREN.

However unresponsive the dumb world may be to the charms of amateur photography, there is one chord which never fails to vibrate when we strike it with the question, "Don't you want me to take a picture of your beautiful baby?"

"If I had a camera," a friend said to me the other day, "I would take nothing but Tommy. He is so sweet asleep in his crib, crowing in his bath, riding in his carriage, playing with his rattle and shaking his hand for good-by, but when I get him in a gallery, he looks almost as commonplace as other infants, all white dress and gummy smile. If I had a machine, I would take him a dozen times a day!"

Now, although this wish for Tommy's portrait is not a love of art for its own sake, it expresses a maternal instinct too wide spread to be ignored. Hence these most primitive suggestions about photographing children.

The first requisite is a love of childhood, else patience and temper will disappear faster than plates. Tact, also, is, of course, needed, and a certain happy faculty in talking to the restless subject. Perhaps the best way is to get ready before the model fully grasps the situation, and then to be decided as to required pose. I have made myself too agreeable, diverting my sitters so much, that the importance of the occasion was ignored, and have found to my cost, after development, that every figure in the group laughed save two life-size wax dolls! I may here remark in parenthesis that dolls rarely laugh, which fact perhaps excuses amateurs for spoiling so many pretty pictures by the introduction of these staring images.

The second requisite is a quick plate and a drop shutter, and to use them to their best advantage bright sunlight. This last requirement is an essential element in taking Mary with her little lamb, Jack on his pony or the baby scratching the kitten's eyes out; and for all such subjects where a four by five picture gives satisfaction it seems wisest to use a detective camera. The third necessity is both negative and positive, absence of the mother, presence of the nurse. The former hinders by her confusing and interested suggestions; the latter helps by her passive indifference, and is particularly useful when the subject is inclined to use the tripod for a hobby-horse or to make a football of your lens. It was my misfortune once to attempt to photograph a friend's little cousin when twenty-two people were present to warn, to comfort and command, and again, I wasted much good material in taking a child, through the refusal of a mother to permit me to use as a background the garden of an undesirable neighbor. Reference has been made to detective pictures, but to me those of larger size give the most pleasure because greater opportunity for placing the figures as a central interest is thus secured. Of course sea-scapes, or landscapes are pleasing, when dotted with tiny groups, but when one wishes to tell a story or illustrate a poem as was recently suggested in The Photographic Times, it is well to take at least a half-size plate. When such a composition is planned, place the subjects in the shade and take the view early or late in the day. No sky need be shown on the plate, although its accessory light is needed. Critics tell us to choose a cloudy season for portraiture, but young faces unlined by yesterday's cares can bear considerable sunlight. Here, may I, a blunderer, add a word of caution to beginners about development. Use old developer at first, adding fresh, if necessary, for density and detail. Parents insist their darlings' faces must be white, that their features must show distinctly and that their curls are of more interest than distant foliage; therefore, use a small stop focus carefully, and work up these points of interest as far as possible. Strong alkali, generally known as No. "2," will so hurry matters that fog will cover the whole plate before sufficient strength is gained, and, as a result, we may get a negative with something discernible upon it, but never a silver print and hardly a "blue." Now, if you wish merely to please the average parent—this is no easy matter!—place their darlings in a row, facing the camera, and take the picture. If you fulfil all the necessary requirements you will succeed in getting a view of children having their photographs taken, nothing less and nothing more, but if you are a trifle ambitious and wish to do something "Robinsonian," you must make up your mind to sacrifice some faces in the group, and to carefully study foreground and background before you draw the slide. If the figures are to be in height at least two-thirds the width of your plate, or its length, keep the background simple, introducing, perhaps, an opening somewhere in the distance for "a way out," as the artists say. Remembering the tendency of lenses to enlarge objects in the foreground, we will avoid placing Titanic toys before diminutive infants, and, in a somewhat overcrowded plate, permit nothing but low growing grass along the bottom edge of the view. It may hardly be necessary to urge the vast importance of getting in the whole of your figures, but I have seen hundreds of people without feet, and one pyramidal group with a headless woman at its apex!

Sometimes a restless child may be placed with

his back to the camera, in which case, if he happen to have a good figure and a homely face, the picture is better off without his likeness. Always, in a group, place those who seem most likely to move, sideways, or wrong side foremost, thus breaking up stiffness and gaining much in naturalness of pose. As said before, get the whole of every boy and girl fully in, but do not be afraid to half a tree or show part of a summer-house, as such bits are suggestive, and like Sam Weller's love letter, hit the mark if they make one wish for more.

My heart misgives me that illustrating poems and making Christmas cards is not pure photography, yet I own a few aptly chosen lines under a print serve the double purpose of pleasing a literary taste and diverting a critical eye from technical imperfections. For such uses groups of children serve admirably, and we need not look far for verses.

"How do you like to go up in a swing—
Up in the air so blue?
Oh, I do think it the pleasantest thing
Ever a child can do!"

Be sure to use the detective for this, or else tie the swing by small cords, or a blurry negative will be the result. One needs an orthochromatic plate to take

"The friendly cow, all red and white,
Who walks among the meadow grass,
And eat the meadow flowers."

Or the gardener who digs

"The flowers, green, red and blue,
Nor wishes to be spoken to."

And surely brightest sunlight for the little shadow

—"That goes in and out with me,
And what can be the use of him
Is more than I can see.
He stays so close beside me,
He's a coward you can see,
I'd think shame to stick to nursee
As that shadow sticks to me."

As a last suggestion, why not use a few bars of music to explain our pictures? Schumann must have watched children at play when he composed his little sonatas, and I think we can do nothing better than to compose groups to illustrate his well-known pieces: "The Children's Party," "The Soldier's March," "The Gipsy Dance," "The Wild Rider," and "The Cradle Song." We have besides a chance to add another ray to the glory of photography if we preserve its folk-lore by taking groups of children playing their every day games, such as

"London bridge is falling down,"

Or

"'Tis you nor I, nor nobody knows
Where oats, peas, beans, and barley grows!"

At home or abroad we will not lack for subjects, and we will always make ourselves and our camera taking if we heed the cry,

"Please take my beautiful baby."

Adelaide Skeel.

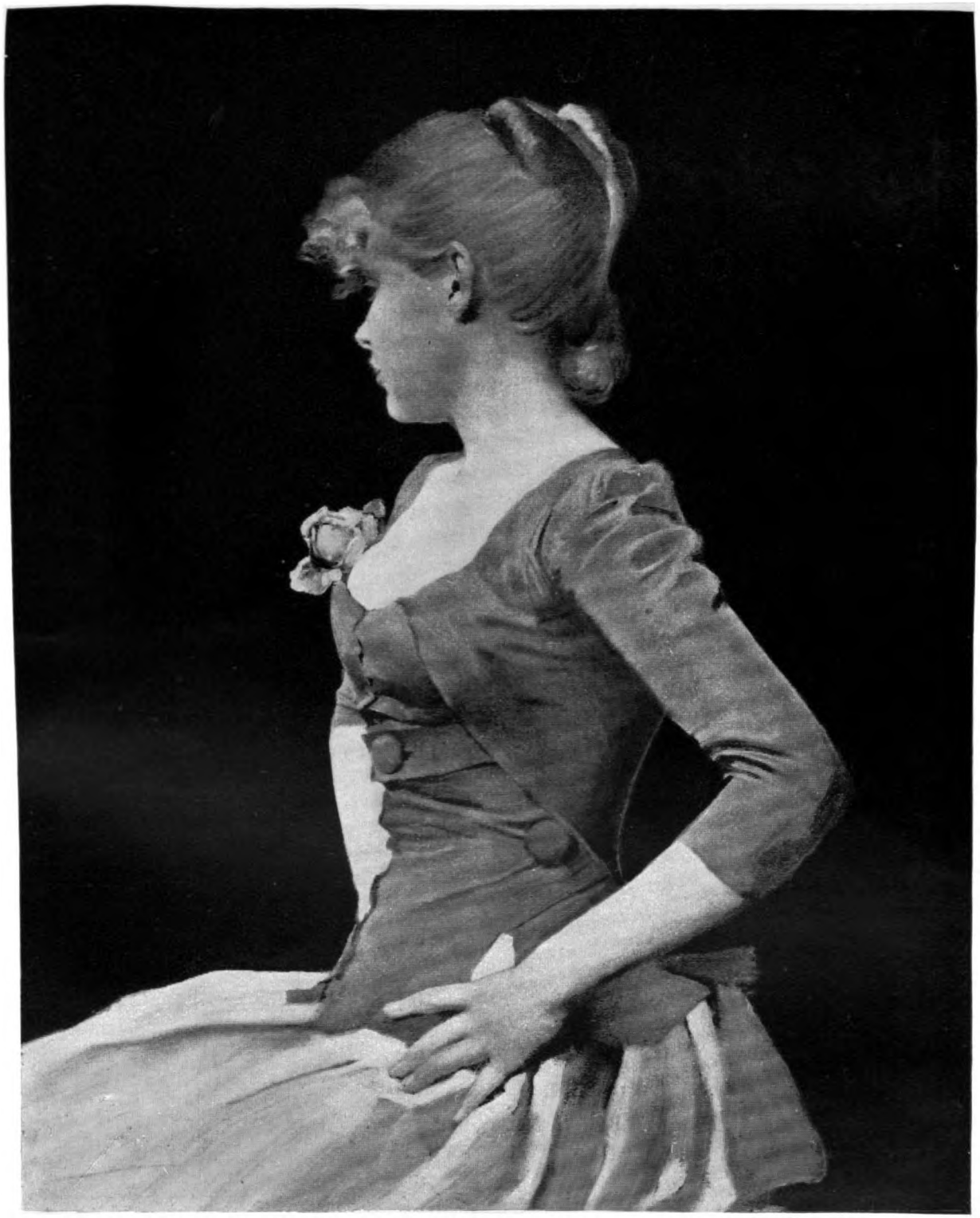
"A FAIR PARISIAN."

From the pictorial standpoint the study is a striking one. It is treated in the broad style, but very effectively. The pose is natural, not entirely graceful so far as the arm and hand are concerned, but with a nice poise of the head. The view of the face is almost, so to speak, a back one—just enough of the profile is retained to make a likeness, perhaps a characteristic one. The lighting is emphatically a painter's; the best appointed skylight of the photographer would be sorely taxed to secure similar illumination. These artists have a way of falsifying the lights when it suits their purpose—perhaps the retoucher can take this part of the work on his own shoulders, to keep out the photographer.

We are not yet accustomed to very large process blocks in this country. They are more common abroad; the illustrated papers, especially those published in France, use them quite regularly. Every year the various catalogues of the Salon utilize typographic reproductions of the important canvases, some of them quite as large as the pages of our own familiar illustrated weekly papers; but these papers themselves have not done so, except, perhaps, in a very experimental way; the magazines, with their smaller pages, have done more, though not always successfully.

Consequently, seeing the familiar name of "Mosstype" below this attractive picture, one of the first impressions is that of the size of the block, which is an encouraging token of progress. And how well the work is done, what soft gradations, what faithfulness of detail, what delicacy of modeling! It is a triumph of technical skill, and speaks volumes for the capabilities of the process. If it can do this, and so successfully, surely it need fear to attempt no task.

This may be called unqualified praise; now for a bit of qualification; not of the especial process, but applicable to all—those in which the effect is obtained breaking up the surface into lines. This



Reproduced by the "Moss Type" Process, directly from a photograph taken from the oil painting.

A FAIR PARISIAN.

is prompted by a comparison with a wood engraving from the same original, which was published in *Harpers' Bazar* some months since.

In this case, no doubt, photography played a most important part in the transfer to the block. But where the art and skill of the engraver appear is in the general direction of the parallel lines, so related in all cases to the contour or outline as to give modeling and texture.

Thus, in the cheek, these lines are at an angle of about 45 deg. to the horizontal; on the forearm and wrist they run in a direction at right angles to this; and are nowhere strictly parallel, but vary slightly in distance. All this gives rotundity and softness.

In the process print the lines are all parallel to each and every other; this gives a certain hardness. But when we consider that the work of the engraver would occupy the better part of two weeks' time, while the process block could be turned out, under pressure, inside of twenty-four hours, we feel that we can well afford to sacrifice a little softness.

C. W. Canfield.

OUR CHAUTAUQUA LETTER.

My day dreams regarding the future of the school of photography, seem actually to be nearing realization. There is a constant influx of new scholars, and it appears that we shall this year again almost double the number of the previous year. But it is not the number of students alone, which is so encouraging, it is also the intellectual standing and attainments of the students who seek instruction in our school—instruction in the theoretical part of photography, as well as technical and practical work. Among the students of the present class are graduates from Vassar, from Cornell and Yale, all well informed in chemistry and in physics; and, as they wish to make photography assistant in the pursuit of their studies in natural science, it can be easily understood how diligently they apply themselves to our work. They are apt scholars and advance rapidly. Chautauquans are earnest people and all come here for a purpose—to learn something.

We have now twenty-five scholars, all young people, half of them ladies, the other young men of various ages; some are beginners, others are quite well advanced. But they all study and work hard, and seem to enjoy the instruction received.

The mode of instructing is the same as in former years. I have now one scholar in his third course, who, induced by the sight of photographic chemicals, made by members of the New York class, has taken much delight in the study of chemistry. There is an artist, who learns to make portraits only, another photographs botanical specimens only, but the majority of them follow landscape work, for which our beautiful lake views offer peculiar attractions and facilities. As you are aware, I have a good assortment of various brands of plates with me. Our old reliable, the Carbutt B, proves, as of old, the most useful for beginners, and the Keystone Eclipse holds its own steadily among those more advanced. The Waterbury detective camera is a favorite among all, and seems to be much preferred to other apparatus of similar description now on the grounds, and which are of much greater pretensions, and more costly.

There is much printing on bromide paper done just now; many of the scholars are induced to adopt this method of printing, because some of the graduates have exhibited very beautiful work of that kind, among them is noteworthy "The Falls of Minnehaha," a winter view by student No. 225, and others by students No. 207 and No. 216. One of the exhibits is most attractive to visitors, it is that of student No. 210, aristo prints in various tones and Cyanotypes colored a bright green with catechu and borax. The latter is highly interesting to prominent chemists now here.

The many competitors for the premiums offered by generous friends of the school to the graduating class, inquire frequently of the date of our commencement day, when the prizes are to be awarded. Application has been made to designate day and place for celebration, but it is yet too early in the season to determine anything definite. We cannot very well expect to have our day before the Recognition day of the C. L. S. C., and our exercises will probably be held in the Children's Temple or in Normal Hall a few days later.

Charles Ehrmann,
Instructor School of Photography.

CHAUTAUQUA ASSEMBLY GROUNDS, July 20, 1889.

STRANGERS' DIRECTORY TO BOSTON.

OPEN TO THE PUBLIC.

NEW ENGLAND CONSERVATORY OF MUSIC.—Franklin Square. Take South End cars to Newton Street. 9 to 8, except Sundays. Free.

BATTLE OF BUNKER HILL.—No. 401 Tremont Street, (near the bridge).

FANEUIL HALL.—Merchants' Row and Faneuil Hall Square. Historical Paintings. 9 to 4. Free.

NATURAL HISTORY ROOMS.—Boylston and Berkeley Streets. 9 to 5. Wednesdays and Saturdays, 10 to 5.

BOSTON PUBLIC LIBRARY.—Boylston Street. Open every day and evening, including Sundays. Free.

GENEALOGICAL ROOMS.—18 Somerset Street. Library and Rare Engravings. 9 to 5. Closed Saturday at 2.

INSTITUTION FOR THE BLIND.—Broadway, So. Boston. Thursday at 11. 15 cents.

MUSEUM OF FINE ARTS.—St. James Avenue and Dartmouth. 9 to 5. 25 cents.

PEABODY MUSEUM.—Cambridge. American Archæological Ethnological Collections. 9 to 5, except Sundays.

AGASSIZ MUSEUM.—Cambridge. Natural History Collection. 9 to 5.

BARNUM NATURAL HISTORY COLLECTION.—Tufts College, Somerville.

WOMAN'S EDUCATIONAL AND INDUSTRIAL UNION.—74 Boylston Street. Open from 9 A.M. to 9 P.M.

OLD SOUTH.—Washington Street, corner of Milk. Loan Historical Collection. 9 to 6. 25 cents.

OLD STATE HOUSE.—Washington and State. Historical Collection. 9 to 5. Free.

STATE HOUSE.—Beacon, head of Park.—Statuary, Battle Flags, War Relics, etc. Free.

BUNKER HILL MONUMENT AND MUSEUM.—Charlestown. 25 cents.

U. S. NAVY YARD.—Charlestown. Museum of Naval Curiosities, etc.

Y. M. C. UNION ROOMS.—18 Boylston Street. 8 to 10 daily.

Y. M. C. ASSOCIATION ROOMS.—Boylston and Berkeley Streets. 8 to 10 daily.

PRINCIPAL HOTELS OF BOSTON.

ADAMS HOUSE, 553 Washington Street, European plan. Rooms $1.00 upwards per day.

AMERICAN HOUSE, Hanover, near Washington, European plan. $1.00 upwards per day.

BRUNSWICK, Boylston Street, cor. Clarendon, American plan. $5.00 and upwards per day.

CLARENDON, 523 Tremont Street, American and European plan. Rooms $1.00 per day.

CRAWFORD HOUSE, Scollay Square, European plan. Rooms $1.00 and upwards per day.

LANGHAM HOTEL, (formerly the Commonwealth), Washington Street, cor. Worcester and Springfield Streets. $3 upwards per day.

PARKER HOUSE, School Street, European plan. Rooms $1.00 upwards per day.

PARK HOUSE, Bosworth Street, off Tremont. Rooms $1.00 upwards per day.

QUINCY HOUSE, Brattle Street, American and European plan. Rooms $1.00 upwards per day.

THE BOSTON TAVERN, 347 Washington Street, within. Rooms $1.00 upwards per day.

THE THORNDYKE, Boylston Street, cor. Church, European plan. Rooms $1.00 upwards per day.

TREMONT HOUSE, Tremont Street, cor. Beacon, American plan. $4.00 per day.

UNITED STATES HOTEL, Beach Street, American plan. $2.50 and upwards per day. Rooms only, $1.00 per day.

VENDOME, Commonwealth Avenue, American plan. $5.00 per day.

YOUNG'S HOTEL, Court Street, European plan. Rooms $1.00 and upwards per day.

Correspondence.

PHOTOGRAPHY FOR HORSEMEN.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Can you, or any of your readers, tell me how to carry a camera on horseback? The question is brought to my mind by an allusion in the photographic romance beginning on page 287. I have often thought of it, however, and, indeed, have had my own experience in the matter, as I have carried a Scovill 5x8, with plate-holders and tripod, several hundred miles on horseback, in a rough, mountainous country. But if I should ever undertake such a journey again I should want better arrangements. It is a simple matter to strap on the camera for a ride of a day in the country, but I would like to know the best method for an explorer who, as in my own case, may be two months away from civilization and supplies. In any case the camera will be a source of inconvenience, and is sure to get a good shaking about. The ordinary tripod is simply a nuisance on horseback. I fastened mine with a strap to the stirrup-leather just at the junction with the stirrup, and secured the upper end with a loose cord from a buckle on the front of the saddle. I could then dismount, and the concern would hang obliquely along side the horse. In traveling I held the top of the tripod with my right hand, otherwise it would swing about without regard to appearances or comfort.

It is, of course, impossible to carry all the necessaries of an extended trip in a wild country on one's horse. A pack-horse is required to carry heavy weights, glass plates, and bulky articles. The pack-horse can also carry the camera, but as one is quite likely to prefer to go on in advance of the load, it is desirable to have the camera on his own horse. My opinion is that a 5x8 or 5x7 camera is about the best size for a traveler, if he can carry it. Certainly the new "Albion" is far more compact, and could be more easily carried than my own, which is of the older pattern. Perhaps some of your readers have had experience in this mode of traveling, and will favor us with an account of their devices.

R. H.

WASHINGTON, D. C., June 8, 1889.

[We shall be glad to hear from our readers on this subject.—*Ed. P. T.*]

A CORRECTION.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I notice in THE PHOTOGRAPHIC TIMES, No. 400, page 357, "Loss of Life Among Photographers of Johnstown with the Flood," among them Geo. Statler. He wrote me June 9th he was saved but injured, and also stated he lost his wife, daughter, aged twenty-four, and son, aged seventeen.

Respectfully,

J. Haworth.

PHILADELPHIA, Pa., July 22, 1889.

A CRITIC OF E. J. WALL.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir: A work like this ("A Dictionary of Photography," by E. J. Wall), if complete and authoritative, would be as indispensable in a photographic library as

"Webster's Dictionary" in that of an extensive reader of literature; but the author of the present effort has failed, as I think, to reach the standard of excellence which the nature of the book demands.

The definition of *actinic focus*, for example, gives it to be understood that if a lens be rendered achromatic, the visual and actinic focus will be actually coincident. The fact is, the coincidence or non-coincidence of the two foci has nothing to do with acromatism of the lens.

Blisters, he says, are "most likely due to exmosose action between the water and the fixing solution, the albumen acting as a septum!" If this be correct, then the blister sac *must* be filled either with water or fixing solution. Every dilemma has two horns and no more. Any boy nine years old who has dabbled with blisters, ought to know that they are not filled with water or a solution of any kind.

Measles, according to this writer, "are due to imperfect fixation." This is an entirely new, and, I presume, an original definition of measles, which make their appearance in the printing frame the first time the print is looked at.

Very truly yours,

W. H. Sherman.

MILWAUKEE, Wis., July 22, 1889.

THE DICTIONARY OF PHOTOGRAPHY.

W. I. LINCOLN ADAMS, ESQ.,

Editor of the PHOTOGRAPHIC TIMES.

Dear Sir: I have examined the "Dictionary of Photography," and consider it a valuable addition to your series of photographic books; just such a work has long been needed, to take the place for us moderns occupied by "Dawson & Sutton," twenty years and more ago. While this does not cover the ground so thoroughly, by comparison, as did that, it is nevertheless extremely useful in many ways; and should be welcomed by all as a step toward the work of the future, which, more comprehensive than a mere dictionary, as *the* "Encyclopedia of Photography" is surely coming one of these days—who knows but from an American pen?

Very truly yours,

C. W. Canfield.

NEW YORK, July 11, 1889.

To the Editor of the PHOTOGRAPHIC TIMES:

I have carefully examined the "Dictionary of Photography," by E. J. Wall, which The Scovill & Adams Company have recently added to their excellent series of photographic publications, and I want to say in this public way, in these columns, how highly I prize the volume. It is indeed a valuable addition to photographic literature, and will be especially appreciated by practical workers and writers. The more I use it, the more I like it, and I wish especially to commend it to my students of the Chautauqua School of Photography, and indeed, to all students of photography, wherever they may be.

Yours truly,

Charles Ehrmann,

Instructor Chautauqua School of Photography.

CHAUTAUQUA ASSEMBLY GROUNDS, N. Y., July 15, 1889.

Notes and News.

Appreciation.—The latest numbers of the PHOTOGRAPHIC TIMES have some lovely illustrations. What could be prettier than that photogravure of New Jersey Woodlands, which serves as frontispiece to the issue of July 5? A photogravure in the following number is of an interior taken by flash-light with four exposures, and different focuses. The reading matter is both entertaining and instructive.—*Fremont Journal.*

A Photographing Phonograph.—An invention which has already been foreshadowed is exhibited by Mexico. By speaking in a photophone transmitter, which consists of a highly polished diaphragm, reflecting a ray of light, this ray is set into vibration and a photograph is made of it on a traveling band of paper. If the image of this pho tographic tracing is projected by means of an electric arc or oxyhydrogen light upon a selenium receiver, the original speech is then heard.—*Journal of Invention.*

Custom-House Examination of Photographs.—Attention has been drawn to the practice of custom-house officers opening packages of undeveloped photographic plates, and thus spoiling the labors of a trip to the Antipodes. It is suggested that it be sufficient that the owner makes a statement, on oath if necessary, that the contents of the package are undeveloped photographs, and will spoil if opened in daylight.—*Ibid.*

Negri, in *L'Amateur Photographe*, says that the addition of citric, hydrochloric, or oxalic acid to the hypo and alum bath is useless, and even disadvantageous for removing yellow spots or coloration from negatives developed by hydrochinon. Alum in the fixing-bath has numerous drawbacks, it produces sulphur compounds that may destroy the keeping qualities of negatives.

The Cause of Halation,—G. Alpers, Jr., expresses in *Deutsche Photogr. Zeitung*, the opinion that halation is not solely caused by light reflected from the glass side of the plate; but is mainly produced by enormous overexposure of the respective parts. If, for example, one minute is the proper time of exposure for a brightly lighted window, and one hour is necessary for the other more or less dark objects, the windows will be exposed sixty times longer than they should be. By this unnecessary long exposure for the windows, light begins gradually to pass beyond the outlines (überstrahlen), and produces thus the disagreeable effect.

Hearing that Ray Lancaster, the British scientist, was using instantaneous photography in the study of "the limb play of centipedes," a friend sent him the following lines:

A centipede was happy—quite,
Until a toad in fun
Said, "Pray, which leg moves after which?"
This raised her doubts to such a pitch,
She fell exhausted in a ditch,
Not knowing how to run.

Beginning Early.—A well-known magazine devoted to the wants of those who care for young children, not long ago did a good turn for photographers by advocating

frequent portraits of growing "Young America," which one wide-awake firm has utilized in its advertisements.

But we doubt if the writer had in mind quite so prompt action as is recorded in the following clipping from a Boston paper of recent date:

A Jamestown, Pa., baby was photographed thirty-five minutes after it was born. The happy father took the picture.

If that child doesn't some time get a dose of pyro instead of milk, thereby arresting instead of assisting its development, doesn't get its neck caught in a head-rest, and choke to death, while being "posed," or, when it has begun to toddle, doesn't pull the camera-stand over upon its devoted head, while looking for "the little bird," during the momentary absence of the proprietor—in short, if it ever reaches the age of discretion, it will be able to single out one from the many prints taken at the different stages of its career, and say, with the proud consciousness of one who possesses a rarity that scarcely any other one can parallel, "This is ME, aged half an hour." At all events, the life of this infant will necessarily be strongly affected by photography; who knows but here is the Daguerre of the 20th Century; or, perhaps, his wife! Stupendous thought! That child must be kept watch of.

A Good Excuse.—MISTRESS: "Why, Eliza! What is the matter? Sitting here with your feet in the foot-tub at ten o'clock in the morning!"

COOK: "Yes, you know, mum, I am going to have my photograph taken to-day!"—*The Wasp.*

All in a Half Century.—The unification of Italy.

The annexation of Texas.

The French revolution of 1848.

The discovery of photography.

The laying of the ocean cables.

The discovery of the telephone.

The emancipation of Russian serfs.

The discovery of the electric telegraph.

The overthrow of the Pope's temporal power.

The establishment of ocean steam navigation.

The extension of Russian power into Central Asia.

The Great Franco-German war and the unification of Germany.

The great Civil War and abolition of slavery in the United States.

The rise and fall of Napoleon III. and establishment of the French republic.

The discovery of the sources of the Nile and Niger, and the exploration of interior Africa.—*Boston Record.*

Character the Key to Success.—Two fundamental psychological elements to be always studied among any people are character and intelligence. Character is infinitely more important to the success of an individual or a race than intelligence. Rome, in her decline, certainly possessed more superior minds than the Rome of the earlier ages of the republic. Brilliant artists, eloquent rhetoricians and graceful writers appeared them by the hundred. But she was lacking in men of manly and energetic character, who may perhaps have been careless of the refinements of art, but were very careful of the power of the city whose grandeur they had founded. When it had lost all of these, Rome had to give way to peoples much less intelligent but more energetic. The conquest of the ancient, refined, and lettered Greco-Latin world by tribes of semi-barbarous Arabs constitutes another example of the same kind. History is full of such. *From "The Influence of Race in History," by G. Le Bon, in the Popular Science Monthly for August.*

A Brief Historical Sketch of The Photographic Times.—The first and only illustrated journal in the world devoted exclusively to photography, commenced its career eighteen years ago, as a small monthly. It was then edited by Edward L. Wilson, and published by the Scovill Manufacturing Company. The sprightly little monthly grew so rapidly that it soon became necessary to make important changes, and J. Traill Taylor, editor of *The British Journal of Photography*, was engaged to edit THE PHOTOGRAPHIC TIMES, with the assistance of many well-known American contributors. The TIMES rapidly increased its influence, soon became the leading organ of photographers, professional and amateur, in this country. It has always been abreast the first wave of progress. In 1881, when the Photographers' Association of America held its annual convention in New York, THE PHOTOGRAPHIC TIMES appeared regularly every day throughout the entire convention, giving full proceedings of the day previous. In the fall of 1884 the journal made the important change of issuing weekly instead of monthly, as theretofore. With the beginning of the next year (1885) the weekly PHOTOGRAPHIC TIMES enlarged its pages to large quarto; and W. J. Stillman and Charles Ehrmann became associated with Mr. Taylor in editorial work. In 1886 the size of the pages was slightly reduced, for convenience in binding and handling; but the number of the pages was increased from ten to twelve. In the fall of that year, W. I. Lincoln Adams became managing editor, in which capacity he has served the fraternity ever since. THE PHOTOGRAPHIC TIMES has always been illustrated more or less frequently, but, beginning with the current year, it has published regularly in every weekly issue a full page pictorial supplement, making it, as has been said, the only photographic journal in the world that publishes full-page pictures with every issue.

It is published by the Photographic Times Publishing Association, at 423 Broome Street, New York City, and the annual subscription price is five dollars.—*From the Semi-Centennial Souvenir of the P. A. of A.*

A New York Photographer told an interviewer that the greatest favorite of early times was Adelaide Neilson. He was asked:

"Do you still sell pictures of Neilson?"

"Yes, many thousands and thousands of them."

"Did you pay her anything for that privilege?"

"Certainly not. The first person I ever paid was Sarah Bernhardt. I gave her fifteen hundred dollars at first, and sold thousands and tens of thousands of her pictures in European as well as local orders."

"How about Patti?"

"Oh, Patti sells enormously, and will until she dies."

"Did you have to pay her anything for the privilege?"

"Oh, yes, $1,000. But one of the greatest cards of recent years is Mrs. Langtry. We have sold so many pictures of her I should really be afraid to make an estimate, but scores of thousands of her photographs are sold every year. I gave her $1,500, of which $1,000 were paid in cash and $500 in works of art."

The Chautauqua School of Photography.—Had I space I should like to describe several of the special schools, but shall confine myself to the school of photography. As so many all over our land are becoming personally interested in this art, I desire to speak of the school here situated. Professor Ehrmann at the head of this school is a native of Germany and a resident of New York city. He is associate editor of THE PHOTOGRAPHIC TIMES, a gentleman of courteous and pleasing manners, who wins not only the respect but the affection of his pupils. It was his good fortune to be the first who gave instruction in amateur photography, although the professor asserts that his pupils are not amateurs, as they often excel those who claim to be at the head of the profession. Professor Ehrmann has had opportunities to photograph under all conceivable circumstances, on sea or land, on the surface of the earth, above it and below it by day and by night. The Chautauqua school of photography has gained recognition, not only in the colleges and other educational institutions of this country, but has earned an enviable reputation for itself and instructor in foreign educational and scientific circles. Last year the Vienna Photographic Association recognized Professor E. by electing him an honorary corresponding member. The three following prizes are offered in his class this year: First. A camera lens worth fifty dollars, for the six best landscape views. Second. D. O. Wilson's eminent work on photography, for the best written examination. Third. Five volumes of standard photographic works for the best essay on photography. There were twenty-six graduates in this school last year, their studies being carried on by correspondence after leaving these grounds. Diplomas are presented all graduates. In the past year twenty-nine States and territories and eight foreign countries have been represented by his pupils. Next autumn a post-graduate course will commence, including chemistry and optics. Professor E. also teaches the preparation of chemicals.—*Chautauqua Letter in Holley (N. Y.) Standard.*

Daguerre.—It will on all hands be conceded that in the world of art one of the greatest benefactors was the distinguished man above named. To say that had he not lived or labored some other would have done the same work and accomplished similar results, is only to hold that everything within the reach of human endeavor will by some one, and in some way, be accomplished. Certainly, it is very encouraging to be assured that any desirable object will be attained; but there is always a special interest in the way it is done, by the successful worker and inventor.

When we think of the great degree towards perfection already reached in making pictures by the Daguerrian process, that is, by methods invented or suggested by the labors of Daguerre, it is astonishing to know that it has all been gained in only about fifty years; for it was in 1839 that he was formally recognized as the inventor, which *practically* he really was, of the art ever since designated by his name. For, as we are informed, Daguerre then decided to cede his invention to the State. He addressed himself to several men of science, and knocked at Arago's door. The illustrious astronomer and man of science was thunderstruck at first sight of the Daguerreotype plate, and was boundless in his expressions of admiration. The inventor had found his advocate. Arago sent him to Duchâtel, the then Home Minister, who offered Daguerre and Isidore Niepce life pensions (modest enough!) in exchange for their secrets. On June 15, 1839, Duchâtel laid before the House a bill relating to the new discovery, preceded by the following reasons for its acceptance:

"You all know, and some among you have already been able to prove for yourselves, that after fifteen years of persevering and costly research, M. Daguerre has succeeded in fixing the image of the camera, and of thus creating, in four or five minutes, by the aid of light, drawings in which the objects preserve their forms, even to the slightest detail, in which lineal perspective and the degredation of tone produced by aerial perspective are reproduced with a delicacy hitherto unknown.

"It is not necessary to dwell upon the utility of such an invention. It will easily be understood what new facilities it must offer for the study of the sciences; and as to the arts, the services it can render to them are incalculable.

"These reproductions, so true to nature, would be a constant object of study to artists and painters, even the most talented, and on the other hand this process offers them a ready and easy means of forming collections of studies which, if they made themselves, they could only obtain at the cost of much time and labor, and in a much less perfect manner.

"The art of the engraver would take a new degree of interest and importance, when employed to reproduce and multiply these pictures drawn by Nature herself.

"Finally, to the traveler, to the archæologist, as well as the naturalist, the apparatus of M. Daguerre would become a continual and indispensable necessity. It will enable them to fix their impressions without having recourse to the hand of a stranger. Every author would become his own illustrator; he would halt a few seconds before the most extensive view, and obtain on the spot an exact facsimile of it.

"Unfortunately for the inventors of this beautiful discovery, they find it impossible to make a matter of business of it, and so indemnify themselves for the sacrifices which were necessitated by such numerous attempts so long fruitless.

"Their invention is not one which can be protected by a patent. As soon as it is known, any one can make use of it. The most awkward person will be able to make pictures as exact as a practiced artist. It thus follows that this process must belong to all the world or remain unknown. And what just regrets would not be expressed by all the lovers of art and science if such a secret remains impenetrable to the public if it must be lost and die with the inventors!

"In such an exceptional circumstance it behoved the Government to intervene. It is for it to put society in possession of the discovery which it demands to enjoy in the general interest by giving to its authors the price, or rather the recompense, of their invention.

"These are the motives which have led us to conclude a provisional agreement with Messrs. Daguerre and Niepce, for which the object of the bill we have the honor to lay before you is to ask your sanction. Before acquainting you with the bases of this treaty, it will be necessary to give a few more details.

"The possibility of transiently fixing the image of the dark room has been known for the last century; but this discovery promised no useful results. The substance on

The first volume will treat on "Materia Photographica," especially lenses; the second, the negative image; while the third and fourth will be devoted to positive images and enlargements, respectively.

The price for the work to original subscribers will be 40 francs; which after publication will be increased to 60.

The first "fasicule" treats very briefly—"for which relief, much thanks"—on the history of photography, and then takes up the subject of lenses. The style is clear, and the information given in a succinct manner; the work promises to be a contribution to the ever-increasing literature of photography: which will some day be summarized in a compendious form, which shall henceforward become *the* classic and render such treatises as this one superfluous. C.

NUMBER 11 of Volume I of *Sun and Shade* is a notable issue, full of timely and unusually attractive photogravures. It contains, among other pictures, "The Disputed Boundary," from a painting by Erskine Nicol; "A Portrait Study," from a negative from life, by George G. Rockwood; "Wing and Wing," from a negative by H. G. Peabody; "Solid Comfort," from a negative by S. R. Stoddard, the Adirondack photographer; "In the Marches," from a photograph by C. M. Fowler, and photogelatine prints of the Eiffel Tower and Exposition Buildings at Paris, and "The Sphinx" (the visit of the Spaulding American Base-Ball party), by a Cairo (Egypt) photographer.

The publishers make the following announcement:

"A year ago we commenced the publication of our novel venture in journalism *Sun and Shade, a Picture Periodical without letterpress*, almost as an experiment, with a modest list of less than fifty subscribers. To-day we are printing an edition of 4,000 copies monthly. A sufficiently convincing proof of the wisdom of our hope that there was room for us.

"In our rapid growth the wish has been indicated unmistakably for the higher grade of pictures, and of the higher class—always for quality rather than quantity. Following rather than leading such a wish, we feel that we make no mistake in marking the future career of the magazine to be rather that of an *artistic periodical* than a *photographic record of events*.

"Our efforts shall be directed in the future to make *Sun and Shade* an artistic periodical which shall be not only pleasing but *educational* in its broadest sense. Some of our plans may be briefly referred to.

"We shall reproduce the leading pictures in the great collection of the Metropolitan Museum of Art. Within the covers of *Sun and Shade* will be found from time to time, reproductions of the works of American artists. We shall especially endeavor to encourage the artistic side of direct photography in all its phases. And we shall supplement these special features with examples of sculpture, architecture, and industrial art. If in the future we receive as hearty a response to our efforts as we have received in the past, our task will be indeed pleasant and our road to success a royal one."

"THE SCENE WAS LAID."—A Harlem grocer recently found an egg in a lot just received from the country with a landscape neatly photographed on the shell, but he doesn't know where the scene was "laid."—*Texas Siftings*.

QUITE A COMPLIMENT.—Miss C.: You ought to patronize my photographer. He is an artist.

Brown: Is that so?

Miss C.: Yes, he can throw expression into the most commonplace face.—*Texas Siftings*.

Queries and Answers.

156 MARSHALL, MICH.—I have several dozens of Carbutt B and special plates, purchased last spring. Do you think they are good enough yet for landscape work?

156 *Answer.*—We can vouch for the B plate. The special you had better try first, before putting them in use for important work.

157 C. H. MILLER asks whether spring water is injurious when used in developing plates?

157 *Answer.*—It does no particular harm unless the water contains chlorides. Calcerous water is injurious to the oxalate developer; and the solution of potassium oxalate should be well filtered, after having been allowed to stand for twenty-four hours.

158 EMILY P. T.—I do not like the hydrochinone developer very much, but have adopted it because it does not stain the fingers. If I knew how to remove these abominable stains, I would return to the dear old pyro.

158 *Answer.*—Diluted hydrochloric acid 1:6 will remove the pyro stains, if you soak the fingers in it for a few minutes. If you moisten the fingers with the same solution before you touch pyro, the chance of staining is reduced to minimum.

159 W. S. PULSFORD would like to know the cause of the very brownish-black color of the platinotype prints which he encloses. He says: "The directions were followed exactly, and the black sized paper of Willis & Clements, used."

159 *Answer.*—We regret that we cannot give the information desired. The making of the Willis & Clements paper is a trade secret, and we are not acquainted with the intricacies of its manufacture, and, consequently, cannot explain difficulties occurring with it. The manufacturers can doubless do so. We have, however, compared the prints sent, with many others of the same kind, and think that there is little difference, if any, between them and your own.

160 SENEX.—I have heard of gold and lead toning baths. Is the lead salt added to the chloride of gold, to secure greater durability of the print, or merely to assist in toning? As lead salts are used as hypo eliminators, I am thinking they might be useful when added to the toning solution.

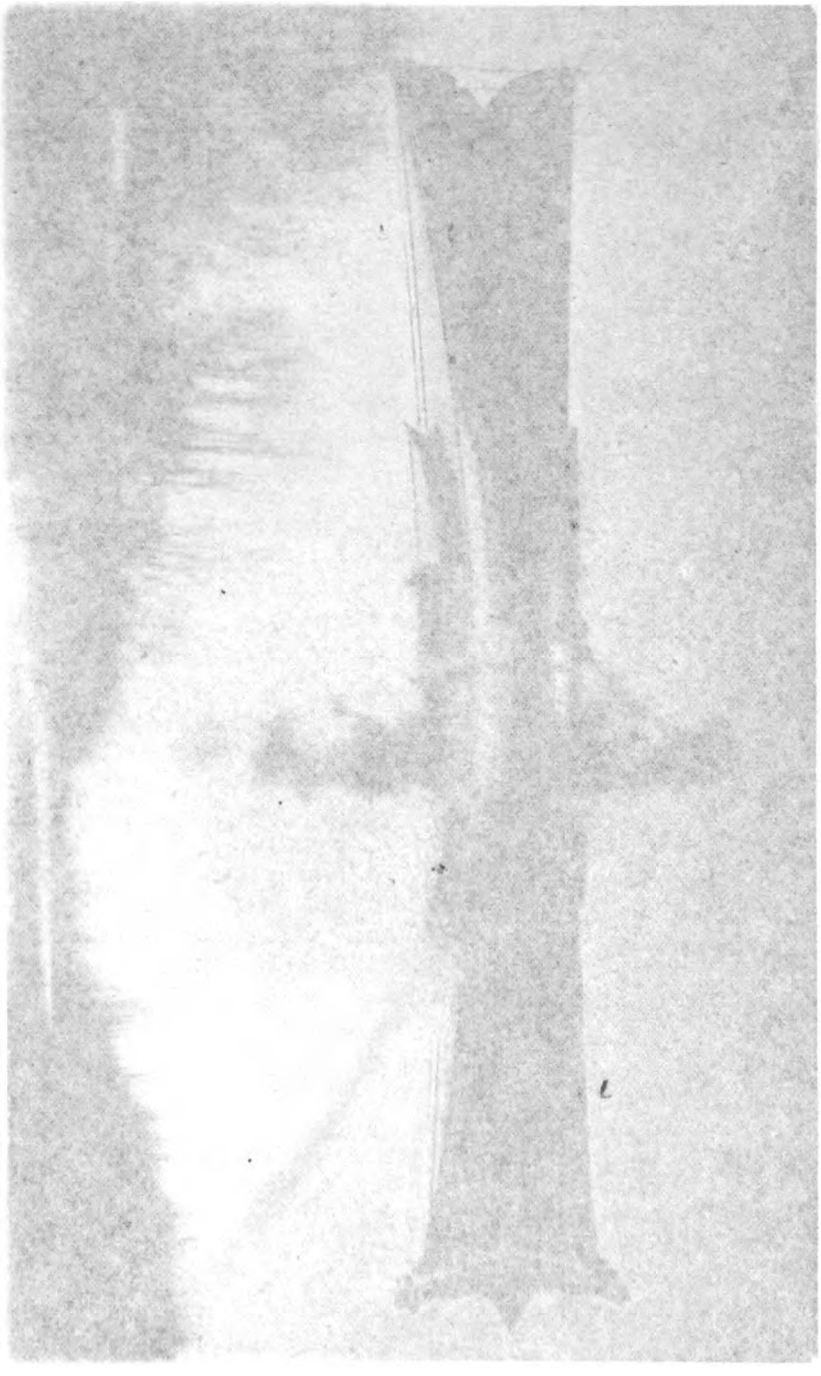
160 *Answer.*—Nitrate of lead in the toning bath gives a rich black tone to the print, but makes it fade after a short time.

Mr. E. J. Wall gives the following formula for a lead toning bath: Nitrate of lead 30 grains, chloride sodium 40 grains, hyposulphite of sodium 240 grains, chloride of gold 1 grain, and water 10 ounces; and adds, the bath gives a good black tone, but as it does not keep, it must be prepared immediately before use. The permanency of the print is not guaranteed.

Of the use of the salts of lead as hypo eliminators not much need be said in their favor. With them insoluble hyposulphite of lead is formed, and that remains in the print. It cannot be washed away.

CLARENCE E. WOODMAN, Photo.

STILL LIFE.



THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, AUGUST 9, 1889. No. 412.

STILL LIFE.

OUR picture this week is appropriate to the vacation days now at hand, and needs no word from us more than the bare statement of the facts concerning it.

The "scene is laid," as the novel writer would say, at the extreme head waters of the Androscoggin River, the entrance of Rangeley Lake, Franklin County, Maine; and the photograph was made on a Carbutt "B" plate, with a quick-working lens, the exposure being by hand as rapidly as the cap could be taken off and put on again.

The picture is by the Rev. Clarence E. Woodman, Ph.D., who is well-known to all readers of THE PHOTOGRAPHIC TIMES; and was printed by the Photo-Gravure Company's gelatine process, direct from the negative, without reduction or enlargement.

THE BOSTON CONVENTION.

As we go to press, the tenth annual convention of the Photographers' Association of America is in progress. Every indication points to a fulfillment of our greatest expectations. The special Convention Number of THE PHOTOGRAPHIC TIMES was received with enthusiastic approval. It is everywhere to be seen in the hands of photographers, who consult it as a complete guide to the convention, and value it as an appropriate souvenir of the occasion.

We present the report on "The Progress of Photography," which was read soon after the opening of the convention. Next week, other papers will be given our readers, as well as the most valuable discussion and a full account of the proceedings. A review of the immense exhibition of photographs and of the more noteworthy photographic apparatus, &c., shown by the dealers and manufacturers will follow in due time.

REPORT ON THE PROGRESS OF PHOTOGRAPHY IN AMERICA DURING THE YEAR ENDING AUGUST 10, 1889.

[Presented at the Boston Convention of the P. A. of A.]

PHOTOGRAPHY'S growth has been constant and rapid ever since its birth, fifty years ago.

During the year which has passed since our last convention much has been accomplished in photography in this country which especially deserves our consideration.

Several important improvements have been made in photographic objectives and apparatus; and these, of course, are followed by a better class of work. Better and cheaper lenses put it within the power of more photographers to turn out larger and finer productions; while improved cameras, stands, holders, printing frames, etc., make it easier for them to do the work.

The prices obtained by photographers for their work are not generally lower than they were one year ago, so that the downward tendency in the cost of materials results in slightly increasing their profits. Several attempts have been made during the year to form combinations for the purpose of artificially raising prices, the latest movement in this direction being the largest and strongest which has thus far been started. But photographers are learning, gradually, that a more effective way to prevent hurtful competition is to improve the quality of their productions rather than to resort to arbitrary combinations or lower the quality of their work in order to meet the prices of inferior operatives.

As the number of amateur photographers increases rapidly the former distrust and prejudice on the part of some professionals seem to be giving way, and the two classes are therefore working towards the natural result of greater benefit to their common art and reciprocal aid to each other.

The problem of substituting for glass another equally transparent, but less fragile, and lighter support, for carrying the sensitive bromide of

silver, seems to have been successfully solved by the introduction of transparent celluloid films.

Mr. John Carbutt's "Flexible" films and the "Ivory," are undoubtedly a marked step in advance. They are as sensitive as plates and as easily developed; are not one-fifth so heavy, will not break, and require no stripping. Though they are at present somewhat higher in price than the glass plates, they will undoubtedly be considerably cheapened as the demand for them increases.

The Eastman Dry Plate and Film Company made a still further advance in coating celluloid sheets of sufficient thinness and length to be easily rolled on the roll-holder.

Celluloid has also been proposed as a substitute for ground glass in the focusing screen, and it seems to answer the purpose very well. A varnish composed of celluloid dissolved in acetate of amyle has been introduced, which works especially well with gelatine transfers. Celluloid has also been mentioned as an improved material, because of its lightness, for the manufacture of plate-holders and even cameras.

Dry plates have been considerably increased in sensitiveness during the year, and are now made of a more uniform quality than in times past. Commercial orthochromatic plates are being quite largely employed for landscapes and copying.

With the magnesium "flash" light photographers have undoubtedly improved in their management of the light effect on a subject; but it can scarcely be said that this method of artificial lighting has increased in general use, especially during the latter part of the year. On the contrary, it is probably considerably less used now, than it was one year ago, though those who do employ it are more skillful in its use. The tendency at present is to use magnesium powder in a pure state; and many ingenious lamps and devices for igniting and burning it have been invented.

Among developers hydrochinon has scarcely held its own, though for lantern slide purposes, window transparencies, and the making of "black-and-white' negatives for engravers, it continues to retain all of its old friends, and has probably added somewhat to their number. It has not been shown to be superior to pyro, however, in developing a briefly-timed or under-exposed plate.

Hydroxylamine, though strongly advocated at first by a few, has been almost totally abandoned on account of the blisters which are invariably produced on the film when it is used. Two new developing agents have been announced, Eikonogen and Pyro-katechin, for which several advantages are claimed. Metabisulphate of potassium, as a more perfect preserver of pyro and hydrochinon in solution than a mono-sulphite, promises to be more widely used for that purpose.

In printing methods, though the platinotype, the bromide, the chloride print, and, most conspicuously of all, perhaps, the collodion aristotype, has prominently come forward during the past year, albumen paper has not been largely superseded for professional purposes. Amateur photographers are attracted by the artistic dullness of plain silver prints; and cyanotypes, toned and untoned, seem to be gaining in favor with this large class of modern photographers. There has been a slight tendency shown among enlargers during the past year to return to the old method with iodide of silver, developing with gallic acid.

Lantern-slides are being made more industriously than ever before; the International Lantern-Slide Exchange, maintained by the photographic societies of Great Britain and our own country, keeping the interest active in this fascinating department of photographic work. In photo-mechanical printing methods there is nothing absolutely novel to report, though the excellent old processes are being more extensively used than ever before.

A new principle in heliochromy has been announced by Mr. Frederick E. Ives, of Philadelphia. He produces heliochromatic negatives by exposing color-sensitive plates through compound color screens, so adjusted that the curves of intensity which correspond to the action of light rays upon the sets of nerve fibrils that produce color sensation are clearly shown.

Photographic literature has been considerably augmented during the past year; three annuals, five monthlies, two semi-monthlies, and two weeklies being published in this country at present.

Several important new books have been brought out during the year and new and revised editions of excellent older works. More attention is being given by publishers to illustration, and photographers, as a class, are growing more studious.

Instruction in photography in schools and colleges has become more general. The Chautauqua School of Photography, founded three years ago, with a membership of only sixty-one students at the end of the first year, now numbers over 150 members. The number of photographic societies has also been largely augmented during the year. There are now about seventy-five such organizations in this country.

In concluding our consideration of the progress which has been made during the twelve months, it seems fitting to speak at least briefly of those useful members of the profession who have gone

to their rest. Joseph Zentmayer and Richard Morrison, both able opticians, have ceased their labors in behalf of the fraternity during the past year. Marcus A. Root, one of the oldest daguerreotypists of Philadelphia; Anthon Baumgärtner, the well-known retoucher; Dr. Maurice H. Miller, photo micrographist; David Cooper, an expert; D. U. Morgan, the albumen paper manufacturer; and Edward Anthony, photographic merchant, have also passed away. Their eminent services to the fraternity should be an inspiration for us who remain to labor more diligently and conscientiously than ever before; and if we exert ourselves in a manner at all worthy of the memory which they have left to us, we shall assemble one year from this time with still greater advances to report, and more encouraging prospects for the future.

W. I. Lincoln Adams.

ON ALLOTROPIC FORMS OF SILVER.

(*Continued from page* 382.)

The importance of the matter led me to take it up again with different means, estimating the citric acid by Creuse's method. In this method the solution, after being reduced to a small bulb, is exactly neutralized (with ammonia or citric acid), is tested with a slight excess of barium acetate, and then mixed with twice its bulk of ninety-five per cent. alcohol, let stand a day, and filtered and washed with sixty-five per cent. alcohol. In igniting a few drops of sulphuric acid convert the barium salt into sulphate, in which form the estimation is made. A preliminary trial with a weighed quantity of citric acid showed that this method gave fairly good results. I was obliged to vary the method somewhat; the precipitate of barium citrate carried down with it enough iron to render it ochrey in appearance. It was, therefore, after thorough washing with sixty-five per cent. alcohol till every trace of barium acetate was removed, dissolved on the filter with dilute hydrochloric acid (acid, 1, water 10), in which barium citrate is extremely soluble and washed through. This was followed by still weaker acid and finally with water. From the filtrate, sulphuric acid precipitated snow-white barium sulphate.

But this method requires that both the sulphates and the excess of sodic and ferric citrate shall first have been perfectly removed. The blue precipitate was therefore washed with dilute solution of ammonic nitrate until this was effected. The necessity for this purification was regrettable as introducing a possibility of a change during the treatment. It was, however, indispensable that the ferrous, ferric, and sodic citrates should be got rid of. The material after this treatment was still freely soluble in water, to a dark-red solution. An examination of this absorption spectrum showed it to be still a true solution. From this solution the silver was first removed by H_2S, and then the citric acid was determined in the above described way. (If the silver were thrown down by hydrochloric acid, the reliability of the citric determination would be impaired.) Next, the silver sulphide was converted into chloride and weighed.

The result gave the ratio:

1 gramme silver to .08195 gramme citric acid.

In this case, washing out the sulphates, etc., was an affair of several days. The work was repeated, reducing the time as much as possible. The material was precipitated, decanted as soon as settled, thrown upon a filter pump, and the funnel kept constantly full of ammonic nitrate in dilute solution by a wash bottle. By using very thick paper and a powerful pressure the entire washing was rapidly finished, so that in about six hours from first precipitation the material was thoroughly washed, redissolved, and again filtered, and placed under the action of H_2S. The result was:

1 gramme silver to .0130 citric acid.

When these relations are reduced from weights to equivalents, they become:

No. 1. 1 equiv. citric acid to 56·63 equiv. silver.
No. 2. 1 " " 193·7 " "

indicating both that the proportion of citric acid present is variable, and that it is certainly not in stoichiometrical combination with the silver in the substance examined.

It has already been said that these solutions, before being acted upon by H_2S, were optically examined and found to be true solutions. The inference, therefore, seems to be very strong that there exists an allotropic form of silver freely soluble in water. This is a property so exceptional in a metal that I have admitted it with much hesitation. The principal arguments are as follows:

The content of silver in the various products was very carefully, and I believe I may say quite accurately, determined. It was extremely high, always above ninety-seven per cent. As already remarked, this virtually excludes the presence of all elements except hydrogen and, possibly, oxygen. These elements were carefully searched for; but their presence could not be detected. To suppose that we had to do with a mixture in which some compound of silver was mixed with metallic silver

was not possible; for, as the whole was soluble, we should still have to admit the solubility of silver.

We have consequently to deal with a substance containing over ninety-seven per cent. of silver, and neither hydrogen nor oxygen in combination with it, the remaining two or three per cent. fully accounted for by ferric oxide and citric acid, determined as present as accidental impurity, the substance itself readily amalgamating with mercury by simple friction, nevertheless abundantly soluble in water. If I had been able to find any other explanation for these facts without admitting the solubility of silver I should have adopted it. But none presented itself.

Whether in solution it exists as a hydrate, that is, in more intimate combination with one or more equivalents of water, cannot be said with entire certainty; but the easy amalgamation with mercury seems hardly to favor that view. No means could be found for settling the question absolutely. Certainly at 100 deg. C. all water is expelled, but this of course is not an argument. All the water is not expelled by indefinite exposure to a vacuum over sulphuric acid, but the proportion left is very small.

The material examined was in all cases as nearly as possible the same as that originally precipitated, but absolute identity could not be obtained. The purification absolutely necessary effects some change. This is shown by the color. The freshly precipitated material dissolves to a blood-red liquid; by great dilution yellowish-red. The purified substance gives a darker red, which with dilution remains still red. Of the nature of the substances in the condition in which they were analyzed I can speak with some positiveness, and these include a substance soluble in water and nevertheless appearing to be nearly pure silver.

The constitution of the lilac-blue substance at the moment of formation, and whilst under its mother water, is a matter of much more difficulty; it could not be said with certainty that it was not in some way altered in the purification. Much time and labor were spent in endeavoring to settle this point, without entirely satisfactory results, and I am a present engaged in the search for a better method.

When this blue soluble substance—purified either by washing very moderately by ammonium nitrate, or by washing with pure water, using those portions which remain undissolved after most has been carried through the filter—is brushed over paper and dried rapidly, it exhibits a very beautiful succession of colors. At the moment of applying it appears blood-red; when half dry it has a splendid blue color with a lustrous metallic reflection; when quite dry this metallic effect disappears, and the color is matt blue. Examined with a polarizer it shows the same characters as to two reflected beams of light polarized in planes perpendicular to each other that are described further on under B.

When the blue substance prepared in either way dries more slowly in lumps, the result is very variable: sometimes it is bright bluish metallic; sometimes dull lead color, with a metallic reflection only where it has dried in contact with a smooth surface. *M. Carey Lea.*

(*To be continued*).

PHOTOGRAPHY AND SCIENCE.

For many years the expert microscopist has recognized the photograph camera as a handmaid of their science, fixing the enormously magnified image presented and disclosed by his instrument with a perfection and beauty unattainable by the cunning hand of the greatest artist. In this manner questions of the gravest importance to science and art, to individuals, communities and nations, have been solved, questions long in dispute have, by this means, been settled beyond dispute, and permanent representations have been obtained of the transient phenomenon occurring in living organisms.

Genius, however, never sleeps, and the spectroscope, that marvelous instrument that records, in characters far above and beyond the reach of debate, atomic combinations beyond the power of chemistry to isolate, has been made to impart its secrets to the subtle but mighty power of photography. To the minds of many the spectroscope is an ingeniously constructed instrument, beyond the power of ordinary mortals to control, only revealing to us, not only hidden secrets, but also to afford direct proof of the infinite divisibility of matter, only when in the hands of an expert who thoroughly understands it. Nothing could be farther from the fact, and amateurs have obtained by it, revelations to unaided senses, of very minute portions of matter, such as the odor of fragrant flowers perceived at a great distance, or the perception by the senses of infinitely minute quantities of metals. And now, when the collodion and other photographic processes are being more freely understood and applied, microscopy and spectroscopy not only finds an aid, but soon will recognize photography as an indispensable auxiliary in the furtherance of each.

By the use of bromo-iodine plates I have succeeded in getting good sharp negatives of the

spectra while making analysis of a burning building ten miles from where the spectroscope was focused on the flame, but in order to preserve the color of the negative it is best to cover with a very thin film of gold, which, as all photographers know, communicates a warm purplish tint, the leaden-gray hue being hard to color with ordinary paints and preserve sharp corners.

Though the process is by no means perfected, a modified form of Neipcé's plan works admirably in getting plates from both the microscope and spectroscope. A metal plate, upon which we wish to make an engraved image, is treated to a bituminous coat, this will interrupt the light sufficient to act unequally on the bitumen, then with crude petroleum dissolve the same, which it will do wherever the light has not touched; then, if desired, some corroding acid could be used to eat away the metal, and the relief could be used in a printing press. The same process works very satisfactory when applied to lithograph stone, though these features are not within the province of this paper.

In all my experiments in photo-micrography has proven that there is no practical limit to the powers that may be used on the scene of illumination. A good lamp with a chromatic condenser on the microscope, will afford ample light for the employment of a one-twentieth objective, and I have obtained most excellent negatives with a sixteenth objective with such gelatine plates as now obtainable from dealers in photograph supplies. There is no more difficulty in securing negatives with the necessary quality of sharpness and density when employing these high processes than with half an inch if the proper exposure be given.

Of course, micro-photography is not as simple as ordinary landscape work, though in determining the length of exposure I have experienced much less difficulty as with the microscope; there is no variation to encounter and judge about, and the actinic properties of various tissues and staining fluids is quickly learned from a few experiments. In this work one should hit upon some well-known brand of gelatine plates, and there will be no difficulty with the exposure. To those who have used the camera or microscope separately, but not in photo-micrography, I will suggest the following table of objectives and time of exposure:

Size of Objective.	Time of Exposure.
1½ inch	2 to 3 minutes.
⅔ "	3 to 4 "
1/10 "	7 to 10 "
⅕ "	8 to 12 "
1/10 "	12 to 15 "
1/16 "	15 to 20 "

Regarding developing solutions opinions differ widely, but for fine work either ferrous oxalate or pyrogallic acid developers may be used with equal success for most classes of subjects, the former giving the best results with diatoms, or any object in which the markings are sharp or well defined, while the latter yields softer prints of most animal or vegetable tissues, in which the different action of various cells, etc., is marked much less distinctly.

In the employment of the oxalate of iron solution, the same should be made decidedly acid in its reaction, which may be done by means of either citric or oxalic acid, and the developer should be very active and strong, say four parts of oxalate to one of iron. Of all the useful and efficacious pyro developers published by manufacturers and dealers, I have subjected to analysis and find the following the best with the majority of gelatine plates:

Pyrogallic acid	½ ounce
Alcohol, C. P.	2 ounces

This for the first solution, and it should be bottled and labeled; for the second solution, which should also be bottled and marked, take

Distilled water	80 ounces
Bromide of ammonium	80 grains
Aq. Ammonia	1 dram

When ready for developing take two and one-half ounces of the No. 2 Solution, and add to it immediately before using one-fourth dram—about fifteen drops—of No. 1 Solution, which will be found ample for developing a single plate. In all photograph work from the microscope it is best to employ a bath for each negative; this will insure the cleanest results; and rarely, if ever, will it be necessary to intensify the negative if the process has been properly conducted, though, if from any cause it becomes necessary to do so, the cyanide of silver is the best intensifier.

Most micro-photographers now use the ready-sensitized paper, which may be obtained from any dealer in photographic supplies. This paper yields most excellent and brilliant results, evading all the trouble incident to preliminary silvering, taking the precaution not to print too deeply lest those delicate markings on many microscopic specimens be lost.

No little care and judgment must be exercised in toning these pictures, which should be made about 4½ x 5½, a convenient size for handling. The old favorite acetate of soda bath seems will never lose its prestige for this purpose, and it may be used for all time, practically, as it seems to improve

with age. Some people, notably amateurs, prefer to make a new toning-bath for each time; in such cases the following is recommended:

Chloride of Aurum	1 grain
Soda phosphate	20 grains
Distilled water	2 ounces
Sodic chloride	1 grain

A bath of this size and proportions is sufficient to tone an entire sheet of paper—18 x 22 inches—and will give a very brilliant purple tint. It should be remembered, however, the above is a temporary bath and will not keep, hence must be made fresh each time. When the prints are mounted they should be well burnished, which improves their looks, but, best of all, brings out these delicate lines and traceries so important, when well defined, in all microscopic and photographic work.

J. F. Elsom.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—(*Continued.*)

Pyroxyline.

Formula, $C_{18}H_{29}(NO_3)_3O_{15}$. Combining weight, 846.

When cotton wool is steeped in a mixture of equal parts of strong nitric and sulphuric acids the formidable explosive known as *gun-cotton* ($C_{18}H_{21}NO_4)_9O_{15}$) is produced, which is quite insoluble in any mixture of alcohol and ether. But when the acids are mixed in the proportion of three parts of sulphuric to one of nitric, and a certain quantity of water—say seven-eighths of a part—is added, then the cotton which is immersed in the mixture acquires different properties. It is not explosive, and it is soluble in a mixture of alcohol and ether. Either cotton wool, straw, paper, pith, flax (as linen) or calico, etc., may be used, but in each case the resulting product will be slightly different. The chemical composition of each of these substances is $C_6H_{10}O_5$, which may be regarded as six atoms of carbon combined with five molecules of water ($H_{10}O_5 = 5H_2O$). The sulphuric acid combines with the water, which is invariably present in even the purest nitric acid, and the anhydrous nitric acid is then able to attack the cotton, displacing either two or three of its atoms of hydrogen and replacing them by molecules of nitrogen tetroxide. The presence of the latter substance in the altered cotton may be proved by the red fumes which are seen when the cotton is ignited in a glass globe exhausted of air.

Potassium nitrate (KNO_3) may be used instead of nitric acid, the latter being then formed by the action of the sulphuric acid on the potassium nitrate.

Silver.

Symbol, Ag. (from *argentum*). Atomic weight, 107. Specific Gravity, 10½. Melting Point, 1900 degrees Fahrenheit.

The alchemists called silver *Luna* or *Diana*, from its white color, like that of the moon. In nature silver is found pure or "native" in Peru, Norway, etc., and its ores are not uncommon.

It is a very malleable and ductile metal, and is the best conductor known of heat and electricity. Pure silver is too soft for use in the arts, so that it is usually alloyed with copper. The "standard silver" of which our silver coins are made contains 92½ per cent. of silver and 7½ per cent. of copper. The best solvent for silver is dilute nitric acid, but boiling strong sulphuric acid will also dissolve it.

In photography, silver was much used in the Daguerreotype process, by which photographs were produced on thin plates of silver supported by a copper backing. The purity and cleanliness of the surface of the silver plate are of the highest importance in this process.

Silver is not affected by pure air, oxygen or water; but ozone, and sulphuretted hydrogen cause it to tarnish. Silver hooks are frequently employed to raise the plates from the developing solution, and in the collodion process the plate rests, in the dark slide, upon silver wire.

Silver, when melted, absorbs or *occludes* several times its volume of oxygen from the air.

When the metal solidifies this oxygen is forced out, giving the peculiar arborescent appearance often noticed on masses or buttons of pure silver, and which is known as the "silver tree."

Silver Acetate.

Formula, $C_2H_3AgO_2$. Molecular weight, 167.

Silver acetate is formed (1) by addition of silver nitrate to a strong solution of an acetate, (2) by dissolving silver carbonate in hot acetic acid. It is an exception to most of the acetates in that it requires 100 parts of water to dissolve one part of the salt.

Silver acetate forms white flat crystals. Carbonate of silver is frequently present, as an impurity, in commercial silver acetate.

Silver Ammonio-Nitrate.

Formula, $AgNO_3 + 2NH_3$. Combining weight, 204.

If ammonia is added to a neutral solution of silver nitrate until the precipitate produced is barely redissolved, and the solution then allowed to evaporate, fine bright prismatic crystals of ammonio-nitrate of silver will be produced.

Plain salted paper may be advantageously sensi-

tized with this salt, but it is unsuited for albumenized paper, as the ammonia dissolves the albumen.

Silver Bromide.

Formula, AgBr. Molecular weight, 188.

Silver bromide is found native in very small quantities in Mexico, Chili, and Brittany. It may be prepared by the direct combination of its elements, as in the Daguerrotype process, where a plate of silver is exposed to the vapor of bromine. In the collodion and gelatine processes of photography silver bromide is formed by the action of silver nitrate upon a soluble bromide, as :

$$AgNO_3 + NH_4Br = NH_4NO_3 + AgBr.$$

Silver Nitrate *combines with* Ammonium Bromide *to form* Ammonium Nitrate *and* Silver Bromide

When hydrobromic acid is added to solutions of silver salts, silver bromide is precipitated. It is a yellowish-white substance which alters to gray on exposure to light, a change which is retarded or altogether stopped by the presence of even a trace of nitric acid or free bromine. Silver bromide is insoluble in water, but soluble in alkaline hyposulphites, cyanides, sulpho-cyanides, and in ammonia.

The different modifications of silver bromide, which are sharply distinguished by their relative sensitiveness to light, also present certain physical differences which are indicated in the following table : *

By Transmitted light.		By Reflected light.	Occurrence.
Semi-transparent.	Orange.	Slate blue.	In fresh collodion emulsion.
		Bluish-white.	Older bromide of silver in collodion wet-plates.
		Bluish-white.	In very sensitive wet collodion plates.
	Reddish-orange.	Yellowish-white.	In very old bromide of silver in collodion.
Almost opaque.	Violet-blue.	Yellowish-white.	Very sensitive collodion emulsion.
		Greenish-yellow.	Bromide of silver in gelatine; sensitiveness medium.
		Green, or violet-green.	Very sensitivo gelatine emulsion.
	Blue.	Indistinct.	Slightly sensitive silver bromide in collodion, yielding indistinct pictures. Affected by red end of spectrum.

* De Pitteurs, *Chem. Centr.* 1884, p. 411.

Silver Carbonate.

Formula, Ag_2CO_3. Combining weight, 276.

This is a yellowish-white powder formed by adding an alkaline carbonate to a solution of silver nitrate. It is soluble in ammonia and dilute acids ; slightly soluble in water.

When exposed to light, or heated, silver carbonate darkens. It is decomposed by heat into silver oxide and carbonic acid gas. Silver carbonate in solution has an alkaline reaction, turning red litmus blue.

Silver Chloride.

Formula, AgCl. Combining weight, 143.5.

Silver chloride occurs in waxy translucent masses called "horn-silver" in the mines of Mexico, Peru, Chili, and the Harz mountains. It is also obtained as a curdy-white precipitate when hydrochloric acid, or any soluble chloride, is added to a solution of a silver salt.

For example, the paper used in printing the ordinary positive pictures in photography is coated with silver chloride, which is produced by floating the paper (previously impregnated with ammonium or sodium chloride) upon a solution of silver nitrate.

$$NaCl + AgNO_3 = AgCl + NaNO_3.$$

Sodium Chloride *combines with* Silver Nitrate *to form* Silver Chloride *and* Sodium Nitrate.

Pure silver chloride is white, but under the influence of light it darkens, passing through various tints of violet until it becomes black.

Silver chloride is insoluble in water and dilute acids. It is dissolved by sodium hyposulphite, ammonia, potassium cyanide, and by strong solutions of alkaline chlorides and mercuric nitrate.

Silver Chromate.

Formula, Ag_2CrO_4. Combining weight, 332½.

This compound may be obtained by adding a solution of potassium bichromate or chromate to a solution of silver nitrate. A reddish-brown precipitate is produced, which is silver chromate ; this may be filtered off, washed, and dried. It dissolves in hot dilute nitric acid, and separates out on cooling in small ruby-red crystalline plates. Paul Roy used silver chromate in the preparation of an emulsion in 1881 (see *British Journal Photo. Almanac*, 1882), and W. K. Burton (*Almanac*, 1888), points out that it might be used (from its deep ruby color) to prevent halation, and also as the actual sensitive salt in an emulsion.

Silver Citrate.

Formula, $Ag_3C_6H_5O_7$. Combining weight, 513.

May be obtained as a white precipitate by adding silver nitrate to sodium citrate.

It is insoluble in water, but boiling water decomposes it, with separation of silver.

Silver Fluoride.

Formula, AgF. Combining weight, 127.

Prepared by dissolving silver oxide or carbonate in hydrofluoric acid, and evaporating the solution. It is readily soluble in water (in which it differs from the other haloid salts of silver) and even deliquesces by absorption of water from the atmosphere.

Silver Hyposulphite.

Formula, $Ag_2S_2O_3$. Combining weight, 328.

This compound—more correctly called silver thiosulphate—is a snow-white powder, obtained by adding dilute silver nitrate to a strong solution of sodium hyposulphite. The precipitate is contaminated with silver sulphide, from which it may be separated by dissolving in ammonia. On carefully neutralizing the ammoniacal solution with nitric acid, the silver hyposulphite is again thrown down.

It has a sweet taste, is but slightly soluble in water, and is—in the moist state—very unstable, decomposing into silver sulphide and sulphuric acid.

With hyposulphite of soda the silver hyposulphite combines to form two double salts. The first of these—$AgNaS_2O_3$—is produced when the silver salt is in excess; it is nearly insoluble in water. The second—$Ag_2Na_4(S_2O_3)_3$—is formed when there is an excess of the soda; it is very soluble in water. In all fixing operations it must clearly be our aim to produce the second (soluble) salt.

W. Jerome Harrison.

(*To be continued.*)

AN AMATEUR DETECTIVE.

A Photographer's Story "Taken From Life."

On entering the station at S——, a small town in the West Riding of Yorkshire, the traveler's attention is attracted by a large sign attached to one of the walls, on which is painted in large characters the following announcement;

Scrutz J. Jubb,

Photographer to the Nobility and Gentry.

Patronized by H. R. H. the Duke of Cambridge, and other members of Royalty.

PHOTOGRAPHER TO THE GOVERNMENT, &c.

Carte-de-Visites, 15s. per dozen.

Studio (opposite the main entrance) open daily from 10 A.M. to 10 P.M.

Over which visitors to the town are

INVITED TO LOOK.

The reader of this sign is invariably struck by the peculiarity of the name, Scrutz J. Jubb, which might slangishly be expressed as "Anglo-German-Americanified."

"What a curious combination," the traveler repeats to himself; "'Scrutz'—that's German," he reflectively adds, "and 'Jubb' is undoubtedly English, but the intermediate 'J.' certainly gives the name an American air. . . . . It most assuredly *is* peculiar."

The "why and wherefore" of the name is simply this: My father (for I may as well take the opportunity of introducing myself to the reader and informing him that the honored title of Scrutz J. Jubb is borne by me—and me alone!) is—or rather was, for he is now dead—a retired draper, and a "self-made man," as he was want to call himself.

Flourishing under the unassuming prefix of Enoch to the somewhat undignified surname "Jubb," he was determined on the birth of his only son, that the heir to his £90,000 should not be retarded by any such unambitious title, therefore he was forthwith christened Scrutz J. Jubb, which appellation has clung to him through life.

Scrutz he was called "because it sounded grand," to use the old man's own words, and the initial J. followed for an equally conclusive reason, or, perhaps, "because it sounded grander," not that Jubb, Senior, had any idea of the sense of either the name Scrutz or the initial J.

With this brief preface I hope I have made the reader acquainted with the origin of my name, of which I am now as proud as my dear though eccentric parent was before me.

My father, I say, was a retired draper, enjoying a fortune of some £90,000 odd; on the strength that on the death of my father I should inherit this money in addition to Silesia Hall (an estate my father had bought and where we then resided), he did not think it necessary I should learn any profession, yet, wishful that I should "be a gentleman," he gave me a liberal education, and, when I returned from college, I certainly, in education and manners, fulfilled his ardent desire.

A youth of nineteen rarely cares to be idle, and I was no exception to the rule. With a great liking for chemistry I had—living in the country as we did—every opportunity of following my scientific tastes: and, having fitted up a laboratory on a somewhat extensive scale, I was at liberty to "make smells and messes," as my father said, to my heart's desire.

Photography soon became my chief amusement, and in time I became quite proficient in the art.

Neither could my father settle down to a state of idleness, he being naturally of a business tendency, and he finally turned speculator, buying shares in nearly all the new companies raised for forwarding some of the most impossible and radical inventions. A few of these were moderately successful, but the majority collapsed as quickly as they were originated, always leaving my father very much to the bad. It was in 1845 when the great speculative mania was in full swing. Every one was buying shares in some scheme or another. A company was formed for "navigating the air by balloons, principally for carrying on a traffic between Paris and London." In this company my father, notwithstanding my entreaties to the contrary, invested the remainder of his money, becoming, in fact, the principal shareholder. The result is obvious.

Of course the scheme failed; call after call was made, estate followed money, and within a few weeks of my attaining my majority we were utterly ruined. With the exception of some £95 per year my mother, (who died, along with the child, on giving birth to a daughter) had left me, we had not a farthing in the world. The shock was

more than my father could stand, he changed rapidly, and in eight months he was dead.

"But what on earth can these family matters have to do with the studio outside S—— station?" the reader asks.

I am going to tell the impatient reader how I came to be possessed of this establishment—the largest studio in Yorkshire, perhaps in England—of the curious incident which was, in my estimation, the turning point in my fortune.

It was then too late to learn any trade, or I should have studied for the medical profession, nor could I very well live dependent on £95 a year.

For some time I was at a loss how I should live. Work I must, not that I had the least objection to work, but what to do and where to do it was the sore point. At last I decided to become a "Photographic Artist," priding myself, like most amateurs do after a few months practice, that I had a thorough knowledge of the theoretical and practical working of the art. Of the business routine I knew nothing, and I determined to get a situation in some large establishment, and there learn all I could. I soon obtained a situation as assistant in a large firm, where, after staying some months, I discovered that I had rather be my own master, and, having saved a fair sum of money, I built a small, very small, studio about four miles out of S——.

But the affair, I soon found, did not pay; quite the reverse in fact. I had almost decided to return to my late employers when one dull morning as I was sitting idly retouching a negative, our Inspector of Police called in and asked me if I dare photograph a man named Leddy Brompton, a man who had committed almost every crime on the calender, bar murder. I immediately replied, "Yes, of course." But truth be told I did not half fancy the job, but he had asked me if I *dare*, so there was no getting out of the business.

"Where will you have him," asked the Inspector, "here, or up at the jail?"

"You'd better not take him out of your establishment, so I'll hold my interview with him there," said I, justifiably thinking that if he had to smash me, he should not have the opportunity of smashing *all* my fittings.

"This afternoon, then, at two?" inquired the Inspector, with a smile.

"This afternoon, at two; I'll be there, weather permitting."

Two o'clock saw me and the "tackling" inside the jail, fully prepared for tackling "the gent"; nor was he long in making his appearance, accompanied by the Inspector and three or four warders. On seeing what was required of him, he set up a perfect storm of abuse. "He was'nt going to have that blanked thing 'fired' at him; he was'nt going to have his figger sent all over t'country, etc., etc.;" in fact he "played a little Hamlet" about that yard.

The wardens eventually got him into the chair, and after another storm he appeared to cool down and allowed me to obtain the focus quietly, but no sooner did I expose the plate than he set one of the most frightful faces I ever saw, which a deep scar on his forehead did not tend to alleviate. Two or three more plates were exposed in this fashion, and with an equally ruinous result—he would keep still anytime rather than during the exposure. I was beginning to despair. Eventually the Inspector gave the word: "Hold on to him." Whereupon two of the men "held on" to his legs, one kept him down in the chair, another took possession of his arms, while the Inspector placing one hand under the fellow's chin and the other on top of his head, held it firmly in one position. I immediately took my "shot" at him, with the result of getting a fairly good likeness of both Teddy and his "guardian angels."

A few weeks later I had the pleasure of photographing another gentleman of Teddie's class—in fact, one of his most intimate friends. But I had gained some experience and was not going to thrown my plates and patience away on Pat O'Reaily, so I asked the Inspector to bring Patsy down to the studio.

In the meantime we rigged up a curtain across one corner of the glass room, behind which I placed my assistant with camera, dark slide and every requisite handy. Through a hole in this curtain we got the chair, in which I intended Patsy to sit, into sharp focus. We then fixed another camera in the usual place, and waited for our friends. They soon turned up. Patsy vowing "Sure he'd never be tooked as long as he lived," We persuaded him to sit down; I then proceeded to focus *my* camera, he at the same time raging as bad as Teddy had done before him. After some manœuving I pretended to give the job up in disgust and sat down at some distance from the camera, Finding I was'nt "going for to do anything to him" for a while, he "simmered down" and soon was perfectly still.

Now was my assistant's time; he quickly exposed two plates, which, on development, turned out to be really good pictures—considering the subject. Patsy's rage, on being shown a print a day or two afterwards, can be imaggined better than explained.

Since then I have photographed scores of such gentlemen, and am also quite an adept at taking photographic copies of handwriting and forged notes, etc. With my work at the jail and a slight increase of business I decided to stay where I was a short time longer.

Among my sitters one bright afternoon was a young man accompanied by an exceedingly pretty girl, who could not be more than nineteen. The young fellow appeared to be about twenty-three or twenty-four, genteel and moderately handsome; but what struck me most particularly about his appearance was the ponderous moustache he wore, and his habit of nervously raising his hand every now and then to stroke it, making him look as though he feared it might fall off, until at last I really began to suspect it *would* part company with its owner. I accordingly determined to watch him very closely.

Now, when in the dark-room, which is illuminated from the studio through a window of yellow glass, I can see everything that takes place opposite the window, but by reason of the darkness I cannot be seen from the outside.

On entering the dark-room I took up a position where I could obtain a good view of the pair, who appeared to be very loving. Once she gave him a kiss, a kiss that made my mouth water, but she unfortunately deranged his well-waxed moustache, which she immediately *took off*, leaving him with a perfectly bare face! Having seen them carefully attach it to his upper lip, I proceeded with the development.

C. C. Vevers.

(*To be continued.*)

Notes and News.

THE AMERICAN INSTITUTE ANNUAL DINNER will be held September 3d, at the Hotel Brighton, Coney Island, instead of on August 27th, as previously announced.

THE PHOTOGRAPHIC DAY AT CHAUTAUQUA will be the 22nd of August. The proceedings will begin with a meeting in the Temple at 10 o'clock in the morning. Bishop Vincent, the Chancellor, has promised to open the meeting, address the graduates, and confer the diplomas and premiums. Professor Ehrmann, Instructor of the School of Photography, will deliver an address, and the entire programme will be of a highly interesting and instructive nature.

AN AFFECTING PHOTOGRAPH.—A near-sighted amateur photographer, of Lima, O., took what he thought was a very affecting picture of a young lady kissing a young man in a shaded dell near the town. When he developed the picture it affected him a great deal more than he bargained for, as the young lady proved to be his wife.—*Boston Post.*

DOWNEY, the great London photographer, was recently summoned to serve on a jury; and at the very same time was summoned by the Queen to go to Buckingham Palace and photograph the Shah. He obeyed the latter call, and his lawyer had hard work to save him from being fined for contempt of court. "A jury summons," said the judge, "takes precedence of everything else, even the Shah."—*Ibid.*

PHOTOGRAPHS OF ACTRESSES AND THEIR BABIES.—It is getting to be quite the fashion among actresses to be photographed with their babies if they have any. Lillian Russell, with her chubby little girl astride her shoulders, makes quite a pretty picture, and places the fair Lillian in a new role before the public. Marian Manola looks sad and interesting beside her little girl, in a picturesque gown. And now Mrs. James G. Blaine, Jr., has had her flower-like head photographed in close proximity to that of James G. B. III. The little boy is a plump, pleasant, healthy-looking baby, and if the shape of a head goes for anything, he will do his grandpapa, the Secretary, proud. —*Washington Post.*

AUTOMATIC PHOTOGRAPHIC APPARATUS.—The automatic photographic apparatus invented by M. Enjalbert is exciting great interest at the Paris exposition. It is a high box, similar to the well-known machine in which money is placed, and is destined to take a photograph of any one who puts 10 cents into the slit. An arm-chair is placed before the apparatus. The sitter, after making the payment required to operate the machine, follows with the eyes, upon a series of dials, the different operations which are performed within. A few instants before taking the picture, the hand of the second dial points to the words "Get ready," then, "Do not move," and when it reaches the back sector containing the word "exposure," the shutter of the lens opens and the bells above the dials ring during the exposure, which is usually from three to six seconds. In a short time, the whole operation not exceeding five minutes, the photograph is delivered at the side. This apparatus presents the sensitive plate, takes the picture, develops it and finishes it by drying and varnishing, everything being done automatically.—*N. Y. Commercial Advertiser.*

PHOTOGRAPHIC EVIDENCE.—The following lines clipped from a Chicago paper offer a hint which, it seems to us, some knight of the camera may profitably adopt, if he will quit his monotonous drone of "low prices are the bane of trade," or words to that effect, long enough to bestir himself and will adopt business methods to secure business:

PHOTOGRAPHY IN A COLLISION CASE.

"Photography has been brought into play in the 'Sheffield-North Star collision case in a new way. Three large photographs were taken of the 'North Star' as she lay at the Lehigh Valley docks in Buffalo after the collision and before any of its marks had been effaced. They show just how far she penetrated the 'Sheffield,' the damages she received, and will tell in court more than a half dozen witnesses could have proved. Their testimony cannot well be impeached.

"Every vessel owner ought to have good photographs of his boats, says a marine lawyer. Then if they are sunk he can prove to any jury points that are now most difficult to make plain."

There are thousands of vessels that enter and depart from the port of New York yearly; probably only an insignificant fraction among them have been carefully photographed for practical, unpicturesque purposes. The noted naval and passenger craft that touch here regularly, or occasionally, have been often the objects of camera gunnery, and their photographs may be readily purchased. But the opinion of the marine lawyer above cited applies to the everyday craft; the coasters, those in the freight business, veritable tubs, some of them, which by the very fact of their greater number figure most frequently in suits for loss or damage.

An advertisement in newspapers devoted to the shipping and marine insurance matters; samples of work hung in the offices of ship brokers and insurance agents; circulars calling attention to the subject and stating facilities and terms, having an appropriate process cut, distributed among owners and others interested in the subject certainly ought to secure a patronage that could be made profitable to the right man.

Favorable locations on the shores of the harbor, the East and North Rivers, could easily be secured, from which exposures on vessels passing at a given time at any distance might be successfully made by using lenses of sufficiently long focus. When for any reason it might be impracticable to work from shore, arrangements for securing a suitable tug could easily be made.

Who will improve upon our suggestion, provide himself with "the best" outfit (our advertising pages will tell him where to obtain it, if he doesn't already know), and embark on a course to fame and fortune, dating it from this issue of the TIMES?

THAT "PHOTOGRAPHIC TRUST."—During the past two weeks agents have been visiting the Philadelphia portrait photographers soliciting them to become members of the Photographers and Artists' Mutual Beneficial Association, a secret organization, about which there has recently been

a great deal of talk in the various photographic journals. That those agents have met with some success is evident, from the fact that several leading photographers confess membership in the movement, but others who have been approached have declined to have anything to do with it. For instance, of four leading Chestnut Street studios whose proprietors were questioned yesterday, two are represented in the association and two are not. One of the former said that he had not seen any of his fellow-photographers about the matter, but had been told by the association's agents who initiated him that a large proportion of the Philadelphia members of the profession had gone in. The effort is being made to include in the association all the photographers of the United States, and much work has yet to be done. It is said that the work of organizing New York City has hardly yet been begun, and that many other prominent points have not yet been touched. The projectors of the movement—the secrecy of which and the statements made as to its proposed methods have led to its being spoken of as a "Trust"—are said to be waiting for the convention of the Photographers' Association of America, which is to be in session in Boston from the 8th to the 10th of August. Photographers from all over the country are expected to be there, and the officers of the "P. and A. M. B. A." expect to get all their friends together and talk over the plans for the future.

What is Hoped to be Accomplished.

The association was organized some months ago and is incorporated under the laws of the State of New York, its chief officers being: President, Abraham Bogardus, of New York; Secretary, F. E. Cady, of Auburn, N. Y.; Treasurer, Philip S. Ryder, Syracuse, N. Y., and General Manager of the Travelling Agents, N. B. Thayer, of Auburn. Its objects are thus summarized:

1. To stop ruinous cutting in price.
2. To establish a higher and more equitable scale of prices.
3. To secure enough compensation to the photographer to enable him to do first-class work.
4. To oblige parties to serve a three years' apprenticeship, and to have a certificate of service from a master before being qualified to engage in the profession.
5. To organize the bureau of information for the employer who wishes help, and for the employé wishing a position—their standing in all respects to be supplied.
6. To organize a secret service for the quick assistance of membership.

What Some of the Members Say.

A variety of opinion has been expressed as to the practicability of the movement, even by those who have joined it. Mr. F. Gutekunst, whose name has been used extensively as an inducement to others to join, said to a *Public Ledger* representative: "I agreed to join this association upon the assurance that its object was to elevate and improve the profession, and to stop the ruinous rate cutting. I do not see how the latter can be done, but I am willing to help if it can be accomplished. I do not like the secret feature of the movement; and if the talk I have heard about 'trust methods,' etc., proves to be true, I shall very promptly withdraw." Mr. Gutekunst added that, as he knew so little about what the association meant to do, he had refused to write a letter stating that he was a member, but would await developments. Another member, a well-known Chestnut Street photographer, said that he had joined the movement without as yet knowing much about what it meant to do in the cases of those who declined to join. "I told them, however," he added, "that I would not bind myself to live up to any prices or rules which I didn't think to be for the best interests of my business. We ought to get better prices, and I am told the association will be able to reach those who won't come to terms. The conference in Boston will settle much that is now 'indefinite'." The proprietor of still another Chestnut Street gallery said that the chief object of the association was to elevate the professsion and to encourage the production of better classes of work. "It is not to be expected," said he, "that a man in a less favorable locality, and with poorer appurtenances will get as high prices as I can, but he will be encouraged, so as to bring him up to a higher standard." He could not say how this was to be done, but said the details would all be talked over in the coming conference.

They Don't Think It Will Work.

On the other hand there are very positive opinions on the other side of the question. A prominent photographer, who runs two large galleries in the business part of the city, says that he declined to join, because he thought he was better able to regulate his prices and his studio than anybody else. The agents told him, he said, that the association would protect its members from loss, but he had not that much confidence in the financial strength of the organization. "Suppose I raise my price $2 a dozen," he asked, "and as a result lose $10,000 in my business, will I be likely to be repaid? I think not." He went on to say that after he had refused to go in, one of the general officers came in to see him, and told him that he would before long be on his knees begging to be admitted, as the association would, if necessary, cut the price to "ten cents." The *Ledger's* informant added that threatening talk of that sort convinced him all the more strongly that he didn't want to have anything to do with the association.

Another photographer, who has not joined, said he thought "it couldn't be done"; there were too many men in the business and the avenues too wide for those who wanted to begin for a combination of this sort to be successful. "If they get the manufacturers into the 'combine' with them and attempt to freeze out non-members, they will find that there are ways of getting supplies which associations cannot control."

The stock dealers are reticent upon the subject, they not being included in the scope of the organization.

"We have not been approached in any way," said one of them, "but we feel that the association, if anything, is likely to be antagonistic to us. We don't think, though, that it will amount to anything."

Another business man, who deals largely with the portrait photographers, said any scheme which looked to the forcing out of the business men who wouldn't combine would, in the long run, result in failure.

"There is no business," he said, "which is operated upon such small capital as the photographic business, and if the stock dealers were to decide to sell only for spot cash hereafter seven out of every ten galleries would shut up. There isn't money enough in such an association to carry on such a fight properly."—*Philadelphia Public Ledger.*

The Editorial Table.

THE FORUM FOR AUGUST.—With the August number *The Forum* completes its seventh volume. The leading article in this number is by Mr. John G. Carlisle, Speaker of the House of Representatives, on "The Republican Programme." He explains and defends the Cleveland Administration, especially as regards the expenditures of public money, and predicts that the public patience will be exhausted with the extravagance of the present administration before it closes. The article contains a balance sheet, showing the expenditures of the Cleveland Administration. Another political article is by ex-Gov. Hoadly, of Ohio, on "Methods of Ballot Reform," which is an explanation of the advantages and the defects of the Australian system, a summary of the experiments with it made thus far in the United States, and an argument for publicity about campaign expenses. Many forcible incidents are quoted to show the need of such publicity. The most serious warning that has recently been made against the influence of unassimilated foreigners on our social and political life, is given by Bishop A. Cleveland Coxe, of Northern New York, who doubts the perpetuity of our institutions if present tendencies continue. He regards a capable race-foundation, a fixed system of public morals, and fidelity to national traditions as essential to our national perpetuity, and he finds reason to believe that all these are undermined by aliens. Another article of warning is "The Transformation of New England," by Mr. A. L. Bartlett, Superintendent of Schools at Haverhill, Mass., who points out the rapid growth of Catholicism, especially in Massachusetts, making plain the reasons for his fear of the practical extinction of the old social and educational and political characteristics of the State. In an article on "Prohibition and License," Senator Ingalls of Kansas, concludes that license of the liquor traffic has in the main been a failure, and he shows that prohibition does prohibit in Kansas. The article contains a review of a long series of experiments with both systems. "The Defects of the Coroner System" are pointed out by Dr. S. W. Abbott, of Boston, who explains the operation of the Massachusetts law, whereby, medical examiners have been substituted for coroners and coroners' juries with good effect. Mr. Edward Atkinson sums up his economic theories by a demonstration that every man, under existing conditions, can earn all that his character and industry fairly entitles him to have. Judge James M. Love, of Iowa, makes a comparative study of the Governments of the United States and Canada, to the great advantage of the former. He shows, particularly, wherein the British House of Lords, is more useful than the Canadian House of Lords and the United States Senate more useful than the British House of Lords. Mr. Walter Lewin, in a review of the main purposes to which fiction has been put, reviews American novels in a friendly spirit, and predicts the decline of the novel written for a religious or a psychological or a sensational purpose, and predicts "a return to Scott." Mr. Alfred H. Peters writes concerning "The Extinction of Leisure."—*The Forum Publishing Co., 253 Fifth Avenue, N. Y.*

SCRIBNER'S MAGAZINE, for August, is a most seasonable issue, containing spirited out-door papers on the game of lawn tennis and on tarpon fishing; two papers on Tennyson, whose eightieth birthday is thus commemorated; short stories, by H. H. Boyesen, Brander Matthews, Geo. Parsons Lathrop, and E. C. Martin, a new writer, and valuable additions to the Electric and Railway series.

HE LOOKED PLEASANT.—*Mr. Lenz* (photographer): "I have not, for a long time, had so good a sitter as you are. The expression is exactly right. How did you gain such control over the facial muscles? Are you an actor?"

Mr. Rhodster: "No, sir."

Mr. Lenz: "Well, well. Perhaps you are a bicyclist?"

Mr. Rhodster: "Yes, I am."

Mr. Lenz: "Ah, that explains it! It comes from riding the machine on stone pavements, and trying to look as if you enjoyed it."—*Midsummer Puck.*

Queries and Answers.

161 YOUNG BEGINNER.—Is it an infringement on certain copyrights to reproduce and sell portraits of living celebrities?

161 *Answer.*—We believe a decision has been given to the contrary. Had you not better inquire of a patent agent?

162 AMATEUR.—What is a good and cheap lens for 5x7 instantaneous views?

162 *Answer.*—Take a 5x8 Wale or Gundlach; or, if you do not want to work too rapidly, and are using highly sensitive plates, a Waterbury B stop f_{15} will answer. That is certainly the cheapest lens you can find.

163 CONEY ISLAND.—How much cotton should be in the ounce of ferrotype collodion when the silver bath is 30 deg. in strength?

163 *Answer.*—From three and a half to four grains will do, but with a weak bath the amounts of iodide and bromide in the collodion should be proportionate.

164 LANTERN SLIDE.—What advantage is there in using the double sulphate of iron and ammonia instead of the single protosulphate for the developing of wet collodion plates?

164 *Answer.*—Slower action, better details, and the double salt does not oxidize as rapidly as the single.

165 MCFARLAN has seen bromide of copper mentioned as an active intensifier for collodion plates, when absolute density is required. How is it prepared and employed?

165 *Answer.*—Mix equal parts of solution of bromide of potassium (one-quarter ounce in four ounces), and of sulphate of copper (one-half ounce in four ounces), and apply to the negative till the deposit is thoroughly whitened. Wash and immerse the plate in a solution of nitrate of silver, 1 : 30, not acidified, when the deposit will turn intensely black.

166 BELLEPORT has a half-size Harrison portrait lens and wants to know what kind of landscapes he can make with it.

166 *Answer.*—In its present condition you can make a quarter-size if the lens is pretty well stopped down. But we advise you to use the front lens as a single lens. Have it mounted reversedly, convex side out, and supply it with diaphragms, when an 8x10 or at least a good 6½x8½ can be made with it. Of course, the time of exposure of the single lens will be much longer than that of the combination. Supposing the focus of the single lens be about 10 or 12 inches and an f_{50} stop be used, from three to four seconds will be required to expose a Carbutt B plate correctly.

PHOTOGRAPHIC TIMES, IAL

PHOTO-GRAVURE CO. N.Y.

JOHNSTOWN FLOOD.

A General view of Debris.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, AUGUST 16, 1889. No. 413.

JOHNSTOWN.

SEVERAL weeks ago we spoke of * a collection of photographs made by Mr. Langill, of Langill & Darling, in the Conemaugh Valley immediately after the terrible flood which devastated it for miles, and promised to show our readers one of these excellent photographs. We are pleased to fulfil our promise this week, and select for the purpose a general view showing the river filled with debris, as such a view undoubtedly gives a better idea of the terrible disaster than could any one view of a more limited scene.

The collection referred to consists of twenty-five or thirty views, all 8x10 inches in size, and all equal to the one we show in technical excellence and historic interest. They form the undoubted finest collection of photographs which have been made of this much-photographed subject.

THE BOSTON CONVENTION.

THE tenth Annual Convention of the Photographers' Association of America has gone into history. Financially it was a great success; and the notable exhibitions of photographs and of apparatus made it a pronounced success in other ways as well.

In the number of photographers who attended, however, it did not fulfill our reasonable expectations. There were scarcely six hundred present. There should have been not less than one thousand. But this apparent lack of interest on the part of photographers may be easily accounted for; it costs too much to become a member.

The unfortunate result of charging a new member five dollars has shown itself more plainly every year. Last year at Minneapolis a very small number of the photographers actually living in that city and St. Paul were present at the Convention, simply because they could not or would not pay the five dollars charged to enter. This year it was even worse in this respect; for not only were the photographers in Boston in a great measure conspicuous by their absence, but those who had come from other cities would not pay what seemed to them too large an admittance fee.

The fact is, these conventions are supported largely by the manufacturers and dealers. Never was the exhibition space sold to better advantage than this year, and from the large income accrued from the sale of this space the Association is able to pay all expenses, and have a handsome balance left over. Yet if the dealers' customers, the photographers, are excluded by the high initiation fee, the dealers can scarcely be expected to continue to buy space at a high rate to exhibit their goods to the few who are admitted to examine their merchandise and purchase it. If the initiation fee of three dollars was reduced to one dollar, or entirely done away with, and the annual dues reduced to, say, one dollar, more photographers would attend, and as a consequence, the Association would undoubtedly receive a larger sum of money from new members, at the lower rate per capita, than it now does at the high rate. The manufacturers and dealers would be willing to continue to pay for space as liberally as heretofore, if not, indeed, to pay even more for it, for exhibiting space would be worth more to them if a larger number of photographers were present to examine their goods and buy them. We trust the management of the Association will consider this important matter seriously, and act on it before the next convention.

As has been said, the exhibition of photographs, and that made by the manufacturers and dealers, were notable, and well worth the careful attention of any photographer. In a later issue we shall give a detailed review of these exhibitions. Our readers are anxious, this week, to know what was done at the Convention, and we therefore give the following brief account. The papers, few in number, will appear in due time.

The hall where the meetings were held was well suited for the purpose, and the attendance at the

* See "The Editorial Table," page 387, July 5th issue.

meetings was better than ever before. We cannot compliment too highly President McMichael's able manner of conducting the proceedings and dispatching the business. The Convention was opened Tuesday morning, August 6th, at 11 o'clock, about three hundred members being present.

The First Day.

J. F. Ryder, of Cleveland, delivered the address of welcome in a most acceptable manner, and was followed by W. I. Lincoln Adams, editor of The Photographic Times, who read his report on "The Progress of Photography in America." Both received the unanimous vote of thanks of the Association.

Detroit, Michigan, was chosen as the place for holding the next Convention, and a Nominating Committee of five was chosen, with Mr. R. H. Roby, of the firm of C. H. Codman & Company, as Chairman.

A congratulatory dispatch was read from the Secretary of the Photographic Convention of the United Kingdom of Great Britain, and a committee was appointed to respond to it, and also to congratulate the International Congress of Photographers then in session in Paris.

After some routine business, President McMichael read his address (see page 411), and the Association adjourned until the next morning.

Mayor Hart, of Boston, honored the meeting with his presence on the platform, and others on the platform were Abram Bogardus, John Carbutt, E. Decker, G. Cramer and W. Irving Adams.

The Second Day.

The Nominating Committee made their report as follows: For President, J. F. Ryder, of Cleveland; First Vice-President, O. P. Scott, of Chicago; Second Vice-President, W. G. C. Kimball, of Concord, N. H.; Secretary, H. McMichael, of Buffalo; Treasurer, G. M. Carlisle, of Providence, R. I.

The committee appointed to send congratulatory cablegrams reported that they had done so, and their message was read to the Association.

On a motion to reconsider the selection of Detroit as a place for holding the next convention, as that city was said to lack proper accommodations, Washington was chosen after much discussion and speech-making. The vote stood one hundred and twenty-three for Washington and sixty-six for Buffalo. Thus, again, the city mentioned by The Photographic Times was selected.

Mr. Ryder moved that a committee, consisting of the present officers, be appointed to receive subscriptions of one dollar from photographers, professional and amateur, throughout the country, for the purpose of erecting a monument or tablet to the memory of Daguerre; and Mr. Ryder himself made the first subscription and was followed by the veteran, E. Long, of Quincy, Ill. Within half an hour nearly two hundred members had subscribed. Since then the number has been largely increased. We print a list in another column of some of the first subscribers.

Two interesting Daguerreotypes made in 1839 were then passed around among the members present.

Wednesday Evening

a special meeting of the Association was held, at which Mr. G. D. Milburn, representing The Eastman Dry Plate and Film Company, read a paper on the new flexible celluloid film manufactured by that company, and was followed by Mr. John Carbutt who made a very interesting address concerning celluloid, speaking of his own earlier attempts in the manufacture of films and giving a brief history of the experiments made with celluloid as a photographic basis. Alvan G. Clark then addressed the meeting on the subject of "Photographic Lenses."

The Third Day

of the Convention was opened at 11:30, President McMichael, as usual, presiding. It was decided to place the monument of Daguerre in the Smithsonian Institute at Washington, and the photographic journals were authorized to receive subscriptions, and, acknowledging them in their colums, to forward the money to the committee having the matter in charge.

The President was authorized to appoint a committee to represent the Association at the World's Fair in 1892.

Abram Bogardus addressed the meeting in behalf of the Photographers and Artists Mutual Beneficial Association, and was followed by Judge Cady, attorney of the Association.

The election of officers was next in order. Mr. Ryder, the candidate of the Nominating Committee, withdrew in favor of Mr. Appleton, and O. P. Scott was also nominated. Mr. Appleton was easily elected, the Association once more honoring a candidate mentioned by The Photographic Times. The Association then adjourned until the evening when another meeting given up to the reading of papers, and discussion was held.

The Last Day.

the election of officers was continued with the following result: President, J. M. Appleton, Cleve-

land, Ohio; First Vice-President, George H. Hastings, Boston, Mass.; Second Vice-President, W. V. Ranger, Rochester, N. Y.; Secretary, D. R. Coover, Iowa City, Iowa; Treasurer, G. M. Carlisle, M.D., Providence, R. I.

The prize-winners were announced, and the following committee to represent the Association in the World's Fair of 1892, was appointed: A. H. Elliott, W. I. Lincoln Adams, J. F. Ryder, W. G. Entrekin, W. H. H. Clark, A. Bogardus, H. McMichael, J. M. Appleton, C. T. Stuart. And then followed the closing exercises.

SATURDAY

those who remained in the city celebrated the Semi-Centennial of Photography by availing themselves of the generous invitation of Boston photographers and photographic dealers, and participating in the excursion down the Harbor. An old-fashioned New England dinner and other refreshments were served on board the steamer, free to all attending, and a fine band of music accompanied the party. The excursion was one long to be remembered by all who took part in it, and was carried out in a manner worthy of New England photographers. The committee having this excursion in charge are entitled to all praise for the able manner in which it was conducted. The committee consisted of the following well-known photographers: J. Wilton Hall, John Stalker, William A. Webster, W. H. Partridge, Wilfred A. French, C. F. Conly, and G. Waldon Smith, Treasurer.

CONVENTION NOTES.

DID you get the Daguerre Medal as a souvenir of the Semi-Centennial of Photography, which was presented by THE PHOTOGRAPHIC TIMES? It

seemed to be the most highly prized souvenir at the Convention. The head of Daguerre—after an

original Daguerreotype of the great inventor, in excellent relief, was praised on all sides. It was a bronze medal of the size of our cut, with lettering and design as shown in it.

WE cannot praise too highly the taste shown in the members' badges and the Association medals. Illustrations of them have already been given our readers, but the originals, of course, went far ahead of the fac simile reproductions. The likeness of Daguerre, however, was by no means as good as it should have been. On the member's button it was too small, of course, to be expected to be good, but the Association medal should have had a better portrait. Photographers will preserve the PHOTOGRAPHIC TIMES medal for the much better likeness of Daguerre.

THERE were several very pretty souvenirs presented to the members attending the Convention, by various dealers and manufacturers. One of the most attractive was that given out by the Gundlach Optical Company in commemoration of the semi-centennial of the discovery of photography. It consisted of several photo-gravures, printed by the Photo-Gravure Company of New York, from negatives made with Gundlach lenses. The pictures testify to the superior quality of the objectives manufactured by this enterprising company. The souvenir was encased in a neat cover with artistic design, and is worthy of preservation as a memento of the Semi-Centennial.

THE G. Cramer Dry Plate Works handed every visiting photographer a convenient celluloid paper cutter, on the handle of which it is requested to "Use this knife to open a package of Cramer Dry Plates." From the excellent work shown in their exhibit, made on their plates, we hope that these knives will be used to open many a package of their reliable plates.

AT the head-quarters of *Anthony's Photographic Bulletin*, a souvenir entitled "A Half-Century in Manufacturing Photographic Apparatus and Supplies," was handed out. It contains a history of the firm of E. & H. T. Anthony & Company, written by "A. H. E.," and contains an excellent portrait of Edward Anthony, Henry T. Anthony, William H. Badeau, Richard A. Anthony, Frederick A. Anthony, and *two* of Col. V. M. Wilcox. Though very well written, the author shows a conspicuous lack of knowledge of the subject of the little pamphlet.

NOTHING more convenient or highly prized than the useful little address books given out at the exhibit of The Scovill & Adams Company was presented to the members of the Association. It was not an advertisement, but a valuable little gift. It was a leather book to fit the vest pocket, neatly indexed, with red edges, and bearing the word "Addresses" in gilt letters on the cover. It is none the less valuable for the printed address, "The Scovill & Adams Company, 423 Broome Street, New York," which appears on the page devoted to S. With this useful little gift, a pencil was handed every photographer, "with the compliments of The Scovill & Adams Company." Both presents seemed highly appreciated by all.

BUT we must not omit to speak of the very enjoyable reception given at the residence of Mr. French, on Newbury Street, on the first evening of the Convention. Mrs. Hastings, wife of the first Vice-President, assisted Mrs. French in receiving, and prominent among the ladies present were Mrs. Dabbs, of Pittsburgh, and Mrs. Cramer, Mrs. Guerin and Mrs. Fitz-Gibbon Clark, of St. Louis, and Mrs. William Bell. We noticed among others present, President McMichael, Secretary Scott, Treasurer Carlisle, Edward L. Wilson, W. Irving Adams, J. F. Ryder, General Sargent, Doctor Elliott, Mr. Clark, and G. Waldon Smith. Refreshments were served throughout the evening, and the entertainment was enjoyed by a large number. Mr. and Mrs. French kept open house throughout the entire convention, similar receptions of a smaller size occurring there every evening.

WE SPENT part of one day very pleasantly, visiting the photographic studios of Boston. At G Waldon Smith's attractive little establishment on Tremont street, we spent a most delightful hour. Though a young man, Mr. Smith is a leader in photographic circles in Boston, and has by no means stopped in his growth. His work is worthy of the reputation which he enjoys. We expect to show our readers an example of it soon.

VICE-PRESIDENT HASTINGS' studio is also on Tremont Street, and he stands among the very first photographers of Boston. Of his work we shall speak in our review of the exhibition of photographs. Holland is another leading Boston photographer, and deserves his reputation. So do C. F. Conly, William A. Webster, Partridge, and others.

IT was pleasant to see so many of the older photographers present. Friday morning all the old Daguerreotypers were invited to sit on the platform. Everyone was struck with the likeness which Thomas Faris bears to the great Daguerre. E. Long, the veteran solar printer, is as popular as ever among the fraternity; so is F. W. Guerin, of St. Louis; George Barker, of Niagara Falls; J. F. Ryder, of Cleveland; John Carbutt, of Philadelphia; E. Decker, of Cleveland, and many others.

WE were pleased to meet the Rev. M. L. Williston, President of the Chicago Camera Club, who came to us with a letter of introduction from Gayton A. Douglass, of Chicago. The Rev. W. H. Burbank, Editor of *The American Amateur Photographer*, was present at his first photographic convention, and made many friends in the profession.

THE great event of the Convention—at least, in the photographic manufacturers' and dealers' departments—was the sale of the entire exhibit of The Scovill & Adams Company to C. H. Codman & Company, of Boston. This remarkable sale was announced the second day, and represented at least five thousand dollars' worth of goods. It excited a great deal of attention in Boston, being commented upon in the daily press. The exhibit consisted of cameras, stands, tripods, and all kinds of apparatus, lenses, utensils, novelties, and a full line of photographic instruction books. The exhibit will be described more in detail in our review of the manufacturers' and dealers' display.

THE SCOVILL & ADAMS COMPANY received the only medal awarded for improvements in photographic apparatus. It was a beautiful bronze medal offered by the Association, and that it was well deserved by the company who won it, all those who saw their magnificent exhibition can testify. There were twenty competitors.

PRESIDENT MC MICHAEL'S ADDRESS.

(At the Boston Convention of the P. A. of A.)

THE 10th Annual Convention of the Photographer's Association of America finds us in the beautiful city of Boston, remarkable in historic renown, celebrated in literature, and so wonderful in growth, both of its extent and beauty, that we may all find sympathy and encouragement in our present surroundings.

Many years ago willing hearts and hands were banded together for the best interests of the fraternity, and made Boston the birthplace of the first National Photographer's Association of America.

Like all pioneer societies, the old N. P. A. struggled against many difficulties and was successful in sowing good seed, from which sprang the present guild, which has had the most brilliant career of any of its kind.

It is indeed a pleasure to meet again after the separation that has intervened since our last convention in the city of Minneapolis

And now, fellow members, at this time, after our first warm greetings are over, allow me to congratulate you on the distinct indications I see around me, of a renewal of old friendships and associations, with the prospect that many new ones may be joined to that band which will add vigor and lustre to our future, and I sincerely trust that our assembling here may be fraught with so profitable and cheering results that photography may no longer be a "fountain sealed" to us, but like the unfinished works of Raphael and Michael Angelo, may have an intrinsic value in themselves as "Studies" for those who come after us.

The year through which we have just passed has been one of steady progress, which has yielded positive results in growth towards a higher standard of photographic work.

This latter part of my summary, however, does not prove satisfactory to photographers, on account of the lack on the part of the fraternity to maintain a higher grade of work and demand better pay for their labors. I hope the time is not far distant when the photographers of America will stand shoulder to shoulder for the advancement of their mutual interests.

When we look around on every hand and see the innumerable societies of every kind—national, musical, educational, and political, each united to impress the world with its strength and distinct characteristics, and then compare our own small numbers we can safely tell the world that we know but little of union. We should take lessons from our neighbors in the art of standing together for mutual aid and comfort and the assertion of our rights, which is in itself a noble character.

But the attainment of any real good in life is dependent upon previous work—good, honest, persistent and even consecrated labor—"Nothing comes of nothing." In approaching this more serious and practical part of our object in the association, sentiment for a time must give way to facts, some of which I would now submit in a statistical report.

In the year 1884, W. G. Armstrong turned over to G. M. Carlisle $601.44, being the surplus from the first five conventions.

At the fifth annual convention, held in Buffalo, in July, 1885, the receipts were $4,030.84, and the expenses of that year $2,718.94, making a net gain of $1,312.35, and leaving a balance of $1,913.59 in the treasury.

In the year 1886 the receipts at the St. Louis convention were $4,054.40; disbursements $3,447.17 a net gain of $610.23, and leaving a cash balance in the hands of the treasurer January 1, 1887 of $2,528.57.

At Chicago in 1887 the receipts were $6,000.10, and the expenses $5,202.61, making a net gain of $797.49, leaving a balance in the treasury, January 1, 1888, of $3,324.06.

At Minneapolis in 1888 the receipts were $2,905.93, and expenses $3,311.16, making a net loss of $405.23, and leaving a balance of $2,917.93, January 1, 1889. It does seem that with so large a surplus in the treasury that the members do not receive all the benefits in an educational way that they are entitled to. I think there has been a tendency on the part of a majority of the officers to give too little thought to the education of members in art culture.

This year we secured the services of Dr. Edward L. Wilson for an art lecture illustrated by a series of lantern-slides, and also another evening's entertainment by Dr. Arthur H. Elliott, on orthochromatic photography illustrated studies from prominent workers such as Boissonnes and Vogel of Germany, Eder of Vienna, and Ives of Philadelphia.

But both were obliged to disappoint us on account of an unusual surplus of work.

I should recommend that the association appropriate the sum of $500 for a like purpose the coming year, so that to other than pleasant reflections may be added practical usefulness to art.

And now, brethren, the time draws near when I shall surrender into your hands the high authority with which I have been vested during my term of office as your president.

The exalted honor that has been my good fortune to receive at your hands, the courtesy and kindness that has been manifested toward me by the officers and members of the P. A. of A. cannot fail to be a proud and grateful remembrance, and I trust that my humble efforts have met with some degree of success.

H. McMichael.

ON ALLOTROPIC FORMS OF SILVER.

B.—Insoluble Form of the Foregoing.

The solution of the blue product just described is influenced in a remarkable way by the addition of almost any neutral substance. So far I have not found any that do not precipitate it. Not only saline solutions do this, but even a solution of gum arabic.

Neutral salts may precipitate the silver in either a soluble or an insoluble form. Alkaline sulphites, nitrates, and citrates throw down the soluble form; magnesium sulphate, ferrous sulphate, nickel sulphate, potassium bichromate and ferrocyanide, barium nitrate, even silver nitrate, and other salts, throw down a perfectly insoluble form. The soluble form constitutes a blue or bluish-black precipitate; the insoluble a purple brown, which by repeated washing, by decantation, or otherwise, continually darkens.

What is very curious is that the insoluble form may be made to return to the soluble condition. Many substances are capable of effecting this change. Sodium borate does so, producing a brown solution; potassium and sodium sulphate produce a yellowish red solution, and ammonium sulphate a red one. None of these solutions have the same blood-red color as the original solution; the form of silver seems to change with the slightest change of condition.

The solutions used must be extremely dilute, otherwise the silver, though rendered soluble in pure water by them, will not dissolve in the solution itself, a singular complication of effects. So that if a moderately strong solution of one of the above substances is poured over the insoluble silver substance it does not dissolve; but by pouring off the saline solution and replacing it with pure water the substance dissolves readily. The insoluble substance is also readily soluble in ammonia. The solution has a fine red color, and not the yellowish red of the sodium sulphate solution.

Most neutral salts act in one or other of the ways just described, precipitating the solution of the blue substance A in either the soluble or the insoluble form; the latter soluble in ammonia. But sodium nitrate is an exception; its solution effects an entire change, and renders the substance wholly insoluble, probably reconverting it into normal silver.

Sometimes the substance will spontaneously pass into a soluble form. A specimen, rendered insoluble by precipitation with ferrous sulphate, after much washing began to run through, not only as a suspension, which often happens, but as a solution, clearing itself after a day or two of insoluble portions, and furnishing a rose-red solution. I have kept this solution in a corked vial for eight months, during which time it has remained unchanged.

The general properties of this substance can be much better observed in the thin films obtained by brushing the moist substance over paper than in the lumps. The films thus obtained are bright greenish metallic, and this green evidently results from a mixture of blue and yellow, as in some lights the blue, in others the yellow is most evident. When these films are examined by light reflected from them at a large incidence with the normal, and a Nicol's prism, or an achromatised prism of calc spar is interposed between the film and the eye, it becomes at once apparent that the blue and yellow light are oppositely polarised. The yellow light is polarised in the plane of incidence, the blue light perpendicularly to that plane. All specimens show the yellow light; but the quantity of blue light is very variable, and is directly connected with the amount of washing applied to the precipitate. The more it is washed, the more the yellow predominates. To see the blue form in its full beauty, a little of the red solution may be precipitated with a very little magnesium or aluminic sulphate, and be thrown on a filter. As soon as the liquid has drained off, and without any washing, the deep bronze-colored substance is to be brushed over paper. On drying it has all the appearance of a bright blue metal with a remarkable lustre. The mirrors obtained by brushing the substance over glass are so beautiful and so perfect that it seems as if this property might have useful applications, especially for silvering irregular surfaces. Much care, however, would be necessary in the preparation to obtain a permanent product.

Crystallization.—On one occasion this substance was obtained in a crystalline form. Some crude red solution had been set aside in a corked vial. Some weeks after, it was noticed that the solution had become decolorised with a crystaline deposit at the bottom. The bottle was carefully broken; the deposit, examined by a lens, consisted of short black needles and thin prisms. Evidently the saline

matters present had balanced the silver in solution so nearly as not to cause an immediate precipitation, but a very gradual one only. The mother liquor was drained off, and a few drops of pure water were added. No solution took place; the crystals were, therefore, of the material B, the insoluble form. The contact of pure water instantly destroyed the crystallization, and the substance dried with a bright green metallic lustre. Contact with pure water evidently tends always to bring this form of silver into the collodial state, sometimes soluble and sometimes not; whilst the contact with certain neutral salts renders it crystaline.

The extraordinary sensitiveness which allotropic silver shows to external influences contrasts strongly with the inertness of normal (probably polymeric) metallic silver. When we place this fact alongside of the well-known sensitiveness of many silver compounds to light, heat, and (as I have elsewhere shown) to mechanical force, we are led to ask whether silver may not exist in this form in these very sensitive compounds.

To obtain the substance in a pure condition suitable for analysis, it is necessary to choose a precipitant not giving an insoluble product with either citrate or sulphuric acid. Magnesium sulphate or nickel sulphate answers well; I have generally used the first named. A very dilute solution is made of it, and the red solution of A is to be filtered into it. The precipitate soon subsides. A large quantity of water is to be poured on, and then washing by decantation can be continued to three decantations, after which the substance remains suspended. It can be made to subside by adding a very small quantity of magnesium sulphate; one four-thousandth (0·25 grammes to one litre) is sufficient. The substance may then be thrown on a filter and washed with pure water.

Analysis.—A specimen dried in vacuo over sulphuric acid gave:

No. 1.....97·17 per cent silver
No. 2 .....97·10 " "

A specimen dried first in vacuo, and then at 100 deg. C., lost in the second drying ·88 per cent water.

So that the substance dried at 100 deg. contained 97·96 per cent of silver. The remaining 2·04 per cent consisted of ferric oxide and citric acid.

C.—Gold-yellow and Copper-Colored Silver.

It has long been known that golden-yellow specks would occasionally show themselves in silver solutions, but could not be obtained at will, and the quantity thus appearing was infinitesimal. Probably this phenomenon has often led to a supposition that silver might be transmuted into gold*. This yellow product, however, is only an allotropic form of silver; but it has all the color and brilliancy of gold, a fact which was apparent even in the minute specks hitherto obtained.

By the means presently to be described, silver can be converted wholly into this form. It is a little curious that its permanency seems to depend entirely on details in the mode of formation. I have found many ways of obtaining it, but in a few months the specimens preserved changed spontaneously into normal silver. This happened even in closed tubes. The normal silver produced in this way is exquisitely beautiful. It has a pure and perfect white color, like the finest frosted jeweller's silver, almost in fact exceeding the jeweller's finest products. I found, however, one process by which a quite permanent result would be obtained. Specimens made by it in November of 1886 are now, at the end of thirty months, unchanged.

In forming the blue product which I have called A, very concentrated solutions were necessary. C on the contrary is best obtained from very dilute ones. The following proportions give good results:

Two mixtures are to be prepared. No. 1, containing 200 c.c. of a ten per cent. solution of silver nitrate, 200 c.c. of a 20 per cent. solution of Rochelle salt, and 800 c.c. of distilled water.

No. 2, containing 107 c.c. of a 30 per cent. solution of ferrous sulphate, 200 c.c of a 20 per cent. solution of Rochelle salt, and 800 c.c. of distilled water.

The second solution (which must be mixed immediately before using only) is poured into the first with constant stirring. A powder, at first glittering red, then changing to black, falls, which on the filter has a beautiful bronze appearance. After washing, it should be removed whilst in a pastey condition, and spread over watch glasses or flat glass basins, and allowed to dry spontaneously. It will be seen that this is a reduction of silver tartrate by ferrous tartrate. The metallic silver formed by reduction with ferrous citrate and ferrous tartrate is in an allotropic condition; with ferrous oxalate this result does not seem to be produced.

* I have a little volume, published in Paris in 1857, by a chemist named Tiffereau, who was firmly convinced that in many reactions minute portions of silver are converted into gold, especially with the aid of powerful sunlight. In Mexico, he affirmed, he had artifically produced several grammes of gold, a portion of which he presented to the French Academy with one his papers. To his great disappointment he did not succeed in repeating these experiments in Paris with more than an infinitesimal result. All gold, in his opinion, had been originally silver; and this belief, he affirms, is universal amongst Mexican miners. The book has for a title, *Les Métaux sont des Corps composés*

Although the gold-colored silver (into which the nitrate used is wholly converted) is very permanent when dry, it is less so when wet. In washing, the filter must be kept always full of water; this is essential. It dries into lumps exactly resembling metallic gold, especially the surfaces that have dried in contact with glass or porcelain. For this substance has in a high degree the property already described in forms A and B—that of drying with the particles in optical contact. When the thick pasty substance is extended over glazed paper, it dries with the splendid lustre of gold leaf, with this essential difference, that these allotropic forms of silver, B and C, assume spontaneously in drying the high degree of brilliancy which other metallic surfaces acquire by elaborate polishing and burnishing. By brushing a thick paste of this substance evenly on clean glass, beautiful gold-colored mirrors are obtained; the film appears to be entirely continuous and the mirror is very perfect.

By continued washing the precipitate changes somewhat, so that in drying it takes on a coppery rather than a golden color, and is rather less lustrous, though still bright and permanent.

Two silver determinations by conversion into chloride made in November, 1886, gave:

No. 1.....97·81 per cent. silver.
No. 2.....97·86 per cent. silver.

Recently these experiments have been repeated, and the washing was more successful. Ferric tartrate adheres very obstinately, and after a time washing with water ceases to remove it. Stronger means cannot be employed without affecting the substance itself. These last determinations gave:

No. 1. .....97·750 per cent. silver.
No. 2.....98·749 per cent. silver.

The residue of No. 2 was examined, and consisted almost wholly of ferric citrate.

M. Carey Lea.

—*American Journal of Science.*

THE EASTMAN TRANSPARENT FLEXIBLE FILM.

[Read before the Society of Amateur Photographers of N. Y.]

It affords me great pleasure to come before you here to-night with Eastman's new transparent films. We have long been looking for an article of this kind, at the same time never expecting to realize our fond wishes.

The Eastman Company have carried on a series of experiments extending over a number of years, under Mr. Eastman and Mr. Henry Reichenbach's supervision, and the outcome of these experiments I am happy to state to you, is a perfectly transparent and flexible nitro-cellulose basis for a sensitive film.

The advantages of these films to the photographer over glass dry-plates, and all other films on the market, briefly summed up are as follows: superior transparency, greater flexibility, lightness, compactness, practicability of printing from either side of the negative, and lack of halation.

Heretofore non-transparency has been a great stumbling block to a flexible film, but we can safely say that this is entirely overcome in these films, as you see by our samples they are about as transparent as glass, and the great flexibility of these films makes it practicable to wind as many as one hundred exposures on one spool to be carried in one "roller holder." In fact experience has taught us that the best method to keep films of any kind absolutely flat during exposure, is to keep them strained over a board from spool to spool, in the manner of the Eastman-Walker roll-holder. The films carried in this manner makes a view outfit very light as compared with the glass dry-plate outfit; one hundred of these films ready for exposure will not weigh much more than six of the same size dry-plates, and a Transparent Film View Outfit will not occupy over one-tenth part the room of a glass dry plate outfit of the same size.

Think of the boon to the landscape photographer, no longer need he make a drudge of himself when prospecting for views in the hills or mountains.

These films are so thin that it will be possible to print from either side of the negative, and being so thin, there will be practically no halation to be met with in the negative. The backing of these films is impervious to water and unaffected by chemicals in the developer, therefore there is practically no contraction or expansion during the operations of development, drying, and printing from the negatives, which must stamp this as the very best basis to hold a sensitive film.

These films will be coated with very rapid as well as slower emulsions, and will be marked on the outside of each package with their respective sensitometer marks.

The Eastman Dry-Plate and Film Co. have opened a new factory equipped for this especial work, and they lay claim to have complete control over the quality of these films. This company's improvement, by the addition of the single revolution audible indicator and intermittent marker on their roll-holders for these films, makes this system of photography perfectly practicable for the studio and field.

These films are developed, fixed and washed, in

precisely the same manner as a glass plate. The formulas are as follows:

PYROGALLIC ACID SOLUTION.

Pyrogallic acid	½ ounce
Nitrous or sulphuric acid	20 minims
Water	32 ounces

SODA SOLUTION.

Sulphite of soda (crystals)	6 ounces
Carbonate of soda (crystals)	4 ounces
Water	32 ounces

To develope, take

Pyro solution	1 ounce
Soda solution	1 ounce
Water	2 ounces

Two films can be developed at one time by keeping them back to back in the developer.

RESTRAINER.

Bromide of potash	1 ounce
Water	6 ounces

Restrainer is to be used only in case of over-exposure.

As soon as developed rinse slightly and transfer to a saturated solution of common alum for two minutes, then rinse again and fix.

FIXING SOLUTION.

Hyposulphite soda	4 ounces
Water	16 ounces

If a number of films are fixed together in one tray they should be put in *face down* to avoid scratching or cutting the sensitive side by contact of the sharp corners.

After fixing, *wash thoroughly*, then immerse for one minute in the

SOAKING SOLUTION.

Wood or grain alcohol	16 ounces
Water	16 ounces
Glycerine	½ ounce

Remove from the soaking solution and pin up each film by the corners to dry spontaneously.

A good way to dry these negatives is to pin them by two corners to the edge of a shelf and then to pin the lower corners to a light strip of wood. Any tear drops of the soaking solution should be removed with a bit of blotting paper or absorbent cotton. When the negative is thoroughly dry, *wipe off the back with a soft cloth.*

G. D. Milburn.

THE DAGUERRE MONUMENT FUND.

IN this column we shall be glad to announce from time to time the names of those who have coutributed one dollar to the fund. Every one is invited to contribute one dollar. All contributions sent to THE PHOTOGRAPHIC TIMES will be acknowledged in this column, and the money sent on to the committee having the matter in charge. We start the list by printing the names of some of the first who contributed at the Convention.

The Photographers' Association of America, $500. J. F. Ryder, E. Long, H. McMichael, Mrs. Fitzgibbon Clark, Gunelli, W. H. Allen, J. M. Appleton, J. H. Ryder, O. P. Scott, G. H. Fowler, J. H. Plecker, J. Henry Doerr, M. Ames, E. J. Dixon, E. P. Park, Geo. Barker, E. J. Pullman, N. A. Webster, Geo. H. Van Norman, Will H. Mowry, Geo. H. Hastings, Seth C. Jones, E. B. King, E. Decker, D. H. Baker, J. S. Schneider, E. O. Lovell, F. Schadee, Elmer Chickering, W. I. Lincoln Adams, Allen Bros., H. A. Hyatt, W. S. Davis, E. W. Histed, W. Stuber & Bro., John Carbutt, E. B. Ives, J. B. Pelgrift, W. Irving Adams, Geo. Ayers, Frank E. Stanley, Geo. Knowlton, H. G. Peabody, C. B. Conat, G. Cramer, E. C. Dance, J. E. Rösch, S. P. Wells, F. W. Guerin, J. C. Somerville, J. W. Bryant. Geo. Murphy, H. S. Wier, C. Bolwell, Jr., Geo. Hein, M. A. Seed, Sweet, Wallach & Co., making $557 in all. Secretary O. P. Scott is the acting Treasurer of this fund, and it was through his efforts largely that the first subscriptions were collected. Others will be announced later.

Notes and News.

A NEW APPLICATION OF PHOTOGRAPHIC NEGATIVES.—An exchange tells of a remarkable roof in Danbury, Ct. It is composed of negatives from photographic galleries. The photographer had at one time 20,000 of these negatives, the accumulation of the long years he had been in the business.

THEY ARE ALL PHOTOGRAPHED.—The photographs on the White House desk, of babies born since the election, and named Benjamin Harrison, are said to make a big bundle. Every State of the Union with but one or two exceptions has contributed.

SUMMER SCHOOL OF PHOTOGRAPHY AT LAKE BLUFF, ILL.—Dr. Nicol, of *The Beacon*, is the Instructor in the Summer School of Photography at Lake Bluff, Ill. It continued from July 24th until August 6th. Lectures on Light and its Laws; the Lens, its Construction and Use; Apparatus; Photographic Processes; Printing and Printing Processes; Transparencies; and Art in Photography, being given, and at the close of the course, an exhibition of pictures made on the ground by members of the school was held. Our Western correspondent writes, referring to the school, "It opens well, but next year it will be a *rouser.*"

OBITUARY: GUSTAVUS BODE.—This well-known dealer in photographic materials died July 25th, from a stroke of paralysis. For many years he was a well-known dealer in the city of Milwaukee, Wis., and no merchant in the photographic business was more highly respected. Mr. Bode was born in Cassel, Germany, coming to this country in 1858 and locating first at Cincinnati. In 1861 he removed to Milwaukee, succeeding Mr. Tesch. Six years ago poor health forced Mr. Bode to retire from business, and he returned to his native home for recuperation. On his return to this country, shortly after, until his death, he was largely employed in chemical researches, and has accomplished much for the fraternity. Mr. Bode was only fifty-five years old.

THE INTERNATIONAL CONGRESS which met in Paris in 1887 to make arrangements for the preparation of a photographic chart of the heavens expressed a wish that a similar congress might meet for the discussion of questions relating to celestial photography in general. M. Janssen

and Mr. Common were asked to take such steps as might be necessary for the attainment of this object; and afterwards, by a ministerial decision at Paris, an organizing committee, with M. Janssen as president, was appointed. The arrangements have now been completed, and the congress will be held in Paris from August 22 to September 3. The aim of the congress will be to determine the methods which are most suitable for each branch of celestial photography, and the means by which the results obtained by these methods can be most effectually published and preserved.

INSTRUCTIONS FOR TAKING PHOTOGRAPHS OF LIGHTNING.—At the meeting of the Photographic Club, on July 10, I was requested to draw up some instructions for taking photographs of lightning, so that photographers, professional as well as amateur, might, in the event of a thunderstorm, be prepared to obtain some really good photographs.

If the following brief instructions be complied with the photographs of lightning will possess scientific value:

1. The camera should be focussed during the daytime to some distant object, and a mark made on the camera, so that at night it may quickly be adjusted when a storm is approaching.

2. A rapid rectilinear lens with full aperture should be used.

3. The camera should be directed to the part of the sky where the lightning is most likely to occur.

4. The camera should be firmly screwed to the tripod stand.

5. It may be necessary to tilt the camera slightly, especially if the lightning be mostly in the zenith. If this be done a note should be made of the inclination.

6. A portion of landscape, roof, chimney-pot, etc, should, if possible, be included on the plate. If this cannot be done the top of the plate should be carefully marked before it is removed from the dark slide.

7. The exact time of each flash, the intervals in seconds between the lightning and the thunder, and the point of the compass in which the flash appeared should all be carefully recorded.

8. It is desirable that there should be only one flash upon each plate.

9. If circumstances permit, two cameras should be used, one fixed on the tripod stand and the other held in the hand, and two separate photographs obtained of the same flash.

10. It would be very interesting and valuable if two or more photographers could obtain pictures of the same flash from different points of view; by this means it might be possible to determine accurately the distance of the flash, and also its movements in the atmosphere.

The Royal Meteorological Society (30 Great George-street, Westminster) will be glad to receive copies of all photographs of lightning that may be taken; even apparently poor ones often contain useful evidence.—WILLIAM MARRIOTT, F.R.M.S., *in British Journal of Photography.*

FIFTY YEARS OF PHOTOGRAPHIC GROWTH.—Fifty years ago photography was unknown, save to a few savants; now there are about 50,000 photographers, amateurs and professionals, in this country alone; and the number is constantly increasing. There is scarcely any one now who is not familiar with the camera; few who do not personally possess one, or who are not more or less closely connected with those who do. And much of this wonderful growth has been effected within the last ten years, or since the introduction of the gelatine "dry" plate.

August 10, 1839, Louis Jaques Maude Daguerre, in consideration of the life pension which had been settled upon him and his young partner by the French Government, being introduced to the expectant public by the great astronomer Arago, at the Paris Academy of Sciences, announced the secret of his beautiful process, and the daguerreotype became common property henceforth. Every one was astounded at its simplicity, and was seized with admiration at its beauty and perfection. What the philosophers had vainly been dreaming of for years had at length been discovered by the ambitious young scene painter of Paris. "Painting is dead from this day!" exclaimed a famous French artist on beholding the first daguerreotype. But pictures made by the sun have only proved to be new sources of inspiration of the picture-makers by pencil and brush as time has gone on.

The daguerreotype was a photographic image formed on the silvered surface of a copper plate, which had been made sensitive by the fumes of iodine, "developed" by the vapors of mercury and "fixed" in a solution of hyposulphite of soda. It required a prolonged exposure to light in order to sufficiently impress the image, in Daguerre's time requiring at least 15 minutes. Now a photograph can be made not only in the twinkling of an eye, in bright sunlight, but also at any time of day or night, in any place, and by the artificial light of a burning metal. Any number of prints or "positives" can be made from one glass or paper "negative," whereas, the daguerreotype was the positive itself, and the entire process of "exposing," "developing," "fixing," etc., had to be gone through with every time a picture was desired. But there are improvements made in photography since Daguerre's first result more wonderful still. Instantaneous photography in its modern development seems truly magical. Nothing is too swift for the camera. And, as has been said, it does not even require the light of day, for powerful magnesium flashed into a sudden blaze is wholly sufficient to mpress the extremely sensitive surface of the modern dry-plate.

Colored objects may also be photographed in a way to distinguish the difference in the color shades. The actual colors themselves, it is true, are not reproduced; but the correct color values of light and shade are clearly shown in the new orthochromatic (correctly colored) photographs. With these wonderful developments of modern photography, the actual process of making a picture by the sun has not been complicated, as might naturally be expected; but, on the contrary, greatly simplified. Any boy or girl of 10 years can now make a perfect photograph by the most advanced method. From being called the "black art," because of its mysteriousness, in the early days, when only learned scientists and alchemists, after prolonged study and experiment, could succeed in producing a feeble and fleeting image by the sun's rays, photography at the present time, with the latest and most improved instrument, has been simplified to the actual pulling of a string. The cost of production has also been correspondingly reduced. For instance, one very essential necessary chemical (hypo-sulphite of soda), from costing at one time in this country $5 a pound, is now commonly purchased for five cents. Cameras, too, are cheaper than they ever were before.

It will be interesting to know more about those early discoveries which led up to the daguerreotype, and later, to the present remarkable developments of modern photography. As was said, pictures were made by the sun long before Daguerre announced his beautiful secret. The ancient orientals must have known something about photography, for a lense has been found in the ruins of Nineveh, a city destroyed, as we all know, a thousand years before the birth of Christ. And during the middle ages simple lenses were well understood and manufactered in Europe. The Roman philosopher, Pliny, a full century before Christ, observed and recorded the fact that yellow wax is bleached by exposure to sunlight; while the Roman painter, Vitruvius, so well understood the decolorizing effect of sunlight that he always placed his paintings in rooms facing the north, where at no time of the day the sun's rays could reach them.

Throughout the middle ages, when the only scientists of their time, the alchemists, were vainly seeking for the philosopher's stone, by which they might change baser metals into precious gold, many valuable secrets were incidentally disclosed, acids for instance, which later became of great assistance. It was during the 18th century that attention was drawn to the silver compounds especially, as being those which most quickly changed color under exposure to the sun. As early as 1727 J. H. Schulze succeeded in printing copies of writing on a silvered, sensitized surface; the rays of sunlight passing through the translucent paper, darkening the silver compound beneath wherever it was not protected by the ink forming the letters, and thus producing a white copy upon a black ground. This was probably the first photographic negative, and Schulze has accordingly been called "the discoverer of photography."

But it was not until near the end of the eighteenth century that any one seems to have thought of applying these changes of color produced by the action of sunlight to any practical purpose. The camera obscura had been known for many years, and those who beheld the beautiful colored and life-like pictures produced by it must have longed to discover some method by which they might be forever retained. The camera obscura was invented about the middle of the sixteenth century by a clever Italian philosopher, Baptista Porta, and it was really the first camera. It was a room into which the sun's rays were allowed to penetrate through only one small opening, and they formed, of course, a reversed image of exterior objects on the wall opposite. A white screen was adjusted to catch the inverted picture, and when Porta improved his primitive contrivance by placing a double convex glass lens in the aperture of the room, and outside a mirror to receive and reflect the sun's rays through the lens, the picture within fell upon the screen brighter and more distinct, and in a natural position. Any boy can try the expertment. The modern camera is merely the camera obscura of the young Neapolitan experimenter, considerably reduced in size, and made rather more portable. Joseph Nicephore Niepce was the first man to obtain a permanent photograph. He and his brother Claude worked patiently for many years to discover the process on which, later, in modified forms, lithography and the allied graphic arts were founded.

Daguerre, hearing of Niepce, probably through his friend, Chevalier, addressed a communication to him in hope of gaining some information, but the provincial and successful experimenter was suspicious of the gay Parisian scene painter, and did not readily disclose his secret. Later, however, an agreement was made between the two investigators, and from their joint efforts the daguerreotype was made. The partnership which was entered into by these two workers was continued after the death of the elder Niepce, the son, Isidore, taking the place of his father. Isidore Niepce it was who received the 4000 francs life pension when the process which his father had labored so long and patiently to perfect was announced by Daguerre, and who was awarded for his, and evidently a lesser share in the work, 6000 francs a year. So soon as the process was known interested ones flocked to Paris from all sides, and the making of daguerreotypes became a profitable business all over the civilized world. Then followed in quick succession improved processes one upon another. Fox Talbot, Scott-Archer, and Dr. Maddox, in England, Langenheim, in America, and later, Profs. Draper and Morse each contributed his share toward the general result, and helped to make possible the quite perfect photograph of to-day.—W. I. LINCOLN ADAMS, in the *Boston Globe*.

Photographic Societies.

CHICAGO CAMERA CLUB.

A SPECIAL meeting of the Chicago Camera Club was held at the club-rooms, No. 182 Wabash Avenue, Monday evening, July 29th. President Williston called the meeting to order and stated that the special business of the evening would be a demonstration of the new Eastman Transparent Film, which was destined to revolutionize photography, and thereupon introduced Mr. Seth C. Jones, the genial representative of the Eastman Company.

Mr. Jones, after a few well-chosen remarks, explained the new process at length and exhibited several fine specimen negatives and prints from the new film, announcing that the erection of a complete new factory and improved machinery had delayed its manufacture, but that the company hoped to supply the dealers in about two weeks.

The room was then illuminated with red light, and Mr. Jones, producing an exposed roll of the new film, clipped off a few exposures, and in a few moments some beautiful negatives were made and passed around for examination. The mode of operation was the same as with glass, less care, if anything, being used in the manipulation.

The process was voted a great success by all present, and Mr. Jones was tendered the thanks of the Society.

The Secretary announced the presentation of a complete enlarging outfit by Mr. F. K. Dunn, a member of the club, after which the meeting adjourned informally, to inspect the new rooms of the club, which we will briefly describe.

Upon entering the building (in the heart of the city), the elevator lands you at the door of the club. Upon entering we find a large and beautifully lighted reception hall and library-room, capable of seating about one hundred persons, carpeted and furnished throughout in antique oak. A large and well-selected library of photographic literature is being constantly added to, and the walls are adorned with masterpieces of both foreign and American amateur and professional photographic work. The gas chandeliers swing as pivots by a new device so as to be

readily set aside when the room is to be used for lantern exhibitions.

An easy staircase leads from this room to the work-rooms above. The first thing which meets the eye of the visitor is a large and perfectly appointed studio with complete skylight, portrait camera and lenses and accessories. From this doors lead into dressing-rooms, dark-rooms, enlarging-rooms, printing, silvering and finishing-rooms, and laboratory, where a large stock of chemicals are kept for the free use of members. These rooms are completely furnished, a regularly appointed gallery, in fact, and all contained in a structure erected upon the roof of the building, where light, air and water are abundant. The Club is meeting with great success and the members are enthusiastic and working hard to make it the most complete amateur photographic society in existence.

Members of other camera clubs and photographers in general are invited to inspect our new quarters.

The Rev. M. L. Williston, the President of the Club, will attend the Boston Convention and will be glad to meet the fraternity.

Fred. K. Morrill,
Secretary.

The Editorial Table.

THE Twenty-eighth Announcement of the Chicago College of Pharmacy has been received. Our old friend and correspondent, Dr. H. D. Garrison, is Dean of the faculty of this college and Professor of Physics and Chemistry. The college continues to be one of the very first of its kind in this country.

IN *The Daily Graphic*, of Tuesday, July 30th, there are a number of wood-cuts from photographs made by members of the Chautauqua School of Photography. The pictures are all of Chautauqua subjects, including The New Dock, The College of Liberal Arts, The Lake Drive, The Hall of Philosophy, and the Hotel Athenæum; and all are very good.

WALTER G. CHASE, photographic editor of the Boston *Herald*, has an interesting article on "Nova Scotia's Capital," in the Sunday (July 28th) issue, illustrated from his own negatives. Attractive pictures of the Gate of the Citadel, the Interior of the Citadel, the Prince of Wales' Tower, a Market Scene, the Old Dutch Church, among others, embellish the article.

MISS ADELAIDE SKEEL is contributing a detective story entitled "At St. Cross," to *Our Youth*, illustrated by pictures from her own negatives. We should have said that the "detective" referred to is a camera, of course. "Lest you should expect the unraveling of some intricate plot, I tell you at the beginning," she writes, "that I am the detective, and that I detect with a Waterbury camera."

WE were recently shown some negatives on Eastman's new transparent film, by Mr. Gus. D. Milburn, which he himself made. He also showed us some prints from these negatives, which were all that could be desired in point of sharpness and general technical excellence. Mr. Milburn informed us that the film would be on the market at an early date.

Queries and Answers.

167 A. G. M. has purchased hydrochinone of a dirty gray color, not in a very distinct state of crystalization, more like a moist and amorphous powder. Is it good enough to be used for developing?

167 *Answer.*—You can use it without hesitation, but the solution will probably not keep as well as if made from a pure article, which is in yellowish acicular crystals. A slight odor of sulphurous acid is not objectionable.

168 ELIZABETH O. has tried Prof. Burton's method of washing prints with hot water, but finds the tones of the prints to change for the worse very much.

168 *Answer.*—Prof. Burton's method has met with general approbation, the principle upon which it is based being reasonable. We advise, however, first to wash for a while in cold water, before the hot is applied, and that should never be above 100 deg. Fahr.

169 COPY.—I have an old Voigtlander portrait lens nearly 2 inches in diameter, can I use it to copy a cabinet card in its natural size?

169 *Answer.*—You can, but the bellows of the camera must be drawn out so far that the distance from the optical centre of the curve to the ground-glass is twice that of the equivalent focus of the lens. To make enlargements the bellows must be extended still more.

170 A. M. P. has collected a large amount of silver waste, precipitated from hypo, and burnt untoned paper. How can it be reduced to metallic silver?

170 *Answer.*—Mix together seven ounces of each carbonate of soda and carbonate of potash, with two ounces of nitrate of potash, and mix in equal proportion with the silver waste powder. Place in a Hession crucible and expose to strong heat. When deflagration takes place add more of the silver powder till the crucible is about two-thirds full. The heat is then raised to a red hot, when the silver will be reduced. Allow to cool, break the crucible, and you will find a lump of metallic silver on the bottom.

171 PRINTER.—The albumen film of the three-crown paper softens upon a solution of 45 deg. Why? It has happened last winter, when I ascribed the cause to low temperature, but as it occurs with the thermometer above 90 deg. F., I am thinking it must come from some other cause.

171 *Answer.*—The silver bath should be kept invariably at a temperature of from 65 deg. to 75 deg. Fahr. If below that the silver solution will act but slowly upon the albumen, and instead of coagulating it readily, it will sink to within the mass of the paper, producing a gray and feeble print without gloss and hardness. When albumenized paper is for a long time exposed to an atmosphere impregnated with as much moisture, as we have had it recently, it becomes flabby, and the albumen film is in a state of semi-solution. If it is then floated upon a silver solution of but moderate strength, coagulation does not take place either, and the albumen is washed away partly. Remedy! Add from 5 to 7 per cent. alcohol to the bath, increase its strength, and dry the paper at a moderate heat before and after silvering.

FERNS.

PHOTOGRAPHIC PLATES.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, AUGUST 23, 1889. No. 414.

FERNS.

WE present our readers, this week, with an illustration which we are sure will please them. Though the author of this picture modestly withholds his (or her) name, the work is such that any one might be proud to own. For delicacy of detail, we rarely see anything surpassing this group of ferns. It is a refreshing bit of nature truthfully depicted in the photograph. The subject is one which suggests a large number of similar pictures that are within the easy reach of the camera.

We admire, also, in this pictorial illustration, the work of the Photo-Gravure Company, who have so faithfully reproduced the negative in every particular. The appropriate color shade is especially to be commended.

THE EXHIBITION OF PHOTOGRAPHS AT THE BOSTON CONVENTION.

FIRST of all, it may be interesting to know who were the lucky winners of the Association medals, grand prize and special prizes. The grand prize—the bronze group of "Roman Wrestlers," valued at two hundred dollars—for the best collection of three photographs illustrating Longfellow's "Evangeline," was awarded to J. E. and O. J. Rösch, of St. Louis.

In class A, four gold medals for the four best exhibits in genre photography were awarded to O. P. Scott, Chicago; G. M. Elton, Palmyra, N. Y.; S. L. Stein, Milwaukee; and J. E. & O. J. Rösch, St. Louis.

In class B, a gold medal was awarded to L. M. Baker & Co.. of Columbus, O.; silver medals to J. H. Doerr, S. J. Dixon, W. Stuber & Bro., of Louisville; and bronze medals to D. R. Coover of Iowa City, Iowa, E. F. Hall, and A. N. Hardy, of Boston, for collections of portrait photography.

In class C a gold medal was awarded to George Barker, of Niagara Falls, a silver medal to W. H. Jackson, of Denver, Col., and a bronze medal to Wilfred A. French. A silver medal was awarded to Henry G. Peabody, of 53 Boylston street, Boston, for the best collection of marine views.

A silver medal was awarded to A. L. Bowersox for the best collection of architectural views.

In class D a silver medal was awarded the Eastman Dry Plate and Film Company.

In class E a silver medal was awarded the Eastman Company for the best six plain enlargements.

In class F a silver medal was awarded the same company for the best substitute for ground glass.

A bronze medal for the best and latest improvement in photographic appliances was awarded to the Scovill & Adams Company, of New York. The gold medal for the best display of foreign photographs was awarded to F. Muller. Mendelssohn of London received the silver medal in this class.

The Eastman Dry Plate and Film Company's silver cup for the best enlargements made on their bromide paper was awarded to E. Decker, of Cleveland.

Medals for retouching were awarded as follows: A. V. Cuyham, silver; Theo. Heinig, bronze.

The Air Brush prizes were awarded as follows: W. W. Sherman of Milwaukee, Wis., best sketch finished with Air Brush, a water color; Mrs. L. Walkup of Rockford, bromide print, finished in water colors; P. Fleming of Chicago, bromide print in crayon.

Examples of the best work of most of these prize-winners have been secured for THE PHOTOGRAPHIC TIMES, and the best pictures of some of the leading exhibitors have also been bespoken for our readers. We shall begin to present these prize-winning and superior specimens of photographic work just as soon as the photo-gravure plates can be made from the negatives. They will compose a series which for instructive value and pictorial charm can scarcely be over-estimated. With these few preliminary words we pass on to the mention of some of the more noteworthy pictures.

On entering the galleries the first exhibit we noticed was that of our old friend, J. B. Obernetter, of Munich, consisting of photo-gravures of the very highest order. Our readers will remember Obernetter's "Flight Before the Enemy," which we presented to them in THE PHOTOGRAPHIC TIMES not many weeks ago. Some colored work in this exhibit was also much admired. L. Minzloff, of Königsberg, Germany, exhibited some remarkably fine platinotypes of pictorial subjects. The 10x12 portraits of H. E. Mendelssohn are to be commended for their good lighting. It is effective and yet not obtrusive. Another old friend of THE PHOTOGRAPHIC TIMES from across the water, F. Müller, also exhibited some platinotypes that excited our admiration. The mounting was especially effective and in good taste.

W. H. Jackson, of Denver, Col., as usual, made a magnificent display of his excelling landscape work of large size. Our readers are familiar with his "El Capitan," for it embellished these pages not many weeks ago. Doerr, of Louisville, Ky., exhibited a remarkable photograph fully ten feet long, of the First Regiment of the Kentucky State Guards. It was printed on several full sheets of albumen paper and very skillfully joined together. Wilfred A. French, of Benjamin French & Company, showed two frames of good landscape work, his picture entitled "Drink, Pretty Creature, Drink," being, perhaps, the best of the collection, and it was, indeed, very pretty.

Theodore Heinig, of Dayton, O., exhibited specimens of his retouching, both negatives and prints, and his skill and good taste deserves our highest praise. C. H. James, of Philadelphia, showed a notable picture of large dimensions made on a Carbutt plate of "The Natural Bridge of Virginia." It is by far the finest photograph of this grand subject which we have ever seen. There were fine specimens of negatives and positives made on Mr. Carbutt's Flexible Celluloid Films.

George Barker, of Niagara Falls, exhibiting opposite his old rival in landscape work, Jackson, of Denver, presented a notable collection of photographic work. The superb Niagara pictures for which Mr. Barker is justly famed over the entire world, were shown; and some views made in Florida and the South, which were new, fully sustained Mr. Barker's high reputation. There was also a small collection of Johnstown stereoscopic views in this exhibit, and the "Horse-race," which the subscribers to "Twelve Photographic Studies," published by The Scovill & Adams Company last year, are familiar with. We shall have a Southern view and one of Mr. Barkers, Niagaras to show our readers before very long.

Saunders, of Alfred Center and Friendship, N. Y., made a creditable display of cabinet work and larger. The small exhibit of the Harvard College Observatory was one of the most interesting in any of the galleries. It consisted of work with the telescope, showing fine specimens of lunar landscape and stellar photography.

Overpeck, the rising photographer of Hamilton, O., made a small but highly commendable exhibition of his regular gallery work. Dixon, the agile Canadian photographer, made a good display of large and small work. A. H. Plecker, of Lynchburg, Va., an Evangeline competitor, deserves praise for his picture illustrating the lines:

"Sat by some nameless grave, and thought perhaps in its bosom
He was already at rest; and she longed to slumber beside him."

But C. H. Stoddart, of Erie, Pa., certainly deserves the palm for his Evangeline picture describing the verses:

"There by the door they stood, with wondering eyes to behold him
Take in his leathern lap the hoof of the horse as a plaything."

We have never seen an animal introduced in a group with better effect, and the children in the foreground were a most happy bit of photographic work. But we shall have this picture to show our readers before long, and then they can judge for themselves. If the other two in this group were anywhere near so good as this picture, Mr. Stoddart would have certainly won the Grand Prize.

C. W. Motes, of Atlanta, Ga., came very near having the best exhibit of Evangeline pictures; but in the easy and graceful poses of the Rösch Brothers, their photographs were easily ahead of their competitors. The Rösch frame of six photographs, not in the Evangeline competition, is also deserving of the highest praise.

E. Walter Histed, of Pittsburgh, Pa., made a creditable exhibit of portrait work. Montfort and Hill, of Burlington, Iowa, were close competitors in the Evangeline competition, their lighting being especially good, but to our mind, the pictures shown in their regular exhibit were far ahead of their Evangeline work. We shall have the pleasure of showing our readers "The Toilet" and "The Day's Work Ended," before very long, which we are sure will highly delight them.

Stein, of Milwaukee, sustained the reputation won last year at Minneapolis, his "Aunt Tilly's Story" being the best of the five or six pictures

which he exhibited. William Kuebler, of Philadelphia, made an interesting exhibit of theatrical work, excellent portraits of Mrs. Potter and Downing being especially noticeable. The latter actor is photographed in a group after Jerome's great painting of "The Gladiator." Landy, of Cincinnati, winner of so many medals and the Blair cup, showed his prize pictures, "Man; Know Thy Destiny" and "Hiawatha," and some excellent, large portraits that were not for competition.

President McMichael's exhibit was one of the most noteworthy in the galleries. It consisted of six photographs, not entered for competition—"The Storm," with which our readers are acquainted, "Five O'Clock Tea," first exhibited at Minneapolis; "To The Kaiser;" "Schwarzwalderin;" and two scenes from Shakespeare's Twelfth Night, composing the exhibit. We shall hope to show our readers one of these Twelfth Night scenes soon, as they were probably the finest specimens of photographic work in the exhibition.

Secretary Scott also showed six pictures, all good, for which he won a gold medal. We selected "Tuning" from this exhibit for our readers. Vice-President Appleton exhibited a fine collection of work which he did not enter for competition. There were several pictures in this exhibit which had been shown at an earlier convention, but they were all the more appreciated for having been seen before. Mr. Appleton will also be represented in THE PHOTOGRAPHIC TIMES of early date by one of his best productions.

Stuber Brothers, of Louisville, Ky., made a creditable exhibit of large portrait work, receiving a well-deserved medal. Vice-President Hastings, of Boston, showed some water-colors based on photographs that were very beautiful. He also exhibited some pure photographs—not for competition—that were worthy of high praise.

George B. Wood, of Philadelphia (an amateur), made a characteristic exhibition of his genre work. H. F. Holland, of Boston, exhibited large and small portraits that showed him to be a skillful photographer. Partridge, of Boston, exhibited a frame of good cabinet portraits. Baker, of Columbus, Ohio, displayed a number of large portraits that were highly creditable to him.

Elmer Chickering, of Boston, made a large exhibit, notable in it being a fine portrait of "Medford," the St. Bernard pet of the White Mountains. Mrs. Potter was prominent also in this exhibition, and P. T. Barnum, the veteran showman. The excellent portrait of W. H. Roby, of C. H. Codman & Company, also elicited our praise; but we wish that the gentleman in the group representing a reception at Elmer Chickering's establishment, had removed his hat before being photographed, as there were several ladies depicted in the group.

Secretary-elect D. R. Coover, of Iowa City, certainly succeeded in his picture of the boy with his fingers to his nose. A. Hall, of Buffalo—one of the younger photographers—made his first exhibit this year, and shows signs of great promise. His large portraits were all good, and the best of taste was shown in mounting. J. H. Ryder, of Cleveland, showed six figure pictures of the highest order, and G. M. Elton certainly deserved the gold medal which he received for his exhibit. His "Devotion" was especially fine.

Henry G. Peabody made an excellent exhibit of marines, and Anschutz, of Pozen, showed some of his remarkable instantaneous effects of animals. There was a large display of bromide enlargements in competition for the Eastman prize, considerable improvement, as a rule, being shown in this class of work. Air-brush work was exhibited, and specimens of photo-gravure.

THE PHOTOGRAPHIC MERCHANTS' AND MANUFACTURERS' EXHIBITION AT THE BOSTON CONVENTION.

THIS exhibition was perhaps the most instructive and valuable part of the Convention. All the prominent manufacturers and dealers were represented by creditable examples of their productions and wares, and great progress was shown, especially in the manufacture of photographic apparatus. The hall wherein these exhibitions were displayed was a large, well-lighted one, and offered greater attractions than even the galleries where photographs were exhibited. But we must speak at least briefly of the more notable exhibits.

Entering the hall, we noticed first the large exhibition of the Eastman Dry Plate and Film Company. A number of large bromide enlargements were shown in effective framing, excellent portraits of Mrs. Potter as Cleopatra, Lillian Russell, the beautiful actress, and of a lady with a Kodak camera, being conspicuous in this collection. Photographs were also shown from negatives on the Eastman new flexible film, and a full line of their apparatus. Conspicuous in the latter were sample Kodaks of the new sizes ($3\frac{1}{4}$x$4\frac{1}{4}$ and 4x5), making square pictures instead of circular, as heretofore, and possessing, also, an ingenious focusing attachment. Kodak cameras finished in mahogany were also shown, and these will undoubtedly be very popular, as they will not cost more than half what the old ones did. A new Kodak camera,

making a circular picture three and a half inches in diameter, with no focusing attachment, was also exhibited. Mr. Millburn and Mr. Jones were here in attendance.

At the head-quarters of Smith & Pattison, where Mr. Smith himself presided, we greatly admired the improved burnishers manufactured and sold by this company. The print roller—a great help in mounting—invented by Secretary O. P. Scott, and exhibited by this company, is also a great boon to the professional photographer. W. Boyce, of Danville, Ill., exhibited a dealing box for holding paper before and after printing, at this booth, and there were, besides, many other ingenious and improved articles for photographers' purposes.

Allen Brothers, of Detroit, Mich., agents for the Suter lenses, exhibited a full assortment of these excellent objectives, and samples of portrait work from cabinet size to eighteen by twenty-two, made with them, from the best studios in this country. Cramer, Guerin, McMichael, Dabbs, and others were here represented by excellent work. Mr. Orville C. Allen, of the firm, himself managed the attractive exhibition.

At the head-quarters of thc Bausch & Lomb Optical Compay, Rochester, we noticed an excellent portrait of Ex-President Decker made with one of this company's lenses. Alven G. Clark's new photographic lenses were also shown in this exhibition. They are extremely wide-angle, and yet very rapid.

W. G. Entrekin showed a full line of his excellent burnishers, and explained their superior qualities himself to visiting photographers.

Next we came to the exhibition of E. & H. T. Anthony & Company of New York, where a creditable display of apparatus, chemicals and accessories were shown. The honors of managing this exhibit were divided between Colonel George Ayres and Mr. E. B Barker.

The Scovill & Adams Company—as was stated by the *Boston Globe* of August 7th—made "by far the most notable and the biggest exhibit in the hall." To continue the quotation—"This old and reliable firm shows the very latest improvements in photographic apparatus, lenses and all photographic materials. Among the most important novelties which they show are an ingenious new detective camera, which carries 24 of the new celluloid films 4x5 inches in size; an improved form of their universally popular 'Waterbury' detective camera; a new 6½x8½ 'collapsible' camera for tourists; new tripods, exposing shutters and printing frames; an improved sciopticon for throwing up lantern-slides on a screen; a patented 'flash' lamp for burning magnesium metal in making pictures at night or in dark places, such as mines, caves, etc.

"A full line of photographic instruction books is also shown by this enterprising firm, which we understand is the largest publishing house of photographic books in this country. But perhaps the most important advance to photographers which they show is a celluloid focussing screen to take the place of the usual ground-glass, so easily broken in the field. This company was founded in 1802, and was the first to manufacture daguerreotype plates."

On the second day the event of the Convention occurred, when the entire sale of this exhibit to C. H. Codman & Company, of Boston, was announced. Previous to this, the firm of C. H. Codman & Company had a small exhibit of their own, but upon effecting this immense sale, they issued a circular to members of the Association, cordially inviting all to call and examine the goods which they had purchased. Mr. W. H. Fuller and Mr. J. B. Pelgrift were present at the Scovill & Adams' exhibit, and they were assisted by James French and John Gardner. Mons. Flammang, manager of the American Optical Company's works, and inventor of many cameras, and Mr. A. B. Dobbs, Superintendent of the New Haven factory of this company, were also present.

The Gundlach Optical Company showed a full assortment of their excellent lenses in this exhibition, and gave out the handsome souvenir which we have already noticed. This company exhibited a new rapid single lens, consisting of three meniscus lenses cemented together, thus practically forming one lens, and leaving but two reflecting surfaces. The glass of which it is composed—like that of all the lenses manufactured by this reliable company—is from the celebrated Jena factory, and is perfectly colorless. Mr. Henry H. Turner had charge of the exhibit.

The "Semi-Centennial" Camera Stand, invented by Edwin C. Fuller, was exhibited at the head-quarters of C. H. Codman & Company, and elicited much favorable comment.

Dry plate makers were unusually well represented. In the exhibit of Wuestner's new "Eagle" Dry Plate we noticed unusually fine work by such eminent photographers as Thors, of San Francisco, Taber, of the same city, Savage, of Salt Lake City, Stein, of Milwaukee, D. R. Clark, of Chicago, O. P. Scott, of Chicago, Hastings, of Boston, and G. Waldon Smith, and Holland, also of the Hub; Doerr, of Louisville, Ky., Strauss, of St. Louis, and Sarony, of New York. We shall have a picture for THE PHOTOGRAPHIC TIMES before long, made

on one of these excellent plates. All the pictures shown testify to the uniform and superior qualities of the new "Eagle" Dry Plate. Mr. Wuestner was present himself to explain the working of his plates, being assisted by a number of experts.

The G. Cramer Dry Plate Works also made a notable exhibition of work on its plate. Prominent among others were photographs by McMichael, Rose, and Barker. We shall also have an illustration from this exhibit to show our readers before many weeks have elapsed. Mr. Althans was here explaining the merits of the Cramer Plate, and so were the genial S. P. Wells, the Eastern agent of this company, and Mr. Edgeworth, another expert. The pictures winning the Grand Prize were made on Cramer's plates.

The M. A. Seed Company's exhibit faced that of Cramer, its formidable rival, and showed work by various prominent photographers in the country, including Falk, Ryder, Decker & Wilber, Gilbert & Bacon, Max Platz, of Chicago, Moore and C. H. Gallup, of Poughkeepsie, N. Y. The new positive films manufactured by this company were also shown, andsome, mountedin a novel manner, attracted considerable attention. Mr. Seed himself was present and several of his demonstrators.

The Harvard Plate was also well represented by excellent work of well-known photographers, the photographs being shown in an especially attractive manner. Mr. Stanley showed a large number of photographs made on his plates; and John Carbutt, the veteran plate-maker of this country, was not behind in his exhibition.

In the latter's show were photographs made on Mr. Carbutt's new flexible films, taken in Philadelphia and Mexico, positives on his new positive films—three pictures of a wonderful ærial delusion, by Professor Keller, taken by "flash" light on Keystone "Eclipse" plates; also elephants bathing in the Zoological Gardens in Philadelphia, taken on the same plates. There are several pictures illustrating the value of orthochromatic photography, copied from paintings by Charles Taber & Co., of New Bedford. C. F. James, of Philadelphia, shows the picture of the Natural Bridge in Virginia, taken on a Carbutt special plate. The size of the picture is 22x36 inches. Among the notable portraits are some by F. Gutekunst, of Philadelphia, taken on "Eclipse" plates, which he uses altogether, including Edwin Booth, Capt. Hamilton Murrell, and many eminent Philadelphians. Mr. Carbutt's exhibit was much commended in the daily press of Boston.

The exhibit of the A. M. Collins Manufacturing Co. displayed more good taste and quiet refinement than ever before, attracting the attention and calling forth the admiration of all. This great house is noted for its elegant displays, and at the last four conventions its exhibits were the finest and most expensive made. This year the exhibit consisted of four right-angle frames of solid antique oak, with silver trimmings, seven feet high, enclosing five hundred square feet of space. From the ornate and massive corner posts were strung rows of woven silver wires, to which were suspended by ingenious hooks, the photographic mounts, the arrangement permitting the removal of the cards for examination. Entrance was gained to the enclosure by four openings, one in each side of the square. Running around the outer edge of the space, and under the frames, was an elegant carpet, and in the center of the square a rich and costly Persian rug, on which rested a magnificent antique table, and three richly carved chairs of solid oak. On the six hundred square feet of show space presented by the frames were displayed some three thousand of the twelve thousand items of goods manufactured by this great and justly celebrated house. Each section of the frame was ornamented with a handsomely lettered panel, indicating the style of mount shown on that particular section. among which we noticed "Qualities and Colors," "Specimens of Letter Press Printing," "Specimens of Embossing in styles A B C E F G & H," "Stamping in Pure Gold Leaf," "Specimens of Lithographic Printing," "Panels," "Stero Mounts," "India Tints," etc., the whole arranged with a view to contrast in color and effectiveness in outline, that spoke volumes for the excellent taste of the company's genial representatives, Mr. F. E. Hastings and Mr. A. O. Janes, who had the exhibit in charge. In looking over this line of goods one could not help but be impressed with the fact that it is the only full line of mounts manufactured in this country, if not in the world.

Wilson-Hood-Cheyney Co., Limited, Philadelphia, made up a fine display of "new things" only, embracing Osborne's "very latest accessories," fancy rugs, draperies, backgrounds, Japanese tissues, perfect preservative, English and German printing-in negatives, camera levels, "Professional Mountant," etc., etc. As fine a display of useful novelties as could be found in the exhibition. They distributed a neat little souvenir, "Petite Celluloid Memorandum Book," which every photographer was glad to receive. The exhibit was in charge of Mr. John G. Hood, assisted by salesman Bennett.

Buchanan, Bromley & Co., Philadelphia, was represented by Mr. W. P. Buchanan, although his firm had no direct display of goods, most of their

novelties were exhibited by other dealers in attendance. Mr. Buchanan has attended nearly every convention since the organization of the P. A. of A. with a stock of goods in charge, but made an exception of Boston, to hunt up new things for his firm instead of anchoring at any head-quarters.

J. C. Somerville, of St. Louis, made an attractive display of work with his new symmetrical lens; and H. A. Hyatt, of St. Louis, was also present, but had no permanent head-quarters. Irving A. Savage and Fred E. Colwell represented the firm of F. Hendricks & Co.

In the display made by the firm of Morris Earle & Co., there were shown a large and choice assortment of pictures taken with the Beck Autograph Lenses, both Rectilinear and Wide-Angle. A noticeable feature of these pictures was that in many instances there were duplicates of those in the display of the M. A. Seed Co.'s dry plate work, of portraits and landscapes taken by Ryder & Appleton, of Cleveland. Among the lenses exhibited were the No. 11, a 38-seconds focus Rectilinear Beck and a No. 0, 4-seconds focus of the same series, Wide-Angle lenses with Iris diaphragms, a new "Autograph" finder, the Extra Rapid Portrait Rectilinear lenses were conspicuous for their originality. Another most interesting novelty was a detective box fitted with a stereoscopic camera manufactured by the Messrs. Beck, and fitted with a pair of No. 1 Autograph lenses controlled in exposure by a specially constructed Newman shutter, Iris diaphragm for the lenses controlled by a lever.

George Murphy, of New York, made a creditable display of novelties sold by him, and was assisted in the management of the exhibition by Charles Bolwell, Jr., his leading salesman. R. H. Moran, of New York, had a head-quarters in the center of the hall, but made no exhibit.

The exhibition of backgrounds and accessories, by Seavey, of New York, as usual, was a prominent center of attraction. Mr. Davis of the firm was assisted by a charming and graceful Boston lady as a "poser." The exhibit was shown in the gallery and was generally surrounded by an interested crowd of photographers. On the afternoon of Thursday a small band of music played popular airs for a couple of hours or so, and seemed to be greatly appreciated by those in the hall.

At the head-quarters of Benjamin French & Company, we noticed a remarkably good likeness of Mr. French, made with one of the excellent lenses which he imports.

Bryant made a creditable exhibition of backgrounds and accessories manufactured by him, and Packard Brothers, of Roslindale, showed their novelties in a thousand square feet of floor space.

Henry G. Peabody, of Boston, exhibited photogravures from his negatives illustrating the coast of Maine and which he has collected in an attractive subscription book. Our readers will remember the picture of "Quoddy Head," by Mr. Peabody, which we presented in these columns not many weeks ago.

The Boston Photo-Gravure Company showed specimens of their work, and the well-known Photo-Gravure Company of New York exhibited a number of frames of their excellent work at the head-quarters of The Scovill & Adams Company. The air brush was represented in the gallery by the work made with it. Others who were well represented are the following: G. Gennert of New York; J. A. Knorr, Geo. Hein, of Omaha, Neb.; The Acme Burnishing Co., Minot M. Govan, E. A. Gilbert, Barker & Starbird, and the Blair Camera Co., of Boston; James E. Knapp of New Jersey; Zimmerman Bros. of St. Paul, and O. H. Peck of Minneapolis. There were other exhibits, worthy of more than a passing mention, which we have not time nor space even to enumerate.

THE ART SIDE OF PHOTOGRAPHY.

[Read at the Boston Convention of the P. A. of A.]

THE time was when it was considered a mark of good breeding to listen to a twice-told tale with all the interest and courtesy due to a first telling. This age has been aptly described as smart and slangy, and if one is unfortunate enough to commence the relation of a story to another who has heard it before, he is brought up very short by the single word *chestnuts* or *rats*. This may be smart, It certainly is slangy, but I doubt if it is wise, and I know it is not courteous.

It is not wise, because the fear of ridicule would prevent many subjects being introduced into conversation which might be interesting or instructive. It is not courteous because, although not new to you, it might be new to others.

So it is with something of this fear upon me that I open the subject of this paper for discussion. To many of the veterans of the profession it may be chestnuts, but there be others here that a few hints upon the art side of photography may benefit, and to them I offer them; asking the indulgence of the veterans who know all about it, for the sake of the younger members who do not.

What is art, and what are the rules that govern the production pictures by photography. Practically speaking, there are no hard and fast rules in art. There are, more properly speaking, principles which

are more or less elastic, but those rules or principles have been formulated by generations of men who have passed their lives in the study of nature, and its representation upon cameras, and these same rules, or principles, must be observed if your photograph is to deserve the name picture.

The attempt to make pictures by photography dates back to the very early days, Reiglander and Robinson, Hubbard and Ristin, in England having produced them twenty years ago under disadvantages that you younger generation of the craft know nothing, as you will probably appreciate when I tell you that in one of Hubbard's compositions (Stolen Moments) he told me he made twenty-one exposures upon one model before he got one negative to satisfy him, the exposure being five minutes, to get the effect he wanted. The light had to fall upon the picture in such a manner that the cast shadow upon the wall behind her became a principal feature in the composition. Therefore the light had to be cut off except through a very small aperture, hence the length of exposure.

No artist who is unacquainted with the difficulties which beset the photographer in the production of this plan of work can rightly judge of the results of his labor. Photography is certainly not a plastic art. The photographer must arrange his composition under his skylight complete it in all its parts; he must enthuse his model with the sense of the part he or she has to play. He must pay attention at one and the same time to the lineas composition, the composition of light and shade, and the pose and expression of his model. All this he must see in perfect before he uncaps his lens, and when the result is before him he has not the power of making corrections in part, he must reproduce the whole again with the defective part corrected, perhaps to find some other small defect overlooked in another part of the picture, and so to have the work to do all over again.

Of the lineas composition there appears, from the glance I have had around the walls of our art exhibit, very little to say. There are some instances of too rigid adherence to the principle or rule of making the lines balance each other, the lines of the composition being arranged so nearly alike on each side as to be simply a repetition. This is to be avoided. The rule is a good one to have balancing lines on each side, but they should be so arranged that they should not be conspicuous reproductions on the right of the lines on the left of a composition.

Concentration or focus is the one quality which is defective in most photographers' productions. When I say focus I do not mean optical focus but artistic focus, which means the arrangement of the light and shade in a picture in such a manner that the eyes are compelled to look first at that part which is the centre of interest.

In a portrait this of course should be the face and in a subject picture it should be the figure or figures upon whom the story to be told centers. How then is this to be done?

If I take a black board and make a white spot in the centre you will have focus or concentration in its crudest form. Also if you put a black spot on an expanse of white there is concentration; therefore if the face is surrounded by dark background and drapery there will be concentration or focus upon that face, but that is not all that is required; there must, to avoid crudeness, be present a quality called breadth, which come into the shadow lights of lesser intensity than the principal light, which, while it distributes the light throughout the picture, bringing out the details, are kept lower in tone the more they recede from the central or dominant lights. This quality which to an artist is the most essential to a picture is the one which is most disregarded by the average photographer, and many good photographs judged from a chemical and manipulative standpoint are completely spoiled by the absence of this artistic quality. How often do you see a portrait, for instance a white cup or some ornament on a table contending in intensity of light with the face, and so giving a spotty effect to the composition, with a very few exceptions. The compositions of the pictures exhibited this year are defective in this particular; in some there are as many as four spots of light of equal intensity, all calling for attention at one time, thus destroying both concentration and breadth.

There are several examples to be seen of a style of picture which requires great skill and judgment both in lighting and chemical manipulation. I allude to pictures where the face is in shadow against a lighted background. When managed properly they are among the most artistic effects which can be produced by photography. But it requires great care to keep the harmony of the composition there. In one, which, as it is in the exhibit of one of the dry plate firms, it will not do the exhibitors any harm if I describe it and point out where an otherwise good picture is spoiled artistically by neglect or want of knowledge. The face and figure is posed against an almost white background. The upper part of figure and face are splendid, but the lower part of the limbs cutting with a hard line against the background causes the eye to fall on that point and follow

down to the base of the picture, thus making the head of secondary importance.

This reminds me of an anecdote of the great critic Ruskin. He was asked by one of our eminent R. G.'s to criticise a portrait. The painter was one of the Pre-Raphaelite school, and Ruskin, adjusting his glasses, commenced with the hunting boots and went upwards somewhat in this fashion: "Yes, the boots are well painted, very well painted. The tops are quite good and the texture of the cord breeches is perfectly rendered. That velvet coat, too, the material could not be mistaken." Then, after a slight pause of astonishment, as if it was the last thing he expected to see, he said: "Why, bless my soul! there is a head too!" That artist said after that he had learned a lesson he never forgot.

Now if in the picture I was describing, the background had been graduated so that while the upper part was lighted, the lower part was shaded enough to prevent the hard cutting line, the head would have attracted the attention of the spectator first, and the concentration have been in the right place, for remember this, that wherever a dark line cuts against a light there will good concentration or focus be and if you will study the works of great artists you will always find that the highest light and the deepest shadow are near together and there is focus or concentration.

Another quality deficient in those photographs which I find most praised by professional photographers for their brilliancy in texture, either by the method of lighting or by over retouching the real texture of the flesh is not seen, and a face instead of appearing as if it would yield to the touch of the finger, has a stony shine which is like something metallic rather than flesh.

Now in my opinion there is nothing so beautiful s the texture of a properly exposed, well developed negative, and I consider that in such a one only the defects caused by the colors in the flesh tints, which photography does not render properly should be removed by the pencil of the retoucher, and that in such a manner he preserves the original photographic texture, but when in his ignorance and conceit he thinks he can work all over a face, and make a texture which is an improvement upon nature, a sort of Madam Rachel complexion in all alike, men, women and children, I consider he has mistaken his vocation. If I had any influence, I would try and get the Committee of this Association to give a prize to the retoucher who could do the best work upon a negative with a pencil, and yet do all that was wanted and preserve the texture. I think one of the things which makes the exhibit of Mr. Muneler so admired is just this point, while all photographic defects are removed there is an exquisite texture throughout the whole exhibit.

I could have said much more on this subject, but there are other things which will be brought before you this evening, so I will conclude by saying I hope you will not think I have been hypercritical; while there is much to criticise there is much more to praise, but as we learn most by our failures, I thought these few hints might be of use to you.

G. Hamner Croughton.

ON ALLOTROPIC FORMS OF SILVER.

II.

In the first part of this paper were described certain forms of silver; among them a lilac-blue substance, very soluble in water, with a deep red color. After undergoing purification it was shown to be nearly pure silver. During the purification by washing it seemed to change somewhat, and consequently some uncertainty existed as to whether or not the purified substance was essentially the same as the first product; it seemed possible that the extreme solubility of the product in its first condition might be due to a combination in some way with citric acid, the acid separating during the washing. Many attempts were made to get a decisive indication, and two series of analysis, one a long one, to determine the ratio between the silver and the citric acid present, without obtaining a wholly satisfactory result, inasmuch as even these determinations of mere ratio involved a certain degree of previous purification which might have caused a separation.

This question has since been settled in an extremely simple way, and the fact established that the soluble blue substance contains not a trace of combined citric acid.

The precipitated lilac-blue substance (obtained by reducing silver citrate by ferrous citrate) was thrown on a filter and cleared of mother water as far as possible with a filter pump. Pure water was then poured on in successive portions until more than half the substance was dissolved. The residue, evidently quite unchanged, was of course tolerably free from mother water. It was found that by evaporating it to dryness over a water bath, most of the silver separated out as bright, white, normal silver; by adding water and evaporating a second time, the separation was complete, and water added dissolved no silver. *The solution thus obtained was neutral.* It must have been acid had any citric acid been combined originally with the

silver. This experiment, repeated with every precaution, seems conclusive. The ferrous solution used for reducing the silver citrate had been brought to exact neutrality with sodium hydroxide. After the reduction had been effected, the mother water over the lilac-blue precipitate was neutral or faintly acid.

A corroborating indication is the following:—The portions of the lilac-blue substance which were dissolved on the filter (see above) were received into a dilute solution of magnesium sulphate, which throws down insoluble allotropic silver of the form I have called B (see previous paper). This form has already been shown to be nearly pure silver. The magnesia solution, neutral before use, was also neutral after it had effected the precipitation, indicating that no citric acid had been set free in the precipitation of the silver.

It seems, therefore, clear that the lilac-blue substance contains no combined citric acid. Had the solubility of the silver been due to combination with either acid or alkali, the liquid from which it was separated by digestion at or below 100 deg. C. must have been acid or alkaline; it could not have been neutral.

We have, therefore, this alternative. In the lilac-blue substance we have either pure silver in a soluble form, or else a compound of silver with a perfectly neutral substance generated from citric acid in the reaction which leads to the formation of the lilac-blue substance. If this last should prove the true explanation, then we have to do with a combination of silver of a quite different nature from any silver compounds hitherto known. A neutral substance generated from citric acid must have one or more atoms of hydrogen replaced by silver. This possibility recalls the recent observations of Ballo, who, by acting with a ferrous salt on tartaric acid, obtained a neutral colloid substance having the constitution of arabin, $C_6H_{10}O_5$.

To appreciate the difficulty of arriving at a correct conclusion, it must be remembered that the silver precipitate is obtained saturated with strong solutions of ferric and ferrous citrate, sodium citrate, sulphate, etc. These cannot be removed by washing with pure water, in which the substance itself is very soluble, but must be got rid of by washing with saline solutions, under the influence of which the substance itself slowly but continually changes. Next, the saline solution used for washing must be removed by alcohol. During this treatment the substance, at first very soluble, gradually loses it solubility, and when ready for analysis has become wholly insoluble. It is impossible at present to say whether it may not have undergone other change: this is a matter as to which I hope to speak more positively later. It is to be remarked, however, that these allotropic forms of silver acquire and lose solubility from very slight causes, as an instance of which may be mentioned the ease with which the insoluble form B recovers its solubility under the influence of sodium sulphate and borate and other salts, as described in the previous parts of this paper.

The two insoluble forms of allotropic silver which I have described as B and C (B, bluish green; C, rich golden color) show the following curious reaction. A film of B spread on glass and heated in a water stove to 100 deg. C. for a few minutes becomes superficially bright yellow; a similar film of the gold-colored substance C, treated in the same way, acquires a blue bloom. In both cases it is the surface only that changes.

Sensitiveness to Light.—All these forms of silver are acted upon by light. A and B acquire a brownish tinge by some hours' exposure to sunlight. With C the case is quite different, the color changes from that of red gold to that of pure yellow gold. The experiment is an interesting one, the exposed portion retains its full metallic brilliancy, giving an additional proof that the color depends upon molecular arrangement, and this with the allotropic forms of silver is subject to change from almost any influence.

Stability.—These substances vary greatly in stability under influences difficult to appreciate. I have two specimens of the gold-yellow substance C, both made in December, 1886, with the same proportions under the same conditions. One has passed to dazzling white, normal silver, without falling to powder or undergoing disaggregation of any sort, the fragments have retained their shape simply changing to a pure frosted white, remaining apparently as solid as before; the other is unchanged, and still shows its deep yellow color and golden lustre. Another specimen made within a few months and supposed to be permanent has changed to brown. Complete exclusion of air and light is certainly favorable to permanence.

Physical Condition.—The brittleness of the substances B and C, the facility with which they can be reduced to the finest powder, makes a striking point of difference between allotropic and normal silver. It is probable that normal silver, precipitated in fine powder and set aside moist to dry gradually, may cohere into brittle lumps, but these would be mere aggregations of discontinuous material. With allotropic silver the case is very different, the particles dry in optical contact with

each other, the surfaces are brilliant, and the material evidently continuous. That this should be brittle indicates a totally different state of molecular constitution from that of normal silver.

Specific Gravities.—The allotropic forms of silver show a lower specific gravity than that of normal silver.

In determining the specific gravities it was found essential to keep the specific gravity bottle, after placing the material in it, for some hours under the bell of an air pump. Films of air attach themselves obstinately to the surfaces and escape but slowly even in vacuo.

Taken with this precaution, the blue substance B gave specific gravity 9·58, and the yellow substance C, sp. gr. 8·51. The specific gravity of normal silver after melting was found by G. Rose to be 10·5. That of finely-divided silver obtained by precipitation is stated to be 10·62.

I believe these determinations to be exact for the specimens employed. But the condition of aggregation may not improbably vary somewhat in different specimens. It seems, however, clear that these forms of silver have a lower specific gravity than the normal, and this is what would be expected. *M. Carey Lea.*

—American Journal of Science for July.

THE SEMI-CENTENNIAL EXCURSION.

In response to an invitation from the Boston photographers and photographic merchants represented by the following committee of I. Wilton Hall, G. Waldon Smith, W. H. Partridge, John Stalker, William A. Webster, C. F. Conly, Wilfred A. French, four hundred and fifty-two members of the P. A. of A., dealers, and friends, boarded the steamer "New York" which had been chartered for the day. The start was made from the Battery Wharf, nearly opposite the Charleston Navy Yard, at 10 a. m.

As the early morning mists cleared away, and the beauties of the Harbor and the almost perfect stillness of the water were revealed, all doubts as to the success of the day's outing were dispelled, and the sunshine which soon gleamed out was reflected in the faces of the whole party. The pleasure of the day was enhanced by the stirring strains from a fine band of music.

Standing in the bow of the boat, almost hiding the flagstaff from view, we found the tall head salesman of C. H. Codman & Company, Mr. John Stalker, who very courteously pointed out the attiactive features and places of interest on the rocky, irregular coast, as we passed between it and the green-crested islands until we reached Cape Ann, where, our genial guide explained the in-coming steamers as sighted.

The excursion along this coast is commonly designated in the Hub as the "North Shore Trip." It takes one past Fort Independence, Long and Dear Island lights, Fort Warren, Nahant—where we obtained a view of the magnificent summer home of Congressman Henry Cabot Lodge—Egg Rock, Beverley Farms, Marblehead Neck, Baker's Island, Manchester-by-the-Sea, Norman's Woe, Gloucester, and Eastern Point light.

Full justice could not be done to the collation which was served, on account of the attractiveness of the panorama which was presented as we cruised along the shore. About seventy miles were traversed before the boat reached the starting point promptly at 4.30 P. M., as agreed. Before reaching there, the Committee were called to the then deserted dining-room, and a vote of thanks was given to those who had planned and carried out so successfully the excursion. The universal verdict was that a day of unalloyed pleasure had been shared in by all.

Landing at the wharf, at the suggestion of President-elect Appleton, three cheers and a tiger were given for the Boston photographers. There the party quickly dispersed, as many were compelled to hurry to catch the outgoing trains. The only regret to record is that all who came to the Boston Convention could not have stayed long enough to share in the pleasure of the famous "North Shore Trip."

W. H. F.

Correspondence.

A USEFUL DODGE.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Having often heard and read, that a negative which albumen paper has stuck, through either one being wet, pronounced beyond salvation, it may be useful to those that have lost negatives to know how they can be saved.

As soon as discovered place the negative in water for a few minutes, then rub on the paper with the ball of the finger until the paper is all worn out, and nothing but the albumen paper remains. We put the plate in the hypo bath for, say ten minutes, when that will readily be removed, wash and dry, and your plate is ready for the printing frame. This method has always proven successful to me, and only once or twice has it left any stains.

Yours respectfully,

A. Lundelius.

PORT JERVIS, N. Y., August 2, 1889.

A DEALER'S COMPLAINT.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I have noticed the various remarks in the papers regarding the late Convention held in Boston; and also a good deal of criticism from different people who attended the Convention. I am an enthusiastic believer in Photographic Conventions, but the present management is so radically wrong that I cannot help grumbling a little, and the only way I know of doing so is through THE PHOTOGRAPHIC TIMES.

In the first place, the photographers present did not receive the advantages they were entitled to; and the dealers certainly did not. I heard considerable muttering in regard to this. One photographer said that this was not a Dealers' Convention, it was a Photographers' Convention. Now, I should like to ask that gentleman where the Convention would have been had they not received the rent income from the dealers to pay their expenses? From all I could ascertain the

dealers alone paid into the treasury for space over $5,000. I do not believe the whole profits of the institution, so far as the dealer was concerned, was one-fifth of that amount. I made inquiries among my old friends, and everyone was muttering and grumbling about the enormous expenses without any adequate result. In the first place they give the dealer but the afternoon days in which to sell their goods; in the next place, they do not do what they can in getting photographers to come in. It was estimated that there were in Boston from 100 to 180 photographers who refused to pay the $5 to enter the show. I myself, while at the Tremont House, heard of four or five photographers who were willing to pay $2 to join the Association, but the $3 initiation and $2 dues they thought an imposition. Some of them did go in on the 25-cent days; but the majority, after doing their purchasing of the local dealers, went home without entering the Convention.

Photographic goods must pay the dealer a much larger profit in this vicinity than it does where I live, to enable them to pay the expenses of the quantity of clerks sent to Boston and pay for space. I know of more than one dealer who will never make another exhibit and pay at the rate they did at the last Convention, where so few were present to examine their goods.

Yours truly,

A Veteran Stock Dealer.

Notes and News.

John W. Morrison, the well known photographic merchant, of Pittsburgh, Allegheny county, Pa., also Chief Clerk of the State House of Representatives, has been made Chief Clerk of the Republican State Committee.

THE DISCOVERY OF OXYGEN.—"Fixed air" and "combustible air" had been speculated upon, and "the air that is left after combustion" had attracted attention. But the phenomena of this kind, inconsistent as they were with the phlogistic theory, had not been sufficient to overthrow it. The first germ of Lavoisier's theory on these matters was embodied in a sealed packet which he deposited with the Academy in 1770. Recognizing that the calcination of metals could not take place without the access of air, and that the freer the access the more rapid the calcination, he "began to suspect," as he expresses himself, that some elastic fluid contained in the air was susceptible, under many circumstances, of fixing itself and combining with metals, and that to the addition of that substance were due calcination and the increase in weight of metals converted into calxes. From this thought came, after much groping with errroneous conclusions, the idea that air is a compound containing a a vital part and another part, and that it is the vital part that is absorbed. The behavior of charcoal when burning in oxygen pointed to the nature of that substance and to the true theory of combustion. This new vital substance, which, uniting with metals, formed calxes, and with other substances generated acids, he called oxygen or the acid-producer; the air that was left after combustion was azote, or lifeless. The inflammable air which, combining with oxygen, was found to form water, was called hydrogen.—*From a "Sketch of Lavoisier," in the Popular Science Monthly for August.*

PHOTOGRAPHS OF LIGHTNING.—At a meeting of the Physical Society of London held June 22, and reported in *Nature*, Mr. A. W. Clayden presented a note on some photographs of lightning, and of "black" electric sparks. The lightning photographs, three in number, were obtained during the storm on June 6. Two flashes, seen on one plate, show complicated and beautiful structure; one of them is a multiple flash, and flame-like appendages point upwards from every angle; the other is a broad ribbon, and, although the plate shows signs of movement, the displacement is not in a direction such as would produce a ribbon-like effect from a linear flash. The second plate shows four flashes, none of which are ribbon-like, though the camera had moved considerably. The third plate was exposed to six flashes, one of which was believed to pass down the middle of the plate; but, on development, only a triple flash in one corner of the plate was seen. Careful search, however, revealed the central flash as a dark one with a white core, and other dark flashes were subsequently found. The plate was very much over-exposed, and this suggested that black flashes might be due to a sort of cumulative action caused by the superposition of the glare from a white cloud upon the normal image of the flash. To test this, sparks from a Wimshurst machine were photographed, and, before development, the plates were exposed to diffused gaslight for a short time. The bright sparks yielded normal images with reversed margins, and the faint ones were completely reversed. Other experiments showed the reversal to spread inwards as the time of exposure to gaslight increased. Finally, reversal was effected by placing a white screen behind the spark, to represent a white cloud, the only illumination being that of the spark itself.

In the discussion which followed, Mr. W. N. Shaw exhibited a photograph taken during the same storm, which is particularly rich in dark flashes branching outwards from an intensely bright one. In some places the bright line has dark edges, and in one part a thin bright line runs along the middle of an otherwise dark portion of the flash. In answer to Mr. Inwards, Mr. Shaw said the plate was exposed about half a minute; and the former thought, that, under those conditions, the appearance of the plate did not contradict Mr. Clayden's hypothesis. Speaking of the same photograph, Prof. Perry considered that Mr. Clayden's observations would explain the result, for a bright flash required more exposure to diffused light to reverse it than a faint one did. Prof. Ramsay reminded the meeting that Prof. Stokes's "oxides of nitrogen" explanation was still a possible one; and Mr. C. V. Burton asked whether they may be due to faint sparks cutting off light from brightly illuminated clouds, just as a gas-flame absorbs light from a brighter source. In reply, Mr. Clayden thought the "oxides of nitrogen" hypothesis improbable, and said his experiments did not enable him to answer Mr. Burton's question. As regards Mr. Shaw's plate, he believed the diffused light from the clouds would be sufficient to reverse the fainter tributary flashes, although it was insufficient to reverse a primary one. From data obtained when the ribbon-flash was taken, he had made some calculations which gave the height of the clouds about 1,000 yards, and the ribbon-flash 1,300 yards long and 100 yards wide.—*Science.*

The Editorial Table.

TASCHEN NOTIZBUCH FUR AMATEUR PHOTOGRAPHEN. By Ludwig David and Charles Scolik. Second Edition. Published by Wilh. Knapp, Halle, A. S.

This note-book, which in its first edition has proved to be of great practical value to amateurs and professionals alike, appears now in much improved and enlarged form, and with the addition of much information for the practitioner. It comprises a fine selection of tables and approved recipes, negative registers with space for notes on about 500 exposures made, blank leaves for observations on camera, objective and shutter, directory of Austrian and German photographic societies and supply-houses.

The book, embellished with a lichtdruck portrait of Daguerre, is gotten up in convenient shape and elegant style of printing and binding.

The attention of all photographers familiar with the German language is called to this book.

THE *St. Louis Photographer* gave out a very handsome card printed in gilt letters at the Boston Convention. The card was made by the A. M. Collins Manufacturing Company, and stated that Mrs. Fitzgibbon Clark was publisher and W. H. H. Clark was editor of *The St. Louis and Canadian Photographer*.

FRED. HART WILSON has a very interesting and instructive article on "Photographic Accessories" in the August 3d issue of *Wilson's Photographic Magazine*. In it he says: "The accessory, therefore, should be carefully chosen and judiciously used. Let choice be guided by appropriateness, and in case of doubt, the most simple thing is apt to be the best. Plain folk are best treated plainly, and fine folk as well do not lose by a touch of the same quality." With this we heartily concur.

WE have received from Mr. Clarence W. Bowen, assistant publisher of the *Independent*, and an enthusiastic amateur photographer, a $6\frac{1}{2}$x$8\frac{1}{2}$ photograph of the Presidential group at Mr. Bowen's house in Woodstock, Conn. It shows President Harrison in the center of the group, and is a very good likeness of His Excellency. Good portraits are also given of several members of the Cabinet and some of the prominent speakers at Woodstock, July 4th. It was made with a Scovill amateur outfit Mr. Bowen tells us.

THE *American Amateur Photographer* proposes to make its December number an illustrated holiday issue. The subject selected for illustration is "Vacation Trips with the Camera," and three valuable prizes are offered for the best series of views accompanied by descriptive manuscript. As an encoragement to the younger amateurs, it offers the following special prizes for the three best series of landscape views without manuscript. Competitors for the junior prizes must not be over sixteen years of age, and all must be subscribers, of course, to *The American Amateur Photographer*. First prize—H. P. Robinson's works on photography (five volumes). Second prize—"Photographic Printing Methods" and "The Photographic Negative," by the Rev. W. H. Burbank; and "A Dictionary of Photography," by E. J. Wall. Third prize—"The Photographic Instructor," edited by W. I. Lincoln Adams; and Wall's "Dictionary of Photography."

Queries and Answers.

172 HUBERT MACY has heard that if an exposed dry plate was not immediately developed, intensity would increase, owing to the action of the gelatine upon the changed silver salt; and asks (1) if there is any proof of this theory. (2) He would also like to know if, after a plate has fogged with pyro, it is possible to wash it and continue development with hydrochinon, adding that he tried the experiment and got a very fair negative.

172 *Answer.*—We cannot endorse this theory. The action of light upon the sensitive plate produces probably a physical but not a chemical effect, and a reduction of the silver haloid cannot take place as a consequence. If, after the plate has stood a long time, an abnormal condition has really been observed—which, after all, is not proven—it may have been caused by moisture, frequent changes of temperature, or some other influence. (2) It can be, and is frequently done; but, of course, the changing of the developer does not remove the fog, but merely tends to increase the density, as, for example, when pyro potassa is followed by pyro soda, or hydrochinon, as in your case.

173 H. MEMPHIS says that the American Aristo paper "prints with exquisite clearness, and finishes with fine gloss;" but he complains that he cannot obtain the blue color on his prints, that is promised in the the directions, if the toning bath is acid. The printing develops a rich golden color. He also complains that the paper curls obstinately in the toning bath, and adds that he has been very careful to avoid hypo in the bath. He asks how to make a bath that will tone the paper black like the Lillian Russel picture in the "American Annual of Photography."

173 *Answer.*—The toning and fixing of American Aristotype paper requires, in the first place, the most scrupulous cleanliness in all operations. The curling of the paper, which occasionally occurs with all chloride of silver collodion paper, can be avoided by soaking the print for a few minutes in a weak solution of bicarbonate of soda, and thoroughly washing it afterwards, to remove all possible alkalinity. But small quantities of water, which should be tepid, should be used for each washing; the prints to be placed face downward.

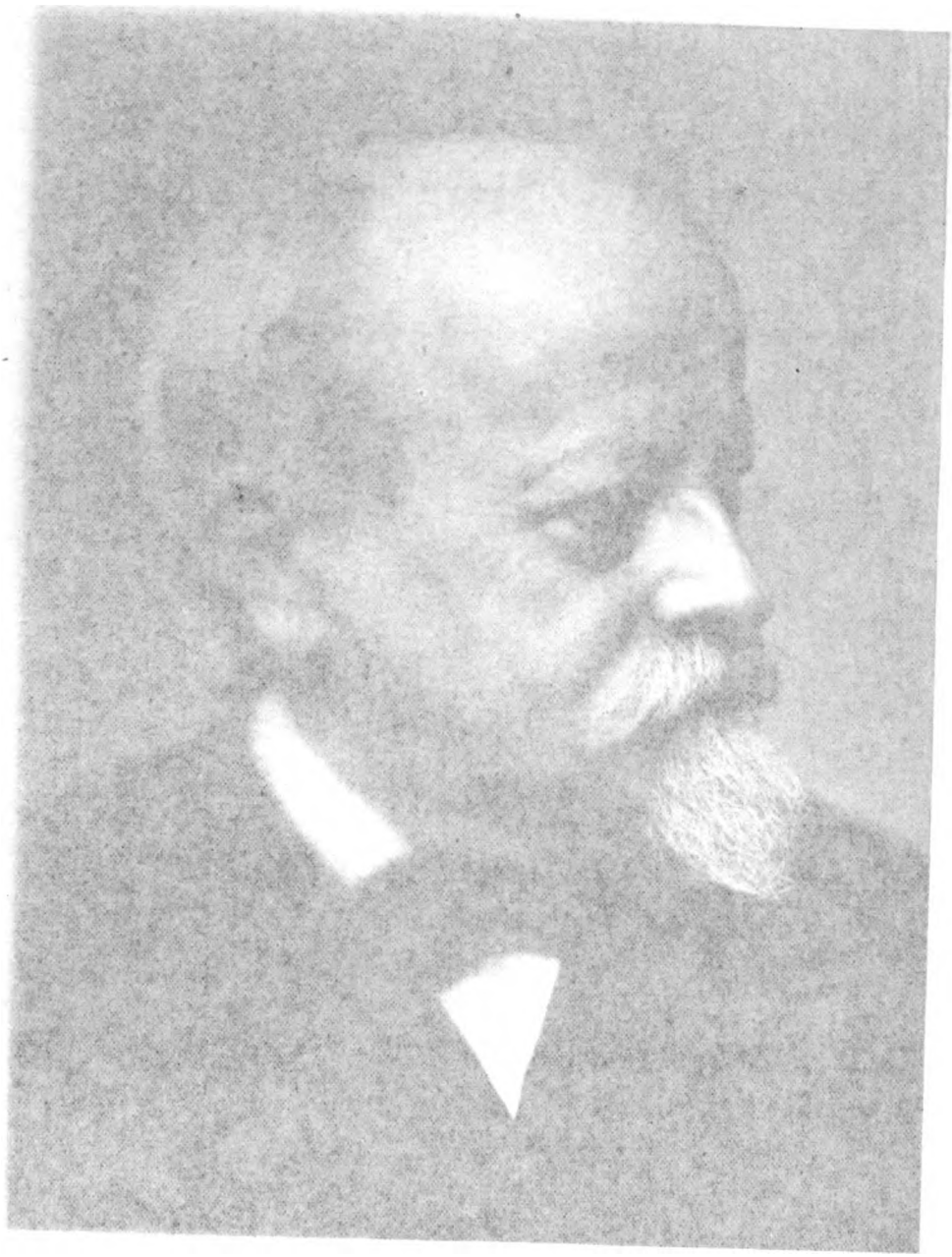
The toning bath formula accompanying each package of paper, works well, and is reliable. The picture of Lillian Russell in the "Almanac for 1889" was toned with it. But the bath should be made strictly according to the formula. It should be acid, but acid in excess prevents toning; and this is probably the cause of all your trouble. In from eight to twelve minutes you should be able to tone to the purest black.

The print need not be washed when the combined fixing and toning bath is used; but the process goes on much slower unless it is acidified. Prints toned thus cannot be guaranteed to be permanent. The tone obtained is more of sulphuration than of gold, and the print is likely to turn yellow.

PHOTOGRAVURE CO N.Y.

Chas. Ehrmann

PHOTOGRAPHIC TIMES.



THE PHOTOGRAPHIC TIMES.

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PROFESSOR EHRMANN.

It is appropriate at this time to present another portrait of our esteemed colleague to the readers of THE PHOTOGRAPHIC TIMES. A picture of Professor Ehrmann at work was published in the May (25th) issue of 1888, and at that time an extended biographical sketch of the subject was printed. We refer the interested reader, therefore, to that issue, for an account of Professor Ehrmann's useful and honorable career. Suffice it to say at present, that as Instructor of the Chautauqua School of Photography and Associate Editor of THE PHOTOGRAPHIC TIMES, he has continued his conscientious efforts in the cause of photography, without ceasing, and may look back upon many things accomplished, even during the year which has elapsed since we spoke of him in these columns. A short account of the School of Photography and the progress which it has made during the past year under Professor Ehrmann's instruction will be found in another place; also an extract from the interesting lecture which the Instructor read at Chautauqua on the Photographic Day.

The negative from which our photo-gravure was printed, one of the Professor's own students made under the sky-light of THE PHOTOGRAPHIC TIMES laboratory. Besides being an excellent likeness of the Professor, it is a worthy example of portraiture for the study of young and aspiring photographers.

THE PHOTOGRAPHIC DAY AT CHAUTAUQUA.

ANOTHER Photographic Day at Chautauqua has passed with credit to all concerned. The proceedings were conducted under the auspices of the Chautauqua School of Photography, of course, but nearly everyone on the grounds was interested in the photographic exercises of the day.

Thursday, August 22d, was the day set apart by the Chautauqua authorities for photography. The regular exercises were begun in the Children's Temple at ten o'clock, the opening address being delivered by the Right Rev. J. H. Vincent, Chancellor of the Chautauqua University. Bishop Vincent also announced the names of those who had won premiums, and presented the diplomas to the graduates of the class of 1888–89. The statistics of the school were then read, and seemed greatly to interest all present. Prof. Edward Spring read a paper which was also highly appreciated and Prof. Charles Ehrmann, the Instructor of the School, delivered his lecture on "Education in Photography." Following, we give an abstract of Prof. Ehrmann's lecture. We also print the prize essay by Thomas Odiorne, and other photographic matter relating to the Chautauqua School.

The Chautauqua prizes were awarded as follows: The 6½x8½ Gundlach Rapid Rectograph Lens, offered by the Gundlach Optical Co., for the best collection of landscapes or interiors printed on ready-sensitized albumen or aristo paper—Walter S. Waterbury, of Greenwich, Conn.; Judges—Frank Beard, Prof. Edward Spring and Prof. Knauft. "A Quarter Century in Photography," by Dr. Edward L. Wilson, offered by the author for the most correctly-answered questions in the regular examination—to Dr. Charles W. Schlieffarth, of St. Louis, Mo.; Judges—W. I. Lincoln Adams, Prof. Charles Ehrmann and W. H. Fuller.

The Scovill prize collection of photographic instruction books, offered by the editor of THE PHOTOGRAPHIC TIMES for the best essay on a practical photographic subject—to Thomas Odiorne, of Elizabeth, N. J.; the Judges—Dr. Edward L. Wilson, Prof. Charles Ehrmann and W. H. Fuller. "Naturalistic Photography," by Dr. P. H. Emerson, offered by the Instructor of the School for the best collection of group and genre photographs—to Miss M. S. Turner, of Cambridge, Mass.; the Judges—Miss Ella Switzer, Prof. E. Spring and Frank Beard.

CHAUTAUQUA NOTES.

In another column, we print the Prize Essay of the Chautauqua competition, on "The Utililization of Old Oxalate Developer," written by a student of the Chautauqua School of Photography of the class of 1888–89, Mr. Thomas H. Odiorne.

It will be remembered that several friends of the school offered premiums for competition by the students, early in the current year; among them, the editor of the PHOTOGRAPHIC TIMES, who presented the set of five books which had received a special bronze medal at the International Exhibition of Vienna in 1888, for the best essay on a photographic subject. The committee appointed by the school authorities have decided in favor of the paper by Mr. Odiorne.

The successful competitor is a student of Stevens Institute, an enthusiastic amateur photographer, and, since last September, a diligent member of the Chautauqua School. Mr. Odiorne comes from an old photographic family, his grandfather having been a member of the well-known firm of Rhen & Odiorne, of Philadelphia. The author of the Prize Essay derived his knowledge of photography not only by studious reading, outside of, and in the regular text books and organ of the school, which is expected of all Chautauquans, but he has also been an active worker in experimental and practical fields. He has now on exhibition, at the school head-quarters in Chautauqua, potassium ferric oxalate and neutral potassium oxalate recovered from old solutions, as described by him in his prize essay; also a fine collection of "timed" and instantaneous photographs which testify to his skill as a practical photographer.

Mr. Odiorne has our congratulations, and also the Chautauqua School of Photography, which has testified in this successful student what can be accomplished by taking advantage of the facilities which it offers.

THE prize offered by Edward L. Wilson, proprietor and editor of *Wilson's Photographic Magazine*, to the member of the Chautauqua School of Photography who should most correctly answer the examination questions propounded by the Instructor, has been awarded to Student No. 85, Dr. Charles W. Schlieffarth. As an example of Dr. Schliffarth's answers, we reprint the following. It may give some information to our less experienced readers:

Question.—How do you develop an instantaneously or under-exposed negative?

Answer.—Plates which we know to have been under-exposed or which show signs of it in the developer should be treated as follows:

Much under-exposed plates are quite difficult to save from being total failures, or to make negatives of good printing qualities of. If but very little light has acted upon the plate, and in some portions of it none at all, the plate had best be discarded altogether, because without light action no developer in the world is able to bring forth an image.

Not excessively under-exposed plates can, however, be saved by increasing the proportion of the alkaline solution of the developer, and repeated changes and modifications of the normal solutions, each individual one to suit exactly the state of the plate at that time. When starting as well as in continuing the development for some time, only very weak solutions should be employed. This may be done by simply diluting the normal developer with two or three times its bulk of water, and subjecting the plate to it for a long time, a half, even a whole hour. Or begin by flowing the plate with a much diluted alkaline solution, taking the regular Carbutt Developer No. 2 described in the Chautauqua Lesson VI. as a standard, add three drams of it to three ounces of water, and allow the plate to soak in it for three or four minutes. Then return the plate to the normal developer diluted with an equal bulk of water. When the image begins to appear, increase the strength of the solution gradually, and continue to do so, till all details have been brought out, and proper printing density has been obtained. Weak solutions used to the end of the operation would be productive of but weak and feeble negatives. If we attempt to force development by an excessive increase of alkali, dense fog will be the consequence, and the operation result in total failure.

Temperature has much influence in slowing or hastening development; cold retards, heat accelerates, we therefore use more alkali in winter time than in summer. The average temperature should be about 65 deg. F.

CHAUTAUQUA GRADUATES, 1888-89.

F. W. Remington, Kalamazoo, Mich.
Sam Irvine, Coshocton, O.
Dr. C. W. Schleiffarth, St. Louis, Mo.
H. M. Peake, Ellores, S. C.
F. C. Grimm, New York City.
Miss Mary Post, Old Westbury, N. Y.
Frank Rosengarden, Louisville, Ky.
Charles C. Hurlbut, Plainfield, N. J.
Harry F. Johnson, Buffalo, N. Y.
Ella E. White, Providence, R. I.
George H. Clarke, New York City.
H. Clyde Inslee, Newark, N. J.
C. M. Fowler, New York City.
Arion Putnam, New York City.
Thomas H. Odiorne, Elizabeth, N. J.
Walter S. Waterbury, Greenwich, Conn.
Douglass H. Thomas, Jr., Baltimore, Md.
Mrs. Hattie E. Buell, Buffalo, N. Y.
Miss M. S. Turner, Cambridge, Mass.
Fred. E. Keay, North Cambridge, Mass.
Miss Ann P. Boynton, Passadene, Cal.

A. B. Stevens, Ann Arbor, Mich.
Mrs. C. L. Pierce, Riverside, Conn.
A. C. Austin, Nashua, N. H.
Rev. Herbert Macy, St. Paul, Minn.

EDUCATION IN PHOTOGRAPHY.

PROF. EHRMANN'S paper on "Education in Photography," with special reference to the Chautauqua School of Photography, was very interesting, and commanded the closest attention of all present throughout the entire reading. As it is too long for publication, *in toto*, we make the following extracts from it for the readers of THE PHOTOGRAPHIC TIMES.

After speaking of the wonderful progress which photography has made during the past fifty years, the professor goes on to say how important it has now become to scientists in nearly every field of research, as well as to manufacturers, merchants and business men in general.

He deplores the lack of knowledge shown by the modern professional photographer and thinks the influence of the amateur in his more scientific study of the subject a good one on the professional. "Let us abandon the term professional and amateur," he says, "and if distinction must be made let us class them scientific, artistic, and technical."

"Scientific photography must remain within a limited circle; spectroscopes are not easily accessible, and but few can command an entrance into the observatories. Artistic and technical photography, however, is nearer to us, and it is here that all may make their efforts. To become proficient in this branch it is only necessary to practice diligently after becoming acquainted with the theories underlying the process by which our pictures are made. One must have some artistic training; at least a superficial knowledge of the anatomy of the human form and face, and a general knowledge of physics and experimental chemistry. Such instruction can be given in schools only."

Prof. Ehrmann expresses the hope that large institutions devoted entirely to instruction in photography, in its various branches, may be established in this country similar to one or two that have recently been started abroad. He takes it as an encouraging sign that so many colleges and higher institutions of learning have established classes of photography; but he thinks that this does not go far enough. The Chautauqua School of Photography comes nearest to supplying the want of anything now existing, but its capacity is limited, of course.

The professor advocates a school not for instruction the amateur alone, but for fitting young men and women for following photography as a profession. To be sure the Chautauqua School of Photography has turned out many students that have since become professionals and are doing well, but the instructor is not satisfied with even the great growth which his school has made, and disinterestedly looks forward to a greater service to photography in this country.

"After our first class was opened on these grounds in the summer of 1886," he says, "we proposed instructing the few students calling for admission in practical photography as a recreative study. We did prepare many students at that time for entering professional studios. The specimens of work displayed by students before you testify as to the work which has been accomplished since that time."

* * * * *

"The Chautauqua School of Photography is now beyond the experimental state. Eleven members of two classes are now the proprietors of professional establishments, and to a large number of others, engineers, artists, engravers, etc., the photographic knowledge which they obtained here has yielded them indispensable aid. The school in her unpretentious way has accomplished much more than our most sanguine friends expected, is steadily increasing in numbers, and offers greater advantages to the student every year.

"A post graduate course in the theories of photography, optics and chemistry will be opened after the class of the regular summer season. The system of instruction by correspondence has proved to be highly successful; scholars who have never handled a camera before entering the class and residing at a distance of thousands of miles exhibit exceptionally fine work as the result of their instruction.

"All who have received instruction on these beautiful grounds have become enthusiastic photographers, as you see. When we compare our modest but ever growing school with other growing institutions here and abroad, we are forced to pronounce in favor of our own. Our instructions are extended over the wide world; scholars in this school representing thirty-one States and Territories of the United States and Canada, beside the Continents of South America, Europe, and Asia."

THE UTILIZATION OF OLD OXALATE DEVELOPER.

[Prize Essay of the Chautauqua Competition.]

THE ferrous oxalate solution used for the developing of gelatine emulsion negatives, of prints on permanent bromide paper, transparencies, opals, and the production of various other photographs, consists in reality of a double salt of ferrous oxalate and potassium oxalate dissolved in water. Ferrous oxalate, if its preparation as a single salt is the object in view, can be easily formed by precipitating ferrous sulphate with an oxalate, generally the binoxalate of potassium. It is a yellow amorphous powder, insoluble in water, and as such it cannot be used as a developer. But when to neutral oxalate of potassium a certain amount of ferrous sulphate is added in small quantities at a time, a soluble oxalate of iron will form, or, perhaps better expressed, the above mentioned double salt, which is soluble, will result. If the iron salt is added in excess to that of potassium, the comparatively small amount of the latter is not capable of uniting with the former to a soluble salt, insoluble single ferrous oxalate is separated, causes a turbition of the solutions, from which ultimately the well-known sandy and yellow precipitate deposits. Excess of iron in the developer has misled many beginners in photography, and been the cause of discrediting one of the most effective reducing agents. Ferrous oxalate developer should be perfectly clear and transparent, and as photographic manuals say, be of a ruby color. From my own observations I am forced to say this description is anything but correct, and find the color to be much nearer to a dark orange than a ruby.

With freshly and correctly compounded ferrous oxalate, development proceeds energetically and uniformly, but when old, or after it has been used repeatedly, its developing force diminishes, and uniform results are out of the question. When the developer is exposed to air, oxygen is rapidly attracted: it is oxidized to a ferric salt. Ferric oxalate is not a developer, it is a restrainer, and under certain conditions will dissolve the metallic silver deposit on plate or print, caused by any of the known developing agents.

From old developer separates a very beautiful green, crystallized salt, which when mixed in certain proportions with hyposulphite of soda solution, or when the fixing agent has not been eliminated from the gelatine film, constitutes one of the most reliable media for the reducing of over-density of negative deposit or positive print, without changing gelatine or paper to a yellow color. This green salt is also a double oxalate, but its nature differs from that of the developer, it is potassium ferric oxalate.

If ferrous oxalate developer is allowed to stand for some time in an open vessel, the green crystals will form on its sides and bottom spontaneously, and may easily be separated from the solution, but when it becomes desirable to convert the whole amount of the solution into the ferric oxalate double salt, proceed as follows: Pour the solution into an evaporating dish or bowl and allow it to evaporate slowly in a slightly warmed, dark or dimly-lighted place. When dry add to the brown, powdery residue, about one-fifteenth of its weight of oxalic acid, and from four to six times its volume of water, boil for a few minutes till all is dissolved, and filter the green solution while still hot, pour into a flat dish, cover it with a sheet of paper and set it in a cool place over night. In the morning the bottom of the dish will be covered with crystals of potassium ferric oxalate. After removing the mother waters, wash the crystals, and dry them by slight heat between blotting-paper. The salt is sensitive to light and should be kept in the dark, or in well-protected bottles. Light reduces the ferric to the insoluble, yellow ferrous oxalate. After short exposure to direct sunlight the green crystals will cover with this substance in the form of a yellow powder.

It may be stated here, that the quantity of oxalic acid added to the brown, powdery residue is of somewhat greater importance than expressed by published formula. The proportions of acid prescribed has proved repeatedly to be far in excess, in which case free oxalic acid will crystalize simultaneously with the ferric salt. The usual test with litmus paper will indicate the amount of acid required.

There is another method to derive profit from old oxalate developers, the recovery of the oxalate of potassium. To do this first remove from the solution the green crystals that have formed spontaneously, and precipitate the iron contained in it by means of hydrated oxide of potassium (caustic potash). To find out whether by doing this the whole amount of iron present has gone down, take a small portion of this solution in a test tube and add more of the caustic potash. If the solution remains clear all the iron has been precipitated; if on the contrary a brown precipitate still ensues, more of the precipitant should be added. The solution is then to be poured off the sediment, carefully filtered, and oxalic acid added until it becomes perfectly neutral. After being evaporated to crystalization point the dish is set aside to cool.

The resulting crystals are neutral oxalate of potassium.

A third way of utilizing old ferrous oxalate, is to restore its former, original activity. Pour the solution into spacious and open bottles of thin, white glass, add to one pint about half an ounce of tartaric acid and expose to sunlight for several days. Through the action of light the ferric salt in the solution is reduced to the ferrous state, and the developer becomes energetic enough for ordinary work, especially for the reproduction of line engravings, when fine middle tints are not to be produced.

Ferrous oxalate that has been used repeatedly and has for some time been exposed to air, and has become partially oxidized, is an excellent restrainer for the energetic freshly prepared solution. It gives better results in tone and details, than ferrous oxalate made with a minimum of iron, or the universally employed bromide of potassium.

Thomas H. Odiorne.

A PRACTICAL TALK TO PHOTOGRAPHERS.

[Delivered at the Boston Convention of the P. A. of A.]

Now what I want to do is this—I want to give you a little hint, not how to make money, but how to keep money. There are a great many photographers who are very eager to make it. They are very careful to save every scrap of paper waste, and yet they throw seventy-five per cent. of all their waste away thinking that the most of their waste, or the value of it, lies in the paper clippings only. When you silver a sheet of albumen, let me ask you what portion of that paper goes upon the card? The greater part of it. It is only a small portion of the trimmings around the outside that do not. And, to my astonishment, I have found photographer after photographer who did not stop to think that all the paper that went upon the cards, all the paper that was mounted upon the cards contain silver. They wash it out, put it through a hypo solution and throw it all away. Others attempt to save it, and, for lack of knowledge, do not save it. Now I have said that each one chooses his own vocation in life for the purpose of making money. Now, if you set out in a certain direction in life to earn a livelihood, whatever that direction may be; if you are a photographer, be the best photographer that you possibly can. If you are an attorney at law, be the best pleader at the bar that you can possibly be, and do the very best for your client. If you are a farmer, study to be the most skillful farmer. And just so in everything, even down to the common laborer. Study to be the very best and to give the very best satisfaction. Now to be good photographers requires knowledge. There has been a great advance in photography since the art was discovered, since the first picture was taken upon a metallic plate fifty years ago. And I have thought that if there could be an exhibit of every photographer's work from the beginning of his business, back years ago, placed side by side and put in year after year among the exhibitions in the hall, we would have a chance to see what an advance has been made. Yet it has been stated here to-day by Mr. Bogardus that you are descending, going down hill. In some respects that is true, but as far as the work of photographers is concerned, they are making advances every year. And now in the years to come, if photography is to make a rapid progress, you ought to begin to educate those who enter into the study of the art, in the study of chemistry. How many of you photographers, if I was to call upon you to-night to hold up your hands, could say that you are chemists, even in the branch in which you are engaged? I know that to say that a man is a chemist, is to use a broad term, for chemistry is a broad study; it covers the whole creation of God. It reaches from the bowels of the earth to the most distant star. The growth of man is a chemical process. The growth of a tree is a chemical process. And when you will show me a man who is a perfect chemist and who has a knowledge of chemistry to its utmost bounds, I will show you a God. But every man may understand chemistry and be proficient in it in the branch in which he is engaged.

And now I want to talk a little of the chemistry of the metals which it is necessary for a photographer to understand, even in the saving of his waste. God has stored all the material that is necessary to enter into the photographic art, in the earth and in the sun-beams. And now to be a good photographer, to understand the art, you want to know how to put a harness upon these agencies so that you may handle them to perfection.

There are others who perhaps want to say something here to-night, so I will enter at once upon the saving of waste, without any more preliminary remarks. You might think, perhaps, that it was unnecessary to say anything regarding paper waste. Almost anybody can save that. They can throw it aside in a box, or bag, or any place they choose to save it. But yet it is necessary to give a few additional hints about saving paper waste. A great many get the idea that it doesn't make any difference, as long as it has got to pass through a refining

process; they think everything can go on with it, all the trash and all the dirt that is swept from the floor can go into the same box. That is a grand mistake. It is mixing up a great deal of foreign matter, and it increases the cost of refining, and thus lessens your returns. Therefore, keep the paper waste just as clean and just as free from all foreign matter, and from anything that has no silver in it, as you can possibly keep it. Others get the idea that blotters are very rich. Sometimes they are. I have had blotters that would yield an ounce of metallic silver to a pound. I have had those that were not worth ten cents a pound. And I receive more blotters to-day that are not worth fifteen cents a pound than I do that are worth more than that. Photographers ask why a blotter cannot contain more silver than albumen paper. Now, many times, if you take it according to the surface, the same surface upon the blotter as upon the albumen, you will find more silver in the blotter than in the albumen. But when you put them in the scales, and put in enough albumen paper to balance your blotters, you have got nowhere near the per cent of silver in the blotters, by the pound, that you have in the albumen. We will take the habits of two different photographers. We will say that I am called, for instance, to illustrate two different galleries. The two photographers have the same general habits, except that one believes this, and the other does not. The other has ten pounds of albumen scraps. The other has exactly ten pounds both silver of the same strength. One has five pounds of blotters. Now in that fifteen pounds of waste, five of blotters and ten of scraps, he has no more silver than the other photographer who had ten pounds of scraps alone. And yet he would be astonished if he found that his neighbor got just as large returns as he. It has taken fifteen pounds to distribute the same amount of silver that the other man had distributed through his ten pounds. This is enough, perhaps, upon paper waste.

Take the washings. Some throw them entirely away. They will attempt to save them, but not succeed. They will save the first washings and the second, and some of them will save the third. When they come to putting in the reagent, salt is a proper thing to use under some circumstances, but I do not consider it proper in print washings. Salt is a reagent. It is a proper agent to throw down the old bath. Print washings are so exceedingly weak that it is almost like taking a grain and putting it in an ocean of water. When you get it so exceedingly weak as it will be in print washings, where water after water is added, and the chloride is not sufficient to settle it, it stands milky for a long time. I advise putting the print washings and the hypo-fixing solution together. A great many get the idea that it is all in the print washings. They make a mistake, more lies in hypo than in the print washings. Now, if you understand chemistry properly you know that chloride of silver is not soluble in water, but is soluble in hypo-sulphite of soda, soluble in ammonia, and in cyanide of potassium. If you put them together, you increase the strength of the solution. Then use sulphuret of potassium. Now, as to the amount to use; if you should ask me how much to use, I should say, "Give me the exact amount of nitrate of silver that you have in the barrel, and I will tell you exactly how much of the reagent to use." You will say, of course, that you cannot do this. You have to get at it by experience. If you have a barrel full the better way is to precipitate it as it is added, day by day, adding a little of the reagent. Dissolve your sulphuret of potassium and keep it well corrected. For instance, supposing you have a pint bottle full of it, and you have a barrel half full of the solution; pour in, for instance, a teacupful. Stir it up. It will all turn black. It forms the sulphite of silver. Then it clears up and the photographer thinks his silver is all down. To illustrate this, suppose we take two ounces of nitrate of silver and dissolve it in water. Now, we will use salt. We will put in just enough to precipitate one ounce, and we shall have changed one ounce of the nitrate of silver solution into chloride of silver. The rest remains perfectly clear. Many photographers will decant that and throw the other away. The right way is, when it clears up, to drop in a drop or two of the reagent, and so work on carefully. In the use of salt, be careful not to use an excess, as the chloride of silver is to some extent soluble in an excess of the reagent.

Regarding developer waste, it is not necessary to say much about that. There are hardly any galleries at the present time where there is any developer waste to speak of. There is no developing in the dry plate; the dry plate developer is not worth anything. There is no silver that goes to waste in developing the dry plate. But in case anyone should have any developer, I will say that I know one refiner in the West in one of the western cities who says in one of his advertising circulars that after you have precipitated your solution of hypo and washings, mixed as I have been telling you, if it does not clear up exactly, put in a solution of sulphite of iron. That man does not understand chemistry or he is trying to mislead. Sulphide of iron is formed which will look just like

sulphide of silver to one who is not accustomed to it, so that he would not be able to tell the difference between the two. Therefore, you have a large per cent. of sulphide of iron mixed with the sulphide of silver. In this case if you have iron in your hypo, and you precipitate with sulphuret of potassium, just as long as that iron is in there you will be forming a precipitate again. So you do not want to add any iron where you use sulphuret of potash. In regard to the clearing up of solutions, many complain because their hypo, when they use sulphuret, has color upon it. That color may be due to a great many causes. The barrel may have been used before. It may have been used for saving silver, so that the staves have taken something that gives color to the solution and it will continue to do so as long as you use the barrel. But there is this to say about that color; when you have precipitated your silver with sulphuret of potash and it clears up but still has color, you want to dip out a little into a clear glass or bottle or anything that you can look through. Now into this drop one, two, three, or four drops, and then watch for the effect. Now, if it barely makes a color, and there is no precipitate, no substance gathered, nothing that trickles down to the bottom, no sediment that goes to the bottom, then no matter about the color, pay no attention to it. But if you have silver there it will go trickling down in little small particles of the sulphite of silver. . So test your solutions by dropping in a drop or two of the sulphuret that you use, and in a little while you will be able to tell, by your own experience, how much you want to use to precipitate the barrel. Now, sometimes, in adding sulphuret, instead of turning black it will turn white. That is due to different causes. If there is acid present in your hypo which is not neutralized by your hypo, the sulphuret neutralizes it, and that liberates the sulphur from the sulphuret.

In which case you would have some of that white milky streak and still get a precipitation. But if you get a precipitation and then continue to add the reagent, as soon as you begin to have that white milky appearance, that shows that you are now getting an excess of the reagent, and that is due to the liberation of sulphur. A great many object to the use of sulphuret of potash. It is the most powerful reagent used, and if you will use it right in the hands of experienced men there will be no difficulty. Let some one man take care of it. Do not let it be the duty of Mr. A, B and C to attend to it. See that it is attended to properly and there will be no trouble. It should be one man's business, and it should be a man who has studied the business, just as much as the man who does your posing has studied that, just as much as the man who does your manipulating has studied that. The saving of waste in a gallery is a science, and you want to begin to train even yourself or some of your help in that science. Let them have sufficient knowledge of chemistry to know the result of this and that. Now, the old barrels, many times after they have been used for a long time and have been standing full of this silver waste without being precipitated, sometimes contain a great deal of silver. I have obtained as high as $25 or $30 dollars from barrel staves. And I have had them not worth a cent. It is better to keep the toning solutions separate and precipitate them with the sulphate of iron. Always acidify them. It is well to use sulphuric acid, just enough to acidify it, and that is all, and then your gold will go down. Test it in the same way as silver with sulphuret of potash. If it clears up drop in a little, and if there is no dark color your gold is all down.

With regard to emulsion, I do not know whether it is of any use to talk to photographers regarding that. They do not have enough to make it any object to bother with it. And as far as the dry-plate manufacturers are concerned, they have very thorough knowledge of it now. I am refining it for all of the leading dry-plate men in the country, as Mr. Cramer can testify. But I might say regarding the bromide of silver, to destroy your gelatine, if you want to precipitate it into a bromide, either use concentrated potash, concentrated lye in sufficient quantity, and boil the solution until it is thoroughly cooked, when, in due time it will all settle and become perfectly limpid, and as clear as water; or you can precipitate it by heating and using sulphuric acid or hydrochloric acid in sufficient amount to destroy the gelatine, and the bromide of silver will settle.

Now, regarding the nitrate of silver, I want to give you something that you will remember and carry with you. I want to give you some tests for the purity of nitrate of silver. A great many photographers, if they get hold of a new brand of silver and get in any bad luck, are sure to locate it upon the silver. I want to show you how far imagination will go. A photographer in Cooperstown, N. Y., had occasion to go to a drug store to get some nitrate of silver. He purchased four ounces; it was my own manufacture of silver. It had gone into the drug store there from a wholesale drug store in New York. He knew nothing of the make of the silver and objected to it some, but the clerk assured him it was all right, as he

was very familiar with the silver. The photographer took the silver, tried it, brought it back and said he could not use it. He said, "Give me Powers' and Wetman's." The clerk took down another bottle of my own manufacture and gave it to him. The next time he met him, he asked him for a report of it, and he said it was all right, that the silver was just what it ought to be. It was the same brand exactly, manufactured by the same man.

In the city of San Francisco, I found the photographers prejudiced in this way. They will use no man's make of silver but Mr. Rosencranze's, of Philadelphia. He makes excellent silver, Powers and Wetman make good silver, and I could name some others. You can use the silver of any reliable manufacturer. You can use it all. But when something gets to going wrong do not lay it to the silver.

Now I will warrant my silver to be chemically pure. I warrant it in this way, that you take the original crystal. When you get a new brand, save back a little of the original crystal. Then, if you have bad luck do not go to falling upon the solution you have made, do not put that into the hands of a chemist who will report it wrong because there was something wrong in the water or the dish. But when you take the original crystal, I will guarantee it chemically pure. After you have dissolved it, I would not warrant it at all. Powers and Wetman once told me that they had a saucy letter from a photographer who condemned their silver. They wrote back to him that their silver was all right; but he thought he knew better than they did. After a while, they got a letter of apology from him, stating that he had been analyzing and had discovered that he had hypo in the water. Now I do not warrant my silver mixed with hypo or cyanide of potassium. Now silver comes in contact with a great many different things that would apset the whole thing. It may be in the dish. It may be in the water. It may be in the atmosphere. It may be in the atmospheric conditions of your room. Your coal stove may leak gas which comes in contact with the silver. You know what an affinity silver has for sulphur. Take a piece of metallic silver, as bright as silver can be, and put it in your pocket and put matches in the same pocket, and it will become black. Put it in your pocket without matches, and, in warm weather, the sulphur of the body will turn it black. Silver will be turned black by the perspiration of the body. I used to manufacture sulphuretted hydrogen, and if it got onto dishes that had not been washed from nitrate of silver it would be as black as your hat. Let a room be full of turpentine fumes and you will get, to a great extent, the same effect. You want to study so that you may know what these causes are, and never fall upon the silver. It is not one time in a hundred that you can locate it upon the silver. Sometimes there may be something upon the surface of the albumen paper. The condition of that may be such that it works badly.

Now for the test. I was going to give you a test for testing the purity of silver. Many times people mistrust that it is adulterated with nitrate of potash. And it is one of the greatest wonders that, with the present prices of silver it is not largely adulterated with some foreign nitrates; when silver has to be manufactured for less than a cent an ounce above the cost of manufacture. But if there should be any of these foreign nitrates in the silver, such as nitrate of potash, of soda, or of ammonia, the test for that would be what I will give you, one which any photographer could very well go through with without any trouble. Take just a few grains of the silver, very fine, break them up fine and make a little pile upon filter paper half an inch long or so. Roll that piece of filter paper over it, and begin to twist it. Twist it all up as hard as you can without breaking the paper, and then touch a match to the end of that piece of paper, and the burning of that piece of paper will metallize that silver. It decomposes it, and throws off the nitrogen, and you have a pure wire of metalic silver. Blow the ashes from the paper all off from that piece of silver, and put it in your mouth. If nitrate of potash is there, you will detect it very quickly. If the silver is pure, there will be nothing but the pure metal, and there will be no more effect than there would be in putting a clean ten cent piece in your mouth. You may get a caustic, burning taste, which will be due to the nitrate of silver. But if it is thoroughly changed you will have no disagreeable taste. But if there is nitrate of potash there, you will observe it very quickly. This does not burn up. It is fusible, so it would be upon the surface of the silver; and you will detect it by the taste.

M. E. Ames.

OUR CHAUTAUQUA LETTER.

THE increased working facilities granted to us by the Assembly at the beginning of this year, now prove to be scarcely adequate for the increasing demands made upon the school. The erection of a building solely devoted for photographic school purposes, will sooner or later become a necessity; it is so already. Although we occupy

two large rooms, beside the two spacious laboratories, we are still crowded constantly, not only by visitors inspecting the productions of the school, but by the many students themselves. It is true the developing room can be occupied by four to six workers at one time, and a separate place has been assigned to printing, there are still so many desirous of working that the subdivisions and groups of scholars formed for general accomodation and the comfort of the individual must be frequently broken up, to suit special demands. There is no room for the proposed free lectures, and the colloquies held, can be arranged only when no other work is to be done. When we take into account that owing to the irregular school hours, unavoidable, because so many of the young photographers are during a great part of the day engaged in other studies, it will be understood that our practical work occupies all hours of the day. Lectures and theoretical instruction can at present be given only in the evenings.

As heretofore, we move again principally in the circle of practical work. General landscaping and printing on albumen and cyanotype paper is followed by all, but to instantaneous exposures and their development more attention is paid than ever before. A great variety of instantaneously working instruments are now on the grounds, from the Kodak and the Waterbury, to the marvelously constructed and more costly Scovill detective, not to talk of others of similar make and imitation of these. Many of the scholars have their own apparatus, and one has the opportunity to examine and work with cameras and lenses coming from all parts of the world. This is very instructive to the instructor.

We have made so. far a good many bromide prints. This method of printing will hold its own notwithstanding the platinum printing, a process we cannot very well follow here. Reproduction photography is in great demand, and one or two of the scholars are devotees to the stereogramme, while all are anxious to learn how to make lantern slides. These we have made with good results upon Carbutt A plates, developed with S. P. C. hydrochinon in two solutions.

For the botanical specimens I spoke of in my last letter, and also with flowers and fruit photographs, we resort to the Carbutt orthochromatic plate, because our plate-drying arrangements are not exactly what they should be. We have excellent success with these plates, it is a pleasure to work with them, and their high reputation is sustained by our experience in the class-room.

Chautauqua is the land of excursions. Every school or class arranges, during the session, one or more of them, for mere pleasure sometimes, but oftener for scientific purposes. The geologist seeks curious rock formations, the microscopist goes out boating to drag the lake for specimens, the botanist rambles through forest and field to collect rare plants, and the photographers are on the lookout for picturesque scenery.

A large number of our class went last week by rowboat to Prendergast Bay, an inlet of the lake, and returned with a rich harvest of beautiful water and forest views, many of them taken instantaneously. For next week an outing has been planned to Hog's-back Ravine, a romantic spot on the Lake Erie slope of the Chautauqua Hills.

Charles Ehrmann,
Instructor, Chautauqua School of Photography.

CHAUTAUQUA ASSEMBLY GROUNDS,
August 5, 1889.

Correspondence.

ONE MORE.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir: Having read with considerable interest the wonderful formulas for developing dry plates with pyro, hydrochinon and hydroxylamine, and being struck with the ingenuity displayed by the mass of writers to make things as complicated as possible, I thought I would write about the developer I am using regularly every day—being a professional picture taker it is to my advantage to work as simply as possible.

I have tried all of the above developers, as well as ferrous oxalate, and unhesitatingly say that the last named is in my hands the best, and very much the best. I think the reason that the ferrous oxalate is used so little is, that it is not made acid enough. At first, when I used it I used very little acid of any kind, and what I did use simply turned litmus paper slightly red, the resultant negative being foggy in the shadows—even when short-timed—and lacking modeling and delicacy in the light parts of the face. I used more acid, and found the faults above named were in a measure corrected.

After experimenting a great deal, I find the following in my hands gives the best results:

STOCK SOLUTIONS.

No. 1.

Nitric acid (C. P.).....1 ounce
Water.....7 ounces

No. 2.

Protosulphate of iron.....3 pounds
Double sulphate of iron and ammonia....1 pound

Make a saturated solution in water of the above (No. 2), but before adding make it (the water) acid with No. 1—for every thirty-two ounces of water add about half an ounce, then put it into the iron.

No. 3.

Oxalate of potash in water sufficient to make a saturated solution.

DEVELOPER MIXED FOR USE.

No. 1.....1 ounce
No. 2.....2 ounces
No. 3.....9 ounces

The reason I don't make the oxalate of potash acid—not only with nitric or any other acid—is, that I find it has a very strong tendency to get back to the neutral point, still the developer mixed for use will keep good for five or six hours or a little longer. I find I can do nothing with a negative much under exposed, but can do something with an over timed one by using old developer, and I also find that when I start developing a plate with old developer and see that it develops too slowly, by simply washing it thoroughly and using all new developer it develops just the same as though no retarding agent had been used at all; in fact, I have started developing a plate with twenty per cent. of bromide of potassium in developer three or four days old, even after the plate had been in this a considerable time; I let the plate develop about half what it ought to have been. I then took it out, washed it well in water, put it in new developer, and the result was just the same as though I had not used any bromide or old developer at all.

Hoping this may help amateurs to make better work, I am yours truly,

R. D. Richardson.

BROOKLYN, L. I., August 6, 1889.

Notes and News.

CHAUTAUQUA SCHOOL OF PHOTOGRAPHY.—The Chautauqua School of photography, under direction of Dr. Chas. Ehrmann of THE PHOTOGRAPHIC TIMES, of New York, opened its fourth course of practical instructions, on July 2nd, and is now in full operation. As heretofore is the instructor surrounded by all the modern means of producing light pictures with the aid of chemical process, and every opportunity is given to the beginner and tyro in the art-science, not only to learn how to manipulate and to operate, but photo-chemical processes are also explained to the young scholars, and chemistry and optics taught as far as needed.

The school is divided into three branches, ten corresponding classes, whose members are instructed by printed lessons, the reading of prescribed standard books, and as the name implies, by correspondence with the instructor, the practising class now open on the grounds, and the local class at New York, where the headquarters of the school are located. The aggregate number of students of the three classes has been, in the school year 1888–1889, over 150, among whom are nine residents of foreign countries. The present practising class has its rooms and laboratories in the rear of the Post-office and opposite the Children's Temple. They have been much enlarged in comparison with those of former years, and owing to the constantly increasing number of students the facilities to work are in proportion to accommodate large classes.

A very interesting display of student's work adorns the walls, the most numerous exhibited being numbers of the corresponding class. Generous friends of the school have offered valuable premiums to the best collection of landscapes or interiors, to the foremost in answering the examination questions, and also for an essay on a photo-chemical subject.

The specimens exhibited testify to the progress made by the school within the short time of its existence, and to the diligence and patience of the instructor. Many of the exhibits are of high artistic merit, and technically correct execution.

The practising class instructs in the methods of making negatives by tinned and instantaneous exposure, all the popular printing processes, photographic theories, and chemistry and optics, as far as circumstances will permit.

The school is open daily, every morning and afternoon, and visitors are cordially invited to witness instruction, and to inspect the exhibited specimens.—*The Chautauqua Assembly Herald.*

THE MIXED ALUM AND HYPO BATH.—The mixed alum and hypo bath is prepared by adding to one quart of the ordinary fixing solution from half to two quarts of a saturated solution of alum. The mixture turns at once quite turbid, and should not be put to use before the main reaction is over, and the solution appears to be tolerably clear. As long as alum and hyposulphite of soda react upon each other, the solution cannot be clear, because of the constant separation of sulphur and alum hydroxid.

$$Al_2(SO_4)_3 + 3H_2O + 2Na_2S_2O_3 = Al_2(OH)_6 + S_2 + 3SO_2 + 3Na_2SO_4.$$

According to the formula sulphur dioxid, which clears the plate, is also liberated. The hyposulphite of sodium is oxydized to sulphate of sodium, and finally the property of the bath to fix ceases.

Such fixing baths fix ordinarily but slowly, and thus prevent blistering and frilling, but one of their disadvantages is the turbid appearance they give to the negative, which, to say the least, makes them look bad. The deposit formed may, however, be wiped off with a soft sponge or with chamois leather.

Continued studies on the properties of fixing baths for gelatine emulsion plates' have led to trying a neutralization of the acid reacting alum bath, with soda and ammonia before mixing it with the hypo, as a preventation to any separation. When alum is neutralized, so called neutral alum (basic alum) is formed, but it has no effect different from the other. Other results give the addition of sodium sulphite. When a saturated solution of sodium sulphite is added to a saturated solution of alum, a precipitate occurs, which is again soluble in the solution, By adding more and more of it, a point is finally reached when the precipitate does not dissolve any longer. With this reaction the odor of sulphur dioxide is perceptible.

If then, one volume of such a solution is mixed with an equal volume of the fixing bath, turbidity will not occur.

Further experiments have shown it to be unnecessary to proceed with the addition of sodium sulphite to the alum to the above-mentioned point. One quart of saturated alum solution with from seven to eleven ounces of saturated sulphite solution, is a good proportion for the mixed fixing bath.

The solution will remain perfectly clear for about two weeks in open as well as in closed vessels. The solution suffers no alteration if the amount of sulphite of soda solution is reduced to three and a half ounces. It remains

clear, but is not quite as durable as when prepared by the former formula. The bath has all the advantages of the ordinary mixed alum and hypo fixing solution, without any of its faults.—*Prof. A. Lainer in Correspondensen.*

CONCERNING THE LIGHTING OF THE SITTER.—The proper method of illumination of the face for portraiture may depend a good deal on the peculiar taste of the operator, and upon the particular demands of the sitter, but one thing is certain, there are current some very bad methods of illumination, which ought not to be tolerated for an instant.

Good taste, if not inbred, no doubt is acquired by a study of the work of the celebrated portrait painters, but it will not always do to follow the painters if we have any regard for our credit with the public as first-class photographers.

It may be better at times to repress our artistic aspirations, and to follow the prosaic injunctions of a few definite rules of illumination, as set forth by practical men.

There are not many worthy books on the subject of practical illumination, because the practical men are not apt to exhaust their energies in a flow of ink, but some valuable hints may be gleaned from the text-books and photographic periodicals—enough anyhow to stimulate to individual endeavor to find out something for one's self—which self-acquired information is the best of all.

Let us be practical. Suppose we take an ordinary billiard ball, and so place it that the illumination comes from above; what appearance will the photographs of it present? Not at all the representation of a perfect sphere, but of a sperical body flattened at the poles. That is, to the eye, but if we actually measure the impression we shall find that the contour of the ball is a perfect circle.

The camera has faithfally drawn the image as it actually is. Its appearance is an optical deception. Now let us admit the light in from the side only, and we have another optical delusion. The ball is depressed sidewise.

The state of things, or rather the optical appearance of things, is quite different if we illuminate the ball with a full front light. We have a perfect circle, but the condition of the sphericity is gone. The ball is flat, and seems to be compressed front and back.

Let us subject our billiard ball to the influence of several sources of light at once, and what is the result? A perfect representation of sphericity. What were the lights we employed? An upper, a side, and a front light at the same time, duly regulated.

The highest light on the object will be at a place directly opposite the point where the three lights combine. From this point the gradations go off in opposite directions by imperceptible degrees until lost in the dark shadows.

Now let us substitute for our billiard ball another kind of ball, the human head, but we must remember from the start that we cannot treat our human head exactly the same way as we do ivory spheres. In portraiture the task is not so much the rendering of the relations of form, as the subordination of parts to the creation of an agreeable expression in the countenance.

We shall be obliged to deviate from our set method of illumination. The light must not be allowed to fall directly from above upon the head, inasmuch as thereby we would have the projecting forehead casting the eyes in shadow, and we must modify the front light, moderating its force so as to present the due relation of the features, which are like so many depressions and elevations, and must have their shadows so cast as not to transform a beautiful face into something harsh and featureless. The front light must be soft and diffuse.

Now let us turn to the direct upper light, or rather let us turn the direct light so that it is shut off behind the sitter, and converted into a front upper light. The side light must be allowed to have a little dominancy over the others because it is needful in rounding up the countenance and giving contrast to the shadowed side. The angle at which the head should receive the strongest light cannot be definitely fixed, as some say, at 45 deg.; yet it should not deviate very far from this angle.

Enough has been said in connection with our talk about the billiard ball to show that it is possible to deceive by adopting certain methods of illumination—that is, to make things look somewhat different from what they are. Now this facility of deception allowed by photography may be made an effectual means for gratifying the whims,—no, let us say the taste, of our patrons.

It is common failing of hnmanity, quite laudable, to desire to look better in their pictures than they actually know they are, and we must gratify this demand if we have any regard for personal reputation as artists. Really people are not always to blame because they are displeased with the result the photographer furnishes them as a counterfeit presentment of their image. He cannot be excused before a fair tribunal when he pleads that he gives only what actually exists. This may be true, but he has no right to emphasize, let alone exaggerate, personal defects. His function as an artist is to tone down the irregularities—to make less apparent these flaws in nature.

An operator who thoroughly understands the principles of his art takes advantage of the felicities of proper illumination, and employs them to good purpose in obviating defects, in making his patrons happy and his exchequer full.

How easily is a beautiful face transformed into a block of ugliness by the simple intensiying of the front light. The cheeks beneath the eyes are sunken, the bridge of the nose seems much broader, the eyes and mouth are too sharply defined, and project from the face, In vain all your retoucher's arts to make a thing of beauty out of this Frankenstein.

The case is as bad with injudicious application of the other lights. Unless the fact is demonstrated no one will believe that the contours are the same in a badly illumined as in a properly illumined face, and that it is only the shadows which are in fault. The picture produced in the strong side-light gives an elongated head to the sitter, a pug nose, a depressed mouth, close-set eyes, low forehead, pointed chin, swollen cheeks. The picture in a strong upper fore-light gives a broad forehead, high cheek bones, hollow cheeks, flat nose, large mouth, and a broad, turned-up chin.

It is plain to see that the operator must make a diagnosis of every case that comes to his gallery. He must determine upon the remedies for your great-mouthed, your flat-nosed, your hollowed-cheeked humanities.

For patients having low foreheads, projecting eyes, and decided jaw bones, draw down the side curtains, and shut off a good deal of the light from that source, so that the upper light may predominate.

A full, fleshy countenance needs a shielding off of both

side and upper lights, but there is danger in this method, as there is a likelihood of destroying the modulations of the face. As we said at the beginning of this article, we cannot always follow the artist in illumination.

Grace of form and harmony of color often mask the incongruity arising from almost impossible methods of lighting the figure, but there are many portrait painters whom we may follow with good purpose. The moderns seem to take more care in studying illumination. Perhaps photography has given them a few lessons.—*J. B., in the American Journal of Photography.*

"A DICTIONARY OF PHOTOGRAPHY," as the name implies, is a compendium of the terms employed in that art, with the latest definitions and information to be had on the subject. The author, Mr. E. J. Wall, has done his work well. The book is neatly and conveniently gotten up, the definitions are to the point, clear and easily understood. As a book for ready reference it is invaluable, and with "THE PHOTOGRAPHIC INSTRUCTOR," should be in the possession of every amateur who is desirous of perfecting himself in the art, and of keeping abreast with the progress that is continually being made in the art. [The Scovill & Adams Company, New York.]—*Outing.*

THE INSTANTANEOUS PHOTOGRAPHER.

HE's the sort of person I rate as an embryonic pirate as he ever seems to gyrate
From the mountain to the sea;
He's the bane of timid lovers, as for days he near them hovers, till their presence he discovers,
Then he laughs in ghoulish glee.

For he thinks it very funny, watching them extracting honey, lip from lip, and ere they're done he
Snaps the shutter on the pair;
This the object of his ruse is, and the kiss he reproduces, although it no earthly use is,
As he doubtless is aware.

And you never can evade him; to reform, you can't persuade him, till in the grave they've laid him,
Underneath the willow trees;
But you'll find him with his small ways, on the street or in the hallways, like a kleptomaniac, always
Taking everything he sees.

If you threaten to expose him you are foolish, for it shows him you're afraid of him, which throws him
Into fits of scornful laughter;
Thus his shamelessness he shows, you're quick to realize he knows you're bound to silence, for exposure
Is the very thing he's after.

Though it may be long delayed, he will some time meet the lady he will love, but I'm afraid he
Will have reason to be sad.
If she feels towards him as I did, when as neighbors we resided, he'll receive the most decided
Negative he ever had.

F. H. Curtiss,
In the New York Sun.

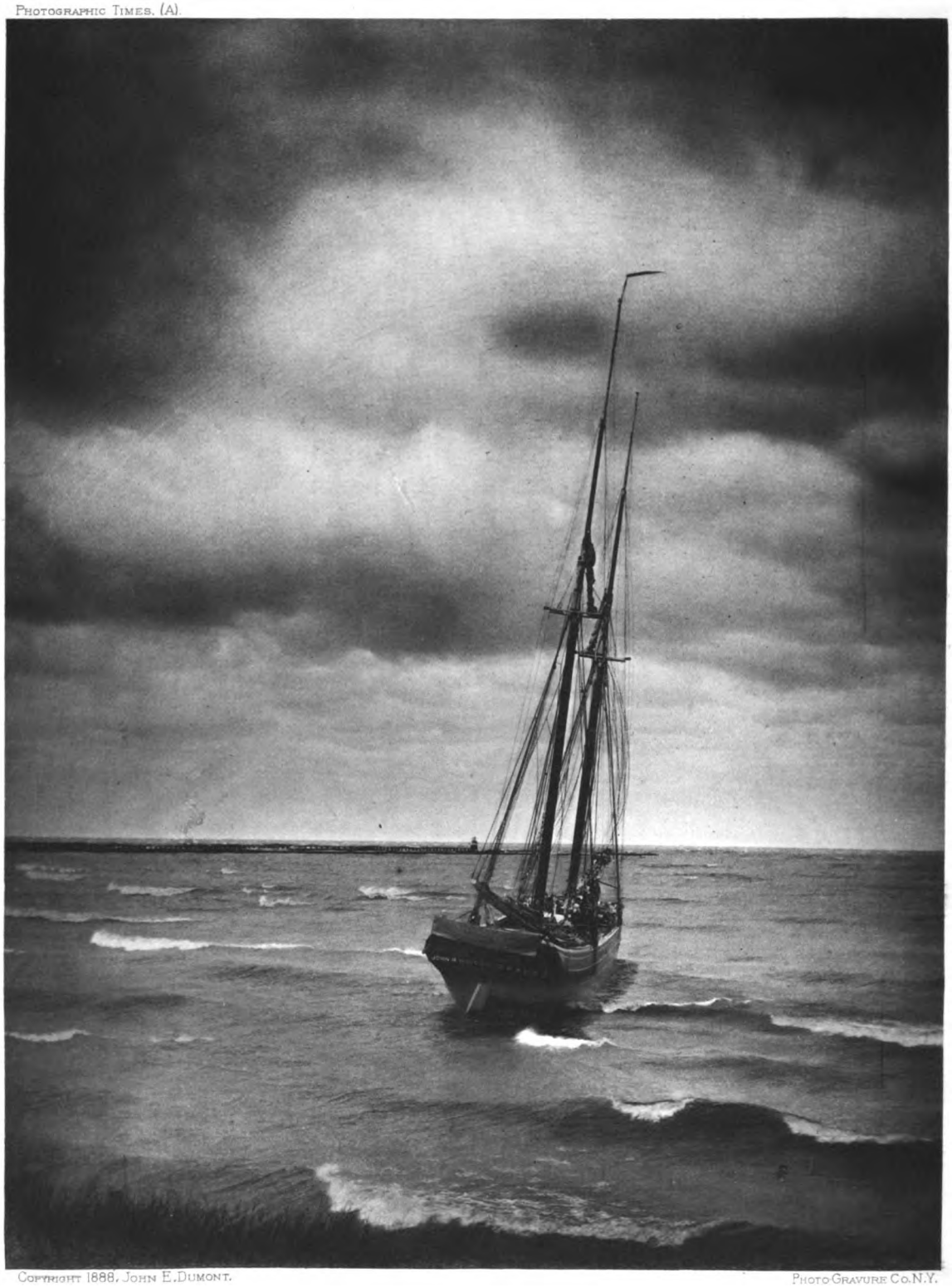
Queries and Answers.

174 W. H. GARDNER says that he has made up two silver baths for ferrotypes, and cannot get them to work with any certainty. Sometimes these show a muddy or sandy scum on the edges and in spots on the plates. This can be brushed away to a great extent, but the addition of nitric acid to the bath does not remedy it.

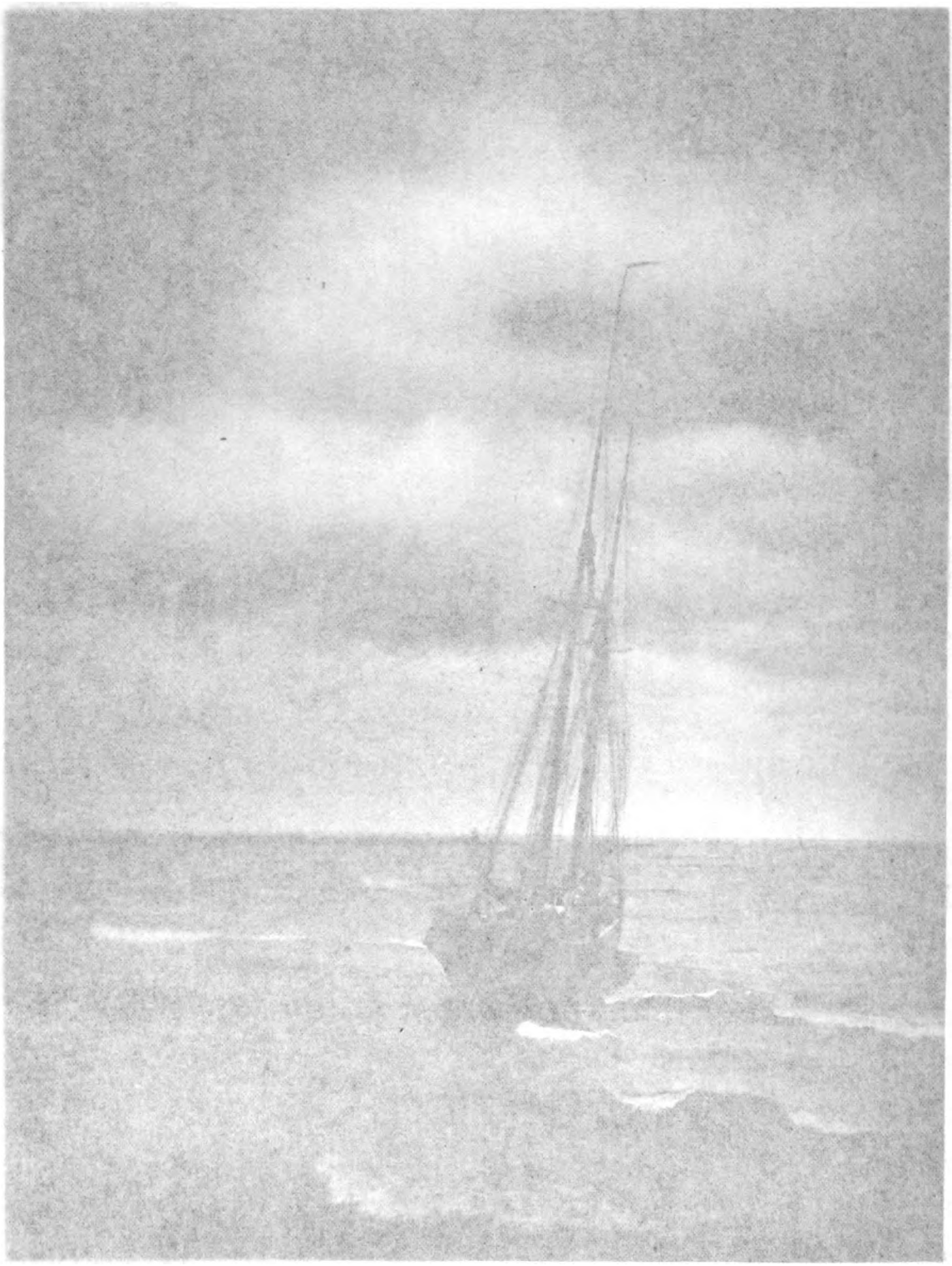
174 *Answer*—We advise preparing the silver bath according to the rules laid down in "The Ferrotypers' Guide (published by The Scovill & Adams Company), and using the ferrotype collodion prepared and sold by the same firm. Fog may be caused either by a want of acid or an access of it. Litmus paper will redden only after an immersion of thirty seconds. Be sure your nitric acid is pure, a trace of hydrochloric acid will produce fog and also the deposit you speak of. If the bath be surcharged with iodide of silver, the result will be the same. An important fact that you seem to have overlooked altogether, is the cleanliness of the plate. There is dirt between the plate and collodion film on both the pictures you send. Wash the plates in a weak soda solution, rinse them with pure water, dry, rub them with a little flour and a soft rag, and before coating, dust them off well. Try some of the Scovill plates; and by no means neglect to study "The Ferrotypers' Guide."

175 JAMES M. F. asks the following questions: (1) How long does the print want to soak in the gelatine solution before being put on to the glass? (2) Does the gelatine solution want to be kept warm while the prints are soaking in it, and how warm? (3) Do the prints want to be taken from the gelatine solution and put on the glass at once? (4) Does it make any difference if the print has been allowed to dry before being put into the gelatine solution? (5) How long should I wait after coating the glass with collodion before I put the print on, or how hard does the collodion want to set? (6) Can the gelatine solution be saved and used over again after getting cold? (7) How thick does the glass want to be coated with the collodion? (8) How hard does the print want to be squeegeed on to the glass. It is impossible to put the print on by squeegeeing hard or light but what there will be little spots that show by looking at the face of the print from the other side of the glass, and these spots are dull spots on the face of the print when done. (9) What makes the print stick to the glass in places?

175 *Answer.*—(1) Until it is limp and pliable. (2) Certainly. (3) Drain off the surplus of the solution. (4) None whatever, but soak it first in water. (5) Until the film tears, on that corner of the plate from which the collodion has run off, when touched by the finger. (6) To preserve it, add a few drops of carbolic acid. (7) That is difficult to describe. There is a peculiar knack in coating a collodion plate correctly. Coat quickly and evenly, and there will no difficulty. (8.) When the coated glass, and the print, after it comes from the gelatine solution, are of equal temperature, and when the print is thoroughly soaked, and has not too much gelatine adhering to it, all air can be expelled from between the print and the collodion film. In order not to injure the mass of the paper, lay a piece of stout paper over the back of the print; you can then squeegee with greater force. (9) Unclean glass is probably the cause of your trouble.



STRANDED.



THE
PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, SEPTEMBER 6, 1889. No. 416.

"STRANDED."

SEVERAL months ago there appeared in *Sun and Shade* a photogravure entitled, "After the Storm," which deservedly attracted a wide-spread attention. It was from a negative by John E. Dumont, and though not in the line of work which we are accustomed to see from his gifted camera, was, nevertheless, quite as artistic as his well-known figure compositions, and at once became as popular as they.

"Stranded" was made the same day, while the storm was still raging, and, in our opinion, is a superior production to its companion. Mr. Dumont writes: "'Stranded' is the picture of a Lake schooner that was driven on the beach during a heavy gale, while trying to enter the port of Charlotte. * * * She was full of water, and was pounding hard, the crew having been just taken off by the life-saving crew. I tried to hire some of the crew to be drawn out over the water, so that I could photograph them in the buoy, but none of them cared to risk their lives for my amusement. The wind was blowing so hard that I had to have a friend hang on to the tripod to keep my camera from blowing over. The clouds were very black, and occasionally a wave would strike the light-house (shown in the distance), and the spray would dash entirely over it."

How well the dark-green tone selected by Mr. Edwards, for printing the photogravure, harmonizes with the spirit of the subject. As we look on this picture, we are reminded of Longfellow's verses in "The Wreck of the Hesperus"—

> "The breakers were right beneath her bows,
> She drifted a dreary wreck,
> And a whooping billow swept her crew
> Like icicles from her deck.
>
> "She struck where the white and fleecy waves
> Looked soft as carded wool,
> But the cruel rocks, they gored her side
> Like the horns of an angry bull.

PHOTOGRAPHING FOLIAGE.

THIS is the season of the year when the greatest charm of a landscape consists in its foliage. Many bits of natural scenes are worthy of photographic reproduction, at this time, simply for the beauty of their vegetation.

It has been suggested that landscapes may best be photographed in the early spring, when the leaves are small and delicate, and before they have obtained the luxuriance which distinguishes them at this season of the year. Photographs of early spring foliage have their peculiar charm, of course, and with scenes in which particular buildings are located, of which portraits are desired, it is better to make them before the foliage has greatly advanced; but a picture of foliage in all its glory, can only be obtained later in the season.

June is an excellent month in which to make photographs of foliage, for then the leafage is as fresh as in early spring, yet more beautiful in its profuseness. At this season of the year, and later, when the leaves are turning, the foliage possesses peculiar charms, and make landscapes quite as beautiful as the early spring scenes, if proper care is used in the work.

Of course, color-sensitive plates must be used, and erythrosine, which is particularly sensitive to green and yellow, is the best color-sensitizer for this purpose. Any plates may be prepared with it, by the method frequently described in these columns, or the excellent orthochromatic plates of Carbutt may be procured, already prepared for the photographing. On such plates, the color values and delicate shades of foliage are brought out in beautiful harmony.

The early morning hours is a good time to photograph foliage pictures, for then it is generally quiet, the light summer winds which later arise, as yet leaving every leaf undisturbed. At this time, too, comparatively long exposures may be given, the light being weak; and, owing to the absence of strong shadows, greater harmony and finer detail can be secured in the photograph.

In strongly-illuminated landscapes, foliage is generally reproduced in masses that are too dark, and the finer detail is lost. The lighting is an important matter in this kind of work, and should be as evenly distributed over the entire scene, as possible.

Development should proceed slowly and evenly, and the print may be toned variously, in order to reproduce as near as possible the general tone of the original view.

ON THE DEVELOPMENT OF GELATINE PAPER

Of the wonderful triple star, the haloids of silver, iodide, bromide and chloride, which for more than half a century has sent its rays over the entire world, promoting the progress of all arts and sciences, the first is to us of the greatest importance. It is so, because through iodide of silver the first phenomena of the latent image were revealed to us. Chloride of silver had been known to be a light-sensitive substance, as early as the end of the last century, and the photo-chemical properties of bromide of silver, through which photography has gained a point never anticipated then, has been investigated in more recent times, and has been considered to be a sort of connecting link between the other two, because it can receive visible light impressions like the latter, and invisible ones like the former. More recent investigations have shown how all the three can be subjected to photographic development, although the chloride of silver is not well adapted for the direct production of photographic negatives.

Attempts have often been made to explain, by various theories, the process of developing the latent image; still, but little has been clearly proven. It is probably beyond all human knowledge to fully understand the mysterious working of chemical forces. We have learned much of its effects; the cause will remain inexplicable.

According to prevailing theories, two kinds of development are known—the physical and the chemical. The "wet" negative process is governed by the former, although dry plates [not emulsion] are capable of being developed with it. It has been accepted with the physical development, that the light-impressed and invisibly-altered particles [molecules] of iodide of silver, attract finely divided silver from the silver nitrate present, and through the action of the developing agent, iron protosulphate, or pyrogallol and acetic acid, form the photographic image. With this kind of development we have nothing to do at present, although formerly we occasionally developed positives from iodide of silver films, a process which, with the addition of bromide, has been employed for making enlargements, but has never been used in photographic practice to any great extent.

The action of chemical development is entirely different. There must be no free nitrate of silver present, and the silver haloid must be in the form of an emulsion, from which all by-products of soluble salts have been removed by careful washing, whether the carrier of the silver haloid be collodion or gelatine. It is here that alkaline developer, whose action is impossible in the physical development, comes into play. An alkaline solution of pyrogallol absorbs oxygen with much rapidity; and on account of this property Justus von Liebig has employed it in his eudiometric experiments, to ascertain the amount of oxygen in the air. Upon chloride and bromide of silver emulsion it acts as a reducer, and is induced to do so by the decomposition of water, which is always present. The atoms of the silver haloid have been disturbed by previous light action, a formation of sub-bromide and sub-chloride of silver, respectively, predisposes to make the latent image visible; the developer continues the action, and brings forth an image. [With printed-out chloride of silver pictures, all this is done by the light rays alone.] The bromine or chlorine liberated during the process, unites with the alkali of the developer that is present, and thus limits its action.

It is quite immaterial to the photo-chemical process of developing the latent image, whether the support of the emulsion be glass or paper; the explanation holds good in either case, and as well for positive as negative, so long as they have been produced by the development of chloride or bromide of silver emulsion, previously acted upon by light. It is of great importance, however, to the photographic process, whether the vehicle of the emulsion be collodion or gelatine. In this article, we will consider the gelatine only. Let it suffice to mention that collodion is far more indifferent to the chemical process of development than is gelatine, and for that reason the sensitiveness of a gelatine emulsion much exceeds that of a collodion emulsion.

Emulsified chloride of silver is more difficult to develop than bromide of silver exposed for the same length of time, but will develop more readily with the presence of an alkaline bromide, by which the chloride is transformed to bromide; an experiment made by Doctor Eder, but of very little value in practical work.

Before we pass over to the bromide emulsion let us consider the developable chloride of silver paper, an article just now very much demanded in practice. Chloride of silver cannot be developed physically with acid pyrogallol and the presence of nitrate of silver like iodide or bromide of silver, but must be developed chemically with alkaline pyro or ferrous oxalate, and when the haloid is emulsified with gelatine or collodion. I have worked with chloride of silver gelatine paper procured from a variety of makers. Their developing formulae are virtually all alike, or nearly so. Ferrous oxalate has the general preference; hydrochinon and soda proved to be an excellent developer, but is rarely mentioned.

With the ferrous oxalate developer, it is of the highest importance to have the potassium oxalate in quantities five or six times greater than that of the ferrous sulphate, to prevent a possible separation of ferrous oxalate from the solution. Gross errors frequently occur in published formulae, the proportions being, for example, 3:1. From such a solution, a voluminous precipitate will be deposited upon the bottom of the developing tray and upon the paper too.

Acetic acid and citric acid have been recommended for the purpose of removing the adhering iron solution from the paper, before fixing. Oxalic acid will probably do it more effectually. To develop clear and brilliant pictures, any organic acid, like acetic, citric, or tartaric, added to the oxalate solution, is very beneficial. A trace of bromide has the same effect.

It seems to be an absolute necessity to solidify the gelatine film in an alum bath, after developing, to avoid injuring the extremely delicate stratum, in the fixing bath. When large editions are to be printed by this process, injuries to the film may occur, which will demand spotting or retouching, at the sacrifice of much time. A very convenient way to use alum is to tone developed chloride of silver prints in the combined fixing and toning bath containing alum. Toning is easier with it than with single gold solutions. The composition of the combined bath being well known to every one, I mention merely its main ingredients, without the quantities, with which a certain latitude is always allowed. They are: sodium hyposulphite (the fixing agent), sodium acetate in combination with ammonium or potassium sulpho-cyanate; and for the purpose of toning, a little of gold-chloride. A freshly prepared bath does not tone well, but will do so with the addition of some chloride of silver in substance, or soaked scraps of untoned chloride of silver prints. Without such addition, the prints will suffer.

The tone of a developed chloride of silver print depends less upon the gold bath than upon the time of exposure and the duration of the development. Short exposures and long development result in black tones, not changeable in the gold bath; longer exposures and a limited development yield fine purples, a color which becomes still more intense in the combined fixing and toning bath. Toned prints, squeegeed under water upon an ebonite or ferrotype plate, when stripped from it, and dried, have a fine gloss, not quite so strong as that of a printed-out chloride of silver gelatine print.

While chloride of silver gelatine paper may be exposed in daylight; the far more sensitive bromide paper requires an artificial light source of known intensity. For this reason, the bromide of silver paper is so much preferred for making enlargements. As an enthusiastic admirer of hydrochinon, I use it for this paper also.

All developed paper pictures possess the objectionable quality of sinking into the mass of the paper, appearing more brilliant when viewed by transmitted, than by reflected light. This is particularly the case with bromide paper, whether the paper has been prepared with emulsion, or the silver bromide has been generated by the "wet" method, and within the paper mass. In the latter case, the effect is certainly most pronounced. This is no disadvantage to paper negatives, but it is decidedly a disadvantage with positives. Manufacturers of these papers should furnish them with a substratum of gelatine, to prevent the picture from sinking in, and to keep it upon the surface in all possible vigor and brilliancy.

The Eastman paper is thus made. It possesses especial advantage, in regard to tones, when developed with hydrochinon. The addition of bromide to the developer is also of great benefit; greater or smaller quantities of it—according to the exposure given—regulate the development, and result in pictures of brilliant and clear high lights.

With bromide paper, the time of exposure is of still greater importance than with chloride paper. A few trials, and a constant light source will indicate how long to expose. Freshly prepared hydrochinon developer should not be used with bromide paper but should be modified with an old developer, even when of a decided brown color.

I oppose the washing of paper or plate previous to developing; it retards, and the first action of the developer is much diminished in force. Without previous washing, it is, indeed, difficult to develop

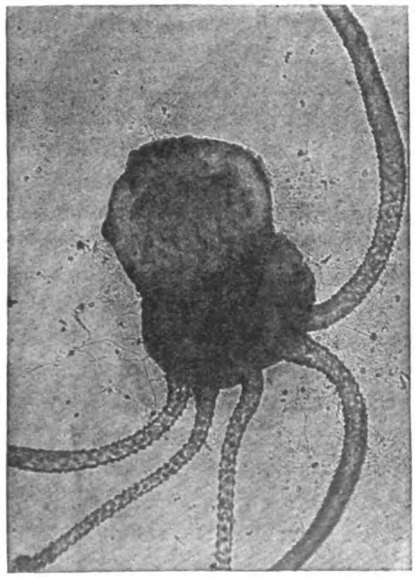
paper of large dimensions, with fresh solutions, and to regulate the process. Then, a slight soaking of the gelatine in water, is permissible, but the water [distilled, of course,] must be carefully removed before developing begins.

Bromide of silver prints of undesirable color, can be toned a warmer shade by the well-known bath of uranium, nitrate and ferri-cyanide of potassium.

Julius Schnauss.

ABOUT HYDRA.

To the student of biology there is no more interesting form than the fresh-water zoophyte *Hydra*, and its study is easy from the fact that it may be found attached to the underside of the aquatic plants in every wayside pond. It is the prototype of the octopus, which, by the medium of Victor Hugo's vivid imagination, figures as the devil fish in "The Toilers of the Sea;" and, like Hugo's devil fish, its deadly tentacles draw to themselves every living thing coming within their reach.



The specimen herewith illustrated is magnified to sixty times the original size, and the photograph was from the living animal with a *very quick* exposure, but not quick enough to prevent a slight movement of the swaying tentacles showing in the negative. For the purpose of taking his photograph the *Hydra* was carefully detached from the sides of a piece of twig in the aquarium where he had comfortably established himself for the purpose of making a dinner on the numerous Tubifex which had been placed in the water as his companions. After loosing his hold on the twig, a dipping tube easily furnished a way of transferring him, along with minute filaments of algæ also growing attached to the twig, to a life-cage. Here the pressure was so regulated as to leave him free to move at will, and, by use of a beam of direct sunlight as the illuminating medium, the excellent photographic portrait here shown was obtained at the first trial.

Hydra is decidedly a curious creature. By way of variety he occasionally turns himself wrong side out, and the process of taking and digesting food goes on quite as readily after the operation as before. Ordinary reproduction is either by budding or by ova. In budding, a young *Hydra* develops from the side of the parent, and it is no unusual sight to see three generations all attached. In reproduction by ova, sperm-cells are thrown off, sink to the bottom, and finally hatch a new individual. The most extraordinary reproduction, however, is by division. They may be cut either lengthwise or across, and the severed parts will each grow to a new individual without apparently suffering any inconvenience. If a tentacle is lopped off, not only a new one grows in its place on the original animal, but the tentacle, not to be behind in the race, also develops into a new and complete *Hydra*. This multiplication by division has been carried, in actual experiment, to the extent of producing thirty or forty new animals from a single individual, each one possessing all the characteristics of the original, and capable of farther multiplying either by budding, by ova, or by dissection with the knife.

The process of division by dissection is easily performed by any person possessing an ordinary penknife and a hand magnifier of low power, and as the *Hydra* has some size, an expert can easily cut them to pieces without the use of a magnifying glass.

Hydra may attach itself at will to the bodies with which it comes in contact by a sucking apparatus at the posterior end. The tentacles are hollow and furnished with cup-like stinging organs, from which it is claimed that a poison is exuded that benumbs and kills the prey instantly on being touched, and from experiments undertaken to determine the nature of this poison it has been inferred that *Hydra* secretes formic acid, but this is not yet fully proven.

Hydra has no special apparatus answering to the sense-organs, circulatory and respiratory systems of more highly organized animals. Its food is grasped by the tentacles and conveyed to the mouth in the middle of the base of the tentacles, and the dross is cast out through the same opening as that which the food entered.

If one has a small microscope *Hydra* may easily furnish abundant material for several weeks study.

Extended accounts, suitable for popular study, may be found in (1) Huxley and Martin's Practical Biology, and (2) in Cooke's Pond and Ditches.

George W. Rafter.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.

(*Continued from page* 384.)

Silver Iodate.

Formula, $AgIO_3$. Combining weight, 283.

Prepared by adding potassium iodate to silver nitrate.

Silver Iodide.

Formula, AgI. Combining weight, 235.

Silver iodide is very rare as a mineral, but it is readily prepared by adding potassium iodide to a solution of a silver salt. In the daguerreotype process, it is prepared by the direct combination of its elements, a plate of silver being exposed to the vapor of iodine.

$$Ag + I \qquad AgI$$

Silver combines with Iodine *to form* Silver Iodide.

Unlike silver bromide and chloride, the iodide is insoluble in ammonia, which, however, turns it white; its normal color being yellow. When heated, the yellow color deepens. Pure silver iodide is not affected by light, but in the presence of a little silver nitrate, or any other iodine absorbent, the silver iodide darkens, becoming first brown, and then grayish-black.

Silver Nitrate.

Formula, $AgNO_3$. Combining weight, 170.

Silver nitrate can be made by dissolving silver in an equal weight of nitric acid, adding water and evaporating the solution, when the salt appears as colorless crystals, having a specific gravity of $4\frac{1}{3}$. They are soluble in half their weight in water, the solution being neutral. Silver nitrate is known in surgery as *lunar caustic*, and is used to destroy proud flesh, etc. It is very poisonous. Pure silver nitrate is not affected by light unless organic matter be present, when it speedily darkens.

Silver nitrate is very largely used in photography, and it is fortunate that it can be purchased at a price but little exceeding the value of the silver which it contains. The reason of this is that the salt is produced, as a bye product, in the separation of gold from silver by the refiners. But very cheap silver nitrate is almost certain to contain impurities—such as copper, and organic matter—whose presence would spoil the salt for photographic purposes. To remedy this the suspected crystals should be dissolved in distilled water, and the liquid evaporated. The *re-crystallized* salt will be pure.

Enormous quantities of silver nitrate are used in the manufacture of our modern gelatine dry-plates. The great English makers of these dry-plates usually buy the silver nitrate in quantities of ten thousand ounces at a time, at the rate of half-a-crown per ounce.

To find the exact amount (without calculation) of silver nitrate required to combine with the soluble bromide which is added to it to make an emulsion, Mr. W. Ackland has invented a very useful form of slide-rule (sold by Wood, 74 Cheapside, London).

Silver Nitrite.

Formula, $AgNO_2$. Combining weight, 154.

Silver nitrite is best obtained by mixing equal parts of strong warm solutions of silver nitrate and potassium nitrite. The salt produced is a white crystalline powder difficultly soluble in cold water, soluble in hot water, with partial decomposition. By a moderate heat it is decomposed into silver, silver nitrate and nitric oxide. $AgNo_2$ has been added to the silver nitrate bath used in the wet-collodion process with advantage as regards increased sensitiveness and density of the wet-plate, but with disadvantage as regards the production of fog.

Silver Oxide.

Formula, Ag_2O. Combining weight, 232.

Silver oxide may be prepared by adding potassium hydrate to silver nitrate. It is a brownish-black powder, one part of which dissolves in three thousand parts of water, the solution being alkaline. Silver oxide should be kept in water in an opaque bottle. Treatment with strong ammonia converts it into *fulminating silver*, a highly explosive substance.

Silver oxide is used in the collodion process to neutralize a too acid bath of silver nitrate. It has also been employed to separate copper oxide from silver nitrate.

Silver Phosphate.

Formula, Ag_3PO_4. Combining weight, 419.

This substance is thrown down as a yellow powder when silver nitrate is added to any normal alkaline phosphate. It is insoluble in water, but dissolves in nitric acid and in ammonia. It blackens when exposed to light, and becomes red when heated.

Silver Sodium-hyposulphite.

Formula, $AgNaS_2O_3+2H_2O$. Combining weight, 243+36=279.

This salt, more properly called silver sodium-thiosulphate—can be prepared by adding an excess of a neutral solution of silver nitrate to a solution of hyposulphite of soda, when it appears as a brown precipitate. It is but slightly soluble in water.

If, on the contrary, an excess of a solution of hyposulphite of soda be added to a solution of silver nitrate or chloride, no precipitate will be produced, for a compound of silver and sodium will then be formed which is very soluble in water. Its formula is $Ag_2Na_4(S_2O_3)_3$. This is the salt which is, or ought to be, formed in all fixing operations, whether of negatives or prints. Any given quantity of hyposulphite of soda is able to dissolve about one-third of its weight of silver chloride. If less of the hypo be employed, the *insoluble* double salt will be formed, and will appear as small crystals on the surface of the paper or glass.

Silver Sulphate.

Formula, Ag_2SO_4. Combining weight, 312.

Prepared by dissolving silver in hot strong sulphuric acid, or by dissolving silver nitrate or carbonate in dilute sulphuric acid. Silver sulphate forms small lustrous crystals which dissolve in two hundred parts of cold or sixty-eight parts of hot water. The addition of a little sulphuric or nitric acid to the water much increases the solubility.

Silver Sulphide.

Formula, Ag_2S. Combining weight, 248.

This compound, formerly known as sulphuret of silver, occurs as a mineral called *silver glance*. It can be made by fusing together silver and sulphur, and is precipitated as a black powder when sulphuretted hydrogen is passed into solutions of silver salts. It is insoluble in water and ammonia, but soluble, with decomposition, in nitric acid, by which it is converted into sulphate and nitrate of silver.

W. Jerome Harrison.

(*To be continued.*)

EIKONOGEN FORMULAS.

I.

For Separate Solutions.

A

1.—Sulphite of soda..... 4 ounces
Distilled water .....60 ounces
Dissolve.

Add
Eikonogen..... 2 ounces

B

Carbonate of soda (crystals)..... 8 ounces
Distilled water..... .....20 ounces
Dissolve.

Mix 3 parts of A with 1 part of B.

While developing add 6 to 8 drops of a solution of 1 part hyposulphite, 6 parts sodium bromide and 70 parts distilled water.

II.

For Ready Prepared Solutions.

Sulphite of soda..... 4 ounces
Carbonate of soda (crystals)..... 8 ounces
Distilled water.....80 ounces
Dissolve cold.

Add
Eikonogen..... 1 ounce

While developing add 6 to 8 drops of a solution of 1 part hyposulphite, 6 parts sodium bromide and 70 parts distilled water.

III.

Solution for Plates taken very quickly.

Sulphite of soda..... 2 ounces
Carbonate of potash..... 1 ounce
Distilled water.....80 ounces
Dissolve cold.

Add
Eikonogen..... 1 ounce

While developing add 6 to 8 drops of a solution of 1 part hyposulphite, 6 parts sodium bromide and 70 parts distilled water.

For Solutions I. and II. one-half to three-quarters of the exposure allowed for pyro and hydrochinon is sufficient.

For longer exposures dilute with half the quantity of water, or add sodium bromide.

Do not take potash except for Solution III., and avoid the use of ammonia.

Do not put acid in any of the solutions, and do not use metallic sulphite.

Instead of distilled water rain-water can be used, or well-water which has been clarified by soda (35 grains to 35 ounces of water).

The sulphite of soda must be in an absolutely perfect condition.

Preliminary Bath.

Hyposulphite of soda.....1 grain
Water.....5 ounces
Solution (1+100) of bichloride of mercury..... 1 drop

Bathe the plate in this solution for one minute, and then proceed to develop without washing the plate.

Alum Bath.

After developing, the plates are, as usual, washed for a little while, and then placed for one minute

in a solution of alum (1+20 parts), which can be used many times.

FIXING BATH.

Hyposulphite of soda..... ....10 ounces
Distilled water.....55 ounces

C. B. Richard & Co.

FREE NITRATE OF SILVER IN CYANINE EMULSIONS.

IN my experiments to photograph the ultra red rays, an addition of free nitrate of silver to a cyanine emulsion was found not only to increase the general sensitiveness of the plate, but to produce also a greater susceptibility for red and yellow rays. A few drops of silver solution added to a washed emulsion that has been dyed with cyanine, showed much higher maxima in red and yellow than a pure cyanine emulsion.

Plates bathed in aqua ammonia (4 per cent. NH_3) for from one to two minutes heightened the sensitiveness for all colors, but particularly so that for yellow. The plates used for the experiment were unfortunately not of the usual good quality; they clouded and fogged, worked, however, better by reducing the amount of ammonia, but with the weaker bath the yellow sensitiveness was proportionately diminished.

The experiment teaches conclusively that the color sensitiveness of cyanine emulsion is materially influenced by nitrate of silver, although that for yellow, particularly, is not increased so much as to offer decided advantages in practical photography. Emulsion dyed plates bathed after drying in ammonia have given better results than the addition of nitrate of silver to the cyanine emulsion.

It is entirely different with eosine and erythrosine. The eosine unites easily with silver; cyanine does not. Eosine silver plates do not contain eoside of silver, but probably the products of its decomposition only. Nitrate of silver acts more advantageously upon eosine emulsions than those dyed with cyanine.

The results of these experiments are merely of scientific interest, but prove what has been said before this, that the action of optical sensitiveness depends much upon circumstances, and that by differing manners of sensitizing with our dye stuff, quite different effects may be obtained, and that seems to be particularly so with cyanine; at least with no other dye so very differing spectrochemical effects have been observed.

Victor Schumann.

PHOTOGRAPHY AND SCULPTURE.

[Read on the Photographic Day at Chautauqua.]

THE relations between photography and sculpture are, indeed, intimate—and each year seems to make them more so.

The sculptor produces the causes of light and shade—in order to express his ideas; the photographer reduces the sculptor's results to a flat surface, and perpetuates on a piece of paper the chosen view lighted in the chosen way.

One can now carry the whole history and development of sculpture in a coat pocket, instead of taking the devotion of many lives of travel to go over the same range.

A piece of sculpture and a photograph adjusted properly and seen through a frame can hardly be told apart, as the effect on the eye is in both cases an arrangement of lights and shades.

The surprising progress of photography in late years ushers in, I now proclaim it to you, a new order of things in the development of sculpture, as interpreted by the photograph.

When I found people on our Western prairies who were more familiar, except a few *savants*, with the different schools of sculpture than anyone was when I was a boy, I felt that my boyish hopes and dreams for American art had not been extravagant.

These persons had never seen an antique statue, yet knew their very presence by the photograph received by mail.

What, then, may we not hope for when sculpture and photography advance hand in hand? When an advanced knowledge of artistic optics shall develop series of systematic views of all objects of art interest in the world.

One good photograph of a statue or a building is equivalent to looking through a hole. But if we have a number of views of objects to be compared taken at precise angles, our knowledge of them by direct comparison may be far more accurate than could be by travelling between the cities where the originals exist; and it is by comparison that we learn.

By a wise plan the art of sculpture and the allied arts of archæology, anthropology, history, biography, æsthetics, decoration, not to mention the study of human nature and the practice of modelling would be vastly advanced.

Edward A. Spring.

AN AMATEUR DETECTIVE.

A PHOTOGRAPHER'S STORY TAKEN FROM LIFE.

(*Continued from page* 403 *and concluded.*)

"Now there's something strange about this," thought I, "and I'll get to the bottom of it, or I'll see."

Having got a couple of good negs. of him, on re-entering the studio I said:

"I shall require your name and address, please."

"Eh? Ah! is that necessary?"

"Certainly," said I.

"Well, Mr. Frank Chester; but, but—"

"Never mind the address, Frank dear," broke in the young lady, "we'll call for them, if you will tell us when they will be ready."

"But would it not be more convenient to have them sent by post, madame?" I inquired.

"Oh, no; we shall be passing in about a fortnight, if you will have them finished by that time."

Seeing they did not intend letting me have their address, I replied, "Very well, I'll have them done in a fortnight, but, if you will not leave your address, I must be paid now."

The young man promptly handed over a £5 note, and as I gave him the change I thought things were getting more suspicious than ever.

The weather being all that could be desired I had the dozen photos finished in a week.

But still the moustache haunted me; and having determined to discover all I could about the pair, I was not going to give in so soon. So having little or nothing to do one afternoon, I carefully retouched the gentleman's moustache out of the negative, and then made a print from it in that condition.

Four days before the appointed time the young couple made their appearance.

"I thought I'd call and see if you had finished my photos, as we are leaving A—— to-day," Frank Chester said.

Having given him the prints, I showed them the one minus the moustache, asking him at the same time if he knew who it was.

The effect was marvelous. They seemed thunderstruck, and for some moments neither could speak. At last the girl burst out:

"Come along, Percy," and beat a retreat into the street, followed by her lord and master.

"*Percy!*" thought I, "I understood the fellow's name to be *Frank*."

I put on my hat, and picking up the prints, which, in haste, they had dropped, I hurried out to seek my friend the Inspector. I found him at dinner; on seeing me he said:

"Good morning, Mr. Photographer; what brings you here?"

"Good morning, Mr. Policeman; I just thought I would have a walk up and have a chat with you."

He seemed rather surprised, but said:

"Delighted, I'm sure."

I then produced a photo of Frank Chester, *alias* Percy, *and* the moustache, and said:

"Do you know anybody like that—Frank Chester by name?"

He examined it carefully, but shook his head. I then showed him the one minus the moustache, and asked:

"Then, do you know anyone called Percy who looks at all like this gent?"

With a long, low whistle, he jumped out of his chair.

"I should just think I do! that's Percy Lemmington, who's 'wanted' for forgery and abduction. Look here." And from his pocket-book he produced from among a host of other photographs a *carte* the physiognomy of which undoubtedly belonged to either Percy Lemmington, *alias* Frank Chester, or his twin brother.

"That's him, isn't it?" he inquired. I admitted the fact, and told him the story of the moustache.

"Then you don't think they are in town now?" he asked, when I concluded.

"I can't say for that," I said, "but I can answer you, they won't be in this town to-morrow."

"It will be a good stroke of business for you if we catch him," he said. "He has gone off with something like £1,800 and a rich old banker's daughter, and there is a hundred offered for him."

We then talked the matter over, and then came to the conclusion that they, Percy Lemmington and the girl, who was obviously the banker's daughter, would endeavor to get away from A—— some time that day; so the Inspector sent two of his men down to the station in plain clothes with the photographs, with instructions to watch every departing train, and arrest any one whose face resembled either of the photographs.

I returned home to wait events. About nine o'clock the Inspector dropped in. They had seen no one answering Mr. Lemmington's description, either with moustache or without; so they were at a loss what to do next.

Feeling confident they would get out of A—— as soon as they could, I intimated that his men had missed them in the crowd, but the Inspector did not think this possible. However, something must be done. Finally I asked the Inspector where he thought they would go to.

"I should think he'll make for Liverpool, and then set sail for America."

I proposed we should go to Liverpool ourselves the first thing next morning, and watch the boats. This he readily agreed to; so after a good night's rest, we took first train out, and arrived at Liverpool about ten o'clock.

We ascertained that only one steamer would leave the docks that day for any distance; this was due out with the tide about noon. Without more ado we made our way to the docks. The Inspector proceeded on board the Allen Line steamer, "Parisian," *en route* for Montreal, and much to my delight found a first-class cabin had been taken for "Mr. & Mrs. Chester," but the lady and gentleman had not yet arrived on board. He returned on shore, and we took up a position among a quantity of merchandize, past which the passengers, to get on board the ship, would have to go.

We had not been there twenty minutes when I heard the Inspector exclaim, as though speaking to himself:

"The very man we're looking for!"

On looking in the direction he indicated, I perceived, coming down to the boat, my Lord Percy—Gladstone bag in hand, the moustache and the banker's daughter, strolling leisurely along, and looking quite contented and happy.

We let them get on board, and the Inspector easily "nabbed" the male malefactor. So taken by surprise was he that he made no resistance.

Well, to make a long story short, Percy Lemmington, *alias* Frank Chester, got four years, the banker got his

daughter and the greater part of his money, and I got the £100, which I shared with my friend, the Inspector.

* * * * * * *

I afterwards learnt that Percy Lemmington had been a clerk in Mr. Lawford's bank, and having made the acquaintance of his daughter, had persuaded her to run away with him, representing that an uncle of his had died in the States leaving him a large fortune, which he was going over to claim. They could get married at the other side, where she would even be better off than she was at present. The simple girl believing all he stated, had foolishly consented. Of course the fellow had had no such fortune left, but had appropriated £1,800 of his employer's money, and as a precaution against instant discovery, had filled in a cheque for that amount, forging, for the signature, the name of one of Mr. Lawford's clients.

They were on their way to Liverpool, when on arriving at S———, he saw in an evening paper that the fraud had been discovered, and that detectives were on the look-out at all the principal ports for the fugitives. He therefore decided to go no further until the first flush of excitement had passed over, when he would have a better chance of escape. Telling the girl that her father was on the look-out for them, he accordingly obtained lodgings for a few days in A———, a few miles out of the midst of the town. He assumed the moustache as a disguise; and the girl, for the fun of the thing, and to wile away the time, begged him to have his photograph taken while wearing it. To gratify her peculiar desire, he consented, and they whereupon came to my studio. The reason the policemen did not see him—or rather did not recognize him—at S——— Station, was owing to the crafty fellow, suspecting that he would be watched, had added a beard to his costume, and with this addition he safely "passed muster," but on arriving at Liverpool, finding it rather uncomfortable and feeling perfectly safe he took it off, and but for this unlucky (for him, lucky for us), uncomfortableness, he would, no doubt, have got himself, the money, and the girl safely over to America. The reader knows the rest.

"But what effect can this adventure have upon my success in business afterwards?" the reader asks.

Simply this.

On my return to A——— I was made the hero of the day. The local newspapers gave my business a gratuitous advertisement by loudly applauding my course of action in the affair.

From that day my business increased, and in a few years I was enabled to build the studio outside S——— Station.

I always attribute my success to my exploit as "An Amateur Detective."

C. C. Vevers.

Correspondence.

A CORRECTION.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: The only medal (a silver one) offered at the Boston Convention for the best substitute for glass negatives in Class F, was awarded to the Eastman Dry Plate and Film Company, for their flexible nitro-cellulose basis that forms part of their transparent films.

There were three competitors besides the Eastman Company, for this prize offer, composed of some of the larger as well as smaller photographic manufacturing houses. One of the most honorable of these competitors withdrew their entry when learning what this medal was really offered for—that is, the best substitute for glass for negatives—they recognizing the necessity that all goods as well as all photographs ought to be manufactured or designed and executed by the firm or individual who enters for a prize, and this firm had not manufactured the goods that they had entered for this prize. It was an open question whether any of the firms besides the Eastman Dry Plate and Film Company had manufactured the substitute for glass for negatives that they entered for this prize.

There was only one prize offered, a silver medal, for the best six enlargements to be made in either silver, platinum, carbon, or the bromide process. This medal was awarded to the Eastman Dry Plate and Film Company, for six enlargements made on their permanent bromide paper.

G. D. Millburn.

Notes and News.

OBITUARY.—On Friday, August 28d, after a lingering illness, Garret Bergen, in the 48th year of his age.

Mr. Bergen was widely known in our sister city as a Police Justice, in which capacity he served for a great many years. In the photographic world he was known as the inventor of the Bergen Frame and Support; also as the publisher of a very handsome and very useful calendar. The funeral services were held at his late residence, No. 489 17th Street, Brooklyn.

COMPLIMENTARY.—One of the most notable papers read before the Photographic Association of America, at Boston, was that by Mr. W. I. Lincoln Adams. Mr. Adams is editor of THE PHOTOGRAPHIC TIMES, the weekly which stands head and shoulders above all others in America, on photographic matters, and so it may be presumed that Mr. Adams knows what he speaks about when he talks on photography.—*The Detroit Free Press.*

INSTRUCTION IN LAWN TENNIS BY PHOTOGRAPHS.—It seems clear, then, that good form is worth having: that it can do no harm, and may do much good; but how is it to be acquired? By watching the best players, if possible, and studying out the position of the feet and body in making the different strokes. Also by the direct teaching of some player who has a good style himself, or at least knows thoroughly what it consists in.

"But," it has often been said to me, "we live where there are no good players; we see no good play; we have to trust to books for instruction, and books cannot show how a player looks when he makes a stroke." All this is true, and I could think of no answer to it until the idea occurred to me that a number of instantaneous photographs of the best players might be taken, so that the exact position of the feet and hands might be decided. A strong reason for photographing the stroke is to be sure that you know how it is made. I remember well that I used always to preach that in the overhand service the racket should go very little back of the head. Two photographs taken at different times show the head of the racket

almost touching the small of my back.—From "Form in Lawn Tennis," by JAMES DWIGHT, M.D., in August *Scribner*.

PHOTOGRAPHY AND ASTRONOMY.—With the exception of the wayward comet, few heavenly wonders awaken more speculative interest than the corona, or pearly light that in various forms is seen to encircle the sun during a total eclipse. Being visible without telescopic aid, it has no doubt been noticed and admired since the earliest ages, though human knowledge was not sufficiently advanced to make it a subject of wonder and speculation until more recent times. When the landscape is in shadow, and the dark side of the moon is the ruling orb of the scene, even the clouds being steeped in gloom, then this mysterious luminosity, triumphant over darkness and distance, suggests to the watching world that disappearance is not extinction, but that probably, like the pennant of a hidden ship, the silvery streamers are an appendage of the object unseen, and a token of its continued existence. Those who for years have read accounts of the corona, have studied illustrations of it, pictured it to their imaginations, and then beheld the real object glimmer phantom-like during the brief moments of totality, have a memory worth treasuring, not easily obliterated, and which no earthly representation can ever revive. The impression is one to be cherished, undisturbed by the imitiative arts, for where is the genius that can reproduce the details of that fleeting scene?

All theories advanced as to the nature of corona have been met with objections, but photography befriends investigation in this direction, and the hope of furthur enlightenment from this source sustains unflagging interest in the matter. The protruberances or jets of heated gas discerned beyond the outer edge of the sun's disc may be viewed by means of the spectroscope at any time, but the glo m of an eclipse seems to be the only portal admitting human vision to the coronal radiance. This was one of the many interesting subjects introduced during the recent meeting of the Astronomical Society of the Pacific at the Lick Observatory.

In a paper on "The Possibility of Photographing the Corona in Full Sunshine," Mr. Keeler explained some experiments at a high altitude, in which he had participated, and which demonstrated that the corona could not be seen during sunlight. Allusion having been incidentally made to the general belief that stars may be seen in the daytime from the depths of a well, it was pertinently asked whether scientific observers had ever given corroborative evidence on this point. This being uncertain, the tube of the great equatorial is to be utilized for the purpose of verifying or disproving this accepted belief on the next occason that the removal of the lens becomes necessary. Being fifty-seven feet in length, and, moreover, movable, it affords unusual facilities for such an observation. Attention was called to the advisability of photographic experiment with a view to detecting the coronal light in sunshine, especially as experience in terrestrial photography proves that some tints are more at the command of the process than others. If the corona were of a yellow tint, it is probable that it might yield an intensified reflection, but it is to be feared that the silvery effulgence will evade the most effective skill in the overpowering glare of sunlight.

An equally interesting paper on "The real shape of the nebulæ which we see as spiral," was read by Professor Holden, and his explanations, and the drawings exhibited, were highly valued by those who, in the stillness of dark nights, have often wondered at and watched those misty objects, many of which are discernible even in small telescopes. By means of a wire curved with the utmost care, he showed the form in which matter, if extended, could in different positions assume the aspects of several of the spiral nebulæ; whereas many other curves with which he had experimented were incompatible with the observed aspects. This is an important solution, which throws some light on cosmical formations. Though not as conspicuous as other celestial objects, nebulæ are of deep interest to studious observers, and surprising though it may seem to those who have never studied the firmament, they are as numerous or more so than the starry hosts visible without telescopic aid, 6000 having been counted by the two Herschels alone. If these objects attained an increased luminosity, and all distinct stars were extinguished, the celestial vault would not appear as a blank space, but would be strewn thickly with small luminous cloudy flakes, the constellations of Virgo and the Whale being central points of aggregation.

Whether the entire stellar host, including the galaxy and the solar system and omitting only the irresolvable nobulæ, may not be a small, luminous speck to intelligent observation in some remote part of the universe, is one of the conjectures brought forth by the investigation of these cloud-like phenomena. Their distance, their mode of construction, their constitution, their variations and laws of motion are some of the celestial mysteries awaiting the zeal of future exploration in the fartherest depths of space.

A splendid object not classed as a nebula, though, if discerned at all without telescopic aid, it appears but as a faint radiance, is the cluster in the square of Hercules, known as 13 in the catalogue of Messier. It is of that class of telescopic revelation that delights some observers far more than a faint gleam yielded up from unknown and unfathomed depths to the power of the object-glass and the acute vision of the practiced observer. One astronomer has described it as "an extensive and magnificent mass of stars with the most compressed part densely compacted and wedged together under unknown laws of aggregation." Seen through the Lick 36-inch refracter it is truly a visual wonder, for though distinctly stellar and even scattered near the edges, towards the centre myriads seem massed upon myriads, until the most remote throng of that stellar extension are only seen as a diffused luminosity. Lord Rosse discerned dark rifts in the interior of the cluster, and the Lick telescope shows two distinctly on the northwest side of the central mass. Herschel speaks of "hairy-looking curvilinear branches," and the idea of globularity conveyed by the central part is probably the result of such an arrangement. Are these distant suns that seem to be piled so thickly on one another, as far apart as our sun is from Alpha Centauri, the nearest fixed star, is a question that haunts the imagination after such a telescopic study. It seems incredible that such should be the case, but as yet science is unprepared to give a definite answer; but it is now impossible to limit the solutions of mysteries, long studied and often given up as unfathomable, that may arrive with the proposed uses of pho-

tography and other appliances in the coming years.—*Alta California.*

PHOTOGRAPHY is one of the greatest facts of the present day. Its influence is of very wide scope, because it is not only an almost infallible means of recording facts, but also a simple means whereby the artistically inclined may, to a certain extent, find expression for their fancy. Photography not only affords us evidence of what we, and nature, appear, but enables us to depict, within limits, what we, and the rest of nature, might be. Briefly, photography is at once a science and an art. Without a certain knowledge of the science, we cannot produce any effect at all, artistic or otherwise; but we may master the science, stop there, and still have in our hands a most potent agent for depicting, graphically, facts. Again, if our ultimate object be to use photography as an art, we must master the science, first of all, that we may be able to produce a graphic result, and next, that we may control our result, so that our scientific means may lend themselves to our artistic aspirations; and the more control over, and facility in, our scientific operations we have, the more fully shall we be able to give our minds to the realization of our artistic conceptions.

In the same way, if our ultimate object be purely scientific, if our sole ambition is to give true photographic copies of what we see, especially if we see it under difficulties, such as those of great magnification, or reduction in size, we must still master our photographic science, so that the combined difficulties of seeing and depicting what we see may not overpower and conquer us.

In this book we do not propose to deal with art, nor with any science except purely photographic science; and our aim is to lay bare, as clearly as space will permit us, the principles regulating, and the practices most suitable for, successful photography. We are prevented by circumstances from fully entering into the theories, or touching on more than very few of the practices which control successful photography, but it is our ambition to so lay down the practice that close elucidation of the theories will not be essential to the intelligent reader, or, at least, so that the reader may, while acquiring the power of producing photographs, be only tickled, and not driven to study the theories.

On the above basis it is clearly unnecessary for us to give more than a cursory résumé of the chief results that mark the history of photography. The great landmarks are those following. We can attach no date to the first observation of light action on silver chloride, but to do so we should have to go back at least 300 years. That different parts of the solar spectrum affected silver chloride in different ways was observed by Ritter and Seebeck, in 1801 and 1810. Wedgewood and Davy observed more energetic light action on the silver salt on a basis of white leather than on paper. This contained the germ of development processes acting by reduction of the silver salt, the tannin of the leather playing the important part.

Camera photography may be attributed to Joseph Nicephore de Niépce, who gave the first authentic account of it. He used bitumen spread on a metal plate. Bitumen, on exposure to light, loses its pristine solubility in certain oils. With de Niépce, Daguerre, a miniature portrait painter, in 1829, entered into partnership; in 1839 the Daguerreotype process was announced. Between these dates Niépce had died, and whatever share of the credit was due him Daguerre claimed the whole of it, and attached his name to the process. Then followed the addition to the silver iodide of Niépce, of silver bromide, by Goddard, in 1840; also, in 1840, Sir J. Herschell added an important step to the progress, discovering the solubility of silver salts in sodic hyposulphite, so that a method was no longer wanting to fix the image. This sodic salt is an important item in the photographic laboratory of the present day.

In 1839—that eventful year for photography—Fox Talbot published his first process, wherein he coated paper with sodic chloride, and thereafter brushed over it silver nitrate, thereby forming silver chloride in presence of excess of silver nitrate, the basis, with the addition of albumen, also suggested by Talbot, of our "silver printing" process of to-day.

Talbot again comes to the front with an enormous stride in his negative process, whereby, in place of one positive picture being the *ultimatum* of a whole set of operations, we produce by one set of operations a negative, forming a *matrix* for a theoretically unlimited number of positive pictures. (See chapter on Positive and Negative, p. 84.) This process, which Talbot called "calotype," was a development process, the reagents being silver nitrate and gallic acid, the latter due to the Rev. J. B. Reade.

About 1850, Le Gray seems to have suggested the use of collodion as a "vehicle" for the sensitive silver salts; Scott Archer certainly published the first collodion process. It is worthy of note, however, that the lately deceased Mr. J. G. Tunny, of Edinburgh, has stated in our hearing, that Le Gray furnished him with a good practical collodion process before Archer's was published; and, further, that he (Mr. Tunny) used Le Gray's process in conjunction with the "iron developer."

For many years, and with great reason, the wet-collodion process reigned supreme; but, grand as its qualities were, it had the drawback that the plates had to be used wet, and a great load of paraphernalia had to be carried afield for the work. The advent of dry-collodion processes was felt, as a matter of convenience at least, to be a marked advance. The free silver nitrate of the wet process was replaced by other iodine absorbents of organic nature, and photographers "ran riot" among such substances as beer, tea, coffee, tannin, beef-tea, tobacco—and who knows what besides?

The discovery, in 1862, of the alkaline developer gave a great "fillip" to dry processes, for by it not only the free silver nitrate on the film is reduced, but also the silver haloids in the film.

The bath was dispensed with, at last, in favor of emulsion processes, the joint invention of Messrs. B. J. Sayce and W. B. Bolton, both of whom are to be credited with the advance. Finally, gelatine replaced collodion, the first published gelatine emulsion process being that of Dr. R. L. Maddox, in 1871. In 1874, Mr. R. Kennett made gelatine pellicle, and, in 1878, gelatine began to leave all other "vehicles" behind it. In this year, 1878, in March, Mr. Charles Bennett published his process, whereby he produced gelatino-bromide emulsion of a sensitiveness that utterly overshadowed all previous preparations; this he achieved by prolonged digestion of the

emulsion at medium temperature. Mr. Bolton is again heard of in his suggestion to gain sensitiveness by short boiling in presence of a minimum of gelatine in place of long digestion with the full bulk of gelatine. The only really important modification since that was the ammonio-nitrate process, of which full details will be found in our chapter dealing with the subject.

In development, since the "alkaline developer" was published, we have to record no striking variation, save the ferrous oxalate developer of Messrs. Carey Lea and W. Willis. Mr. Lea's process was first published, but we are able to state that Mr. Willis' memorandum of the process was in the hands of the editor of a periodical three months before Mr. Lea's process was published, accident only depriving Mr. Willis of the credit.

The advances in printing processes have been of no less importance than those in negative processes. For a long time the production of prints more stable than those formed from silver chloride on paper was a problem, but the discovery by Mungo Ponton, in 1838, of the sensitiveness to light of potassic bichromate in presence of certain organic substances, led up after a course of experiments by Becquerel, Poitevin, Pouncey, and others, to the publication, by Swan, of the "carbon" or "pigment" printing process, certainly the first that could go under the name of "permanent."

Out of certain other qualities of chromates, in presence of organic matter, arose a long series of photo-mechanical processes with which we cannot here deal.

The platinotype process, treated later by us, is due to W. Willis.

The latest advances in photography are connected with "orthochromatics," or color correct photography, and in this field the labors of Vogel, Ives, Eder, Schumann, and Bothamley are conspicuous.

To those who are interested in the historical development of photography, we recommend the "History of Photography," by W. J. Harrison.—W. K. BURTON and ANDREW PRINGLE, in the "Processes of Pure Photography."

The Editorial Table.

WE learn from C. H. Stoddart, of Erie, Pa., the author of the beautiful "Evangeline" picture introducing the blacksmith and horse—which we referred to in our review of the photographs exhibited at the Boston Convention—that he has been prevailed upon to place copies of his picture in the market at $2.50. This is a very low price for so perfect a photograph. Every photographer who is ambitious to improve should buy a copy and hang it in his studio for study and enjoyment. The Association voted Mr. Stoddart a special diploma for this picture, as the best single photograph exhibited at the Convention.

The following note from Mr. Wilfred A. French explains itself:

"In your published names of persons having contributed to the Daguerre Fund, I observe a very slight omission. As soon as the announcement was made, I handed in the envelope enclosing the amount, and found that I was the *first*. Besides, a friend put my name down later, depositing $1.00, all without my knowledge. And yet my name is omitted in your list."

Queries and Answers.

176 CHARLES F. NICHOLSON wishes a formula for the blue printing process, and the zincograph process.

176 *Answer.*—The following is a good formula for blue printing:

A

Citrate of iron and ammonia	1¼ ounces
Water	8 ounces

B

Red prussiate of potash	1¼ ounces
Water	8 ounces

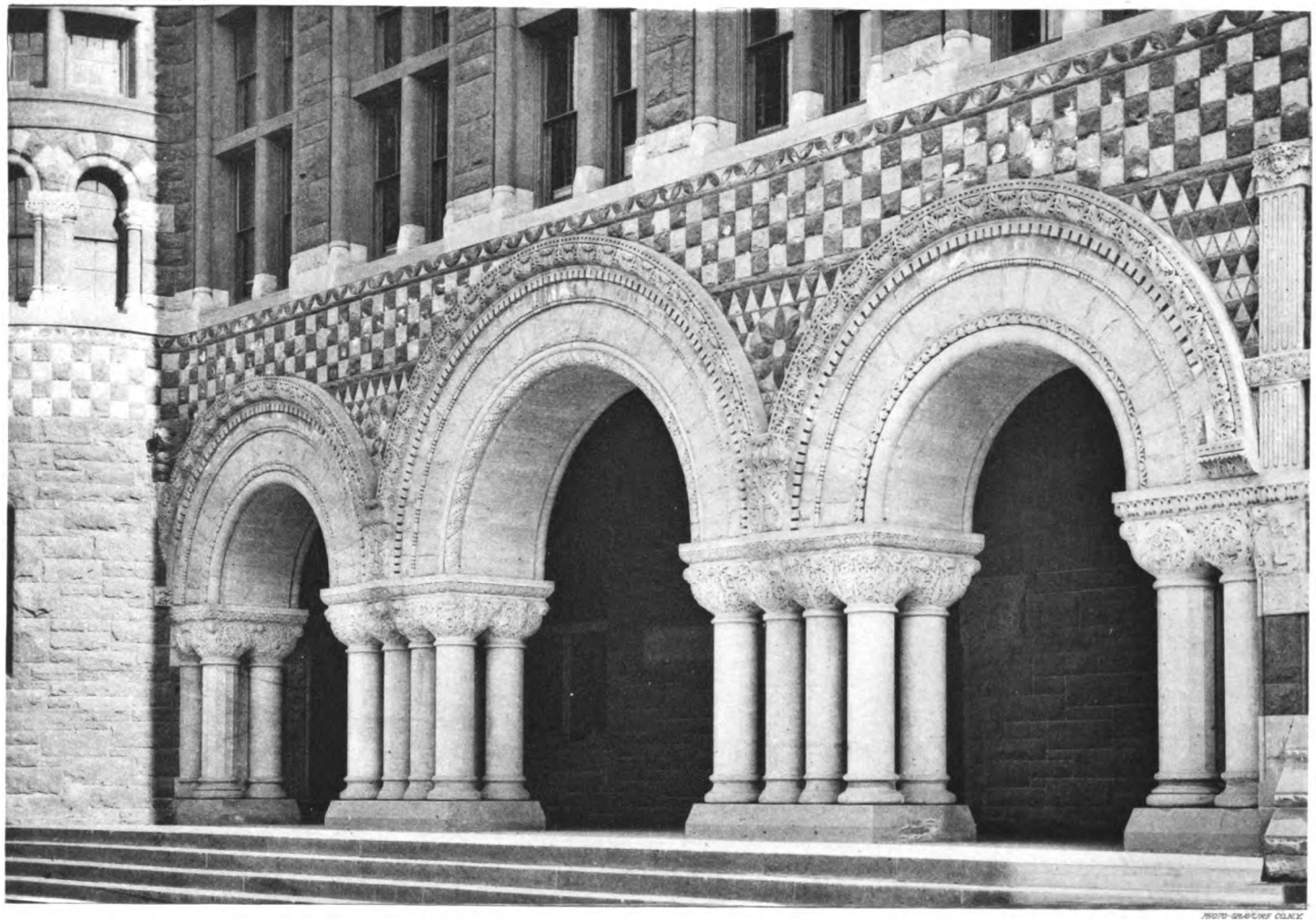
Make the solutions separately, filter, and keep in the dark. Immediately before using, mix equal volumes of each in a porcelain tray, and float Rives' plain paper upon it for three minutes. Hang up to dry. Print till the deepest shadows assume a bronzy-red tone; and wash in pure water till the drainings show no trace of yellow color. For information regarding the zincograph process, we refer you to Doctor E. L. Wilson's book on photo-engravings, which may be obtained from the Scovill & Adams Company.

177 A. B. W. writes: "About three years ago I made some transparencies, using Carbutt plates; at the time they were clear and all right, but since they have grown cloudy, and some are stained with a reddish fog. I think they were not washed enough. Is there any means by which their transparency and clearness may be restored?"

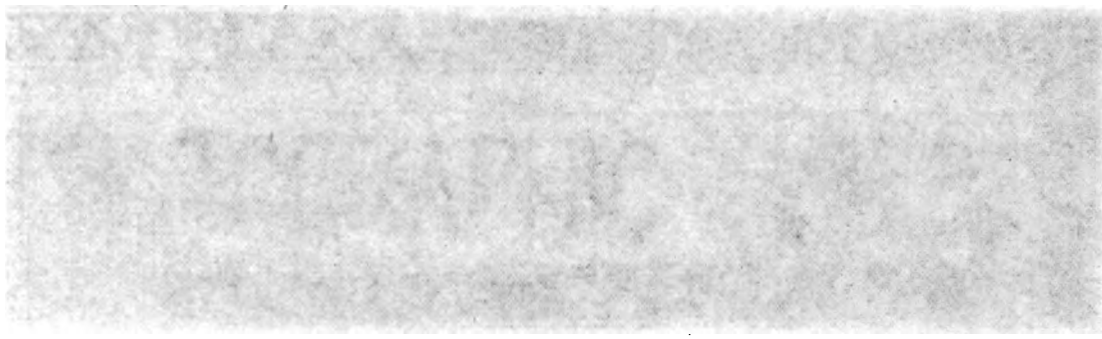
177 Mr. Carbutt himself answers this query, as follows: "Replying to the query of A. B. W. respecting the restoration of transparencies that have grown clouded. and some of them stained with a reddish fog, would say that we know of no remedy for the latter, as it is undoubtedly caused by the transparency not having remained in the fixing bath long enough, and the trouble has been further exaggerated by lack of sufficient washing. If the transparency has only a clouded appearance over it, by separating it from the cover glass and allowing it to wash in clean water, and going carefully over the surface with a tuft of absorbent cotton, and hanging up to dry, and when dry varnishing with a thick-bodied plain collodion, it should be restored to a clear and bright picture again."

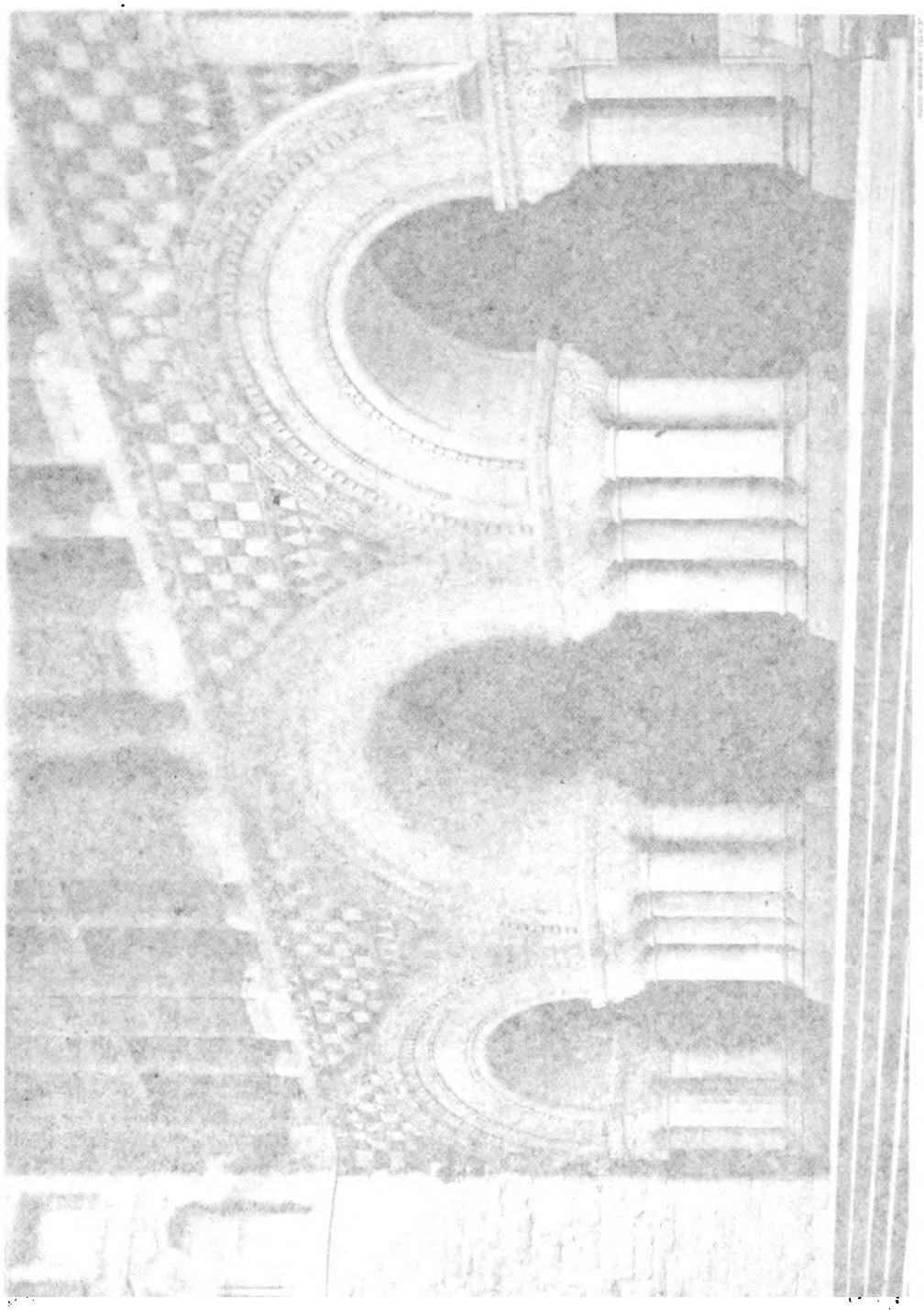
178 "SUBSCRIBER" asks the reason (1) of the milky or greasy appearance of the surface of the pictures when washing and fixing with hard water, and how to avoid it? He says they do not have that appearance when he uses soft water; but with the soft water the silver does not seem to leave the prints so freely. (2) He also wishes to know the cause of some of his prints turning yellow, while some of them remain a nice white, when washing with soft water?

178 *Answer.*—(1) We suppose you refer to albumen paper prints. Hard water containing soluble carbonates or chlorides will, if nitrate of silver adhere to the prints, form carbonate of chloride of silver respectively. They are both insoluble; hence, the milkiness of the wash water. The precipitate forming upon the surface of the print, hinders toning to some extent, but is soluble in the hypo solution. (2) If you sensitize your own albumen paper, you will find that when prepared several days previous to printing, it will turn yellow and remain more or less so after fixing. If, out of a batch of prints, some retain pure whites and others do not, the paper is evidently not of the same quality; or perhaps the prints were not subjected to exactly the same treatment.



AN ARCHITECTURAL STUDY.





THE PHOTOGRAPHIC TIMES.

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AN ARCHITECTURAL STUDY.

"The Interior of the Garfield Safe Deposit Vaults," which was presented in THE PHOTOGRAPHIC TIMES not long ago, elicited considerable well-deserved praise. We are pleased to give our readers, this week, a worthy companion to that interior. "An Architectural Study" is sent us without comment, or the photographer's name. It is an exterior which speaks for itself, however, as an excellent example of photographic work; and though we cannot announce the skillful photographer's name, or that of the building, the picture will be none the less appreciated by our readers. Perhaps the modest author will come forward and tell us something about his negative. We shall certainly all be glad to hear from him.

PYROCATECHIN.

THIS new developing agent, according to Doctor Eder, is isomeric with hydrochinon, and is expressed by the formula, $C_6H_4[OH]_2$.

Pyrocatechin is by no means so new a developing agent as many suppose. Its ability to develop, when in alkaline solution, was observed by Doctor Eder and Captain V. Tóth, as early as 1880, and was then announced.

These early experiments showed that not only pyrocatechin, combined with ammonia, is capable of developing bromide of silver plates; but also that all bihydroxyl derivatives of benzole; hydrochinon, pyrocatechin, and a third isomeric combination, resorcin, are also developers in combination with ammonia. Hydrochinon and pyrocatechin act vigorously enough for most kinds of practical work, but resorcin is much less active, and requires a prolonged exposure.

After a lapse of nine years, Doctor C. Arnold resumed work with pyrocatechin, making it active with potassium carbonate, and finding it, in this combination, to be fifteen times as energetic as hydrochinon.

Sodium sulphite does not seem to influence the stability of its solution, but acts as a strong restrainer. The developing formula which Doctor Arnold uses is as follows:

Water	60 to 80 cubic centimetres
Pyrocatechin solution (1 to 100)	1 cubic centimetre
Potassium carbonate solution (1 to 5)	5 to 10 cubic centimetres

The negatives produced by this development are good printers, of a grayish-black tone. The development proceeds slowly but uniformly, and the solution should be used but once.

Doctor Bannow and Herr E. Vogel found that the action of pyrocatechin was slower than that of hydrochinon; but they probably used the agent in a different form from that which Doctor Arnold experimented with, for the latter investigator obtained very similar results to those of Doctor Bannow and Herr E. Vogel, with the pyrocatechin which they used.

Carl Srna has also experimented with pyrocatechin, sodium sulphite and sodium carbonate, compounded similarly to Balagny's hydrochinon developer, and announces it to be more energetic than hydrochinon, but not quite so active as Doctor Arnold stated it to be.

Now, after subjecting the substance to still further experiment, Doctor Eder says that pyrocatechin in its purest form and when combined with carbonate of potassium, is a rapid and energetic developer, reducing silver, with a coffee-brown color, and turning speedily to a brown color itself, in solution. His formula is:

A.

Pyrocatechin	1 part
Sodium sulphite	4 parts
Water	40 parts

B.

Potassium carbonate	4 parts
Water	40 parts

The developing solution is composed of one volume of *A* mixed with two volumes of *B*. The sodium sulphite is to preserve the solution, but developing does not proceed quite so rapidly when it is employed. The developer is more active, however, than a similarly-compounded hydrochinon solution, and the negative under its influence, assumes more quickly printing quality. The normal solution diluted to one-third its strength, is still more active. Pyrocatechin is a reducing agent which deserves the attention of experimenters and practitioners.

EDITORIAL NOTES.

LAST week we gave some approved formulæ for the working of the new developing agent, eikonogen, and in this issue we direct attention to the editorial on Pyrocatechin.

WE also call attention to the admirable articles by George W. Rafter (an expert in photo-micrography) "About Hydra," in the preceding number, and "About Daphnia," in the current issue. The accompanying illustrations are from Mr. Rafter's negatives reproduced in moss-type, but, of course, can not do the negatives justice on ordinary printing paper, excellent though it be.

THE preparation of the "Photographic Times Annual" for 1890, goes on rapidly, and the indications are that the book will be ready by Thanksgiving Day. Already, nearly half the contributions required are in type, and as many more have been received which are yet in manuscript. The difficult question, this year, for the editors to decide is, not what to select, but what to leave out, as all the contributions are good, though some are rather long. The motto of the "American Annual" continues to be "quality, not quantity," and the editors, therefore, ask intending contributors to make their articles as short as possible, and yet give all the information on the subject which they have to give. October 1st is the limit for receiving contributions for this issue, as the great bulk of work has to be done after the articles have been sent in.

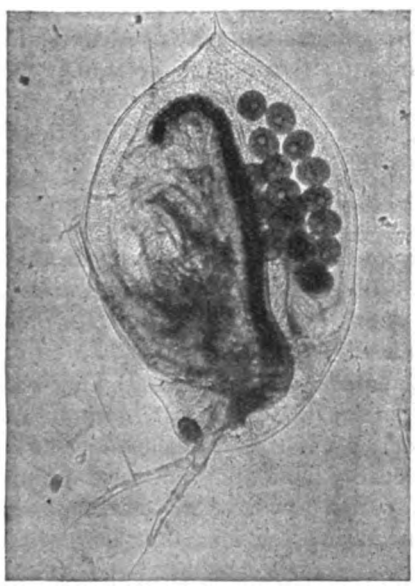
IT is interesting to note that of the forty-seven students instructed in the Practicing Class of 1889 in the Chautauqua School of Photography, thirteen are from the State of Ohio, nine from New York, six from Pennsylvania, four from New Jersey, three from each Massachusetts and Texas, and two from each Rhode Island, Connecticut and Kentucky. Illinois, Delaware, California and Idaho Territory are represented by one each. A number of students from foreign countries were also represented in the Corresponding Class. This shows how far-spreading the Chautauqua movement has become. The usual fall and winter classes for practical instruction at the winter head-quarters in New York, are about to be formed, Professor Ehrmann, the Instructor, having returned from the Chautauqua Assembly grounds on the beautiful shores of lovely Lake Chautauqua.

CONSIDERABLE confusion seems to have been occasioned by the various reports of a very simple matter; we refer to the committee of nine appointed by President McMichael, at the Boston Convention, to represent the Photographers' Association of America in the organization for the World's Fair in 1892. This committee has no official connection with the World's Fair Committee, but merely represents the Photographers' Association, and will have as much influence with the authorities as that Association has, and no more. A delegate selected from that Committee at a meeting which ought shortly to be held, might be appointed, by those having authority, on the World's Fair Committee; but as yet no such appointment has been made. There is a movement among photographers not members of the Association to secure a delegate representing photography in the World's Fair Committee, and this movement will have as much weight with the appointing power as any other of equal size. As it promises to be very influential it will undoubtedly secure a favorable hearing. Whoever the delegate or delegates may be to represent photography or photographers on the World's Fair Committee at the end rests alone with those who make such appointments; but recommendations backed by proper authorities, will, of course, have their proper weight.

IT is in connection with this movement that an effort is being made to raise a fund among photographers for the purpose of building a suitable structure at the World's Fair, for exhibiting photographs and photographic appliances. The promoters of this movement are prominent photographers and photographic personages, and mean to push the thing through to a successful completion. They will also undoubtedly secure a proper representation for photographers, on the World's Fair Committee.

ABOUT DAPHNIA.

THE accompanying illustration is a photograph from life of a mature female *Daphnia pulex*, one of the commonest forms of Entomostracan crustacea to be found in fresh water. If one dip up a quart of water from the nearest stagnant pond it will be found swarming with minute animals, among which will probably be a goodly assemblage of individuals belonging to the genus *Daphnia*. The little lady whose photograph is herewith presented for the inspection of the readers of THE PHOTOGRAPHIC TIMES acquitted herself as well as could be expected from a modest lady evidently not far from the period of parturition. The sixteen eggs which she carries in the brood cavity will soon develop to the state of independent existence, and like the parent, in their turn add to the teeming population of their native pond. Nevertheless, she was not entirely satisfied at being compelled to sit for her portrait, and the constrained position into which the post-abdomen has been drawn is a visible protest on her part against the whole operation.



Daphnia is commonly known as the water-flea, not because they are really fleas, or in any way related to them, but because of a jerking motion when leaping through the water, from which has been fancied a resemblance. They are found in stagnant rather than pure water, as, for instance, in ditches and horse-ponds, or in any place where cattle stand or drink. Such places frequently swarm with them, and in Europe they are often seen of a bright red color, in such quantity as to give the water of a pond the appearance of blood. This red variety has, however, not yet been seen in this country.

The magnification of the present photograph is fifty diameters, and the readers can easily compute the actual size of the different parts by the use of an ordinary pocket rule.

The reproduction of *Daphnia* is of interest from every point of view. The males are few in number, hardly one in several hundred females, and are only met with in autumn. Indeed, the males are so scarce that many observers never saw them, and from this fact some writers have considered *Daphnia* hermaphroditic. The males, however, have been detected, and the operation of copulation witnessed by careful observers. The naturalist, Jurine, has studied the matter with great care, and has recorded the result of his observations. The females are very prolific, giving birth to young a great many times, the first parturition being about fifteen to twenty days after birth. It has been ascertained by continuous observation that one copulation is sufficient to fecundate not only the parent for her life, but all her female descendants for several generations. This was observed by Jurine to extend to the sixth generation, and he thought it probable that it might extend to even further generations, possibly to the fifteenth.

Daphnia stands quite high in the scale of organized beings, having complicated nerve, respirtory and circulatory systems. Its large, single eye, situated in the front part of the head, is furnished with muscles which give it the power of semi-rotation. It is also composed of about twenty separate and distinct lenses, thus farther adding to the animal's power of seeing in different directions. In the embryo the eye first appears as two separate flecks of pigment which finally join and form the fully developed eye.

Baird's British Entomostraca furnishes a full account of *Daphnia*.

George W. Rafter.

SILVERING ALBUMEN PAPER.

A GREAT diversity of opinion seems to exist among writers in regard to the time albumen paper should be silvered. Some claim that one minute is sufficient, while others insist that five is not too long.

The minute men claim that long silvering is a needless waste of time and silver, while the opposition assert that better prints and less liability to blisters is thus secured. To test the correctness of each theory the following experiment was performed:

Three sheets of paper were weighed separately, exact to a grain, silvered respectively two, three, and four minutes on a forty-five grain bath, dried

and reweighed. The one silvered two minutes had taken up nineteen grains of silver; the one three minutes twenty-one grains, and the one four twenty-four grains, showing that the one silvered four minutes had actually taken up five grains more than the one silvered two.

The experiment was repeated three or four times with nearly the same results.

In finishing the one silvered two minutes a greater tendency to blister than either of the others, otherwise no difference could be noticed in the finished prints.

It is the generally conceded opinion that the paper should be dampened before silvering, to save silver and to make the operation easy to perform.

To test the first proposition three sheets of paper were dried, weighed, silvered three minutes, dried again and reweighed, and found to have taken up twenty-five grains of silver on an average, showing that very little more silver is used on a dry sheet than a damp one, when each one is silvered the same length of time. The printer will have no trouble in silvering dry albumen paper if he will procure two sticks one-half inch square and nearly as long as the paper to be silvered. Lay one on each side of the sheet as soon as it is on the bath. Let them remain only a minute or so. It saves blowing. Dampening the paper has not been a success in the writer's hands.

In all three experiments the paper was drawn over a glass rod and blotted before drying.

J. R. Swain.

DANA, Ind.

GROUPS AND GROUPING.

THE ability necessary to combine a number of single figures into a harmonious whole is very considerable. The successful composition of large groups is a distinguishing mark of the greatest painters, and was a task which many great ones were never able to accomplish. There are some of these, with noted names, who have never painted a picture with more than a single figure, many who never attempt more than two or three. The difficulties increase in an enormous ratio with the introduction of each additional figure in the picture. The men who were most thoroughly the masters of their art, the great Italian and Holland painters, took particular pleasure in exhibiting their skill in this respect. They found delight in the exercise of their remarkable faculty of marshaling and arranging a medley of separate figures into one grand composition. This aptitude in combination and synthesis, with the organization which can bring solidly before the mental eye the finished composition, also help the modern Frenchman to his leading position in matters of art and decoration; and become in their highest manifestation a positive gift which it seems almost hopeless to desire for one's self. But fortunately, all its difficulties notwithstanding, composition can be learned, and in no way better than by the study of the works of these painters who are such masters of it. If the photographer wishes to do more than the single figure, if he even wishes to do that successfully, it is to them he must go for instruction.

That such instruction is considerably needed inspection of the usual group photograph will show. Anything much more distressing than many of these are it would be difficult to find. A number of unfortunate people are crowded together in stiff and self-conscious attitudes, all with that too-well-known expression, "I'm having my picture taken" evidently their one devastating thought at the moment, all other ideas suppressed. It is impossible that they should look any otherwise, in these groups where they are arranged mathematically rather than artistically, and have the air of undergoing portraiture for scientific purposes. The one idea of the artist has been to get them all in focus; if the faces are all sharp and there are no too-protruding hands or knees, his duty is done. They are in a sort of a bed of Procrustes; they must each show, and must not go over the edge of the plate, so they are compressed into the limit it allows, while all grace and interest are squeezed out, and there is no visible reason for their existence pictorially. This conception of group-making finds its analogue in the trunk-packing which was done by putting in the things and jumping on them. But even this chance-arrangement is little worse than the deadly pyramid. The photographer who indulges in this has read up on composition just enough to absorb the idea that arrangement in a symmetrical form will save his picture. So he puts four people on the floor, three in the chairs, and two standing up behind them—all looking straight into the camera. The result is more suggestive of the shelves of a museum than ever. It is these too suddenly adopted and literally carried out ideas that make a little knowledge of composition so dangerous a thing. The idea is apt to come that any arrangement of the pyramid or circle is composition, and that these may be strongly marked and evident without injuring the picture. As a matter of fact, composition is a much more delicate and subtle thing than that. The more complicated relations of lines must be experimented

with and watched for, and the pyramidal or circular arrangement should be considered only the skeleton of the composition; to make a picture the bones must be covered with flesh, they must never show plainly through it. After all, the criterion is the same here as elsewhere; arrangements must not be too evidently arranged, composition must not show itself too conspicuously; the result must look natural.

That is the great fault of the ordinary group It does not look natural. It suggests all too plainly the scientific instead of the artistic. With all its subjects sharp and evenly lighted, all with consciousness in pose and expression; and in the bad cases with all in full face, arranged with monotonous regularity, it is not a picture, but a diagram. As a scientific record of how these people appeared at a certain moment, or as a memento of the fact that at that moment they were all together in one place, it may have a value; but as a picture it can give no pleasure and have no worth. Even the uninitiated dread the group and feel its uncanny impression; they realize that they will not appear to advantage in it. And so the group, which ought to be the highest form of photography, is more often considered to have no artistic value whatever, but is permitted merely as a remembrance, or even as a joke. "It doesn't matter how you look in a group, they're always awful," says Miss Mary as she settles herself to figure in one of them. And it is unfortunately true in a great many cases.

As long as the diagrammatic idea of a group exists it is hopeless to attempt artistic pictures of this sort. Sacrifice is one of the absolute requisites of art. Some things must be suppressed or shadowed to bring out others. Given an object for the group, and freedom from the stern necessity of showing both ears on every full-faced head, and something more pleasing becomes possible. As an arbitrary classification we may divide the group into three sections, simply according to the number of persons it contains. The first may include groups of two; the second, moderate groups, which contain from three to a dozen persoms; and the last, large groups, containing a number of subjects. Each has its individual difficulties and possibilities, which may be considered, with the aid of examples left us by great painters.

The double group is naturally the least difficult, and yet error and artistic failure here are frequent enough. I need only cite the type of photograph of the young married couple, of which every one has seen examples. Instead of being engaged in some natural action, they will be seen standing stiffly side by side, perhaps arm-in-arm, facing the camera squarely and uncompromisingly; or else sitting rigid, eyes to the front, one on each side of a table. The fatal taint of consciousness is upon them; it is all too evident that they are devoting their entire energies to the ordeal of being photographed. This is the particular danger which must be avoided; the painter knows his picture is ruined if the model looks posed; even in a portrait the subject must seem to have some occupation or amusement, not to merely be sitting for his or her picture. Rembrandt, who painted and etched himself so many times, never represented himself as merely sitting unoccupied; he was trying a costume or a new hat, he had in his hand a needle or a brush, a sword or a cup—something to distract the mind from the bare pose and give the imagination an impulse. So when he paints his wife and himself, neither are idle. One of the most charming pictures of the Dutch school represents a young married pair in their best room at home, the man seated at a table writing, while the wife plays upon a spinet. The heads are strikingly finished, and real portraits, yet the whole is a picture, with an atmosphere of reality and life about it, carrying home to one a sense of familiarity such as few paintings possess. It is more of this feeling that the photograph needs. It is too frequently absolutely cold and unsympathetic, because it immediately suggests the studio, not the real life of the subject. Let the photographer exercise some of his dramatic sense, and construct little situations for his subjects; if he has any artistic fire in him, he will be easily able to do it. There are a thousand things they may be doing—looking over a book or a letter together, reading, writing, simply talking. Let him try for the intimate atmosphere, the real personality of his subjects in his results. It is profitable as well as artistic after all, for here for once art and business advise the same course. For the photograph is supposed to be made to record the appearance of its subject, and the more naturally and effectively this is done, the more successful will it be. Those who happily need not care for commercial considerations are still bound to a similar policy; for the amateur, too, wishes to make an artistic picture, to bring out the character of his subject. In imaginative compositions, of course, where portraiture is not desirable and considerable alterations in the appearance are permissible, the range of combinations is unlimited. In this connection the pictures seen on the stage may be studied with even more profit than paintings. I imagine it is generally known that with a good company no effects are left to chance.

Everything is prearranged, and each actor has his positions and movements upon the stage marked out and decided from the moment of his entrance on the scene to his exit. Any one who has seen even companies like Daly's, or the Lyceum, in plays of modern costumes, has noticed the beautiful pictures they are continually composing themselves in, to break apart and fall into another, and another. I am not sure that the quick-observing photographer whose eye has been in some degree trained by pictures to recognize a picture when he sees it, a process of more gradual accomplishment than one might think, may not find even more profitable instruction in these stage pictures than in the painted ones. He cannot sit through a performance of either of the companies mentioned above without receiving a great many precious hints, as to compositions of two and three figures especially.

The moderate group of several figures offers, perhaps, the greatest possibilities of all. Almost any story may be told by them, any situation suggested, if the picture is to have the dramatic touch. If it is only portraiture pure and simple, still it offers possibilities. A family, a group of relatives, a clique of people bound by friendship or business —give them some connecting link of interest and a picture may be made. Some of the most impressive paintings in the world are the simple portrait groups of the Holland masters. Every one knows the "Lesson in Anatomy," of Rembrandt, which is simply a group of portraits bound together by a vivid link of interest in the corpse the surgeon is lecturing upon. The picture of Charles I. and his children contains a whole dissertation on the art of composition of such a group Many of the Italian religious pictures even bear suggestions as to possible groups, studies of women and children which might well be utilized to-day. A study of the modern illustrated papers will also furnish many ideas—from the cuts of commissions and business meetings, these often, however, showing as much what to avoid as what to follow.

The large group is undoubtedly the most difficult of all to secure any artistic effect in. Yet that it is not impossible brilliant examples prove. Some of the Holland portraits of the old target companies, which are, just like a photograph, a series of portraits for which sit a number of men in their best clothes, are yet magnificent works of art. By avoiding the artificial arrangement of heads in tiers, by a series of subtle groupings in twos and threes, pyramids and circles; by scattering the composition a little, rather than crowding everything into a narrow limit, by adopting a rather long horizontal form of picture; and by giving each man something to do—artists like Hals and Rembrandt have accomplished marvels. Many have seen another example of the same thing, Rembrandt's "Night Watch," so called, which is really simply a portrait group of police-patrolmen of the day with their officers. In photography itself the work of Mr. Anderson, of New York, may be cited as an example of the wonders that may be done by a clever photographer in the way of portrait groups of a large number of persons. (Of course, his work is mentioned only as composition, the portraits not being taken simultaneously.) French painters, David and Lami, for example, and English ones, such as Frith and Cattermole, have done superb work in portrait groups, which may be studied with advantage by the photographer, though he, of course, cannot have a few hundred celebrities pose to him simultaneously. It is there his difficulty lies—the harmonizing at a given second of a number of persons into one picture. But study of the results of these men, who arrived by different means, will help him greatly in his own more exacting labor in a similar direction.

To summarize briefly, then, the great defects of the group come from unskillful arrangement, and want of naturalness, caused by consciousness on the subject and lack of any apparent occupation. The tier-above-tier arrangement of a group and the mechanical effect produced by all the subjects looking the same way, should be done away with whenever possible; and a more varied and natural arrangement substituted. Some visible occupation, or interest common to all, will relieve the sitters of the burden of their self-consciousness as well as give interest to the group.

I may cite in concluding two contrasting examples. One is a picture entitled "Good-bye," representing a steamboat leaving a wharf, on which latter stand the people supposed to be calling their adieux to the departing boat. But the group is ruined by two people who turn round, backs to the boat that is supposed to be so interesting, and stare at the camera. They spoilt what would otherwise have been a splendid picture.

The other is M. Jean Beraud's picture, exhibited in the Salon of this year, of the staff of the French newspaper, the *Figaro*. I advise every photographer, by the way, who has men to photograph, to get a look at the reproductions of this painting, acquire one if possible, for it is a mine of suggestions. M. Beraud has had to paint some fifty men in the dress of to-day in a modern room, and has made a superb picture out of this material. His personages do not show a sign of "sitting." They

are engaged in groups around the room, in reading, writing, talking—all doing something, all real and lifelike, and I congratulate anyone who gets as much vivid reality and character into one head in a photograph as are in every head in this remarkable painting.

Frederic Hart Wilson.

A METHOD OF MAKING DARK BLUE-PRINTS.

[Read before the Society of Amateur Photographers of New York.]

It must be said that to obtain any final result some drudgery is inevitable. The hunter who depends on the game he kills or the fish he catches for his living, kills and catches in the best or easiest way he may, cleans and packs the results, considering that as part of the work in preparation for the market, where he gets his profits. But the true sportsman has a feeling of satisfaction in having made a good shot on the wing, or skillfully tired out an obstreperous fish, and derives an additional pleasure in the contemplation of a fine buck or a fish that will suggest a story bigger than itself; but this same sportsman will frequently rather give away his game than even take the trouble to carry it home. It is a trite simile to compare a photographer to a sportsman, for that has often been done; but in the home work of the photographer there is much that has no parallel to the efforts of the sportsman, except maybe in the feeling of satisfaction over the results. Many persons carry their cameras far to get a picture. Having "pressed the button," they take no further interest in the matter until the finished print is placed in their hands. I have known others "stalk" a picture, study this view and that view, and if the case is difficult, with irregular or uncertain lighting, they will study the development with a care almost inconceivable, and having finally secured a good negative, it is a matter of entire indifference whether they ever make a print. The majority of persons, however, who take an intelligent interest in photography, like to see the positive that may be compared to the original. This has led the writer to try to find some way to secure a print that will be pleasing in tone and simple in manipulation. From some hints derived from an old book the "blue-print" was tried nearly thirty years ago, but was discarded for reasons now well known. Many other experiments were tried, the latest being the following, the results, however, not being eminently satisfactory. But the writer is cheerfully willing to give his game away rather than to carry it home. Some experiments, as well as the known fact, proved the hopelessness of any attempts to change the blue color of the blue-print except by operations making the result more trouble than it was worth, or at least to entirely destroy the simplicity sought for.

It took little observation to discover that the blue color was transparent, so it occured to the writer that the blue could be combined with another color that would result in a more satisfactory tone. The nature of the solar spectrum at first suggested using orange (orange being complementary to blue); so by making blue-prints on orange-colored paper a very good tone was secured, but with the very serious objection that the high lights retained the orange color. Other papers were tried; but the best results came from a gray paper, which gave a very good blue-gray tone, with the same objection, however, that was found to the color of the high lights, though not so serious as in the case of the orange. It then occurred to the writer to ask, could not some substance sensitive to light be used that would give a color where color was wanted, and on washing would leave the lights white or nearly so. The only substance at present known to the writer is bichromate of potash. This is nearly as sensitive to light as the blue-print, and as it was a hopeless or at least difficult task to make a bichromate print first and then a blue-print correctly over it, a series of experiments were tried by mixing the bichromate with the blue-print solutions in various proportions, as shown in the table.

It being known that a saturated solution of bichromate of potash spread on paper would make a clear print of a strong yellowish brown tone, Solution 1 was tried. The resulting paper proved very insensitive to light, due, no doubt, to the failure of the solutions to soak well into the paper. The outer surface was effected by the light protecting the substrata so that unless exposed for a long time the picture all washed off. This was largely obviated by adding water, as shown in Solution 2. The resulting tone here being too blue, the amount of bichromate was increased as shown in No. 3, but with the same objections that were found to No. 1, so further dilution was resorted to, as shown in No. 4; but the color being still too blue and having learned a lesson from No. 3, a reduction of the ammonia citrate of iron was tried, as shown in No. 5. The above general principle was carried on as shown variously in the succeeding solutions. Want of time has prevented further experiment; but the writer thinks that by using a stonger solution for

the red prussiate and proportions like those in the latter part of the table, good results might follow:

TABLE OF PARTS OF SOLUTIONS USED EOR EXPERIMENTS.

	Numbers of Experiments.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
a. Saturated solution potash bichromate (fluid drams)..	1	1	2	2	2	2	2	2	4	4	3	4	6	6
b. Water (fluid drams).....	0	2	2	3	3	4	4	4	4	4	2	2	2	2
c. Solution red prussiate potash, 1 in 10 (fluid drams).....	2	2	2	2	2	2	2	2	2	2	2	2	2	2
d. Citrate iron and ammonia (grains).....	40	40	40	40	30	30	20	10	10	16	20	20	20	40

	15	16	17	18	19	20	21	22	23	24	25	26	27
a. Saturated solution potash bichromate (fluid drams)	4	2	4	3	3	2	2	3	3	2	2	2	2
b. Water (fluid drams).....	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Solution red prussiate potash, 1 in 10 (fluid drams).....	2	4	4	4	6	4	4	4	4	4	4	4	6
d. Citrate iron and ammonia (grains)	40	12	12	12	12	0	4	2	4	2	6	8	4

Charles J. Bates.

Correspondence.

A CONVENIENT PRINTING SHELF.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I chanced one day to call upon my professional photographer friend just after the shelf, on which his printing frames were usually put to catch the sun, had collapsed.

And when I saw the wheelbarrow-load of bricks and half-bricks which he used to prop up the frames, I said: "No wonder: can't you find anything better?"

After some cogitation I suggested that the new shelf should be made of slats two inches wide, placed half an inch apart, and a raised edge around the outer sides of the shelf. If the slats had been slightly rounded or beveled on the top, it would have been better. As substitutes for the bricks, I got him to bore holes through the slats at irregular intervals, into which to stick common clothes pins!

The new arrangement has been in use for several months, and proves its utility daily.

No snow or water remains on the shelf, nothing blows away or falls off.

Not patented.

I remain, very modestly,

C. D. Cheney.

HOBOKEN, N. J.

APPARATUS AT THE LATE BOSTON CONVENTION OF THE P. A. OF A.—AN ECHO.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir: I do not propose this as a technical communication to your columns, as it more especially will refer to what I saw and heard at the recent Convention of the Photographers' Association of America, held in Boston.

There was a notable improvement in the character of the photographic work by Western photographers, especially in large portraiture. As invidious distinctions give offence, and as fair criticism is often thought to be invidious, I omit all mention of names.

An unusual degree of animation was shown by various dealers and manufacturers, who seemed to vie with each other for the honors which should be bestowed upon their exhibit. The "show" in this respect was very fine, hence greater emphasis accompanied the honor of the bronze medal which was awarded to the Scovill & Adams Company for their cameras and apparatus.

We were not surprised to learn that the enterprising firm of Messrs. C. H. Codman & Company should have purchased the entire exhibit of The Scovill & Adams Company, as they attribute the secret of their business success to the fact that they keep an extensive stock of the best goods in every department of photography.

The highest commendations were heard on all sides for the beauty of the cameras and apparatus referred to, not only as regarded the outward finish, but also because of the ingenuity and skill displayed by the manufacturers in the development of practical photographic ideas, some of which were novel and unique, while others were time-honored, having proved serviceable to the most eminent photographers of the country for many years.

To one of my mechanical tastes, always looking out for the best, these indications were notable, and the disappointment evinced by other manufacturers that the honors should have been taken from them, while by no means a surprise, may perhaps serve to inspire their zeal, and hence, from a spirit of emulation on their part, the photographers of the country will reap a benefit.

I was about to revert to my own experience, a most profitable and satisfactory one, in my personal use of the cameras of the American Optical Company for many years, but it would be irrelevant, and fearing that I have already trespassed too far upon your valuable space, I will conclude with the assurance of my best wishes for the continued success of your valuable journal, whose highly interesting report of the Convention proceedings stands alone in point of accuracy and succinctness.

Yours truly,

A Western Photographer.

A WORD OF CASTIGATION.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I note some animadversions of "Watchman" of *The Beacon*, on my articles on Art and Photography, which, though not worth notice for their intelligence deserve a word of castigation for their bad manners and impertinent personalities. I am always willing to discuss my views with a gentleman, however much I may differ with him, and I am aware that many such do differ widely from me in this matter; but I would say to "Watchman" that I do not consider myself bound to find good manners and brains for both sides of a discussion. I supposed that I had written clearly enough for any one who understands the English language, and the simplest elements of art, to percieve my meaning and reply intelligently, if at all, but I see that I did not get down to the level of "Watchman's" intelligence. At any rate I am used to observe the common courtesies of intercourse as between gentlemen and decline any further function of a "teacher" for him

except such use of the rod as the distance and the material permit.

Yours truly,

W. J. Stillman.

PIEVE DI CADORE, Aug. 22.

Notes and News.

"ILLUSTRATED BOSTON," comprising a set of sixty-seven slides prepared by members of the Boston Camera Club, and accompanied by a type-written, descriptive lecture, will be loaned to such amateur photographic societies as desire to use it in giving an evening's entertainment. A circuit will be arranged for the approaching season among such clubs as make application before the 7th of October. Address William Garrison Reed, Treasurer, 25 Kilby Street, Boston, Mass.

ST. LOUIS CAMERA CLUB.—Secretary E. M. Bain, of this enterprising club, writes under date of August 26th, in a private letter, concerning his club, as follows: "Our club is booming. We have a club-house of our own on Twenty-third and Locust Streets and Jefferson Avenue—hall 50x28 feet, reception-room, secretary's office, large basement for dark-room, bowling-alley, etc.; three hundred front feet of ground on Locust Street and one hundred and twenty-five feet on Twenty-third Street."

AN exchange states that the amateur photographer with Scovill's "Detective" Cemera, has done more to break up the matrimonial market at summer resorts, this season, than any other cause.

THE IMPERIAL SCHOOL for Instruction in Photography and the Photo. Reproduction methods, of Vienna, Austria, Prof. Dr. J. M. Eder, Director, has issued its programme for the winter session 1889–90.

The introductory class comprises elementary free-hand and geometrical drawing, physics, arithmetic and commercial composition. The first regular course has projective and perspective drawing, lighting of the subject, chemistry, physics, and the technics of photography, with practical exercises in photographic and mechanical printing.

In the second course practical instruction is given in portrait and reproduction photography, negative and positive retouching, emulsion making, orthochromatic methods, lichtdruck, zincography, photolithography, in fact all the mechanical printing methods.

Ateliers, laboratories and lecture rooms are open daily from 8 A. M. until 8 P. M., also in the evening hours.

Special instruction is given to advanced scholars or to those desirous of perfecting themselves in any particular branch.

Prof. Dr. J. M. Eder, 25 Westbahn hof strasse, Vienna, VII, Austria, will give detailed information of the school.

WASHINGTON PHOTOGRAPHERS are reported to be complaining because there is so little demand for portraits of President and Mrs. Harrison. It has been suggested, however, that consolation may be found in the fact that this is not a cigarette administration.

FOOLING WITH FIRE.—A painful accident to a photographer and his assistant, is reported from Brooklyn. After the audience left the Grand Opera House on the evening of August 17th, Mr. Myers, with some assistants, went into the auditorium with a camera to photograph different acts of the play by means of magnesium light. He used a composition containing gun-cotton, and the explosive exploded, of course, before the company had grouped themselves for the picture, prostrating Mr. Myers and his assistants. No fire broke out, but the two injured men were badly burned about the face and arms. It would seem that enough accidents had occurred with magnesium to make photographers careful what compound they use. There are non-poisonous and non-explosive compounds in the market, and there are those which are both highly poisonous and easily explosive.

Photographic Societies.

ANNUAL EXCURSION OF THE PHOTOGRAPHIC SECTION OF THE AMERICAN INSTITUTE.

THE members of the Photographic Section of the American Institute of New York, held their annual excursion on the 3d of September.

The day was a beautiful one, being bright, clear, and pleasantly cool, in fact, just the kind of day that photographers like.

The members had arranged to dine at the Hotel Brighton, Coney Island, at four P. M., but followed their own "sweet will" in "getting there," travelling in groups, or singly, as their fancy dictated.

At the appointed they gathered on the piazza of the hotel, where they were photographed by Secretary O. G. Mason.

Dinner was announced at 4.50, and the party assembled in the pleasant room engaged for them, where they did ample justice to the good things provided for their delectation.

The menu was as follows:

Soup.
Chicken Okra.
Fish.
Baked Blue Fish with Wine Sauce.
Entree.
Lamb Chops with French Peas.
Roast.
Roast Chicken with Vegetables.
Dessert.
Plum-pudding, Ice-cream, Cakes.
Coffee.

The dinner was all that could be desired, and reflected credit on the chef of the Hotel Brighton.

President Newton presided. On his right sat the Chairman of the Executive Committee, J. B. Gardner.

A number of distinguished gentlemen were present—artists, members of the legal profession, representatives of agricultural and polytechnic institutions, as well as prominent photographers. Among the guests were Dr. Janeway, Mr. Tucker, Harry Newton, Edwin Copleston, Mr. Stetson, Ex-president of the American Institute; E. C. Townsend, Mr. Becker, Mr. Lightower, Dr. O. G. Mason and Mrs. Mason, Mr. Wilcox, Mr. Flanderinger, Mr. Barker, Dr. Elliott, Mr. Miller, Mr. Roche, Mr.

Adams, Mr. Bartholomew, Mr. and Mrs. Gardner, Mr. William Gray, Mr. John Reed, Mr. Gerden, Mr. H. Gates Newton, Mr. H. Gerrish, Mr. Solomon, and a number of ladies.

President Newton welcomed the members in a few well-chosen words, and called upon Dr. Janeway for a speech, alluding to him as one of the "first amateur photographers in this country."

Dr. Janeway entertained his audience by a short description of the climate of California as adapted to the taking photographs. He said that amateur photography was making great progress in that State, saying: "They are progressing; they do good work, and they are enthusiastic about their work." He also spoke of the good fellowship that ought to exist between amateur and professional photographers, saying that to his mind "the bond between the amateur and the professional is a strong one; the advantage a mutual one; the benefit on both sides. The professional can learn from the amateur, who has more time to push on the discovery of our art science; and the amateur can learn from the professional, who has practical experience in photography. Dr. Janeway gave some interesting information about the Japanese method of photographing, as also the Chinese. He commended their outdoor work, landscape, or seascape, but said that when it came to portraiture they endeavor to bring out the background more than the foreground.

Mr. Newton then called upon Mr. W. Irving Adams, complimenting him as the Manager of one of the largest stock-houses in the trade in this or any other country—not only that, but the proprietor of one of the oldest photographic journals—THE PHOTOGRAPHIC TIMES.

Mr. Adams expressed his pleasure at seeing the members of the Society at their annual dinner, but regretted that so many of the photographers could not attend owing to their absence from town, and concluded by assuring them that next year he would see that their excursion was brought into greater prominence than ever.

Mr. Stetson warmly congratulated the Society on its ability to have such a glorious, social time, without the aid of the intoxicating cup.

Dr. Elliott was listened to with attention as he talked of the science of photography. He declared that it was necessary to have a chemical education in order to become a successful photographer.

Mr. E. C. Townsend read a short essay on "Harmony," and was followed by Mr. Daniel R. Garden, Secretary of the Farmers' Club, who spoke of "Agriculture."

The gathering was a pleasant one, and gave the veterans a chance to talk over past glories, and the young amateurs to discuss the probabilities of bringing photography to a more perfected stage than it is even at the present time.

The organizers of the excursion were very successful in catering to the entertainment of their guests, and the field-day of '89 will be one more pleasant memory to cheer the army of "Knights" during the winter months. Especial credit is due Mr. J. B. Gardner, Chairman of the Executive Committee, for his successful management of the pleasant outing and dinner.

AGRICULTURE.

[From the Address delivered at the Dinner of the Photographic Section.]

AGRICULTURE is a broad term, embracing very much of what makes this world prosperous, progressive, healthful and beautiful.

Age should command respect. The science of agriculture, began "in the beginning," for Father Adam, Holy Writ says, was ordered "to till the ground."

Agriculture then is like Truth,
"Not for an age, but for all time."

No greater commendation could any science receive than that which the immortal Washington, emphatically paid it, when he wrote: "Agriculture is the most healthful, the most useful, and the most noble employment of man."

The succesful agriculturist is a student of nature.

Your countenances picture your satisfaction with the luxuries of earth, some of which we have most enjoyably partaken of this afternoon, and our "dry-plates" are *positive* though silent witnesses thereof.

Progress is a plant of slow growth.

Nature is ever active. She loves variety, and brings weeds and flowers, cereals and insects, fruits, vegetables, and calamities.

Labor and learn must be the incentive of the progressive farmer. Seeming obstacles will blossom into profitable surprises.

Success is the fruit of intelligent industry.

What long years of experiment after experiment, of observation, of comparison, it has taken to produce out of the quiet, dark earth, the fragrant and beautiful flowers and the nourishing edibles of these days, from their former course, pigmy and insipid condition.

If men in prominent positions go down to the sea for the sport of fishing—a nation of fishermen would be a dreary and a weary contemplation.

Were this earth to become barren and void, whither should we go for sustenance?

'Twould be cruel to give such a thought root. We will not.

How mysterious and marvellous is the soil.

"All flesh is grass."

"Consider the lilies how they grow."

Universal vigilance is the price of potatoes.

As the seasons take their flight, and nature's reconstruction begins, brain follows the plow as reason enters the earth, the warm, friendly sun kisses into activity the slumbering seeds—then indeed will the hill-sides, the valleys, the plains and the gardens teem with waving grain, luscious fruit, succulent vegetables and exquisite flowers will lend their sweetness to the evening air.

I digress right here to submit a suggestion.

These United Siates have not yet selected a floral emblem.

In my humble opinion, I know of no more appropriate floral symbol for your adoption, ye art scientists, who depend so largely upon the orb-of-day for your achievements, than the *sun-flower*.

The Farmers' Club has exercised an influence which the earliest records of the American Institute, to its very latest, will attest. Nor can the history of agricultural progress in its various branches ever be written and the transactions of the Farmers' Club omitted—for they are the root and branch of improved agricultural methods.

Their meetings were attended by gentlemen eminent in their special branches, and the proceedings of the meetings were reported in the weekly journals, so that valuable and varied information was spread broad-cast over this vast country.

This club, though the pioneer of scores of kindred associations, still exists, its meetings, though not so largely attended as in the long ago, are quite interesting and instructive.

The science of agriculture has surely kept pace with the other sciences of this century in their improvements.

In any of its various branches observe, compare, and reflect on "what are now, and what were then."

"Friendship is a sheltering tree," therefore no one lives for himself alone, the various trades, professions and arts, out of the circle of their profit, are pursued for their pleasure, each and all tending to the comfort, the enjoyment, the welfare of home, kindred and country.

How happy we should all be, living as we do, in these days, so fraught with the multifarious blessings which flow the labors of so many who have indelibly impressed their genius on the records.

Each, according to his circumstances, may perform some "unconsidered deed" for the happiness of others.

Then those who come after, will offer benedictions to those who have gone before.

For your approving attention to these untrimmed phrases, I cordially thank you.

Daniel R. Garden.

HARMONY.

(An Extract from the remarks at the Photographic Section Dinner.)

IN Dryden's "Song to St. Cecelia," we read that,

> "From harmony, from Heavenly harmony
> This universal frame began;
> From harmony to harmony
> Through all the compass of the notes it ran,
> The diapason closing full in man."

In this there is but little doubt that Mr. Dryden intended a very liberal compliment to some one, and it has been suggested that he imagined himself entitled to it; but I opine that a somewhat prevalent sentiment is voiced in saying, I never thought so, and were he with us now I would not hesitate to question his assuption, and to differ with him on the broad ground of the apparent lack of harmony manifest throughout the realm of animate nature; yet, everywhere we find, seemingly, the germ of harmony striving with the incongruous—as it were, an effort of the "soul of things" to assert itself.

When we look about us, scanning the acts of our fellows, and delving into our own inner consciences, we are led to think of man, not as a harmonious being, but rather as a dissonance, an imperfect chord, with now and then only a touch of harmony; and not in man alone is this incongruity manifest, but in everything else; each and every aggregation owes its origin, its form and existence to the touch of harmony in its seeming incongruous parts. It is claimed by some thinkers that there is nothing positive—nothing real, that everything is only relative, changeable and forever changing, not only in form, but in quality also, and that for the better.

This proposition being tenable, may it not be that, what we recognize (not to say comprehend) as harmony, is only the visible manifestation of a principle of nature, as yet but partially developed, and constantly and forever varying in degree, but always being in consonance with the character of each organic form, until in the diversity of manifestations (and especially in the human) it seems to verge upon a condition of discord.

In the account (such as we have) of creation, we are told, inferentially, that order was evolved from chaos—confusion, or if you please, that harmony resulted from discord, and from falsehood, truth the mighty, which will prevail.

So, if we read nature aright, and wisely heed her examples and demands, we will liken the harmony within us to the leaven which was hid in the three measures of meal; and by thus keeping it active, be enabled through its influence, not only to modify all forms of discord in the lower orders, but to realize each for himself, all that there may be of beauty and truth for the development of both the material and the spiritual man.

And then, may the photographer whose art is true to the harmony of chemistry produce, not only likenesses of the material form, but also, truthful reflections of the essence as well, which scanned by the eye of just criticism and weighed in the balance, shall encourage the hope in each, that the harmonious quality of his own monody may induce more perfect chords, until the diapason of perfect harmony is attained, and the symphony of human existence shall have its culmination in spirit, which endureth.

E. C. Townsend.

THE NEW ORLEANS CAMERA CLUB.

THE regular monthly meeting of the New Orleans Camera Club was held at their new quarters, No. 8 Carondelet Street, Wednesday evening, August 21st, Vice-President Joseph H. Hincks, presiding, C. H. Fenner, Secretary, and a quorum present.

A vote of thanks was tendered the management of the Tulane University for the use of their rooms.

Commencing October the 1st, it was decided to raise the dues of the club to $1.00 per month, and also to change the regular meeting night from the third to the first Wednesday of the month.

Miss Gladys Rueff was elected an active member of the Association, while Misses A. Perelli, A. Molinary and E. Livingston were made honorary members.

The Club then adjourned.

The rooms of the Association at No. 8 Carondelet Street are commodious, handsome and elegantly appointed. The room on the third floor will be used as a reading-room, while the room on the fourth floor has been fitted up as a photograph gallery and divided into various compartments, containing in them all the paraphernalia pertaining to the art of modern photography.

Bonds have been issued for the purpose of defraying the expenses consequent upon the fitting up of the Club's new quarters. The great majority of these bonds have already been subscribed to, so that it is safe to say that all the rooms will be in perfect condition and fully equipped within the next few weeks.

The Editorial Table.

AUSFUCHRLICHE ANLEITUNG ZUR HERSTELLUNG VON PHOTOGRAPHIEN, by Paul Goerz. Berlin: Robert Oppenheim.

A handbook of Photography for the use and instruction of beginners and amateurs. It is one of the better books of its class, a class in which so many are being published now. The author handles his subjects well, and gives much valuable information to the reader.

UNDER the auspices of "Der Photographiche Verein, of Berlin" a new weekly journal, named *Photographische Nachrichten*, and edited by Dr. F. Stolze, formerly of *Photographische Wochenblatt*, will make its first appearance on October 1st.

A NEW monthly journal, entitled *The Photographer*, is announced by Denison & Company. Dr. Arthur Le Boutillier will be its editor.

STILL another monthly photographic journal has determined to try its fortunes, and this one is entitled *The Boston Photographic Review*, edited by J. O. Moerch, and published by S. Wing & Company, of Boston. From the first two issues we note that it is especially devoted to the subject of photo-mechanical printing, a department of photographic work in which the editor is particularly well qualified to treat.

THE *American Journal of Photography* for August says that the badge presented to the members of the Association "was excellent in design and finish, but as far as we are able to judge, the likeness of Daguerre was not so excellent as that engraved upon the medal presented by THE PHOTOGRAPHIC TIMES." In another note it states that the visitor at the Tenth Convention at Boston who failed to receive the beautiful Daguerre medal distributed so freely by THE PHOTOGRAPHIC TIMES in New York City, certainly missed the choicest souvenir given by anyone."

WE note that the *American Exporter* for August contains a reprint of the instructions "How to Make Photographs," taken from the pamphlet published by The Scovill & Adams Company under that name.

IN *Outing's* "Horoscope" for Vol. XV., it is announced that "W. I. Lincoln Adams will treat the interesting subject of 'Instantaneous Photography,' and his paper will be embellished with the finest specimens of this art ever presented to the public. The paper will be the notable feature of the Christmas number."

THE *Week's Sport*, a new weekly journal devoted to the sports and amusements of amateurs, has come to our table, and in every way makes an auspicious beginning. We note that our old friend, Capt. Charles E. Clay, formerly of *Outing*, is editor of this bright, young paper. "Although I cannot pay the same attention to amateur photography as when editing *Outing*," Mr. Clay writes in a private note, "I will give it a paragraph occasionally." All amateurs may be sure that *The Week's Sport* will be highly interesting to them, with Charles E. Clay for editor.

WILSON'S "Photographic Mosaics for 1890" is already announced, and the invitations have gone forth for contributions. It is hoped to make the little volume better this year than ever before.

FROM our good friend Charles Scolik, of Vienna, a large collection of cabinet portraits and genres are received. They are all unexceptionably very fine, and testify to the artistic skill and taste of the operator.

DR. JULIUS SCHNAUSS, of Jena, sends an instantaneous 6½x8½ view of the students' procession on the occasion of the centennial "Schiller" celebration. To look upon this very pretty photograph, and to see the students in "Wichs" marching through the streets of Jena must recall the most pleasant memories of any one who has ever had the honor of having been a German *civis academicus*.

DAVID TUCKER, of the well-known firm which bears his name, is at present at the Ponce de Leon Hotel at Saegertown, Pa., recruiting his health. As was announced in THE PHOTOGRAPHIC TIMES some time ago, Mr. Tucker's interest in the firm of Tucker & Butts is for sale. Here is an excellent opportunity for a man with a capital to invest in a paying business.

THE leading daily papers all over the country are devoting special columns to photography, and the photographic editor on a great daily is becoming every day more indispensable.

No paper has a brighter photographic column than the Boston *Globe*. Mr. C. A. Chandler is its editor, and every week he reviews photographic progress, in this column, and gives many useful hints to amateurs, as well as interesting notes about photography and photographers. He also describes intelligently and impartially the latest photographic materials and appliances sent to him for that purpose.

JACKSON: Now you have photograph, there's no need of looking so glum.

JILLSON: I'm glum because I know it's only a misrepresentation.—*Yale Record.*

Queries and Answers.

179 We have been asked if we have tried Hale's Dry Plate Pyro Stain Eradicator and Hypo Eliminator?

179 *Answer.*—We have, and have found it to be a mixture of alum and citric acid.

180 E. A. WARREN asks: (1) "Are Monroe's Chautauqua Plates Uniform and reliable?" (2) "Is his way of mixing in pyro just before development a good plan?"

180 *Answer.*—(1) We can find no fault with the Monroe plate. (2) No objection can be made to the method of developing with dry pyro.

181 M. T. B.—Can gelatine negatives be intensified with sulphuret of potassium?

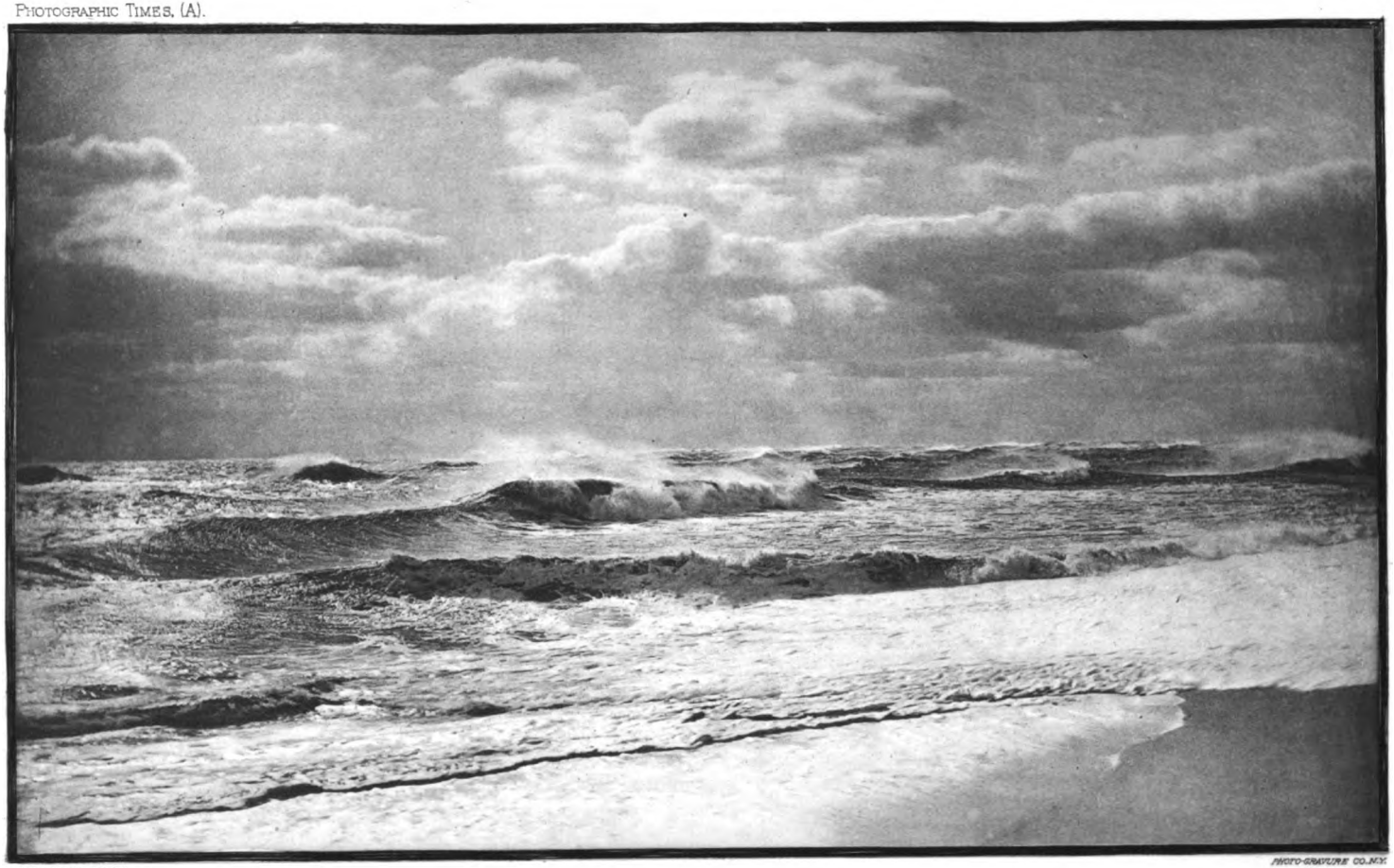
181 Yes! but not directly. After all hypo is thoroughly removed from the plate, whiten the deposit with bichloride of mercury and wash again. Lastly immerse in a weak solution of the sulphuret. The method is not very good. The gelatine invariably will attain a yellow color.

182 PROCESS OPERATOR has read in a book on the collodion processes that small quantities of nitrate of barium added to the silver bath will prevent pinholes in the film. He has tried it but without any success. He asks now what is the cause of pinholes, and how can they be prevented.

182 *Answer.*—We can not understand how nitrate of barium can act in that way. The causes of pinholes are: 1. Foreign matter floating in the bath; 2. The bath over-charged with iodide of silver, when particles of it will settle upon the film; 3. Not charged enough with iodide of silver, when the iodide of silver forming in the film is dissolved by the excess of nitrate of silver; 4. Collodion not settled or filtered; 5. Rotten collodion, or water in it; 6. Unclean glass plates; 7. The albumen substratum not filtered, not to say anything about what may occur on developing. You know now the main causes, the remedy is easy to find.

183 H. S. NUT has been troubled, during the recent warm weather, when printing on Aristo paper, by the films becoming softened and sticking to the plates when attempting to remove it from the printing frame. He succeeded in getting off the paper by swabing gently with a tuft of wet cotton, but could not make any impression on the Aristo film. Wherever it struck it leaves a white spot on the print. He asks how he can remove the film without injuring the plate, and what was the cause of its sticking. (2) Also, what will prevent Aristo prints from curling tightly in the toning bath?

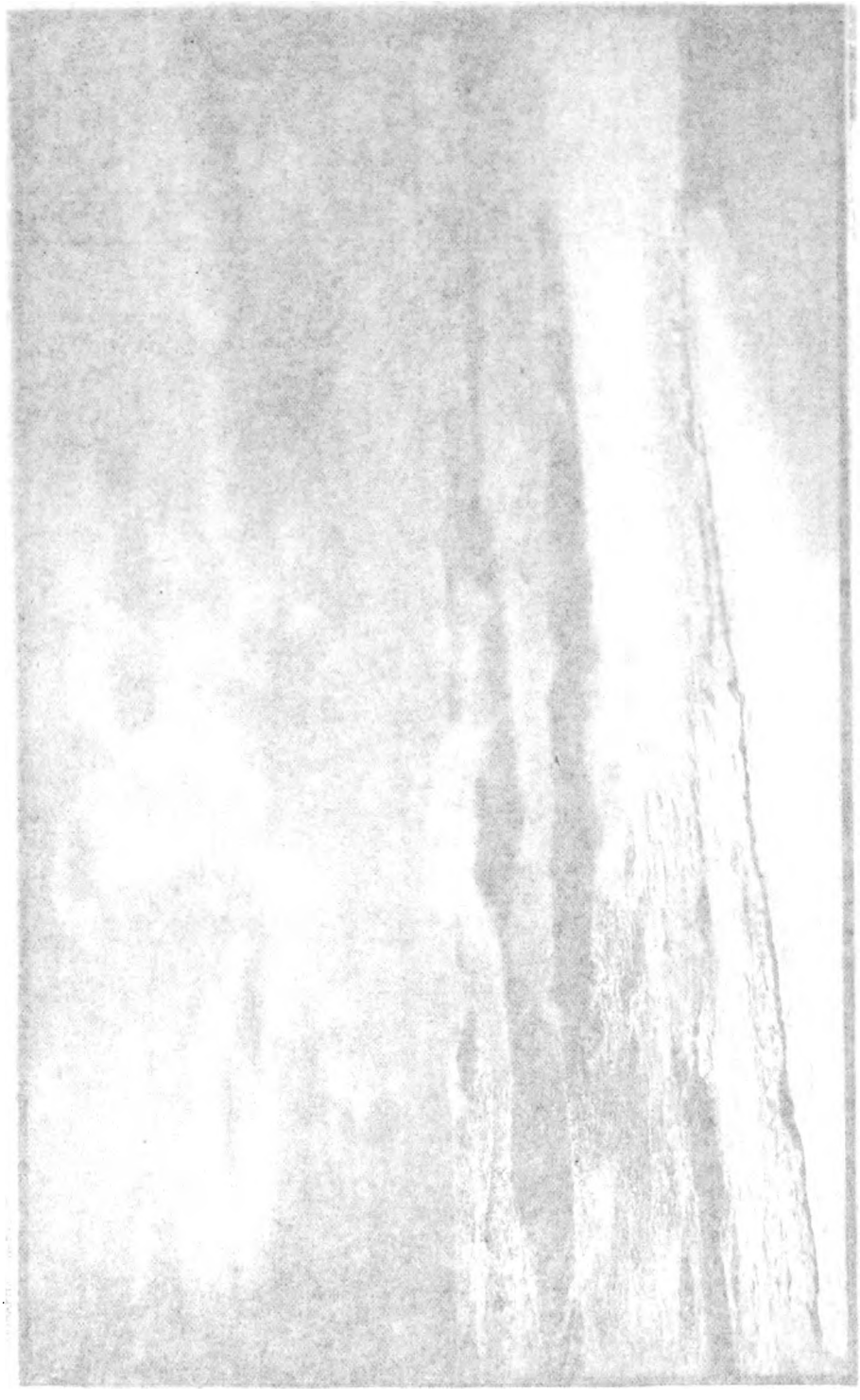
183 *Answer.*—(1) Soak the negative in equal volumes of ether and alcohol, and assist the removal of the collodion film by rubbing with the finger. (2) After printing, soak the proofs in a small quantity of a ten per cent solution of bicarbonate of soda—just enough to cover them; then wash in several waters till all the alkali is removed. Keep the prints face down, and use but little water, not more than enough to cover them. Cold water promotes curling. Use it when of about 80 to 90 degrees Fahr. After washing, proceed to tone.



H. S. WYER, PHOTO. PHOTO-GRAVURE CO. N.Y.

"ALONG THE SHORE."
NANTUCKET.

THE PHOTOGRAPHIC TIMES



THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, SEPTEMBER 20, 1889. No. 418.

ALONG THE SHORE.

" The far sea-line is hushed and still;
The nearer sea has life and voice;
Each soul may take his fondest choice—
The silence, or the restless thrill.

* * * * * * * *

" O blue of heaven, and bluer sea,
And green of wave, and gold of sky,
And white of sand that stretches by,
Toward east and west, away from me!

" O shell-strewn shore, that silent hears
The legend of the mighty main,
And tells to none the lore again—
We catch one utterance only: 'Years!' "

The lines of Rose Hawthorne Lathrop peculiarly apply to the refreshing surf picture which adorns these pages this week It is from a negative by Mr. H. S. Wyer, of Nantucket, Mass. The picture itself was photographed from the south shore of that picturesque island, and is a characteristic marine view. It is one of a large collection of local views which Mr. Wyer has photographed, and which we believe he has for sale.

"Along the Shore" was made on a "Seed" plate, and developed in the usual manner with pyrogallol. Of course, the exposure was instantaneous.

THE INTERNATIONAL CONGRESS OF PHOTOGRAPHERS AT PARIS.

THE International Photographic Convention which was to decide so many important questions for photographers, has been held in Paris under the authority of the French Government and in official counection with the Paris Exposition It has been variously reported, and there seems to be considerable difference of opinion as to the real value of the work which it accomplished. Following is an abstract of the resolution which the Congress adopted in relation to the various questions submitted to it:

First Question.—Unit of light, and practical standard for photographic use.

The Congress has adopted as the unit the light given by incandescent platinum, as adopted already by physicists, and known as the Violle unit.

As the practical standard, which will be compared later on with the unit, it has adopted the amyl-acetate lamp, with a screen pierced with an aperture permitting only the use of the most luminous part of the flame.

Sub-question A.—Appreciation of luminous intensity in photographic operations.

The Congress has decided that the luminous intensity of the objects to be photographed shall be determined by means of photographic apparatus analogous to the portable photo-meter proposed by M. Mascart for the measurement of illumination. It has appointed a committee to additionally study this subject.

Sub-question B.—Determination of the sensitiveness of photographic plates.

The Congress has adopted the method proposed by M. Janssen, which consists in determining the time necessary to produce, after direct exposure of a plate to a typical light, under determined conditions and after suitable development, a grey tint of a determined depth. It has indicated a method of constructing, to facilitate measurements, a scale of tints varying from a normal grey tint easy to obtain. For gelatino-bromide plates the typical light will be amyl-acetate lamp, reduced to a surface of emission of one-fifth of a square centimeter, placed at a distance of one metre, and exposed at successive intervals of five seconds. In addition, because of facility in employment, the Congress recognizes the Warnerke sensitometer as capable of rendering useful service, in conjunction always with the amyl-acetate lamp, and not with its phosphorescent tablet.

Second Question.—Method of measuring the focal length of objectives.

The Congress has decided to take the measure of the focal length of the objectives for the nodal point of emergence, and to demand that this point

and the principal focal length shall be marked on the mounts of the objectives. It has indicated three methods of measurement for the determination of these elements, to be used according to the degree of precision it is desired to attain.

Third Question.—Indication of the photometric effect of the diaphragms of objectives.

The Congress has adopted, as a normal diaphragm corresponding to the unit of exposure, the diaphragm which admits light by an aperture equal to one-tenth of the principal focal length. It recommends that diaphragms shall be selected in such a way as to make the variations of exposure in simple relations, starting with this unit, and that they shall be marked with numbers giving these relations.

Fourth Question.—Measuring the time of the admission of light regulated by photographic shutters.

The Congress has decided that photographic shutters shall be marked with an indication of their *total duration of action* expressed in seconds and decimal fractions thereof, and with that of their *rendering* expressed by their relation to their duration action to that of an ideal shutter, with instantaneous movements, admitting the same amount of light. These items of information to be given in relation to the largest diaphragm it is possible to use with the shutter, and in relation to the principal degrees of regulation which it bears in reference to rapidity of action, or at all events in relation to the regulated extremes.

Fifth Question.—Means of attachment to the stands, also of the attachment of lenses to cameras.

The Congress has adopted, for the fixing of cameras on their stands, the screw of the Whitworth system, which forms No. 1 of the screws already adopted by the English Photographic Society in the construction of photographic apparatus—a screw 9.5 millimetres in diameter. To attach lenses to cameras it has adopted a normal series of threads for the mounts, and a corresponding series of flanges. It has finally recommended, for existing apparatus, the employment of a system of adaptation indicated by M. Molteni.

Sixth Question. — The sizes of photographic plates.

The Congress has accepted as the normal international plate, one measuring 18 by 24 centimetres, and for other plates the sizes obtained by doubling successively both these dimensions, or dividing them by two. It recommends that dark slides shall be constructed to receive plates of the exact dimensions stated. It has also fixed upon 8.5 by 10 centimetres as the size of plates for projections.

Seventh Question.—Unity of expression in photographic formulae.

The Congress recommends the employment of units of the metrical system in the stating of quantities and dimensions, and the employment of the true names and exact notations of chemical nomenclature for the indication of chemical products.

Eighth Question.—Name of photographic processes.

The Congress has fixed the basis of a nomenclature permitting the naming of photographic operations and processes, whether for the ordinary production of prints, or for photo-mechanical work, tending to abolish some of the vicious terms which have been introduced in practice. It has equally given rules for the formation of words designating the diverse applications of photography.

Ninth Question.—Custom House formalities relating to the passing of sensitive preparations.

The Congress suggests that the custom houses of different countries shall make the necessary arrangements for opening in dark rooms only, packages containing sensitive preparations. It has adopted a special mark, a red sun on a black ground, with an inscription in two languages, to denote the contents as sensitive plates.

Tenth Question.—Protection of artistic property in photographic work.

The Congress has expressed the opinion that photographs should be protected by the same laws as those which apply to artistic property. It has stated the points which it recommends should furnish the basis of legislation, namely: Distinction to be established between the proprietary right in a negative and the right to use the negative. In default of a special agreement, the negative shall belong to the photographer who took it, but not the right of reproduction from the negative without the consent of the sitter.

General Agreements.—The Congress proposes to unite with a new International Congress to be held in Brussels in 1890, and has nominated a committee to make the necessary arrangements. It has handed to this committee various papers and propositions which have been made to it. Finally, it has adopted a special mark—sun, with monogram—to distinguish all apparatus which shall be made in conformity with the decisions of the International Congress of Photography.

THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

THE Fourth Annual Convention of the British Association of Photographers was held this year in London, under the Presidency of Mr. Andrew Pringle. The place of meeting was at St. James' Hall, Piccadilly, and the Convention extended from Monday evening (August 19th) to Saturday of the same week. It was in every way a successful Convention, though the attendance was rather smaller than had been hoped and than would have been the case had the season been earlier—a time more convenient for professional photographers.

The first Convention of this Association was held at Derby, in 1886, the two following gatherings occurring at Glasgow and Birmingham. Next year it has been decided to hold the meetings in Chester, with Prof. C. H. Bothamley as President.

The Convention opened with a *conversazione*, Monday evening, at which time President Pringle delivered his admirable address on the history of photography from its birth, as a practical science, to this its "jubilee" year. "A more momentous story," he said, "more gigantic and sudden strides, more at once of patient labor and of brilliant genius, will not be found to mark the history of any science than that of photography."

The photographic excursions were participated in by a number of the Conventioners every day, and in the evening papers were read, followed by discussion, and the usual lantern exhibition. We begin the publication, in this issue, of the papers read, which will be of most interest and value to our readers. An exhibition of apparatus and a small one of photographs, was open daily from ten till six. We understand that the exhibition of the Eastman Dry Plate and Film Company —made by its London house, under the management of Mr. Walker—was especially noteworthy.

Among those present at the Convention were noted the following: President A. Pringle, Ex-President J. Traill Taylor, Honorary Secretary Briginshaw, President-Elect Prof. C. H. Bothamley, and Messrs. F. A. Bridge, F. P. Cembrano, R. Keene, George Mason, A. Tait, J. B. B. Wellington, S. G. B. Wollastan, Edgar Clifton, G. Lindsay Johnson, H. P. Robinson, F. T. Lambert, W. H. Harrison, H. M. Hastings, J. Hay Taylor, W. H. Walker, H. S. Bellsmith, G. Davison, A. R. Dresser, S. H. Fry, B. J. Edwards, S. W. Rouch, W. Adcock, J. Fortuné Nott, Alexander Cowan, W. Lang, Jr.; Friese Greene, H. M. Smith, W. England, J. Peasgood, G. Watmough Webster, Eadweard Muybridge, T. Dallmeyer; at no time did the number of those present exceed two hundred and fifty.

EDITORIAL NOTES.

SOME time ago we published the names of a few of the summer hotels which had fitted up dark-rooms for the convenience of their photographic guests, and invited all hotels who had thus provided for the wants of travelling photographers, to acquaint us with the fact, for publication. The following list of hotels in the United States having special dark-rooms arranged for photographic purposes, was compiled by the Society of Amateur Photographers of this city. It is our desire to complete the list, and we therefore repeat the invitation given in these columns some weeks ago.

"The Raymond," Pasadena, Cal.

"San Marco," Santa Barbara, Cal.

"Del Monte," Monterey, Cal.

"Spencer House," Niagara Falls, N. Y.

"Slide Mountain House, Big Indian, Catskill Mountains, N. Y.

"High Falls Hotel," Dingman's Ferry, N. Y.

"Fort William Henry Hotel," Lake George, N.Y.

"Profile House," White Mountains, New Hampshire.

"The Westport Inn," Westport on Lake Champlain, N. Y.

"Hotel Del Coronado," San Diego, Cal.

THE New York *Sun* of recent issue contained a column illustration of the new German Lloyd Steamship, "Kaiser William II," made from a "detective" negative, and boasted that the whole process, including the development of the negative, its fixing, washing, intensifying, second washing, drying, and making the silver print therefrom, occupied just fifty-eight minutes. "The drawing of the steamship in pen and ink from proof, and engraving, was done as quickly as possible by rapid artists," says the *Sun*, "and the quick photo-engraving process was employed to give the result shown. The picture of the steamship reached New York before the steamship itself. Ask any professional photographer if that can be done in the time, and he will say that it is impossible."

We know of one photographer who will not say it is impossible, for he has himself developed the negative in five minutes, fixed, washed, and eliminated the hypo in fifteen minutes more, dried the plate in alcohol in eight minutes, and he had a print on plain paper for the draughtsman in five minutes more, fixed it, washed and mounted it in

the twelve following minutes, thus finishing the entire part of the photographic work in forty-five minutes, or thirteen minutes quicker than the *Sun* photographer requires.

We understand from the publishers that enough illustrations for "The American Annual of Photography for 1890" have already been accepted to make that volume the best and most copiously, illustrated photographic annual which has ever been published. The selection of negatives has been most careful; in every case they were required to be not only the best of their class sent in, but also up to a certain definite high standard. Of course, the particular qualities required by the various photo-reproductive processes were considered in selecting negatives of equal pictorial interest. The competition has been open to all, and there was no favor shown. A special effort has been made this year to secure pictures possessing historic interest, and it is the intention of the promoters of this book to make such illustrations a feature of succeeding issues. Novel results are also desirable, and the forthcoming volume will contain more than one such result, which will prove highly acceptable to its readers.

QUALITY NOT QUANTITY.

It seems scarcely necessary to discuss the question of motive! everybody acts from some motive, you know, but in connection with amateur photography there is so often a total want of apparent motive as to give the act or its results a ridiculous aspect.

From the moment when the idea takes possession of an individual there is but too often a general mistiness in regard to the "why and wherefore," and when such is the case it is pretty certain to attend one through numerous failures to partial success, or final disgust and abandonment.

I will venture the opinion that there is but one real, lasting, satisfying object in the pursuit of photography pure and simple by amateurs, and that is the production of *artistic* results.

It may be laying down "hard lines" for the average amateur to say *quality not quantity*, and to insist on it, but like bitter medicine it must be taken if the child is to improve.

There is the same tendency here to slipshod, careless practice as in everything else, and there is also a grand opportunity to display careful thought and painstaking, and to profit by it.

Let one's ideal be rightly chosen, placed high, and kept always in mind, and more and more creditable results will follow.

We will presume that you have surmounted to a reasonable degree all the uncertainties of exposure and development, and can produce negatives having good printing qualities with average certainty, (the importance of which is not to be slighted) but when the prints have been handed around a few times they fail to excite the same interest or draw forth the desired compliment. Have you discovered the reason? Did you ever think about it?

You have doubtless noticed that one, two or three particular prints among your specimens generally interest all who inspect them, that is, aside from any personal interest which the beholder may have in the scenes. Take these interesting prints and compare them thoughtfully one by one with the whole raft, and try to discover the reason why the few interest, and the many do not.

These few were happy results of favoring circumstances. Try to discover what those favoring circumstances were in principle. The subjects may be widely diverse but the principle remains constant. That picture which generally interests, and is commented upon, has within itself a clearly illustrated proposition, or the answer to a proposition. In other words there is a motive, a *raison d'être*, which appeals to the observer's sympathy or humor.

In the choice of subjects have in mind that there is more to be considered than a proper balance of light and shade, focus and exposure, a something without which the picture is spiritless and of transient interest only.

If, at the start, photography is taken up with some settled object in view, a decided motive, and the idea of a motive rules all operations, and the motive is honestly known and understood, progress will be correspondingly rapid, and the results equally appreciated and creditable.

This may be taken as a plea for illustrative or *genré* pictures (which, by the way, usually must fulfil the qualifications suggested), but the idea is not limited to such, as may be seen upon consideration. The commonest view may be capable of improvement by the judicious suggestion of a motive. The location of a figure, its position, the expression of the face, the tilt of a hat, or the curve of a finger, will often tell upon the result. It is usually most difficult to control all these things, or even one, and the amateur's ingenuity must help out by indirection when other means fail.

C. D. Cheney.

DESENSITISING AND RESENSITISING ALBUMENISED PAPER.

(Abstract of the paper read before the Photographic Convention of the United Kingdom.)

THE object of the few experiments I have been making is to ascertain whether it is possible to thoroughly desensitise paper which has once been made sensitive to light, and again resensitise it so as to obtain passable prints from such paper. Had I made my experiments first I should not, most probably, have chosen the title that appears at the top, because as far as I have gone none of the ordinary reagents that I have employed deprive the paper entirely of its sensitiveness to light. The rate at which it prints is very much modified, and as a rule, the slower the printing the less satisfactory the result.

The paper I employed, and which I will call normal paper, was prepared as follows: Ordinary albumenized paper was floated for three minutes on a fifty-grain to the ounce solution of nitrate of silver. Four sheets were thus treated; after the last sheet had been floated the solution was returned to the bottle and the dish washed out, and then about three pints of distilled water was poured in; each sheet was floated on this for about three minutes; this water was then poured out and replaced by a fresh three pints, and the washing by floatation repeated. The paper was after each floating thrown over some blotting-paper on a line, albumenized surface upwards. This was done on Saturday morning; in the evening, when the paper was thoroughly air-dry, each sheet was folded into four quarters and placed in a 12x10 printing frame.

The printing was done on Monday and Tuesday, so that the paper was kept about seventy-eight hours between the sensitizing and toning.

The first thing to ascertain was what kind of print could be obtained from this my normal paper. It printed but slowly, and the finished result is not very satisfactory.

In most cases I have printed from two negatives paper treated in identically the same manner. One of these negatives takes twice as long to print as the other.

My next experiment was to try the effect of fuming, *i. e.*, of subjugating the normal paper to the influence of ammonia gas either previous to or during the printing. Two pieces of paper were placed in a box containing ammonia in a saucer, and left there for about twenty minutes, and then printed; the results yielded in this case are far in advance of the normal paper. In order to fume the paper during the printing, I took a whole sheet of blotting paper and folded it so that it was eight thicknesses, then, having unfolded it, placed it in the fuming box for about a quarter of an hour; at the end of that time it was again folded, and at once placed in contact with the back of the normal paper which had already been adjusted on the negative. The result in this case is intermediate between the non-fumed and the fumed. In order to prevent the too rapid escape of the ammonia from the fumed blotting-paper or pad, a piece of paraffined paper was placed between it and the back.

Finding that the simple washing of the paper had only partly desensitised it, I was curious to ascertain what would happen if the whole of the pure nitrate of silver were removed from the paper before printing. In order to effect this I washed the normal paper in three changes of water for about four or five minutes each, and then immersed the paper in a solution of chloride of sodium (common salt). It was again worked in a couple of changes of water, and then dried. The print obtained in this way was very poor indeed, in fact the most unsatisfactory of all. I then fumed the other piece that had been thus treated, and though it gave a better print the result is far from satisfactory.

Citrate of soda has frequently been recommended as a preservative when applied to the back of sensitive paper, but, as far as I am aware, no one has shown what its influence is on the quality of the resulting print, or on the time required to produce a sufficiently deep impression. I therefore treated some of my normal paper with a ten per cent. solution of neutral citrate of soda back and front, and in order to find out how such paper would print fumed and unfumed, instead of printing two separate pieces under each negative, I covered one half of the paper when placed on the negative with paraffined paper, and then I placed on the whole pads of blotting-paper, which had been fumed. The portion subjected to the action of the ammonia gave a slightly better image, but the difference was not so great as I expected. A better result would most probably have been obtained had the paper been actually fumed instead of the pads. It was in consequence of this result that I thought it would be better in future to fume the paper before printing, instead of doing it during the operation. The time required to produce a sufficiently dark print was much longer than with normal fumed paper.

At our last meeting in Birmingham a paper was read on behalf of Mr. Watmough Webster, on the preservation of sensitised paper by means of paper impregnated with dry carbonate of soda, and I thought it might be useful to ascertain the effect of

this salt, when actually in the paper, before and during printing. The results I have obtained on paper treated to ten per cent solution of the salts are not very good ; the prints are what one usually calls *mealy*, and I noticed that those pieces whose backs were floated on this salt became very absorbent, resembling very much certain brands of ready sensitised paper which one comes across at times. Two pieces I fumed before printing, and the results obtained by this method are, I think, equal to the very best that I have obtained by any of the treatments to which I have subjected the paper. In several cases I floated the front of the paper only on the salt in solution, in others I treated the fronts of some and backs of others to the salt in order to see what the difference is, and in the case of the carbonate of soda-treated paper the result is decidedly in favor of the back being treated and fumed afterwards.

Rochelle salt (double tartrate of potassium and sodium) has frequently been recommended in different formulæ for printing-out papers, and Mr. J. Barker was, I think, among the first to work out a printing process in which gelatine was used as the vehicle and tartrate of silver one of the sensitive compounds, and I therefore thought some useful information might be obtained by treating paper with a ten per cent. solution of Rochelle salt, as undoubtedly the remaining free nitrate of silver would be converted partly into tartrate. The prints produced on the paper thus treated are poor and mealy, but when the paper has been fumed the results are very satisfactory.

The last set of experiments I made was to treat the paper with nitrite of potash, a salt which I think Captain Abney has at different times recommended in conjunction with others as a preservative. In all cases when trying the effects of salts as preservatives, the first consideration ought to be the effect it has on the image independent of its preserving action. In the case of nitrate of potash I find it to improve very considerably the quality of the resulting print when used by itself. I do not know whether this is due to the nitrite or to the fact that this is an alkaline salt, and the alkaline nature of the salt may have acted beneficially. When fumed with ammonia there is not such a marked difference as in the other cases. Nitrite of potash, therefore, seems to confer a quality on the paper not possessed by the paper when treated with any of the other salts I have employed.

At the meeting of the London and Provincial Photographic Association it was suggested that I should see what could be produced on paper prepared in the same manner as the other, but unwashed, and I have therefore added to the series of prints one from each negative on plain freshly sensitized paper.

When time will allow I propose continuing these experiments so as to find out the effects on washed paper, and, if possible, to work out as regards their preserving action those which are the most promising.

S. Haddon.

A SUGGESTION FOR A METHOD OF ASCERTAINING THE COMPARATIVE RAPIDITY AND PRINTING VALUE OF GELATINO-BROMIDE PLATES.

[Read before the Photographic Convention of the United Kingdom.]

A RELIABLE method of ascertaining the *practical* value of the sensitiveness of gelatine plates is, to use a stock expression, "a want long felt." Many ingenious devices have from time to time been suggested, Mr. Warnerke's sensitometer being perhaps the best—still this, as manufactured, is far from being uniform and above suspicion as a guide. In the suggestion I am about to make, my idea is to have a reliable standard of *comparison*, so that a negative can be justly estimated as to its *printing* qualities and the length of exposure required to produce it by anyone skilled in photography or otherwise. Hitherto, the plan has been to ascertain how the strongest image can be made with the weakest light, under certain specified conditions; a film giving the most detail and strength when exposed for a definite time to somewhat weak artificial light being deemed most sensitive. Now, if the effect of weak artificial light was identical in its effect with strong daylight, no doubt the results would be more reliable, but this does not seem, to judge by ordinary practice, to be the case.

In the first instance I propose to make a series of standard negatives of convenient size, say one inch square or thereabouts, as follows: Take any good, not too rapid plate, expose on an ordinary well-lighted landscape for the necessary time (this expression, although indefinite in itself, is easily understood as a period sufficient to impress an image on the sensitive film, so that it is in the best condition for development), this time might be determined by choosing a light that will produce a certain tint on a strip of sensitive paper, such as used for actinometers. A very close approximation to uniformity in the quality of the light would be thus obtained. Use a stop, say No. 128 U. S. We will assume it requires an exposure of

three seconds to produce the best image. Several exposures, however, might be made to be certain of this. Secondly, make a series of exposures of the same subject in the same light for varying times, from one-tenth of a second to eight seconds, thus, one-tenth, one-fifth, one-fourth, one-half—1, 2, 3, 4, 5, 6, 7, 8. It stands to reason if No. 3, taking the numbers to represent seconds and fractions of seconds, is right, the others will be too much or too little exposed, as the development, which must be for a *definite* time, all the negatives being developed together, would show either under or over exposure. The developer itself should be one whose constituents are not likely to vary. By this means we obtain a series of negatives of varying qualities, which may be arranged in two rows of five each on one plate, and to each the time of exposure should be attached. These are now our gauge negatives, and can be reproduced in any quantities, identical in all respects by means of a carbon transparency and copying. All we have to do, to ascertain the comparative rapidity of a plate, is to make a proper exposure on the plate to be tested and develop it by a similar developer and compare the results with the gauge plate; this will show the actual *printing value* of the negative, which is practically all we require. If the exposure is less than for the best exposure on the gauge, we at once see that it is a more rapid plate; if more, then it is a slower one. I am inclined to think that a direct *comparison* with a *known* high-quality image would be the most useful plan of estimating the printing quality of a negative the photographer could adopt, and a plan that especially recommends itself to those who only have the opportunity of practising occasionally.

Edward Dunmore.

ORTHOCHROMATIC PHOTOGRAPHY WITH GELATINE PLATES.

[Read before the Photographic Convention of the United Kingdom.]

To address the convention again on orthochromatic photography presents some little difficulty, because on the one hand there are many in my audience who are well acquainted with the subject, whilst on the other hand there are some to whom it is not so familiar, and possibly even some to whom orthochromatic photography is only a name. I take it, however, that at this jubilee meeting of photographers it is desirable that the papers should, as far as possible, represent the present position of our knowledge, and I will, therefore, venture to recapitulate the main points that are already established.

Ordinary gelatine plates fail to represent colored objects with their proper degrees of relative brightness, or, as artists say, with true "values," because the plates are most sensitive to blue and violet rays, much less sensitive to green, and very slightly sensitive to yellow, orange, and red; whilst the human eye is most sensitive to yellow, somewhat less sensitive to green and orange, still less sensitive to red, and least sensitive of all to blue and violet. The rays which produce the greatest effect on a photographic plate are those which produce the least effect on the eye, and *vice versa*. As a necessary consequence, blue and violet objects are, in a photograph, much too bright, whilst green, yellow, orange, and red objects are much too dark. It follows that all photographs on ordinary plates of flowers, fruit, paintings, and similar objects are unsatisfactory, whilst in landscape work the foliage is much too dark, and has lost much of its roundness; water, reflecting the light from the sky, is much too bright, and a slight blue haze, almost imperceptible to the eye, is sufficient to blot out all the delicate details of the distance, on which the beauty of a view so often depends. In portraiture the flesh tints are much too heavy, and any freckles or similar defects become glaringly prominent.

To some extent these defects may be removed by interposing somewhere between the object and the plate a transparent yellow screen, which absorbs and cuts off the greater part of the blue and violet rays, and gives the green, yellow, and orange rays time to act, without any accompanying reversal. True values, however, can never be obtained in this way, because ordinary plates are always more sensitive to green than to yellow, and moreover, the total sensitiveness to green, yellow, and orange is so small, that under these conditions the exposure requires several hundred times the ordinary exposure. The negatives, too, are usually very deficient in vigor.

Vogel found, in 1873, that by treating plates with certain coloring matters, and especially with certain coal-tar dyes, they can be made sensitive to the green, yellow, orange, and red, or, as we may term them collectively, the less refrangible rays. The value of eosin for this purpose was first pointed out by Waterhouse, in 1876, and Tailfer, in 1882, was the first to obtain useful results with gelatine plates, an end which he achieved by the simultaneous application of eosin and an alkali.

Subsequent experiments, and especially those of Eder, have shown that the only dyes of practical value are cyanin and the dyes of the eosin group.

These may either be added to the emulsion or applied to ordinary plates in the form of a bath. In the first case the dye is either added to the materials before emulsifying, or to the melted emulsion before coating. According to Tailfer's specification it is necessary to add ammonia or some other alkali at the same time. In the second case the plates are immersed for a short time in a dilute aqueous or alcoholic solution of the dye, either with or without a certain quantity of ammonia. Sometimes the plate is immersed in a preliminary bath of very dilute ammonia, and sometimes it is washed after treatment with the dye solution, but neither of these courses is essential. A special modification of the bath method of sensitizing has been described by Ives, and will be referred to again later on.

My previous communications have dealt mainly with the comparative value of the various dyes of the eosin group, which is a somewhat large group; the efficiency of these and of cyanin, so far as regards obtaining true "values," and the relative merits of sensitizing in the emulsion or by means of a bath. I also exhibited the results of a number of experiments made with a view to ascertain the value of the methods from a practical photographic point of view. Stated as briefly as possible, the general conclusions arrived at were as follows: For all classes of work orthochromatic methods have considerable, and often very great, advantages over the ordinary method. This, in fact, is generally recognized, and these methods are now widely and largely applied in the reproduction of paintings, in microphotography, and in all kinds of work in which colored objects are dealt with. In landscape work their application is not so general, at any rate in this country, mainly, I believe, because the methods of working required to obtain satisfactory results are not yet generally known and diffused amongst photographers. Orthochromatic methods do certainly require more thought and skill than the ordinary method, and cannot be worked successfully in an unthinking and mechanical way. In the second place, I take it as established that although plates sensitized by means of a bath are somewhat, though not very much, inferior in keeping qualities to those sensitized in the emulsion, they have a much higher sensitiveness to the less refrangible rays. The testimony from many sources in favor of this conclusion is, in fact, overwhelming. Further, erythrosin, applied with ammonia, gives the highest sensitiveness at present obtainable, but the relative sensitiveness to green is too high and the values obtained are not quite correct; erythrosin without ammonia gives less sensitiveness, but somewhat truer values; rose Bengal with ammonia gives better values than can be obtained with any other single sensitizer, though the degree of sensitiveness is lower than with ammoniacal erythrosin; cyanin is the only dye of practical value as a sensitizer for orange and red, and should be used in conjunction with erythrosin, or, better, rose Bengal, for all objects in which orange and red, are at all prominent or important. One of the most important results which I obtained early in my experiments was the fact that a very considerable degree of sensitiveness can be obtained with a bath of erythrosin or rose Bengal containing no alkali at all—with the first dye, in fact, applied simply in aqueous solution; the sensitiveness to the less refrangible rays is as great as that of the commercial isochromatic plates, which are prepared according to Tailfer's specification by adding the dye and ammonia to the materials before emulsifying. I understand that Mr. Bedford obtained a similar result when sensitizing in the emulsion. Another interesting result was that, contrary to the statements of some experimenters, I obtained the same sensitiveness with an ammoniacal solution of ordinary erythrosin as with a solution of silver erythrosin. This conclusion has been amply confirmed by the later and more extensive experiments of Professor Zettnow, published in *Phot. Correspondez* in the early part of this year.

Lastly, with all methods of sensitizing at present known, the relative sensitiveness to blue and violet remains much too great, and correct values can only be obtained by using a transparent yellow screen to absorb and cut off the greater part of the blue and violet rays.

The bath processes having proved to be the most efficient, it seems desirable to investigate the various modifications which have been proposed, with a view to determine the best method of working. It was already known that the best degree of concentration of the bath depends on the nature of the dye to be used; that a bath too concentrated gives less sensitiveness; and that considerably greater sensitiveness can be obtained when an ammoniacal bath is used than with a simple aqueous solution. It was customary to treat the plates with a preliminary bath of plain ammonia of one or two per cent. It is stated in the Tailfer specification that it is better to add alcohol to the bath, and that the plates should be washed after treatment.

The English exploiter of this patent has indeed repeatedly asserted that this last part of the process is quite indispensable. Three points, then, require *quantitative* investigation, viz., the neces-

sity for or advantage of a preliminary bath; the influence of alcohol in the bath; the necessity for or advantage of washing after treatment with the dye.

The methods of measurement were the same as I described last year. The prepared plates were exposed for ten seconds to the light of the amyl acetate lamp at a distance of one metre, the plate being in contact wirh a Warneke sensitometer screen, immediately in front of which was a tank containing a one per cent. solution acid of picric acid two centimetres in thickness, which cut off all the rays more refrangible than the Fraunhofer line *b*. The plates were all developed together in the same dish, for three minutes, with a developer containing in each fluid ounce two grains of pyro, one grain of ammonium bromide, and four minims of liquor ammonia, ·880. The details of the experiments are given in the following table. The plates used were Edwards's instantaneous and Wratten and Wainwright's ordinary. The dye was erythrosin, and with Edwards's plates the bath contained one per cent. of ammonia, and with Wratten's plates two per cent. No preliminary bath was used, and the time of immersion was two minutes

Dye.	Alcohol.	After-treatment.	Sensitometer. Edwards.	Wratten.
1:10000 ..	None ..	Not washed ..	22	15
1:10000 ..	5 per cent. ..	Not washed ..	22	14
1:10000 ..	5 per cent. ..	Washed ..	22	13
1:10000 ..	10 per cent. ..	Washed ..	22	15
1:10000 ..	25 per cent. ..	Washed ..	22	12
1: 5000 ..	5 per cent. ..	Not washed ..	25	13
1: 5000 ..	5 per cent. ..	Washed ..	25	13
1: 5000 ..	10 per cent. ..	Washed ..	25	13
1: 5000 ..	25 per cent. ..	Washed ..	23	12
1: 2000 ..	5 per cent. ..	Washed ..	25	15
1: 2000 ..	10 per cent. ..	Washed ..	25	14
1: 2000 ..	25 per cent. ..	Washed ..	24	13

A second set of experiments, with special reference to the preliminary bath, was made with Edwards's plates and Paget Prize Plates XXX.

Dye.	Preliminary Bath.	After treatment.	Sensitometer. Edwards.	Paget.
1:10000 ..	None	Not washed	25—22	15—15
1:10000 ..	1 p. c. ammonia	Not washed	23—22	15—15
1:10000 ..	None	Washed	23	15
1:10000 ..	1 p. c. ammonia	Washed	22	15
1: 4000 ..	None	Not washed	22—25	15
1: 5000 ..	1 p. c. ammonia	Not washed	23—24	15—15
1: 5000 ..	None	Washed	25	15
1: 5000 ..	1 p. c. ammonia	Washed	22	15

Both sets of experiments were, of course, made in duplicate. The slight deviations are due to the difficulty of accurately measuring the exposures with the amyl acetate lamp in its original form. Where two numbers are given the first was obtained with good commercial erythrosin, and the second with specially purified erythrosin.

The conclusions to be drawn from these results are—(1.) Alcohol up to ten per cent. has no influence whatever, and may be dispensed with in all cases where the dye is soluble in water; alcohol in larger proportion produces a distinct decrease in sensitiveness. (2.) With a concentration of the dye up to 1:5000 the washing after immersion is quite unnecessary. (3.) The preliminary bath may be omitted. It is further to be noticed that nothing is gained at any rate with these three brands of plates, by increasing the concentration of the bath from 1 in 10,000 to 1 in 5,000. I believe, however, that with plates which have been prepared with hard gelatine, or which have been treated with chrome alum, it is advisable to use the stronger bath, or to increase the time of immersion.

Ives's method consists in flooding the plate with an alcoholic solution of the dye (containing one grain in four ounces), allowing the alcohol to evaporate, and then washing with water. It was not easy to see why this method should give better results than simply immersing the plate in an aqueous solution of the dye. Photo-metric experiments confirm this supposition. They also confirm Ives's statement, that if the plate is treated with the strong alcoholic solution and not washed, no sensitiveness to the less refrangible rays is obtained, doubtless because the alcoholic solution does not really penetrate the film. I was unable to get satisfactory results with cyanin in this way. I observed also that some films showed a great tendency to leave the glass altogether, a result due to the contractile influence of the alcohol. It is not at all improbable that the results will vary considerably with different specimens of gelatine.

Abney's method of sensitizing by means of a collodion or varnish film has completely failed in my hands.

It appears, then, that the best results are obtained in the simplest way. Dust the plate, immerse it for two or three minutes in a solution containing—

Dye solution 1·1000)	1–2 parts.
Ammonia (ten per cent.)	1 part.*
Water	8 parts.

Allow the plate to drain for some time, place the lower edge on blotting-paper in order to take off

* I believe I ought to point out that the use of an eosin dye with ammonia in this way is covered by Tailfer's patent. The ammonia may be left out if erythrosin or rose Bengal is used, but three or four times the exposure will be required.

the ridge of liquid which collects there, and dry in the dark in a pure atmosphere. Develop in ruby light with a developer containing about two grains of sodium or potassium meta-sulphite per ounce, in order to keep the liquid clear, and thus enable the process to be more readily watched. As a rule, density is obtained more easily than with ordinary plates, and it is not necessary, and often not desirable, to have more than one grain of pyro in each fluid ounce.

C. H. Bothamley.

(*To be continued.*)

Correspondence.

CONCERNING THE NATIONAL ASSOCIATION OF PHOTOGRAPHERS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: As the idea of a permanent home for our P. A. of A. Convention has located itself in the minds of several of our thinking members (said home to be our own, both ground and buildings, the buildings to be adapted to our wants, one for stock, one for photographic displays, and one for the meetings, with small rooms for other deeds), I would like to ask your ideas on the subject as regards feasibility, location, desirability, etc. Would it be better in some place like Chautauqua or in a central city like Buffalo; or do you think our present system of itinerancy better?

Very truly yours,

E. L.

[The idea of having a permanent home for the annual conventions is by no means a new one. Dr. Edward L. Wilson advocated it many years ago and was in favor of just such a place as Chautauqua. Now that Chautauqua has a flourishing School of Photography, that location would be still more desirable; but we should like to hear from others on this subject.—*Editor*, THE PHOTOGRAPHIC TIMES.]

WASHING PRINTS WITH "HARD" WATER.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Your answer to "Subscriber" in September 6, TIMES, in regard to the course and cure of the milky or greasy appearance of the surface of the pictures when washing and fixing with hard water, is correct provided the water is only moderately hard, but here in the Wabash Valley more heroic treatment is required.

After the prints are fixed and thoroughly washed, immerse them for a few minutes in a bath of water, 1 gallon to which had been added about two drams of muriatic acid. Wash again through two or three changes of water and they will be as clean as could be desired.

Yours truly,

J. R. Swain.

Dana, Ind., Sept. 12, 1889.

Notes and News.

A PHOTOGRAPH AS A WITNESS.—A photograph developed an important fact the other day in the inquest over those killed in the Forest Lawn railway accident. Witnesses all testified that the engineer of the express train reversed his lever before the collision occurred. The pictures indicates that the engine was not reversed at the moment of collision. The lever by which the link-motion is controlled by the engineer is not visible in the photograph, but a rod running from it to the shaft on which the links are suspended is plainly in view, and its position shows that the steam was operating to move the engine forward, instead of the reverse, when the collision took place.

HAVE THEY THOUGHT OF THIS?—The photographers in the East who have formed a trust will probably find that it will hurt their business. People who are compelled to pay trust prices do not wear that pleasant expression of countenance necessary for successful photographs. —*New York Sun.*

A REMARKABLE LIGHTNING FLASH PHOTOGRAPHED.—*Once a Week* reports that during the thunderstorm of May 20th at Hong Kong, the lightning was peculiarly vivid, and during the height of the storm a photograph was taken of one of the most blinding flashes. It spread over a great extent of the heavens, and seemed to strike the P. and O. mail steamer lying in Hong Kong Harbor. From the main line of the flash subsidiary flashes, like the tributaries of a great river, spread out on each side. The reflection upon the sea was almost as broad as that cast by the moon when full.

THE LATEST USE OF PHOTOGRAPHY, according to the daily press, is to make a cannon ball take a picture of its own wabblings. An arrangement something like a camera is to be placed in the forward end of the projectile, and when it is fired directly at the sun the light traces lines upon the plate, from the direction of which it can be told whether the projectile has kept in one position or has wavered to and fro during its flight.

TO MAKE MIDNIGHT PHOTOS IN TENEMENTS.—President Wilson, of the Health Department, has determined that overcrowding of tenement-houses shall cease, and he intends, first of all to get ocular proof of such overcrowding before he commences his attack. There are several photographers in the Department, and they will make midnight trips to the "Bend" in Mulberry Street and to Hester Street and its vicinity. The President also intends that the law providing that water shall be placed on every floor of tenements shall be enforced.—*New York World.*

LET THIS BE A LESSON.—*Town Topics* says the detective camera that is now so popular is put to stranger uses on some occasions than would be generally imagined, and the fact that the professional photographers, by whom amateur pictures are finished, refuse to handle any subjects that might bring the rose of modesty to the cheek of virtue is all that prevents the country being overrun with

some strange, not to say repulsive, representations of unconventional scenes. In fact, the utter inability of a young Bar Harbor reveller to get a number of plates finished has saved, I happen to know, a pretty but woefully unwise young woman from Philadelphia such humiliation and shame as she would never have been able to outlive. She imagined, when she posed so generously for her lover, that she was confessing her attractions to a a man of honor, but, as is too often the case in mad midsummer passions, he proved to be a cad of the basest type. The well-known Boston Photographer who returned the plates to the amateur, refusing, in a sharp note, to touch them, conferred upon the conceited creature who had unveiled herself so brazenly such a blessing as she can never repay.

COPYING DRAWINGS BY THE AID OF A CAMERA.—Thomas Scotton, in a recent issue of the *Scientific American*, writes: Mechanical drawings are sometimes required to be reduced by the aid of photography with the camera. I may say the best results are to be obtained by the wet or collodion process, but very good negatives can be secured with a dry plate, if properly managed. The greatest drawback with the dry plate is the probability of the fine lines on the drawing becoming clogged or veiled over during development.

But I have seen an excellent developer mentioned in the *British Journal of Photography* a few months ago which I have tried with excellent results. It may not, perhaps, be out of place to give it here for the benefit of those who, like myself, have sometimes line subjects to copy:

Carbonate of potassium	360 grains
Sulphite of sodium	360 grains
Water	6 ounces

To each ounce of developer, two drams of this solution, together with thirty or forty minims of the ordinary ten per cent. solution of pyro (and sulphite), are added. The mode of development found to answer best is to soak the plate first of all in gallic acid solution (two grains to the ounce) for half a minute or so, and then transfer it direct to the developer, where, in about another half minute, the image begins to appear. Watch carefully, and when the details in the darkest part of the picture acquire tolerable strength, add five minims of a sixty-grain bromide solution, and proceed until sufficient density is acquired. Should matters hang fire at all, a few drops of the ordinary dilute ammonia solution may be added to freshen up the developer, but this is rarely needed if the exposure has been correct.

On the latter point a word may be said. Though the use of gallic acid does not necessarily lengthen the exposure required, it has been found better to give more than is absolutely necessary. Thus, if five seconds be sufficient to produce a perfect image under ordinary circumstances, give ten or even fifteen. The result will be quicker development and less necessity for forcing, and hence less chance of fog, stain, or filling up the lines. Six times the normal exposure has not produced any signs of the plate being overdone, indeed it seems next to impossible to produce such a result when the gallic acid is employed in the manner described.

PHOTOGRAPHS AND CHARACTER.—I feel sometimes that phrenology is the refuge of mediocrity. Its charts are almost as misleading concerning character as photographs, and photography may be described as the art which enables common-place mediocrity to look like genius. The heavy-jowled man with shallow cerebrum has only to incline his head so that the lying instrument can select a favorable focus, to appear in the picture with the brow of a sage and the chin of a poet. Of all the arts for ministering to human vanity, the photograph is the most useful, but it is a poor aid in the revelation of character. You shall learn more of a man's real nature by seeing him walk once up the broad aisle of his church to his pew on Sunday, than by studying his photograph for a month.—*Backlog Studies.*

PHOTOGRAPHY IN THE COUNTRY.—"There." said a grizzly old Long Island farmer to a *World* reporter as he stepped from a suburban train, "you see that big rock yonder with the tree growing out of the top of it? Well, that rock has been took by just 200 young city fellers. They get off the train, and the first thing they see is my big boulder, and they pitch their photograph things out in the road and shoot at it." From all accounts the ranks of the amateur photographers' army have been recruited this summer by several thousand camera fiends. The fraternity has grown so rapidly that it supports a trade journal, THE PHOTOGRAPHIC TIMES, edited by W. I. Lincoln Adams, an expert with the camera. The craze has seized all kinds and manners of people, and a small outfit may now be bought for a reasonable figure which will permit an amateur to photograph his sweetheart as many times as the girl will agree to "sit just as you are for a minute." There are, however, two branches of industry which suffer from the onward march of the camera and lens—the professional photographers and the farmers. The former say that business is falling off, and the latter send up a wail that the ambitious amateur rushes through cornfields and potato patches, trampling down the crops regardless of damage when once his eye is glued on some picturesque nothing in the field.—*N. Y. World.*

CROSSING THE PHOTOGRAPHIC RUBICON.—The New York *Spellbinder* for September, says that President Harrison's worst enemy about Deer Park, Md., is Rubicon Seers, the photographer. Rubicon went up to the cottage before the President left and when Mr. Halford came to the door, he said: "Are you the President?"

Mr. Halford hedged, then he couched modestly, and said: "No-o, that is not yet."

"I want to see the President," said Rubicon.

"What for?" asked the Seeretary.

"I thought as I was going to take a picture of the house that I'd like to have the President swinging in the hammock. I wouldn't ask it, but I turned a hundred niggers up in the mines to vote for Harrison, and I haint asked any office."

"The President is engaged," said Mr. Halford, and no amount of persuasion on Rubicon Sear's part could prevail.

Rubicon was mad. He went to his tent and drank a quart bottle of alcohol, and just before he went off on a snake hunt Rubicon swore. and said, "I'll make him lose a thousand votes for it." It is dangerous for even a President to cross a Rubicon.

AWARDED WITH THEIR PHOTOGRAPHS.—Lillian Russell, Laura Moore, Fanny Rice, Marion Manola, Bessie Sanson, Isabella Urquart, Sylvia Gerrish, and a number of other actresses, gave their photographs, with autographs, to the best batters, fielders and base-runners in a recent base-ball game at the new Polo Ground in New York. Nearly every actor and actress of prominence in the city was present.

Photographic Societies.

THE SCHUYLKILL CAMERA CLUB.

THE Schuylkill Camera Club, at Pottsville, Pa., was organized, August 2d, with the following officers: President, George M. Bretz; Vice-President, E. F. C. Davis; Treasurer, B. F. Patterson; Secretary, Jay G. Shumway. A constitution was adopted, and it was resolved that all persons who were present at the first three meetings should be considered chartered members.

CHICAGO CAMERA CLUB.

THE management desires to announce that the rooms of the Chicago Camera Club are now fully equipped and ready for use. The location is at 182 Wabash Avenue—take elevator to the fifth floor. The rooms will be kept open continuously after this date, from 9 o'clock A.M. until 6 o'clock P.M., an arrangement having been made with Mr. F. W. Marshall by which Mrs. Marshall will take care of the rooms and keep them open in consideration of the privilege of taking orders for photographic printing, etc., from members (see circular enclosed).

Members desiring access to the club-rooms on holidays or evenings can obtain keys of the Treasurer at the cost of making—25 cents each. The elevator does not run after 6 P.M., so after that hour, and on holidays, the stairway may be used. Visitors may be introduced by members at any time, and you will find the club's facilities unexcelled if you wish to make large portraits or groups of your family or friends, or enlargements, as beautiful new scenery and accessories are now in place. Chemicals are furnished free for use in the club-rooms.

We trust that the members will appreciate the service rendered by Mr. Marshall, by which a large item of expense is saved the club, and will favor him with their orders for printing. The quality of his work will show for itself. Members wishing lockers for individual use may secure them upon application to the Secretary, at the cost of building them—two dollars. Members having friends whom they desire to propose for membership will please do so as soon as possible, as the club-book will soon be published, with list of members, which it is desired to have complete.

Fred. K. Morrill.
Secretary.

WE have been informed that the Garfield Bank Interior, which embellished these columns not long ago, as well as "An Architectural Study," presented to our subscribers last week, were reproduced from negatives on Carbutt's reliable Keystone plates. The excellence of the work made on these plates is always the best testimonial to their superior qualities.

Queries and Answers.

184 "RETOUCHER" asks the following question: "Can Gihon's Opaque be removed from a negative, and how?

184 *Answer.*—If the negative has been varnished, wipe the opaque off with a wet sponge; if not, soak it for a few minutes in water, and rinse under the tap.

185 WILLAM WURTEMBERG requests (1) that we inform him what all around developer is, in our opinion, the best for dry plates. He is using the "Seed" plates. (2) In retouching negatives, is it artistic to remove freckles?

185 *Answer.*—(1) The Chautauqua Soda Developer found in "The American Annual of Photography for 1889," on page 265, Number 57. (2) It is, if properly done.

186 N. A. asks whether there is a special tax in Texas called the "Occupation Tax," and if so, how it affects photographers?

186 *Answer.*—There is such a tax, and under that law a photographer's license is for City, $7.00; County, $7.00; State, $14.00; total, $28.00. Thus, a photographer in Texas has to pay $28.00 each year for the privilege of carrying on his business.

187 HARRY VAN CLEEF wishes to be informed how long an exposure is required when using Carbutt's "B." plates, sensitometer 16, and a Waterbury "A" lens, with stop $\frac{f}{16}$, on a bright day.

187 *Answer.*—It will take from three to five seconds, according to the state of the light and atmosphere, color of the subject, distance from it, etc.

188 T. C. JACKSON asks what causes the spots on a negative that are shown on the print which he encloses.

188 *Answer.*—These spots are occasioned by blisters that occur with some brands of plates, and also when water and developer are of a high temperature.

189 REV. JOSEPH CLARKS wishes to know how to get rid of the red effect with ready-sensitized paper.

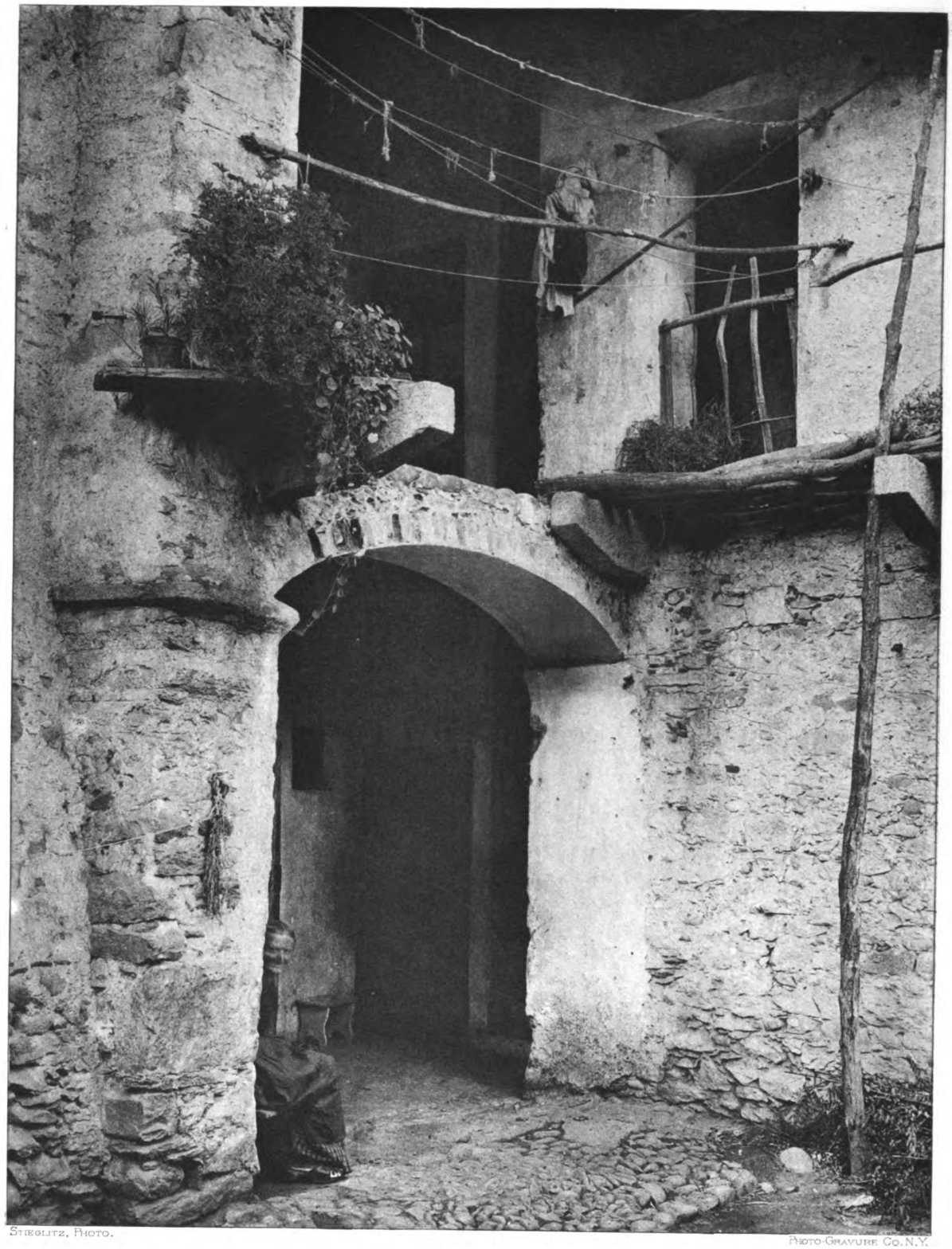
189 *Answer.*—We advise yau to read the lesson on "Printing on Ready-Sensitized Paper," which you will find on Pages 53-56 of "The Photographic Instructor," published by the Scovill & Adams Company, New York.

190 FRED. C. PARKER writes: "Please inform me (1) which toning bath of the number mentioned in "The Photographic Times Almanac" for 1889, or any other book which I might purchase, tones prints made on your ready-sensitized paper in the best manner and gives best results. I desire a brownish-black tone." He also asks (2) for directions for manipulating Harvard plates; and (3) he wishes to know whether the Seed No. 26, Cramer No. 40 or 60, or the fastest Harvard is the quickest-working of the three brands mentioned.

190 *Answer.*—(1) The Chautauqua Toning Bath, found in "The American Annual of Photography" for 1889. See Number 60 of Standard Formulæ.

(2) Number 46 of the "Standard Formulæ" gives the Harvard Developer.

(3) This could only be determined by an accurate comparative test.



STIEGLITZ, PHOTO. PHOTO-GRAVURE CO. N.Y.

A COTTAGE CORNER.

PHOTOGRAPHIC TIMES

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, SEPTEMBER 27, 1889. No. 419.

A COTTAGE CORNER.

IT is with especial pleasure that we present our readers this week, the picture entitled "A Cottage Corner," by Alfred Stieglitz, of Berlin, Germany.

Concerning the picture, Herr Stieglitz writes as follows, from Germany: "While spending a few days in the highly picturesque and beautifully situated little town of Pallanga on the Lago di Maggiore, I took a rather long walk with my friend, the camera, one evening, and was charmed with the picturesqueness of the style of architecture of the houses occupied by the poorer classes. I photographed the reproduced bit, simply on account of its picturesqueness and as a study. The house had no other centre of attraction, and was of no historical interest."

It is certainly of great pictorial interest, and being a characteristic cottage corner in Italy, possesses an added charm for our readers.

EIKONOGEN.

THIS new developing agent is growing in favor every day. It bids fair to supplant in popular esteem the late favorite—hydrochinon. It certainly deserves a careful and impartial trial. Of course its individual value as a developer can only be determined by comparing it accurately with other developing agents. A course of careful experiments is now being conducted with eikonogen in the laboratory of THE PHOTOGRAPHIC TIMES. The result will be given our readers in due time.

Eikonogen, chemically speaking, is an exceedingly complicated substance. It is said to be an amido-B-naphtol-B-monosulphonate of sodium, and may be written symbolically:

$$C_{10}H_5\begin{cases} SO_3Na \\ O\ H \\ N\ H_2 \end{cases}$$

Its rather difficult and variously-pronounced name literally means picture-making. It is a small reddish-gray crystal, dark-green in aqueous solution, odorless, tasteless, and non-poisonous It possesses the quality (so highly esteemed by amateurs and ladies) of not staining the fingers of the operator. It will even remove pyro stains from the hands. A great advantage of this new agent seems to be its power of bringing forth the finish details in the deepest shadows; but it is thought by some to yield negatives of scarcely sufficient printing density. Intensification of the negative, however, yields a very good printer; and, probably, as greater familiarity is acquired in the use of this new developer, it will be compounded in such a way as to overcome this seeming defect, at present.

The proportions of alkali are as important with this as with any other developer. Green fog occurs when a very long development in highly alkaline solutions is required by too brief an exposure. A full-timed plate yields an excellent negative with eikonogen. It is especially valuable in case of over-exposure. A plate exceedingly over-exposed is claimed by some to be easily saved by the use of eikonogen. We would say that, as a rule, it requires about the same exposure which the ferrous oxalate demands.

In one solution it is as impossible to produce fine results as with other one-solution developers, for we have not the latitude of modification required for the finest work. In two solutions a plate can be developed intelligently, and the results only limited by the experience of the operator in timing, and his skill in developing. Later we shall have more definite reports to give concerning this new and promising developing agent.

THE CHAUTAUQUA SCHOOL OF PHOTOGRAPHY.

THE POST-GRADUATE COURSE; 1889–'90.

THE Managers of the Chautauqua School of Photography announce an additional course of instruction in the Correspondence Classes, begin-

ning with October 1st, this year. Chemistry, optics, and art in photography will be the subjects in this, as it were, a post-graduate course. Only graduates of the previous Corresponding or Practical classes, or those who by previous examination shall prove themselves to be in equal standing with graduates, shall be eligible for instruction in this latest course of the School of Photography, and the rules governing the new classes will be similiar to those adopted by the C. L. S. C. The instruction will consist in the reading of certain prescribed text-books and journals, and written explanations by the instructor who will, as heretofore, adapt himself to the peculiar needs of individual students. The answers to questions will be printed, as formerly, in the Chautauqua School of Photography Department in the monthly PHOTOGRAPHIC TIMES, and certain portions of the official organ are required to be read each month. The course of instruction will be divided into two terms, the first beginning October 1, 1889, and closing May 1, 1890, and the second beginning October 1, 1890, and continuing till May 1, 1891. On January and April 1st of each term the instructor will send out to every student the twenty examination questions taken from the required reading and covering the instructions which have been given throughout the term. On correctly answering eighty per cent. of the questions and submitting six finished photographs of a certain quality, the student is entitled to a Chautauqua diploma. Students may be admitted to the post-graduate classes at any time, and the course of instruction will be regulated in accordance with the time of admission.

Tuition for the course of instruction, together with expenses for text-books, etc., will be but $6.

Application for admission to the post-graduate classes should be made to Miss Kate Kimball, of the Chautauqua University, Plainfield, N. J., or to the Instructor of the school, Professor Charles Ehrmann, 423 Broome Street, New York. Professor Ehrmann will also be pleased to give any further particulars to those interested in these classes, and will take pleasure in answering any questions concerning them which may be addressed to him.

EDITORIAL NOTES.

WE reprint, by request, in another column, the article on YELLOW NEGATIVES, by Mr. Wilfred A. French, which originally appeared in the PHOTOGRAPHIC TIMES of September 14th, 1888. That issue being out of print, but frequent demands for copies containing this article being continued, it was requested that we give the article once more to our readers. This we take pleasure in doing.

IN his account of the voyage of the "Mud Hen," Doctor Garrison gives a valuable suggestion to amateurs who are in search of novel photographic outings.

WE also call attention to the editorial on Eikonogen which appears in this issue. Frequent inquiries have been made concerning the nature and qualities of this new developing agent, and our readers will, therefore, be glad to know more about it. In a later issue we shall publish the results of our comparative experiments with the new substance.

THE encouraging comments on our enterprise, in publishing last week so complete a report of the International Congress of Photographers at Paris, which have reached us, call to mind a fact to which our readers will bear testimony we never speak of editorially. Though the International Congress of Photographers has been variously reported abroad as to its real importance, there is no doubt that the questions answered at that Congress are of real value. Yet THE PHOTOGRAPHIC TIMES is the only journal in America to give the results of this Congress to its readers, and they were given, too, before the European journals containing them had reached American photographers.

WHILE speaking on this subject, we would also call attention to our report of the Photographic Convention of the United Kingdom of Great Britain, also in a previous issue. We conclude the publication of Professor Bothamley's important paper, read at that convention, in this number. The first part was published last week, together with a valuable paper by S. Haddon on DESENSITIZING AND RESENSITIZING ALBUMEN PAPER, and an important "SUGGESTION" by Edward Dunmore.

IT will be remembered that THE PHOTOGRAPHIC TIMES gave its readers the first report of our own convention, though, of course, as a weekly, it has advantages in this line which the semi-monthly and monthly journals cannot hope to give their readers. We do not often call attention to these facts, for our subscribers value the journal as it deserves, and know very well what it is worth. Comparisons are odious, it is true; but, as the poet says, we believe we are justified "just this once"

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.

(*Continued from page* 448.)

Sodium.

Symbol, Na. Combining weight, 23.

Metallic sodium was first obtained by Davy, in 1807, by decomposing caustic soda by a strong current of electricity. Sodium is never found naturally in the free state, but in combination with other substances it is one of the most widely-diffused of the elements. It is a silvery metal, which has so great an affinity for oxygen that it tarnishes immediately on exposure to the air. Similarly it decomposes water to obtain oxygen. A rough but sure test for sodium and its compounds is the golden yellow color they produce when placed in the colorless flame of the Bunsen burner or spirit-lamp. Recent improvements by Mr. H. Y. Castner have reduced the price of sodium from five shillings to about one shilling per pound. He prepares a carbide of iron by coking iron with pitch, and mixes this with fused caustic soda. When this mixture is heated the metallic sodium distils over. The process is being worked on a large scale at Oldbury, near Birmingham, Eng., and the sodium is used in the manufacture of aluminium.

Sodium Acetate.

Formula, $NaC_2H_3O_2+3H_2O$. Combining weight, $82+54=136$.

Prepared by the action of dilute acetic acid on sodium carbonate. Commercially it is made by adding soda to pyroligneous acid. It dissolves in three parts of cold or one of boiling water; in absolute alcohol it is almost insoluble. Sodium acetate forms large, colorless prismatic crystals, which do not deliquesce like those of potassium acetate. It is much used in the preparation of the gold acetate bath for toning prints.

Sodium Bicarbonate

Formula, $HNaCO_3$. Combining weight, 84.

Natural deposits of this salt are found in Africa, where it is called *trona*, and in South America, where it is known as *urao*. It can be prepared by passing carbonic acid gas into a saturated cold solution of the normal carbonate Na_2CO_3. The bicarbonate of soda is a crystalline white powder, soluble in about ten parts of water, and with a feebly alkaline taste and reaction.

Sodium Borate.—Borax.

Formula, $Na_2B_4O_7+10H_2O$. Combining weight, $202+180=382$.

Borax has been in use from very ancient times as a flux. In chemical analysis it is used to detect certain metals by the characteristic colors which their oxides impart to "borax beads." Borax is now made by boiling crude boric acid (obtained from certain lagoons in Tuscany) with sodium carbonate. It is soluble in twenty parts of cold or six of boiling water, and the solution has an alkaline reaction.

In photography, borax is used in the preparation of a toning-bath for prints.

Sodium Bromide.

Formula, NaBr. Combining weight, 103.

Prepared by neutralizing hydrobromic acid with sodium carbonate. From hot solutions it crystallizes in anhydrous cubes; from solutions below 90 degs. Fahr. in prismatic crystals, containing two molecules of water—$NaBr+2H_2O$. It is freely soluble in water and in alcohol.

Sodium Carbonate.

Formula, $Na_2CO_3+10H_2O$. Combining weight, $106+180=286$.

Immense quantities of *soda ash* are produced annually in South Lancashire—the alkali district—by treating salt with sulphuric acid, and then treating the product (sodium sulphate) with powdered coal-slack and chalk.

From the *black ash* so produced, the impure sodium carbonate (*soda ash*) is dissolved out with water.

It is then purified by dissolving again in water, and re-crystallizing, when large transparent crystals—called *soda crystals*—of pure sodium carbonate are obtained. These are largely used to soften the water employed for washing clothes, etc. The crystals dissolve in two parts of cold, or in less than their own weight of boiling water. The solution has a strongly alkaline taste and reaction. In the United States, washing-soda crystals are known as "sal soda."

As the alkaline ingredient of the pyro developer, carbonate of soda is, by many photographers, preferred to ammonia. It should be purchased at the chemist's as "pure carbonate of soda in crystals." It is also sold as a dry white powder—"exsiccated carbonate of soda"—which is much stronger, because the water of crystallization ($10H_2O$) has been driven off by heat.

Sodium Chloride (Common Salt).

Formula, NaCl. Combining weight, $58\frac{1}{2}$.

Common salt occurs plentifully in nature in sea water, in salt springs, and as rock salt. When the chemically pure sodium chloride is required, it is

made by passing hydrochloric acid gas into a solution of common salt; or by neutralizing the same acid with carbonate of soda. Sulphate of sodium, and magnesium chloride, are the most common impurities. Sodium chloride crystallizes in cubes. It is almost equally soluble in hot and in cold water, but is insoluble in alcohol.

A little common salt—about one ounce to each pound of chlorate of potash—is useful in making oxygen for lantern work. It appears to cause the gas to be given off more regularly.

SODIUM HYDRATE.—CAUSTIC SODA.

Formula, NaHO. Combining weight, 40.

This salt is formed when sodium is dissolved in water, but most of that used in commerce is obtained as a bye product in the manufacture of sodium carbonate.

Sodium hydrate is a white, fibrous solid. It melts below a red heat, without decomposition, and is usually cast into sticks for sale. It is a powerful alkali, and is largely used in soap making.

SODIUM HYPOCHLORITE.

Formula, NaOCl. Combining weight, 74½.

This substance is difficult or impossible to obtain in the pure state, but it is contained in the bleaching liquid formed by passing chlorine into caustic soda. This liquid was formerly known as *Eau de Labarraque*. An easier method of preparing it is to dissolve four ounces of sodium carbonate in ten ounces of hot water; and two ounces of hypochlorite of lime (commonly called "chloride of lime," or bleaching powder) in thirty ounces of water; and then mix the two solutions, boil, and filter.

When carbonate of potash is used, practically the same result is obtained, but the liquid is then known as "Javelle water," or *Eau de Javelle*. Exactly the same quantities of each substance may be used. These solutions should be kept in stoppered bottles. They are useful for removing all traces of sodium hyposulphite from negatives or prints. For this purpose about half an ounce of either solution should be mixed with twenty ounces of water.

SODIUM HYPOSULPHITE.—"HYPO."

Formula, $Na_2S_2O_3 + 5H_2O$. Combining weight, $158 + 90 = 248$.

Some acids contain sulphur in place of oxygen. In recent times these acids have been distinguished by the prefix *thio* (Greek for sulphur), so that we now speak of *thiosulphuric* instead of hyposulphurous acid. As a consequence of this change sodium hyposulphite—which is a salt of thiosulphuric acid—is now properly called *sodium thiosulphate*. But the old name—and its familiar abbreviation "hypo"—still command most adherents among photographers generally.

Sodium hyposulphite is prepared on a large scale, and very cheaply, from *soda waste*, the insoluble matter which remains after the extraction of sodium carbonate from *black ash*. It is readily soluble in water, and rather deliquescent. Paper manufacturers use a great deal of "hypo" as an "anti-chlor," to remove the excess of chlorine which they use to bleach the vegetable fibres they employ; the consequence is that ordinary paper, white blotting-paper, and card-board, contain a little sodium hyposulphite, and photographs mounted on such supports will be pretty sure to fade. Sodium hyposulphite in solution is best kept in a blue bottle and in a tolerably dark place. It is a good plan to keep a lump of chalk in the solution, as it neutralizes any trace of acid which may be formed. When kept in a white bottle, and exposed to sunlight, the hypo is slowly oxidized. A mixture of alum and hypo solutions rapidly decomposes, the sulphur being separated, and causing the mixture to become milky. For this reason gelatine plates that have been soaked in alum must be well washed before placing them in the "hypo," or the sulphur will be deposited in the film.

Vessels used in the photographer's laboratory to hold hyposulphite of soda should never be employed for any other purpose. They become so saturated with the fluid—which will pass right through a porcelain dish in a few days—as to contaminate every other fluid put into them.

Acids decompose "hypo," liberating free sulphur, which is deposited upon, and is very injurious to, photographic negatives or prints. For this reason the hypo solution must always be kept neutral or slightly alkaline.

W. Jerome Harrison.

(*To be continued.*)

ON THE ACTION OF LIGHT ON ALLOTROPIC SILVER.

Since my last communication to this Journal* I have obtained the following results:—

1. It was mentioned in that paper that the red gold-colored modification of silver was converted into a bright yellow-colored form by the action of light. Continued exposure seems to produce little further change so long as the substance is dry. But if the paper on which the silver is extended is kept moist by a wet pad, with three or four days

of good sunshine, the change goes on until the silver becomes perfectly white and is apparently changed to normal silver; water, alone, tends to darken this form of allotropic silver, accordingly the portion of the paper that was protected for comparison, darkened, showing that the whitening effect was due wholly to light.

It thus appears that light can convert yellow or red-yellow allotropic silver to white.

2. Some pieces of the very bright blue-green modification were exposed to light, and with about one day's bright sunshine they passed to a pure metallic gold color.

It appears, therefore, that light can cause the blue-green modification to pass to the gold-yellow.

This change only occurs with a very brilliant form of the bluish-green substance, which is obtained with a quick, short washing. Specimens slowly and very thoroughly washed, which when brushed over paper gave a more mat color, did not yield this result, but became brownish, as described in the July number of this Journal. Nor can this result be obtained with the soluble form of allotropic silver described in the June number of this Journal.

Light, therefore, can change the bluish-green to the yellow modification, and this last (with the aid of moisture) to white normal silver. The silver thus obtained is pure white, lustrous, and metallic, resembling silver leaf. Organic compounds of silver reduced by light give grey or black silver devoid of lustre.

M. Carey Lea.

YELLOW NEGATIVES.

[Reprinted by request, from THE PHOTOGRAPHIC TIMES.]

WHENEVER the average photographer has occasion to look for a dry-plate negative made over a year or more ago, or even in less time, he very likely will find that the same has turned yellow, either wholly or in part. His disappointment gives way to despair when he discovers the discoloration to be permanent, and the negative, oftentimes a valuable one, to be past redemption. Even then he neglects to profit by the lesson, and continues with impunity to remove his dry-plates from the hypo bath just as soon as the bromide of silver has disappeared, or to add fresh hypo to an old fixing bath instead of preparing a fresh one. Now, the final washing of such plates, however thorough and prolonged, will prove of little avail, as it has no effect whatever upon the particles of bromide of silver still incorporated in the film, and unless the plate be placed at once in the fixing bath from which it was taken prematurely, it will turn yellow, the transformation being simply a matter of time.

It is difficult to understand why photographers are so economical in the use of so cheap an article as hyposulphite of soda, and attach so little importance to the fixing of dry-plates. If these delinquents will look over their negatives made, say, prior to 1887, they will meet with some very unpleasant surprises. When they do, it will be a "yellow-letter," and, perhaps, a black-letter day, but the non-actinic color will prevail. I could name a large number of eminent photographers whose dry-plate negatives covering a period of from two to four years have become a total loss, the sole cause being insufficient fixing.

Although an amateur, I produce not a few negatives during the year, and among my large collection scarcely any discolored negatives can be found, as it has always been my practice to most thoroughly fix my plates. My mode of procedure is exceedingly simple throughout. When developed, the plate is held under the tap for about ten seconds, then place for about five minutes in a saturated solution of alum, which should be renewed when badly discolored. This not only toughens the film, preventing frilling, but also frees it from the stain caused by the pyrogallic acid in the developer. After a thorough rinsing under the tap, a tuft of cotton aids in removing any alum that may have adhered to the film, the plate is placed in a fresh and cold hypo bath, composed of water four parts, hyposulphite one part. When the bromide of silver appears entirely dissolved, judged by examining the plate from the back, I let the plate remain in the tray two or three minutes longer. It is now washed under the tap for about five minutes, and then placed the same length of time in a fresh and separate saturated solution of alum, and not the one in which the plate has already lain. This second alum bath acts as a scavenger, eliminating more effectively than any other agent lingering traces of the hyposulphite. The plate is again purged under the tap for about fifteen minutes, and, after removing any possible sediment or adhering particles with a swab of cotton, the plate, now clean and sparkling, is set aside to dry spontaneously.

With due respect for certain high authorities, I decline to use or recommend the combined hypo and alum bath, and most decidedly ignore every preparation designed to eliminate or neutralize the effects of sodium hyposulphite.

Wilfred A. French.

* *American Journal of Science.*

ORTHOCHROMATIC PHOTOGRAPHY WITH GELATINE PLATES.

(*Continued from page 776 and concluded.*)

Turning now to the question of the use of orthochromatic methods for landscape work, I think I may say that the results exhibited at Birmingham last year were accepted as showing that these methods have considerable advantages over the ordinary method, the improvement being most noticeable in the rendering of foliage, water, and distance. (*Four sets of results obtained in spring, summer, and autumn were exhibited in the form of lantern slides.*) I have since endeavored to compare the various kinds of orthochromatic plates from this point of view, the comparison including—(1) Ordinary plates; (2) Edwards's isochromatic plates, used without a screen; (3) Obernetter Vogel silver erythrosin plates, used without a screen; (4) plates treated with an ammoniacal bath of eyrthrosin, and used with a pale yellow screen.

It seems necessary to point out once more that the whole value of comparisons of this kind depends entirely upon whether the experiments have been made fairly and without bias. I do not hesitate to say that many of the so-called comparative results which are exhibited are not fair. In very many cases, for example the results shown as having been obtained with ordinary plates are very much inferior to the results which might have been obtained if the plates had been properly managed. In all cases the quality of the value obtained depends very largely upon exposure and development, a fact which is by no means sufficiently recognised. Many of the bad—nay, wretched—results, so far as regards values, which are commonly exhibited, are due to insufficient exposure. If I have not been fair myself in the experiments which I bring before you, it is from want of ability and not from intention. I am an investigator and not an advocate. We have certainly not yet reached finality in orthochromatic processes, but a knowledge of the relative merits of the methods which we do already possess has considerable practical value.

In the first place, I have made a number of comparative exposures with Edwards's isochromatic plates and ordinary plates, both being used without any screen. The ordinary plates were Thomas's thickly-coated landscape, and Wratten and Wainwright's ordinary. (*The subjects exhibited were Worcester Cathedral from across the river, Kirkstall Abbey, a view from Bolton Abbey, with distance and foliage, and a group with foliage.*) The differences are comparatively slight. As a rule, I do not think they are greater than might result from different exposure and development of the same plate. There is, at any rate, nothing approaching the striking differences observed when a yellow screen is used. In the case of the group the isochromatic plate has a distinct advantage, but this was done rather late in the evening, when nature herself had provided a yellow screen in the shape of the water vapour and minute dust prrticles, through which the rays of the setting sun have to pass. Many other experiments, besides those shown, lead to exactly the same result, and I believe my experience in this respect coincides with that of many other workers.

I have also made comparative experiments with ordinary plates (Paget Prize Plate XXX and Wratten's ordinary) and the Obernetter-Vogel silver erythrosin plates. Here I have found a distinctly greater difference. (*Subjects shown: Knaresboro', foliage, water, and distance; Bolton Woods, ditto; Warwick, foliage and Water.*) There is, as a rule, a distinct improvement over the ordinary plate in the rendering of foliage, water, and distance, and I consider the differences greater than could arise simply from differences in manipulation. I have exposed a very considerable number of these plates independently of comparative experiments, and an examination of the results leads to the same conclusions. The plates, however, are not particularly easy to manipulate, and some experience is required to obtain the best results. They show a decided tendency to fog with an excess of ammonia, and especially if the proportion of bromide, used as a restrainer is too low. I believe the best method of procedure is to put all the bromide which you intend to use into the developer at first and then add the ammonia gradually as development proceeds. The alkaline bromide at once decomposes the silver erythrosin which is in the film, and thus tends to prevent the fog which would otherwise result from its general reduction. At the same time, the results obtained are not equal to those obtained with a yellow screen although, as far as my experience goes, distinctly, but not very greatly, in advance of the Edwards's isochromatic.

Some comparative experiments were made with Obernetter-Vogel plates used without a screen, and plates prepared with ammoniacal erythrosin and used with a screen. These results (some of which are exhibited) confirm the conclusion already stated, namely, that so far as present methods are concerned, the best results in landscape work are obtained with plates prepared with an ammoniacal bath of erythrosin and used with a yellow screen.

If, however, the Edwards's isochromatic or Obernetter-Vogel plates are used with a yellow screen, which must be somewhat deeper in the first case than in the second, the results obtained are not distinguishable from those obtained with bathed plates under the same conditions, but the exposures required are much longer.

This brings me to the question of the use and abuse of the yellow screen, a point which I believe to be, as a rule, very imperfectly understood. All gelatine orthochromatic plates, prepared by methods at present known, remain relatively, with respect to the human eye, much too sensitive to blue and violet. The only method, therefore, of obtaining true values is to interpose between the object and the plate a transparent yellow screen, which absorbs and cuts off a certain proportion of the blue and violet rays, leaving the less refrangible rays with a relative degree of intensity and activity more nearly corresponding with their relative action on the eye. It is obvious that any variation in the tint or thickness of the screen will affect the proportion of blue and violet cut off, and hence will determine the relative activities of the various rays after they have passed through it. From an optical point of view, it is desirable to keep the screen as thin as possible, but the depth of tint of the screen admits of very considerable variation. As the depth of tint of the screen increases, the proportion of blue and violet cut off increases proportionally, and the relative action of the less refrangible rays on the plate, or, in other words, the relative brightness with which green, yellow, orange, and red objects are rendered increases at the same. It is obvious, therefore, that it is easy to make a screen so intense that far too large a proportion of blue and violet is cut off; blue and violet objects will then be too dark, and green, yellow, and orange objects too light. In other words, the resulting photograph will be as incorrect in one direction as the ordinary photograph is in the other. In landscape work a screen too deep in tint causes loss of atmosphere, and with erythrosin plates under these conditions the grass and all other yellowish-green objects come out much too light. This effect is well seen in the examples exhibited. For landscapes the proper tint of screen is pale lemon-yellow; for paintings and similar subjects the depth of screen required is usually greater, and is determined by circumstances. Example were shown illustrating the bad effects of a screen too deep in tint.

The great advantage of the screen in landscape work is that it prevents the failure, or, at any rate, want of complete success, which often results from the presence of a slight blue haze. The details in the distance, which so greatly increase the beauty of many landscapes, are rendered much more satisfactorily, and the more correct values obtained produce a roundness of the foliage, a transparency in the water, and a separation of the various planes of the picture which is rarely, if ever, attained in any other way. This kind of effect is easily seen by looking at any ordinary view with the naked eye and then through a piece of yellow glass; the increased roundness of the objects and the separation of the planes is very striking.

It has been claimed as an advantage for commercial orthochromates plates that they can be used without a screen, which, of course, is true, but the results obtained are not such as to lead anyone to be enthusiastic about them. It seems as if an attempt were to be made to set up as the ideal of orthochromatic photography a plate which requires no screen. Given that the plate corresponded in sensitiveness with the human eye, that ideal would be realised, but we are some distance from realisation at present, so far as gelatine plates are concerned. Moreover, it seems to me that the use of a screen, with the possibility of varying it to suit the work in hand, or the result which it is desired to obtain, places in the hands of the artistic photographer a power which he would be unwise to cast aside. With the so-called photographer who expects his apparatus and plates to do all the thinking for him I am not at all concerned.

Not very long ago Colonel Waterhouse communicated to the Photographic Society of Great Britain the results of photographing the spectrum on plates treated with *rhodamin*, a comparatively new coloring matter similar to eosin in constitution. I have been able to make a few experiments with a view to ascertain its value for photographic work. The magnitude of its sensitising effect was compared with that of erythrosin in the manner already described. Ordinary rhodamin prepared by the Badische Amlin und Soda Fabrik was used, and also some of the same rhodamin which has been purified. The results obtained are given in the form of a table. No preliminary bath was used, and the plates were not washed after treatment with the dye solution.

Sensitiser.		Ammonia.	Sensitometer. Ilford Rapid.	Pall Mall Rapid.	Wratten's Ordinary.
Erythrosin.....	1:10000	1 per cent.	16	15	11
Rhodamin coml.	1:10000	1 per cent.	12	4	5
" "	1: 5000	1 per cent.	15	7	7
Rhodamin purit.	1:10000	1 per cent.	10	8	5
" "	1: 5000	1 per cent.	15	7	6

The numbers show clearly the influence of the concentration of the dye. They show also the influence of the nature of the plate. They seem to show that the sensitiveness to the less refrangible rays obtained with rhodamin does not depend on the original sensitiveness of the plate, and that variations in the nature of the plate do not affect rhodamin in the same way as erythrosin. These and other points, however, require further investigation.

I also used plates sensitised with rhodamin to copy some paintings, and obtained results which promise well for the utility of this sensitiser. The experiments were not sufficiently numerous to justify me in bringing them before the Convention In fact, the photometric experiments must only be taken as provisional, and are liable to correction by subsequent work. I thought, however, the Convention would be glad to have some idea as to the probable utility of this compound, and I hope to have become better acquainted with its peculiarities and capabilities before our next meeting.

C. H. Bothamley.

THE VOYAGE OF THE "MUD HEN."

A Photographic Outing.

About ten days ago a company of eight, embracing professors, doctors, druggists, and one professional photographer, had a scow fitted up with a dark-room, and towed up the St. Joseph River about forty miles to the village of Berrien Springs, Mich. At that point the craft was well stocked with the necessaries and luxuries of life, and, with the jolly crew aboard, was let loose and allowed to meander down stream among the snags and over the sand bars. As every one deemed himself the captain, by reason of his superior nautical ability, while all were in fact wofully deficient in the practical knowledge of the river-man, it was highly amusing to hear the shouts of "larboard," "starboard," "stop her," etc., as each new crisis loomed up, and the crises were not more than two minutes apart on an average. Whenever a new and handsome view opened up the crew cast anchor, or by Herculean efforts got the craft aground or up to the shore. Then the great camera (18x24) of the professional, and the five or six 5x7 and 5x8 cameras of the amateurs, were trained on the coveted view, either from the boat or shore, as fancy dictated. As fine views occurred at every bend of the river, our progress downward was very slow—about five miles per day. The amount of fun was so great that I venture to suggest this as one of the most pleasant modes for a photographic outing.

I found most diverse views as to the time that should be given to the quickest plates in the market. The apertures employed were by no means uniform, but were pretty generally from $\frac{f}{12}$ to $\frac{f}{40}$, while the time ranged from one to thirty or more seconds. I used an aperture of about $\frac{f}{20}$, and, as a rule, in sunshine gave $\frac{1}{100}$ of a second. I was warned, many times, that I would never get more than a ghost of a picture, if I even got so much, but I had great faith in hydroquinon, and was not disappointed in the result; besides, I was more anxious to see how slight an exposure would suffice, than I was to secure fine pictures. The stock developer on the boat was the ordinary hydroquinon developer, containing sulphite and carbonate of sodium, and with that, my negatives seemed to be under-timed, and strange to relate, theirs hardly seemed to be over-timed. Occasionally one of theirs would flatten out as if it had been made through smoke or fog, but most of them made hard, even chalky negatives.

I brought most of my exposed plates home for development, and there concocted a developer which I thought would nearly raise the dead. The formula is by no means wholly new, nor is it probably the best that could be devised, but it was certainly efficient, for it brought out all of my $\frac{1}{100}$ second exposures, with great wealth of detail, except a few made on a cloudy day, and in these the cloud effects are splendid. The following is the formula employed:

No. 1.

Hydroquinon	100 grains
Sulphite sodium (granulated)	800 grains
Water	1 pint.

No. 2.

Carbonate of sodium (cryst.)	700 grains
Hydrate of sodium (caustic soda)	140 grains
Water	7 ounces

For use I took one to two drams of No. 2, to two ounces of No. 1. The pictures came up quickly—were visible in ten seconds, and complete in three to five minutes. So far as I can see, the gelatine film was not at all injured by the caustic soda. I believe that carbonates of sodium and potassium might be, with advantage, wholly replaced by hydrate of sodium.

Instantaneous photography depends quite as much on the developer as on the plate.

H. D. Garrison.

Notes and News.

SCENES IN GREAT BRITAIN.—A stereopticon exhibition of "Scenes in Great Britain will be given at the regular meeting of the Photographic Section of the American Institute, at Clinton Hall, 9 Astor Place, Tuesday evening, October 1st. All members and friends of the Section are cordially invited to be present.

PROFESSOR S. W. BURNHAM, of the Lick University, will represent that institution and the University of California in the expedition to South America to observe the total eclipse of the sun, which occurs December 27th. He will leave New York about November 7th, sailing thence to Trinidad, where he re-ships to Cayenne. The party takes a six-inch telescope, mounted equatorially, and with driving clock. We shall hope to hear from Mr. Burnham direct, for the benefit of our readers.

"THE BEST THING THERE.—I WAS sorry not to have been at the Boston Meeting, especially as I missed getting the best thing there—the PHOTOGRAPHIC TIMES' Daguerre medal," writes DR. JOHN NICOL, Editor of *The Beacon*.

PHOTOGARPHIC JUBILEE AT BERLIN.—We learn from our good friend, Alfred Stieglitz, that Professor Rowland's exhibit and that of Jackson, of Denver, "Are among the great attractions of the very successful and highly interesting exhibition." The list of awards has not yet been completed, but Herr Stieglitz promises to forward it as soon as finished. Through his kindness, we shall also be enabled to speak more at length concerning the American Department of this Exhibition.

LATER INFORMATION is that the following Americans have been awarded prizes at the Berlin Photographic Jubilee Exhibition: 1st prizes—Professor Rowland, of Baltimore; Jackson, of Denver; Alfred Stieglitz (Steinheil Prize), of New York; and Professor Pickering, of Harvard. 2d prize—Dr. Obermeyer, of Brooklyn. The prize list will be published shortly; it contains 120 names or more.

WITNESSED BY THE CAMERA.—A Lebanon photographer is reported to have arranged his camera in such a way that his photograph was made during the wedding ceremony.

THAT HORRID AMATEUR!—A Boston amateur photographer whose identity has not yet been discovered, is reported to have made himself a terror on the historic Charles River. He goes out in his boat at nights supplied with a Waterbury "Detective" and plenty of magnesium, and when he discovers a pair of lovers enjoying themselves in their boat, he flashes his magnesium light and makes a loving group. He is supposed to have quite a large number of interesting photographs.

LADY AMATEURS.—Though there are already many lady amateur photographers in and about New York, the number is fast increasing, as everyone knows. It is becoming the fashion to become an amateur photographer, which undoubtedly accounts for its growing popularity with the fair sex. A daily paper states that along shore and on mountain top, the girl photographer with a camera is now a part of the landscape. A daughter of the well-known nature writer, Mrs. Olive Thorne Miller, photographed the ladies of the Seidl Club at luncheon recently. Mme. Le Plongeon, the Yucatan archæologist, is skilled in the use of the camera, and also is Mrs. Lizzie Champney, the wife of J. Wells Champney, the artist herself a well-known writer. Miss Catherine Weed Barnes, grandaughter of the statesman, Thurlow Weed, is one of the most skillful and artistic amateurs in the country and has almost a national reputation. The wife of Thomas C. Platt is always provided with a detective camera and a generous supply of dry plates, and is inclined to believe that her pictures of her husband wheeling barrow loads of stones about their country house ought to help the politician with the workingmen in his campaigns. Mrs. Platt is expected to bring home some fine photos from the trip to Alaska. The Secretary of the Photographic Section of the Brooklyn Institute is a lady, and women always accompany the Section's fortnightly summer excursions. A great many newspaper women use the hand "detective" camera.

CHEMICAL TRANSFORMATION —Alcohol, one of the best-known products of chemical industry, may serve as evidence to what degree of perfection the composition and decomposition of chemical compounds has been brought. As the chief constituent of intoxicating beverages, alcohol, together with carbonic acid, originates by fermentation from sugar; but this is not the only possible way to produce it. The brightness of electric lights, by which public places, roads, stores, etc., of our cities now are illuminated at night, is emitted by an electric current passing between two carbon points. When such a passage of electricity takes place in a glass balloon filled with hydrogen, the electric current causes this gas to unite with carbon, forming acetylene, a gaseous compound, which in contact with more hydrogen readily takes it up, forming a second gaseous compound—ethylene—which is the chief light-giving constituent of illuminating gas. Ethylene, when brought into contact with sulphuric acid, forms a liquid combination, and this, when treated with potassium hydrate, is converted into alcohol. Having thus built up from its elements a substance formerly known as a product of fermentation, we may proceed at once to decompose it again into its elements. We can easily regain the carbon which it contains, by heating alcohol with sulphuric acid, which again converts it into ethylene; and this gas, when mixed with chlorine gas and lighted, burns away, leaving carbon, which as a dense black smoke, fills the vessel.—*From "The Chemist as a Constructor," by* W. BERNHARDT, *in the Popular Science Monthly for October.*

PHOTOGRAPHY as a popular amusement has taken a firm hold upon the public. Not only do the numerous makers of cameras that one sees advertised testify to that fact, but one is met everywhere, on library table and in bulky albums, with the results of the amateur photographer's outings. There has consequently sprung up a demand for thorough instruction in this fascinating pastime, and it has been met in one instance at least by "The Photographic Instructor," a handbook for the professional and amateur. The advice given in this valuable work was originally furnished in a series of lectures at the Chautauqua School of Photography, and has been edited by W. I. Lincoln Adams, the editor of the PHOTOGRAPHIC

TIMES. What the editor has to say upon the subject is all in plain language and in the light of the most recent investigations and discoveries, and the work can heartily be recommended to photographers.—*Outing.*

STARCH.—Starch, the formula for which is $(C_6H_{10}O_5)_n$, is a proximate vegetable principle found in all chlorophyll bearing plants, with the exception of certain algæ which contain besides the chlorophyll, a blue or violet coloring matter which is soluble in water. Some plants devoid of, or poor in chlorophyll, contain large quantities of starch (1881: Koenig, "Nahrungsmittel," Vol. II., 330). It is the first visible product formed in the plant from the CO_2 which it has absorbed, and this change may be represented by this equation:

$$6CO_2 + 5H_2O = CH_{10}O_5 6O_2$$

The starch then furnishes material for the production of sugar, cellulose, and perhaps for the resins and glucosides. (1881: Koenig, ibid.) The following is a list of some of the formulæ proposed at different times, by different authors, for starch:

$C_6H_{10}O_5$	the formula of previous authors.
$C_{12}H_{20}O_{10}$	" widely accepted to-day (1887).
$C_{10}H_{20}O_{15}$	" C. O'Sullivan.
$C_{24}H_{40}O_{20}$	" Pfeiffer & Tollens.
$6(C_6H_{10}O_5)+H_2O=C_{36}H_{62}O_{31}$	the formula of Naegel.
$[C_{12}H_{20}O_{11}]_{5-6}$	the formula of Musculus & Gruber.
$[C_{12}H_{20}O_{10}]_{10}$	" Brown & Heron.
$[C_{36}H_{60}O_{30}]_5$	" Brown & Morris.

(1887: F. Mylius, Ber. d. d. Chem. Gess., xx., 689).

Air dried starch containing 17.5 per cent. of water, is represented by this formula, $6(C_6H_{10}O_5)+13H_2O$. (1886: Beilstein, Org. Chem. I., 866.) The formula accepted now is $(C_6H_{10}O_5)^n$ in which starch is represented as being made up of an indefinite number of molecules of $C_6H_{10}O_5$. The starch grain consists of starch cellulose and granulose, which are isomeric. It is not dissolved by any solvent without change. (Allen's Comm. Org. Anal., I., 336.) In the cold, ether, alcohol, and water do not act upon it. When starch is boiled with water it swells up and forms a paste, but when boiled under high pressure at a temperature of 149 deg. C., it is partly converted into sugar, which is caused by an acid in the starch produced during its manufacture. Potato and wheat starch do this most frequently, rice and maize starch do not, being alkaline in reaction. Neutral starch, however, is not converted into sugar under any pressure or at any temperature. (1882: Abs. Jour. Chem. Soc., p. 30; Hager's Ergänzungsband, p. 1055.) Malt extract or diastase converts starch first into soluble starch, second into *dextrines*, third maltose, and finally glucose. (Hager: Ergänzungsband, p. 82.) Dilute acids convert starch into soluble starch, *dextrines*, and finally glucose *without* the production of maltose as an intermediate product. (1883: Jahresb. Leist. Chem. Technol., p. 676.) HCl acts best, since it converts 95.05 per cent. of starch into glucose in one and a half hours, but it cannot be used on the large scale because of the difficulty in removing the HCl. (1883: F. Allhin., Jahresb. Leist. Chem. Technol., p. 673.)

Soluble starch is formed by heating ordinary starch to 190 deg. C., with 20 times its weight of glycerine, from which it is precipitated by means of alcohol and can be dissolved in water.

Dextrine is formed when anhydrous ordinary starch is heated to 160 or 200 degs. C., if heated higher, CO_2 CH_4, $HC_2H_3O_2$ and other decomposition produots result.

HNO_3 in the cold, forms the mono-, di- and tri nitrates of starch. The first two explode when heated to 200 deg. C., and the third at 278 deg. C. If heated with HNO_3, starch yields oxalic acid and other substance. KOH or NaOH causes starch to become a tenacious paste, and also causes it to swell up enormously. NH_4OH does not cause this gelatinization.

When iodine and starch are brought in contact with each other in the presence of water and HI or one of its salts, or a reducing agent, as H_2S, $SnCl_2$, H_2SO_3 etc., a blue color will appear. The formation of the blue color is dependent on the presence of water and HI or one of its salts. (1887: F. Mylius. Ber. d. d. Chem, Gess., xx., 688).

This blue color is not a chemical union but may be compared with the solution of Br in CS_2. Lumps of starch have a greater affinity for iodine than the powdered. (1885: Brückner, Abs. Jour. Chem. Soc., 46, 576).

The coloration with iodine depends on the deposition of the iodine within the molecules of the starch-grain and not on a chemical union. (1881: Koenig, Nahrungsmittel, page 330).

The above theories have been taken from rather good authorities and given because there does not seem to be any definite conclusion arrived at, as yet.

The "blue iodide of starch" has the following composition: $C_{24}H_{40}O_{20}I)_4HI$. It contains 18.47 per cent. of iodine. (1887: F. Mylius, Ber. d. d. Chem. Gess, xx., 688.) It contains from 3 to 7 per cent. of iodine. (1881: Koenig, ibid.) Alum, K_2SO_4, tanntn, gallic acid, urine, milk, malt extract and yeast hinder the reaction through causes as yet unknown.

The dextrines are substances formed during the conversion of starch into sugar by either acids or diastase, and may be defined as "all substances, soluble in water, insoluble in alkalies, and reducing Fehling's solution only after boiling with acids." The dextrines, at least some of them, give a red color with iodine, but achrodextrin gives no color at all.—*B. C. Hesse before the Chemical Society.*

Photographic Societies.

THE CLEVELAND CAMARA CLUB.

AT a regular meeting of the Cleveland Camera Club, held Tuesday, September 10th, the following officers were elected:

President, Montague Rogers; Vice-President, Frank J. Dorn; Recording Secretary, Dr. Robert Dayton; Corresponding Secretary, Alfred C. Ogier; Treasurer, Will F. Dorn; Directors, Frank F. Ogier and Joseph Di Nunzio.

At the next meeting the subject will be "Our Summer Work."

Alfred C. Ogien,
Corresponding Secretary.

THE CHICAGO CAMERA CLUB.

THE members of the Chicago Camera Club enjoyed a very successful outing September 7th. A special car on the C. B. & Q. R'y, took the party to Riverside, a suburb of Chicago, and the day was spent in viewing on the picturesque Desplaines River and Salt Creek. The car was

side-tracked conveniently, and at noon a delicious lunch was served on board. The day was perfect and many beautiful pictures were made. Considerable interest is felt in the contest for the club medal, which is to be awarded for the best picture made at the outing.

The regular monthly meeting of the club occurred September 18th, and the announcement of the demonstration of the new developer, eikonogen, called out a gathering which crowded the rooms.

After the regular business had been transacted, the club's chemists and experimenters were called upon to relate their experiences, and as the club's importation of eikonogen was one of the first in the country, great interest was manifested. Drs. Nicol and Garrison, and Profs. Bartlett, Harley and Colegrove briefly detailed the results of their investigations, all of which seemed to be favorable, and in several cases highly laudatory of the new developing agent. Dr. Nicol, for instance, had developed two plates, exposed under exactly similar circumstances, one in pyro and the other in eikonogen, and had obtained a much finer negative from the eikonogen in two minutes, while the one in pyro took fully fifteen minutes to develop, or, as he expressed it, the one in eikonogen was developed, fixed and washing before the detail was fully out with the pyro examples.

At the conclusion, several lantern-slides were shown upon the screen, which had been developed with eikonogen and hydrochinon, for the purpose of comparison. The results were nearly identical, though the eikonogen gave rather softer and warmer tones.

Fred. K. Morrill.
Secretary.

The Editorial Table.

THE BOOK OF THE LANTERN. By T. C. Hepworth, F.C.S. New York: Edward L. Wilson.

This seasonable book will make many friends among amateurs, the coming winter. It is a practical guide to the working of the optical lantern, both as an educational instrument, for lantern exhibitions, etc, and as an enlarging apparatus for photographers. It contains full and precise directions for making and coloring lantern-slides, and teaches all the applications of the lantern to photography. The volume is illustrated with seventy-five cuts and the descriptive matter is plainly and attractively presented. It consists of nineteen chapters and contains two hundred and seventy-eight pages. It is neatly bound in cloth, and sold at $2. Later we shall hope to find space for some reprints from its instructive pages.

FROM the Rev. Joseph Clark, of Ohio, we receive a 4x5 group of children under trees. It is a very fine specimen of its class.

MRS. C. T. sends a very beautiful cabinet of guitar player, sitting in an arbor. It was suggested the author to present us with this beautiful piece of photographic work, by the "Ferns" recently published in this journal. The foliage surrounding the young lady, is, we must confess quite equal to anything of the kind we have seen lately.

FROM Mr. W. M. Browne come two 5x7 landscapes one, a rocky glen and cascade, the other a wood scene with distant mountain view. They were both made with the Waterbury B lens, and do full justice to this excellent instrument. Mr. Browne wishes to hear our opinion on the printing and toning of his pictures, and we must tell him candidly that to our taste a much warmer color is desirable.

"UP Nippersink Creek" by A. W. Williamson, of Chicago, is a lovely bit of natural landscape made with the 5x8 "Favorite" outfit and upon a Carbutt B plate. The young gentleman seems to have a rare faculty for recognising the beautiful and picturesque in nature. The view possesses considerable artistic merit, and the technical work is very good.

MR. William H. Holmes, of Evanston, Ill., sends a 5x8 of an express train, travelling at the rate of 40 miles in an hour. It was made upon a Cramer 35° plate and also with a Waterbury B lens, stop $\frac{f}{32}$. The mode of developing this plate, as described by our correspondent, deserves the highest praise, for not only is every detail of the rapidly moving object well brought out, but also are the surroundings in perfect harmony with the main part of the picture. The picture was exposed with a home made shutter.

MR. L. Neu Hyde, of Minnehaha Falls, Minn., presents us with a collection of very good landscapes, among them two of the Minnehaha Falls, one a winter view with snow and ice, the other taken in summer surrounded by richly and well developed foliage. He asks in his letter how a better view of the scene could be made instantaneously, and points out the difficulties occurring on account of the very much confined position. In the first place we cannot very well find fault with either of these pictures, and must tell our correspondent they will bear criticism; with the exception perhaps that they are somewhat out of focus, in the lower parts of the plates. The whole collection is printed on Aristo paper, all the pictures look bright and clear, although a somewhat deeper tone would certainly make them more attractive to most connoisseurs.

FROM Dr. O. F. Cobb, Superintendent of the People's Society for the Prevention of Cruelty to Children, of West Troy, N. Y., we have received a highly interesting cabinet portrait of Frank Harrington, a young lad of twelve years, rescued from an old cave in Pine Bush, N. Y. "He can neither read nor write," writes Dr. Cobb, "his mother and grandmother were both in prison when I took him. He has never been to school. He had three different burrows in the earth where he slept, and these he had fixed with leaves and straw and old bag sacking. In summer he would sleep in barns and in the fields, and he is now in the Albany Orphan Asylum." He is a typical subject of those whom this society seeks to benefit. "Photography," continues Dr. Cobb, "is our sheet anchor in interesting the little ones. It is the means, during the fall and winter, of keeping a few of the young off the streets, and of inculcating better thoughts in their young minds and of improving their mental and moral calibre."

Record of Photographic Patents.

405,758. Camera Stand. Frank G. Bement, New York, N. Y.

405,782. Artist's Portfolio. Flora M. La Bruce, Annandale, S. C.

406,085. Photographic Plate Holder. George H. Carlisle, Detroit, Mich.

406,255. Picture Hanger. Warren M. Brinkerhoff, Auburn, N. Y.

406,269. Photographic Washing Apparatus. James W. Dalrymple, Solsberry, Ind.

406,299. Photographic-Light Apparatus. Lucien C. Overpeck, Hamilton, Ohio.

406,398. Apparatus for Graining Printing Plates. Jabez G. Harris, Providence, R. I.

406,460. Support for Photographic Films. Ralph McNeill, New York, N. Y.

406,471. Picture Exhibitor. Jacob Reitz, New York, N. Y.

406,597. Apparatus for the Manufacture of Pyroxyline. Robert C. Schupphaus, Adams, Mass.

406,633. Picture Hanger. Warren M. Brinkerhoff, Auburn, N. Y.

406,934. Camera Attachment. Orlo L. Munger, Gresham, Neb.

407,050. Photographic Paper-Roll Holder. Erastus B. Barker, New York, N. Y.

407,275. Photographic Camera. Erastus B. Barker, New York, N. Y.

407,587. Photographic Camera. Willard H. Fuller, Passaic, N. J.

407,647. Photographic Roll-Holder. George Eastman, Rochester, N. Y.

407,728. Photographer's Portable Compartment for Transferring Plates. Sydney Green, Brooklyn, N. Y.

408,344. Substitute for Ivory. Frederick Greening, Uxbridge, England.

408,457. Roll Holders for Photographic Cameras. Erastus B. Barker, New York, N. Y.

409,507. Stripped Negative. François Schmaltz, New York, N. Y.

409,618. Photographic Developing Bath. Charles Spiro, New York, N. Y.

409,644. Adjustable Picture Hanger. Leverett Messer, Haverhill, Mass.

409,874. Photographic Camera. George Shorkley, New York, N. Y.

409,981. Photographic Lens. Charles H. E. Krogmann, Cincinnati, Ohio.

410,204. Pyroxyline Compound. Charles R. Schueppphaus, Adams, Mass.

410,205. Pyroxyline Varnish. Charles R. Schueppphaus. Zylonite, Mass.

410,206. Pyroxyline Varnish. Charles R. Schueppphaus, Zylonite, Mass.

410,207. Pyroxyline Compound. Charles R. Schueppphaus, Zylonite, Mass.

410,208. Pyroxyline Varnish. Charles R. Schueppphaus, Zylonite, Mass.

410,209. Pyroxyline Compound. Charles R. Schueppphaus, Zylonite, Mass.

410,898. Machine for Casting Photographic Plates. Marcus Kattentidt, Hameln, Prussia, Germany.

411,253. Apparatus for Holding and Washing Photographic Negatives. William K. Moody, Boston, Mass.

Queries and Answers.

191 A "SUBSCRIBER" of THE TIMES wishes to be informed what is the best and simplest method of printing on watch-dials from the negative.

191 *Answer.*—The Eastman transferrotype process.

192 A. T., of St. Paul asks: "What is the meaning of 3, 4 or 5 per cent collodion?"

192 *Answer.*—The collodion contains three, four or five parts by weight, of gun cotton, and ninety-five, ninety-six, or ninety-seven parts of ether-alcohol.

193 W. A. HEITSHN tells us (1) that he cannot succeed in making "blue" paper. which is as good as he can buy, and says that in the different formulæ which he has tried, the propositions of the materials used vary very considerably. He asks for information. He also states (2) that he saw last spring, at the Photographic Exhibition at Philadelphia, some "toned blue prints." "They were not blue and white, but black and yellow." He inquires by what process the prints were changed.

193 *Answer.*—(1) The best formula for preparing cyanotype paper is standard formula, No. 116, on page 277 of "The American Annual of Photography for 1889." (2) You will find an explanation of how to tone blue prints to a brown and a black color in Nos. 117 and 118, on page 277 of the same book.

194 J. HUTCHISON asks by what process the photo-gravure print, "By the River," is produced, and how the shades are broken up before it is etched on the zinc plate; and if he is correct in snpposing that the print of "Childhood," in the July 19th issue of THE PHOTOGRAPHIC TIMES is from a zinc plate etched before the negative is printed on the plate. He also requests an explanation of the process by which the "Interior of the Garfield Safe Deposit Vaults" was made, and says "I conclude this is lithographed, but cannot understand how the shades are broken up so as to print from stone. Heretofore the great objection to photo-gravure work has been the lines or dots which have been used to break up the shades; but I must say these prints are so much superior to anything I have heretofore seen * * *"

194 *Answer.*—The illustrations in THE PHOTOGRAPHIC TIMES are mostly photo-gravures; that is, they are printed from a copper plate press from entaglio-engraved copper plates, and not, as our correspondent seems to think, from zinc plates, on the ordinary type press. For this method of photo-mechanical printing. the half tones of the original photograph need not be cut into line or hatchwork as in high reliefs etched in zinc. To facilitate printing, however, the plate must be furnished with a grain; which is done by a variety of proceses. "The Garfield Safe Deposit Vaults" was printed by the photo-gelatin process. We know of no better publication on photo-mechanical work than Doctor E. E. Wilson's excellent work on "Photo-Engraving, which you can procure from The Scovill & Adams Company, New York.

195 (179).—In reply to this query (on page 466 of September 18th issue of THE PHOTOGRAPHIC TIMES) an incorrect answer was published in the absence of the editor, which we now desire to correct. We have not as yet analyzed Hale's Dry-Plate Pyro Stain Eradicator and Hypo Eliminator, but understand that it is an excellent compound, which works effectively.

PHOTO-GRAVURE CO.N.Y.

CHRYSANTHEMUMS.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, OCTOBER 4, 1889. No. 420.

CHRYSANTHEMUMS.

Our pictoral supplemement, this week, is an appropriate companion, to "Ferns," which embellished these columns a few weeks ago. Like its predecessor, this picture comes to us without the artist's name; and, like it, the work is in every particular worthy of the best photographer. Perhaps the author, reading this, will announce himself (or herself), and tell us just how the photograph was made. It is an example worthy of imitation, and like the group of "Ferns" already referred to, represents a class of work, most satisfactorily accomplished with the camera, which is only too little attempted.

PRINTING ON READY-SENSITIZED ALBUMEN PAPER.

I.

NOTWITHSTANDING the excellent quality of ready-sensitized albumen paper, which can now be had in almost any photographic store, failures occurring in printing upon it and toning are nevertheless quite frequently reported. The photographic journals have widely discussed this subject, and many workers have been benefited by the advice given. Further information will certainly be appropriate, however, and, when we consider the immense number of novices entering our ranks almost daily, it does not seem out of place to consider this important subject once more. As a rule, the recently published handbooks have either entirely omitted to speak of this convenient method of printing, or have treated the subject superficially. Printing on ready-sensitized albumen paper has its own peculiarities, and success with it can only be secured by strict attention and careful manipulation.

The advantages of ready-sensitized paper are many, and as the tones obtainable with it are quite equal to those possible upon paper freshly silvered in our own laboratories, we should look into the causes of failures occurring with it before condemning the paper. The complaint we encounter almost daily is that the paper does not keep as well as is claimed for it. This may be true with some brands when improperly prepared, and when kept carelessly in damp places, or in but partially darkened closets; but when all conditions necessary to its durability are strictly observed it will keep in perfect state for many months. That so many are not capable of producing good tones with it is not necessarily a fault of the paper.

The necessity of fuming the paper has been extensively discussed in these columns, still there are many who will print upon it without first subjecting it to the fuming operation. The consequence of this neglect is obvious in almost every case. The prints will be measly, the silver deposit but meagre, and incapable of being properly toned.

The compounding of the toning bath, an operation of the highest importance with all printing methods, is often but carelessly done, and strict adherence to the formula alone is believed to be the source of success and salvation from all evils.

Sensitized albumen paper, from which all surplus and all mechanically adhering free nitrate of silver has been washed away, will naturally keep much better and longer than when silver is still present, but its absence alone will not secure the desired durability. An after preparation with citric acid will accomplish it. If then a trace of the acid remains adhering to the albumen film or the paper itself, the gold solution with the prescribed minimum of alkali added is still too acid to act with sufficient energy, and it may occur that an hour or more in the toning bath will not change the color to the desired tone, and a brick red is the result. To counteract the acidity of the paper we add an amount of bicarbonate of soda to the last washing water but one, and then proceed to tone.

The gold bath need not be differently prepared from those used in any albumenized and sensitive paper printing methods, but care should be taken

that it is decidedly of alkaline reaction. Only then will it work well and give tones of any desired color. We are all aware that a very alkaline bath requires more gold, and perhaps some of the precious metal is unnecessarily wasted; but with the small number of prints an amateur tones at one time, the loss is hardly perceptible. Borax, tungstates and a variety of other alkaline salts have been recommended, but if the bath is otherwise in faulty condition they will fail just as surely as other salts under similar circumstances.

In our own practice we have adhered to the same toning bath with ready-sensitized paper, which we employ for paper freshly silvered. We use bicarbonate of soda and a pinch of acetate of soda, the latter for the purpose of giving the print a warmer, not the cold, positive black tone. We have never failed with such a bath, and have frequently shown that it is productive of purple blacks in from four to six minutes, where tungstate and other salts could not accomplish more than a brick-red color in an hour's toning.

Another fault of ready-sensitized paper is said to be its tendency to lose tone in the hypo bath. To prevent this, salt, soda, ammonia, and other substances have been recommended to be added to the hypo. We have never had occasion to resort to any of these remedies, if the paper was really good, and the toning bath in good condition. The hyposulphite of soda we now purchase in the chemists' shops is generally pure enough for all photographic operations without the addition of alkalis or alkaline salts. A trace of chloride of copper added to the gold bath is said to be a preventative of tones bleaching in the hypo solution. Others claim with apparent good reason that the copper has just the opposite effect.

It has been claimed that ready-sensitized paper is entirely free from blisters, but they are just as likely to occur with it as with any other albumen paper, and the usual precautions should be observed to prevent their appearance. Instead of transferring the prints after fixing, to a salt bath of uncertain concentration, we have adopted a method of diluting the fixing bath with the prints in it, gradually, and continuing this dilution until they float in pure water. Finally we subject the prints to the usual washing and hypo elimination. If washing is done with river or rain water, there is not much danger of blistering; with well or spring water, containing air and gases like carbonic acid there certainly is.

A curious preventative of blistering was described recently in a German journal. After toning the prints they were laid upon each other in small piles and repeatedly worked over with a rubber roller and then subjected to the fixing bath. After such treatment blisters, it is asserted, will not occur with any albumenized paper. But we must wait until next issue to conclude this subject.

EDITORIAL NOTES.

In our issue of September 20th we published a list of hotels which contain dark rooms for the convenience of their photographic guests, and invited other hotels which had done likewise, to notify us, that we might make proper announcement. Since then, we learn that Cole's Hotel at Kidder's Ferry, Cayuga Lake, N. Y., has furnished a dark room for the use of guests, and that the Chiswick Inn, of Littleton, N. H., is arranging for a convenient dark room for the use of traveling photographers next season.

We would also correct the misprint which occurred in our previous note. High Falls Hotel is at Dingman's Ferry, Pennsylvania, not in New York, as it was inadvertently printed.

The publishers of the "American Annual of Photography for 1890" wish to announce that the matter of selecting illustrations and contributions having progressed so favorably, it will be possible to close the book even earlier than was originally decided upon. This will enable them to put the book in the hands of photographers sooner than was anticipated. As this seems to be desirable, and the dozen or more illustrations have all been decided upon, and enough contributions received to make the book even larger, in this respect, than ever before, the "Annual for 1890" will go to press without further delay. Those of our readers who are preparing articles which they wish to have inserted, are hereby notified that unless they are sent in within the next few days it will be impossible to print them. It is hoped that all who have not yet sent in their contributions will do so at once, as the publishers desire to shut no one out without a fair notice.

It may not be out of place to say a word at this time to intending advertisers in the American Annual of Photography for 1890. The first edition, as has been already announced, will be ten thousand copies. The advanced orders for the book having come in so rapidly, this edition is already sold to a large extent; so that a second edition seems inevitable. Advertisements in the first edition are repeated in the second

without additional charge, while those who advertise in the second edition only are charged the same as those who advertise in the first edition. It is needless to point out to shrewd advertisers the advantage of ordering space at once, and thus secure insertion in the first edition.

ADVICE TO BEGINNERS.

As amateurs are subject to more or less disappointments, caused, as they suppose, by over or under exposure, or the same case in development, a few words from one who has had the following experience may lead to a great many discouraged ones taking a fresh interest in the art, for art it is.

Unless one has a love for the beauties of God's creation, and an ambition to reproduce the same to the best of his ability, he or she need not waste time to peruse the following lines.

In the first place, an amateur must have some stimulus or object to attain as an incentive to take up photography and succeed, not to merely uncap and recap the lens, sending the holders with plates to a photographer for development, receiving in return finely mounted pictures, which are shown with pride to relatives and friends as "My work." Such an amateur has no claim to the title, and certainly has not experienced any of the trials I wish to enumerate, nor does he know anything about them.

When I first thought of taking up photography as a pastime and recreation, I was at a loss to know just where to go, what to get and how much it would cost, so set to work and wrote for catalogues to nearly every photographic supply house in the United States—that is, it appeared so from the return the mail brought me.

Then I asked every friend I had who was an amateur photographer for his opinion, and in doing the above was where I made my first mistake, and my advice on that point is to go to some reputable house and, after making known what you wish, let them fit you out, otherwise you get bewildered in a sea of different makes of apparatus, every one being represented as the best, and each friend suggests that you buy the same make as his.

Finally you purchase a moderate cost camera and lens, and commence operations, first bringing home some friend interested in the art, most every evening, until your family get photography for every meal, and each friend is kind enough to tell you that his box is of better workmanship and cost more than yours, or is one of more recent pattern, yours being old-style, etc., and you come to the conclusion that you must have been swindled.

However, you decide to try a few pictures, and find that although your outfit may have been a cheap one, you can turn out work that in the aggregate is much better than you expected, and the praise your efforts receive encourages you. But suddenly a dark hour comes in your dark-room, that even the rays of your red light cannot penetrate. Something goes wrong with your developing, and you lose a plate that you wanted, whereupon you turn over the pages of "How to Make Photographs" or some other instruction book and try it again, with another plate, following carefully the formula for remedying over-exposure, or what, in your inexperience you think the trouble is, and find the same result.

You then ask your nearest friend what he thinks the trouble is and are told you are using too quick a plate, which we will say is a Seed No. 26. You decide that he may be right and immediately buy some slow plates, which we will say are Carbutt "B," and find some other fault, or possibly the same one; then, instead of consulting the same friend again, you happen to meet another, who, upon telling him your trouble, says, "Well, I have always used "Stanley plates," or some other make, "and think if you try them you will find smooth sailing."

You grasp at a straw like a drowning man, and try another make of plates, but still cannot succeed. Then you are told that your lens is no good, then your box is leaky, and your plates are light-struck. The result is, you get discouraged with photography and let it drop, feeling convinced that it is not so easy to learn as your acquaintances pretend to say.

Then your first and original adviser happens to drop in some evening for a social chat, or into your office on business, and the conversation turns to photography, as it will when amateurs get together, and you slowly unfold your story of disappointments to him. He asks to sometime see you develop a plate, whereupon you think of one or two still lying undeveloped in your dark room, that you have not had the courage to attack. He immediately acquiesces to your developing them right then and there. If it be at home you get your lamp lit and ice water ready, supposing it is summer, and together you once more enter into the mysteries of the dark room. He watches you closely, and suddenly exclaims, "What are you doing that for?" and you say, "Well so-and-so told me to." He then takes the plate, washes it and puts it in a dish or tray of clean water, throws out all your developer, himself makes fresh, continuing the development with the result of a fine negative. But it is still a mystery to you and you ask, "What did

I do wrong, etc.," and are told the reason, whatever it may be, and there are many. He insists that you develop the remaining plate yourself, in his presence, using just equal proportions of Pyro and Soda solution, with the result of the best negative you ever had.

After he is gone and you may have retired, still asking yourself the question, What have I been doing? It suddenly dawns upon your befuddled intellect that "Too many cooks spoil the broth." That being your case in endeavoring to please, or rather to do as all your friends suggested. You had simply become so confused as to the uses of the different chemicals and their effects upon the various plates, some liking more Pyro and others more Soda, that you did not know what you were doing. And upon your next batch of exposures, found yourself getting along to your entire satisfaction.

The whole of the above sums up to this: that when wanting advice, go to some one friend whom you know has had experience, and then following his advice, and no other, at least until you get a little proficient in the art.

Likewise do not try every plate you see advertised, but select one brand, and when you know its quality and capacity sufficiently to warrant your trying another without getting the two confounded, do so, and in all cases follow the formula of developer closely, leaving experimenting until you know what this or that chemical will do, and the effect it will have upon the plate.

George E. Merry.

HISTORIC HOMES.

I.

The Verplanck House.

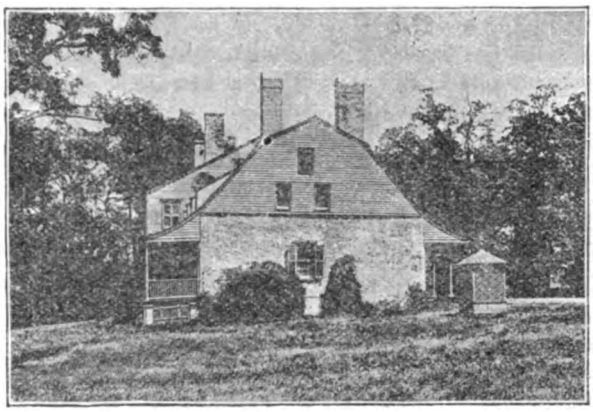
"You may go all around the world and come home to find your next door neighbor a genuine inspiration, and the turnpike road where you played as a child a rich region of fancy. In time you will see you needed tossing half across the earth to shake the dust out of your eyes which prevented you from finding how clearly defined and interesting life is under your own window."

In our case, without the trouble of shaking the dust out of our eyes by a toss half round the earth, we looked one day across the river and discovered a historic home in the old Verplanck House which has been our opposite neighbor for a life-time. It stands on the eastern bank of the Hudson, a mile or more north of Fishkill Landing, and is in many respects a most interesting Revolutionary relic.

We were lucky in securing a bright July day for our work, a day, indeed, almost too clear, and an hour not conducive to modeling shadows. It was, in fact, sacred, high eternal noon when we reached our destination, and as I put up my tripod I feared lest the camera, like a certain famous sundial, should be so soaked in sunshine it could not hold a shadow. At such times we all know how fog creeps in unaware, unless one takes great precautions to make the machine light-tight. I believe much blame that is given to manufacturers concerning foggy plates might well be passed on to the dealers who sell us leaky boxes and perforated bellows. However, since wood will warp and rubber wear thin, we are stupid if we keep on scolding, and do not take the trouble to find the pin-hole through which the white light creeps. A camera in good order at the beginning of the season may spring several leaks before the close, and for this reason we should frequently make examination of all its parts, taking out the lens and peeping through its vacant hole towards the holders, and then, reversing the operation, look towards the front board, whose looseness is ever a prolific cause of light. Of course, all this must be done in broad sunlight, with one's head covered by the thickest of thick focusing cloths, so if anything but darkness be visible we may make sure of the cause and its locality. Black paper pasted over cracks is the simplest and most effective remedy, while court-plaster will heal broken places in old bellows. A discarded rubber coat is also satisfactory material for patching up breaks. Having attended to these minor details of such major importance before leaving home, we now took several views of the house, which stood on its sloping lawn, in a grove of old locust trees, as pretty a four-and-a-quarter by six-and-a-half picture as one could wish to develop. We purposely chose the southern end so as to make sure of getting the venerable part, which is of Revolutionary date, since a modern two-story addition defaces the northern side. The original building of which we give a view is a real Dutch homestead, built one hundred years ago. It was owned during the Revolution, Lossing says, by Samuel Verplanck, and was the headquarters of Baron Steuben when the American army was encamped at Newburg.

Major-General Steuben, Aide-de-camp to the King of Prussia, offered his services to the United States in 1777, and aided us gallantly through many battles. I know not how homelike he found this house, but I trust he never had cause to regret exiling himself from his native land for our sakes! The homestead was made still more famous at the close of the war when the Society of Cincinnati

was organized in one of its large square rooms. The room itself is still shown in its original state, but we contented ourselves photographing its window, against which a rose bush was blooming. A man ploughing in a field—perhaps another Cincinnatus—was most cordial in his invitation to us to go indoors, but we refused his hospitality.



In our day of organizations, when street boys belong to clubs, and servant girls to societies, when labor unions, trade boards and workingmen's guilds rule both public and private life, such an association as this would not be a ten-days wonder, but it seems these officers had a hard time with the rigid Whigs, who suspected them of everything evil, on account of a certain clause in their Constitution concerning the rights of primogeniture. The Society was designed to keep together those who had fought together, and help, when necessary, the needy among their number. It was allied to France through His Excellency the Chevalier de la Luzerne, and possibly smacked a little more of aristocracy than does the Grand Army of the Republic to-day, and for this cause it was most unpopular.

The storm of opposition, however, died out when the hereditary feature was voted down, but since some of the States refused to ratify the amendment, we find these Sons of the Revolution flourishing under their original colors, yet, without apparently imperiling the safety of our Republic!

The Society was divided into thirteen distinct branches, one for each State, but only six, Massachusetts, New York, Pennsylvania, Maryland, New Jersey and South Carolina have kept up an unbroken existence.

One fancies the relations may have been somewhat strained during our Rebellion, but since the furor of centennials, many States have come to life, and the Cincinnati now boasts a membership of about five hundred, with Hamilton Fish as a President-General here, and the Marquis of Rockambeau, in France, where the Order is awarded the highest consideration and honor.

Did we not fear to offend English readers of our PHOTOGRAPHIC TIMES, we would like to reproduce the Society's certificate, which bears on its face American Liberty personified as an armed man, driving poor Britanaia, a nervously prostrated girl into the sea. The warrior bold is assisted by a screeching eagle, while the poor exile, whose tumbling crown sadly needs a bonnet-pin to hold it in place, has no follower but a much cowed lion.

As a relief from these warlike memories, we took ourselves and our cameras into the weedy garden, and walking along its sunny paths tried to recall the stately dames of '76. Here bloom the same damask roses they gathered, here stand the tall white lilies, and here the worn stone bench where they, like us, must have stopped to rest.

Sunbeams will reveal architectural histories more readily than garden secrets, hence, after vainly trying to get some view of the box-bordered beds we gave up in despair, and present for our single illustration this gable end of the old Verplanck House.

Adelaide Skeel.

A SIMPLE ENLARGING APPARATUS.

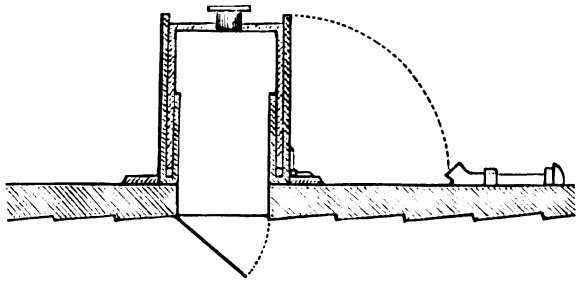
A simple and effective enlarging apparatus which I recently designed for the dark room of Mr. Wyant, the well-known landscape painter may possess some features of interest.

In the centre of one end of a room 5 x 10 feet and about 18 inches above the bench and tank of usual construction, an opening was cut through the side of the house, 5 x 7 inches to admit a plate of that or smaller size. On the outside a shingle was made to cover this aperture, its inner face lined with tin and fastened by its lower edge with concealed hinges. When in use this is lowered to an angle of 45° and serves as a reflector to throw the upper light through the plate to be enlarged. When not in use it is secured by a button from within, leaving nothing to indicate its purpose from without.

The camera is simply a rectangular box carrying the lens, telescoping into a larger one made with double sides as shown in the cut, in order to prevent the escape of light.

The outer case attaches to the wall by its upper side, the hinges being placed a half inch from the end to lap under a shoulder piece as a light cut-off, while the other three sides are protected by strips as shown. By this arrangement the camera is

swung upward and out of the way when not required, and is held to the wall by an automatic



catch. As a permanent fixture this is always ready for service without interfering with ordinary operations, and is of cheap construction. The walls of the dark room are stained dark and the bromide paper or plate held on an easel at the proper distance. Trays for developing prints can be made of any size by turning the edges of sheet tin, iron or zinc and giving the surface a coat of Japan varnished to prevent corrosion.

Walter Clark.

BE HONEST WITH YOURSELF.

WHY is it that so many photographers are so dishonest to themselves?

Let one of these meet with a failure and the very last person whom he is willing to hold responsible for that failure is himself.

"Something wrong with the light to-day." "Confound B——, he's too stingy with his silver now he's got a reputation." "I wonder what is the matter with that developer? I never knew it to work that way before." These expressions are familiar to every photographer. Do the persons making use of them believe in their truth? Seemingly they do, but I doubt if in their innermost consciences they believe them. In the majority of cases they are simply excuses which they make to themselves and others for their indisposition to give that study and investigation necessary for any degree of uniformity in results.

Now, my friend, be honest to yourself. Who is responsible for your failures? Is it the sun? Is it the plate-maker? Is it the developer? The sun is the same faithful old Sol that works so satisfactorily for your friend G——. The plates and developer are the same that yield such uniform results in other hands. Come now! Acknowledge that you are not a scientific worker. Rule of thumb is your law, not the laws of science. Photography is a science.

Be honest with yourself. Don't say "Something wrong with the light."—"Confound B——," etc. Say to yourself, "What error have I committed?" "Why have I made this error?" "How shall I avoid such errors in future?" Having asked these questions, solve them and before long you will cease such expressions as imply that someone or something else is responsible for your failures. Photography will become a source of pleasure to you instead of a source of vexation. Better still, it will educate you, teach you to reason from cause to effect, and repay you a hundred-fold for the study you devote to it.

Frank H. Howe.

EXPERIENCES OF AN AMATEUR PHOTOGRAPHER.

I SHOULD lead you through a tangled maze were you to follow me even into a casual reference to the innumerable experiments which have been made to simplify and popularize the processes by which a photograph is brought to its conclusion. The literature of the subject is at once exhaustive and exhausting.

Within a few years the wet plates have largely given place to the dry, and it has been delusively suggested, possibly by a far-sighted commercial enterprise, that any one can take a creditable picture. As a consequence, a host of amateurs have arisen, who have ignorantly worshipped the sun, and coaxed him to do a great deal of work of which he is probably ashamed. This host infest the highways and byways of creation, making Nature almost sorry that she ever condescended to show her face, and sick at heart that she can possibly look as she is sometimes represented. For myself, I confess to having had in the past a desire to look into the scientific elements of the problem more thoroughly than is common, but my ardor was somewhat dampened when I found, after meditating on this simple theorem for a couple of hours, $12Ag1+6AgNO_3+3H_2O=6Ag_2l+5Ag_2l+5Ag1+6HNO_3$, that it did not present itself to my mind with that lucidity which I am apt to enjoy on some other subjects. I safely concluded that the gentleman who made the equation was entirely correct, and that it would be verging on impertinence to even corroborate his statement by any little demonstration of my own. The originator of this puzzle is Lecturer on Photographic Chemistry at the Imperial Technical Academy of Vienna, and is accustomed to deal in axiomatic truths, of which this must be one, as every thoughtful mind will instantly discover. I have no desire to doubt his statement, not the least in the world, for I have great respect for mystery. Acquiescing, therefore, in the most cordial manner in the profound and beautiful truth contained in the above hieroglyphics, and inspired thereby to use my own creative faculty, I have produced a proposition which, it seems to me, is equally self-evident, viz.: AMATEUR+OUTFIT=$20. This equation interested me exceedingly, and I proceeded at once to investigate the intricacies of the chemical combinations of the white of an egg and washing soda.

My personal experiences must needs be sung in the minor key. Had I not been possessed of qualities which somewhat resemble obstinacy of purpose I would have

sunk into a photographic grave long ago. Fired with zeal to put all the beautiful nooks and corners of the world into one vast picture-book, I hied me to a large dealer in cameras. Perhaps it is unnecessary to say that I was received with flattering consideration, for I took my wallet out at the beginning of the interview, and was immediately assured that modern invention had at last reduced photography to a mere matter of routine. All one needed to do so I was assured, was to follow the instructions laid down in the manuals, and he would find himself the astonished and happy possessor of numberless mementoes of a summer vacation. Mistakes were sometimes made, but they were the result of an unpardonable carlessness, and in my case that was not supposable. I had absolutely nothing to do except to expose the plate properly, develop it with judicious care, print from it, tone and fix the prints skilfully, and then I should be master of the art. All this fell on my unaccustomed ear with a sweetly solemn sound, and I forgot for the nonce that I had yet to learn the meaning of the words developing, toning, fixing, and printing. With a dim feeling that the impatient world had waited long enough for me to show it what a real genius could do, I purchased everything necessary to a complete outfit, and quite a number of articles which I have up to this moment found no earthly use for, and probably shall not while my eyes are strong enough to focus a landscape. The liberality of my commercial friend in advising me concerning what I ought to have was simply astounding. At the end of a very delightful interview my wallet had a lean and hungry look, and I was indebted to my "guide, photographer, and friend" to a considerable amount. I had purchased a fine camera and lens, a dozen dry-plates, a cart-load of chemicals, and innumerable *et cætera*, and I retired with the boundless hope of a resplendent future. The wheels of my chariot had not yet touched the corduroy road which lay between me and the achievement of my purpose, and which was destined to jolt every bone in my body out of place, and to reduce me morally to the consistency of a jelly fish.

My home for the summer was on the shore of Casco Bay, in Maine. With twenty or thirty rocky and sandy islands in view, it was easy to find lovely spots which seemed anxious to be transferred to glass. I restrained my impetuosity, however, until I had gleaned from my manuals some indistinct idea of the conditions to be observed before a picture could be obtained. I knew that after the sun had done his part of the work, the oxalate of potash and the protosulphite of iron and the hyposulphite of soda were to be skillfully harnessed, not abreast by any means, a mistake to which beginners are too prone, but tandem, that they might drag the unwilling image from its hiding-place in the nitrate of silver on the dry plate, but such malignant circumstances got control of me that I actually tried twenty-two times before I succeeded in producing any picture at all. Whether I was unusually stupid—an intimation to which I am not over-hospitable—or whether the cunning powers of the air took especial pains to balk me, I cannot say. Time and again, so frequently that the harrowing remembrance of those unhappy days almost makes each individual hair stand on end, I put the plate into chemical No. 1, carefully prepared according to the formula which my friend the merchant assured me admitted of no possible mistake, and watched with anxious delight the outlines of beauty as they leaped with astonishing rapidity into view, and just an equal number of times my heart sank, and I expressed an opinion remarkable for its candor, though it need not be repeated here, when a dull gray cloud gradually overspread the plate like a thick sheet of lead, and my picture disappeared into the regions of the unknown. I tried to resuscitate it by pouring a portion of every chemical upon its face, but in no instance was I able to call it back. I sighed, I even spoke of myself with opprobrious epithets, but it availed it not. On another occasion the developer did its work more deliberately, and I was charmed with a bit of landscape that became visible, but when I put the plate into the soda a change occurred, and it grew blacker and blacker, until at last. when I removed it and held it up to the light, I had a 5x8 pane of clear window glass, with not a vestige of anything on it. The length of exposure was, of course, my first stumbling-block, as it is to all amateurs. I sought information very diligently on this subject, but somehow photographers always evade it, and though I discussed the matter with a very eminent artist for a full half-hour, I came away with a dull feeling of dense ignorance in my heart. I was told that everything depends on the time of day, the state of the atmosphere, the cloudiness of the sky, and many other things which I have forgotten, and when I insisted that he ought to be able to tell me within sixty minutes of the right time, he grimly smiled, and answered that in one instance his camera was in position in gloomy Trinity Church for twenty-four hours before the light made its impression, and that in another instance a perfect picture was taken by the flash from two Leyden jars, or in about the twenty-four-thousandth part of a second.

With these two extremes in mind I focused my lens on a dwelling-house, removed the cap, and waited fifteen minutes. It was a bright, cloudless day, and the sun was shining in a blaze of glory at my back. The picture which was the result of the experiment, was not in every respect a success, as my fellow craftsmen can easily guess, for when it came out of the developing bath it looked like a thin coating of disgusted clay, with here and there a splash of black, but with the house so far in the remote background that it was quite invisible. My perplexity was increased by this experience. Being far removed from any professional friend, I could not decide whether the exposure had been too long or too short. I reasoned from the slender premises at my command that the sun ought not to be stinted as to time, and if I was generous to him, he would, in turn, be generous with me, and do the work thoroughly well. The grossly ignorant may not be aware of the fact that the sun had finished his task at the end of about three seconds, and he spent the remaining fourteen minutes and fifty-seven seconds in spoiling the picture out of revenge for my stupidity.

I try to get one afternoon a week for a photographic tramp, and it refreshes me for all the other days of sedentary toil. Within half an hour of my residence there are little nooks and corners waiting to be copied on sensitized paper. I pack up my valuables, rush for the cars, and enter at once on a new life.

Let me describe one of my trips, and perhaps some forlorn and shipwrecked, or health-wrecked brother will go and do likewise. It was a beautiful day in December, and the air had a crispness in it which made one's blood tingle. I was in the midst of some frightfully tangled work. I

had tugged at it with desperate earnestness, or rather earnest desperation, but it was obstinate, and would not allow a single ray of daylight to penetrate. My brain felt as if it were slowly undergoing ossification, with the process pretty well advanced. As I stood looking out of my window, which commands a view of the Jersey hills, I felt an indefinable drawing. "Perhaps," I said to myself, and then I cast my eyes inquiringly on the tripod. That, too, seemed to say "perhaps," and my camera really looked as though it were languishing for "a day out." So I at once set about packing up, not enthusiastically, but with a feeling that I must have a change in order to stop this transmutation of my brain into molten lead. Half an hour afterward I was on the Weehawken ferry-boat.

I had somehow got the impression that at Weehawken I could take the cars up the river—the present station had not then been built—for a dozen miles or so, but I soon found out my mistake. I made inquiries, and found that there was no station and no railroad, and that I had wandered into a section of Deutschland. Not even a condemned vessel was in sight on which to try my "'prentice hand," nor a specially ragged urchin to grin at me while I took his picture. Here was a dilemma, indeed. Shanties were there, but they were dreadfully commonplace. In my despair I sought information in a beer saloon, which seemed to be so filled by a leviathan of a woman and an ichthyosaurus of a man that there was hardly room for me to sit down. They paid no sort of attention to me at first, regarding me perhaps as a pedler wanting to barter his wares for a Schweizerkäse and Schwarzes Brod.

"Is there any stable near by?" I ventured to ask.

"Nein," replied Leviathan, in a voice which seemed to say that I was in good condition to be served up as Kalbfleisch.

"But," I persisted, "isn't there a horse in this region I can hire?"

"Only one, and he ist mein," answered she.

"Could you have him tackled up, and convey me to the nearest railroad station?" I asked.

"Yah," very deliberately; "p'raps."

"How much?"

She looked at me, wondering whether I was pedler or prince, and then, as though she had struck an average, replied, "Two tollar."

"Good! Fetch him along, and I'll be off."

The boy driver and I reached Schuetzen Park in due time, traversing the dreariest road, and meandering through acres of swamp.

"Good place for fever and chills," I suggested.

The little sphinx at my side gave the horse a resounding blow with his whip, and simply answered, "You bet!"

When we reached the park I persuaded the youth to stand at the horse's head, and in a few minutes I had a picture of the funniest boy, the largest horse, and the most delapidated wagon imaginable.

Then came the hunt for subjects. I saw a group of men standing on the platform of the station-house, so I brought my lens to bear on them, and cried out, with true professional emphasis:

"Gentlemen, one instant, if you please."

One, two, three, and the work is done. "Thanks, gentlemen;" and I began to pack up.

Then I took a bit of winding road, at a point where two arching trees interlaced their branches, and it was no sooner done than up came a troop of wild, laughing girls from the silk factory, on their way to lunch. They gathered about me like so many bees.

"Shall I take you, girls?" I asked.

Such a scream! and off they scampered. The feminine gender, however, have peculiarities which no mere man can comprehend, and in a few minutes they came rushing back, stood together in a very pretty group, and said, in chorus, "Mister, you may." Of course I complied.

By this time I was tired, healthily and gloriously tired. The sun was bright, the air was brisk and fresh, and the appetite, which had been dormant, began to resemble that of the *ursus americanus* in the spring, after winter's hiberation. My whole interior being—moral, physical, and intellectual—began to feel the effects of the tramp and the new experience, and I almost renewed my youth. I am assured that a photographic apparatus, with its delightful allurements, is a more valuable possession than Aladdin's lamp, or an ounce vial of the alchemist's elixir vitæ. Well, I had just one dry plate left. I was wondering what I should do next, when I heard a voice behind me, attuned to the true Celtic accent.

"Say, misther! say, misther!"

I turned to find a youngish woman, meanly clad, but with a bright gleam in her eye and great eagerness in every feature.

"Well, my good woman, what is it?"

She summoned all her resolution, and while the blood mantled her cheek, she asked, with an outburst of motherly affection.

"Misther, will ye tak me babby?"

I confess to being touched by the pathos of that appeal. I had suddenly come into contact with a genuine bit of the best kind of human nature. Of course I melted at once.

"It will give me great pleasure, madam, to take a picture of your baby," I answered.

She actually cantered on her way back to the shanty which the husband and child had converted into a home. One thing, however, and a very important one, she had altogether forgotten. It did not occur to her, so great was her eagerness, until she nearly reached the house, and then she came to a stand-still as suddenly as though she had run against a stone wall. I felt in my heart that some strange contingency had arisen, and the feeling was confirmed when, with pathetic tremulousness, she cried out:

"Misther, how much will it be?"

The desire to have the picture of that "babby" had partly crowded out the fact that this is a mercenary world. I determined that the mercenary side should not be visible on this occasion at least, so I screamed back:

"Nothing, madam, nothing at all."

She started once more into a canter, but I heard her say: "Thank God, chape enough!" and I chuckled to myself at being taken for a professional seeking the dimes and quarters of poor people.

I took both mother and child, and the picture is one of my best, and also one of my most valuable souvenirs of travel.

When I reached my study in town I was thoroughly worn out and jaded. The sun had dipped below the Jersey hills which made my horizon line, and I was gloriously and refreshingly used up, with a five hours' jaunt behind me. I had a good story to tell my friends who called in the evening, six pictures which I wouldn't

part with for money, and the precious memory of a happy mother's face. The fresh air was in my lungs, and that night I slept the sleep of a man who had done his duty to his fellows and to himself. When I wrestled with the tangled problem the next morning, I was surprised to find that it was not so much of a problem after all.

I have but one bit of advice for all men of sedentary habits, viz., go and do likewise.

George H. Hepworth,

In Harper's Magazine for August, 1887.

Correspondence.

MAKING QUICK PRINTS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: In the issue of THE PHOTOGRAPHIC TIMES for September 20th, you speak of reproducing quick prints, and quote the *New York Sun*.

We often facilitate matters here, in getting out prints for use in court, by making them on Eastman "A" bromide paper, printing from the negative *before* fixing. We first squeegee the paper to the back of the film negative before it is stripped, the fixing and stripping of the negative being done at leisure.

The negative has been made, and print furnished, in about fifteen minutes, by this method. The photograph was a copy of a drawing.

Yours truly,

W. N. Jennings.

PHILADELPHIA, September 27, 1889.

Notes and News.

Married.—Announcement has reached us of the marriage of Viola M. Douglass, daughter of Gayton A. Douglass, the well-known photographic merchant of Chicago, and Hubert W. Butler. The wedding occurred, Wednesday evening, September 18th, Professor David Swing officiating. The young couple will be at home, on Berkeley Avenue, after October 1st.

Recent Customs Decisions.—In reply to an inquiry from an artist in England as to whether photographs colored in oil or water colors by an American artist are entitled to free admission, the Treasury Department has replied that paintings and other works of art produced by American artists are exempt from duty when the fact of their production is verified by the certificate of a United States Consular Minister, endorsed by the written declaration of the artist.

Photographers of the amateur variety says a daily paper, are famous for their nerve, but the nerviest of all is the fellow who took a snap shot at a suicide at Niagara Falls Thursday. A woman had thrown herself into the river, and while she was being whirled towards the brink of the precipice the ever present camera was leveled at her.

The Pyrocatechine Developer.—Dr. Carl Srna gives the following formula in the *Revue Photographique*:

SOLTTION *A*.

Sulphite of soda	100 grammes
Hot distilled water	400 c. c.

SOLUTION *B*.

Carbonate of soda	100 grammes
Water	400 c. c.

Take 80 c. c. of A, 60 of B, and add one gramme of pyrocatechine.

Prevention of Blisters in Albumen Prints.—Dr. Vogal recommends the use of a bath of alcohol, after toning and before fixing, as a remedy in obstinate cases of blistering. He advises alcohol at 70°. With our ordinary methylated spirit we should get at something near enough to this strength, by adding one part of water to four parts of the spirit at the strength at which, on the average, it is sold. An immersion of the prints for three minutes in this liquid before fixing will generally suffice to prevent blistering in cases when other means fail. Of course, if the spirit is used for more than one batch of prints, the water taken in with the photcgraphs must be taken into account when reckoning the strength of the solution; and when any large number of pictures are to be immersed in a limited quantity of the diluted alcohol, it will be desirable for the prints to have the excess of water removed by lightly pressing a pile of them first. The alcohol itself then may be somewhat stronger to begin with.—*Photographic Review.*

Ink for Writing on Photographs.—The following answers very well for numbering and marking proofs, the writing being executed on a dark portion:

Iodide of potassium	10 parts
Water	80 "
Iodine	1 "
Gum	1 "

The lines soon bleach under the strokes by the conversion of the silver into iodide.—*Scientific American.*

Doctor John Nicol, editor of the *Photographic Beacon*, in his "Editorial Table" for September, says that "Childhood," by Mr. McMichael in THE PHOTOGRAPHIC TIMES of July 19, is too good to be passed over without notice. While it seems to make us discontented with the average illustrations in that and other journals, it shows that in the hands of true artists photography is capable of producing works that are, in the highest and truest sense, works of art.

The composition is simplicity itself. Only a child reclining on a chair, but how exquisitely perfect and heart-filling it is! The disposition of the lines, the distribution of light and shade, the feeling of repose, and the expression of confident passivity, all unite to form a picture of which Millais might well be proud, and which ought forever to silence those weaklings who still persist in denying to photography the right to the title of a fine art.

It should be Remembered, however, that while a poor print may be produced from a good negative, a good one from a poor negative is an impossibility, and therefore, a good negative is the first essential for a good print. We are frequently asked to recommend a toning solution that will give rich purple blacks, and in reply to our statement

The Editorial Table.

THOSE enterprising photographic merchants of Chicago, Gayton A. Douglass & Company, have issued a practical treatise on Silver printing, which they propose to give away to their customers. We understand that the little instruction book was written by Mr. Douglass himself. That being the case, its practical value and reliability goes without saying. It is a pamphlet of twenty-four pages, covering in a plain, yet attractive manner, all the processes connected with silver printing. We shall have some extracts to make from this excellent little manual ere long.

WE regret to learn that Mr. David Tucker, (senior partner of the photographic supply house which bears his name), who is spending a few weeks at Sagerstown, Pa., for the benefit of his health, is not recovering so fast as we should like to have him. We trust, however, that he will soon rally. We are surprised to hear that Mr. Tucker has not yet sold his interest in the paying business which he has offered for sale. We know of no better opportunity to invest for a man with capital.

IN a recent letter from O. C. Hale, of London, Ohio, we are informed that two thousand boxes of Hale's Dry Plate and Pyro Stain Eradicator have been sold since the Boston Convention. This certainly speaks well for the article.

THE leading article in the October *Forum* is a review of the political situation in Europe, by Professor Emile de Laveleye, of the University of Liége. He shows the points of danger to peace, and explains the formidable preparations for war that even the most pacific nations are continually making. It is a comprehensive inside view of the political status of all Europe. A hundred years hence, Professor Laveleye thinks, except China there will be no nation that can compare in strength and importance with the United States and Russia. Senator S. M. Cullom, of Illinois, writes an elaborate article to show that protection is of greater benefit to the farmers than to any other class. He quotes agricultural statistics of different countries, and traces the unprecedented development of agriculture in the West under protection. Mr. Thomas L. James, who was Postmaster-General under President Arthur, and who spent a considerable part of his life in the postal service, points out the reforms that are now greatly needed, such as the cheapening of ocean-postage and of the rate of money-orders. Mr. James makes a forcible plea also for the complete divorce of the postal service from politics.

Record of Photographic Patents.

411,487,—Plate washing frame. Erastus B. Barker, New York, N. Y.

411,560.—Process of etching or engraving on Glass.—Fredric Winterhoff. London, County of Middlesex, England.

Pictures Received.

Chautauqua Stndent No. 80.—A collection of interiors and landscapes of first-class quality.

Chautauqua Student No. 17.—"The Shaver," four views representing different states of the barberian operation. The operator is himself the victim, and exposed the plates by pressing the foot upon the bulb. A collection of landscapes and interiors. Six photographs of an eclipse of the sun, representing so many different phases of the phenomenon. Reproductions of line engraving. A very interesting and accurately made collection of photographs.

Chautauqua Student No. 124.—Several landscapes and groups of excellent quality.

Chautauqua Students No. 207.—Collection of groups, genres, and interiors. Received the fourth Chautauqua prize.

Chautauqua Student No. 38.—Very well selected landscapes, skillfully developed and printed.

Chautauqua Student No. 35.—Views of the flood in Centre County, Pa., taken instantaneously and several very fine groups.

Queries and Answers.

196 In answer to your question in relation to inquiry No. 152, in July 26th issue, would say that the prints were left in the fixing bath from 20 to 25 minutes, and the bath shows a slight acid reaction.

197 "NO NAME" asks (1) an explanation of the word *density* as applied to a negative. (2) He has two negatives of a house, shed and barn that are connected. (The house and shed are white and the barn is colored). The first negative is clear, but quite dark all over. He thinks it was over-exposed. He says that when printing from the first one he did not fume the paper, and he knows he did not print it dark enough; "The darkest part of negative would scarcely show," he writes. The other negative was not nearly so dark, and was clear except under the piazza and a little way in front of it. This time the paper was fumed, and some parts of the picture were very good, but the light part did not print well. (3) He wishes to know the cheapest and most easily prepared developer, and the one from which the amateur can get the best results. (4) He also asks the price of a glass dish for toning.

197 *Answer.*—(1) Density—literally opacity; and in this sense, correct density is an attribute to a good negative. It should be just sufficient to give due relation to the shadows, and yet allow the detail in the high lights to print. (2) From the lengthy description of your negatives, we infer that they are under-exposed; at least, in the shadow parts. We should be able to give you more definite information on that point if we could see the negatives or prints. (3) See Chautauqua Developers, in Standard formulæ, "American Annual of Photography" for 1889. (4) Refer at the stores. It depends upon the size, style and quality.

MILL POND AT MILTON, N.Y.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, OCTOBER 11, 1889. No. 421.

MILL POND AT MILTON, NEW YORK.

OUR picture, this week, is from a film negative, by J. H. Wainwright, Secretary of the New York Camera Club. It shows a picturesque mill pond in the little town of Milton, N. Y. The composition of the picture is simple and attractive. It requires no explanation. The shape of the picture, as printed in photo-gravure, suggests a simple method by which the pleasing effect of a composition may be enhanced.

Mr. Wainwright used a "stripping" film, and hydrochinon development.

PRINTING ON READY SENSITIZED PAPER.

II.

The difficulties met with ready sensitized paper are mainly of the same character as those with freshly silvered paper. Independent of the inability to produce neutral or cold tones, however, which, as heretofore stated, is not owing to the quality of the paper, but to injudicious treatment, other faults are often observed. Silver streaks, and tears resulting from too strong silver solution, metallic spots adherent to the paper mass, or a want of uniformity of the albumen film are great annoyances to the operator; but as they come from causes in the manufacturers' shop we have no control over them. Paper having such faults to a great extent should be discarded.

Under certain circumstances, the albumen film of ready-sensitized paper will soften so much that a touch with the finger will detach it from the paper support; this may occur with paper otherwise of the finest quality. To guard against this fault, a dark and dry place should be selected for its storage. If the film has become flabby, and printing is done in a moist atmosphere, softening may easily occur. Too much alkali in the washing water before toning and an excessively alkaline gold bath will also soften the film, and a like effect has been observed when too much carbonate of soda is added to the washing bath before toning.

The duration of fuming is likewise of importance with this kind of albumen paper; if but slightly exposed to the vapors of ammonia, the effect is scarcely perceptible, and overfuming results in hard and chalky prints. An amateur printer should regulate fuming according to the intensity of his negatives. The old doctrine "a good print results from a good negative," is applicable to this paper as well as to any other. Ready-sensitized paper may be fumed several days in advance of printing, but the effect of fuming will disappear in a certain length of time. Toning may be delayed also for several days, or till a sufficient number of prints have accumulated. Prints a week and two weeks old, can be toned equally as well as those taken immediately from the press.

These advantages should not be underestimated because they assist to regulate the amateurs work and save much time, but no matter how good the quality of the paper may be and how correctly it has been manipulated throughout, the quality of the negative is, after all, of the first consideration. He who expects to obtain a brilliant and vigorous print from a feeble and underexposed, an over intense, or a foggy and overexposed plate, is sadly mistaken. No paper will make good prints under such conditions. To judge properly of the quality of his negative, should be a capability of the amateur before he criticises a printing method, or condemns certain kinds of printing paper.

It happens occasionally that not all parts of one negative are of uniform printing quality; some particular spot may be too dense and others are too feeble. Such negatives are quite often refused by the inexperienced, when they could be made useful and perfect printers by reducing the denser parts and strengthening the weaker. This method of rectifying faulty negatives has been termed "Retouching by chemical means" and has proved very valuable to those who have patience enough to work as directed by its author.*

* See page 242 of *The American Annual of Photography* for 1889.

Negatives too feeble in some parts, are also printed under cover of tissue paper and appropriately cut masks; the feeble parts remaining under mask, till those of higher density are partially printed out. Then the mask is removed, and the exposure is carried on under tissue paper till the proof is of the desired depth.

Many plates require spotting or retouching with pencil or brush. Pin holes in the film or the minute open spots resulting from dust specks on the sensitized plate before exposure, had better be left alone in most cases; they are generally too small to become perceptible, or to marr the beauty of the print. Large transparent spots, air bubbles and other marks are best retouched with a pencil of proper grade; the film being previously prepared with retouching varnish.

When parts of the film have become detached from the glass support, the negative should be varnished with ivory varnish and then retouched. This is a better method than to block out with opaque, because of the white spot remaining there, which requires positive retouching afterwards.

Vignetting prints, as portrait photographers do in their daily practice, should as a general thing not be resorted to by amateurs, unless they are provided with appropriate backgrounds. A vignetted photograph is not always artistic, especially when the original background is a figured wall paper or a piece of drapery of various shades and designs.

A print when well toned and otherwise in perfect condition, undergoes the last operation, the final washing and hypo elimination. Simple as this operation may appear, it must be done carefully and with circumspection. An amateur prints and tones but small numbers of photographs at one time, rarely exceeding 20 or 24, and they can easily be washed in the tray in which they were fixed. Let us suppose we have to deal with a dozen or two 5x8's, a deep porcelain tray of 10x12 or 11x14 is quite large enough to wash them well. Allow them to remain therein, attach a rubber hose to the faucet, lead its other end into the tray and turn on a slight stream of water. Incline the tray slightly and, to prevent the prints from going overboard, cover the lower end with a pane of glass. The current of water will keep the prints in motion, and after an hour's washing, an ounce of hypo-eliminator should be added. After five minutes standing the prints should be rinsed off again with pure water and dried, or mounted directly.

Of hypo eliminators none other than a hypochlorite or a very diluted bromine water should be used. Peroxyde of hydrogen and the salts of lead are useless for the purpose.

To wash prints in metallic vessels is imprudent; iron even when varnished or japanned, may present a bare spot, no matter how small, which may cause yellow stains upon the paper. Zinc or lead if perfectly clean is less objectionable, but if large trays have to be used for washing there is no better for amateur use than the wooden Waterbury tray.

The combined fixing and toning bath as described in connection with aristotype printing answers well with ready sensitized paper, provided all other conditions are the same as for separate toning; but of course it requires a much longer time before the desired tone is attained.

EDITORIAL NOTES.

THAT glass is more or less soluble in water has long been known, and it is very probable that many apparent vagaries of photographic action may be traced to this cause. F. Mylius has shown how glass may be tested to ascertain the extent to which it is acted on by water. After first carefully washing with water, alcohol and ether successively, the surface to be tested is covered with a one-tenth-per-cent solution of iodeosine in ether, and allowed so to remain for twenty-four hours, and then washed with ether. The surface will be covered with a red layer, purple in transmitted light, the intensity of the colors varying with the degree to which the surface has been attacked. He has found a method of rendering glass capable of permanently resisting the action of water. It consists simply in leaving the glass in cold water for several days, and then subjecting it to a heat of from 300 deg. to 400 deg. centigrade. Glass so treated shows no coloration at all, when tested as above described.

A VERY interesting pamphlet on PHOTOGRAPHS OF THE RED END OF THE SPECTRUM, reprinted from the proceedings of the Asiatic Society of Bengal, comes to us "with Colonel Waterhouse's compliments." It is illustrated with a photo-etching from a solar spectrum negative, and as the reading matter refers to the illustration, the plate is required to make it all plain. Otherwise we should reprint the valuable paper in full.

"IN November, 1875," writes Colonel Waterhouse, "I exhibited to the Society some photographs of the red end of the spectrum about A and a short distance below it, obtained on dry collidio-bromide of silver plates stained with analin blue and given a momentary exposure to white

light before being acted on by the spectrum. In these photographs, however, it was noticeable that under the influence of the red as well as of the blue rays the image of the spectrum was strongly reversed, *i.e.*, instead of being a photographic negative it was a positive, showing the lines as dark lines on a clear ground. The photographs now before you are on gelatine dry plates stained also with a blue dye, but they show no traces of this reversal in any part of the spectrum, and not only extend much further into the infrared region, but show infinitely better definition and greater dispersion in this part of the spectrum, owing to the employment of gratings in place of prisms.

"THE dye I have used for staining these plates is Alizarin Blue [C_{17} H_9 NO_4], the quinoline of Alizarin. It is prepared from nitro-alizarin by heating it with glycerine and sulphuric acid, and is found in commerce as a paste insoluble in water and only slightly so in alcohol. It dissolves in liquor ammonia with a greenish blue color. By mixing the paste with a concentrated solution of sodium bisulphite the dye dissolves and when dried forms a dark purple powder, known as Alizarin Blue S, or Anthracene Blue. In this form it is readily soluble in water, the solution in distilled water being at first of a brownish color, turning blue on exposure to air. By keeping a few days the color forms a floculent precipitate, and is then only partially soluble in dilute ammonia."

A PAPER was read before the American Institute of Mining Engineers in the early part of the year which has a strong bearing on matters photographic. The writer, Mr. Clemens Jones, Hokendauqa, Pa., describes the action of zinc on ferric solutions, and though his remarks deal with the sulphate of iron, the conclusions would be equally applicable to the oxalate, which, as our readers are too well aware, rapidly changes to the comparatively inert ferric form unless effectually removed from contact with the air. Mr. Jones gives the results of a number of experiments, and concludes by stating that "*a solution of ferric sulphate is instantaneously and completely reduced by filtering through pulverized zinc.* Such a method of renovating spent oxalate developers ought to be of considerable value where it is used in large quantities. Of course the action of zinc has before been known, but the quickness and completeness of its action when employed in this manner have never before been realized in photographic operations.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.

(*Continued from page* 482.)

SODIUM IODIDE.

Formula, NaI. Combining weight, 150.

Prepared by neutralizing hydriodic acid with sodium carbonate. From hot concentrated solutions of this salt the crystals formed are anhydrous cubes; but if the solutions are evaporated at the ordinary temperature, prismatic crystals are formed which contain two molecules of water of crystallization—$NaI+2H_2O$.

SODIUM NITRATE.

Formula, $NaNO_3$. Combining weight, 85.

Immense natural deposits of sodium nitrate occur in Chili and Peru, and hence this salt is commercially known as *Chili saltpetre.* It is purified by dissolving and re-crystallizing the natural product; but after this operation it still contains a little sodium chloride and sulphate. These may be got rid of by precipitating the nitrate from a boiling saturated solution by means of nitric acid. Sodium nitrate is deliquescent, absorbing moisture from the air. Hence it cannot be used to replace the more expensive potassium nitrate in the manufacture of gunpowder. Patents have been taken out for preventing this deliquescence by covering each particle of the sodium nitrate with a coating of paraffin; but in practice this method was not successful.

SODIUM SILICATE.

Formula, $Na_2Si_4O_9$. Combining weight, 302.

Since the molecule of this substance contains four atoms of silicon it may be called *sodium tetrasilicate,* but it is usually known as silicate of soda, or soluble glass. It can be obtained by dissolving powdered flint under pressure in hot, strong caustic soda, or by heating sand with soda-ash and charcoal. When powdered up it is readily soluble in boiling water, and forms a thick viscid liquid. It is used in fresco painting, as a cement in the manufacture of artificial stone, and in soap making.

SODIUM SULPH-ANTIMONIATE (SCHLIPPE'S SALT).

Formula, Na_3SbS_4. Combining weight, 317.

When 18 parts finely-powdered antimonious sulphide, 17 parts dry sodium carbonate, 13 parts slaked lime, and 3½ parts sulphur are boiled together for some hours in a quantity of water, sodium sulph-antimoniate is formed. The liquid must then be filtered, and the filtrate evaporated, when Schlippe's salt will be obtained in beautiful crystals.

Schlippe's salt can be used to intensify negatives. It may either be applied after a solution of bichloride of mercury, or (better) after the plate has been soaked in iodide of mercury.

Sodium Sulphite.

$Na_2SO_3+7H_2O$. Combining weight, 126+126=252.

Prepared by taking a saturated solution of sodium carbonate, dividing it into two parts, saturating one part with sulphurous acid, and then adding the other part. On evaporating transparent crystals of sodium sulphite are formed. These crystals are very soluble in water, slightly soluble in alcohol.

Sodium sulphite combines eagerly with oxygen, becoming converted into sodium sulphate Na_2SO_4. On this fact depends its use in the developer, since it takes possession of the oxygen which would otherwise go to the pyrogallic acid. It was first introduced for this purpose by Mr. Berkeley, and it is recommended to add four times as much sodium sulphite by weight as there is pyro employed. By this means a solution of pyrogallic acid can be made up and preserved for use for months, if not years, while without the Na_2SO_3 the pyro would rapidly discolor and become useless.

Sodium Tungstate.

Formula, $Na_2WO_4+2H_2O$. Combining weight, 294+36=330.

Prepared commercially by fusing wolfram (a tungstate of iron and manganese which is a fairly common ore) with soda-ash. It crystallises in narrow prisms, which dissolve in four parts of cold or two of boiling water. The solution is alkaline, and has a bitter taste. The crystals are insoluble in alcohol. Sodium tungstate is used to render fabrics uninflammable. In photography it has been employed to render the gold toning-bath alkaline.

Starch.

Formula, $C_6H_{10}O_5$. Combining weight, 162.

Starch forms a large part of every plant. It occurs in the form of minute *granules*, which are insoluble in cold water, alcohol, and ether. In hot water the granules swell and burst, forming starch paste; and by continued boiling the starch may be dissolved. Iodine forms a blue compound with starch, the color disappearing with heat, but returning when the solution is cooled.

Strontium Chloride.

Formula, $SrCl_2+6H_2O$. Combining weight, $158\frac{1}{2}+108=266\frac{1}{2}$.

Chloride of strontium is formed when strontium carbonate (the mineral called *strontianite*) is dissolved in hydrochloric acid. It can be obtained (by crystallization) in long hexagonal needles which deliquesce in air, are very soluble in water and in alcohol. By heat the water of crystallization is driven off, and the salt remains as a white powder.

Calcium chloride is frequently present, as an impurity, but this may be removed by repeated dissolving in, and recrystallization from hot water.

Sugar (Sucrose.)

Formula, $C_{12}H_{22}O_{11}$. Combining weight, 342.

Cane-sugar is obtained by boiling the sweet juice of the sugar-cane until the sucrose crystallizes out. The transparent colorless crystals of sugar are soluble in one-third of their weight of water, less soluble in alcohol. When heated with silver and mercury salts, cane-sugar reduces them, and it precipitates gold from the chloride. Sugar-water dissolves lime much more rapidly than pure water. *Glucose*, or grape-sugar, is represented by the formula $C_6H_{12}O_6$. It is less sweet and less soluble than cane-sugar. It is largely present in most ripe fruits.

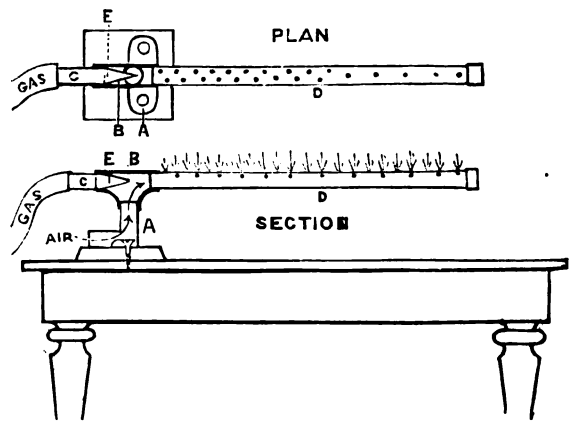
W. Jerome Harrison.

(*To be continued.*)

A CHEAP CONTRIVANCE FOR APPLYING GAS FLAME TO A BURNISHER.

When gas is available it is without question the best means of heating the burnisher, but to make economical and cleanly use of it requires some special arrangement.

I would offer the following cheap and simple contrivance as answering perfectly all requirements, it having been practically tested. It is constructed of ordinary gas pipe and fittings, excepting the flame tube which is preferably of brass, as affording a larger internal diameter to facilitate the mixing of the gas and air, and their passage to the farther end.



a—⅜ long drop Elbow. *b*—⅜ x (2)¼ T. *c*—¼ in pipe. *d*—flame tube, ¼ in. *e*—gas nozzle, screwed into *c*.
(Not drawn to scale.)

The gas nozzle is of brass and is extended no further within the mixing chamber than the centre of the vertical air tube as shown. In order to get the best effect it is necessary to contract the orifice by burnishing the tip of the nozzle until just sufficient gas passes to supply the required flame which is decided by experiment,—the full pressure being always turned on.

The flame openings should be quite small near the gas nozzle, gradually increasing in size to the far end; these openings are drilled alternately upon two converging lines, which are about one-fourth of the circumference apart near the nozzle and meet, say, one-third the distance from the other end;—the openings are spaced on the line rather farther apart as they increase in size; the limits as to size may be, according to circumstances, from three to ten thirty-seconds of an inch.

The appliance can be made portable by screwing it to a foot-block large enough to prevent tilting, but it is much better to adjust it under the burnisher so that the points of the flames will almost reach the surface to be heated, and then fasten it there.

C. D. Cheney.

EIKONOGEN FOR BROMIDE PAPER DEVELOPMENT.

[The following is an extract from a recent letter received from Gen. Joseph B. Brown, U. S. A.]

I think it may be said as a fixed fact that a used developer, preferably twenty-four hours old, is the very best developer for Eastman bromide prints, that has yet been proposed. I send you a print just developed and which has received no treatment with acid flushing after the development is finished. It is simply cleared from the developer by washing in plain water before fixing. The citric or acetic acid preliminary washing which is indispensible with the ferrous oxalate developer is entirely unnecessary with eikonogen.

Eikonogen is unquestionably the "Developer of the Future" for bromide paper. The whites, as as you will see, are beautifully clear, and the color of the picture has not the cold gray-black which results from ferrous oxalate. When we know what "Eikonogen" is chemically, I am satisfied that we can get quite a range of warm tones, by intelligent mixture. I developed five successive prints from the same negative, which are identical in appearance with the one enclosed, with the same solution.

The negative from which the print is made was also developed with eikonogen, and in part with the same identical solution.

The appearance of the image on the bromide paper is quite slow, much more so than with ferrous oxalate; but it proceeds regularly and uniformly till every detail appears. It is perfectly under command, and can be stopped at any stage with a wash of pure water, or can be left without interference, or fear of staining, till the depth of color desired is reached. *Joseph B. Brown.*

[The print which General Brown refers to is certainly an excellent example of bromide printing and developing. The whites are perfectly clear and the details are all brought out. The print has a clearness and brilliancy which is quite remarkable.—*Editor of* The Photographic Times.]

THE PROPERTIES OF ALLOTROPIC SILVER.

The three forms of allotropic silver which were described in the June number of this journal—the blue soluble and the blue and the yellow insoluble—are not to be understood as the only forms which exist, but as the best marked only. The substance is protean, and exhibits other modifications not yet studied. No other metal than silver appears to be capable of assuming such a remarkable variety of appearances. Every color is represented. I have obtained metallic silver blue, green (many shades of both), red, yellow, and purple. In enumerating these colors I do not refer to interference colors produced superficially by reagents, also wonderfully brilliant, but to body colors. As a single instance of coloration the following may be mentioned. I recently obtained a solution of allotropic silver of an intense yellow-brown. A little solution of disodic phosphate changed this to bright scarlet (like Biberich scarlet), presently decolorising with formation of a purple precipitate. Washed on a filter this changed to bluish green. The colors I have met with in this investigation can only be compared with the coal-tar products, of which one is constantly reminded by their vividness and intense colorific power.

Two of the insoluble forms of allotropic silver, the gold colored and the blue, show in many respects a close relationship and almost identical reactions. There are other respects in which they differ strikingly, and amongst these instability. Blue allotropic silver (dark red whilst moist, becoming blue in drying), is very stable. It may be exposed for weeks in a moist state on a filter, or be placed in a pasty condition in a corked vial, and so kept moist for months without alteration.

The gold colored form, on the contrary, tends constantly to revert to ordinary silver. This is especially the case whilst it is moist, so that from

the time of its formation it must be separated from its mother water, and washed as rapidly as possible, otherwise it loses its brilliancy and purity of color, and changes to a dark, dull, gray form of normal silver. On the filter its proper color is pure black, with a sort of yellow shimmer (the gold color appearing as it dries), often, especially if allowed to become uncovered by the water during washing, it will change superficially to gray.* But if the washing is done rapidly, with the aid of a filter pump and a pressure of four or five inches of mercury, the allotropic silver obtained, when allowed to dry in lumps, or brushed over paper or glass, is at least equal to pure gold in color and in brilliancy. With the blue powder such precautions are wholly superfluous.

Of the facility with which the gold-colored form is converted into normal silver, I have recently had a somewhat singular proof. I brought with me to my summer home a number of specimens in tubes, some recently prepared, some dating back as far as ten and a half years, together with other tubes containing specimens of white silver spontaneously formed from the gold-colored. On opening the box no tubes of gold-colored silver were to be found; all had changed to white. But the same box contained pieces of paper and of glass on which the same material had been extended; these were wholly unchanged, and preserved the gold color perfectly. Apparently the explanation was this—the mere vibration caused by the jarring of a journey of six hundred miles by rail and steamboat had had no effect in changing the molecular form, but the material contained in the partly filled tubes had been also subjected to *friction* of pieces moved over each other, and this had caused the change. To verify this explanation I prepared fresh material, filled three similar tubes, each one-quarter full, but in one forced in cotton wool very tightly to prevent frictional motion. These tubes were packed in a small box and sent over two thousand four hundred miles of railway. The tubes with loose material came back much altered. One was nearly white, and, as the change has been set up, will probably in a few days be entirely so;† another with loose material was also changed, but not as much as the first-mentioned. The tube filled up with cotton came back unaltered, so that continued friction of pieces sliding over each other will cause a change to take place in a few days, which otherwise might have required years, or might not have occurred at all. The permanency of this substance is greatly influenced by moisture, so that when simply air-dried before placing it in tubes it is less permanent than when dried at 70 deg. or 80 deg. C. in a stove. Tubes placed in the same box containing the blue form remained unaffected by the motion, though only partly filled and allowed to move freely.

When gold-colored allotropic silver is gently heated in a test tube it undergoes a remarkable change in cohesion. Before heating, it is brittle and easily reduced to fine powder. After heating, it has greatly increased in toughness, and cannot be pulverised at all.

Both the gold-yellow and the blue forms resemble normal silver in disengaging oxygen from hydrogen peroxide. These two forms, though differing so much in color and stability, and differing also in specific gravity, and in their mode of formation, have many properties in common, not possessed by ordinary silver, and differentiating them strongly from it. They show a vastly greater sensitiveness to re-agents, and are also sensitive to light. The ability to form perfect metallic mirrors by being simply brushed in the pasty condition over glass was mentioned in a previous paper.

Many substances which react little, if at all, with ordinary silver, attack the gold colored and the blue allotropic silver with production of very beautiful colors due to the formation of thin films and resulting interference of two reflected rays. In my previous papers I called this the "halogen reaction," because first obtained by the action of substances which easily parted with a halogen. But I have since found that many other reagents will produce the same or similar effects. These are:—

Sulphides.—Paper brushed over with either the gold, the copper-colored, or the bluish-green substance exposed to the vapor of ammonium sulphide or immersed in a dilute solution of it, assume beautiful hues, though less brilliant than those obtained in some other ways.

Potassium Permanganate in dilute solution produces blue, red, and green colors.

Potassium Ferricyanide in moderately strong solution gradually attacks allotropic silver with production of splendid blue, purple, and green coloration.

Phosphorous Acid produces gradually a rather dull coloration.

The color reaction is produced finely by substances which readily part with a halogen—such as ferric and cupric chlorides, sodium hypochlorite, hydrochloric acid to which potassium bichromate has been added—and by corresponding bromine and iodine compounds. In some earlier experi-

* When well washed this form can also be preserved for a time in the moist condition in a corked vial, as I have lately found.

† Has since become so.

ments I obtained effects of the same sort, but in much weaker degree, with alkaline haloids. But with purer products the results have been different. There is at first some darkening, but no true color reaction, and the allotropic silver appears to be gradually converted into normal, so that it is no longer capable of giving the brilliant color reaction with potassium ferridcyanide, but, like normal silver, takes a pale and faint coloration only.

The perchlorides of platinum, gold, and tin, do not give the color reaction, though by analogy one would expect that they should, since they can lose chlorine with formation of a lower chloride.

Action of Light.—In a previous paper was mentioned the remarkable fact that the gold and copper-colored forms of allotropic silver can be converted first into yellow, and finally into white normal silver by the continued action of light. The earlier specimens of the blue form became brown by exposure, but purer ones since obtained are likewise converted into yellow by exposure, becoming continually lighter as the action is continued. The conversion from the darker shades to a bright yellow, with full metallic lustre, is very easy, but when the previous paper was written I had been only able to obtain the white by keeping the paper on which the silver was coated moist by a wet pad, and by exposing for five or six days. Since then I have obtained the gold-colored silver in a more sensitive form, giving a perfectly white product by exposure dry for half that time.

The white silver thus obtained has all the character of ordinary silver, and does not show the color reaction with ferric and cupric chloride, potassium ferridcyanide, etc. Just in proportion to the exposure to light the ability to give this color reaction diminishes, so that after a day's exposure, when the exposed part has become bright yellow, the color reagents scarcely affect this yellow, whilst the protected part becomes intense blue, purple, or green. In this way it is easy to observe the gradual effect of light as it changes the allotropic silver, finally converting it into what resembles in every way and is undoubtedly ordinary silver.

M. Carey Lea.

—American Journal of Science.

A GOOD METHOD FOR WORKING THE EASTMAN TRANSPARENT FILMS.

I HAVE been working for the past few days with the new Eastman Transparent Films, and in the course of my experiments discovered sundry peculiarities that may escape the notice of my brother amateurs. I find that it is well, in fact a *sine qua non*, if you wish clear negatives, free from disgusting black comet-like spots, that the film be brushed immediately after putting into the developer, lengthwise and crosswise, by a soft and rather wide camel's-hair brush. That density cannot be judged except by looking through the film or by transmitted light, though one may have, in using glass plates, become quite expert, by merely looking down on the plate in the pan—the gray appearance of the *films* being quite misleading.

It seems to me quite necessary to alum before fixing, and in this connection, I would insist that a separate alum bath be kept solely for this, as I think it well that no hypo should contaminate it, as I am positive that it intensifies any stain or blemish on the film—whereas the alum alone seems to clear away many. I have a separate pan (glass bottom) for rinsing after the development is complete, and another for washing after fixing and before the final alum bath, so marked that no mistake can be made in their sequence. I believe such *fussy* care, as some would call it, pays.

After the alcohol and glycerine bath, a greasy-looking deposit may be found on the back of the film; a tuft of cotton should be used to wipe this off, or else, the clear glass in the printing-frame becomes tacky and stained.

In a neighboring city, I was passing an auction of notions damaged by a recent fire; among other things for sale were a gross of the little nickel clamps used to fasten a scarf to the shirt, shaped like the clips in use in photo. work; it struck me that they would be handy to have, so for a few cents I purchased the lot, no doubt giving to many the idea that I was a veritable "Toodles." Well, I use them in as many ways as possible and find them very handy.

My fixing bath is kept in a long box, large enough to hold two dozen plates on edge. I had little brass hooks soldered onto my little nickel clips, which I clasped on each upper corner of the films, put wires across the top of the fixing box, and suspended the films from them. They fix this way evenly and with little danger of damage.

In drying the little clips are tacked to thin strips of wood holding six films (12 clips), one strip for top and another for bottom, thus insuring a minimum of curl.

In washing I resort to the same tactics, *i. e.*, suspending from wires over washing tank, submerging the films, etc.

C. H. Poor.

PHOTOGRAPHING THE "SILENT CITY."

THE San Francisco *Chronicle* of September 23d, contains an account of another sight of the "Silent City." A photographer named Husser, in the employ of Taber, of San Francisco, went to Alaska for the purpose of investigating the remarkable mirage which was first seen by Professor Willoughby. Husser at first took emphatic grounds against the "Silent City," and ridiculed the mirage.

On his way to Sitka three weeks ago Husser stopped at the Muir glacier and made a number of views. After he left the Muir glacier he informed De Groff, a local photographer, that he had seen a startling mirage while making his views, and that he was accordingly prepared to say that the mirage picture of Professor Willoughby was not a trick as claimed by San Francisco photographers.

In support of the opinion that is gaining ground that Professor Willoughby's "Silent City" is not a myth, the statements of two gentlemen who solemnly declare that they saw the mirage of the city in Glacier bay on July 2d last is published. From what is learned as to the credibility of these witnesses, they appear to be reliable and enjoy a reputation for candor and uprightness. Christie is foreman at the extensive Bartlett Bay cannery and his home is in Astoria, where his family now are and where he is well known. The statement is as follows:

BARTLETT BAY CANNERY,
August 23, 1889.

Robert Christie and George Patterson, in the presence of Luman B. French, Charles R. Lord, R. Willoughby and Miner W. Bruce, make the following statement to Willoughby: On the 2d July 1889, while sailing from Muir, or Glacier bay, into what is known as James' Bay, just south of Willoughby Island, about 5 o'clock in the afternoon, we suddenly saw rising out against the side of the mountains what appeared to be houses, churches and other large structures. It appeared to be a city of extensive proportions, perhaps fifteen or twenty thousand inhabitants. We watched the apparition for a long time and think it was visible for an hour or more. We further aver that at the time we had never heard of what is called the "Silent City," or that Professor Willoughby had photographed it. We are satisfied that it was a mirage from its appearance.

ROBERT CHRISTIE,
GEORGE PATTERSON.

Witnesses: L. C. French, Charles R. Lord, R. Willoughby and Miner W. Bruce.

Correspondence.

EIKONOGEN.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir: The dismal weather has somewhat interfered with my experiments, but I am still growing more enthusiastic with every trial on the subject of eikonogen, and think I cannot vary with advantage the proportions I have given for a normal developer, *i. e.*, *sodium sulphite*, 15 *grains*, and 7½ *grains eikonogen* to the *ounce of water* for *No.* 1 *solution*—with 80 *grains carbonate potassium* to the *ounce of water* for *No.* 2. Mixed 3 parts No. 1 with ½ to 1 part No. 2 for use, according to exposure.

Very truly yours,

Joseph B. Brown,
U. S. Army.

CHAUTAUQUA CORRESPONDENCE.

A LETTER FROM THE EDUCATIONAL CENTER ON CHAUTAUQUA LAKE.—A BRIEF REVIEW OF THE SEASON.

To one who lingers here during these charming September days, it seems odd that the crowd should scatter with such unanimity as soon as the public exercises are at an end. With all the calm and peace of this deserted city there comes a feeling of loneliness as well. Men are at work preparing for the winter. Jerusalem has been hidden away behind a sheath of rough boards, the cast-iron cities of Palestine have been gathered to their winter quarters, and the Museum doors are closed against late excursionists. The huge amphitheater is the scene of active work, however. The great bowl is being enlarged around the rim so that in 1890 full twelve hundred more people can find seats under the wide-spreading roof.

The plans are already drawn, I am told, for the new arcade of shops which is to take the place of the wretched booths destroyed by fire last month. The new building will be tasteful in architecture, and convenient in arrangement. Here as in the bazaars of Damascus and Cairo, all the shopkeepers will be found with their wares, but I hope the prices will not be so fluctuating as in the Oriental marts.

Next year Chautauqua will see the first real bit of landscape gardening of any magnitude which has been attempted. Miller Park is to be laid out after the fashion of a continental promenade. A band kiosque will be placed in the center of the park, and concentric circles about it will furnish space for promenaders, while lines of benches on either side will afford resting place for less vigorous visitors. I am glad to learn of this plan, because it seems to me that our rapid American life sorely needs the restful and cheerful influences which come from this twilight gathering for chat and social intercourse. May the time come when every town and village shall have promenades, and the public spirit which they help to foster.

As I wander about the comparatively deserted streets of Chautauqua, I naturally review the season that has just come to an end, and think of the men who have visited the place. Early in July the session began. Dr. Harper came from Yale with his corps of instructors and, as if by magic, the Summer College was running smoothly with more than six hundred students. Perhaps no better idea of the wide-spread influence of Chautauqua could be gained than from the statistics of this department. The following States were represented:

New Hampshire, 1; Vermont, 1; Massachusetts, 18; Connecticut, 17; Rhode Island, 1; New York, 111; Pennsylvania, 103; New Jersey, 12; Ohio, 69; Delaware, 3; Maryland, 6; West Virginia, 2; Virginia, 5; North Carolina, 2; South Carolina, 2; Georgia, 1; Florida, 4; Alabama, 3; Mississippi, 6; Texas, 9; Indiana, 12; Illinois, 46; Kentucky, 11; Tennessee, 7; Michigan, 9; Wisconsin, 6; Arkansas, 4; Missouri, 19; Iowa, 16; Minnesota, 8; Kansas, 1; Nebraska, 1; Colorado, 4; Dakota, 6; California, 4; Washington Territory, 1.

Canada, 12; Japan, 6; China, 2; Bulgaria, 1; Russia, 1; Cuba, 1.

The impression that Chautauqua is a Methodist institution is hardly deepened by the statistics, which put 126 students to the credit of the Presbyterians, while the Methodists come next with 119. But enough of these dry facts and figures. At the same time the college was organ-

ized, Dr. J. W. Dickinson of Boston started two hundred and fifty regular teachers on a course of pedagogical principles and practical lessons in methods. Such enthusiasm I have rarely seen as was displayed for three weeks in this valuable department.

Then the School of the English Bible, in which Dr. Broadus, of Louisville, and others gave instruction! Such earnest-faced students as went each day to the recitation rooms, where the great book was studied like any other great classic.

While all these classes and many more were hard at work, Donald G. Mitchell was reading his charmingly quaint essays over in the Hall, or Boyesen of Columbia was lecturing on the novels of the various nations. There were concerts, too, and readings—what a distracting medley to be sure! I was quite at a loss which way to turn next, until I learned the impossibility of doing everything, and limited myself to what I thought seemed most promising. So July wore away, and August came with the "Assembly proper," the original three weeks before the educational work of July was prefixed. The crowd increased, "and still the wonder grew, that such small rooms could hold so large a crew." It is a mystery to me still, this packing away of people. There was never a sense of overcrowding as I walked about the streets. The sides of the cottages did not bulge out as it seemed natural they should.

Then it was that we heard Gunsaulus, the real orator, and jolly Prof. Mahaffy with his broad vowels, and his friendly gibes at America, his good stories and his learning went pleasantly together. Barrows captivated all, and Riddle read his way to favor. Cable was never so delightful as in his "Bonaventure" and "Dr. Sevier." Leland Powers gave "David Copperfield" and "The Rivals" with such dramatic power that the stage seemed peopled with his characters.

At last came "Recognition Day." Then the graduates of the Chautauqua Literary and Scientific Circle passed through the Golden Gate and the arches, and received certificates for four years of self-imposed reading and study. It is on this day that Chautauqua seems greates, to me. I think of the homes that have felt its influencet of the lives that have been enriched, of the help that has been given to earnest but undirected self-educators. I wish every man and woman who feels discouraged, to whom life seems a monotonous, useless existence, might be enrolled at the central office at Plainfield, N. J., among this great company of plucky, persevering folk, who believe that life is "not a dignified repose, but a noble unrest." Yes, Chautauqua is greatest as the centre of the C. L. S. C. May the noble circle ever grow wider and wider! I must not add more words to this ramble through the past two months. Chautauqua for 1889 *is past*. Long live Chautauqua for 1890.

CHAUTAUQUA, N. Y., Sep. 5, 1889.

Notes and News.

The Tech Camera Club.—W. H. Baird, Secretary of the Club, informs us that the photographic society was organized in the W. P. Institute of Worcester, Mass. We shall be glad to announce fuller particulars in a later issue.

The Yonkers Photographic Club opens the season at its rooms in the Deyo Building, with a lantern-slide exhibition. The slides will will be from negatives made during the past summer months, and will be from scenes and incidents of the vacation trips of the members.

The Photographic Association of Canada elected the following officers at its recent convention for the following year. President, S. J. Dickson, of Toronto; Secretary and Treasurer, E. Poole, of St. Catharines. Secretary Poole writes that the next annual meeting will be held at Toronto in August.

The Grand Annual Reception Ball of the photographers (Photographen Verein Association) will meet this year at Beethoven Hall, on Monday, October 14th. Following are the officers this year: Peter Grady, President; Thomas Bierck, Vice-President; George Muller, Secretary; A. Henry, Finantial Secretary; Thomas Schneider, Treasurer; C. Breithaup, Sergeant-at-Arms.

"Illustrated Boston" will start on its winter travels, on the 12th instant, and be in the possession of the Amateur Photographic Societies of the following cities, remaining in each about two weeks, to allow for examination and exhibition: Providence, R. I., Oct. 12–26, 1889; Lowell, Mass., Oct. 26–Nov. 9; Hartford, Conn., Nov. 9–23; Newark, N. J., Nov. 23–Dec. 7; Baltimore, Md., Dec. 7–21; New Orleans, La., Dec. 21, 1889–Jan. 8, 1890; Louisville, Ky., Jan. 8–25; Cincinnati, O., Jan. 25–Feb. 11; Pittsburgh, Pa., Feb. 11–25; Chicago (Camera Club), Ill., Feb. 25–March 11; Grand Rapids, Mich., March 11–25; Cleveland, O., March 25–April 8; Syracuse, N. Y., April 8–22; Albany, N. Y., April 22–May 26.

A Gold Medal has been awarded the Eastman Dry Plate and Film Company, by the Photographic Jury of the Paris Exposition, for their permanent bromide paper. We understand from Mr. Eastman that his bromide paper was entered in competition not only with other makes of bromide paper, but all other papers used for enlargement purposes. That it has received the gold medal is certainly a high honor.

Orange Blossoms.—Captain Harry Littlejohn, Secretary of The Scovill & Adams Company, was married to Miss Charlotte Louise Wilson, niece of Mr. J. W. Stickler, of Orange, N. J., on Thursday evening, October 3d. The marriage ceremony occurred at 7 o'clock in the house of the bride's uncle, the Rev. Henry M. Storrs, D.D., LL.D., of Orange, officiating, assisted by the Rev. Dr. A. H. Bradford, of Montclair. The maid of honor was Miss Josie Wilson, sister of the bride; and the three bridesmaids were Miss Stickler and the Misses Snell, all cousins of the bride. Dr. Stickler, cousin of the bride, was groomsman, and the ushers were Messrs. Henry L. Taylor, Robert M. Boyd, Jr., Harry Power and W. I. Lincoln Adams. At the reception which followed the ceremony there were about eight hundred guests present.

Obituary.—Charles S. Cudlipp, the well-known photographer, died at his rooms in the St. James Hotel, Washington, D. C., from the effects of a succession of epileptic fits. He was seized with epilepsy early on Saturday morning, just after rising from bed. His wife, who

was watching him, saw him stagger across the room, and ran to his assistance, but before she could reach him he fell heavily to the floor. When Mrs. Cudlipp reached him she found him unconscious.

Mr. Cudlipp was forty-one years of age, and had resided in Washington all his life. He started in the photographic business about fifteen years ago, and was one of the most prominent photographers in the city.

Mr. Cudlipp was very well known in Washington, and his death will be mourned by a host of friends. He had been in bad health for some time preceding his death, but that his illness would take so serious a turn was not anticipated. The funeral was very private.

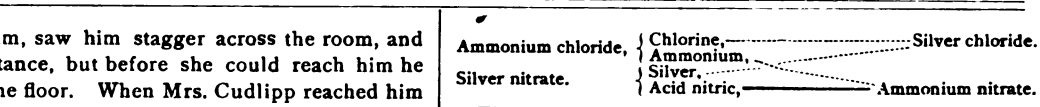
Mr. T. P. Andrews, of San Francisco, writes us that Mr. Husser is a photographer of no mean ability, and has distinguished himself by his photographic trips in balloons with an enterprising newspaper man of San Francisco, and also in connection with several exploration parties in Mexico and New Mexico "I am in hopes," concludes Mr. Andrews, "that his trip North will settle the question as to whether or not the 'Silent City' exists."

Photographing Steamers.—The latest fad among the amateurs says the *Yonker's Statesman*, is catching pictures of the big ocean steamships which carry such crowds of passengers. The picture of one of the ocean flyers rounding out into the stream is always worthy of a place in the photographer's collection, and certainly the vessels make fine targets for the camera-shooters. Moreover, passengers on the boats are always desirous of securing a picture of the vessel in which they sail, to preserve as a memento of the voyage.

So active young men, with their deadly little boxes, are frequently seen along the piers, snapping the slides when their friends appear along the rail, or perhaps quietly catching a glimpse through their camera of a pretty girl whose costume, face and figure attract the photographer's eye.

To Sensitize, pour into a suitable tray, a little larger than the sheets to be sensitized, as much of the solution as will be at least an inch in depth, and taking the paper by the opposite corners diagonally, as when albumenizing, lay it gently on the surface of the liquid, taking care that none shall touch the back. As soon as the paper lies flat on the solution, lift it partially up corner after corner to see that there are no adhering air bubbles, and if any appear fillip them off with a quill, glass rod, splinter of wood, or anything that will not be acted on by the silver nitrate. Let the paper float from a minute to a minute and a half; a low temperature and dry atmosphere requiring longer than when the temperature is high and the atmosphere humid; and then, taking by the two near corners, draw it slowly over the side of the dish, or over a glass rod laid across it, to scrape off into the dish as much as possible of the adhering solution. Keep the sheet suspended over the dish, or over another placed at hand for the purpose. till the solution ceases to drop from the lower corners, and then hang it up to dry either by Lockwood clips or other suitable appliance.

The chemical change that takes place during the operation of sensitizing may be readily understood from the following diagram:



The silver, of the silver nitrate in the solution, leaves the acid nitric and combines with the chlorine of the ammonium chloride in the paper to form silver chloride, an insoluble compound which remains in the meshes of albumen, while the ammonium thus set free, combines with the acid nitric, forming ammonium nitrate which remains in solution in the bath.—*From Gayton A. Douglass & Co's "Practical Treatise on Silver Printing."*

Combined Phonograph and Photograph.—At a recent meeting of the French Academy M. Lippmann presented a note by M. G. Gueroult, in which it is suggested that by the combined use of a phonograph and an apparatus for instantaneous photography and reproduction of the pictures obtained, it would be possible to reproduce at any future time not only the future speech of a person, but also bring before the audience a vivid picture of the person's gestures and facial expression.

The procedure would be somewhat as follows: A person speaking or singing into the phonograph would be photographed by an automatic apparatus geared with the barrel of the phonograph. The pictures would be instantaneous and taken at the rate of, say, ten pictures per second. They would then be developed and arranged in a special lantern for reproduction on a screen isochronously with the phonograph, when the latter is reproducing the speech. An audience might thus be enabled not only to hear the utterances of, say, a famous actor, but also see himself and his actions represented on a screen. About a year and a half ago M. A. Bandsept, of Brussels, experimented with a similar apparatus.

Revenged by the Camera.—But a few of the pranks that the camera plays upon unsuspecting individuals are highly amusing, even though at times vindictive. Of the latter character is a case of which I heard a few days ago. The heroine of the romance is a handsome New York girl, who is spending the summer at Newport. One day last week she was in a party on one of the steam yachts of the New York Yacht Club squadron, and I am informed that the owner of the craft regarded her as his guest of honor, because of a marked sentiment that he felt for her physical and mental charms. Like a queen she ruled the deck while the yacht darted through the smooth waters, much to the discomfiture of a far less beautiful, though very wide awake, young lady, who put in a claim for royal prerogatives on her own account. But the true beauty held sway in the most thorough style up to the time the yacht began to plunge into the sharp seas. Then she grew strangely silent all of a sudden, turning away to watch the horizon even while her host sought to entertain her with long recitals upon various topics. When her face had assumed a tint somewhat resembling absinthe green, her wily rival produced a small camera, watching the nauseated queen with great care, as though to catch her in a particularly interesting pose. Suddenly the owner of the yacht dashed down the gangway to the cabin, as though in quest of something that his charmer had begged him to secure. At the same instant the regnant beauty made a plunge for the forward deck. She hovered over the rail for a fearful moment, and then became a complete victim of—the camera.—*Town Topics.*

The Zenith of Realism has been attained by an artist named Schlopel in Munich. His ambition was to paint cherubim; but, though it was easy enough to affix a pair of wings to a naked child, to suspend it in an effective manner in mid-air—the natural pose of a cherub—was a different matter. He tried them sitting, standing, and lying, but his realistic soul was vexed—they didn't look like the real thing. At last a happy inspiration occurred to him, and he employed a farmer and his wife to toss their wing-decked infant in a blanket while he took a series of instantaneous photographs. From these he is said to have obtained most satisfactory results.—*Newport News.*

Photographing Water-Jets.—E. Cohen, of Amsterdam, reports in *Revue Scientifique* on the photographing of jets of water. He used for the purpose a reservoir from which ascended a column of water one centimeter in diameter, and placed the apparatus in a dark-room. Light was furnished by the electric spark of a Leyden jar connected with a Rhumkorff element.

The velocity of the column of water was 8.28 in a second, and the time of exposure $\frac{1}{1000}$ seconds. The photographs obtained are of the highest order, elevations and depressions on the water column being perfectly visible and detached, single drops of water are scrupulously sharp.

Photographic Societies.

THE CHICAGO CAMERA CLUB.

A SPECIAL meeting of the Chicago Camera Club was held at the club rooms, Tuesday evening, September 24th. A large number of the members were present, attracted by the announcement of an address upon the construction and use of photographic lenses, by the well-known optician, Mr. W. Drescher, of the Bausch & Lomb Optical Co., of Rochester, N.Y. Samples of the new Clark lens, which this company are now getting ready for the market, were shown, and also their recent improvements in diaphragm shutters. Speaking of the Clark lens, Mr. Drescher said:

"They are the invention of Mr. Alvan G. Clark, the celebrated manufacturer of telescopes, and are dissimilar from anything heretofore followed, and are as striking in their results as Mr. Clark's success in the telescope objectives has been. While these lenses are of the ordinary rapid rectilinear type, they are really wide angle, embracing an angle of 100 degrees, but are dissimilar from other lenses of this character in so far that they work with full aperture. They are almost free from spherical aberration and cover their respective plates better than any lenses yet produced especially for this work. The lenses are uncemented, each lens of the combination being mounted for itself, and are therefore free from danger of gradual decrease in speed so common in many lenses owing to the chemical change in the cement. The crown glass is on the outside, and therefore less liable to become scratched. The mountings are unusually compact. While these lenses are intended to be used in all out-door work, they are also particularly suited to copying, enlarging and photo-engraving work, and are as well superb for portraiture, particularly for groups. They all work with stop f_6, and are therefore adapted for all work requiring speed."

On Tuesday evening October 1st, another special meeting of the club was held, to give the members an opportunity to meet Mr. John Carbutt, the veteran dry plate maker, who was making a short visit in Chicago. The rooms were crowded to the doors. After the transaction of some regular business, Mr. Carbutt was introduced and made a very interesting address upon dry plates, orthochromatic plates and films, their history and manufacture. He also showed several negatives and prints illustrating his remarks, including the first negative which he ever made.

Dr. Nicol related the result of his experiments with camphor in the developer, and decided that even in large quantities it did no harm. This investigation was brought about by the inquiry of several members, who had noticed the strong odor of camphor in the new Transparent Films.

The secretary gave the summary of his investigations with Nuktigonia which were not very flattering, it being apparently simply a coloring matter placed in the developer, and an old idea revived. Extraordinary precautions must be observed in using it and it quadruples the cost of the developer, so the conclusion was that the dark-room lantern was still the best device.

Fred. K. Morrill.
Secretary.

THE LYNN CAMERA CLUB.

WORK has commenced on the new club house for the use of the Lynn Camera Club. This building is to be 30x40 feet, two stories, flat roof, second story to be fitted for use of the club, with 8x14 feet sky and side light and a fine dark room which will be about 15x20 feet. The large hall, with screen for slide exhibition, will contain about 900 square feet, and easily accommodate 100 persons. The building is being erected by N. J. Bacheller, at 42 Broad Street, and will face toward and about 60 feet from the street. The plan was prepared by E. L. Rogers, a member of the club, with special reference to the comfort and convenience of the members. The dark room will be fitted with lockers for use of the members, and those desiring one will do well to make application to the treasurer at once. The committee are now ready to receive applications for membership, to date from November 1, and all interested in the art of photography are invited to join and have the benefit of the use of the rooms and instruction to be derived from attendance at the meetings and demonstrations.

Amateurs are requested to make application to any member of the club, or to the following Membership Committee:—W. H. Drew, E. F. Bacheller, W. H. Russell.

The Editorial Table.

THE first issue of *The Amateur*, published in Halifax, Nova Scotia, has reached us, and we are glad to see that there is encouragement enough for a photographic organ in Halifax. It is a little four-page paper, with much that is interesting to amateurs, whether they be photographers or not. It is published "about the 1st and 15th of each month." the subscription price being twenty-five cents. Its Post Office box number is 138.

FRANK B. MYTINGER (artist), has opened a studio at 115 West 62d Street, New York City, for the coloring of lantern

slides and window transparencies. He refers to Professor Albert S. Bickmore, of the American Museum of Natural History.

In the *Journalist*, for September 28th, our friend and occasional contributor, Mr. S. H. Horgan, writes an interesting account of the *Graphic*, which has recently ceased to exist; and in the "Editorial Notes," Mr. Forman says what his friend, Mr. Horgan, was too modest to mention, namely, that when the *Graphic* started they purchased a process of photo-lithography from a Canadian concern and used it for some time. Dissensions arose, and finally the Canadians left, taking their process with them. The *Graphic* then hired a man who brought a process used and patented by a Brooklyn lithographic company. The Brooklyn concern promptly sued the *Graphic* for $300,000 for infringement of patent, and the paper was in a decidedly bad fix. At that critical juncture Mr. Horgan, then a young man about nineteen years of age, stepped in and invented a photo-lithographic process which enabled the *Graphic* to do better and quicker work than by either the Canadian or Brooklyn process, and for less money. Mr. Horgan was put in sole charge of the Art Department, and his process was used by the *Graphic* up to the time of its suspension. Mr. Horgan left the *Graphic* some years ago to take charge of the Art Department of the American Press Association. He has organized for that association one of the most complete and effective engraving plants in New York City, and he has invented a number of valuable processes relating to the illustrative art. It is not too much to say that, through his work for the American Press Association, Mr. Horgan has done more than any other man in America to raise the style and quality of newspaper illustrations. He has one process which he is still working on, which, if successful, promises to make a new era in pictorial journalism.

From the Chicago Camera Club we receive two interiors, the lecture room and studio of that enterprising society. Judging from these photographs the club is well supplied with all the necessaries to do good studio and portrait work, and enjoys every comfort of a pleasant home. The pictures are of course of great photographic merit.

G. A. W., of Boston, sends a very beautiful photograph and artistically selected view of a forest scene. It is printed on bromide paper, and is in every way a fine piece of work made by a skilful operator.

H. L., of Brooklyn, sends us a collection of 5x8 views, comprising pictures of High Bridge, rustic scenery, and landscapes of great variety. The negatives from which these pictures were printed are evidently good, but the printing shows want of experience in that branch of photography. Our young amateur friend will soon be able to overcome these difficulties, however. Let him study the lesson on printing on ready sensitized paper, in "The Photographic Instructor."

Dr. G. L. Sinclair, of Halifax, N. S. A collection of marine views, ships, breakers dashing up the rocky shore, a schooner flying the British flag careening on the much disturbed element, and landscapes in great variety, all up to the usual standard of our friend's work.

Queries and Answers.

198 "Experiment" asks if bichromate of potassium is poisonous.

198 *Answer.*—Yes, indeed! Coming in contact with abrasions, or cuts of the skin, and when absorbed in the system, it causes very painful sores and, eventually death.

199 "Three B." wants to know the best way to filter small quantities of emulsion, say from ten to twenty ounces.

199 *Answer.*—Keep the emulsion warm and filter through three thicknesses of fine linen tied over an ordinary lamp chimney; or filter through flaxen tow stuffed loosely into a glass funnel.

200 "Cambridge" asks, "what molecular change is wrought in a photographic dry plate by its exposure to light in the camera."

200 *Answer.*—It has not been ascertained as yet that the change is molecular. Some eminent authorities (among them, M. Carey Lea and Captain Abney) claim that the change is a chemical one, resulting in the reduction of the silver bromide to a sub-bromide and free bromine, expressing the action in the following formula:

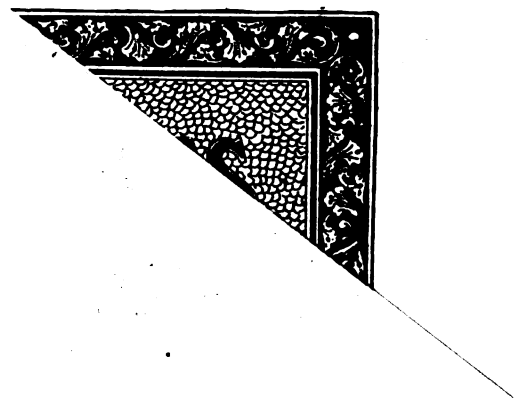
Silver bromide.		Silver sub-bromide.	Bromine.
2 Ag Br + Light =		Ag_2 Br +	Br

Others are of the opinion that the effect of sunlight upon the sensitive silver haloid is to change the molecular motion of its molecules so that the developer is given an opportunity of acting upon certain molecules in a way to reduce the silver salt to metallic silver. We may say that while neither theory is proven to be the correct one, the preponderance of evidence seems in favor of the latter.

201 Miss S. W. has tried to make magic photographs, but is not pleased with the results. She asks, (1) How can they be made darker and of a more pleasing tone? (2) Where can negatives of a comic nature be obtained for that purpose? She also wants to know, (3) When making blue prints on linen, silk or leatherette, how one can manage to sensitize only the particular parts upon which the picture is to be made? (4) How can so large pieces of material be printed in a small printing frame? (5) what is the cost (postage included) of the "American Annual of Photography" for the years of 1887, 1888 and 1889?

201 *Answer.*—(1) Print very much darker than the picture should be, when developed with hyposulphite of soda. The tone cannot be changed afterward. (2) Make the negatives yourself. Reproduce illustrations of comic periodicals. (3) Coat a much larger piece of the material than is actually wanted, and print under a mask or mat which is large enough to cover all the sensitive part not wanted for the picture. As long as the sensitized parts have not been acted upon by light, the chemicals will soak away in water and leave the material of its original color. (4) If a woven fabric, stretch it over a piece of cardboard a little smaller than the opening of the printing frame, and double it over on the back. With leather or other thick and but slightly pliable materials, you must resort to a printing frame of the size required. (5) "The American Annual of Photography" for 1889 is out of print. The cost of the volumes for 1887 and 1888 (including postage) is $1.23.

PLOUGHING.



THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, OCTOBER 18, 1889. No. 422.

PLOUGHING.

OUR picture this week is by a Chautauquan—Fred. E. Keay, of the Chautauqua School of Photography, Class of '89. Mr. Keay writes that the photograph was made in Somerville, Mass., in the early spring of the current year. Of course, the exposure was "instantaneous," a Prosh shutter being used.

The picture, besides being a charming one of a rural scene, has many lessons, for landscape photographers, especially. Though instantaneous, there is a sense of motion conveyed by the position of the man's and the horses' feet and the pose of their bodies. The lighting is particularly effective, but the entire subject is well managed.

Mr. Edwards gives us a new tone in this photogravure, but one that we think will please our readers in this particular picture.

AMATEUR PHOTOGRAPHY AND THE PUBLIC PRESS.

THE increasing attention which the daily press is giving to photography, is a significant fact. Not only do most of the larger dailies now have photographic editors on their staffs, but they publish regularly long accounts of photographic progress, and have set apart special departments for latest photographic information. This suggests how large the number of readers has become who are interested in photography.

A gentleman connected with the New York *Tribune*, who had taken considerable pains to observe returning summer tourists at the railroad stations and ferries, reported that three out of every five carried amateur photographic outfits, and he shrewdly suspected that at least one of the remaining two had a "concealed" camera secreted beneath his waistcoat or carried an innocent little "detective" box.

The same paper goes on to say: "We are bound to admit that the photographing craze is a very good sort of a fad—if the amateur will pardon us for applying both of these new and somewhat indefinite terms to their pastime. Some surprisingly good results are obtained by amateurs, and certainly a neatly-made collection of views is a pleasant souvenir of a summer's outing, though it must be said that to a cold and unsympathetic outsider it frequently seems that the amateur's album runs rather less to the scenery which he probably could have secured than it should, and something too much to the young lady, in various pleasing poses, in whom he is interested; but this is a matter in which a young man is answerable to himself alone. Not only may the camera be made a very agreeable companion on one's vacation, but a good one is amusing and instructive in the household. The baby's picture can be taken as often as the fondest of mothers can desire, often with surprising results, it is true—indeed, one of the charms of amateur photography, we judge, is the element of surprise which enters into it. This was never better illustrated than in the case of a young man who arose early and pointed his camera from his bedroom window, with the intention of securing a cat on the back fence in the act of reaching high C, and upon developing the plate he was astonished to find only a dumb-bell and a hair-brush, presumably hurled by the hasty and irascible gentleman inhabiting the flat above."

The *Social World* says that amateur photography, unlike other fads, is constantly gaining strength, and justly so. Formerly the sketch-book and the necessary talent and skill behind it were requisite for the preservation of an interesting bit of Nature or an indoor scene, but to-day, with but little previous training and armed with a small camera, any one can transfer the picture to a permanent plate. "Amateurs, too," it continues, "are experimenters. They do not hold to safe lines, but, elated at one result, push on to others and frequently do more than the professionals toward perfecting old processes or inventing new ones. Instantaneous photographs, the triumph of the

modern dry-plate, are fascinating results of even untutored endeavor, and there is no pursuit, for pleasure at all events, where the immediate success yields more gratification than in modern photography."

"A striking indication of the extent to which amateur photography has honey-combed society—if we may so express it," says another paper, "is the fact that many summer hotels now set apart a room for the amateurs' use, where they may develop their negatives, plan fresh campaigns and otherwise disport themselves. We suppose that the railroads will yet be obliged to recognise them and run a photography car. Even now they have penetrated the train and the ominous clink of the camera shutter is heard as an enthusiast "takes" the interior of the parlor car or catches the face of some fair traveller who has attracted his passing fancy. Nothing seems so to bring out the bravery and self-reliance of a man as the possession of a camera. It is no uncommon thing for an amateur to stop a dignified and haughty stranger on the beach or piazza and request him to take a certain pose that the artist may properly bring his instrument to bear on the victim."

It is related of Mr. Chauncey M. Depew that while making the trip to Europe a few weeks ago he was approached on the fourth day out by a young amateur photographer, who explained that he had a large collection of pleasant views about the steamer and now wanted something in the ghastly line, and asked Mr. Depew if he would kindly put a black cloth over his face and hang by a rope around his neck from a yardarm a moment, adding, assuringly, that he would use a plate requiring the shortest possible exposure and give Mr. Depew one of the photographs when finished. It is said, though we cannot vouch for it, that Mr. Depew, with his customary amiability, complied.

Another newspaper anecdote of similar import is that it is no uncommon thing for an amateur photographer to chase the poet Tennyson half a mile in his efforts to secure his likeness. So far the poet has rigidly set his face, or rather, perhaps, we should say his back, against this species of art, but he cannot prevent enthusiastic amateurs from making the attempt. If there is a falling off in the quality of Lord Tennyson's later productions, as critics have said, it seems probable that it may be in part, at least, traced to the amateur photographers; no man can write good poetry with a total stranger pointing the muzzle of a camera in his study window and requesting him to hold his chin a little higher and look pleasant.

"After all," a great new daily says, in concluding an editorial on this subject, "it would seem that amateur photography must be a very pleasant and interesting pastime, if, indeed, it has not sufficient usefulness to place it rather above a mere pastime. That it cannot always retain its present popularity seems clear, as so many have taken it up from no other reason save to be 'in the swim,' but that it will vanish as completely from the face of the earth as, for instance, archery or roller skating we cannot believe."

We should say not! Our great contemporary would not even think that it "seems clear" that amateur photography "cannot always retain its present popularity," if it knew as a matter of fact that for every one who drops out simply because he is tired of what he took up in order to be "in the swim," at least half a dozen take his place. And thus the growth goes on.

EDITORIAL NOTES.

In the old collodion days, any want of certainty in the result of definite processes was too frequently put down to the absence of chemical similarity in the pyroxylines employed, and the advent of gelatine was hailed as introducing a new substance of ascertained and certain composition. Very soon, however, it was discovered that this anticipated definiteness was a figment, and so far from gelatine being "one and indivisible," it was many. We had gelatine hard, gelatine soft, gelatine normal, gelatine altered by heat, and finally, it was agreed that its properties were as protean as those of pyroxyline. After a while the ammonia of the pyrogallic developer was found to be guilty of grave irregularities, which were soon traced to the fact that it was next to impossible to keep strong ammonia water of uniform strength, owing to the freedom with which its very volatile gaseous constituents escaped into the air. Diluting with water to about half its strength remedied this; but still the irregularity was only diminishhed, not destroyed. The step towards certainty was the introduction of the fixed alkalies in caustic form, and here, at last, it was deemed correct that definite certainty was achieved. We are sorry to spoil such a pretty picture; but truth compels us to state that neither ammonia nor the caustic alkalies are safe from damage in another direction—the absorption of carbonic acid from the air. All alkaline hydrates are most greedy of carbonic acid, and a lump of caustic potash or soda allowed to remain in the open air will soon absorb it so freely that by the time they are quite deliquesced the bulk of the alkali will

have assumed the form of carbonate. The same holds good of the solutions. Hence, even with caustic alkalies in solution, it is absolutely necessary to guard against this absorption if absolute reliance is to be placed upon the chemicals.

We may here note that when these substances, solid or in solution, are kept in glass-stoppered bottles—and such only are suitable for their storage—much difficulty is experienced by the liability of the stoppers to become fixed through the solvent action of the alkali upon the glass, the result being to weld, as it were, almost into a homogeneous mass, stopper and neck at once. The best and simplest remedy for this is to smear the stopper slightly with vaseline or other similar paraffin; the bottle may be left intact for years, and yet the stopper, when required, comes out as though put in yesterday. Equally useful is this unguent for solutions of "pyro" and sulphite. Here a slight action takes place upon the glass, but it is only slight; the chief difficulty lies in the "pyro" solution absorbing the oxygen of the contained air of the stone bottle, and so causing excess of external atmospheric pressure, which pushes the stopper most firmly in, the two forces acting very strongly. We have seen, in a few days' time, stoppers become so strongly wedged in that nothing but continued violent concussion could loosen them.

The composition of the size used in making photographic papers exercises a most important influence upon their printing qualities. Thus, Rives paper is unique. Albumenized paper, for example, is made in hundreds of workshops, here and in Europe, yet by far the larger proportion of the raw material, the plain paper, comes from, comparatively speaking, an insignificant little place in France—Rives—and from one particular establishment in that plate. Resin has been stated to be the main important ingredient in the sizing of Rives paper, and our readers may like to know how to ascertain for themselves whether a sample of paper contains that substance. In a European chemical journal it is stated the following reaction can be recommended for testing the size of paper for resin. The resin is warmed gently (of course, paper cut small, pulped, would be used) with five cubic centimeters of glacial acetic acid in a test tube, and, after cooling, a drop of concentrated sulphuric acid is allowed tofl ow down the sides of the tube; as the liquids mix a coloration varying from bright red to violet is produced.

ON THE USE OF THE ELECTRIC LIGHT IN PHOTOGRAPHY.

I.

Photographic ateliers are invariably situated on the uppermost stories of very high buildings, at least in all large cities; and to ascend to them is, indeed, a very fatiguing journey. Beside this, the scanty light of our winter months, and the foggy atmosphere on autumn days is of a nature to embarass photographers in most annoying manner; less so perhaps portraitists but to a great degree the workers in reproduction ateliers, where much work has to be done in stated periods for industrial purposes with the aid of photo-mechanical printing methods, and still more for the illustration of belletristic and scientific periodicals.

For this reason the ever progressive mind of man has searched for a substitute for daylight, one generative by artificial means; and the accomplishments in electro-technics have pointed towards the electric light, as being capable to serve for the purpose.

It was in Austria in the year 1864 when the Viennese photographer Ost first installed electric light in his atelier for photographic portrait purposes. He illuminated his subjects with two arc lights, one of them furnishing the main illumination, generated by a Bunsen battery of 80 elements, the other of less power from a battery of but 50 elements to counteract, or to reduce the direct and abrupt shadows, cast by the former. This second lamp, was smaller of course, placed at a greater distance from the subject, and at a low standpoint, the main lamp being about 2 metres from the floor. Parabolic mirrors reflected the light upon the subject.

In 1878 however, electric light began to be more extensively introduced for photographic purposes.

It will be easily understood that working with electric light is not such a very simple or easy operation, but requires a certain routine in the arrange ment of sitter and light, quite different from that by daylight.

Without detriment to the quality of negative or print, photographic establishments with electric light, may be established in any part of a building; instead of in its fifth or sixth story, perhaps in the basement or a room without any window at all. The time of exposure is possible to be reduced to a certainty, as it can never be with the constantly changing daylight. The incandescent and the Volta arc-light are at the disposition of the photographer.

On account of its yellow light, the incandescent electric light has been used very little for photographic purposes, but for the illumination of the dark-room it has been more extensively employed, since from it very little heat is radiated. Since the introduction of orthochromatic methods, and the bathing of dry plates in fluorescing fluids, and their consequent color sensitiveness, incandescent, combined with arc-light has been used for portraiture. But the Volta arc-light is not only used for portraiting; it is also well adapted for reproduction purposes, because of its great light intensity and its richness of blue and white rays. This highly intense light, of great advantage when photographing inanimate objects, for interiors or the making of enlargements, acts, however, differently in the illuminating of the living subject. Through its dazzling brightness and the consequent contraction of the facial muscles, the expression of the sitter is much affected, and abruptly sharp highlights and disagreeably obscure shadows result. For this reason the incandescent light has been appropriately combined with the arc, and has so become capable of serving in photographic portraiture.

At the present day electro photographic studios are found in London, Berlin, St. Petersburg, Vienna, Munich, Brussels, Paris, Lyons, Lisbon, etc.*

In all of them arc light is employed for portraits as well as for reproduction purposes, as for example in the bureau of the Prussian General Staff of Berlin, the Bavarian General Staff of Munich, the Military Geographical Institute of Vienna, the Imperial Court and State Printing Office of the same place, in the Portuguese Geographical Institute of Lisbon, and under the direction of Captain E. Himy in the establishment Siemens at Berlin. Van der Weyde, of London, was one of the first practitioners to introduce electric light into his portrait studio.

Based upon the fact that only with a broad and diffused electric light, artistically lighted pictures can be secured, he used a Fresne lens system, and attached back of the source of light, a matt-white reflector. But as the Fresne system reflects light in parallel rays, the required diffusion was not effected, the direct shadows were abrupt, no middle tints could be developed, and the dazzling brightness of the light injured the expression of the subject. Liebére in Paris, Lumièr in Lyons, and Madame Dupont in Brussels, installed similar electric apparatus, and improved them in several instances.

*All the more important reproduction ateliers in America have electric light installations.—TRANSLATOR.

The detail of this installation is as follows: The Volta arc-light of 4,000 candle power is in the centre of a semi-globular Reflector R. R. Fig. 1

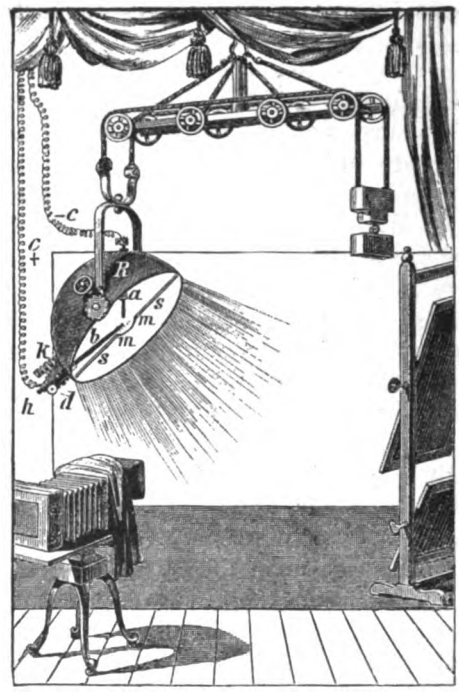


FIG. 1.

and Fig. 2, of about 1·75 *m.* in diameter and its interior lined with white paper. Through its sides passes the carbon holder *a* and *b* connected by wires with the Dynamo machine.

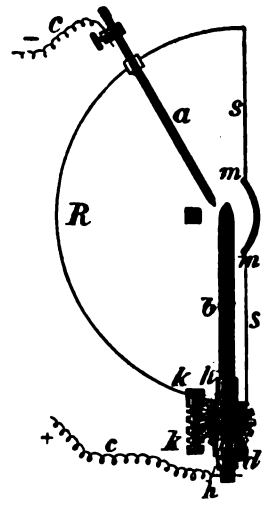


FIG. 2.

The upper carbon is thinner than the lower, but of a diameter of 8 *m m*, while that of the lower is of 20 *m m.* They are regulated by hand and with simple cog wheel *d* near the carbon *b*. Besides this there is an arrangement made with this installation to incline the carbon *b* which rests in a case *h h* upon a revolving axis *i*

With this device the carbon *b* can easily be moved so as to touch the lower point of the carbon *a* when the electric circuit is closed. If then *k k* is so moved that the carbon *b* is distanced from the point *a* the Voltaic arc-light will be produced between that and a point of the carbon *b* nearest to it. Quite near to the point where the carbons come in contact, is held by the rods *s s* a small metallic reflector of 10 *c. m.* diameter, to prevent the falling of direct light rays upon the sitter and to return all those rays upon the large reflector *R R*.

The reflector *R R* is suspended by a fork, revolving in an axis, held by a chain running over rollers and kept in position by a weight. The rollers are set into iron bands and hung from the ceiling by a vertical rod, around which the whole apparatus revolves.

The chemical action of this light upon the light-sensitive plate, is according to all experience proportionate to ordinary day light as 2 : 3 to 3½.

The greatest disadvantage of this installation is the want of a well-constructed light regulator, owing to which the carbons have to be reset by hand in intervals of a few minutes, a very uncomfortable and tedious procedure.

Ottomar Volkmer.

ON RING SYSTEMS AND OTHER CURVE SYSTEMS PRODUCED ON ALLOTROPIC SILVER BY IODINE.

ALLOTROPIC silver, in is moist and plastic state, may be brushed over paper, and gives, on drying, a continuous and brilliant coating resembling metallic leaf. When a small crystal of iodine is placed on paper that has been thus coated, a system of colored rings of remarkable beauty is obtained. A funnel or beaker should be inverted over the paper to prevent distortion by irregular currents of air. One form of distortion, however, produced by a slight current in one direction gives interesting results. If the paper with the crystal on it is set near a closed window, the slight current which makes its way through affects the air under the glass enough to carry the iodine vapor principally in one direction, and their result oval or pear-shaped curves of great elegance and much variety, according as the air currents are stronger or weaker. Another method is to place a bell glass, not fitting too closely, over the paper, and to set it where it will be influenced by the draught created by a fire, or even a gaslight.

That iodine is capable of producing interference rings (Nobili's rings) on metallic surfaces has long been known, and Robert Hunt has described their formation on surfaces of normal silver. I have made these for comparison — pressing gummed paper on silver leaf, bringing to a smooth surface by gently rubbing after drying. The contrast between the pale and faded-looking effects produced on normal silver, and the lustrous and glowing hues given by the allotropic, is very striking. One cannot help wishing that this splendid coloration could be made to do service for obtaining natural colors by photographic processes.

As to the durability of these products I cannot yet speak with positiveness. Protected from light and air they endure for several months at least. Both the bluish-green insoluble silver B, and the gold-colored C produce these effects: the gold-colored is the better suited of the two.—*American Journal of Science.*

M. Carey Lea.

CHRONICLES.

"THE young men shall see visions and the old men shall dream dreams."

IN the days of the Fathers, even two score and ten years ago, there dwelt by the banks of the Seine, in the land of the Gauls, a man who with cunning hand wrought out the means whereby the luminary of the day, and metals from the bowels of the earth, were made to unite in labor and bring forth likenesses of the children of men. So pleased were the multitude with this new thing that the fame thereof went abroad throughout the nations of the earth, and it was brought to the doors of the poor as well as of the rich.

Now were the sons and daughters of earth made glad by tablets bearing the shadowed image of those dear in the flesh; and households rent asunder by the exigencies of life carried in their raiment the faces of each other, as in a looking-glass. The young men went forth to battle bearing the images of their kindred upon their breasts; no less did those who departed on missions of peace seek a solace in their absence by the pictured forms of those left behind—the wife and babes, yea, even the mother-in-law. The spectre of estrangement could no longer rise between young men and maidens, for the tablets of Daguerre were ever present to fan the lapsing passion; and so, many a race that never else would have seen the light was brought forth. Thus Louis Jacques, whose surname was Daguerre, wrought great changes amongst the people, by his invention in the making of likenesses, not only in his own country, but in the countries lying round about.

But as the years went by it came to pass that another—one Scott of the tribe of Archer—wrought with his head to the end that he might improve upon the invention of the son of France, and soon pictures that had only been made upon the precious metals, even upon the surface of silver, were lodged upon glass and thence transferred to paper, so that great numbers thereof could be produced with much ease and celerity. So it became a fashion for each to have many pictures of himself, and to distribute them not only amongst his kinsfolk, but to many round about, even to those whose acqaintance was but as of yesterday. Now did the heart of the likeness-maker leap for joy, and his face did shine as though anointed with the oil of gladness; for verily he waxed fat with riches, and gathered unto himself the good things of the earth.

But again, after many years, a learned doctor, whose name was Maddox, rose up and taught the toiler in the field of photography how vain and tedious were his labors, and straightway did he publish abroad the great advantages that appertained to the use of the new servant in the making of pictures, the name whereof was gelatine. So did the likeness-makers of these latter days make haste in the use of the new method; and likenesses abounded everywhere, in numbers so great that no man could number, even as the leaves of the forest. For those of little skill, finding a new power in their hands, vaunted themselves, and hastened to make likenesses till the sons and daughters of men were tired.

Then did those whom men call conservative, whose fame in the making of likenesses was abroad in all the land, smile as in derision, and curl the lip of scorn; saying, verily, the smart Aleck will not long cumber the ground. But the multitude saw differently, and rallied around the men who demanded but small recompense for their work, it is said by those who prophesy, that it never rains but it pours; and soon another trial, grievous to be borne, arose.

It was proclaimed by those who traffic in cameras, that all men, yea, even the babes and sucklings could make likenesses if they would but read the little books they published and buy their cameras. And a great cry of joy went up from one end of the land to the other and e'er many moons it were easy to play billiards on the coat tails of the amateur, so straight were they. He who sought to travel the streets on Monday, or essayed a walk through the fields at eventide could make but little progress because of the cameras that blocked his way. The windows of the houses became battlements for cameras; and all things belonging to the earth or the heavens were thought to have been originally created as subjects for the amateur. The aged patriarch and the mother in Israel were beguiled, with soft words, into the library, or upon the balcony, by the sons and daughters of the household, to the end that their likenesses might be made; and the love-sick swain no longer posed, in the evening, near the bed-chamber of his mistress, with lute or guitar, but sought her window in the early light of the morning, with his camera.

Thus all the children of men became photographers, and in the establishment of the professional—he who was upright and skilful—the sound of the grinding was low, and the shekels no longer flowed into his coffers. Verily, he cried, my skill no longer avails me: my last days are full of bitterness and my children lack for bread.

But after many days a great shout went up from the distressed, for lo! it was said that an aged patriarch, a man full of years and probity; an old knight of the camera, but whose occupation was now gone, because of the upstarts and amateurs, had had a dream. The man of many winters fell into a deep sleep, and he dreamed that he saw himself at the head of a vast multitude, and that they were causing water to run up hill. Then he arose and girded on his armor, for he knew that he was appointed the leader to deliver his people—yea verily, the Moses to lead the oppressed through the Red Sea of their difficulties. Then he devised a scheme, whereof much was held in secrecy, and he went forth amongst the chief likeness-makers in many cities—he and his emissaries—and they returned with parchments upon which were inscribed the belief of the mighty men that water could be made to run up hill.

So they gathered together a great host—the employer and he who was employed—and they entered into a compact, and became known as the P. & A. M. B. A.

Now it was in those days—the first year of the reign of Benjamin of the tribe of Harrison—that the Knights of the Camera: the men upon whom rested the original curse of earning their bread by the sweat of the brow—not to mention several other curses of later date—came together and held a mighty meeting in the land of Massachusetts, even in the city of Boston. And there appeared at the meeting the venerable chief of the P. & A. M. B. A's., together with a man learned in the law; and they spake to the assembled multitude of the great achievements that were in contempla-

tion; with wit and with learning did they speak; and the rafters of the great temple trembled with the applause of their words. And many of the likeness-makers came forward and joined the compact, and shouted with loud voices; "Long may water be made to run up hill."

Now when the assemblage broke up, and the members thereof went about the streets or departed for their distant homes, many thought that the *ignis fatuus* that gleamed before them was the rainbow of promise.

Selah.

DIRECTIONS FOR DEVELOPING EASTMAN'S TRANSPARENT FILMS.

These films are to be developed, fixed and washed in precisely the same manner as a glass plate.

FORMULA.

PYROGALLIC ACID SOLUTION.

Pyrogallic Acid	½ ounce
Nitrous or Sulphuric Acid	20 minims
Water	32 ounces

SODA SOLUTION.

Sulphite of Soda (crystals)	6 ounces
Carbonate of Soda (crystals)	4 ounces
Water	32 ounces

TO DEVELOP, TAKE

Pyro Solution	1 ounce
Soda Solution	1 ounce
Water	2 ounces

Other approved developer formulas will work with these films, but the above is recommended as reliable.

Two films can be developed at one time by keeping them back to back in the developer.

Eastman's developer powders, one package containing 12 powders, sufficient for three pints of Developer, can be substituted for above.

RESTRAINER.

Bromide of potash	1 ounce
Water	6 ounces

Restrainer is to be used only in case of overexposure.

As soon as developed rinse slightly and transfer to a saturated solution of common alum for two minutes, then rinse again and fix.

FIXING SOLUTION.

Hyposulphite soda	4 ounces
Water	16 ounces

If a number of films are fixed together in one tray they should be put in face down to avoid scratching or cutting the sensitive side by contact of the sharp corners.

After fixing, wash thoroughly, then immerse for one minute in the

SOAKING SOLUTION.

Wood or Grain Alcohol	16 ounces
Water	16 ounces
Glycerine	½ ounce

Remove from the soaking solution and pin up each film by the corners to dry spontaneously.

A good way to dry these negatives is to pin them by two corners to the edge of a shelf and then to pin the lower corners to a light strip of wood. Any tear drops of the soaking solution should be removed with a bit of blotting paper or absorbent cotton. When the negative is thoroughly dry, wipe off the back with a soft cloth.

The object of the soaking solution is to prevent the film from curling when dry. The negative must not be rinsed after the soaking solution.

Always keep finished negatives flat—do not roll them up.

The Eastman Dry Plate & Film Co.

THE "SILENT CITY" AGAIN.

To the Editor of THE PHOTOGRAPHIC TIMES.

DEAR SIR: A little more on the "Silent City." I send you by to-day's mail a copy of the *Examiner* of September 28, 1889, containing an account of the death of Mr. C. H. Husser of this city, and concerning whom I wrote you several days ago (see page 512, Oct. 11 issue). If you remember I wrote you that Mr. Husser was sent North to especially investigate the truth of the "Silent City," and if such a thing was a fact to obtain as many negatives of it as possible. What success he has had I do not know, but I doubt if he had any. I have been trying to find out if he has given any written opinion or report to Mr. Taber on the subject, but it is next to impossible to learn anything from him.

Mr. Taber has in his possession an 8 x 10 negative of the "Silent City," claimed to have been made by Professor Willoughby. I saw a 20 x 24 Bromide enlargment from that negative. It looks well, but I must say one's first impression as he looks at it is that it is a big fraud. Mr. Taber and his men are very non-committal on the subject, and there is a very mysterious silence on the subject that rather hurts the truth of it. However, I am merely giving you my own opinion. It may be right, it may be wrong. But my views are warmly espoused by many.

You must pardon my interest in the "Silent City," but I do take an interest in it and a deep one—as to whether it is myth or not. The interest in it out here is very general, and if the Eastern fraternity takes as much in it as we do, I think some of the matter I send you will prove at least interesting. Yours, etc.,

T. P. Andrews.

SAN FRANCISCO, Oct. 2, 1889.

[Following are extracts from the papers which Mr. Andrews kindly sent.—EDITOR P. T.]

[*From the San Francisco Examiner.*]

VICTORIA (B. C.), September 28.—Since the great story of the Muir glacier mirage first became known, your correspondent has made every effort to get substantial news concerning it, but beyond the statements of Professor

Willoughby and the word of one or two who had seen the mirage, nothing tangible until yesterday could be obtained.

By the steamer "Elder," which arrived here on Saturday from the north, came a miner, who left the vessel at this port and did not go on to San Francisco, as he at first intended.

From this miner, who is a very intelligent man, a most remarkable story was obtained by your representative, and the first description of the Silent City is here given.

George H. Kershon is the name given by the narrator of the tale. He says he is a native of England, but left that country when a lad for the gold fields of Australia, where several years were passed. New Zealand, Cape Colony, and California were also visited, and in his forty-third year he joined a party of miners who were bent on exploring the secrets of ice-bound Alaska. Kershon is a hardy looking man, with a well-knit frame, indicative of an ability to withstand physical hardship, while his clear, blue eyes are a surety that whatever he undertakes he will carry through.

"Yes," he said, "I think I am the first white man who ever gazed on the frozen city of the North. You would like me tell you about it? All right; you'll be the first newspaperman who has the news, anyway."

SEEING THE SILENT CITY.

"One day I determined to try and scale one of the mountains near us, as I got so tired and weary with being penned up in such a confined place. This idea I put before the Indians. One of them said he would go with me; the other would not risk it, so was left in camp. A storm shortly arose, blowing heavily for three days, but as soon as the weather had settled, myself and the Indian started off on our trip.

"We went right up the line of the frozen river, which, being a solid mass of ice, made a good roadway. Following this for about twenty miles, at a pretty steep rise, we reached a plateau between the foothills and high range. Here the stream ended, and we started to climb one of the big hills. After a lot of hard work we reached a point near the summit. A wonderful view was had from here, but the strangest thing was a city in one of the valleys below.

"You may bet I was surprised to see it. At first I thought it was some fantastic arrangement of ice and snow which had assumed the form of a city, but examination with a glass showed that such was not the case, it being too regular in appearance.

It was a city, sure enough.

"Determined to see more of it I commenced to work downwards, although the buck was rather frightened, he evidently not considering it 'good medicine.' After several hours of hard work I reached the outskirts of this mysterious city, and found that the place was laid out in streets, with blocks of strange-looking buildings, what appeared to be mosques, towers, ports, etc., and every evidence of having been built by art.

"The whole was of solid ice, though, or seemed to be, but blows from a hatchet on one of the walls disclosed the fact that beneath this barrier of ice was some sort of building material. It looked to be wood, but of a stone-like hardness, and apparently petrified.

AN AWFUL STILLNESS.

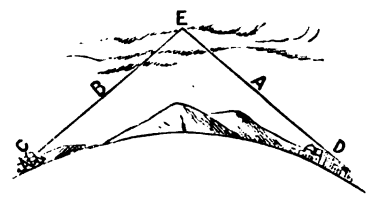
"The silence around the place was something ghostly. Not the slightest sound broke the awful stillness of the place, which, added to the weird look of the empty streets, made it gruesome enough. I soon got tired of investigating the city, as the srreets were blocked in many places with huge masses of ice, rendering passage almost impossible. The buck, too, became uneasy, and we started on the return trip, reaching camp the next day tired, but satisfied that we had been the first men to gaze on that silent city for centuries.

"It was while I was at Juneau I saw a newspaper with an account of the mirage seen at Muir Glacier. I did not make any allusions to this, though, as I did not think any one would believe me, but I am positive that the mirage of Muir Glacier is the reflection of the frozen city found by me."

EXPLAINING THE MIRAGE.

"How do you account for the mirage?" was asked.

"This way," he replied, drawing the following figure on a piece of paper?



THE MIRAGE.

How the "Silent City" is supposed to have been reflected from the clouds.

"You see, the original city might be, say, at D. Well, at certain conditions of the atmosphere a reflection from the city to the clouds at E might be thrown to C, where it has been seen by the parties who are so positive it is a mirage. It is merely a reflection, that's all."

"How do you account for the presence of the city there?"

"Well, that's something I'll have to leave to abler heads. You might ask me how the ruins of big cities came in the interior of Central America. They are there, but who built them nobody knows. Perhaps at one time it was not so cold north as it is now."

This ended Mr. Kershon's story, told with an air of truth which made it evident that he had truly seen the things he says.

[*From the Examiner.*]

AN INVESTIGATION.

"I had heard so much about the thing that I concluded to go and investigate it, having a theory of my own about it. So in July I made up my mind to devote my Fourth of July vacation to a trip to the glacier. I had a certain degree of curiosity about it, city or no city.

"We set sail in a hired boat on the 1st of July, early in the morning, with a full stock of provisions and all the necessaries. By 'we' I mean Bill Thomas (the old Hale & Norcross man) and two other men unknown to you—Idaho men.

"We had many adventures in going up, but what I want to tell you is what I think we discovered in regard to the 'Silent City,' or mirage. You know that during

the debris war I was up at Omega, in Nevada County, Cal. Well, there I learned a trick that I was determined to make use of here.

"In watching for the anti-debris spies we used to pour a few pounds of quicksilver into a gold-pan, place it on a rock in an open place and then peer into it with a magnifying-glass. In this way we could detect anything that moved on any road or in any place for miles around. The face of the country and all upon it was first reflected upon the heavens or upper stratum of air, and thence down upon the pan of quicksilver, where we could scan it with our glass.

"Well, when we arrived at the glacier we cruised about for a day or two, but could see nothing. We feared that we had not found the right place, and were about moving on when there came a favorable calm and we tried the gold-pan and quicksilver.

THE RUIN OF A LARGE CITY.

"At once we saw depicted on the surface of the bright metal what appeared to be the ruins of a large city. There were the remains of walls, towers, and many large buildings, but all were seen in a wavering sort of way. We saw enough, however, to convince us that the city was at the bottom of the bay; was thence imaged on the clouds and then reflected down upon the quicksilver. It may be that in certain favorable stages of the weather the image of the sunken city is thrown upon the glacier, where it resembles a mirage.

"Having decided in our minds that the city was one at the bottom of the bay, we spent a whole day in getting on top of the glacier, and at great risk ventured near to its perpendicular face. There we erected a mirror upon a sort of tripod, placing it at a height of about five feet, facing the bay, and using our glass saw in it the image of the same ruins seen on the quicksilver when we were down on the water. We could also get a part of the city in our pan when tried on the surface of the glacier.

"We were not a scientific expedition, but in our rough way we were able to satisfy ourselves that what is called the 'Silent City' is in reality a Sunken City resting at the bottom of Glacier Bay."

[*From the San Francisco Chronicle.*]

THE ALASKAN MIRAGE.

"And now come two men, by name Robert Christie and George Patterson, and say that Professor Willoughby's Alaskan mirage is not a 'fake,' as the profane call it, but an actual, bona fide mirage. They say that they themselves, while sailing from Muir Bay into James Bay, saw rising out against the side of the mountain what appeared to be houses, churches, and other large structures, the whole appearing to be a city of extensive proportions, perhaps of 15,000 or 20,000 inhabitants. They further depose and say that at the time they had never heard of what is called the 'Silent City,' or that Professor Willoughby had photographed it.

"A mirage is one thing, a photograph of a mirage is another. Over the surface of water, or above the heated sand of the desert, there may be sometimes seen reflections in the air of actual objects, in a reversed position. These may be accounted for by the laws of optics, and so, possibly, may Professor Willoughby's 'Silent City' in Alaska; but scientists have thus far been unable to locate any city of which this might be a reflection near enough to the Alaskan coast not to be entirely shut off by the curvature of the earth. The most distant sky reflection recorded is that of a ship at sea seventeen miles beyond the visible horizon; but there is no city near enough to James Bay to come within that limit. Whether such a reflection would reproduce itself on a sensitized plate or not, photographers must decide.

"Hamlet made Polonius see a great many queer shapes in a passing cloud, but he did not attempt to persuade him that he saw houses with bay windows and cathedrals with spires and rose windows, and least of all did he set him to estimating the population of the cloud city. There are more things in heaven and earth than are dreamt of in our philosophy, but it is a severe tax on the credulity of any one to ask him to believe in a phantom city on the coast of Alaska, and, above all, to put implicit reliance in what he is assured is a photograph of that city."

[*From the San Francisco Examiner.*]

"The following important letter was received yesterday by I. W. Taber, the photographer of this city:

"'ON BOARD ALASKAN STEAMER, GEORGE W. ELDER,
VICTORIA, B. C., Sept. 23, 1889.

"'DEAR SIR: I wish to communicate for your information facts connected with a gentleman of your house, C. H. Husher. While I was in Sitka I was informed that a schooner named the Alpha had left Yakutat Bay, near Mount St. Elias, on August 17th, bound for Sitka with fifteen persons on board, one of whom was Mr. Husher.

"'On September 8th another schooner, the Sitka, arrived in Sitka, having left Yakutat Bay on August 9th, seven days after the Alpha.

"'Up to the time of my leaving Sitka in the steamer Elder, on September 12th, no news had been heard of the missing vessel.

"'The United States revenue cutter Richard Rush arrived at Sitka on September 12th, and proceeded to sea the same day in search of the Alpha. Much bad weather had been experienced on the Alaskan coast during that time, and that Alpha was well known to be in a far from sea-worthy condition, so that grave fears are entertained for her safety.

"'I became well acquainted with Mr. Husher on his trip to Alaska in July, and feel much anxiety about him. I return with the Elder to Sitka, leaving here on or about September 26th.

"'WILLIAM E. GEORGE,
"'Pilot of Steamer George W. Elder.'

"Mr. Husher left this city on June 24th, and took the steamer Elder at Victoria for Juneau, Sitka, Glacier Bay, and other points along the Alaskan coast, and carried a photographer's outfit with him. The last letter received from him was at Sitka, Alaska, on July 26th, in which he wrote:

"'I returned to Juneau from the glacier a few days since, and came over here expecting to remain over one steamer, but I found a friend who intends making a trip in a small vessel up the coast toward Mount St. Elias and Yakutat Bay, and have decided to accompany him.'

"A glance at the map shows that Yakutat Bay is about 250 miles northwest of Sitka, and as stated in Pilot George's

letter, not far from Mount St. Elias. Leaving Yakutat Bay for the return trip on August 17th, she ought to have arrived at Sitka in two or three days, whereas up to September 12th, after being out twenty-six days, nothing had been heard of her.

"It is believed, therefore, that she has been wrecked, and that all on board have perished."

"C. H. Husher is a young man who has led an adventurous life. He arrived here about five years ago from Louisville, Ky., where he was reared, and almost immediately connected himself with Mr. Tabor. He was a patron of vigorous sports, and was a prominent member of the Olympic Club. In June 1887, when the *Examiner* inaugurated the novel feature of photographing the earth at various heights from balloons, Mr. Husher was engaged to assist in the work. He never seemed to know what fear was. He made a voyage from this city, and made a series of photographs of San Francisco at the height of a mile and thereabout. Later he was one of a corps of aeronaut who went up at Los Angeles and reproduced for illustration in this paper that city."

Notes and News.

Take Courage.—Amateur photographers who have lost great opportunities for views through bungling with their instruments may cheer up after reading of the performance of Dr. Johnston Lavis, deputed by the Royal Geological Society to investigate the volcanic phenomena of Vesuvius. Having advanced so near to an eruption that his porters ran away, he got two superb sights, only to discover afterwards that a portion of his focusing-cloth had covered the lens so that only a small corner of the plates showed any impression.

Captain W. de W. Abney, president of the section of Mathematics and Physics of the British Association for the Advancement of Science. gave an address at the Newcastle meeting on "Modern Photography," which contained some interesting comment on the subject of photography in colors. Photography in natural colors is now possible, but Mr. Abney thinks that its products can have a scientific value only and can never be of commercial value. At the present state of the science, the production of a negative in natural colors from which prints in natural colors may be produced appears impossible. Supposing it were not impracticable, it would be unsatisfactory, as the light with which the picture was impressed would be usually very different from that in which it would be viewed.

Mr. Abney also alluded to another recent advance in scientific photography, namely, that from being merely a qualitative recorder of the action of light, it has come to be used for quantitative measurement. By making exposures of different lengths to a standard light, or to different known intensities of light, the photographic values of the light acting to produce the densities on the different parts of the developed image may be readily found. The applications of such scales of density to astronomical photographs cannot but be of the highest interest and value.—*The American.*

How to make Two Exposures on one Section of Film.—Sometimes it is desired to make 5 x 8 exposures on an 8 x 10 holder, or 4 x 5 exposures on a 5 x 8 holder. This can be done by putting a mask in the camera shutting off one quarter on each side.

In case a full size exposure has last been made, turn the key until the indicator makes ¾ of a revolution; then make the half size exposure. If more than one is wanted turn the indicator only half a revolution after the first one. Then when it is desired to change back to full exposures, turn ¾ again. Hence the rule is:

For full exposures turn indicator 1 full revolution.

For half size exposures turn indicator ½ full revolution.

To change from full to half or from half to full exposures always turn ¾ revolution of the indicator. An even number of half exposures should always be made so as to bring the indicator back into its proper place.

The Camera Fiends.—The president of a street-car line in New York felt gratified a night or two ago, and expressed his joy in unmeasured terms to his friends at dinner. "One of the camera fiends," he said, has been captured in Berlin and sentenced to six months' imprisonment. Now I am watching for the first case of arrest and conviction here. It is sure to come, and I hope the camera fiend will be punished in a fashion that will take the impudence and assurance out of his fellow artists all over the country. This summer I drove for three weeks through the Berkshire hills, and I saw more members of this brotherhood of Peeping Toms than I ever thought could exist. The effrontery of the camera-peeper is absolutely limitless. At any time or place one is apt to find the eye of one of the machines on him, and a negative is taken before a protest can be expressed. We used a big English brake for driving, with cross-seats, and it was rather a difficult vehicle for the ladies to climb down from without more or less exposing their ankles, but I do not think we ever pulled up at a small inn and prepared to dismount without discovering in the neighborhood one of the camera fiends all ready to catch a glimpse of feminine draperies and hose and record it for future use. The man in Berlin who was sentenced, by the way, pursued a regular business by hanging around the park and taking negatives of the lovers who sat on the benches. Once in a while he would catch married people and then charge them an exorbitant sum for the negative. In one of these cases his victims were brother and sister. They kissed each other, and were promptly photographed by Peeping Tom behind a bush. Next day the peeper called on the lady and offered to sell her the negative for a thousand marks. She promptly had him arrested, and he was sentenced by the judge, after a lecture which ought to have been translated into English and published in every newspaper in the United States."—*The Boston Traveler.*

The Lowell Camera Club will hold a non-competitive exhibition of Photographic work at Morrill's Studio, Central Block, November 12th to 16th inclusive. The previous successful exhibitions of work by Lowell amateurs can be surpassed this year both in quantity and quality of work.

The object of these exhibitions is not so much to decide upon the relative merits of the work of the exhibitors as to afford an opportunity to all interested in amateur photography to see what has been done by all, and to give such exhibitor an opportunity to see his own work beside

that of others. In this way a better idea of what constitutes the best style of work can be gained, and the interest in the art will be increased.

All are cordially invited to contribute specimens of their work, whether beginners or experienced amateurs.

Entry cards will be furnished to all who wish to contribute, on application to the Secretary.

Committee on Exhibition.—William P. Atwood, H. W. Barnes, W. E. Badger, Charles Francis. Geo. A. Nelson, *Secretary.*

To Make Paper Waterproof.—Any kind of paper can be made waterproof by pulling it through a weak solution of carpenter's glue, to which a trifle of acetic acid is added. To each quart of such solution an ounce of bichromate of potassa is added, and when the mixture is dissolved the paper should be pulled through two sheets at a time, in the usual manner followed when we damp paper for printing. After pulling through the solution, hang the paper up to dry in daylight (not in a dark place), and after it is found to be dry, leave it hang for about fifteen minutes more, when the paper will be perfectly waterproof and highly suitable for many various purposes and different kinds of work in our trade.—*The Lithographer and Printer.*

Photographic Societies.

THE NEW ORLEANS CAMERA CLUB.

THIS club met Wednesday evening, Oct. 2nd, in monthly session, Vice-President Hincks, Secretary Fenner, and a good representation of the membership present.

The meeting was quite an important one, and proved a most interesting one in view of the progress made by the club during the past few months.

On motion of Mr. Mitchell it was decided that the club go on an excursion over the Mississippi Valley Railroad on the 27th inst. Messrs. Wood, Mitchell and Carriere were appointed a committee to make arrangements for the affair.

Mr. Castleman offered a resolution, which was adopted, providing that any member who removes from the club rooms any periodical, chemical or other property of the club, except such instruments which have been, or hereafter may be, set aside for the use of the members, such as lenses, cameras, tripods, etc., shall be fined $5.

Mr. Mitchell moved that the club give an exhibition for its own benefit on or about the 20th of November. This motion was carried, stress being laid upon the facts that the club is in many respects one organized for screntific and educational purposes. It has repeatedly given complimentary entertainments to please its friends, and has never called upon the public for assistance. Lately it has made renewed endeavors to place itself in position to forward its scientific work, and the public will be benefited. Every arrangement for having the entertainment one of universal and unique character will be made, and it will doubtless be successful. Messrs. Carpenter, Woods, Mitchell, Castleman, Carriere, Rhodes, Shields, Bernard and Krumbhaar were appointed the committee of arrangements.

Mr. Du Quesnay impressed upon the club the necessity of collecting as many lantern slides as possible, in order that the club shall retain its membership in the Lantern Slide Interchange.

Mr. C. W. Wood was elected to membership.

President Hincks called attention to the handsome silver doorplate engraved with the club's name, which had been unostentatiously presented by Mr. Horace Carpenter, one of the members. In behalf of the club he thanked Mr. Carpenter.

That gentleman humorously responded. The club, he said, has decorated its walls with pictures and plates, and he had thought there was no reason why the front door should not be decorated with a plate. All he wished to say, was, accept it "S'il vous plait."

After the adjournment a visit was paid to the dark-room and studio now in process of building. These are located on the top floor of No. 8 Carondelet Street. The fitting up has been going on at great expense, and soon the club will have one of the finest studios in the country. A skylight has been built, a water tank put in position, and other details prepared, but most marvelous of all is the dark-room. This is a real novelty, and is said to be the most perfect on this side of the Atlantic. It is fitted with electric lights, shielded with colored lights.

The interior is painted black, and in size and appearance the room is like a dungeon. There are a half-dozen apartments where developing and the rest of the process of photograph making is done. A draft of air comes in at each of these, to keep the operator cool, while water, ordinary or iced, is procured by turning faucets. The studio is not completed, but in a few weeks the whole will be ready for inspection, and then the curiosity of the public will probably be gratified.

THE OAKLAND CAMERA CLUB.

ON Tuesday evening, October 1st, about fosty or fifty ladies and gentlemen met at the Odd Fellows Hall, Eleventh and Franklin Streets, Oakland, California, for the purpose of organizing a camera club. After considerable discussion it was decided to name the society "The Oakland Camera Club."

The initiation fee was placed at $5, and monthly dues at 50 cents. Some forty names were signed to the charter roll, including seven ladies.

The society will meet monthly on the first Tuesday of each month. As yet they have not secured permanent quarters, but are now discussing the advisability of securing the same.

The elected are: President, H. L. Adams; Vice-President, T. W. Sigourney; Secretary, J. Leo Park; Treasurer, F. B. Rodolph, and Corresponding Secretary, Miss G. Carlton. The Board of Directors is: H. L. Adams, T. W. Sigourney, A. J. Gray, L. J. Hassler and Chester Deering.

The personnel of the club is very fine and I bespeak for the club a most happy and prosperous future.

The permanent organization of the club reflects considerable credit on Messrs. Hassler, Adams, and Rodolph, who have been untiring in their efforts on its behalf.

The Editorial Table.

PHOTOGRAPHISCHES WOCHENBLATT, of Berlin, F. M. Benekendorff, publisher, has made its first appearance under the Editorship of Dr. A. Miethe, of the ostro-physical observatory of Potsdam. The accomplishments and character of the editor of this new and already very popular journal, guarantee its successful continuation.

IN ONE of our recent issues the "Interviewer" of Mr. O. H. Peck, of Minneapolis, Minn., during his visit to New York on his return from the Boston Convention, erroneously stated that Mr. Peck was not a photographer. We have just received a letter from Mr. Peck from which we quote:

"By the way, I noticed a little article in the TIMES in reference to my visit to New York, that I had made the remark 'that not being a photographer, but only a photographic merchant, etc.' This statement was quite amusing to me from the fact that I had had thirteen years' experience in photography before I went into the stock business. One of my principal claims to my honored constituency has been that I was better able to supply their wants from the fact of having had a long experience in photography I am afraid that my conversation was not given verbatim."

We make the above extract in order to set our readers right. Our "Interviewer" had evidently forgotten Mr. Peck's statement in regard to the matter."

ARCTIC ALASKA AND SIBERIA. By Herbert L. Aldrich.

Is an interesting account of an eight months' cruise with the Arctic whalemen. Mr. Aldrich made the cruise with the fleet of 1887, "being provided," as he says, "with a Scovill Detective Camera, seven hundred films and two hundred and fifty Carbutt plates." "I was provided," he writes, "for all emergencies, and embraced many." The book shows with what success, for it contains a number of full page plates taken from his negatives. The plates are not reproduced so satisfactorily as might be hoped for; most of the negatives were evidently capable of better reproduction.

The narrative of the cruise is interesting and instructive. It is divided into seven chapters: namely, "Icing in Behring Sea; Among the Siberian Esquimaux; Along the Shores of Nakoorukland; Whaling; From Point Barrow, Home; The Nakooruks; and, Some Typical Experiences.

It is a two-hundred-and-thirty-four-page book, neatly bound in cloth, with a map of the Arctic whaling grounds; and it is published by Rand, McNally & Company, of Chicago and New York.

Record of Photographic Patents.

412,462. Photograph Burnisher. Clarence R. Carley, Syracuse, N. Y.

412,511. Vignetting Frame. John M. Kellum, Kokomo, Ind.

412,682. Photographic Plate Holder. Joseph Thorpe, Jersey City, N. J.

Queries and Answers.

202 BEGINNER asks what is a good book on the rudiments of photography, negative-making, and printing.

202 *Answer.* — "The Photographic Instructor"; and "The Processes of Pure Photography." Both are published by The Scovill & Adams Company, New York.

203 CHARLES P. BLEEKER wants to know how to reproduce a map that is colored in patches with very brilliant pigments.

203 *Answer.*—Use a Carbutt orthochromatic plate, and place a light yellow ray-filter at the back of the objective. When using the filter you will find it necessary to expose two, three or four times longer than the sensitometer number on the package of plates would indicate.

204 N. O. S. asks us to inform him how over-printed albumen proofs can be reduced by means of oil of turpentine.

204 *Answer.*—Suspend the prints, face downward, over a pan containing turpentine, and allow a current of air to pass between them and the pan. Turpentine and its vapors acquire, in the presence of ozone, an oxidizing property; hence, a reduction of the metallic silver takes place. We have never tried the experiment.

205 ECONOMY asks if an exposed or light-struck plate can be made serviceable again.

205 *Answer.*—Yes! Soak the plate for several minutes in a two per cent. solution of bi-chromate of potassium, wash thoroughly, and dry in a closet. But this is done at the sacrifice of the original sensitiveness of the plate. A Carbutt plate of sensitometer 27 or 25 will be reduced to the sensitiveness of a "B" plate of sensitometer 16, if indeed not lower.

206 DAVID B. T. asks if the ordinary asphaltum bought in paint shops is good enough for mechanical printing purposes.

206 *Answer.*—The Syrian asphaltum is generally preferred to that coming from Trinidad, as it is very much superior in quality to the latter. But for your purpose it should be rectified by separating from it that portion which is not sensitive to light. This is done by digesting it in ether, in which it is soluble. The sensitive residue is then dissolved in benzole freed from water.

207 TYRO has made several unsuccessful attempts to intensify reproductions of line engravings made upon gelatine plates, by means of nitrate of lead and ferricyanide of potassium. It takes a very long time for the silver deposit to whiten, and then it proceeds very irregularly, showing no effect whatever on some parts of the plate.

207 *Answer.*—The cause of the difficulty is that ferricyanide of potassium hardens gelatine plates very considerably. To counteract this tendency, it has been proposed to add small quantities of an organic acid (such has formic or acetic acid) to the intensifying compound. It has been said that with this modification the process works well.

COMPANIONS.

THE
PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, OCTOBER 25, 1889. No. 423.

COMPANIONS.

OUR picture this week is one that is interesting both as a landscape and a figure composition. The young lady beneath the sheltering trees, with her companionable dog for a protector and friend, makes a picture which completely fulfills the title it bears. The quiet charm of the landscape, while fully in harmony with the interesting group which it sets off, is an added attraction to the picture.

It will be encouraging for our younger and more inexperienced readers to learn that this, in every way, successful photograph was made by a beginner—Mr. John D. Grant, its author, writing us that he has not taken "more than fifteen or twenty pictures." "This one," he modestly states, "chance had more to do with than good judgment on my part. * * * * The length of exposure was cut short of what I intended to give it, because the dog moved, and I clapped on the cap; so the only items of interest are that it was developed by a 'green' hand, and the exposure timed by a dog."

Our readers will judge for themselves whether it is not shown that there was room for "good judgment" on the part of Mr. Grant in other respects than in the mere timing the exposure.

We think Mr. Edwards deserves special credit for the satisfactory manner in which he has reproduced the picture in photo-gravure.

VIGNETTES AND VIGNETTING.

I.

DR. P. H. EMERSON, in his book on naturalistic photgraphy, asserts that under no circumstances is it in good taste to vignette a photograph. He says that a vignetted print is not artistic; and, judging from a great many vignetted portraits which we have seen, we are inclined to think that the author of "Naturalistic Photography" is not very far from the truth in his statement. We should not take quite so extreme a ground, however, as Dr. Emerson holds, for we think there certainly are circumstances which not only permit vignetting, but which make a vignetted photograph almost necessary.

Vignetting has undoubtedly been overdone, and often employed without regard to the individual requirements of particular prints. It is such blind adoption of a certain method of working that drives writers like Dr. Emerson to take the extreme views like those which he expresses in his book. Because a certain modification of the printing method improves one print is no reason why it should ignorantly be applied to every print. Very often the cases where such a modification improves a result are fewer in number than those in which it greatly mars the picture; so that in order to be on the safe side, those who have not much taste of their own give up entirely the use of what, under certain conditions, may be of great benefit in their work.

Vignetting has been used most generally in connection with portrait negatives, and it is undoubtedly in connection with this class of plates that vignetting is most useful. The pictorial quality of a portrait, however, is completely destroyed if the vignetting deprives it of the relief and support which a judiciously selected background has given it; no matter how well the subject has been posed and lighted or how well its plasticity has been brought out by skillful development of half tones and middle tints.

The vignetting of photographic portraits came to us from France in the earliest days of photography, and was a very acceptable method in connection with collodion negatives, which were so full of all kinds of faults, such as streaks, stains, spots, etc.; or when the collodion film, after drying, cracked and parted from the glass on the outer edges. To make such negatives at all available, it was necessary to cut off the marred portion, and vignetting became very popular as a consequence.

The method being so generally employed with negatives that were defective, it soon came to

pass that when a vignetted print was seen, the negative was at once suspected of being imperfect. It is for this reason that vignetted photographs are excluded from competition in all European exhibitions at the present time. In America, a vignetted print raises the same suspicion, especially in the minds of the older photographers; and it undoubtedly is the case that many negatives, otherwise useless, are made to yield good prints of certain parts, by judicious vignetting.

Most of our professional printers take pride in their ability to properly vignette a portrait, and it certainly requires not only a certain ability, but judgment and taste, to make a good vignetted print from an imperfect negative, or improve a print from a technically perfect negative.

Draperies and backgrounds should not show lines of demarkation between the outline of the picture shown and the part which has been vignetted away. Neither should a portrait be vignetted so close as to cut off all background, and thus destroy the portrait relief.

There is room for great skill, especially in controlling the gradation of detail in the vignette. The vignetting should not be too abrupt, neither should the diffusion be too great. But we must continue this interesting subject in another issue.

THE ECLIPSE EXPEDITION.

The party of scientists organized to view the eclipse on the West coast of Africa, sailed from New York on the morning of Wednesday, October 16th, at 6:30, on the U. S. sloop-of-war Pensacola, Capt. Yates in command, with a full complement of officers and 300 men. She will go direct to the Cape de Verde Islands to fill her coal bunkers, thence to Sierra Leone for more coal, thence to St. Paul de Loanda, her destination. There the party will disembark and go about 75 miles inland, up the Quanza River to Muxima, a Portuguese trading station.

Professor David P. Todd, of Amherst College, has full charge of the expedition, and from his large experience gained in the observation of previous eclipses, is well fitted for the responsible position of director. In 1878 he conducted an exhibition to Texas to observe an eclipse of that year, and in 1882 he conducted the observation of the transit of Venus at the Lick Observatory in California. In 1887 he took charge of another eclipse expedition to Japan.

Professor H. F. Bigelow, of Racine College, is Prof. Todd's chief assistant; he has devised some of the most important instruments to be used in connection with photography in securing photographic record of the eclipse. Mr. L. H. Jacoby, assistant to Professor Reese at Columbia College, New York City, will assist telescopic and photographic observation; also Mr. H. S. Davis, of Princeton College, will assist in preparations for the eclipse, and in the observation itself.

Mr. J. E. Carbutt, graduate in Analytical Chemisty in the University of Pennsylvania, and a skilled amateur photographer, will have full charge of the photographic section.

Professor E. J. Loomis is the naturalist of the party. Mr. C. A. Orr, of Clark University, will have charge of the anthropological department. Mr. Cleveland Abbe will have charge of the meteorological department, and Mr. E. D. Preston, of the U. S. Coast Survey, will make magnetic observations. Mr. Harvey Brown, from the Washington National Museum, will make researches in several branches of natural history.

The readers of the PHOTOGRAPHIC TIMES will no doubt be interested in the photographic outfit and the plates to be used. Prof. Todd decided to use dry-plates, and visited Philadelphia to consult with Mr. Carbutt, in regard to the kind best adapted. Mr. Carbutt decided to recommend the orthochromatic; a contract was made to supply them, and of such sensitiveness as would best conduce in obtaining the best results. Orthochromatic plates of sensitometer 16 to 23 and eclipse orthochromatic 27 have been furnished. The first named to be used for first contact and partial phases up to about half obscuration, then sens. 23 to close on totality, and the quickest, or sens. 27 for the corona during totality, then in reverse order to the finish of the eclipse. By the use of orthochromatic plates it is expected to get a more distinct image of the coronal rays than has hitherto been obtained of any previous eclipse. We consider Professor Todd was peculiarly fortunate in selecting Mr. Carbutt to furnish the dry-plates for this important work, as Mr. Carbutt possesses the camera, enlarging lens and electrical exposing shutters used by Professor Henry Morton of Stevens Technical Institute, and used in photographing the eclipse of 1869 in Iowa. Mr. Carbutt made the negatives by the wet collodion process, and for his valuable services Professor Morton presented him with the above-named apparatus in order to be more certain that the less sensitive emulsion was best suited for the early and late phases.

Mr. Carbutt took the Eclipse photographic apparatus to Columbia College, New York City, and by permission of Professor Reese placed it on the

Rutherford Telescope and made negatives of the sun, on both sens. 16 and sens. 23 plates, using for the first a slit in the shutter of $\frac{1}{1000}$, and for the latter $\frac{1}{1000}$. The results were pronounced by Prof. Reese as very satisfactory.

There are many new forms of photo telescope apparatus to be used, principal among which is the 40 foot telescope, on which will be used plates 22 inches in diameter, on which ten exposures will be made, giving a direct image of four inches diameter. A Heliostat with its standards weighing about 2,000 pounds, and capable of carrying twenty photo-telescopes, and all connected and worked pneumatically by special apparatus devised by Professor Bigelow and Mr. Gally of New York.

Besides these an attempt will be made to secure an enlarged image of the corona on a 20x24 plate. The party expects to reach their observation station about December 1st, so as to be able to set up the instruments and go through a series of practice drills prior to the final observations. The trip will occupy about five months, and owing to the unhealthy climate the expedition is bound for, the party, about twenty in all, are well provided with clothing suited to their wants, every provision for water for drinking purposes has been made, even a small ice machine forms part of the outfit; also plenty of quinine and three physicians. We are sure that all our readers join us in our wishes for a successful result, and safe return of the whole party. In another column are given some other particulars of this expedition, especially concerning the *personnel* of the party.

EDITORIAL NOTES.

We have been favored with a photograph of the famous "Silent City," concerning which so much has been said in the newspapers of late and of which we have printed considerable information in the past two issues of The Photographic Times. The photograph is by "Professor" Willoughby, and is published by Taber of San Francisco. It is copyrighted, and is said to be having an immense sale on the Pacific coast. We must say that the photograph depicts rather a substantial appearing city for a mirage. As some one has said, it is not at all unlike a view of the Canadian city of Montreal taken from an adjoining hill. The city looks very modern and not at all "ghostly." We do not know exactly what it is, but we doubt very much its mirage origin.

C. H. Husser, the adventurous young photographer, in the employ of Taber, who went to Alaska for the purpose of investigating the alleged mirage which was said to be visible there, and of photographing it if such a thing really existed, has turned up in Seattle in excellent condition. It will be remembered that he was supposed to have been lost with the schooner "Alpha" in Yakitut Bay, as no tidings had been received of the little vessel for many days, and it was known to be in an unseaworthy condition and but scantily supplied with provisions. After a most perilous experience in Yakitut Bay, the party (who had given up all hope of return until next summer, and were providing for a winter as best they could on the shores of the bay) were rescued by the revenue cutter "Rush" and taken to Sitka, Alaska.

Husser returns satisfied that the "Silent City" is a humbug. He has gone completely over the ground where it was claimed to have been observed, and says he surely would have seen some trace of it were such a thing really in existence. He speaks in rather uncomplimentary terms of "Professor" Willoughby, who, he alleges, does not know the difference between hypo and pyro! The article in another column, by "A Western Amateur," confirms us in the opinion which Mr. Husser has given us. The article by "A Western Amateur" will be read with interest.

The Photo-Gravure Company of New York, makers of the excellent photo-gravures which embellish the weekly issues of The Photographic Times, will shortly be the fortunate occupants of a most approved building in this city, especially adapted for their use. Some time next month they will move into the new building on Twenty-third Street which has been especially constructed for their purposes. The editor of this magazine, accompanied by Mr. Ernest Edwards, President of the Photo-Gravure Company, recently made an inspection of the building and greatly admired its accommodations. The company will have five stories with windows on three sides, and a roof, which is by no means the least available space for a photographic establishment. On the top floor a commodious operating room is arranged, with a northwestern exposure, and is supplied with four good-sized and well ventilated dark rooms. There are separate rooms for gelatine printing and photo-gravure work, also for carrying on the various stages of work in both printing methods. On the second floor will be the offices and show rooms.

With such accommodations, the Photo-Gravure Company ought to largely increase their productiveness, and improve the quality of their work—if such a thing were possible. We shall go through the

building again when it is completed and the Photo-Gravure Company is established in it, at which time our readers may look for a more detailed account of this model establishment for photo-gravure work.

NOTWITHSTANDING the delays in publication which always seem inevitable, "The Photographic Times Annual" for 1890 will be out about the 1st of December. The contributed matter is all in type, (numbering considerably over a hundred original articles,) and the full-page pictorial illustrations, *eighteen* in number, are selected and being printed.

The advertisements in the book will be by no means the least valuable part of it. Those already received form an almost complete photographic directory, and will be highly esteemed by photographers, for reference. In themselves they show the progress that has been made in photography during the past year. Throughout these pages will also be specimens of photo-mechanical printing which are not only instructive in themselves, but also embellish the pages, and make them an attractive part of the book. Any advertiser reading this, who may not yet have sent in his "copy," can secure a place by responding at once; but a day's delay at this time may shut him out, as the publishers are determined to have the book out when advertised. We mention this for the sake of many of our readers whom we know to be also advertisers, and who would regret very much if left out of this representative American book of photography.

EIKONOGEN.

THIS new reducing medium suggests undoubtedly great possibilities for the future. So far as the writer's experiments go to show, it yields negatives of considerable plasticity and good printing value, and, properly managed, is capable of producing that semi-transparent brownish deposit in the film, of microscopic fineness, which, in a still greater degree, is so characteristic of the old ammonia development and so conducive to a good print of evenly balanced values in the lights and shadows.

As with the earliest hydrochinon formulæ, the proportion of the reducing element in the mixed eikonogen developer is a good deal of an unknown quantity, and the amount of alkali to be added quite empirical and unnecessarily large. The published formulæ seem indeed to be adopted ("convey, the wise it call") bodily from those at first used by hydrochinon, for we find the familiar twelve grains of the reducing agent and four times as much sodium sulphite to the ounce of mixed developing solution when ready for use. We now know that four or five grains of hydrochinon to the ounce are enough, and that an excess of sodium sulphite is not at all necessary. The writer's use of eikonogen tends to identical conclusions.

Again, as with hydrochinon, the comparative insolubility of eikonogen is a bar to its use in concentrated solutions. In cold water, twelve grains dissolve slowly in an ounce of distilled water. Hot water will take up forty grains to the ounce or more, but on cooling an abundant deposit of fine spicular crystals takes place. In mixing a formula already loaded with sodium sulphite, still less of the eikonogen is taken up, and if cooled below the point of solution a prompt deposit is apt to appear in cases where the eikonogen is present in greater proportion than fifteen or sixteen grains to the mixed fluid ounce. Reducing the quantity of sodium sulphite is somewhat of a safeguard against precipitation, but all hope of any concentrated stock solution, admitting, as pyrogallol does, of the convenient use of one dram of the mother-solution to the ounce of mixed developer, must be abandoned.

In practice, four grains of eikonogen to the fluid-ounce of mixed developer appear to be sufficient to produce a well modulated negative for ordinary time-exposures, and, in fact, for all uses except very short exposures with a rapid shutter and a small stop, when six or seven grains to the ounce may be profitably employed.

Very pleasing results may be obtained, especially on comparatively slow plates, such as the familiar Carbutt "B," by using the following stock solutions:

a. Sodium sulphite.....45 grains
Hot distilled water..... .1 fluid-ounce
Eikonogen..... ....15 grains

Dissolve the sodium sulphite completely before adding the eikonogen to the still hot solution.

b. Sodium carbonate, dry c. p..480 grains (1 oz. Troy)
Pota. carb., granular, c. p..960 grains (2 oz. Troy)
Sodium sulphite, crystals...720 grs. (1½ oz. Troy)
Caustic soda (sodium hydrate).....50 grains
Hot distilled water.....to make up eight oz.

The alkaline solution should be filtered when cold.

It is quite surprising how little of this alkaline formula is requisite to bring up a good picture. In use, take three-quarters of an ounce of the *a* solution to one and a half ounces of water and add fifteen drops of the solution *b* to start the development. If the picture comes up too slowly and with unde-

sirable density, ten or fifteen drops more may be added. A few drops of a 50-grain solution of bromide of potassium may generally be added with advantage, to restrain and to give density.

The formulæ given out with eikonogen recommend the use of an accelerator containing a small modicum of sodium hyposulphite. The expediency of this is doubtful, and its use seems to be more apt than otherwise to take the orderly course of development out of the operator's hands and push things with a rush.

A. A. Adee.

CARBONATE AND SULPHITE SODA.

THE following questions were sent to three of the leading manufacturing chemists, and these answers returned, which I think will be interesting and instructive to the readers of the TIMES: "Give the relative strength of soda carbonate *crystals* and *granular*. Also of soda sulphite crystals, and dried or powdered.

"The difference between carbonate soda crystal and granular, also between sulphite soda crystal and dried or powdered is about the same—viz., 7 ounces granular is equal to 16 ounces crystal, and 7 ounces dried or powdered sulphite is equal to 16 ounces crystal sulphite. In other words, the granular, or dried and powdered, is about 2½ times stronger than the crystals."—*Chas. Cooper & Co.*

"In regard to the relative strength of carbonate soda crystals and granular, would say that one pound of crystals is equivalent to one pound granular, and that two (2) pounds of sulphite soda granular is equivalent to about five (5) pounds crystals."—*Herf & Freiichs Chem. Co.*

"There is no difference between our granulated carbonate soda and the pure crystallized article, and they should be used in equal quantities. Our dry or powdered sulphite soda is about double the strength of the crystals, but as in drying the article is somewhat weakened by the influence of the air, we would advise using three parts of the powdered article in place of five parts of crystals in making up formulas."—*Mallinckrodt Chemical Works.*

The above questions were suggested by the developer working differently when mixed with soda in the different forms named. The soda from each of the three manufactories is perfectly reliable, the trouble was to know the relative strength of each.

J. R. Swain.

THE SILENT CITY—THE MIRAGE OF THE MUIR GLACIER IN ALASKA.

IN the pages of the PHOTOGRAPHIC TIMES as well as in the daily press your readers have seen accounts of photographs of the marvelous mirage of the phantom city in the clouds over the Muir Glacier, and doubtless many would be glad to know something of it and of how the negative was made.

The writer was in Juneau, Alaska, a few months ago, and attracted by a canvas house signed with the outward indications that the photographer's art was practiced within, strolled in to make the acquaintance of the artist and his work, to see what tools he used and how he used them, a curiosity which has become a sort of second nature to him..

A number of gentlemen were seated about discussing an 8 x 10 photograph which proved to be that of the "Silent City," whose fame has been so noised about.

One of the party was the famous *Dick Wliloughby*—Professor Richard Willoughby, Indian trader, prospector and mirage photographer, to whom I propounded sundry conundrums: "What kind of camera and lens did you use?" "One like that"—pointing to an 8 x 10 American Optical Company's cone view with a nameless tube on it. "I bought it second hand." "What kind of plates?" "Well, several kinds; mostly St. Louis plates. They were slow ones."

"Where did you see the mirage?" "Sometimes from Glacier Bay and sometimes back on the Glacier. That picture was taken back about eight miles on the glacier—about two days' hard climbing. I have seen it for many years and every year there was a new story built on the towers of the church and you could see them working on it." Examining with a magnifying glass I remarked: "There's a steamer blowing off steam." "Why, there's men have seen more than a hundred ships sailing right along one behind the other with the men handling sails and working about the ships."

Quoth I—"There's a man on the hill, or is it a woman, walking down that path in the park?"

Quoth he—"Sometimes thonsands of people go through the streets just like a procession, the same as Fourth of July or whatever they do in the country where that city is."

"What developer did you use? St. Louis plates call for ferrous oxalate."

"Well, first off I used the same developer as the paper in the box tells about and then I tried others and didn't have no luck. Why! I used up big stacks of plates trying. Last I got a German

developer and that fetched it and I aint had no trouble since. I've got thirteen negatives better than that one. The mirage looks about a mile or a mile-and-a-half away and there was lots more of city and houses that the lens couldn't get in—some of it was so fur away and it spread out so."

"Could I see the thirteen negatives!"

"Well they are down at my house and are packed up."

"What is the German developer? Hydrochinon.

"No it ain't, its a German developer that ain't generally known. I don't know what it is made of.

I took the plates and I put them in a pan and laid *knitting needles across between them and put them together in a pan and poured the developer over them* and put a cover on the pan and wrapped it in a blanket and put the pan in a trunk and locked the trunk and put it under the bed in my room and *left it for forty-two* (42) *days*, and it drawed the picture out just as you see it there in the print, but that ain't so good as some I got home."

The Professor then related the further proceedings as: A few minutes in hypo and twenty minutes wash in glacier water and the negative was done. The prints badly printed and worse mounted were embellished by an account of the Professor and of his mirage, and tourists pay one silver dollar each for a view of the wondrous Silent City.

Of course the Professor has not cracked rock all over Alaska, engaged in conversation with the learned and other idiots who talk science from Port Townsend to Glacier Bay and back, without having become a general all round scientist himself.

Glacial theories, moraines, drift, drip and strike of ore bodies, Japan current and other terminology makes pseudo scientists of all who sail over the beautiful fiords and drink in the inspiration of the land of the myriad islands. The Professor is loaded to the muzzle with all of this and has theories as a consequence.

He *averred that he believed* that this city—the real city—was in Siberia or Europe because the architecture was different from any he knew about, and that the reflection of the image from the clouds to the great glacier was inverted and there reinverted (righted) into the camera, and he expressed surprise at the wonderful detail in the picture after reflections and transmission through thousands of miles of vapor.

My own surprise was quite as great, and lost in admiration of the artist I could only suggest that the picture reminded me of Montreal, and though I could not recall having seen the girl, the church was suspiciously like Notre Dame Cathedral.

An examination of the negative showed much detail in texture of stone work, bricks, roofing in a few planes. The original photograph was probably taken with stopless lens. All marginal and distant objects being diffused from out of focus to hopeless fog no *depth* anywhere.

This was explained or mildly suggested by the Professor as the effect of the misty, foggy nature of the Alaska climate.

Unfortunately I have made equally foggy negatives in very dry climates and doubt the possibility of the theory, but feel encouraged by it. Possibly I was photographing mirages and didn't know it. It is said Edison invented the first telephone but was too deaf to hear its voice.

The cases may be parallel.

One thing this interesting interview taught me was that the addition of steel knitting needles to a developer would in time add great strength to it. Possibly they can ultimately be made to serve the place of alkalies (or other lies) and be much more portable.

A Western Amateur.

CHEMICALLY STAINED FINGERS.

MANY object to developing plates or toning prints on account of staining the fingers. With such developers as hydrochinon or the newer eikonogen, this is obviated; and with pyro or other developers the plate-lifter, or the little negative clasp, serve as a preventative. But there is no way of properly toning prints without immersing the fingers in the toning solution, and few are always mindful to thoroughly cleanse the fingers of this. Nor is it convenient to do so at all times before they come in contact with the hypo solution, which fixes the gold stains on the hands more rapidly than on the prints.

The following simple plan may be of service to those not naturally inclined to be systematic. It prevents stains, or the loss of any of the valuable time required in the varied details of toning. Of white muslin cloth make a fairly hard round pad, about an inch and a half in diameter, and fasten it securely to a stick for a handle. Removing the prints from the water-bath used after toning, drop them into the hypo bath one at a time, face down, and with the pad gently push each under the surface of the fluid. By this means the prints are submerged without injury, and the fingers escape coming in contact with the fixing agent. One may then turn to cleaning up the trays and graduates used in toning without contaminating the fingers or the implements used, which may now be placed out of harm's way. The subject of washing up being now

present in our minds, we are less apt to omit cleansing our fingers of the gold, perhaps already sufficiently cleansed, and we may then safely turn our attention to the prints in the hypo which will have lost nothing by the temporary delay, and handle them to the end without fear of discolored fingers.

C. M. Brockway.

HOW THE JUBILEE YEAR OF PHOTOGRAPHY WAS OBSERVED IN GERMANY.

A special correspondent of the Boston *Herald* writes to that paper as follows :—

BERLIN, Sept. 24, 1889.—The apartments in the Royal War Academy on Dorotheen strasse are undoubtedly what a reporter would style "spacious and elegant," but they are badly lighted for Exhibition purposes, and display to small advantage the immense collection of photographs with which the walls are now crowded. Only the exhibits that had the good fortune to be placed near the windows looking upon the street can be studied with real pleasure, though nearly everything shown is worthy of more than a passing glance. When the committee of officers representing the German and Silesian societies of Friends of Photography and the Union for the Promotion of Photography of Berlin resolved to commemorate the golden jubilee of Daguerre's great discovery by a suitable exhibition in the German capital, they were confronted with the fact that all over the world the friends of the art were filled with the same laudable ambition to outdo each other in similar displays, and even in Berlin itself they were threatened with the possibility of a concurrent exhibition. Nevertheless, they carried out their plan, and have reason to be well satisfied with the success of their efforts. All the kingdoms of Europe and the whole wide world responded to the invitation to send something worth seeing to Berlin, and even France is not without representation, the Henry Brothers, of Paris and an amateur in Savoy making exhibits. England, Scotland, Norway, Sweden, Holland, Belgium, Russia, Austria, Hungary, Italy, Spain and Portugal are well represented, and there are contributions from India, Ceylon, Japan and the United States. It is not probable that the vestibule to such an exhibition—where, perhaps the majority of visitors scarcely pause longer than necessary to procure tickets and deposit umbrellas and walking sticks—would be considered by a contributor the most eligible place for the display of his pet picture ; yet it happens that in this particular instance the lofty vestibule of the Konigliche Kriegs-Akademie, very well lighted from the street, furnishes the best spot that could have been chosen for showing to advantage the huge photographs of Rocky mountain scenery and splendid landscapes of the American Northwest and California, sent from the ends of the earth by H. H. Jackson, of Denver, Col. The glories of the Yosemite and Yellowstone, "Old Faithful," the Great Falls, the Bridal Veil, El Capitan, Pike's Peak and Mt. Shasta, are presented in all their grandeur.

FOR THE ADMIRATION OF BERLIN.

No less fortunate in position are the contributions to the scientific section from the Lick observatory, John Hopkins and Harvard. The careful work of Professors Edward C. and William H. Pickering shows to full advantage beside the best results of the European scientific men and astronomers, and such state institutions are represented as the Russian imperial observatory at Polkowa, the Paris observatory, the Potsdam observatory, the Polytechnicum of Brunswick, the Royal Technical High School of Berlin.

The exhibition is arranged and subdivided with thorough German method, the chief divisions being first, an exemplification of the development of photography from the metallic silver plate process of Daguerre up through the talbotype, collodion and gelatine methods to the more recent advances of the art in the direction of color production, special analysis, astronomical and microscopical photography and printing processes from stone, metal, glass and gelatine, and then an exhibit of results achieved, subdivided under the heads of scientific photography, photographic printing processes, portrait photography, instantaneous, genre and miscellaneous work, landscape and architecture, apparatus and chemicals, photoceramics and photographic literature.

It is not the purpose of this letter to attempt a systematic description in detail of the very instructive and interesting collection thus got together in Berlin, nor review the astounding development in half a century of the fascinating art which seems yet only at the beginning of its boundless possibilities, but only to touch upon a few of the striking features, such as interest everybody, whether coversant with the technicalities of photographic manipulation or not. Among the first of such features, sharing with Mr. Jackson's fine pictures the wall space at the entrance, will be noticed the large interiors produced by Amseim Schmitz, the royal court photographer at Cologne. These views, together with others of the exterior of the Rathaus and Cologne Cathedral, though measuring fully a metre square, are not enlargements, but direct exposures made with the "pantoscop" lens, and some of the difficulties to be overcome, as in the case of the hall in the Gurzenict, may be realized from the fact that the length of exposure given in that case was three whole days ! Those who know the narrow streets, or rather lanes, of the cathedral city, will be astonished at the artist's success in obtaining such views as those of the façade of the Rathaus and a comprensive picture of the noble cathedral itself, free from distortion and on such a large scale.

Few professional photographers have the time and inducement, and not all amateurs the taste and skill, to demonstrate what may be done by means of

PHOTOGRAPHY IN GENRE COMPOSITION.

In a general way, amateurs have made that field one of their own, and have improved it in a bold and original manner far beyond anything ever attempted by professionals. It may be doubted if American amateurs are anywhere excelled in this department. Certainly, this Berlin exhibition would not indicate such a conclusion, though there are two or three excellent and interesting exhibits of the kind. One of them, by Mr. and Mrs. Anckorn, of Arbroath, Scotland, who enjoy the title of court photographers in that part of her majesty's realm, is a series of pictures of cottage life in old Scotia, including such subjects as will be well understood from their titles alone: "Auld Robin Gray," "When You and I were Young," "Bannock Baking," etc. Very funny work have the German printers made with some of the Scotch dialect inscribed under the views. Another married couple—Mr. and Mrs. H. S. Chamberlain, of Dresden, who, it may be

presumed, are also English subjects—send a set of 10 large platinotype reproductions of engravings of scenes in the Wagnerian operatic representations at Beyruth. The extent to which the platinotype and other printing processes that promise to be more permanent than the silver print, are shown in this collection at Berlin is noticeable, though the tendency has been in that direction for some years. The clear, rather cold tones produced are highly artistic for the treatment of some subjects, and though some will consider the effect too hard and cold for portraiture, they must admit that it is by contrast a relief from the monotony of glossy albumen paper. The truth is that for some portraits nothing could be finer, an effect like that of an exquisitely fine steel engraving being rendered. Particularly fine and admirable are the autotypes shown by Angerer & Goschl, of Vienna, and Heinrich Riffarth, of Berlin, and the platinotypes, by J. Pleizner, of Carlsbad, and A. & J. Hesekill, of Berlin, the latter exhibiting platinotype pictures on the Pizzighelli paper, which appears to be admirably adapted to the production of charming positives by this process.

In the quest for an unalterable medium great success has attended the making of carbon prints, but nothing finer is likely to be seen than the specimens produced by Franz Hanfstangel of Munich, who at this exhibition, beside numerous enlargements of portraits from life and copies of modern pictures, has a set of 25 magnificent carbon reproductions of old masters in a sepia tone perfectly suited to the subjects chosen, which, besides some of the best known pictures in the Berlin National Gallery, include the two

GEMS OF THE RYKS MUSEUM

at Amsterdam, Paul Potter's famous "Young Bull," and that other, so difficult to photograph in its true color values, Rembrandt's "Lesson in Anatomy," showing Prof. Nicholas Pietersz making a demonstration to an interested group of medical Students.

The true rendering of the relative values of colors—to say nothing of that philosopher's stone of the art, the rendering of color itself—has always been one of the stumbling blocks in the photographer's path, but it is fast being removed. Everybody who has often sat for a photograph has at some time discovered that blue and purple neckties, ribbons, etc., while perhaps appearing quite dark in color, invariably comes out very light, if not quite white, in the resulting picture, while yellow and red fabrics, though of dazzling brightness "take" very black. The reasons for this apparent transformation have long been perfectly understood, and in some cases special means have been taken to neutralize their effect; but it is only within a comparatively short time that the experiments of investigators have resulted in perfecting practical means, available to all photographers, of overcoming the difficulties which the correct photographing of color presents. That it is practicable, and that a very large amount of beautiful detail is lost in photographing even a landscape by the ordinary method, is demonstrated in the most convincing and interesting way by a collection of landscape views, in double sets, shown here by Obernetter of Munich, a man known all over the photographic world. Color correcting—Orthochromatism we should have to Latanize the word, though the Germans, with the adaptability of their language to word building, have a term ready made in "Farbentonrichtige"—is certainly a great success in the articles exhibited, and their study is very instructive. In each case the same subject is doubly photographed from the same point of view, on the same scale, at the same instant, and, under all conditions, exactly similar, with the exception that one negative is made on an ordinary dry-plate, and the other on one that has been rendered orthochromatic. The results are surprising, especially in the middle distance of landscapes, where hidden beauties of detail are brought out in a manner at once delicate and distinct, and in the sky and water surfaces it is seen that we are no longer in photography obliged to see dark blue represented by staring white, nor delicate yellow-greens by black. But in the direction of

REPRODUCING THE COLORS OF NATURE

themselves by photographic means, nothing has yet been accomplished beyond the plan of obtaining a set of negatives of a view representing the three primary colors—blue, yellow, and red—with a fourth in black, to supply outlines and deficiencies, and combining these by superimposed printings so as to get an approximation to natural neutral tints. This method, called in German "buntdruck" (parti-colored printing), is shown in the present exhibition by Albert Frisch of Berlin. It may not be out of place to observe that some very beautiful large pictures of Alpine scenery, produced apparently in an analogous manner, are in the Swiss section of the Paris Exposition, from the atelier of Orell, Fussli & Co., of Zurich.

In the department of scientific photography, beside the astronomical work, analysis of the spectrum and of the oscilating motion of electric light curves, there are many interesting examples of micro-photography, those which attract the greatest popular attention being a series of microscopic photographs greatly enlarged, showing the manner of detecting manuscript forgeries and "raised" checks, drafts, etc., by this method, and figures and letters erased or altered appearing again in phantom form to condemn the guilty penman.

Magnesium flash-light pictures are not numerous, but there is one fine set showing the costumes worn at a masked ball, taken by Ed. Vandeldon, of Breslau. In the capture of nature's own flash-light there is an interesting lightning picture, larger, but by no means as sharp, as the well-known flash caught by Mr. Binden at Wakefield.

Probably on account of being nearer to Berlin than any other prominent concern of the kind, the Steinheils of Munich make the largest and best display of lenses. Exhibits of cameras and apparatus of various kinds are fairly numerous and good; but there are no striking novelties, and the same may be said of what is shown in general portrait photography, enlargements, and pictures finished in oil, etc.

Notes and News.

Prof. Todd, of Amherst, who has charge of the expedition to Saint Paul de Loanda, on the west coast of Africa, to view the eclipse, has planned a system of pneumatic valves, to be operated by electricity, by which the photographic apparatus may be operated automatically during the period of total eclipse. The expedition has been delayed until this apparatus may be completed.

The solar eclipse expedition, of which Prof. David P. Todd is in charge, sailed on the sloop-of-war Pensa-

cola from the navy yard at 6:30 Wednesday morning, October 18th. She will go direct from here to the Cape de Verde Islands, and there refill her bunkers with coal. Thence she will go to Sierra Leone for more coal, and then stop at Fernando Po to get coal enough to carry her to St. Paul de Loanda, her destination. There the astronomers will disembark and go to Maxima, on the Quanza River, with a guard of marines, and there prepare for the eclipse, which is to take place on December 22. Maxima is about 100 miles inland. It is a Portuguese trading station.

Prof. Todd said: "We have a large equatorial, twenty cameras, and other instruments necessary for astronomical observations, photographing the phases of the eclipse and deep sea discoveries. We, unfortunately, have not Prof. Agassiz with us, but he says he will try to get away in about three weeks and meet the ship at Cape Town after she has landed the others at St. Paul de Loanda. The total eclipse will be visible in a path about 5,000 miles long and 100 miles wide. The path begins in the Carribbean Sea, and skirts along the northern coast of South America. It then stretches eastward and southward to Africa. An expedition from the Lick Observatory of California will view the eclipse, at French Guiana, South America."

Prof. Todd gave the following facts about his companions: Prof. H. F. Bigelow is his chief assistant. He is Professor of Mathematics at Racine College. He has devised several of the instruments that will be used by the astronomical observers. He was assistant astronomer at the National Observatory of the Argentine Republic at Cordova. Prof. Eben J. Loomis, for forty years in the Nautical Almanac Office in Washington, is the naturalist. He also will assist Prof. Bigelow. In 1879 he discovered the leaf-like formations of the maiden hair fern, which was pronounced by Prof. Asa Gray one of the most wonderful of botanical phenomena. J. E. Carbutt is the photographer. He also is an analytical chemist. His father made the negatives of the eclipse of 1869 for Prof. Henry Morton, who, in appreciation of those services, presented him with the camera and enlarging lens, and the electrical exposing apparatus, which he had used, and which will be used again at Maxima. Some of the dry plates used will be orthochromatic and moderately rapid, sensitometer No. 16, and some will be eclipse orthochromatic, sensitometer No. 27. The former will be used for taking the partial phases, and the latter will be used during totality with the intention of obtaining a more perfect image of the corona than has ever been obtained. The diameter of the sun on the photographs will be four inches, a greater diameter than ever before taken. The great mirror to be used in connection with the photography was made for Prof. Langley, of the Smithsonian Institute, by Prof. J. H. Brashear, at a cost of $10,000. E. J. Wright is the assistant photographer.

Prof. L. N. Jacobi is assistant astronomer and meteorologist. He will also make investigations in natural history. Prog. Cleveland Abbe, attached to the Army Signal Bureau, is the meteorologist. E. B. Preston, of the Coast and Geodetic survey, will make magnetic observations and gather information about gravitation. W. H. Brown, of the National Museum at Washington, is the osteologist and naturalist of the expedition. His assistant is A. H. Brown, his brother. H. S. Davis, of Princeton, is one of the assistant astronomers. He will give attention to the adjustment of the instruments, at which he is an expert. G. E. Van Guysling will study the winds and clouds, and on the voyage will send up a lot of little red balloons. C. A. Orr is the ethnologist and ornithologist. Heli Chatelaine, master of a dozen languages, including Portuguese is the interpreter. George T. Flint is the stenographer and typewriter. Dr. Bartlett is the apothecary and professional nurse. On the coast the party will drink water that has been boiled and filtered to preserve them from the deadly African fevers. Nevertheless Prof. Todd and all the rest have made their wills.

Prof. S. W. Burnham, accompanied by Prof. Schaeberle, is now in this city preparing to sail for Trinidad at the close of the month and meet the solar eclipse party there. Professor Burnham carries a 5 x 7 St. Louis camera, made in the well-known American Optical Company's Works, and Prof. Schaeberle takes with him a Waterbury Detective camera.

A New Telescope For Harvard.—A new telescope has just been completed by Alvan Clark & Sons for the Harvard observatory. It will be used for photographing stars. The instrument is now in position at the observatory. It is adjusted to cover a stellar region about ten degrees square. The lens had been in use previously in an instrument bearing the name of "Voigtlander und Sohn, Wien," and the number 20,000. Its diameter is eight inches. The Clarks have reground it and changed the color correction, also the spherical aberration, improving the glass and adapting it to its new use.

Plates, 8x 10 are used for the photographic work. The telescope is equatorially mounted, and its movements are controlled by driving clockwork, which is in communication with a chronometer in the main observatory. The new telescope is paid for from the Draper fund, and is a valuable addition to the astronomical department of the university.

Photographic Work done at the Lick Observatory in California is highly appreciated by European astronomers. They say that by combining Mr. Bernard's fine series of negatives of the total solar eclipse of last January, Professor Holden has produced a perfectly marvellous wealth of detail. Among the notable results of these investigations is the discovery that the so-called polar rays of the corona can be traced all around the sun's circumference, even at the equator, and that they must be regarded as a special typical form.

A Good Idea.—The Washington *Post* of recent date, says: "The photographic camera is now coming into use as a means of determining the exact relative position of horses in closely contested finishes of heats. If it works well, we advise the State of West Virginia to buy a camera and set it up before the next Gubernatorial election.

An Exhibition of Photographs will be held at the Rooms on the Society of Amateur Photographers of New York, during next month, commencing Thursday, Nov. 7th, and continuing until Friday, Nov. 29th. The Rooms will be open each day to the friends of the Members of the Society, (members, of course, having always admission) from 11 A.M., to 10 P.M., excepting the evening of Tuesday, Nov. 12th, the date of the regular monthly meeting.

There will be no charge for cards of admission, and no restriction as to the number received by a member. Those

members who may desire to have more cards than sent to them, can obtain them on application to the Secretary of the Society, who will be at the rooms every evening of the week before the Exhibition, after 8 o'clock, and evenings during it. Applications by letter will receive prompt attention.

Photographs wholly or partly the work of members will be admitted to the Exhibition. Though unframed photographs will be received, it will much lesson the labor of hanging the pictures if the exhibits are framed. Photographs shown at previous exhibitions, either in this city or elsewhere, will be admitted, excepting those shown at the exhibition at the rooms last autumn.

All exhibits should be plainly marked with the name of the exhibitor, the title of the picture, and "For Exhibition."

Exhibits will be received until 10 o'clock, Saturday evening, November 2d; it is requested that they be sent in before that date.

As it is very likely that an exhibition will be given by the Society next Spring at some public gallery in this city, it will be well for members to reserve photographs for that occasion, for the society will then wish to make a better showing of pictures than at the exhibition next month.

Photographic Societies.

THE DETROIT AMATEUR PHOTOGRAPHIC SOCIETY.

THE "Detroit Amateur Photographic Society" was organized October 1st, 1889. The following officers have been elected, to continue in office until the January meeting: President, James Joy; Vice-President, H. L. Wilton; Secretary, Jos. E. Lockwood; Treasurer, D. Farrand Henry.

HOBOKEN CAMERA CLUB.

THE Hoboken Camera Club has just returned from its second annual tour. They started for Pike County, Pa., to take views, and all went well until they reached Port Jervis with their party of twenty-five. Here the driver was arrested for alleged fast driving by a drunken policeman, and the whole crowd went to the station-house, cameras and all, to protest against the outrage. The complaint was dismissed and the officer reprimanded for the unwarranted arrest.

THE HARTFORD CAMERA CLUB.

THIS club has voted to join the New England Lantern Slide Exchange. This exchange is composed of the photographic sociaties of the principal cities of New England, and its object is to facilitate the interchange of sets of slides illustrating the various cities or merely views of general inferest. As a member of this exchange a club must furnish a set of fifty slides before December 1, made from negatives taken by its members. It has been decided that the first set by the Hartford Club should be of views in and around Hartford, and each member is therefore requested to look over his negatives and send such as he may have of the above description to the club-room, or notify the secretary and they will be called for. Furthermore, a duplicate set is to be sent to England, in return for which it will be the club's privilege to receive slides of the different English cities. The annual exhibition of the club will occur about the middle of November.

THE PHOTOGRAPHIC DEPARTMENT OF THE BROOKLYN INSTITUTE.

THE Department of Photography at the Brooklyn Institute held its first fall meeting, October 9th, at the Institute Building, 200 Washington Street. President Alexander Black occupied the chair. On behalf of the Excursion Committee, Mr. John H. Dingman reported upon the summer photographic trips of the department, making some valuable suggestions as to future work in this direction. Mr. Dingman's report was accompanied by an exhibition of prints and lantern pictures illustrative of summer work. Various slides were also shown for the purpose of comparing various formulas for developing. Mr. Cook showed a number of slides developed with "pyro"; Mr. Dingman exhibited some admirable wet-plate slides. Dr. Meeker's pictures were made with "iron," and a batch by the President and others were made with hydrochinon, iron, and by the wet-plate method.

NEW ORLEANS CAMERA CLUB.

THE regular monthly meeting of the New Orleans Camera Club was held at the club rooms, No. 3 Carondelet Street, with Vice-President Joseph A. Hincks in the chair and Secretary C. H. Fenner at the desk. Eleven members were present. The minutes of the preceding meeting were approved as read.

Rev. D. L. Mitchel, Chairman of the Committee on Club Improvements, reported progress. The dark room was nearing completion, and when finished would be a model of convenience. An electric fan will drive air through a tube into each compartment, and an electric light bulb will hang in front of each window. Lockers for members to keep their chemicals, etc., will also be furnished.

Under the head of new business Mr. Mitchel moved that the club give an excursion over the line of the Mississippi Valley road on or about October 27 instant. Rev. D. L. Mitchel and Messrs. E. E. Wood and P. E. Carriere were appointed a committee to make arrangements.

Mr. Mitchel moved that the club give a public lantern-slide exhibition on or about the 20th of November, the proceeds of the exhibition to be devoted to the club funds.

The following committee were appointed to collect the necessary slides and make whatever arrangements are necessary to assure the success of the exhibition.

Mr. Lewis moved that the members be requested to contribute prints to fill up frames in the club rooms. Messrs. Moulton, Castleman, and Lewis were appointed to aid in collecting the prints.

The President urged upon the members the importance of collecting as many slides as possible, in order to have them ready for shipment to the Lantern Slide Interchange by the 15th of October.

Mr. C. W. Wood was elected to membership by acclamation.

The thanks of the club were unanimously tendered Mr. Horace Carpenter for his gift, a very handsome silver doorplate, which now embellishes the club-room door.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting ot the Society was held Wednesday evening, October 2nd, 1889, with the President, Mr. Frederic Graff, in the chair.

The Committee on Lantern Slides reported that at the September Conversational Meeting slides were shown by Messrs. Bradway, Pim, Rolfe, Ennis, Rau, Walker, and Rosengarten. These shown by Mr. Walker were a fine series of views in St. Augustine. Mr. Rosengarten had a good photograph of the U. S. S. *New Hampshire*, Mr. Rau some Boston views, Mr. Ennis marine subjects, and a number of slides representing Mexican scenery from negatives by Dr. Jordan were also shown.

On behalf of the Joint Exhibition Committee, Mr. Bullock asked for an expression of opinion as to the desirability of continuing the agreement, and also in regard to the adoption of a medal for distribution at future exhibitions in place of the diplomas heretofore used.

On motion of Mr. Wood, it was resolved that the Society express its approval of the continuation of the agreement for another term of three years; that Messrs. John G. Bullock, Robert S. Redfield, and Samuel M. Fox be appointed to represent the Society in the Joint Exhibition Council, and that they be authorized to take such action as may be necessary towards the adoption of a suitable medal in coöperation with the other Societies for distribution in connection with future exhibitions.

A paper on the new developing agent known as "Eikonogen," was read by Dr. Mitchell.

Referring to the statement that the solution was green in color, Mr. Bullock remarked that the pure aqueous solution was pink, and that the green color was induced by the sulphite of soda contained in the developing solution.

Mr. Walmsley spoke most favorably of the new developer, stating that he had used it without the addition of any alkali with excellent results.

Mr. Bullock thought this was owing to the presence of some carbonate of soda in the sulphite.

Mr. Wood had found difficulty in correctly timing the exposures of transparencies on slow gelatine plates, but with plates as rapid as Cramer's 50's, at a distance of ten to fifteen feet from the source of light, he had obtained excellent and certain results with about one second's exposure.

Messrs. Rau and Dillon questioned whether a desirable color could be obtained with such rapid plates.

Mr. Supplee called attention to some plates he had recently seen coated with an opaque varnish for use in that species of etching in which a glass plate forming a negative was used, instead of a copper plate and the usual process of biting by use of acid. The process was similar to that in use for twenty or thirty years, in which a plate was coated with collodion, sensitized, exposed, and developed, and then used as a surface on which to operate with an etching needle.

Adjourned.

Robert S. Redfield,
Secretary.

THE CHICAGO CAMERA CLUB.

THE feature of the Chicago Camera Club meeting at 182 Wabash avenue, Friday evening, October 11th, was the presence of Profs. S. W. Burnham, an honorary member of the club, and J. M. Schaeberle of the Lick Observatory, who are passing through Chicago on their way to Cayenne, in French Guiana, where they go to observe and photograph the eclipse of the sun December 21.

Both of these gentlemen have devoted themselves to the work of sidereal photography, and Prof. Burnham's work especially has given him rank among the first living astronomers.

Prof. Schaeberle said to a Chicago *Times* reporter: "We are taking with us the six-inch equatorial telescope from the observatory and a large stellar camera besides, with both of which we propose to photograph the corona as often as possible. Of course the success of our expedition depends on the weather at Cayenne at the time of the eclipse. If we have two or three minutes of clear sky we anticipate results of the utmost importance. The sun's corona is one of the unsolved puzzles of the sky. It can be classed with comets' tails and the zodiacal light as the three things that we know next to nothing about. It is just possible that the coming eclipse will throw a great deal of light on the question," and the professor smiled as he got off this cosmic bull, "for we are prepared with better appliances than ever before. We are going to take a number of views at different lengths of exposure, and as the British expedition is to be stationed in Africa and is to do the same sort of work, several hours later than we, if everything goes right we will have data about the corona written by itself on gelatine which will be new and of the utmost importance."

"What is the coming astronomical sensation, professor? What is it that you gentlemen are finally going to tell us as the result of your new methods and new instruments?"

"Who can tell what photography may do? Its results are absolutely amazing. It may tell us finally the structure of the universe. I have only lately received some plates made by Prof. Roberts in England which absolutely prove the spiral formation of the great nebula in Andromeda—a thing which was not even suspected before. This nebula was apparently made up of a tangle of disordered elements, reaching without rule in every direction. On the photographic plate it comes out a complete spiral. You see, with the very best telescope there is a mechanical limit, beyond which the human eye cannot go. That limit does not exist in sensitised gelatine, because it goes on accumulating impressions and it records the sum of the light vibrations that fall upon it. Keep your plate fixed upon a certain point in the sky long enough and stars which are utterly beyond the reach of the best lens that ever was ground will picture themselves on it. You can understand the process by figuring it to yourself as if so much light was poured upon the plate and held there as in a cup. It gives us an indefinitely enlarged means of gathering and holding star pictures.

"And you would hardly believe the practical difficulty of accurate stellar photography. You can't trust the best clock-work that can be made; the observer must keep some guiding star on the cobweb with his eye during the whole of the longest exposure or he will get a blur instead of a picture. I confess I am an enthusiast about stellar photography. I believe it will solve mysteries that completely balk us now."

"What have you done with the great Lick telescope so far?"

"A great deal. We have resolved more double stars since the telescope was swung than the whole number known before."

"That has more of a scientific than a general interest, Professor. What can you tell us new about Mars?"

"Mars has been in very bad position for study ever since we began work with the big glass; nor will the conditions be favorable until 1892, when it comes into apposition. We have had some good views of Saturn, but none of the nearer planets have been where we could get at them properly. Some of the more distant nebulæ have been resolved into star clusters, but that, of course, was merely a confirmation of what the spectroscope had already told us."

Both of the astronomers addressed the camera club on their mission and work, the speeches being chiefly concerned with the technical manipulation and difficulties of sidereal cameras. Before the club adjourned C. D. Irwin showed a copy of Prof. Willoughby's notorious photograph of "The Silent City," which, it will be remembered, made such a stir in the scientific world a month ago. Willoughby claimed to have photographed a mirage which he saw in Alaska with the amazing simulacrum of a populous city in the clouds. The photograph seems to be very like a cloudy view of the town of Cork taken from Monte Notti, with Shandon steeple very plainly showing. Mr. Irwin said the picture was undoubtedly a "fake," but an interesting one on account of the claims made as to its remarkable origin.

Dr. Garrison read Capt. Abney's paper on the scientific achievements of photography, as published in a recent number of the *Scientific American*, and Mr. F. K. Dunn (a member of the club) showed a very complete detective camera and walking stick tripod, both of his own invention and manufacture, which were very much admired. The secretary announced the arrival through the Custom House of a lot of the new developing agents, Pyrocatechin and Para-phenylendiamin. These were imported by the club, and are thought to be the first lot in this country. They had arrived too late for demonstration at this meeting, but specimens were given to the numerous chemists and experimentists of the club, and the results of their investigations will be given at the next meeting. The club's medal for the best picture made at the Riverside Outing was awarded by the judges to Mrs. Zilda E. Mackie, with honorable mention to Messrs. James H. Smith, W. H. Shuey, Gayton A. Douglass and Mrs. N. Gray Bartlett. The judges announced that they had great difficulty in making a selection, the uniform excellence of the exhibit was so great.

WE have received from Charles J. Glidden, of Lowell, Mass., another photograph, in which we recognize the same wide-spreading willow tree shown in his two previous pictures. This time the subject is a colored boy, and the picture is trimmed upright in a tasteful manner.

Record of Photographic Patents.

412,953.—Mount for photographs. Herbert N. Gale, Bristol, Conn.

413,106.—Art of Making Photographic Pictures. William H. Stauffer, Asbury Park, N. J.

11,034.—*Reissue.* Photographic Developing Bath. Charles Spiro, New York, N. Y.

Queries and Answers.

208 "A SUBSCRIBER" asks (1) "What is the best plan for making a tank for washing silver prints?" (2) "How long should they be washed in running water?"

208 *Answer.*—(1) One made of wood, dovetailed, and varnished with shellac or asphaltum. (2) At least two hours.

209 M. C. GRANGER asks us to tell him how to make the compound used for painting the bright metallic parts of machinery, so as to photograph them in better harmony with the dark parts.

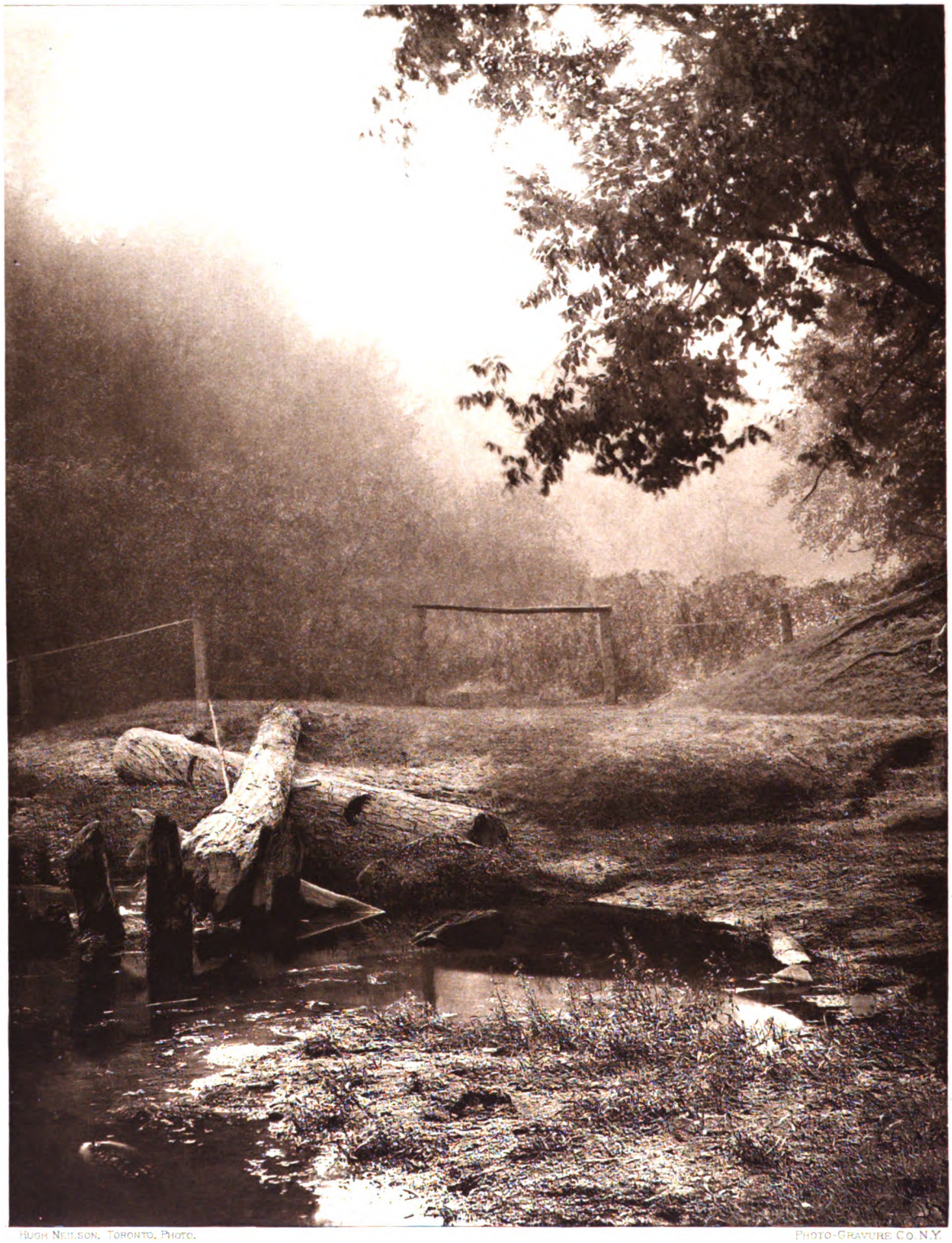
209 *Answer.*—Mix whiting with spirits of turpentine, to a convenient consistency, and add enough lamp-black to give it color. The compound dries with perfectly matt surface, and can be easily wiped off with a dry cloth.

210 H. W. GOULD wishes to know how to find the focal length of his lens.

210 *Answer.*—On the ground-glass of your camera draw two pencilled lines about one inch from each side edge. Now set up the camera (preferably upon some flat surface, such as a table, upon which is spread a sheet of white paper) before a window, and focus for some object, about one hundred and fifty or two hundred yards off, in which there is some distinct feature such as a church spire or a tall chimney. Make the image of this fall upon one of the pencil marks on the focusing screen, and with a pencil draw a line upon the paper along the side of the camera; now bring the image of the chimney or spire upon the other pencil mark on the ground-glass, and draw another line upon the paper along the other side of the camera; remove the camera, and with a rule, continue these lines till they cut one another, so as to form an angle, across which draw a line so as to form a triangle. This line must be exactly the same length as the distance between the two pencil marks upon the focusing screen. Find the center of this base accurately, and connect the junction or apex of the angular lines with the centre of the base. This line will be the true equivalent focus of the lens.

211 "LATERNA MAGICA" wants to know (1) how collodion emulsion is to be washed; and (2) the best recipe for making a good photographic gun cotton.

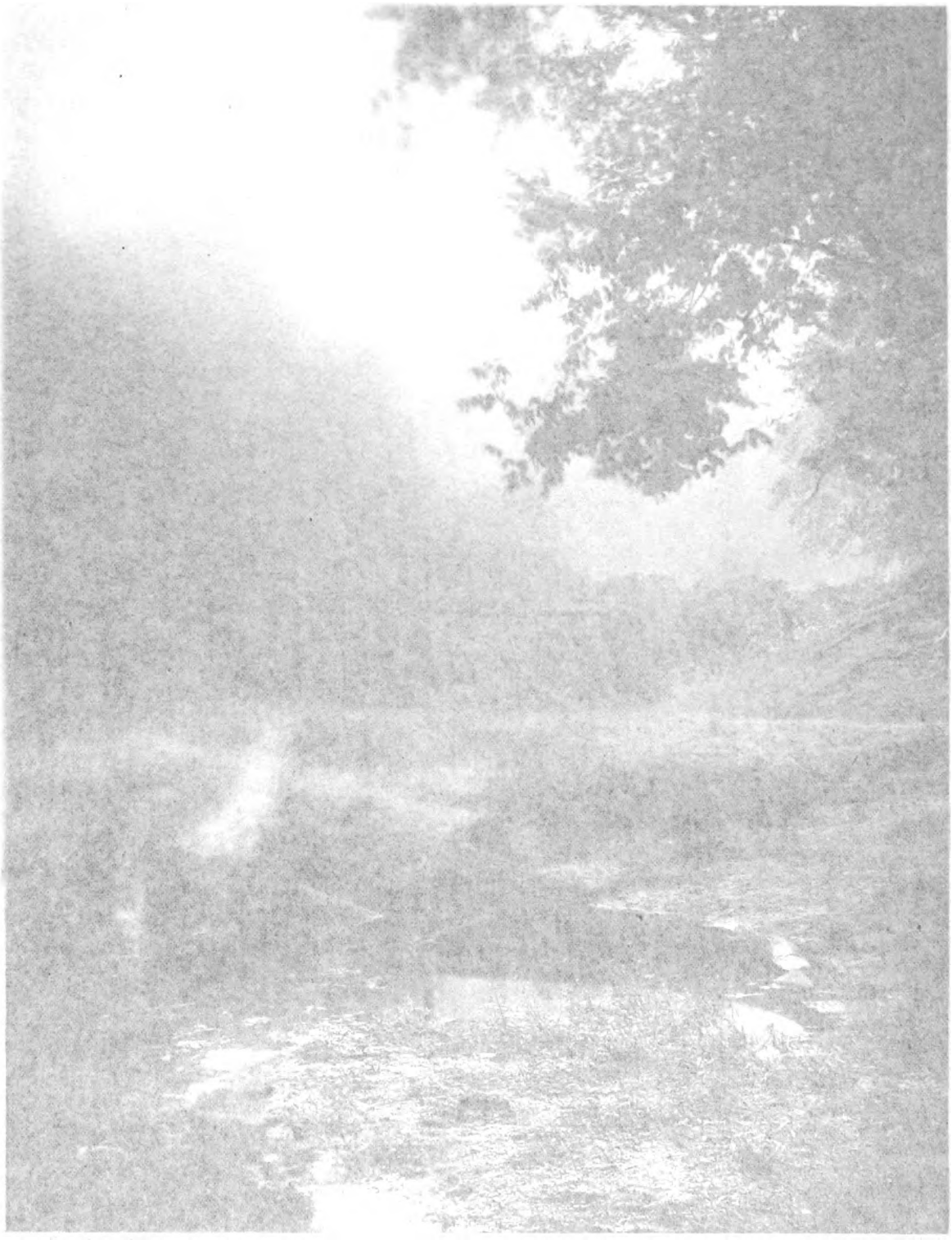
211 *Answer.*—(1) When the emulsion is in proper condition, pour it into a flat dish, and stir with a glass rod until the greater part of the ether alcohol has been evaporated. Next cover the emulsion with distilled water, continuing to stir it, and changing the water several times, till the usual test for silver with hydrochloric acid, and for bromides with nitrate of silver, does not reveal the presence of either of them. The washing should be done rapidly. When completed, the pellicle must be pressed between bibulous paper in order to remove as much of the water as possible, and then dried spontaneously. The work must be conducted in the dark, of course. When the emulsion is dry, redissolve it in the original proportions of ether and alcohol. (2) See Dr. Eder's formula on page 55 of "The American Annual of Photography for 1888." We do not advise you to make gun cotton, however. It is cheaper to buy it, and in all probability you would get a better article than you could make yourself.



HUGH NEILSON, TORONTO, PHOTO. PHOTO-GRAVURE CO. N.Y.

INDIAN SUMMER.

PHOTOGRAPHIC TIMES.



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INDIAN SUMMER.

NOT often do we find a landscape photograph possessing so much of what artists call "feeling," as the excellent one by Hugh Neilson which adorns THE PHOTOGRAPHIC TIMES this week. And how satisfactorily the picture fulfills the idea of the title! It is truly an "Indian Summer" scene. "The day was cloudy," writes Mr. Neilson, "and the light very yellow. The haze in the ravine was so very dense that a long exposure was necessary to get any detail in that part. The scene is in a ravine within a few yards of our Necropolis [Toronto]. The small stream empties into the Don River. * * * * Toronto is growing so fast that our amateurs find all the nice spots near the city are taken up with buildings, railroads, &c., and a train or steamer is required to convey them to suitable places for pursuing the art." The picture was made, (Mr. Neilson further states), about half-past four in the afternoon of a beautiful day in the latter part of October, 1887. The exposure was fifteen seconds long, and the plate [a Cramer 30] was developed with pyro and soda.

In reference to the photo-gravure, Mr. Neilson writes that he is much pleased with the reproduction from his negative. "At first," he says, "I thought the color was almost too brown, but it grows on one, and I now think gives a very good representation of the scene."

We understand that this picture has taken several prizes in photographic exhibitions, and has elicited a wide-spread admiration wherever shown, and we are sure our readers will appreciate its quiet beauty and natural charms.

VIGNETTES AND VIGNETTING.

II.

THE first vignetted photographs were made by moving a piece of cardboard of the proper size, with a hole cut in the center a little smaller than the size of the head, back and forward over the plate, during the printing process. The printing was effected in direct sunlight, and the cardboard was rapidly moved backward and forward in front of the plate, very much as we now vignette a bromide enlargement.

On account of the great additional labor involved, and the tedious character of the work required to make a vignetted photograph in this way, such pictures were priced much higher than ordinary plain photographs in the olden days. Later, however, the hole in the cardboard was made much larger, the edges lined with cotton batting, and the print made in diffused light. The vignetter could then be properly adjusted over the printing-frame, and did not require the rapid motion by hand, over the plate, as was at first required. The results were no better, if as good, as by the earliest method, but much time and labor were saved, and vignetted photographs could be sold as cheap as plain prints.

About 1857 George Penabert (then a partner of C. D. Fredericks) introduced the first reasonable method of making vignettes in this country, having learned it in Paris. It has been used in a more or less modified form, up to the present time, and is still largely employed. He used a cardboard with a hole in it, as before, but placed the vignetter about one inch distant from the negative, and printed in direct sunlight, under tissue paper which was fastened directly over the opening. Professional printers still construct their vignetters according to this plan, but prefer to make an individual vignetter exactly to suit a given negative. A vignetter, in principle like that introduced by George Penabert, was manufactured and sold in large quantities in the photographic shops. Most professionals, however, have always preferred to make their own vignetters.

The vignetter introduced by Mr. Atwood is an excellent one, and has not yet been entirely superseded. It is placed on a movable plane, and can be raised or lowered at either end of the frame,

so that light can be admitted or intercepted wherever the transparency or opacity of certain parts of the negative may require modification.

Vignetters cut in undulating or sagittated lines are perfectly useless, for when placed too near the negative the irregular outline is visible upon the print; and, when removed to a proper distance, the effect is no different from that produced by an uninterrupted outline.

Good vignettes cannot be made from all negatives. In the first place, the background of the photograph must be of moderate tone and intensity; and, secondly, it is required that the negative be of sufficient density to make a good print under ordinary circumstances. A very feeble negative may print well enough to be properly toned when the background is used, but when that is vignetted away, a dull and monotonous effect cannot be prevented in the toning bath. A hard negative produces chalky prints under the best of circumstances. When vignetted, the harshness of such a negative is only enhanced. The best negative for vignetting is one which has average printing intensity, with half tones well developed and the middle tints well brought out.

The distance of the vignetter from the negative and the size of its opening regulate, of course, the effect in the finished prints. When the opening is too small, not enough light is allowed to pass upon the negative; and when it is too large, only the extreme edges of the picture will recede in the vignette. The farther the vignetter is from the negative, the softer will be the vignetting; the nearer the negative, the more abrupt.

The opening of the vignetter should be a little smaller than the head of the negative, widening, pear-shaped, toward the shoulders and body. For a negative of moderate intensity, the vignetter should be placed about one inch above the plane of the printing frame. When very dark draperies (like black velvet) are shown in the negative, the vignetter should be inclined towards that end of the negative in which such dark draperies appear.

The tissue-paper used for covering the opening must be of excellent quality, without holes or black spots. To increase the time required for printing, the tissue-paper may be doubled; and this often improves the effect.

When printing from a vignetted negative, the frame must be placed so that the sunlight shall fall vertically upon it; for when the sun shines upon it in oblique rays, the vignetter cuts off part of the negative at one end, and the light enters too far under the vignetter at the other end. Careful vignetters, therefore, move their frames in accordance with the changing altitude of the sun.

The toning of vignetted albumen prints differs materially from that of plain prints. The time required for sunlight to fully print out a negative, seems to influence the toning process. All toners know that quick printing in direct sunlight requires very different treatment from a more prolonged printing in diffused light. But of this we must treat in a future article; also of vignetting landscapes, of which we have not spoken at all in this or the preceding article.

EDITORIAL NOTES.

WHY do silver prints fade? Very many answers can be, and are, given to this query; but it is undoubted that one most important, if not the very foremost, cause is the presence of sulphuric acid in the atmosphere, its presence being due to the combustion of the sulphur present in most kinds of coal. To those who have given no thought to the question the quantity so produced is extraordinary, and, indeed, it is enormous. A London medical journal, discussing this question, states that three hundred and fifty tons of sulphur are thrown into the air every winter day in London, a quantity which represents about a thousand tons of monohydrated sulphuric acid, not merely wasted, but employed in mischief. Can it be wondered at that photographs fade when kept in such an atmosphere? The wonder rather is that such a delicate chemical result as a silver print should not dissolve away into nothingness far sooner than our constant experience of its qualities indicates.

THE cause of the singular property shown by silver in refusing to dissolve in pure nitric acid, as described by us a little while ago, has formed the subject of investigation by several eminent chemists with results that are both interesting and unexpected.

Mr. Veley in his paper read before the Royal Society of London, described how, when he tried to dissolve small spheres of pure copper in a mechanically stirred vessel containing dilute nitric acid, an extremely small quantity was taken up by the acid, though the quantity dissolved in a given period of time began to increase after a while. Further investigation showed that the increase was due to the action of the nitrous acid liberated at the time of dissolution, for upon adding urea, which entirely decomposes nitrous acid into carbonic acid and nitrogen, the solvent action of the acid was entirely arrested, so that Mr. Veley formulated his

results by saying that "copper by itself will not dissolve in dilute nitric acid by itself," and the same explanation holds good with regard to silver dissolving in nitric acid. The publication of Mr. Veley's paper was followed by that of similar results obtained by Messrs. Cross and Brown in '87, but not hitherto published.

THE chemistry of chlorophyl, interesting to photographers on account of its value in isochromatic photography, has recently been treated in a book by Dr. E. Schunck, from the paper of which all at present known on the subject can be gleaned. At the outset we are met by the query "what is chlorophyl?" and we quickly learn that on this subject "doctors differ," the author of the work we speak of adhering closely to Messrs. Pelletier and Caventon's definition, "simply the substance, or, it may be, the mixture of substances, to which the pure green color of ordinary leaves and other vegetable organs is due." It is shown to be a very unstable compound when isolated, and very sensitive to the action of acids. Dr. Schunck's further conclusions are, that it is modified by the action of alkalies, that it has not yet been obtained in a state of purity, and that in the plant it probably exists in an amorphous state. He obtains an approximately pure solution by mixing an alcoholic extract of grass with twice its volume of water, agitating with ether, which takes up chlorophyl, and leaves behind certain yellow coloring matters. Referring to its action on light, Dr. Schunck considers that the bands at the blue end of the spectrum do not belong to chlorophyl as understood by him.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII. (*Continued*).

SULPHURIC ACID.

Formula, H_2SO_4. Combining weight, 98.

Sulphuric acid may be considered as sulphur trioxide (SO_3—a white crystalline solid) combined with one molecule of water. It is prepared by burning sulphur, or some ore of sulphur in air, and passing the gas thus formed (sulphur dioxide, SO_2) into a leaden chamber, where it meets with nitric peroxide and steam, and is converted into sulphuric acid. The common or commercial acid thus obtained has a gray tint, and usually contains small quantities of arsenic (from the ore) and lead. The pure acid is obtained from the commercial by distillation in platinum or glass retorts.

Commercial sulphuric acid is commonly called *oil of vitriol*. It is a heavy, oily liquid (specific gravity 1.84), boiling at 640 deg. Fahr. It burns the skin, clothes, or indeed almost any organic substance upon which it falls, blackening them at the same time. This is due to the fact that it extracts *water* from these substances, leaving their carbon behind. When mixed with water, the heat produced may exceed boiling-point, and for this reason the mixing should always be done in *thin* glass vessels or jugs, the acid being always *added to the water*, in small quantities at a time, and with frequent stirring.

The white precipitate which appears is sulphate of lead, which is insoluble in the dilute acid; it may be allowed to sink to the bottom, and the clear liquid then poured off. Owing to its power of absorbing water sulphuric acid is often used for drying substances without heat; the substance and the acid being placed in separate dishes, under a glass shade.

Sulphuric acid dissolves all the ordinary metals except gold and platinum. Hence it is often used for the separation of gold from silver, the latter being dissolved, and the former left behind as a dark powder.

The presence of sulphuric acid, or any soluble sulphate, in a solution, may be detected by adding a few drops of barium chloride, when a white precipitate, insoluble in nitric acid, will be formed.

SULPHUROUS ACID.

Formula, H_2SO_3. Combining weight, 82.

The true sulphurous acid is formed by dissolving sulphurous acid gas (SO_2) in water. This gas—also known as sulphurous-anhydride, and as sulphur dioxide—is best obtained by the action of sulphuric acid on copper, aided by a gentle heat. One volume of water, at ordinary temperatures, dissolves fifty volumes of the gas. The solution turns blue litmus red, and has a sour taste.

Sulphurous acid forms a series of salts called *sulphites*, which are easily decomposed by the stronger acids, SO_2 being liberated.

TANNIC ACID (TANNIN).

Formula, $C_{14}H_{10}O_9$. Combining weight, 322.

The nut-galls of the oak, excrescences produced by the action of insects, contain nearly half their weight of tannic acid, which is extracted by soaking the powdered galls in washed ether. From its origin it is sometimes called gallo-tannic acid. When the ether is subsequently evaporated the tannin is obtained as a yellowish amorphous substance, very soluble in water, less soluble in alcohol. It has a strongly astringent taste, and reddens blue litmus.

With the ferric, or per-salts of iron, tannic acid gives a black precipitate, which is common writing-ink. When exposed to the air, or when treated with dilute acids, tannic acid is decomposed into gallic acid, and glucose. It yields pyrogallic acid when heated to a temperature of 400 deg. Fahr.

Gelatine and albumen are precipitated by tannin; with the former it produces a tough material, which is practically leather.

Tartaric Acid.

Formula, $C_4H_6O_6$: Combining weight, 150.

When grape-juice is fermented—as in the manufacture of wine—it deposites an impure acid potassium tartrate, which is known as lees, tartar, or argol, and from which tartaric acid is made by the addition first of chalk, then of calcium chloride, and lastly of sulphuric acid.

Tartaric acid forms large, prismatic, colorless crystals, soluble in half their weight of water, and in alcohol. The aqueous solution does not keep well.

Thiosulphuric Acid.

Formula, $H_2S_2O_3$: Combining weight, 114.

This acid, formerly called hyposulphurous acid, is not known in the free state, but salts of it exist; the sodium salt $Na_2S_2O_3+5H_2O$ is the familiar "hypo" of the photographers.

Uranium Nitrate.

Formnla, $UO_2(NO_3)_2+6H_2O$: Combining weight, $396+108=504$.

Uranium is a rare metal, whose chief source is the ore called *pitch-blende*. By treating this ore with nitric acid uranium nitrate is obtained. On evaporation it forms fine yellow crystals which are soluble in half their weight of water, and which deliquesce by the absorption of water from the atmosphere.

Vanadium.

Symbol V.: Combining weight, 51.

Although known in its ores since 1801, vanadium was first isolated by Roscoe in 1867.

W. Jerome Harrison.

(*To be continued.*)

HISTORIC HOMES.

II.

Headquarters of General Knox.

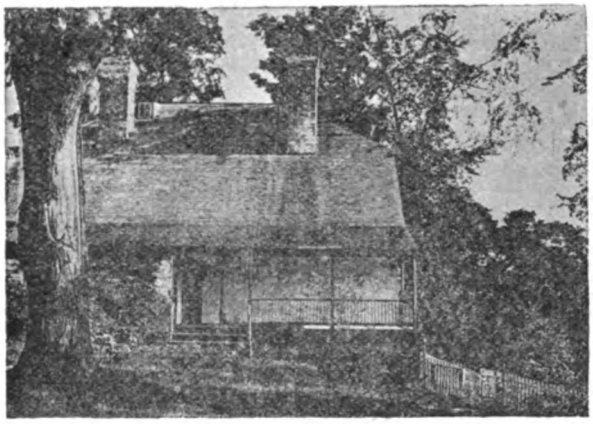
For the sake of having a few facts as pegs on which to hang our fancies, before visiting the headquarters of General Knox at New Windsor, we learned from a local historian "that Knox was born in Boston, 1750, was aid to General Ward at Bunker Hill, was on the court martial to try André, was one of the Peace Commissioners at the close of the Revolution, was eleven years Secretary of War under Washington, first proposed the Society of Cincinnati, weighed 280 pounds, died by swallowing a chicken bone in Thomaston, Maine, 1800."

Carefully stowing these important items in a light-tight corner of our brains, we packed up our photographic traps and made ready to take another historic home, this time without the trouble of crossing the river. These headquarters are really picturesque and none the less attractive to camera-hunters be cause the wild rose and bramble grow undisturbed about the door. The house was built in 1735 by John Ellison, one of New Windsor's earliest settlers, and greatly resembles the Hasbrouck House, headquarters of General Washington at Newburgh, except that it is not kept up museum-fashion, inside and out. When we drove down the little green lane, however, and crossed the bridge to approach it, we found its grassy orchard and long piazza well filled with chance visitors like ourselves. In response to our request to take a picture the woman in charge, who interviewed us at a side doorway, across an old mill-stone laid down apparently for pavement to the well, said: "Certainly, it's not copyrighted," adding, "another man came yesterday to do it inside and out."

Not a little amused at this unconscious unsexing of fellow photographers, we looked about, doubtful which was the back entrance and which the street-door. Candor compells me to state that I fear we took our view from the rear, because the setting sun favored us in that quarter. The house, however, has a Janus-like expression, its eastern front facing the aforementioned lane and its western the road from Newburgh over which we had driven. Revolutionary heroes had no fear of malaria, we judged, from the proximity of this old mansion to a mill-pond, but doubtless before the recent scientific photographs of miasmic diatrobes, people were too ignorant to dread these unseen foes which lurk in cameresque places, although then as now the same causes produced the same results.

To my mind there is usually one correct point from which to take a view and only one. Sometimes we shift about half a day looking for it, and again we hit upon it at the first try, but always all other poses are but makeshifts and second-bests. Of course, it may happen that one satisfies himself with another position, or that accidents of exposure and development favor some different composition, but nevertheless, there is yet the one desirable

spot to place the tripod, and on this magic square, circle or triangle I put up my machine after a single glance at the sloping, irregular roof and low dormer windows. The light was right, the shadows were right, the foreground interesting but not distracting, the distance quiet foliage, but, alas!—Once upon a time I read that a picture must never be divided into halves or thirds by large and prominent objects, such as figures, animals or trees, and here, equidistant from the edges of my plate were two gigantic elms. A critic advises us to take a small hatchet or saw on our camera trips, to trim off extra branches, but the trunks of these offending trees would have defied George Washington himself, so we went nearer and took the next best position, getting as a result the view given below.



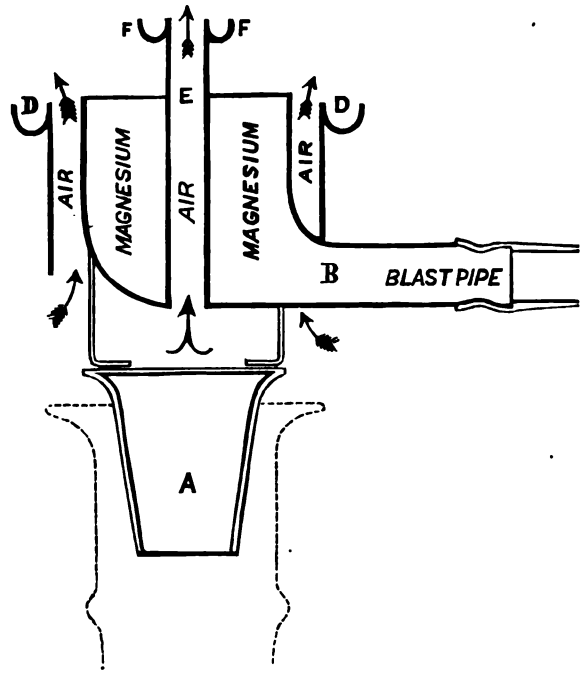
Afterwards we wandered down to the brook, and standing knee-deep in mint, took an upward shot at the gable end of the house; later we wasted a few plates in attempts to get the stone bridge which spans the road, finally returning up the steep bank, carrying enough blazing golden rod to solarize an over sensitive plate! We did not stop to hunt for the shy cardinal flowers, nor for the pink stalks of love-lies-bleeding, being in haste to imitate "the other man who took the inside of the house as well as the outside." Perhaps our predecessor took away substance and shadow, too, for after a dusty excursion from one low-ceilinged room to another, we unanimously agreed there was nothing to take but empty fire-places, cobwebs, and impalpable memories. Here, in the dining-room, Lossing tells us, "the accomplished Lucy Knox gave her choice *soirées*, graced by the presence of Mrs. Washington and other ladies of taste and refinement."

We wish we could materialize on gelatine these belles of yesterday, but although Sallie Jensen, Maria Colden and Gitty Wincoop have written their names here on a window-pane, we cannot catch their laughing images, hence this article, like our visit, must close without even a quarter of a second's exposure of these old, old girls, once so young and charming.

Adelaide Skeel.

A POCKET FLASH-LIGHT LAMP.

THE little apparatus, constructed with a view to burn the magnesium powder, employed for the production of flash-lights, of which I gave a brief account in a recent number of THE PHOTOGRAPHIC TIMES, seems to enjoy much popularity among amateur and professional photographers.



It may, therefore, be proper for me at this time to give the TIMES readers a little further account of this lamp.

After both of the fire troughs have been charged with cotton wick, saturated with pure alcohol, or a mixture of alcohol and benzine, and after a quantity of from one-half to six grams of pure metallic magnesium powder, without any admixture has been put in the receptacle provided for it, and everything about the lamp has been set ready for action, it leaves the very important point to select a place for the burning of the powder, to produce the proper illumination of the subject.

For a single portrait the light should be in close proximity, and placed at an elevated point, higher then the head of the sitter, and for groups the light should be moved further away.

Reflecting surfaces, mirrors, large panes of glass, etc., must be excluded from the back of the objective; neither should there be suspended from the

ceiling a chandelier, lamp, or anything that by its interference between source of light and subject may eventually throw abrupt and large shadows across the plane where the subject is placed. Curtains, when too near to the flame are easily set on fire, and precautions in that respect are recommended.

As soon as the alcohol has been ignited, the slide withdrawn in readiness for exposure, the cover removed, it requires the full attention of the operator in proceeding to make the exposure. A pressure upon the bulb with one hand, and the removal of the cap by the other is all that is needed.

Through the introduction of air to the centre and interior of the inner frame mantel, also by the lateral distribution of the magnesium powder, when it dashes against the second fire trough, the combustion of the metal becomes perfect, producing a very high intensity of light, in consequence of which over-exposures frequently occur.

It needs but short practice to learn exactly the the amount of magnesium required to produce the desired illumination of the subject at stated distances from the light source.

Very beautiful negatives have been made with this simple and modest little apparatus.

Augustus von Löhr.

WHY PRINTS FADE IN FIXING.

FREQUENT appeals are made by amateurs for a means to secure satisfactory tones on silvered albumen paper. To such the following may prove of some service.

The depth of color remaining in the print after fixing depends largely upon the amount of toning which the print receives. Of course the toning bath must be of fair proportions, chiefly strong in gold and test alkaline, to produce the proper color when toning. The print should be made deep, and if ready sensitized paper be used it should be well fumed.

Following the usual instructions given, the prints are to remain in the toning bath until—as apparent by their faces—they have turned to a deep purplish black. This alone, however, does not insure a non-fading print, as the ingredients used in many toning baths have a tendency to darken the faces of the prints before the gold penetrates sufficiently into them, leaving only a surface tone or color, which fades out very considerably in the fixing bath.

The faces of the prints may have assumed the deep color prescribed, but upon removing them from the toning bath and holding them so that the strong light may shine through them, it will be observed that some retain a red or brown shade, while those toned longer will appear quite black all the way through, and when thoroughly fixed it will be found that the lighter shades have fixed out still lighter, while the black ones will have lost little or none of their color.

This shows the amount of toning which does not fade to any extent during the process of fixing, and the toning bath may now be modified to produce the shade of black preferred by using a little more or less gold, or a little more or less alkali. After a few experiments one soon learns the proportions to be used to obtain the color required, and if the print be toned to its deepest shade in this—as apparent when examined as previously suggested—it will change but little, if any, in a fixing bath of proper strength. Care must be taken, however, not to carry this deep toning too far or the prints will assume a leaden hue, or sickly appearance, not at all desirable. *C. M. Brockway.*

Notes and News.

Late Photographs of Mrs. Harrison are said to prove what her friends often assert of her—that she has "grown younger since she entered the White House."

Mrs. Shaw, the American whistler, has lately had an immense photographic portrait made of herself in London for exhibition. It is said to be over nine feet high.

A bronze medal was awarded the Society of Amateur Photographers, of New York, for its Paris exhibit at the World's Fair in Paris, writes President C. W. Canfield, who has just returned from the other side.

The Camera Club of Washington has started on its rounds to photograph "The Ten Miles Square on the Banks of the Potomac." They intend to make a complete representation of the city, to illustrate the lecture which will be sent the rounds of the societies, who will exchange with similar illustrated lectures of their particular neighborhood.

A Photographic Feat.—One of the most remarkable feats of photography on record is the photographing the terrible explosion at Antwerp, or, if not the explosion, the immense cloud of smoke produced at the moment. The current number of *La Nature* gives an illustration copied from a photograph of the huge cloud that shot up in the air, roughly in shape like an inverted Florence flask, when the explosion occurred. It has been estimated as being 1700 or 1800 feet across, and, according to the journal quoted, the cloud remained motionless for about a quarter of an hour, preserving the form recorded by the photograph. It seems very remarkable that just at the instant some one should have been ready with camera and plate, and quick witted enough, notwithstanding the shock, to secure the view in time. The author of the negative is given as M. L. Van Neck.—*British Journal of Photography.*

Photo-Wood Engraving.—A method of photo-engraving direct on wood is announced from Russia. The wood is boiled in a solution of sulphate of copper, and afterward in a solution of carbonate of soda, which fills the pores with insoluble carbonate of copper. The block is then dried, its face brightly polished, and the sides and back coated with an asphalt varnish. The face is coated with bichromated gelatine, and after printing is developed with warm water, as in the carbon process. A coat of asphalt varnish, carefully applied, adheres only to the portions from which the galatine has not been removed. The block thus protected with varnish is placed for an hour in strong nitric acid and then for an hour in strong sulphuric acid. When taken from the acid the unprotected parts of the wood will be found to be eaten away, and the block may be cleaned by rubbing with a hard brush. The varnish on the face is removed by soaking in benzine, and the block is at once ready to print from. While this process may be satisfactory for reproducing diagrams and coarse line drawings we would point out that for any fine works, printing on paper and transferring to the block, so that the print may be developed from behind, would be far more likely to give clear and perfect results.

Leaves as Photographic Negatives.—A remarkable discovery has just been brought before the British Association by Walter Gardiner, in his paper on "A New Method of Printing Photographic Negatives, Employing Living Leaves in place of Sensitive Paper." Mr. Gardiner stated that whatever is the exact chemical nature of the process, this, at least, is clear, that the first visible product of assimilatory activity is starch, which, moreover, is found in the chlorophyll grains. The presence of this starch can be made manifest by treating a decolorized leaf with a water solution of iodine. This formation of starch takes place only under the influence of light; the radiant energy of the sun providing the means of executing the synthetical chemical charge and building up proteid from the carbonic acid of the air, which is taken up by the leaves, and the salts and water absorbed by the roots. If a plant (and preferably a plant with thin leaves) be placed in the dark over night, and then brought out into the light next morning, the desired leaves being covered with a sharp and well developed negative, starch is formed when light is transmitted, and in greatest quantity in the brightest areas. Thus a positive in starch is produced, which can be developed by suitable treatment with iodine. Mr. Gardiner showed that it might be possible to obtain a permanent print by suitable washing and treatment with a soluble silver salt, silver iodide being formed. He regards this discovery as a striking illustration of the way in which plants are working for themselves, and so for all living things, and points out that the extraordinary manner in which the green parts of plants, so to speak, catch the radiant energy of the sun, end employ it for analytical and synthetical chemical processes, may be easily and clearly demonstrated.—*N. Y. Commercial Advertiser.*

Indians and Photography.—Amateur photography has been a favorite "fad" with many for some time, but now that it has been taken up by the Alaska Indians it is to be supposed that there will be a tendency to lay it aside in this section. It is to be hoped that the study of this art has not served any American as the writer of the following feels that it has affected him. The letter was written by a pupil at the Indian school at Sitka to Mr. William Wadhams of this city, and if he makes as good progress with photography as he has in studying English he will do very well:

SITKA (Alaska), July 19.

Dear Sir: I write these few lines by express to you what I need. I do not satisfy to know only how to put on a coat or shoes or hat as the white people, but I determine to endeavor to have the white men's occupation, though it is difficulty, but I will attempt to master it without despair. Last winter I practice with photograph, under the instruction of Dr. Henning. "I feel this occupation will affect my brain," his dry plates is all gone, that's the reason I didn't practice any more, and this is I need, if you please, sir, I wish you will send two dozen lightening No. 35 plates 5 x 8 size, it cost $1.25 a dozen down Portland, Or. I have $3.50 to spend for it, hoping you will indulge my need with an order. Your faithful servant,

THOMAS EATON.

—*Portland Oregonian.*

Getting a Picture Under Difficulties.—Ever since the fact was first chronicled that the Chinese minister would be accompanied to this country by his high caste wife, who immediately thereafter would be immured in the seclusion of her own private apartments, sundry illustrated journals have desired above all things to secure a photograph of the unfortunate lady. A New York paper has provided its Washington correspondent with a flash-light photographic apparatus and cast-iron instructions to secure the desired picture at any risk of life or limb. The poor fellow, thus thrown upon his ingenuity, to accomplish the desired end hit upon the plan of haunting the precincts of Dupont circle, where he may be seen patiently sitting, hour after hour, praying that some motive of curiosity regarding the outer world of her new surroundings may move madame to lean from her casement, if only for a moment.—*Chicago Herald.*

David H. Anderson, the author of the famous composition photograph of the Seventh Regiment, has just completed an equally successful composition of Lafayette Post No. 140 G. A. R. The group is represented as assembled in the Masonic Temple at Twenty-Third Street and Sixth Avenue, and the picture is four feet six inches by eight feet in size. It contains two hundred and fifty portraits.

In the foreground the central group is composed of Colonel Floyd Clarkson, commandant of the post; Captain Mitchell, Colonel Darling, Colonel Hamilton and Major Gray. Colonel Wilcox and General Herkimer are at a little distance, and to the right Chauncey M. Depew is seen, talking earnestly to Surrogate Ransom.

A little in the background is seen the martial figure of General Greeley with General Doubleday and John H. Plummer. Collector Erhardt appears in conversation with General Collis. Behind are General Francis Oates, Captain E. L. Zalinski, ex-Governor Daniel McAwley, of South Carolina; General Viele, General Benjamin Watson and Adjutant-General Theodore W. Greig.

Other prominent figures are General Francis Barlow, Brigadier-General Serrill, architect of the Poughkeepsie Bridge: Major Curtiss L. Brackett, General F. W. Ware and General Homer.

Photographs on Watches.—"Try and bring out the soft expression of the eyes, and be sure to have the hair deep brown as in life, won't you?"

A swell young grain broker stood in a John Street jeweler's talking with the head of the house. As he spoke he snapped the chain from his heavy gold watch and placed the time-piece on the counter.

"We will make a perfect likeness of the young lady, have no fear of that," said the jeweler. With another injunction to be exceedingly particular about the eyes, the Produce Exchange man left the store.

"Photographs in watches are becoming very popular," said the manager of the house to a *Journal* reporter, who stood at an adjoining counter. "The young gentleman, whose order we have just taken, wishes the portrait of his intended wife placed in his chronometer. The face of the young lady will be photographed directly on the inner case of the watch.

"During the past month we have taken orders for over 300 photographs. Here is one of ex-Mayor Seth Lowe, of Brooklyn. Isn't it an excellent likeness?"

"What does it cost to put a man's best girl inside his watch?"

"About $15. All our work is done by a French photographer uptown, and once a pretty face is placed in a watch by his method, it will remain as long as the watch lasts. And another thing," said the jeweler, with a sly wink, "once a fellow places the picture of his sweetheart, or, if he is married, his wife in his watch, the chances are 99 to 1 that it will never find its way to a pawnbroker's."—*N. Y. Morning Journal.*

Photography and Portrait Painting.—"Were it not that our population increases so rapidly," said James Wintermarsh, a well known portrait painter, "photography would undoubtedly affect portrait painting very seriously. As matters stand, however, the man with the camera does not interfere materially, if at all, with the man of the brush and palette. It is, of course, possible, nay, highly probable, that if there were fewer photograph galleries there would be more portraits painted, but then that is no great misfortune, for the undiscovered genius, in ignorance of the wrong done him, feels happy enough, and turns his talent into another channel; in other words, if the existing man can make his work pay him, the one that might have been developed into a portrait painter does not feel that it is photography that has prevented him. Photography is improving every day, but it will never supersede portrait painting until it can be made to take a perfect likeness."

"Does it not do that now, Mr. Wintermarsh?"

"Why, no. The photograph, which is so called for lack of a better technical term, does not take a likeness, and never will until the camera can be made to grasp colors. Not even then, in fact, for there is the expression to take, the soul which the painter alone can portray when he has the talent. Now, you cannot infuse genius into a camera. The photograph, as we see it, makes all men look like brothers; it certainly makes a plain woman as good looking as one that is beautiful. For what is beauty but color, in a degree? You take a woman remarkable for personal charms; let her have regular white teeth, ripe red lips, lustrous eyes, bright golden or black flossy hair, as the case may be; a brilliant complexion, but a mouth a trifle too large, and nose a little retrousse, and see what a photograph she will have She will appear absolutely plain. On the other hand, take a woman with thin, colorless hair, bad teeth, a swivel eye, muddy complexion, and, provided her nose be straight and her features regular, she will, with a little of the photographer's art, seem a beauty. There will always be wealthy people of artistic tastes enough to give employment to the portrait painter, though I would say I would any day prefer a good photographer to the production of a portrait painter who does not rise to the requirements of his profession."

American Landscape Art.—The landscape art of this country at the present time too often suggests a poverty of material, and shows that the artist has misapprehended his function. A vigorous and effective realistic treatment is often employed in setting forth subjects that possess no characteristics which should at all commend them to the artist's regard. Of the many landscapes annually displayed in our exhibitions, very few whose materials are drawn from native sources fail conspicuously to exhibit elements that are displeasing to a sensitive eye. The fine choice and graceful treatment of a subject, which, with a true artist, constitute the fundamental part of his art, are rarely met with. It could, indeed, hardly be otherwise under the conditions that now environ the painter in America; for our civilization has reached a stage in which the beautiful is little understood or cared for. The familiar and habitual sight of what is ugly inevitably induces an insensitiveness to ugliness; and with a people so little used as we are to the sight of what is beautiful and graceful in our surroundings, the finer artistic instincts have little opportunity to develop. Hence it is that the unselecting portrayal of common things, with the piquant force of modern methods, too often passes for all that landscape art should be. To an apprehension of the fact that it ought to be much more than this, a large proportion of the public will probably awaken slowly. Great changes in ideas must take place before we shall generally appreciate the better functions of art, and recognize the spiritual and material conditions which favor its development. We are not yet, as a people, conscious of what we lack. The widespread and rapidly spreading interest and activity in what passes for art are regarded as indications that the fine arts are flourishing among us; and in the department of landscape painting it is thought that we possess upon our own continent all the necessary materials for the development of native talents, while the vast extent and varied character of our natural scenery afford, it is often remarked, peculiar and almost unparalleled advantages.

But this view of the matter indicates an imperfect apprehension both of the true function of the landscape painter and of the kind of influences which are necessary to produce him. The artists' business is not, as I have said, to portray the commonplace or the merely natural. No skill in depicting even the grandest scenes will suffice for art. It is the artist's business to lay hold of and to present a kind of beauty which does not exist in mere natural scenery,—a beauty which is the result of human influence. The human element is essential. Of the impressions received from the many phases of beauty in landscape, those are the most satisfying and the most enduringly pleasant, which in one way or another, exhibit the marks of a human presence, and bespeak a human energy acting in sympathy with nature.—CHARLES H. MOORE, *in November Atlantic.*

Where Kodaks Come From.—In a recent number of *Wilson's Photographic Magazine*, Mr. Fred. Hart Wilson, in an interesting article on the above title, says:

The Kodaks and all the other things are made at Rochester, New. York. The Eastman Company seem to permeate the town. They have two factories for the chemical portion of photographic manufacturing, and two for camera-making. But, in addition to these, they keep a part of the largest optical establishment very busy grinding lenses for them, and a number of the men in other manufactories are almost exclusively employed on turning out the brass, and wood-work for their roll-holders and cameras. Their own individual staff of employés numbers close upon 200.

It is in the big factory on State Street that the Kodaks pass inspection, and there they are developed and refilled when they come back again with their century of shots all fired, full of pictures. The various component parts of a Kodak first make each other's acquaintance in the camera factory. Fitted together, and the lens and shutter put in, they go on their way to State Street, where each one is put in a frame with eleven of his fellows. A bit of film is inserted, and a special arrangement releases all the shutters, making twelve simultaneous exposures on a number of cards at graduated distances. These are then developed, and any faults in the focusing of the lenses remedied, if they exist. They are then carried off to the dark-room, where the spool of film with its 100 exposures is inserted, the camera is closed complete, and ready to go out into the world and fulfill its mission.

Photographing Autumn Foliage and Flowers.—The season is now approaching which offers the greatest attractions and advantages to the landscape photographer. October atmosphere is peculiarly suited to out-of-door pictures.

One great charm of this month, however, is to a great degree impossible of photographic reproduction. I refer, of course, to the splendid coloring of autumnal foliage. The enthusiastic amateur beholding the inverted image of a gorgeous wood scene, an October sunset with its glorious cloud effect, or a group of multicolored meadow flowers, is charmed by the splendid coloring of his subject, perhaps, more than by the beauty of its form. He is thus surprised and disappointed to find the actual photograph so much less attractive than the faithful image which was reflected upon his ground-glass. At this season of the year photographs are very often made simply because the subjects deceive a beholder by the beauty of their splendid coloring. We almost forget, when admiring the picture in nature, that the photograph cannot reproduce it in its natural colors, and the one defect of photography grows large in our disappointment.

There is a method by which the natural colors themselves cannot be reproduced, it is true, but by which the correct color value may be transmitted to the especially sensitized plate, and a soft, harmonious effect, very different from the ordinary photograph and much truer to nature, be obtained.

Yellow, green and red photograph black, of course, on an ordinary plate, because they are largely non-actinic, or photographically inactive, while blue, violet and indigo, at the other end of the spectrum, being very active, photographically, appear white in the photograph, and there can be little or no distinction discovered between the various shades.

Now, by the use of an orthochromatic or color-sensitive plate, this inequality in the actinism of the various colors is to a great degree overcome, so that while the colors themselves are not actually reproduced, their values are, and it is easy to distinguish between red, green and yellow, for instance, on the one hand, and indigo, violet and blue on the other.

There are several methods by which this color sensitiveness is obtained. Mr. Carbutt has put upon the market orthochromatic plates, ready for use, on which autumn foliage and flowers may be harmoniously photographed with very little extra trouble. The usual developer may be employed, and no difference in treatment is required, except that the plate, being especially sensitive to yellow and red, must be developed in a very much subdued light, particularly at the beginning of the process. On placing the plate in the developing solution, it is well to cover the tray with a piece of cardboard until the development has progressed somewhat, and then only examine the process occasionally to note its progress. When the image is clearly brought out, finish by immersing the negative in an alum solution, then by fixing, washing and drying.

There are also orthochromatic solutions in the market by which any dry plate may be rendered color sensitive. I shall speak of but one preparation (Flandreau's). It consists of two solutions; one, the preliminary bath, composed of

Aqua ammonia	1 dram
Water	7 ounces

and the other (the color bath) consisting of

Aqua ammonia	2 drams
Water (distilled)	5½ ounces
Erythrosine (in solution)	1½ drams

The plate is first immersed in the preliminary bath, and allowed to remain therein for about three minutes. It is then removed, drained well, and, without washing, plunged into the coloring bath, where it must remain not longer than 75 seconds. The plate is then ready for exposure, and may be put into the holder while wet, or may be set aside to dry, as occasion may require. Any energetic developer will answer for a plate, pyro and potash being preferable.

A plate thus treated with erythrosine is very sensitive to read, orange and yellow, and like the commercial orthochromatic plate, must be very cautiously developed, in a much subdued light. I have found that the light from a dark ruby lamp, subdued by several thicknesses of brown tissue paper, is especially suitable for this kind of work.

When flowers are to be photographed, especially if the colors violet and blue predominate, a yellow screen, made by coating a plain piece of white glass with the xanthiene collodion which is sold with the erythrosine solution, should be introduced between the lens and subject, or between the lens and the ground-glass (in the camera). But when the yellow-colored screen is used from three to six times the exposure ordinarily required is necessary. In photographing an autumn landscape in which the greens, yellows and reds are most conspicuous the color screen is not necessary, and the exposure need not be longer than is usually given the plate. When the plate is used wet, its sensitiveness is considerably increased, and it requires a still shorter exposure.

The method is simple and inexpensive, the two solutions costing but $1.50. It is very satisfactory in its results and the amateur once adopting it will be certain to employ it

frequently; and always when photographing colored subjects, such as autumn landscapes, flowers or paintings.—W. I. LINCOLN ADAMS, *in Outing*.

Photographic Societies.

THE JERSEY CITY CAMERA CLUB.

IN a recent letter from George H. Blake, President of this young club, we learn that, though only permanently organized last May, it already has a membership of over thirty, and is situated in very comfortable rooms at No. 4 Oakland Avenue. The outings have been very successful during the past summer, all kinds of work being indulged in. Following are the officers of the club:

President, George H. Blake; Vice-President, Doctor P. W. Levering; Secretary, Edward Malliet, 46 Jewett Avenue; Treasurer, M. C. Jenkins; Executive Committee, E. D. Bellows, F. Pansing, William F. Heisinger, George A. Haynes, M. C. Jenkins and the President and Secretary *ex-officio*.

NEW ORLEANS CAMERA CLUB EXCURSION.

MR. R. F. REYNOLDS, commercial agent of the Valley Road, has notified sugar and rice planters along his line that the New Orleans Camera Club have decided to take a trip up the Mississippi Valley Route. A special coach has been provided for this occasion and the members of the club will go to various points of interest between New Orleans and Baton Rouge, taking views of the sugar and rice plantations, sugar-houses, residences, etc.

Planters and others along the line are requested to co-operate with the club in attaining their object, and some may desire to secure negatives and have photographs made of scenes they like.

Mr. Reynolds says: "Upon receipt of this write me if you can suggest any points of interest in your vicinity, and how far you will co-operate with them in securing views that will doubtless be of material benefit in advertising your section of the country."

THE LYNN CAMERA CLUB.

A MEETING of the Lynn Camera Club was held at 40 Broad Street, on October 22d, with a good attendance. It was voted to establish a new class of membership, social members, to be of such persons as are interested, but at time of application not actively engaged in the art of photography, but who wish to contribute to the support of the club in return for all the privileges of active membership except to hold office. It was also voted to establish a new office, that of Corresponding Secretary, and W. A. Porter was elected to fill the office until the annual election in January. A committee was appointed to prepare for an entertainment to be given by the club at an early date, the proceeds to be used in furnishing the new club-house now being erected at 42 Broad Street.

The following gentlemen were elected to active membership: Otis K. Stuart, J. W. Bowley, G. C. Hovey, E. P. Michaels, and S. F. Breed.

A majority of the members are now thoroughly awakened at the prospect of such fine quarters, and a number of novelties are expected for the opening night, which will probably occur in November. The Corresponding Secretary would be pleased to furnish any information in regard to the club or club-room, and send application blanks to any amateurs who will address him at the club-house, 42 Broad Street.

PITTSBURGH AMATEUR PHOTOGRAPHERS' SOCIETY.

At the regular meeting of the Pittsburgh Amateur Photographers' Society after the summer vacation, the following proceedings were had:—Meeting called to order by the President, Mr. W. S. Bell, and the minutes of the last regular meeting read and adopted.

The Executive Committee reported favorably on the names of W. S. Clow, F. G. Creaghead, Albert E. Duckham, Daniel Beech, and J. T. Rosewell, for active membership, who, on a ballot being had were unanimously elected.

A communication from the Boston Camera Club was read, offering a set of slides for exhibition consisting of "Illustrated Boston" views by the members of the club, which offer on motion was accepted with thanks.

Communication from Mr. G. D. Millburn, of the Eastman Dry Plate and Film Company, expressing the desire to demonstrate before a special meeting of the society the working of transparent films.

On motion the request was complied with and the evening of October 24th set for the special meeting and the secretary instructed to issue notices to the members to that effect.

A communication from the Iron City Microscopical Society, asking for the appointment of a committee from our society to meet with a committee from the Scientific and other societies of a like nature in the city, for the purpose of forming a confederation of the different societies and securing a permanent home with accommodations for each society.

On motion the request was complied with and the president instructed to appoint a committee of three during the interim between this and our next meeting.

The Secretary was instructed to request the members to send in their contribution of slides for the Interchange before November 1st.

On motion the society adjourned.

F. R. C. Perrin,
Secretary.

THE DAGUERRE CAMERA CLUB OF CHICAGO.

THIS club was organized by a number of amateur photographers, who are in the habit of meeting at a book store on State Street, which is the daily gathering place of a number of young men interested in photography and amateur sports. Their club rooms are at 208 State Street, where they have a large operating room with fine sky and side lights, besides three large dark rooms and an enlarging room. They have in their operating room a Cooper's Lantern, 11x14 Portrait Camera, and a large Ideal Dissolving Lantern. The operating room is fitted up with screens and lockers, and everything that would make a club room valuable to an amateur photographer.

This club has been organized but about two months, but in that time has done a great deal of work towards making a pleasant home for those interested in photography.

On the evening of October 11th, Mr. Stacy, of the Eastman Film Company, delivered a pleasing and instructive lecture before the club, on the subject of films, and their use and abuse. This talk was listened to by the members and their friends with a great deal of pleasure, and many pointers were received, the result of which will show in the coming work of the club.

On Saturday, October 12th, the club and their friends took a trip to Riverside for the purpose of bringing back negatives of that picturesque town. They first all sighted their cameras on the same piece of scenery chosen by the President, and made one negative each, for the purpose of contesting for a prize offered by the club for the best negative. Then each member picked out his own subjects, and snapped his shutter to please himself. About sixty negatives were brought back, and of this number fifty-two proved well worthy of the trip. The only incident that marred the pleasure of the trip was the fact that the Secretary forgot to use his new shutter, though one of the members suggested that, when he fell in the ditch, if he had only broken a limb, it might have come in good use.

On Wednesday evening, October 16th, occurred the regular bi-monthly meeting of the society. The prize negatives and a print of each one made at Riverside were placed in the hands of Messrs. Pennington & Hamilton for judgment. They awarded the prize to Mr. Marshall.

At this meeting the club concluded to take their next trip to Morgan Park, on the Chicago, Rock Island & Pacific Railway, going Wednesday afternoon, October 23d, leaving the R. I. Depot at 12:01 P.M. The prize for the best negative made on this trip will be a year's subscription to any of the photographic journals that the winner may choose. A cordial invitation is extended to to all amateurs to go with the club on this occasion. Transportation will be at the expense of the club, and all are cordially invited to compete for the prize.

The club is very anxious to add new members, and as the initiation fee is but $2.00, and the annual dues only $1.50, the advantages offered to amateurs this coming winter will be worth fully twenty times that amount. It is proposed on November 6th to devote the evening to a series of lantern slides to be exhibited by Mr. Pennington. Twenty-five slides will be taken from the negatives made by the members of the club. There is no such opportunity offered to amateur photographers elsewhere. The free use of enlarging and portrait instruments, and three good dark rooms, chemicals supplied at the expense of the club, and evening entertainments every month throughout the winter. Lectures are provided for on subjects of interest to photographers. These will be given by persons eminent for their knowledge on the subjects treated.

The club trusts that this invitation will be accepted, and that next Wednesday afternoon will see a large number of amateurs and their cameras at the Rock Island Depot to go with the club to Morgan Park. Any information will be given by application to the Secretary, and he will also be glad to have visiting amateurs call upon him, and will cordially extend to them the use of the dark room for changing plates or developing negatives.

Wells B. Sizer,
Secretary.

189 STATE STREET.

The Editorial Table.

THE PHOTOGRAPHER, a new magazine, edited by Doctor Arthur Le Boutillier, of Cincinnati, has made its appearance. It contains six pages of reading matter, and a fair amount of advertising patronage for a beginner. We have no doubt, however, that it will both improve and enlarge as it gains in support.

THE AMATEUR, of Chicago, has considerably improved of late, not only in size, but also in the quality of its reading matter. Photography is given the first place, and the portrait of a leading amateur appears each month on the first page of the little magazine. In the current issue we notice an excellent likeness of Walter J. Van Derslice, who is a most successful amateur.

"With no other heritage than health, pluck, ability, and a good name, he entered on a business career which has been so successful that at the early age of twenty-four years he could lay aside his labor and take an extended tour through Europe. To this tour he is indebted for the pleasures of amateur photography, for until he decided to go abroad he was unacquainted with the desirable art. In the spring of the year he bought a "Waterbury" camera, and after a little preliminary practice, started for the old world. The unrivaled photographic possibilities which a European tour affords were appreciated and employed to the fullest extent."

In commending Mr. Van Derslice for his success in photography, one must not forget the instrument which he used.

"HOW TO MAKE PHOTOGRAPHS" has been re-written and enlarged, and is now issued in a thoroughly revised form together with a descriptive catalogue of cameras, lenses, tripods, and all kinds of apparatus, as well as chemicals, etc. It is priced at ten cents. The instruction proper occupies half a dozen pages at the beginning of the book; but the catalogue is by no means the least instructive part of the pamphlet. It contains a hundred and twenty-five pages profusely illustrated, and is in itself a record of progress in the manufacture of all photographic appliances. Pages from the Scovill Catalogue of Books is included at the end of the catalogue. Every amateur photographer in the land should possess a copy of the pamphlet.

SEED'S PHOTOGRAPHER'S MANUAL has come to our table, and, unlike most books of its class, is really instructive and interesting reading. The first part consists of a dialogue between two photographers, a large part of which we shall reprint, by special permission of Mr. Seed, On page 19, in referring to "The American Annual of Photography and Photographic Times Almanac," for 1889, the speaker credits a formula for the intensification of gelatine dry plates to that "Annual," and says that "it is the most complete and best 'Annual' I have seen." At the end of the little mannal are some practical notes which are well worth remembering. We give anexample:

YELLOW NEGATIVES.

"Why is it that my negatives are so very yellow?"

"You do not use enough sulphite of soda."

"Ah! there is just where you are wrong. I find the more sulphite of soda I use the more yellow are my negatives."

"Will you tell me who's make of sulphite you use?"

"I do not know; but when I am in want of any I send down to the drug store and get it."

"I think that explains all of your trouble. Many of the druggists use chemicals (which are known the world over as being pure), but their sulphite of soda I could not recommend to the photographer, as it has the peculiar effect, when used in the developer, of giving a yellow negative. And as you truly say, the more you use, or in other words, the stronger you make the sulphite of soda solution, the more yellow will be your result; and not only that, it has a tendency to clog the whites, and produce a thick, slow-printing negative. Purchase your chemicals of your dealer, and see in time you do not run short. Sulphite of soda is used in the developer to preserve the pyro and regulate the color of the negative. The more you use, the more grey will be the negative, and the lesser amount will give you a more yellow result.

"Then again, by passing the negative through a solution of alum, before it goes into the hypo bath, will also in many cases remove the yellow, and impart to the negative better printing qualities."

"A Field Photography Card" comes to us from F. Bookwalter, of Springfield, Ohio. It is a convenient method for preserving a record of exposure, &c., for reference in development. The card has a metal eyelet for inserting a string, and fastening it to the camera or tripod. It is adapted to pocket use also, but ought to be attached to the instrument, insuring its presence always when needed. It may be thrown into the camera box or bellows when not making pictures, or can be kept in carrying case with camera without detaching the string. They are printed on colored paper to secure a more pleasant effect to the eye in strong light.

We have received a picture of the Eastman bromide display at the Boston Convention. It recalls the magnificent exhibition which the Eastman Company made in Boston, and which we all admired so much.

From Mr. Charles J. Glidden of Lowell, Mass., we have received two 8x10 photographs of pleasing subjects well rendered. One shows an old New England homestead with a family group before its hospitable doors; the other, two ladies seen between the huge trunks of a wide-spreading willow tree.

We have received an excellent portrait of the veteran, E. Long, who began his photographic career as a daguerreotypist, in 1842, taking up solar printing as a business in 1880. He is "still at it," and hopes to die in the harness. Few men in this country have done more for photography and photographers. It is needless to say that this portrait, appropriately framed, will occupy an honored place in our sanctum.

Record of Photographic Patents.

413,547. Magnesium Flash Lamps. Henry G. Piffard, New York, N. Y.

413,611. Photographic Vignetter. Aaron W. Clark, St. Louis, Mo.

Queries and Answers.

212 William Marling writes: "(1) I am using a 4x5 'Waterbury' Detective Camera and am not having satisfactory results in developing the negatives; am using Carbutt's "Eclipse" plates, but all my negatives are wanting in density, and I have entirely spoiled quite a number. (2) Can you advise me what to do and what book of instruction to purchase? (3) I want to order some more plates, but do not know whether to secure another brand or not."

212 *Answer.*—(1) Use more pyro and proportionately less alkali. Do not hurry the process of developing. (2) "The Processes of Pure Photography," by W. K. Burton and Andrew Pringle; published by the Scovill & Adams Company, New York. (3) Continue with the same brand, but use more pyro.

213 A. B. C. has a large number of worthless gelatine plates, some of them develped, and others not. He could utilize them for other purposes, if they were clean, and asks, how can the gelatine film be taken off?

213 *Answer.*—Soak the plates for several hours in nitric or sulphuric acid, diluted with water in the proportion of 1:3. The acid will destroy the gelatine, and can be taken off the glass plate very easily with the aid of a stiff brush and plenty of water.

214 Langdon.—What is the best way to enamel albumen prints?

214 *Answer.*—We refer you to the chapter "On Enameling," page 84, of "The Photographic Instructor."

215 P. G. has seen very thin plates of metallic aluminium, and wants to know if there is a way to make photographs upon them.

215 *Answer.*—Yes! Eastman's bromide transferrotype paper will do very well, or use chloride of silver collodion emulsion, print out thoroughly, tone with the sulpho-cyanide gold bath, and fix as usual.

216 Experimenter wants to know where methyl-rose aniline can be had.

216 *Answer.*—Inquire of Lehn & Fink, or Heller & Mertz, but ask for Hoffmann's violet, which is synonymous.

217 T. Q. W.: "Can you tell me how to clean a plaster cast from dust and fly-marks that have entered its deepest crevices?"

217 *Answer.*—Make a thick starch paste, apply it to the plaster, while still hot, and set it aside to dry slowly. When perfectly dry, the starch will crack from the plaster, carrying with it all impurities.

218 Printer: "When vignetting portraits of ladies with perfectly white drapery, the details in the white portions refuse to print out, leaving head and neck of the figure almost without any support. How can that be remedied?"

218 *Answer.*—Make the tissue paper lying directly over the drapery translucent by saturating it with oil, vaseline, petroleum, or anything like it. But, of course, you must follow the outline of the figure to some extent.

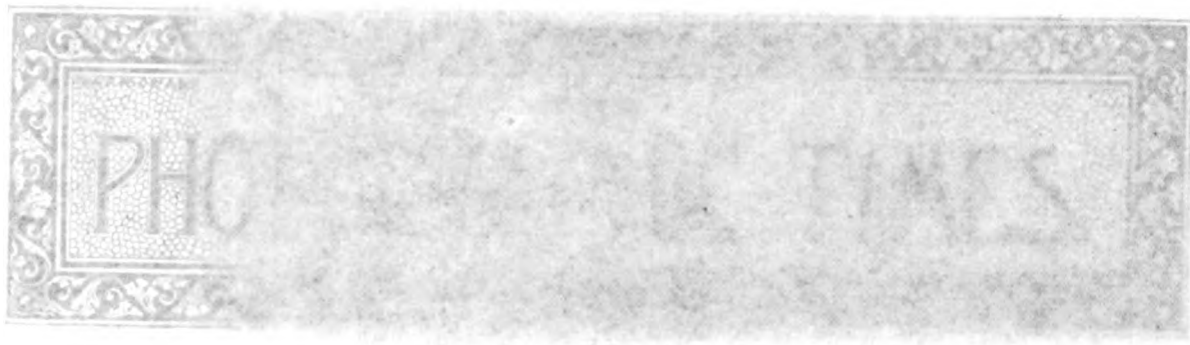
219 G. W. Springer: "What is the cause of my eikonogen developed negatives turning of a red color when immersed in the fixing bath?"

219 *Answer.*—The fixing bath may be very old, and the eikonogen not thoroughly washed from the plate. Fresh hypo is not as apt to produce such effects.

J. T. HARVEY, PHOTO.

PHOTO-GRAVURE CO., N. Y.

"Where did he get that Hat?"



THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, NOVEMBER 8, 1889. No. 425.

"WHERE DID HE GET THAT HAT?"

THE charming child portrait which embellishes this issue of THE PHOTOGRAPHIC TIMES comes to us from Mr. J. T. Harvey, a professional photographer of Greenfield, Indiana. The beautiful child (as many might recognize from the family likeness) is a nephew of President C. W. Canfield of the Society of Amateur Photographers of New York, and editor of "The American Annual of Photography." Little Gray Duncan is, indeed, a rare subject! The old straw hat, which is so prominent a feature of the picture, suggests the title which has been given to the plate.

Mr. Harvey writes that the negative was on a Seed plate; exposure, one second. "My developer is the following," he says:

DEVELOPER STOCK SOLUTION, No. 1.

Sulphite soda, gran.....	1½ ounces
Carbonate "	1 ounces
Water..... 70	ounces

PYRO, No. 2.

Pyro.....	1 ounce
Water.....	9 ounces
Sulphuric acid.....Nearly	2 drachms

To develop, take

No. 1.....	3½ ounces
No. 2.....	2 drachms

Can be used two or three times by adding a little of No. 1.

VIGNETTES AND VIGNETTING.

III.

IN the previous articles on this subject we have not spoken of vignetting landscape or marine negatives. While vignettes, as a rule, are most applicable to portrait negatives, there are many landscapes and sea views that may be greatly improved by judicious vignetting. Not every landscape negative, however, is improved by a vignette. In fact, it requires great discretion in applying vignettes to this class of negatives to improve the result. Marine views may more often be improved by vignetting. To vignette a landscape, the opening in the vignetter should be a considerable distance from the negative, so that the shading is very soft and gradual. Negatives having dark trees or similar objects near their outlines cannot be vignetted with advantage. A vignetter which may be readily moved in front of the negative is most convenient in vignetting landscapes. This may be done by hinging the vignetting frame to the printing frame.

It has often been attempted to vignette a negative in the camera, direct from nature, but rarely with success. The best method for accomplishing this is to interpose between the lens and the subject a screen of white cardboard, cut in half-oval shape with a wavy outline, placed slightly out of focus, so that its contour is not discernable upon the ground glass, and so that its form blends into that of the background, leaving the principal object before the camera alone in the centre of the plate. This, however, is very difficult to accomplish in practice for various reasons; but in making Daguerreotypes or collodion positives it does not offer so great difficulties.

The so-called "black" vignette is a modification of the vignette made in the camera, and is accomplished in a similar manner. There is this difference, however: in the former a perfectly opaque ground is obtained; and with the latter, one of absolute transparency; in the negative. As all pigment colors reflect light more or less, no matter how non-actinic they may be, even a black velvet background will impress the sensitive plate placed behind the subject in the ordinary way to a degree, and we must therefore look for another method to leave the background absolutely free from any impression whatever. An oval-shaped background of sufficient dimension and curvature, finished with a sort of hood so as to form a nitch, and lined with some black material, may be turned somewhat from the light, and the subjects placed before

it will be entirely surrounded by darkness. A vignetter may be attached to the camera, consisting of an oblong box projecting from twelve to fifteen inches over the lens, and wide enough not to intercept any light. Opposite the objective should be an opening, the size of which may be regulated by different apertures. The inside of the vignetter and slides are, of course, painted matt black.

White vignettes are often given a slight tint by exposing the untoned print under glass, for a short time, that part of the print bearing the picture being covered in the meantime with a loose tuft of cotton. The vignetting of bromide enlargements has been sufficiently treated in the numerous pamphlets and advertisements issued by the manufacturers of this popular printing paper. Bromide contact prints and transferrotypes are generally vignetted as if they were on ordinary silvered albumized paper. The vignetter, however, is required to have a somewhat larger aperture.

Flowers, ferns and similar subjects, photographed upon a white or a very light ground, look particularly well when vignetted. If we wish the entire background of the print to be perfectly white, the original ground should not be white but of a light tone of neutral color. The reason is obvious. Before such a subject is properly exposed, the background will be solarized, and, owing to the feeble density of the negative, so much light will be allowed to pass through it during printing that the printed background would have a very decided tone. Backgrounds suitable for these subjects can easily be made by painting muslin, stretched upon a frame of the required size, with a mixture of glue, water, lampblack, and a little Indian red. By altering the proportions of the two last substances almost any tone can be obtained.

In printing by artificial light, the vignetter must always be placed a little further distant from the negative than when daylight is employed, as the nearness of the light source when printing causes the shadows to be much more abrupt in the vignette.

The toning of vignettes on albumenized paper often offers difficulties to the beginner. It frequently happens that the middle tints of vignetted photographs are accompanied by a sort of halo of a tone unlike that on the rest of the picture. The fine detail and gradation of the background vanishing into white, produced in the untoned print, becomes devoid of all delicacy, and assumes a certain harshness that is unpleasant to the eye. The cause of this is that the pictures have been subjected to the action of a toning bath entirely too strong in gold or alkali. The vignetted print requires a toning bath of moderate strength. Professional photographers who tone many prints in a day leave the vignetted prints until the last, when the bath has become somewhat weakened by repeated use. The results are better, however, when a fresh gold bath is used which is not too strong.

Success in toning vignetted prints, as in the case of all other prints, depends to a great degree upon the quality of the negative as well as upon the printing of the positive. A poor negative will not produce a good print in the toning bath, whether it be well printed or poorly, vignetted or plain. Our concluding advice, therefore, to those who desire to make vignetted prints is as applicable to those who make plain prints. See that your exposures are correct and your negatives carefully developed. The printing will then take care of itself.

EDITORIAL NOTES.

Professors S. W. Burnham and J. M. Schaeberle, *en route* to Cayenne, have been spending a few days in New York, making the office of The Photographic Times their headquarters while here. It is needless to say that we have greatly enjoyed their presence with us. Prof. Burnham, formerly of Chicago, is well known the world over for his wonderful discoveries of double stars. Prof. Schaeberle was for many years Professor of Mathematics and Assistant in the Observatory at Ann Arbor, Michigan. These two gentlemen left San Francisco several weeks ago, being sent from Lick Observatory to observe the total eclipse of the December 22d next at a point near Cayenne in French Guiana. They sail from New York to Trinidad, and thence to their destination at Cayenne.

Our readers are undoubtedly interested to know more about the solar eclipse which will occur next December. The path of totality described in this eclipse is singularly inaccessible. It runs from a point near the West Indies southeasterly, and exactly tangent to the coast line of South America, curving to the north when about fifteen degrees south of the equator and entering Africa close to St. Paul de Loando. The only point of land on the South American coast which is sufficiently within the total line for observing purposes is that on which Cayenne is located. There the duration of totality will be one minute

and forty-seven seconds at about twenty-three hours (eleven A. M.) on Greenwich mean time. At St. Paul de Loando, Africa, where Prof. Todd and party have gone, the totality will last three minntes and fifteen seconds at about two P. M. of Greenwich mean time.

THE principal work at each station will consist of photographing the coronas. It will be seen by reference to the above figures that about three hours of actual time will intervene between the instants of totality at the two stations. The epoch at St. Paul de Loando is later, because the moon's shadow passes from west to east. This long interval gives ample opportunity for any possible change in the coronal structure to take place and be faithfully recorded on the photographic plates. It is, however, unfortunate that the two stations are not connected by cable, so that the Lick astronomers might be able to telegraph Prof. Todd about any peculiar features observed by them, but requiring confirmation from his station.

AT the Cayenne Station the exposures will be made principally with a view to bringing out the remarkable extension of the outer corona which was first detected on plates exposed last New Year's Day by two California amateurs at Cloverdale, California. Prof. Burham will photograph during the totality with the six-inch Clark of the Lick Observatory. Prof. Schaeberle will employ a six-inch equatorially-mounted camera from the Naval Observatory. The exposures of different durations, made with these instruments, by the eminent astronomers in charge of them, will undoubtedly contribute largely to our knowledge of eclipse phenomena. When the plates are compared with those made three hours later on the African coast, the value of each series will be greatly enhanced.

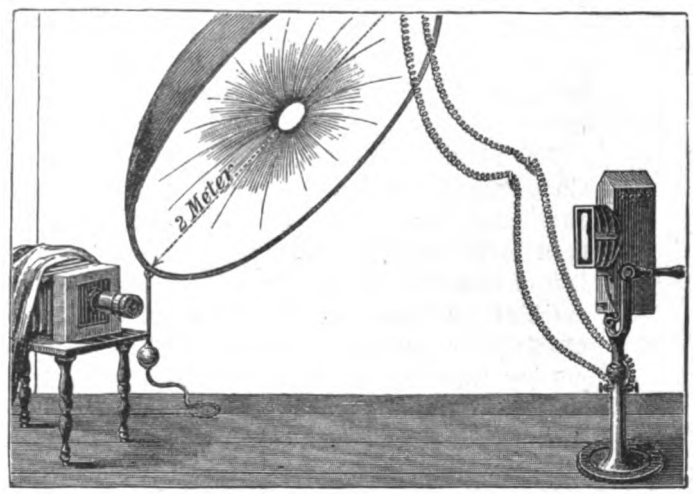
PROFESSOR BURNHAM AND SCHAEBERLE will probably remain some time in Cayenne, and both possess the sturdy health necessary to endure the unhealthful climate of that country. Professor Burnham is supplied with a $6\frac{1}{2} \times 8\frac{1}{2}$ St. Louis camera, and Professor Schaeberle carries a 4 x 5 Waterbury "Detective" camera. Besides the photographing which Prof. Burnham expects to do during the day, he will at night explore the Southern skies for the discovery of double stars. This eminent astronomer has already discovered some fifteen hundred such stars in the Northern heavens. What he will do in his few weeks of opportunity in the new field of the Southern skies remains to be seen. Prof. Schaeberle will devote his time largely to photographic experiments for determining the relative brightness of the stars. This astronomer discovered two comets (1880 and 1881), when an amateur worker, with his self-constructed telescope. It is, therefore, quite possible that he may have opportunity for successful research in this particular field. Our readers may expect to hear later from Profs. Burnham and Schaeberle in these columns.

ON THE USE OF THE ELECTRIC LIGHT IN PHOTOGRAPHY.*

II.

LEWITZKY, in St. Petersburg, has used the Van der Weyde light since 1878, and has made many thousands photographs with it. He showed a large collection of his productions at the International Electric Exhibition at Vienna, 1883, and earned the general approbation of the public.

S. van Ronzelen of Berlin installed electric light in his studio in the year 1879. He uses one Siemens Differential-Lamp of 3000 candle power, and a dynamo machine driven by an engine of four horse power. The electric lamp is enclosed in a box, resting upon a movable stand with rollers, and revolves around its axis. The light is thrown upon a paper screen of 2 m. in diameter, from which it is reflected upon the subject to be photographed.



He obtains by this arrangement an indirectly but uniformly illuminated space of from 2 to 3 m. in diameter. Quantitatively this method of lighting is nearly equal to the light force of diffused daylight, but qualitatively it is exactly the same.

* First part appeared on page 517 October 18th issue.

With Von Ronzelen's installation, with the application of a Hefner-Attenek lamp regulator, a quiet and uniform light is produced, very excellent in the opinion of many practitioners.

The installation of the Portuguese Geographical Institute, at Lisbon, consists of a magneto-electric *Gramm* machine and arc-light with *Serrin* regulator. The light is used for direct photographing, for enlargements, and also for printing purposes. The carbon regulator of *Serrin*, one of the most renowned attachments of its kind, secures a possibility to retard at a moment the light force and the working of the apparatus, without interruption of the electric current. It is very precise in its action.

The Lisbon machine requires carbons of 22 c.c.m. in length and of 7 m.m. thickness, and must be renewed after every 1½ hours' work.

The force of the electric current generated by a *Gramm* dynamo is equal to that of a Bunsen battery of 60 elements, and the arc light produced is about equal to 2000 candle power. To do this work, the dynamo machine must make 1200 revolutions in a minute. The light produced costs about 24 cents per hour.

The Cartographic Department of the Prussian General Staff, in Berlin, Lt.-Col. Von Usedum, Director, employs two small arc-light lamps and regulator, with parabolic reflectors separately attached to them. The reflectors are made of stout sheet iron, colored with white paint, and of an opening of 60 c. m. in diameter. They are placed upon a stand, with arrangement to adjust their light. The light is concentrated directly upon the original. Two small *Siemens and Halske* electro dynamo machines, set in motion by a four horse power gas motor provides the electric current.

The Photo-Chemical Laboratory of the Berlin-Charlottenburg Polytechnicum, Prof. Dr. Vogel, Instructor, has since 1885 installed the electric light for the purpose of direct photographing and that of making reproductions. A *Siemens* dynamo machine produces six arc-lights, each of 1200 candle power, which are distributed upon two supporting frameworks. One of them carries four lamps; they are intended to give general illumination, and to lighten directly the light side of the subject; the other two lamps are separately supported, and serve to brighten up the shadow side. Both of these supporting stands are movable, so as to place them at any desirable point of the atelier, their heights are adjustable, to suit that of the object to be photographed.

The dazzling light is diffused by matt-white reflectors, and appropriately adjusted switches permit replacing of one or two arc-lights by from 7 to 14 incandescent lights, which, while in activity, may be used for dark room illumination also. The light of the incandescent lamps is softened with yellow or red glass lamp screens.

Ottomar Volkmer.

CAPTAIN ABNEY ON HELIOCHROMY.

[A Communication to the Franklin Institute.]

CAPTAIN ABNEY, in a recent address before a section of the British Association, made some brief remarks upon the subject of heliochromy, which are, in my opinion, so misleading as to call for correction. I quote as follows:

"The nearest approach to success in produciug colored pictures by light alone, is the method of taking three negatives of the same subject through different colored glasses, complementary to the three color-sensations, which together give to the eye the sensation of white light. The method is open to objection on account of the impure color of the glasses used. If a device could be adopted whereby only those three parts of the spectrum could be severally used which form the color-sensations, the method would be more perfect than it is at present. Even then, perfection could not be attained, owing to a defect which is inherent in photography. This defect is the imperfect representation of gradation in tone."

According to those recent text-books on color which I have seen, only such light rays are supposed to affect only one kind of nerve fibrils in the eye, or to excite only one of the color-sensations, can be said to form or represent primary color-sensations, and such rays are confined to both ends and a narrow strip in the middle of the visible spectrum.* If Captain Abney means to assert that in a process of this character only those rays of the spectrum should act, which represent primary color-sensations, he is certainly mistaken, and grieviously misleading all those who accept him as an authority upon this subject.

It is certain that every ray of the visible spectrum should act, and act nearly in proportion to its power to excite the sensation of light in the eye. It would be ridiculous to expect that a process which reproduced the spectrum as three detached and widely separated patches of color

* "Helmholtz, Maxwell and Rood, as well as many other physicists have developed the theory of Wunsch and Young, and have adopted the same, or very nearly the same, trial of primary color sensations. These fundamental hues or primaries * * represent three widely separated and very bright colors of the spectrum."—*Color*, by A. H. Church, M. A., London, 1887. p. 67. See also Rood's *Modern Chromatics*, pp. 120-23.

would correctly reproduce the infinite variety of compound colors in nature, some of which are made up chiefly, and most of them partly, of rays lying in other parts of the spectrum. There are some moderately bright colors which would reproduce like black by such a process.

But it is not easy for me to believe that Captain Abney means what I have inferred from his statement, although the expressions "parts of the spectrum" and "impure color of the glasses" certainly support this inference. When he says, "those parts of the spectrum * * which form the color-sensations," it is possible that he may mean the light rays in proportion as they affect the different kinds of nerve fibrils or excite the different primary color sensations in the eye. If so, he does not mean to divide the spectrum into three distinct parts, but aimed to state a fact which was first observed by me, and plainly set forth in my book, *A New Principle in Heliochromy*. where I showed that each heliochromic negative must be made by the joint action, in due proportion, of all rays which affect the primary color-sensation which it represents. It does not require screens of "pure color" to do this—quite the contrary. Screens of "pure color" are screens transparent to single regions of the spectrum only, and would not transmit all the rays that affect a single kind of nerve fibrils in the eye. The red, orange, yellow and yellow-green rays all affect the nerve fibrils which produce the red color-sensation, and all of them must therefore be transmitted more or less freely by the color screen used in making the negative representing that primary color-sensation. But the orange-yellow and yellow must also be transmitted to some extent by the screen used in making the negative representing the green color sensation.

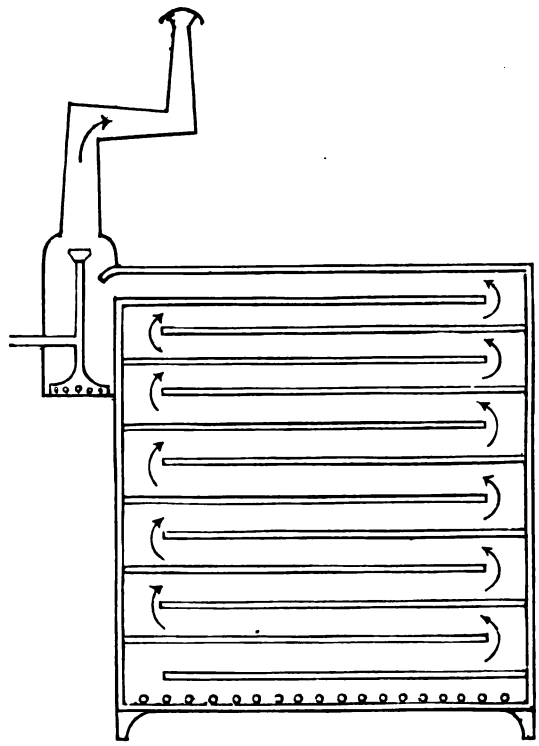
The screens must, in short, be so graduated in color as to secure, in negatives of the spectrum, curves of intensity like the curves of a diagram representing the action of the spectrum upon the three kinds of nerve fibrils in the eye, or upon the three fundamental color-sensations; and it is a fact that such screens had been produced, and that correct heliochromic negatives had been made in considerable number, and with ease and certainty, before the beginning of this year.

The observation that the inability of photography to exactly represent gradations in tone would affect the accuracy of such a method of reproducing colors, of which Capt. Abney now makes so much, originated with myself; but I also showed that by my method of proving the color screens by reference to the curves of intensity in the spectrum negatives, the effect of this defect in the negative process could be so far compensated for that it would no longer seriously affect the result, if suitable sensitive plates were employed. To say that this method does not solve the problem because of this defect, would be equivalent to saying that photography has not solved the problem of reproducing light and shade.

Fred. E. Ives.

A GOOD DRYING BOX.

To those who, like myself, like now and then to try their hands at making their own dry-plates, I can highly recommend the drying box shown in the sketch accompanying these few lines. I have constructed a great many drying boxes of all shapes and sizes, but never have I yet made one equal to this (see sketch). The secret of it is that there is



plenty of draught. The size of the box is six feet square, and the shelves are made of half-inch deal. I use two Bunsen burners to create draught. The front slides in a groove on either side, and is composed of Deal well papered, and each board tongued and grooved to its fellow to make all thoroughly light-tight. In constructing the above, putting in the shelves, use a very long level (four-feet long), so as to get each shelf dead level and perfectly true.

G. W. Valentine.

EXPERIMENTS WITH BROMIDE PRINTS.

[A Communication to the London Photographic Club.]

You will no doubt remember that at a meeting of our club the question of reducing bromide prints by treatment with old oxalate developer, followed by immersion in the fixing bath, was raised. The discussion originated from an experiment witnessed at the Eastman Company's place, and several members stated that they had tried the process, some of them without success.

Mr. Bridge has kindly sent me some deeply printed bromide enlargements, with a request to investigate the subject.

I now beg to lay before you the results of the experiments which I have made, and at the same time to submit the prints which I have treated by the process under consideration.

The case in point may be stated as follows: A finished bromide print is immersed in some old oxalate developer; it is then transferred to the ordinary fixing bath.

Does it suffer any reduction under this treatment?

I think it will be best to describe, first of all, the solutions used in the experiments.

Developer.—This had been long in stock, and had been already used for developing several prints. It had been kept in a closely stoppered bottle, and was perfectly bright and clear. The color was a bright yellow, and at the bottom of the bottle was a small quantity of the well-known green crystals. Tested with litmus paper it was found to be very faintly acid.

Hyposulphite solution.—This was freshly made, and consisted of three ounces of the salt to one pint of water. A piece was cut out of one of the prints so as to embody both dark and light parts, and was then soaked for some time in clear water. It was then well drained and flooded with the developer for five minutes. After being drained again, it was transferred without washing to the fixing bath. So as to make the experiments under similar conditions, each print treated was left in the hyposulphite for fifteen minutes, this being, I believe, the average time allowed for the fixing of bromide prints. The dish was rocked from time to time.

A very perceptible reduction took place, as you can see by comparing the cut piece with the original print. There is also a modification in the color of the print. The same process was repeated with another piece of the same print, the old developer being rendered acid by the addition of a few drops of acetic acid. As you can see, there is not much difference either in the amount of reduction or in the tone of the pieces treated by either process. Half of this portrait was flooded with the acid developer and fixed as above. Here, again, we have reduction, but there is also a very considerable amount of yellow stain. I did not attempt to remove the stain, as this might, even if successful, alter the tone of the print and make it less comparable with the others.

I next soaked a print in water, and blotted off the excess after the paper had become thoroughly limp. I painted over part of the picture with acid developer to see whether I could reduce it locally. I found some difficulty in getting the developer to take on the gelatine surface. The reduction is not very considerable, but is still perceptible. The action is not energetic, on account probably of the small amount of developer which the gelatine is capable of retaining. I have indicated the part of the picture acted upon by a line in pencil.

It seemed probable that a fixing bath which had been used for several prints might exert a reducing effect on pictures fixed subsequently. In order to test this I submitted part of a print for fifteen minutes to the action of the hyposulphite. Both fragments of the print were then washed together in the usual way, so that any alteration in tone which might be due to prolonged soaking should be put aside. You will notice a certain alteration in the part of the print treated by the contaminated hyposulphite. I then added one ounce of the old developer as above to the twenty of hyposulphite solution, and placed in the mixed bath a piece of a print; the reduction was rapid, and at the end of fifteen minutes the result is what you can see by comparing the tone of the reduced piece to the remainder of the picture.

As is it highly probable that the reducing effects observed are due to the presence of ferric salt in the old developer, I made a half per cent. solution of ferric chloride and immersed a piece of a print in it for five minutes. After placing it for fifteen minutes in the fixing bath the image had faded considerably, and there is no doubt that by repeating the process it could have been made to disappear almost completely. I have here two prints from the same negative, done on Anthony's bromide paper. The developer was compounded by mixing one part of iron with nine parts of oxalate solution, a trace of bromide being added. Fresh developer was used for each print, and both were washed in three acetic acid baths, and then in several changes of plain water. They were then fixed for about twenty minutes in a freshly made hyposulphite solution (three ounces to the

pint). When finished they were very nearly identical in depth, and had the same amount of detail. After washing the prints thoroughly one was partially dried and half immersed in the solution which had been used to develop it. After fifteen minutes of renewed fixing the immersed part had considerably faded. On examining the print you will notice how much of the detail has disappeared, and also that in places the faded image is replaced by a yellow stain effecting the same shape as the detail which has been reduced.

From this result it would appear that the action is very powerful, as but little ferric salt would be formed in the developer after the production of one print. At all events, the necessity for careful washing after development becomes apparent, and I think I may add that the same ought to be done after clearing with acid.

A few years ago I published, in collaboration with Professor W. Spring of Liége, a research on the acids of the thrionic series. We found that when dilute sulpheric acid is added to a solution of hyposulphite of sodium a certain amount of sulphuretted hydrogen is evolved at first, and thrithionic acid is formed. If the addition of acid is continued sulphurous anhydride comes off, as it is well known.

I mention this fact here, as there might be a possibility of either of the gases indicated having some influence on the print.

Adolphe M. Levy.

Correspondence.

THE SUBJECT OF THE P. A. OF A. GRAND PRIZE COMPETITION FOR 1890.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir:—The Executive Committe for 1890 requests me to announce, officially, that they have chosen Tennyson's poem, "Enoch Arden," as the subject for competition for the grand prize. The rules governing the collection of photographs will be the same as this year for "Evangeline."

They have made the selection thus early that those who intend to compete may have ample time to work up the subject.

H. McMichael.

BUFFALO, N. Y., October 29.

A LETTER TO THE AUTHORS OF "THE PROCESSES OF PURE PHOTOGRAPHY."

MESSRS BURTON AND PRINGLE.

Dear Sirs: The "Autocrat of the Breakfast Table" tells us that authors, like cats, appreciate the friendly application of a rub in the right direction.

Now I don't want to hurry you "or either of you," as we lawyers say, into a correspondence with me, but as a photo-amateur and President of the Camera Club here, I feel impelled to tell you that I have derived the greatest pleasure and a vast amount of information from your recently published book called "The Processes of Pure Photography."

Reading widely as I do of the English, German, French and Italian publications, and having but a smattering of chemistry, it is consoling to find men like yourselves, who speak with no uncertain sound. My reading has told me to keep my powder—I mean my pyro—dry; to acidify it with sulphuric acid, with sulphurous acid, citric acid, formic acid, salicylic acid, nitric acid, and I dare say some more acids, the names of which I do not for the moment remember, and each advocate of an acid says all the others are not only wrong, but simply chemical ignorance on the part of those who recommend them. "*Tot hommes quot sententiæ.*"

We have lately had a lot of discord and advice as to the mode of using detective cameras, and as I supplement my whole plate camera with a detective, the prize instrument at our recent Exhibition fitted both for films and for glass, I anxiously looked out for your judgment on the conflicting testimony which you have no doubt read.

May I draw your attention to page 160, line 5, of your book, and humbly ask whether the much ill-used word "suppositious" or in its adverbial form as you employ it, is correct? You clearly mean "let us suppose" or "hypothetically." I am conscious that in our Upper House of which I am a member, the word is used in the same way in which it is employed in your book, but I still have more than doubts (?) whether it is English or not. However, this is a small matter, and it may be that in America the word has acquired the meaning of "supposed"—but hope not. Yours faithfully,

I. Stanley Dobson.

PARLIAMENT HOUSE, MELBOURNE,
September 15, 1889.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir:—At a meeting of the Southern Tier Photographic Association, held in Honellsville, October 24th, the following resolutions were passed:

Resolved, That the ridicule of Abraham Bogardus in the article entitled "Chronicles," published in the TIMES of October 12th, is uncalled for and undeserved; and,

Resolved, That a copy of the above be sent to the TIMES and Mr. Bogardus.

Yours very truly,

A. B. Stebbins,
Secretary.

CANISTEO, N. Y., October 28th.

[Referring to the above, we may say that Mr. Bogardus has no cause of grievance. If he has any better friend than THE PHOTOGRAPHIC TIMES, its present or its former publishers, we should like to know who it is. Mr. Bogardus has good reasons for considering us very good friends of his. If he felt so disposed, he might himself tell what these reasons are. We scarcely feel it proper for us to mention them at this time.]

Editor PHOTOGRAPHIC TIMES.

It may be thought, from this accident, that the magnesium "flash" light is always used with danger of explosion; whereas, when ordinary caution is used, it is as harmless as sunlight. By using an unusual charge in order to photograph an immense subject like the Washington Arch, the flash may result in accident if ignited too near the operator. Mr. Stoddard held the cup containing the powder (about five ounces in quantity) above his own head, and ignited it by means of gun-cotton, a very dangerous explosive. It is much better to flash the powder from a little stand set at some distance from the camera, at one side and a little behind it, which also carries a reflecting screen for concentrating the light on the subject before it; and generally not more than a hundred grains of magnesium powder is necessary to illuminate a scene.

A flash light photograph of a camp fire at Sagamore, Long Lake, in the Adirondacks, which was also made by Mr. Stoddard, required not half the quantity of magnesium used in his Washington Arch picture, and was photographed as easily as if sunlight was used. The effect, too, is better.

The development of a flash light picture does not differ essentially from that of other negatives. Mr. Stoddard uses the following formula with Carbutt's Keystone "Eclipse" plates:

No. 1.

Distilled or ice water	10 ounces
Citric acid	1 dram
Sulphite of soda, crystals	4 ounces
Pyrogallol (Schering's re-sublimed)	1 ounce

And add water to make the solution up to sixteen fluid ounces.

No. 2.

Water	10 ounces
Soda sulphite crystals	2 ounces
Soda carbonate crystals (or dry granular one ounce)	2 ounces
Potash carbonate	1 ounce

Dissolve, and add water to make sixteen fluid ounces.

A third solution of bromide, composed of

Bromide of potassium	½ ounce
Water	5 ounces

it may be well to make for use in case of over-exposure.

The developing solution is composed of from one and a half to two and a half drams of No. 1, and from two to three ounces of No. 2. More or less of No. 1 or No. 2 is added as the exigencies of development may require. The plate is fixed as usual, in a hyposulphite of soda solution, after which it is ready for the printing frame.—*From a special article in The Argosy by W. I. Lincoln Adams.*

Photographic Societies.

ZANESVILLE CAMERA CLUB.

A SPECIAL meeting of the Zanesville Camera Club was held at the Club Rooms, 14½ South Sixth Street, Friday evening the 25th inst, for the purpose of meeting Mr. C. A. Stacey, of the Eastman Dry-Plate and Film Co.

Mr. Stacey had on exhibition a beautiful 6½x8½ Eastman Camera, with roll-holder and Bausch & Lomb lens and shutter, and smaller-sized roll-holders, Kodaks, and a very fine collection of bromide prints by contact on A paper and enlargements, from 5x7 negatives, on C grade.

After a thorough examination by the members of this exhibit, Mr. Stacey proceeded to demonstrate the advantage of the Eastman Co.'s new Transparent Film. Several films were developed with pyrogalol, hydrochinon and eikonogen. All equaled the best results obtainable on glass, and those developed with pyro were especially fine. An informal discussion of the merits of the developers used followed, after which the club adjourned.

B. V. H. Shultz,
Secretary.

THE CHICAGO CAMERA CLUB.

WE hear from all sides of the success of this young and enterprising camera club. The Chicago *Journal* for October 26th has a long account of the rapidly growing club, which we deem of sufficient interest to our readers to reprint in full:

The words para-phenylendiamin, pyro-catechin, eikonogen and other novelties in the English language are daily bandied to and fro in the ruby-tinted light of the so-called "dark-rooms" at 182 Wabash Avenue.

It is here that the Chicago Camera Club, a society of amateurs whose chief delight is in the magic alchemy of old Sol's rays lives, moves, and has its discussions. The amateur photographers of Chicago have long felt the want of a suitable organization, there being nothing of the sort in the city with the exception of a club devoted entirely to lantern-slide work. So with the characteristic energy and enterprise of Chicago, a club has been organized and put in successful running order this Summer, that for completeness of detail and furnishing can scarcely be excelled in the world.

A preliminary meeting was held early in May at the Art Institute, which was largely attended, and at this and one or two succeeding meetings the necessary details were arranged.

The officers of the club are as follows: President, Rev. M. L. Williston; First Vice-President, Frank Sayre Osborne; Second Vice-President, Mrs. H. N. May; Secretary, Fred K. Morrill; Treasurer, John W. Buehler; Librarian, Miss Grace Temple. The directory consists of the above-named persons, with the addition of C. D. Irwin, Heaton Owsley, J. P. Gardner, Mrs. P. B. Ware, and Mrs. D. M. Stevenson. The active membership of the club consists at present of about one hundred persons, and is increasing daily. About one-third of the members are ladies. Among the honorary members and lecturers of the club are noticed such well-known names as Professor S. W. Burnham, Dr. E. L. Wilson, Dr. John Nicol, Dr. H. D. Garrison and Coleman Sellers.

FITTING UP THE ROOMS.

The fitting up of the rooms has been left mainly to Messrs. Morrill and Buehler, and they naturally feel proud of their work. A competent person is in charge during the day, and the rooms are open continuously from 9 A.M. until 6 P.M. A brief description of the club's quarters will be in order.

The situation is in the heart of the city, at 182 Wabash Avenue. Taking the elevator, we are landed at the fifth story, at the door of the club. Entering we find the library room, size about 20x40 feet, beautifully decorated and carpeted, and finished throughout in antique oak. The table holds all the current photographic periodicals, and the bookcase a very complete library of photographic literature, which is being constantly added to. The walls are adorned with several of the masterpieces of celebrated American and foreign photographers, as well as many beautiful contributions from the club's own members. An extra large supply of chairs is contained in an adjoining closet, by the aid of which the room can be made into

a very convenient lecture room. A large roller screen for lantern views is suspended permanently over the front of the room, and can be rolled up out of sight, or pulled down in an instant when required for use. The gas fixtures also swing on pivots, so as to be readily pulled aside from the lantern's rays. An easy stairway leads from this room to the working rooms above, and here, upon any day, can usually be found a large representation of the club's members, both ladies and gentlemen. A large iron structure, about 80x50 feet, has been built upon the roof of the original building, with an independent supply of water, and an abundance of light and air.

THE STUDIO.

The studio proper is a room about 20x30 feet, neatly covered by an immense skylight, considered one of the finest and quickest in the city. The walls are tinted with a slightly absorbent color, and the skylight covered with a series of twelve dark-gray shades, by which any desired light or effect may be produced. The studio is supplied with one of Scovill & Adams' Royal Portrait Cameras, with the Gem City Stand, and Voigtlander Extra Rapid Euryscope Lens, with Low Shutter. A very complete assortment of backgrounds, foregrounds, reflectors, draperies, screens and other accessories completes the equipment which is being constantly added to. Adjoining this is a dressing-room, supplied with all necessary toilet requisites, and "make-ups," including a full-length mirror.

Leading from the studio are two commodious dark-rooms supplied with running water and all necessary apparatus, and lighted with Carbutt's lanterns connected with gas, or by daylight, at will. The medium used is red and orange glass. The enlarging room has Eastman's complete enlarging outfit for working negatives 8x10, and smaller, and all apparatus necessary for enlarging, reducing, copying or making lantern-slides.

THE LABORATORY.

The laboratory is well stocked with all the chemicals and solutions in ordinary use, which are supplied free to members for use in the rooms. It also contains one of Smith & Patterson's latest improved burnishers heated by gas.

From this we step into the printing and toning-room, well stocked with all the necessary apparatus, and with printing space for about 200 frames. Against the walls of this room are many lockers for individual use, which are supplied to the members at the cost of making, and become their property without rental. At the end of the printing-room there is another dark-room, to be used either for silvering or for changing plates, etc.

For completeness of detail and good management, thus far, the Chicago Camera Club is a model institution, and is meeting with the success it so well merits.

The spread of amateur photography in the last few years has been simply phenomenal, and to-day, among the most cultured and refined all over the world, no amusement is so fashionable or so popular as that of practicing the arts and mysteries of focus, exposure, development, fixing, intensifying, printing and so on through the numerous and complex operations of the fascinating art-science. More than this, some of the most exquisite genre, character and portrait photos now made are the work of amateurs. It is surprising to one unfamiliar with the subject to know that so many Chicago society people are devotees at the shrine of Daguerre, and though the amateur photographer is by no means given to hiding his light under a bushel, the chances are ten to one that in the

LIST OF MEMBERS

the reader will find the name of some friend who was never suspected of carrying concealed weapons in the shape of detective camera, or sallying boldly forth armed with tripod, lens, box and shutters.

The following are the active members:

Avery, Mrs. Mary L.,
Allen, Charles L.,
Buehler, John W.,
Bacon, Henry M.,
Bartlett, Mrs. N. Gray,
Badger, Mrs. A. C.,
Barker, James,
Borden, M. P.,
Booth, Hervey W.,
Bohn, Jr., Auguste,
Boring, Charles O.,
Braunhold, Louis F.,
Badger, Mrs. S. S.,
Brower, Mrs. A. T. H.,
Chadwick, William H.,
Crosby, C. H.,
Colgrove, James,
Douglass, Gayton A.,
Douglass, Leonard B.,
Douglas, Mrs. Frank,
Dunn, F. K.,
Doerr, C. P.,
Ducat, Gen. A. C.,
Dickey, V. B.,
Forbes, J. M.,
Fargo, C. E.,
Fuller, Dr. C. G.,
Fairbank, W.,
Fletcher, D. H.
Gardner, James P.,
Glessner, George M.,
Hackett, Will,
Harley, R. P.;
Harrison, Jr., C. H.,
Herrick, Miss S. L.,
Hoard, Charles D.,
Holden, C. N., Jr.,
Holmes, E. Burton,
Irwin, C. D.,
Judson, W. B.,
Janney, R. E.,
Johnson, Dr. H. A.,
Johnson, Dr. F. S.,
Jones, Otis,
Kelley, Mrs. M. J.,
Kirk, Mrs. Wallace F.,
Keyes, Rolin A.,
Kinzler, A. F.,
Lee, Charles W.,
Morrill, Fred K.,
Mackie, Mrs. Zilda E.,
Matteson, Dr. C. F.,
May, Mrs. H. N.,
Moore, Mrs. J. H.,
Magin, F. J.,
Marshall, Fred N.,
Martin, Shirley,
Macdonald, C. B.,
McClurg, Mrs. A.C.,
McCleery, J. B.,
Nickerson, R. C.,
Osborne, Frank S.,
Owsley, Heaton,
Owsley, Harry B.,
Peabody, Mrs. F. B.,
Payne, W. M.,
Ransom, Wm. Otis,
Reed, Earl H.,
Rosing, W. H.,
Scott, Mrs. J. W.,
Stevenson, Mrs. D. M.
Schobinger, John J.,
Shufeldt, W. B. E.,
Steward, John F.,
Shuey, W. H.,
Schwatka, Lieut., Fred.,
Scudder, Jr., M. L.,
Smith, James H.,
Stivers, Charles P.,
Sibley, Mrs. M. E.,
Stacey, W. H.,
Tyrrell, Fred. S.,
Temple, Miss Grace E.,
Thompson, Mrs. W. H.,
Tenney, H. K.,
Valentine, John,
Walters, Alfred,
Williston, Rev. M. L.,
Weare, Mrs. P. B.,
Webster, G. W.,
Wells, Mrs. B. R.,
Ware, J. H.,
Woodbury, S. H.,
Wells, B. R.,
Wallach, J. F.,
Withrow, Charles L.,

HONORARY MEMBERS.

Adams, W. I. Lincoln, of New York.
Bartlett, Professor N. Gray, of Chicago.
Burnham, Professor S. W., of Lick Observatory, San José, Cal.
Garrison, Professor H. D., of Chicago.
Hough, Professor G. W., of Evansville, Ill.
Nicol, Dr. John, of Chicago.
Sellers, Coleman, of Philadelphia.
Wilson, Dr. Edward L., of New York.

ASSOCIATE MEMBERS.

Bailey, E. F.,
Hodges, O. W.,
Jones, Seth C.,
Magin, Miss Reinnette,
Payne, H. C.,
Peabody, A. S.,
Peabody, Mrs. S.,
Thompson, Henry G.

The Editorial Table.

PHOTOGRAPHISCHE NACHRICHTEN, edited by Dr. F. Stolze, is a new weekly journal written in the interest of photography and the kindred sciences. It is now the official journal of Photographische Verein of Berlin, and has been substituted as such for Wochenblatt, seemingly for the reason that its publishers have placed it under another editor. "Nachrichten," in the hands of so able a photographer and journalist as Dr. Stolze, will doubtlessly make its way in the photographic world, although it has to compete with two other journals.

The new editor of Wochenblatt has in the meantime taken up his duties, and promises his readers contributions from the more eminent scientists, among whom he may himself well be classed.

It may be taken as very complimentary to Wochenblatt, when Mittheineugen says: "We can now accept this journal without hesitation and fear to find on every one of its pages a personal attack on us."

Let us hope Wochenblatt, under Dr. A. Michten, will be an arbiter between the two other journals, and will ultimately lead to peace and harmony, conflicting factions in Berlin photographic societies.

THE PHOTOGRAPHERS' AND ARTISTS' MUTUAL BENEFIT ASSOCIATION have issued a pamphlet including the state ment of the officers to photographers and artists of the United States and Canada, and various favorable comments from the press.

IN THE *Northwestern Lumberman* for September 28th, our old friend and contributor, Henry L. Tolman, of Chicago, has an important and highly interesting paper on "The Microscopic Study of Pacific Coast Timber," illustrated with cuts from his own microscopical negatives of the various woods treated. Where all is so valuable and interesting, we cannot decided on what part to quote, and we have not space for all. We should like to show our readers some of the cuts, and shall hope to do so in a later issue.

NUMBER 3, of Volume III of "Schumann's Southern Photographic Bulletin" comes to our table. In addition to the Editorial Notes, it contains a continuation of the article on "The Art of Retouching" commenced in the preceding issue, and special notices of interest to buyers. The catalogue and advertisements make up the rest of the little Bulletin, and are by no means the least important part of the periodical. It is published by Theodore Schumann, of Atlanta, Georgia.

MR. C. E. HOPKINS, formerly of the firm of Miller & Hopkins, photographic merchants of Brooklyn, has opened a new photo-supply depot at No. 529 Fulton Street, Brooklyn. Although Brooklyn is already well supplied with photographic stock houses, Mr. Hopkins will undoubtedly receive a fair share of the business, through his large acquaintance with amateurs in that city. It may not be out of place, at this time, to state that Mr. Hopkins started in photography over ten years ago, beginning in a gallery—with the old wet-plate process, of course. He is therefore prepared to supply professional as well as amateur's photographic need.

Record of Photographic Patents.

413,801.—Photographic Camera. Charles W. Eddy, Ware, Mass.

414,015.—Machine for Coating Glass and Other Surfaces With Photographic Emulsions. James W. T. Cadett, Ashstead, County of Surrey, England.

414,171.—Photographic Cabinet. Sidney G. Sherwood, Buffalo, N. Y.

Queries and Answers.

220 A. T. Calvert:—(1) Can you give me a formula for a good and highly sensitive collodion for process work, and, (2) What developer is to be used with it?

220 *Answer.*—

(1.) Iodide of Ammonium ..... 5 grains
Bromide of Cadmium ..... 2 grains
Gun Cotton ..... 5 grains
Ether and Alcohol one half ounce of each

(2.) Protosulphate of Iron ..... 1 ounce
Acetic Acid No. 8 ..... 1 ounce
Water ..... 16 ounces

These are orthodox and well tried formulas, to work satisfactorily for half tones a neutral silver bath of 1:40 is required. For line work acidify the bath slightly with nitric acid.

(2) We presume our correspondent knows how to treat a collodion plate for process work, and how to intensify it; if not, we invite him to call at our laboratory and we will give him detailed information on the subject.

221 ALBERT W. P. wants to know how to make a permanent toning bath; one that will work well always.

221 *Answer.*—A permanent toning bath is one where the acid gold chloride is neutralized with carbonate of lime (chalk) or carbonate of magnesium, and, as far as the "*always working well*" is concerned, let Albert be reminded that all the toning baths published in our standard hand books work well, provided all other requisites are in proper condition.

222 LAURA K.—What is this Nuktigonia or anti-dark room compound we read of in the journals? Is it practical?

222 *Answer.*—An aniline color, probable Fuchsin, added to the developing fluid, to shield the plate from actinic rays when developing.

223 INSTANTANEOUS.—"For what purpose is prussiate of potash added to some developers? We read in relation to Dr. Eder's intensify with nitrate of lead and prussiate of potash, that the latter salt hardens gelatine very much. If that is so, prussiates should act restraining, but not accelerating."

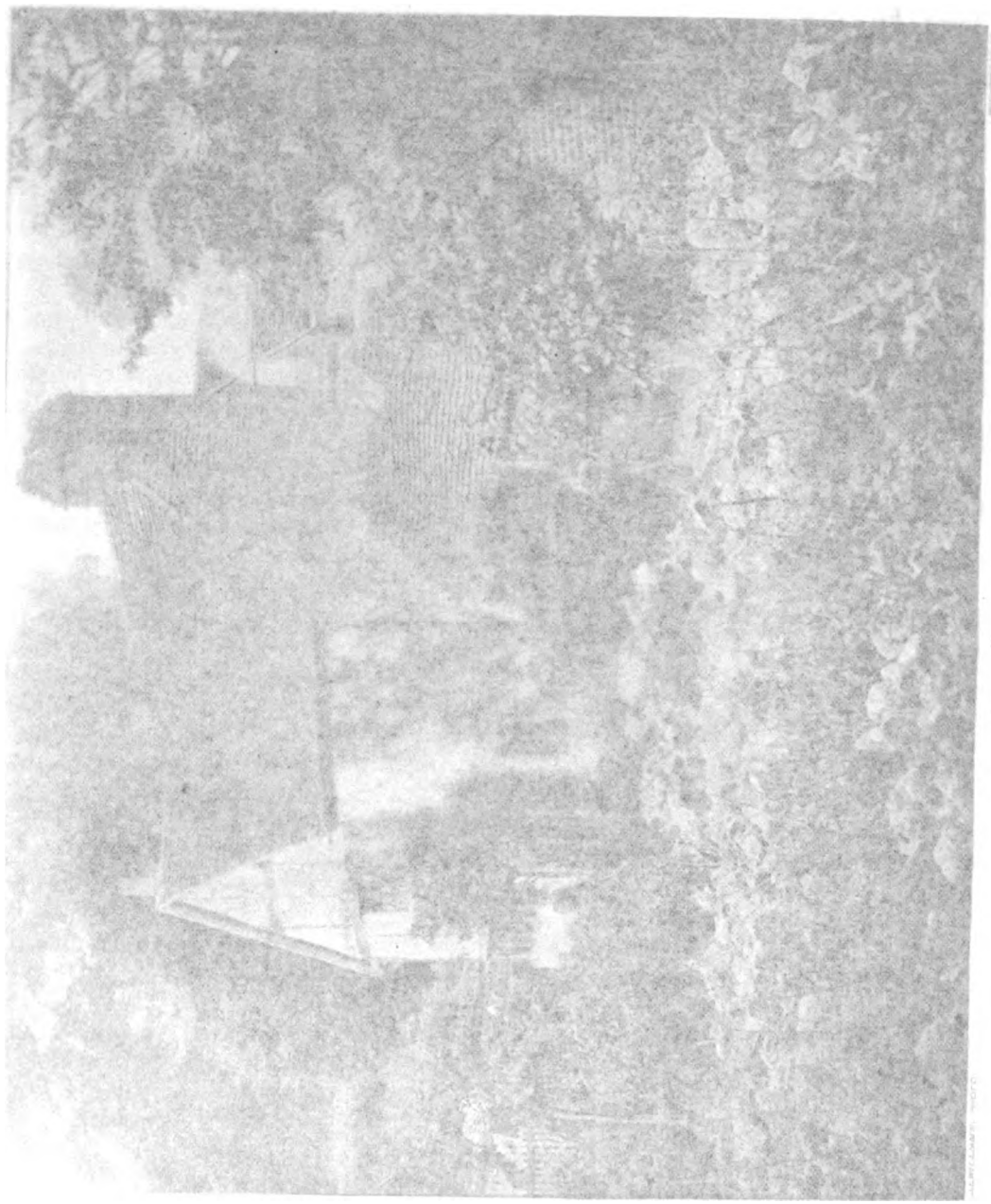
223 *Answer.*—The ferricyanide of potassium or red prussiate does indeed harden gelatine, but the yellow, the ferrous salt, softens it, and accelerates the action of the developer, because by opening the pores of the gelatine, the film is more readily permeated.

224 CARBON.—"Where can I obtain carbon tissue, and what book instructs in the art of making pigment prints?"

224 *Answer.*—(1) Allen & Rowell, 25 Winter Street, Boston. (2) "The American Carbon Manual," edited by Dr. E. L. Wilson. The Scovill & Adams Company, publishers.

J.L.WILLIAMS, PHOTO.

MILTON'S COTTAGE.
CHALFONT-ST.GILES.



THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, NOVEMBER 15, 1889. No. 426.

MILTON'S COTTAGE.

WE present our readers this week with the first of a notable series of photo-gravures from negatives by Dr. J. L. Williams, an eminent English amateur whose camera has been enlisted in the service of THE PHOTOGRAPHIC TIMES' readers. The high character of Dr. Williams' work, both as to its artistic and technical qualities, is fairly shown in the first picture of the series, which makes its appearance this week. Other pictures will be figure compositions with pictorial landscapes, as well as pure landscapes and figure pictures. A descriptive article like the one which follows will be an interesting feature of this series of pictures by Dr. Williams. But more is said of this matter in another column.

Our readers want to know what Dr. Williams has to say in regard to this individual picture. He writes: "It may interest many of my photographic friends to know that the picture accompanying this was taken, as many others which I have made in England were, during a rain storm. After a waste of no small amount of energy and useless effort over the weather, I determined to have some sort of pictures, rain or shine. As it rains considerably more than it shines in that lachrymose country, I managed to obtain a large collection of what may be called 'wet' pictures on 'dry' plates. In the article which follows, Dr. Williams tells us some interesting things about Milton's Cottage.

MILTON'S COTTAGE AT CHALFONT-SAINT-GILES.

I STOOD at the Baker Street Station of the London Underground Railway one June morning last summer, camera in hand, deliberating which way to go for a day's outing, when my eye caught a large, showily printed placard which read somewhat as follows: "Extension of the Saint John's Wood Branch of the Metropolitan Railway to Harrow-on-the-Hill, Pinner, Rickmansworth and Chalfont-Saint-Giles." I had already heard of the picturesque attractions of these places, and some brief mention in the advertisement of a cottage in which Milton had once lived decided me to explore the territory. My first stop was at Harrow-on-the-Hill, most picturesquely situated and rich in historical associations connected with its famous school. I climbed up the long Hill street and wandered about the old churchyard until I discovered Byron's favorite seat on an old tombstone, which I at once recognized from the pictures which I had often seen of it. The view from this point out over the wide, pastoral valley is very beautiful. Another ride of a few miles and I leave the train at Rickmansworth, a typical old English village, with its ivy-covered church tower, timber front houses with projecting gables, and what adds much to its general picturesqueness a stream of clear water winding about among the cottages and along the streets. A most enjoyable lunch of peat-smoked bacon and fried eggs, with the fitting accompaniment of a mug of home brewed ale, at the old village inn, and then we once more take train for Chalfont.

Arrived there we find our destination is still three and a half miles away and it is not possible to obtain a conveyance. Well, there are some advantages in walking, and we set out on what proves to be a most delightful tramp through country lanes and woods, until at last we come out on the summit of a hill overlooking one of the most beautiful valleys in England. Away at the southern extremity of this valley is the village containing the chief object of our day's exploration. The Milton cottage is the last one on the left of the one long street which constitutes the village. It is pointed out to us by some school boys who seemed only too glad to place us in their debt that they may silently claim the right to watch the mysterious operation of making a photograph. The room in which "Paradise Lost" was finished is shown for a small consideration. The

woman who shows it professes that it is in precisely the same condition as when it was the study of the great poet. It contains a few pieces of rudely carved oak furniture, together with a show case in which are some of the earlier editions of Milton's works, and a larger illustrated work on natural history on the title page of which is the poet's name in his own handwriting.

In 1665, while the great plague was raging in London, Milton wrote to a former pupil, a young Quaker by the name of Ellwood, who then resided at Chalfont-Saint-Giles, asking him to find a refuge for him in his neighborhood. Ellwood left a very carefully written account of his own life from which we take the following interesting description of Milton's residence at this place:

"I took a pretty box for him," he says, "in Giles Chalfont, a mile from me, of which I gave him notice and intended to have waited on him and seen him well settled in it." But young Ellwood was arrested with many other Quakers, who were being persecuted at this time, and was thrown into prison. He was, however, soon set at liberty, and on returning to Chalfont hastened to call on his old master. "After some common discourses had passed between us, he called for a manuscript of his, which being brought he delivered to me, bidding me take it home with me and read it at my leisure; and when I had so done return it to him with my judgment thereupon. When I came home and set myself to read it, I found it was that excellent poem which he entitled 'Paradise Lost.' After I had with the best attention read it through I made him another visit and returned him his book. He asked me how I liked it and what I thought of it, which I modestly and freely told him; and after some further discourse about it I pleasantly said to him: 'Thou hast said much here of Paradise Lost; but what hast thou to say of Paradise Found.' He made me no answer, but sat some time in a muse.

"After the sickness (the plague) was over and the city well cleaned and become safely habitable again, he returned thither; and when afterwards I went to wait on him there (which I seldom failed of doing whenever my occasions led me to London) he showed me a second poem, called 'Paradise Regained,' and in a pleasant tone said to me: 'This is owing to you for you put it into my head by the question you put to me at Chalfont, which before I had not thought of.'"

What would the world not give for a similar bit of reminiscence, as ingenuous as the above, concerning Milton's great predecessor who, at this time, had only been dead fifty years?

Another three and a half mile walk back to the station and we return to London weary, but enriched with delightful and never-to-be-forgotten experiences.

J. L. Williams.

PHOTOGRAPHY AT THE AMERICAN INSTITUTE FAIR.

We regret once more to report that photography has not the representation at the American Institute Fair which it should have. In fact, there is no improvement in this particular over the several years preceding. About the same photographers exhibit from year to year, and reap all the benefit of the exhibition. Many prominent and excellent photographers seem to lack the enterprise necessary to place the best specimens of their work where they may be seen and admired by the general public. The Fair authorities offer them every facility and excellent quarters, but still they continue to remain out.

Those who do exhibit, however, make displays that are well worth seeing. As yet, we have had opportunity but for an imperfect examination of the photographic exhibits, but we saw enough to convince us that the photographers of this city and vicinity are improving in their work. From an artistic standpoint, the photographic exhibition at the Fair is an advance over that of last year. There are some notable photographs shown from photographers out of town who do not exhibit, as a rule, at this Fair.

One of the most interesting exhibits is that of the veteran photographer, Jeremiah Gourney, who shows a large frame of opals and porcelains finished in water colors in the best of taste. These pictures are called "imperishable" because of the impervious protective varnish which shields them from the deleterious influences of moisture or impure air.

Perhaps the most striking exhibit is that by Frederick Gutekunst of Philadelphia. He shows a brilliant collection of well lighted and posed portrait heads of large dimensions. The photographic work cannot be criticized; it is the perfection of technical photography; and the taste displayed in lighting and posing is fully equal to the skill shown in the photographic manipulation. There are also shown in this collection instantaneous landscapes and marine views as well as still-life photographs of great beauty. The exhibit includes a large collection of specimens from Mr. Gutekunst's extensive photo-mechanical printing establishment. These pictures cannot be excelled in their field. The collection is full and varied, and altogether the

exhibit of Mr. Gutekunst is one of which any artist might well be proud.

Gustav Cramer of St. Louis, the well-known manufacturer of dry plates, shows, by the very beautiful collection of photographs which he makes, what can be accomplished on the Cramer plate. The best photographers of the United States are here represented. There are a number of life-size heads, especially, of unusual excellence. Unfortunately, however, no names are attached to these pictures, so that we do not know to whom praise is due. There are Rocky Mountain pictures, by Jackson of Denver, in this exhibit; also genres, by McMichael. The large heads of Ryder of Cleveland and by Decker of the same city, as well as the collection of boudoirs by Stein of Milwaukee, combine to make this exhibit a notable one.

Wilhelm, of Madison Avenue, New York, shows some fine life-size and half life-size portraits and enlargements finished in pastel and crayon. The large heads show considerable technical skill and artistic feeling, but the cabinets, of which a large collection is exhibited, are of less value as works of art.

The veteran, Charles D. Fredericks, exhibits excellent life-size portraits, in oil, of Vice-President Levi P. Morton, Roswell P. Flower and other prominent politicians. Several pastels and crayons, a number of very fine miniatures in water colors, and the usual excellent display of smaller sized work, go to make this exhibit fully as interesting and instructive as any in the Fair.

De Young shows free-hand drawings, bromide enlargements in pastel and crayon, and a large collection of portraits in oil. The children's pictures in this exhibit are very pretty; so also is the portrait of a lady, three-quarters length. The cabinets are of better average merit than those shown by this artist on former occasions.

George Rockwood exhibits some effective bromide enlargements in crayon and pastel, among them excellent likenesses of Gustave Eiffel, Cornelius Vanderbilt and Mary Anderson. Two 40 x 48 bromide enlargements are notable pieces in this exhibit. There is also an excellent collection of boudoir, cabinet and other size regular photographic work.

Parkinson makes his usual fine display. He certainly excells in life-size heads taken direct, as those enlarged from small negatives by the bromide process. His interiors are also very fine. The large groups are not so good, being underexposed in some instances, and not displaying the art feeling which is conspicuous in the rest of his work.

Dana shows some exceedingly well rendered ladies' heads and three-quarter figures. The lighting is especially good, and the plates were skillfully developed. This large collection is uniformly good.

Perkinson, of Third Avenue, shows a few large life-size crayons, and a good display of cabinets of average merit.

The "flash" light studio of Hall, of Brooklyn, on the terrace adjoining the Photographic Section, where he has arranged an alcove, by screens and curtains, of sufficient dimensions for making 4x5 standing pictures, is an interesting feature of the fair. He has backgrounds, accessories, and all the paraphernalia necessary for making ordinary studio "flash" light photographs. He uses pure magnesium powder with an automatically exposing lamp. He lights up the shadow side of his pictures by means of a metallic mirror. The samples of "flash" light work which Mr. Hall shows are really very good. He seems to be doing a good paying business, developing plates on the grounds and showing proofs the following morning.

The life-size portraits drawn by Mr. Jerarde Early, in outline, are worthy of commendation.

F. A. Ringler & Company make their usual display of galvano-plastics and electrotypes. The large shield in high relief, thirty-two inches in diameter, and silver-plated, is a fine piece of work. There are portraits and other reproductions of copper and steel plate engravings and ornaments of all kinds.

Mr. Spiro's patented "Nuktigonia," an aniline color—fuchsin, most probably—is shown.

The Scovill & Adams Company makes an exhibit which is alone worth a visit to the fair. They show specimen cameras of all styles and prices. There are several new cameras exhibited. The "Star" camera and the "Columbia" camera are new boxes; the ever-popular "Waterbury Detective" camera, in a leather case, is conspicuous; and the reliable "Scovill" detective camera still continues to attract favorable comment. "Albion" cameras, "Bicycle" cameras, and the old standbys, "Revolving" and "Reversible Back" cameras; the "Manifold" camera; the "Compact" Stereo camera, may also be seen in this instructive exhibit. The "Wonder" Outfit, complete for seven dollars and a half, is truly a "wonder." The "A. B. C. Equipment" is also properly named, as nothing can be simpler or better. In addition to the cameras and apparatus shown, a full line of

the Scovill photographic publications, now numbering over thirty, is on exhibition. Here, also, are sample copies of THE PHOTOGRAPHIC TIMES, with its popular photo-gravure pictures. The exhibit is always surrounded by a throng of interested sight-seers, and the two attendants who have charge of the booth are kept busy explaining the cameras, and showing the latest novelties introduced by this standard company.

There are other exhibits in the photographic department which we have not space even to mention. In a later issue we may resume the subject.

EDITORIAL NOTES.

THE "American Annual of Photography and Photographic Times Almanac" for 1890, in comliance with the promise of the publishers, will be ready by December 1st. Most of the volume is already on the presses, which are working day and night. The first edition being ten thousand, it is no small matter to print and bind "The American Annual of Photography" this year. All proof having passed through our hands, we can say that the "Annual" for 1890 is as far ahead of the previous issues as they were in advance of anything previously published in this line. What more can be said? The full-page pictorial pictures are *twenty* in number. The original articles were all carefully selected from a much larger number of contributions sent in. The tables have all been carefully revised and enlarged. In a word, "The American Annual of Photography for 1890" is as complete and perfect a photographic volume as could possibly be desired.

THE pleasant custom of the publishers of THE PHOTOGRAPHIC TIMES for the past two or three years to present their readers with a special Holiday Number at Christmastide will be maintained this year, and the work of preparation has already commenced. The Special Holiday Number this year will be double or triple the size of the current issues; it will be embellished with several full page pictorial plates, and be a notable photographic publication in every respect. The editorials will be on seasonable topics of practical value and timely interest. We can already announce original contributions written especially for this number by such well-known photographic workers and writers as W. H. Sherman, of Milwaukee; W. J. Stillman, of Rome, Italy; W. Jerome Harrison, of England; G. Watmough Webster, also of England; Gen. Joseph B. Brown, U. S. A.; Herbert L. Aldrich, the Arctic photographer; Prof. Charles Ehrmann, of the Chautauqua School of Photography; J. R. Swain, of Dana, Indiana; Dr. J. L. Williams, of England; Miss Adelaide Skeel, and many others. Other announcements will follow. We invite the co-operation of our readers.

Contributions, not too long, of individual methods will be acceptable, and if found worthy of a place will be included with the other contributions. It will be a goodly company.

The price will be twenty-five cents for this Special Number, though our regular subscribers will, of course, receive it with no extra charge. Those subscribing for the PHOTOGRAPHIC TIMES for one year previous to December 1st will receive all the December issues free, including this special Holiday Number. Those sending in their subscriptions in December will receive the remaining issues of that month, free, and if in time the Holiday Number, which will be published December 20th.

WE have frequent demands for extra copies of THE PHOTOGRAPHIC TIMES containing photo-gravures which have particularly pleased our readers, and our publishers have been asked to supply the photo-gravures published in THE PHOTOGRAPHIC TIMES to those who desire them. This could be done, but the price might naturally seem very high to those who are accustomed to getting them in THE PHOTOGRAPHIC TIMES at the nominal price of fifteen cents each. Some of our readers seem to be ignorant of the real value of these photo-gravures. Because one is given in a copy of THE PHOTOGRAPHIC TIMES they conclude that the photo-gravure is a cheap picture. If those who are thus misled by the nominal price charged for THE PHOTOGRAPHIC TIMES containing a photo-gravure will take the trouble to inquire the price of a copperplate engraving from a photographic negative, at any art store, they will find that they are sold for from seventy-five cents to a dollar and a quarter each, according to the location and character of the store. It would not be possible to supply a few copies of any photo-gravure published in THE PHOTOGRAPHIC TIMES at less than fifty cents each. It is only because a large edition is used in our magazine that it is at all possible to sell it so cheaply. When a large edition is used, the cost of the original plate, being distributed over a large number of prints, makes each impression, of course, cost less than when a smaller edition is printed. Men value most what costs them most. If our publishers should charge fifty cents a copy for our magazine, which would be necessary if a smaller edition were published, many

of our subscribers would undoubtedly value the photo-gravures more highly than they seem to at present. As it is, they are getting the finest grade copperplate engravings at the *actual cost in large numbers*. Or, in other words, they are getting selected pictures at retail at the *cost* price of large editions.

In this connection, it may not be out of place to say that reading photographers, as a class, are showing their appreciation of The Photographic Times in the plainest and most substantial way—by sending in their subscriptions. For 1890 The Times will continue to be illustrated by photo-gravures from the very best negatives that can be obtained in this and foreign countries. The pictorial quality of the negatives will be even higher than it was this year. The improvement in this particular, noticed in the succeeding issues of this year, will go on. There will be a larger number of portraits and figure compositions, in compliance with the evident desire of our professional readers, and only the best landscape pictures, marines, interiors and architectural studies will be accepted for illustrating The Photographic Times.

We have already arranged for several important features in the illustration of this magazine for 1890, which will be highly acceptable to all photographers. A series of negatives from famous pieces of statuary will be one feature of the illustrations. These negatives will include groups as well as single pieces, by the most eminent sculptors in the world, so that they will have the highest instructive value to studious photographers, both in composition and pose. There will also be published a number of photogravures from eminent paintings that have art lessons to teach photographers—not pictures which it would be impossible for the camera to make, but those within the easy reach of the trained and skillful art photographer. There will be a highly valuable series of pictures from abroad, by Doctor J. L. Williams, the English amateur who devotes all his time to travelling and photography. These will be accompanied by descriptive articles from various parts of the world. Another series of similar character will be that by Maxamilian Toch, who describes a journey in the Torrid Zone, and supplies negatives for photo-gravures of characteristic and picturial scenes in Florida and the West Indies. The prize winners at the P. A. of A. exhibitions will also be shown in photo-gravure, as well as the best work of the most eminent members of our national association. This group of pictures will include work by President Appleton, Ex-President McMichael, O. P. Scott, of Chicago, George Barker, of Niagara Falls, C. H. Stoddart, of Erie, Pa., Sarony, of New York, and others no less eminent in photographic art circles.

The reading matter will continue to be the best which can be obtained. The author of each picture will have something to say, not only about the particular picture which he shows, but also concerning his methods of work in general. Our reports of societies' meetings and current photographic events will be complete, but subordinated to the practical articles by eminent photographic workers and writers, and the discussion of questions of importance to photographers, both professional and amateur. There are many new features in this department of The Times for 1890, yet to be announced. We speak of these few leading features thus early, that our readers may know what to expect during the coming year.

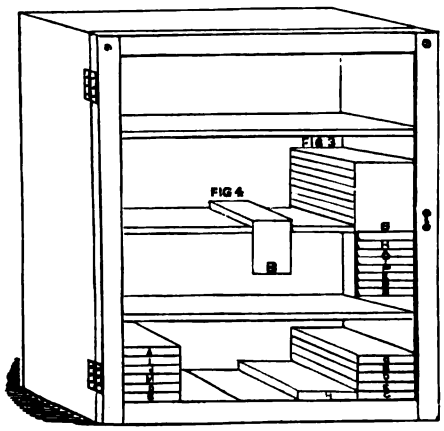
Those subscribing now will receive The Times for one year from the 1st of January, 1890, in *addition* to the December issues, including the special Holiday Number. Last year a number of our readers who delayed sending in their subscriptions till after the first of the year, were disappointed in not securing all the early issues. We only print the number of actual subscribers. Our publishers cannot afford to pay for an extra edition of so expensive a magazine, to supply those who may come in later, but who neglect to notify them in time. Now is the time to subscribe. You are sure of getting the complete volume, with all the pictures for 1890, and, in addition, without extra expense, the issues of December, including the special Holiduay Number.

TO REGISTER NEGATIVES.

To begin I have a dark box with a dark slide for holding my dry plates as I take them from the original boxes. Just before I put a dry plate into the plate-holder I take an indelible lead pencil (or a common lead pencil), and write the number of the negative on the gelatine side at the top right hand corner.

On my studio register I put down the name of subject and number of negative. After the order is printed off I file them away in the original boxes that they came packed in and use the same separators. I first take a piece of writing paper and paste it on the top of the box, and have twenty-four empty plate boxes and mark the alphabet on the twenty-four boxes, each box having its letter marked on its end. I then commence, for instance,

all surnames in A and put in A box, and write on top of box the surname first, then the given name, then the number of negative, and register each surname in its box and continue until all boxes are full.



Now to put the negatives away, make a case like the diagram. One can make it oneself. Get a common window sash, with one or more panes of glass, and then make a case to fit the sash with two or more shelves, and hinge the sash to the case, and you are ready to file your negatives away until duplicates are wanted.

For all the boxes that are filled, take a piece of writing paper, with twelve lines, and write the name and number, the same that is on the top of the box, and paste it about one-fourth of an inch on top of the box at one end same as in Fig. 4, it will then hang down and do likewise to all that are filled, and place them on top of each other as in Fig. 3. You do not have to take a box from its place until you find the name and number. For instance, we have a duplicate order from John Egbert. Open the case and run down the column until you come to E, lift the paper and you will find twelve negatives, all with the surname first, then the given name, then the number of negative. If not in that column or box, look down another column until you come to E, and so on until you find it. You do not have to move a thing until found.

After each days printing, pile your negatives in your boxes that are not filled, which you will find in the lower shelf or bottom, one which is for unfilled or part filled boxes. Letter them from A to Z, and register them as described. When filled paste the twelve line paper, the same as in Fig. 4, and put on upper shelves. As you fill the box, replace it with the same letter on end of box, and paste a blank paper on top to register the name and number. The reason that we use the lower or bottom shelf is that there would not be any room for the extra paper that is pasted on to hang down, so we use all shelves above the bottom one for filled boxes. *O. C. Hale.*

LENSES.

[A Communication to the Birmingham Photographic Society.]

We propose having a little talk this evening about photographic lenses. It is comparatively easy to talk without saying anything that is to be profitable, and my difficulty is to tell you something you do not know. But I do hope the discussion I shall endeavor to start will bring out some practical knowledge for diffusion among us. That is my object in accepting my present position. I propose to leave out, as far as circumstances will permit, the theoretical and scientific aspect of the subject, which only interests its few, and treat as well as I am able of the practical side of it, that is, the knowledge and use of lenses, in which we must *all* be interested. At the same time, I strongly recommend all photographers to learn what they can of the theory and principles of photographic optics, as they will the readier grasp the intentions, capabilities and use of their lenses. I am not going to attempt much history of lenses either, but will speak of them as I find them.

To commence with, I may perhaps point out where a photographic lens differs from any other. If I take a simple spherical lens, such as a magnifying glass, and attach it to a camera, then turn it to some brilliant object, I see fringes of color around the lights, prismatic colors of course. If I take a picture with it, I obviously fail to get sharp outlines, besides finding numerous other ills from spherical aberration, etc. Most of these faults were studied and corrected when telescopes came to be made, long before photography was known. The color, or chromatic aberration as it is termed, was got rid of by making each lens of two kinds of glass cemented together, one counter-balancing the opposite errors of the other, and so telescopes became greatly improved. I have felt obliged to mention the telescope lens, because the photographic lens is in a sense the outcome of it. The lens I have now described may show a very satisfactory image upon our ground glass, but attempt to take a picture with it and you will find it all out of focus. Strange to say, it is found there may be a chemical and a visional focus, and that the two quite differ. I have no doubt Daguerre found this difficulty, and had to ascertain how far to move his focusing screen to get at the chemical focus. A photographic lens has to be corrected to make

the two foci coincide, and I mention this chiefly because plenty of lenses are knocking about to-day where this has been very imperfectly performed, much to the detriment of the lens and the mystification of the tyro. We have got as far now as what is called a single lens (the compound of two pieces of glass). It is now so well understood and simplified that I now can pick up a very decent half plate photographic lens, an unmounted meniscus, that can be bought in quantities at eighteen pence each, quarter plate a shilling. It is such as you find in cheap cameras, and in skillful hands will produce pictures difficult to distinguish from those produced with expensive lenses. It was observed that these lenses, while giving most excellent results in landscape pictures, when applied to straight lines, such as architecture or machine drawings, gave very decided distortion at the margins. When the stop was at the front of the lens the distortion was barrel-shaped, that is, coming in at the corners, while when the stop was at the back of the lens the distortion was pincushion shape, that is, extended at the corners. These faults were got rid of by employing two enses at varying distances apart, with a stop between them. This form is called rectilinear, and other names with a similar meaning. You will here observe that the stop is in front of one lens and behind the other; this may be why one corrects the other, though I have never observed it in print. *Walter Griffiths.*

(*To be continued*).

PRACTICAL PHOTOGRAPHY.

(*Continued from page* 559, *and concluded*).

"My boss is all right on that score, Harry, he makes me regular. As soon as twelve o'clock strikes he holloes, 'Will, dinner,' and off I go; and if there are any sittings to make, he makes them and I develop when I return."

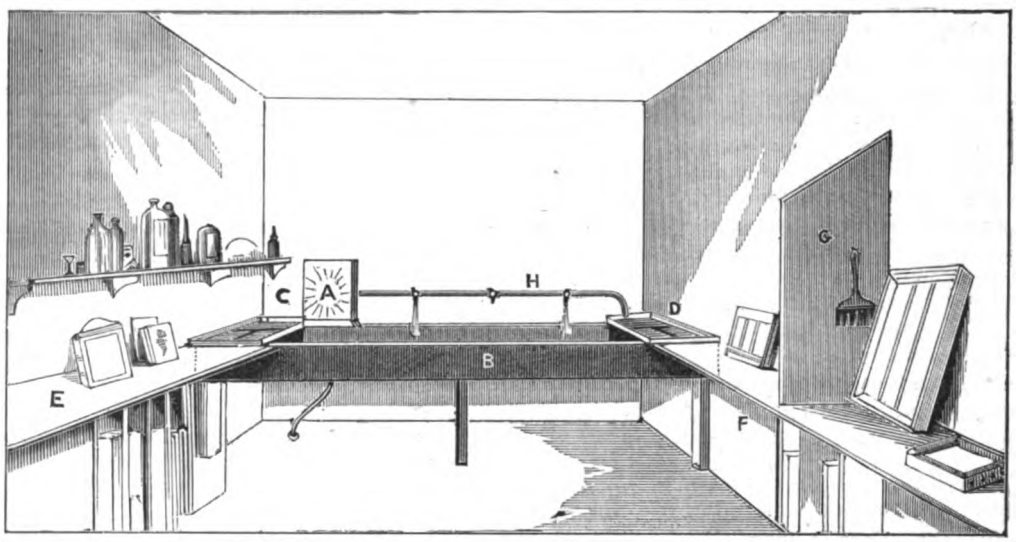
[After a while Harry and Will are back to the gallery.]

"Now about the dark-room, Harry. How is the best way to arrange it?"

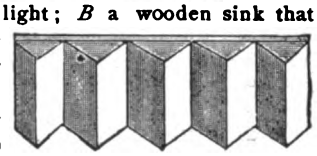
"Well, as I told you before, I will call it the developing-room. It need not be very dark. I like to have it as cheerful a place to work in as any other. People talk about using a non-acting light. There is no such thing, strictly speaking, for I could make a good transparency from any light that was ever used in a developing-room. Come to my room and I will show you the light that suits me better than any I know of. You would think, to look at it, that it would fog any dry plate made, but it will not in any reasonable time. It is composed of one sheet of ground glass, one of deep orange and one of yellowish green. This combination makes a very pleasing light for the eyes, and perfectly safe for Seed's 26 plate. I use gas, and have it outside the partition and the glass in the partition. This keeps the room cool in summer."

"Why don't you use daylight?"

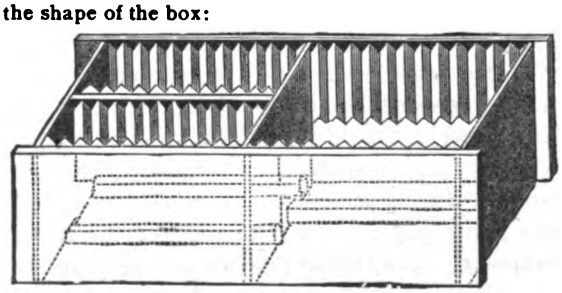
"It is impossible to get uniform intensity by daylight, on account of it changing every hour of the day, but with gas or lamp you can have one light all the time, and you are not deceived in judging the strength of your negative. Now let us make a sketch of the room:



"*A* is the developing light; *B* a wooden sink that extends right across the room—this is ten feet long—at the right hand side: *D* is the washing box for all the smaller sizes, 8-10 and under—it has V shaped grooves.



"*C* is a fixing box, made the same shape as *D*. This is the shape of the box:



"The water runs in at the bottom and over the top; a strip of wood runs lengthwise on the bottom for the

plates to rest upon. This is important in the washing box, to allow the water to circulate well among the plates, and in the fixing bath, to prevent the negatives from disturbing the sediment, and it keeps your bath perfectly clear, so that all that is necessary is to strengthen it with hypo and alum from time to time. Thisone has been in for a year, and you see it is as clear as water. There is over one inch of sediment at the bottom. *E* is a shelf with rack under it for developing trays. *F* is another shelf with rack for plate-holders. *G* is a partition board which divides the shelf *F*; the side farthest from the light is for dry-plates and filling of plate-holders. Under this shelf is our stock—all Seed plates. I have tested all makes, but have settled down on the Seed for uniformity in quality; in fact, they are good in every respect. *H* are water taps. Sink *B* has strips all along on which I rest the developing trays. I commence to develop as far off from the light as I can over the sink, and when the development has proceeded about half I come right up to the light, so that when I need to see how the negative is getting along, I have all the light I require to see perfectly what I am doing, with no danger of fogging after the negative is half developed.

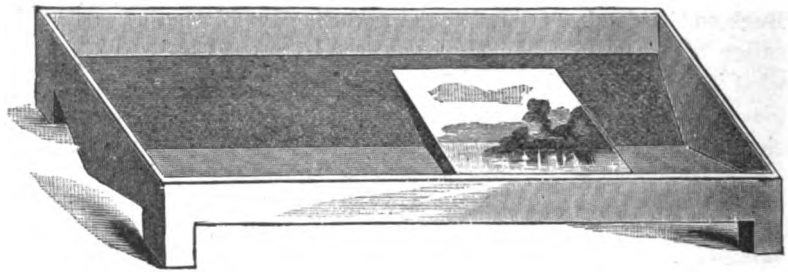
"I was showing my light to an operator the other day who afterwards fixed his like it, but he came to me yesterday and said he had to put in his own light again because the other fogged every negative he made. But I found that he had bought a pale orange instead of a deep orange, and that he took his plate right to the light and commenced developing; of course the two things together fogged his plate. Last week one to whom I had recommended the Seed plate, came and said they were fogged, and developed very slow. I told him I did not think it was the plate, it must be something else; so I gave him a dozen of mine, which I knew were all right, in exchange for a dozen of his. I found his just as good as mine, except they might have been a shade quicker. He returned next day, said mine fogged too. I suspected his pyro was bad, so I gave him some Shering's. That was the trouble, bad pyro, and I believe there is a great quantity of it sold throughout the country; but it is generally the photographer's own fault, because he tries to get everything the cheapest. You will find that those who get the best of everything, and are willing to pay for it, turn out a more uniform and better class of work. This applies not only to pyro, sulphite of soda, silver, etc., but more especially to dry-plates. I have tried cheap plates. Sometimes they were good and then again bad, so I have settled down on the Seed as the most uniform and reliable in the market."

"Were you ever troubled with blisters? I do not mean frilling, but hard blisters?"

"No, but I have known others to have been troubled with them, and think they are due to too much alum in the fixing bath, causing a sulphurous gas under the film and, of course, ruining the negative. A few drops of ammonia added to the fixing bath will generally check them."

"I noticed in your description of developing-room you speak of a grooved box for the fixing bath, and discourage the use of flat trays. How then do you fix your large plates?"

"Then I use a flat tray or trough, made in such a way so that I can put my negatives in, film down, without injury. Here is a sketch:



"It is made of wood, with paraffine or pitch well ironed into the wood with a hot flat iron, inside and outside; this makes it lasting. But here comes a sitter—appears to be from the country."

"Hard subject for a picture?" says Will, in a whisper.

"No, not very. I'll show you how we fix up such subjects."

Harry looks at his subject, studies a moment, puts his chair into a suitable position under the light, seats his subject, who has red hair and a ruddy complexion, puts an apron around her shoulders and powders her hair all over, but especially thick on the shadow side; also, with a piece of plush velvet he goes over the face where needed. This is all done in a very short space of time. One second exposure and it's ready for development.

"Come in, Will, and we will develop this right away. When I am busy I generally wait till after five and keep several trays going at once."

"What developer do you use, Harry?"

"Seed's formula. I find it the simplest and easiest to modify, one way or the other, as I may require. Now, you will notice that it begins to appear in about ten seconds."

"Mine don't come up as quick as that, Harry. It's generally twice as long."

"What temperature do you keep your room?"

"Well, I hardly know; probably about 60 deg. Fahr."

"See what my thermometer says. It is in the corner there."

"75 deg. Fahr."

"That is about right. The nearer you keep your room to that temperature the year through, the more uniform your results will be."

By this time Harry's negative is developed and fixed.

"Fixed already?" said Will.

"Yes; all due to the proper strength and temperature of bath. But I will put it back for a few minutes. This is important, as it prevents the negative from ever turning yellow. I have found different makes of plates to vary considerably in their time of development and fixing. Some brands I have found to take ten to fifteen minutes to develop, and from twenty to thirty minutes to fix. Of course, I could not stand that. The quickest developer and fixer is the Seed plate; for uniformity it beats them all, and for quality has no superior."

"What have you in those two little bottles with the quills in the corks?"

"The square one contains a 20 grain solution of bromide of potassium. I put it in a square bottle, so that when I put my hand on it in the dark I know it at once. If I find my negative comes up too rapidly, I tilt my devel-

oper to the corner of the tray and shake a few drops of this solution in; this keeps the shadows clear, and gives me a good negative. The other bottle, which is round, contains a saturated solution of carbonate of potassium, to be used in the same way for under-exposures. You see, I have a little shelf for each one, on which I put nothing else; it is so arranged that I can quickly add the one or the other, as the case may require."

"What method do you consider the best for strengthening or reducing a negative?"

"That is something I very seldom have to resort to, though I often have found local reduction a very good thing, especially in a group, or under-timed child's picture, where the white drapery is too intensely white. Keep on hand a saturated solution of chloride of lime. Of this, when settled, take 1 oz. to 5 oz. water (your negative must first have been thoroughly fixed and washed), and with your finger rub gently those parts you wish to reduce. To avoid a defined line keep your negative thoroughly wet. When sufficiently reduced, wash well. In warm weather, ice water must be used, or you will rub the film off. For intensification, try the following, which I took out of the 'AMERICAN ANNUAL OF PHOTOGRAPHY AND PHOTOGRAPHIC TIMES ALMANAC FOR 1889' (which, by the way, is the way, is the most complete and best annual I have seen):

"INTENSIFICATION OF GELATINE DRY PLATES—(Scolick's method of mercurial).—The fixed and well-washed negative is allowed to remain in the following mercuric-chloride bath until the film is thoroughly whitened:

Mercuric.chloride	1 part
Potassium bromide	1 part
Water	50 parts

The bleaching being complete, the mercuric solution is rinsed off, and the negative is immersed in a mixture of equal parts of saturated solution of sodium-sulphite and water; the darkening action will be seen to take place steadily and slowly, just as when ammonia is used. Wash away the excess of sulphite.

REDUCER FOR GELATINE DRY PLATES—(J. Bartlett's):—

Perchloride of iron	30 grains
Citric acid	60 grains
Water	1 pint

"Here's another sitter; Miss ——, an old customer, but hard to please."

"Mr. Ross in?"

"Won't be in to-day, miss."

"Then you see what you can do with me, Mr. Farman. I've never had a good picture in my life." (Mr. R. had taken at least twenty.)

"Oh! I think, Miss ——, we have several good negatives of you."

"I think they're horrid. Either my nose is too long, or my chin too high."

Miss —— has a very pretty face, with the exception of the nose, which was exceedingly long for a girl of sixteen, the point nearly touching the upper lip. Harry saw at once where the trouble was, and made up his mind what to do.

"Well, Miss ——, if you will leave everything entirely to me, I will see what I can do to please you."

"Certainly, Mr. Farman, have your own way about it; though you know if I don't like it, I must sit again."

Harry gives the apron he has for the purpose a good shake, and puts it over her shoulders; draws up his little table, on which he has the powder, black crayon, velvet brushes, etc., etc. He first puts his subject in the light in which he intends to take the picture, and with velvet and black crayon commences to work on the end of her nose, making it the same intensity as the shadow under, so that you could not see the difference, then with the powder he works a little high light above the black, and the transformation was wonderful. She had now a beautiful face complete. He exposed the plate, developed it, and all was right. He was now careful not to allow his sitter to see herself at the glass, because in any other light than the one she was taken in, she would look terribly disfigured; so with a clean, wet sponge he carefully cleaned it all off.

(Miss —— called next day for the proof, and declared it was the best picture she ever had.)

"What do you think of that, Will?"

"I never saw anything like that before. I would be afraid to try it, lest I should make a mess of it."

"O! there's nothing like trying, Will; you'll never succeed unless you try. I have sometimes had to work on the upper or lower eyelid to make both eyes appear alike; same with the mouth, ears, etc. Much can be done in this way, and done quickly; you can also save your retoucher much work by carefully covering blotches on the face, scars and other defects."—*From Seed's Manual.*

A COLLEGE WITHOUT BUILDINGS.

A SYSTEM OF CORRESPONDENCE TEACHING.

THE sixth year of Chautauqua College of Liberal Arts begins this autumn. The success of Correspondence Instruction has been demonstrated. The college offers college work in all departments, and under the best instruction. This is helpful and stimulating. It is thorough, and no careless work is tolerated. At first sight the idea of *teaching* courses in the sciences, languages, mathamatics, history, literature—by correspondence, seems fanciful; but during the past five years hundreds of such courses have been successfully conducted.

The plan is simple but complete. Definite work in text book or in practical investigation is assigned for each lesson. Suggestions relative to the methods of study to be pursued, and explanatory of difficulties that may arise are given at the same time. After the study has been completed, the student writes out a recitation sheet, and answers a set of questions. This is to be done without the aid of the text-book. The recitation sheet is forwarded for correction, and after being corrected is returned to the student, who asks questions and advice regarding points of special difficulty. Thus the lessons pass back and forth through the year. The success of the method is shown by the fact that students take one course after another in a given line of work, year after year.

The students whose needs are met by the Correspondence College are of two kinds: (1) those who wish a degree upon completing a full college curriculum; (2) those who wish to perfect their knowledge in one subject, and who have no desire for a degree. While there are a number of students working for a degree, the majority are special students in a single school. Such students find a wide range of elective and advanced courses in the line of their specialty.

There are more and better courses of this kind offered than students can find in *most* colleges. The teachers are all specialists, and the advanced courses are particularly attractive. Three years of work in college English, three years in college German, three years in French, five years in Physical Sciences, four years in Geology, two years in Political Science, and two years in History, afford unusual opportunity to the special student.

That correspondence methods of instruction are a success is shown by the number of institutions which, in whole or in part, adopt the system. We are informed that last year the University of Cambridge, England, put into operation a full curriculum to be taught by correspondence. A move in this direction by a conservative old English university is a strong endorsement.

The prospects for the Correspondence College are most encouraging. Already the number of courses taken surpasses that of last year—as a whole the most successful year the college has ever had. Students are enrolling daily with Mr. Frederick Starr, Registrar, New Haven, Conn., and before Christmas a large body of students will be at work.

Notes and News.

"Doing Itself Proud."—By the way," writes Mr. George Eastman, under date of November 2d, "that is a beautiful illustration that you have in this number ("Indian Summer," in November 1st). The TIMES is 'doing itself proud.'"

New Danger to Photography.—The New York *Sun* says a new danger confronts amateur photography. The all prevailing Croton bug has taken to the gelatine of the dry-plate. An amateur developed some cherished negatives yesterday, and set them up on the kitchen washtub to dry over-night. In the morning he found the gelatine eaten off all around the edge of the plates in an irregular band as wide as the average Croton bug is long. The bugs had sampled the new dish, and, apparently not liking the taste of it had turned tail without walking further into the landscape. As it was, they had devoured the hinder part of a Jersey cow, an old farm fence, part of a forest, two stacks of corn, half a leg of the hired man, and a group of children whole.

The Amateur Photographers who spread themselves over the country this summer and made many a devoted couple nervous with their conscienceless snap cameras and dry-plates, might find an interesting and harmless field for their winter's amusement in making pictures of the old houses, especially those in the eastern part of the city, many of which in a few years more must give way to modern improvements. Some curious relics of Colonial architecture survive in the little streets that run from Front westward, especially in the district between Arch and Vine streets. Nothing more quaint and picturesque could be desired than these old houses, built of red and black bricks and crowded in narrow courts in the Old World way, and photographs of them would have an historic value which would increase with years to come when the originals have been destroyed.—*Philadelphia Inquirer.*

A Powerful Light for Photographing Caverns.—The following is a mixture which gives a penetrating light, visible in clear weather at a distance of 100 kilometres, and having an illuminating power of 20,000 candles; it will answer, consequently, for lighting large dark spaces, such as grottoes and caverns.

Manifestly, so much light would be altogether superfluous for portraiture:

Powdered Magnesium	20 parts
Nitrate of Barium	30 "
Flowers of Sulphur	4 "
Beef Fat	7 "

The fat is added in the melted state, and the mixture allowed to cool in zinc boxes ten centimeteres high, and seven centimetres in diameter. The weight is about half a kilogramme, and the time of combustion twenty seconds.

Le Moniteur de la Photographie.

A Photographer "Held Up."—The Denver *Times* tells how F. A. Nims, the photographer who accompanied Engineer Stanton down the Colorado River Cañon, while going to his room Monday night about 11 o'clock, was held up by a colored man on California Street, between Eighteenth and Nineteenth. He says the fellow had his feet muffled and Mr. Nims did not know of the presence of any one until a large pistol was put to his head, accompanied with the order to "hold up." He held up his hands, and the fellow passed a hand across the pockets, and ascertaining in which one the purse was took it out, which contained only a few dollars. "Where is that money you got out of the bank this afternoon?" was the question asked when the "hold-up" felt the small amount of money contained in the purse. Mr. Nims replied that he had not been to the bank, whereupon the fellow peered into his face and uttered an oath as he said, "You are not the man I am laying for," and walked away with the purse.

The Photograph a Weather Prophet.—According to Dr. Zerger, of Prague, photographs of the sun taken on orthochromatic plates furnish a means of predicting, by more than twenty-four hours, the approach of tempests, hurricanes, earthquakes, etc., a knowledge of whose advent would be obviously of much value to the tourist. These photographs display the appearance of more or less elliptical rings surrounding the solar disc, which, when they grow larger in diameter, announce the approach of a hurricane or other atmospheric disturbance towards the point of observation.

"Up in a Balloon."—The carrier-pigeon has just been turned to a curious use in Russia. It is to convey negatives of photographs taken in a balloon. The first experiment was made from the cupola of the Cathedral of Isaac, and the subject photographed was the Winter Palace. The plates were packed in envelopes impenetrable to the light and then tied to the feet of the pigeons, who safely and quickly carried them to the station at Volkovo.

A Camera among the Cannibals.—Mr. Herbert Ward is the first traveller to describe in this country the cannibals of the Upper Congo, whose horrid customs were not even alluded to in Stanley's last book. Their vast numbers and wide distribution were not dreamed of until the recent writings of Grenfell, Von François, Coquilhat, Vangele, Bentley, and others began to appear. Mr. Ward is to be congratulated upon the photographs and drawings

which illustrate his lecture, and which are well worthy the attention of every student of exploration and anthropology. His pictures are not only excellent specimens of photography or drawing, but most of them are entirely novel and full of information and entertainment.

The most of Mr. Ward's photographs and drawings of the natives are of Congo tribes above Bangala and along the Aruwimi River, where both men and women terribly disfigure their faces by cicatrizations covering every square inch of their features, and entirely destroying every bit of comeliness they may have possessed. But if anybody imagines that these frightful disfigurements, the tribal marks of these people, are characteristic of a large part of the Congo basin natives, he is mistaken. The artificial ugliness of these people is enough to disgust other natives as well as white travellers, and Stanley said that if the purpose in thus mutilating the faces of their women was to protect them against seizure, it was successful, for other tribes do not want such unattractive specimens as wives or slaves.

The cannibals of the Congo, generally speaking, might object to having such repulsive looking objects regarded as fair specimens of the physical beauty and development of African man-eaters. Mr. Ward's own fine photographs of the Bangala and the discoveries of Schweinfurth and Junker among the Monbuttu, and of Vangele on the Mobangi, prove that the cannibals of Africa include some of the finest types of African natives, and that they are superior to many others both in their physical development and also in their intelligence and arts; and, as regards tattooing the Baluba of the southern Congo basin, whose elaborate and ingenious skin markings are nearly equal to those of some of the South Sea Islanders, would doubtless elevate their noses in disdain if they saw the horrid cicatrizations of the people Mr. Ward has visited in the Aruwimi region.

The many important events that in the past three years have centered at Stanley Falls give an additional interest to Mr. Ward's photographs of the Arab settlement there and its surroundings. He was fortunate in being able to secure a splendid likeness of Tippu Tib. If any other has yet been brought to Europe it has not been published, and the portraits in the books of Reclus, Becker and Coquilhat bear little resemblance to this noted man, who in ability and influence is undoubtedly the foremost character in Equatorial Africa. It is to be hoped that in the illustrated articles Mr. Ward proposes soon to write, he will include this picture of Tippu Tib, who is likely for years to come to be a very important factor in Central African affairs.

One of these photographs gives a good idea of Tippu Tib's indifference to present comfort, and of his rapidly growing wealth. It shows the hut, with leaky roof and generally dilapidated, in which he lives at Stanley Falls, and in front of it are two great heaps of ivory, the product of only three months' hunting by his numerous slaves. The piles weigh forty tons, and are estimated to be worth $350,000. It was undoubtedly this ivory with which Tippu Tib's son, at the head of a caravan of 2,000 carriers, arrived in Zanzibar a few weeks ago. The old ivory trader told Mr. Ward he cared nothing for the hardships of life at Stanley Falls, for he hoped before a great while to retire to his plantation in Zanzibar to enjoy his fortune, He apparently does not need to go so far for a comfortable home. According to Mr. Gleerup, the stone mansion Tippu Tib built for himself at Kasongo, near the Congo, 300 miles above Stanley Falls, compares favorably with some of the best residences in Zanzibar.

Most of the photographs from the Congo that have reached this country, have been sent by missionaries, and the larger part of them have been very poor specimens of the art. The missionaries, however, are improving in their manipulation of the camera, and are now sending some very excellent illustrations of life and scenes along the great African river.—*N. Y. Sun.*

Dressing for Photographs.—Did anyone ever look over an old fashion plate without wondering how any one could bring herself to wear some of the garments there depicted, or take up a photograph album without similar reflections on some of the styles of hair dressing, etc., of not so many years ago? If one could always remember to apply the results of these studies when sitting for a photograph, the albums of the future would be more satisfactory to the owners of the pictures. While there are some styles that always look well, whether worn by the beau monde or not, there are others that need the prestige of being in the very height of fashion to pass at all. Ladies who dress for fancy dress balls or tableaux understand this in regard to the modes of dressing of the past, and this would be a better looking world if all understood it for every-day apparel. But whatever the ordinary dress may be, it is something that will not be seen except when in an atmosphere—so to speak—of similar ones; but this is not the case with the picture.—*Lewiston Journal.*

Photographic Societies.

THE UPTOWN CAMERA CLUB OF NEW YORK CITY.

THIS Club was organized recently by members of the Chautauqua School of Photography. The following were the officers elected for one year:

President, Walter E. Andrews; Treasurer, G. D. W. Clocke; Secretary, John M. Elting.

The club meets the last Friday evening of every month, at eight o'clock. Its rooms are corner of Fourth Avenue and Tremont Avenue, New York City.

THE NEWARK CAMERA CLUB.

THE Newark Camera Club has shown itself to be a very enterprising concern, and is now anxious to push its way into the front ranks of Newark clubs. At the last meeting of the club members, held on Monday night, it was decided that a club-house should be purchased, and $3000 was at once subscribed for that purpose. The property proposed is situated on Cedar Street, and is a three-story brick building. It will cost some $12,000 and $1,000 more will be required to fit it up in the proper style. Its being so centrally located will enable business men to spend a few hours there whenever it is convenient. A room will be fitted up in which lantern-slides can be shown, and the upper floor will be arranged with a number of skylights and made into a regular photograph gallery. Apparatus will be put in to print and mount photographs, and in the basement a dark-room will be made with all the necessities for developing plates. The first floor will be devoted to lounging and reception-rooms, and the second story will probably be used as committee-rooms.

SPRINGFIELD CAMERA CLUB.

At the annual meeting of this club, held October 16th, the following officers were elected: N. P. Ames Carter, President; J. C. Kemater, Secretary; John Leshure, Treasurer; H. H. Hallett, Librarian.

Executive Committee: N. P. Ames Carter, J. C. Kemater, John Leshure, H. H. Hallett and W. P. Draper.

Room Committee: N. P. Ames Carter, Chairman, M. D. Fletcher, E. A. Beals.

John Leshure,
Treasurer.

THE LOWELL CAMERA CLUB.

A special meeting of the Lowell Camera Club was held Friday evening, November 1st, at Morrill's Studio. The club exhibition of photographic work that is to be held November 12th to 16th was discussed, and everything needed to make it a success was provided for at this meeting.

Prints and negatives of views of Lowell and vicinity were submitted to the committee that has the club lantern slide entertainment in charge.

The attraction of the evening was the exhibition of the entertainment "Illustrated Boston." Mr. H. W. Barnes read the descriptive text, and Mr. W. E. Badger operated the lantern. The entertainment, as is well known, is the work of the Boston Camera Club, which has done valuable service to all our clubs in advancing the idea of unity in an exhibition of slides. Pictures, however good, must become monotonous to some extent, unless they are presented with some system.

The idea of a club illustrating its own city is a good one. The Lowell Camera Club is endeavoring to follow the example set by the Boston Club, and hopes in time to have an exhibition illustrating the "Spindle City."

George A. Nelson,
Secretary.

The Editorial Table.

The Photo Printing Company of Rahway, N. J., have issued a neat little booklet concerning developers, with approved formulæ for preparing the same, illustrated with a sample print of their work, and including a price list for printing, developing, etc.

Langill & Darling, of 10 East Fourteenth Street, New York, whom our readers will remember as the photographers of the very suceessful series of Johnstown pictures, one of which was given in THE PHOTOGRAPHIC TIMES not many weeks ago, have sent us a batch of their latest work. They are 6½ x 8½ pictures of various subjects, "Moonlight on the Harbor," "A Lightning Picture," "The Citadel at Quebec," and two dog pictures are included in the collection. They all show that these photographers are not only holding their own, but actually improving in the quality of their work. We shall hope to present our readers with a specimen of these enterprising photographers' work before very long.

Queries and Answers.

225 P. B. K.—What is Kalium?

225 *Answer.*—It is the German and Dutch name for potassium, from the Arabic *al-qali*, the ashes of a plant, or the substance obtained from it by lixiviation. Alkali is a generic name, but kalium, the radical of kali, is called so par excellence, because it was the first and only substance of its kind known in early times.

226 MISS LUCY G.—How can artist's canvass be prepared for making photographs upon it?

226 *Answer.*—Rub with emery flour and alcohol till perfectly smooth. The canvass is then well washed with diluted aqua-ammona is salted and sensitized in the usual way. But why not use Eastman's transfer paper? The problem of photographing on painter's canvas has been better solved by Eastman than by any other method.

227 P. MARSHALL shows several very intense negatives, from which to print it is actually impossible. There is one among them, the portrait of a person since deceased, and our friend likes to save the negative and make prints from it. How can it be done?

227 *Answer.*—All the negatives were enormously overdeveloped. To make them serviceable, all that is needed is to reduce the great density with the often described method with ferricyanide of potassium and hyposulphite of soda. To show how well this can be done, we have reduced the picture of your deceased friend, and made a print from it. Call for it at our laboratory, and, if you wish it, we will reduce another of the negatives in your presence.

228 C. M. D. asks what is meant by "focusing screen."

228 *Answer.*—The ground glass of the camera. English photographic writers, as well as some American, use the term "focusing screen."

229 W. M., of Rising Sun, has a lot of old negative varnish that is too thick and dirty for general use, and asks how it can be restored.

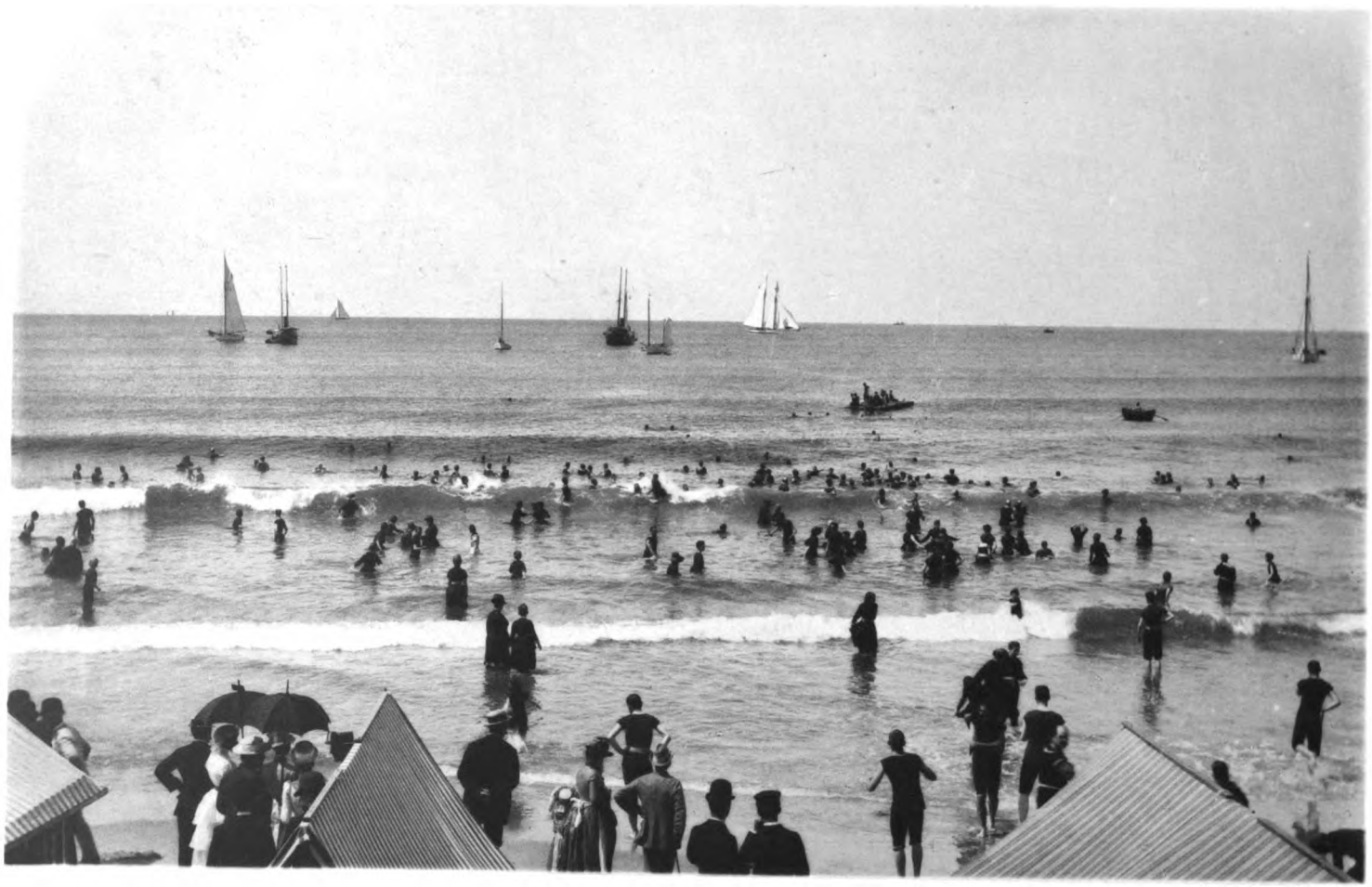
229 *Answer.*—Dilute it with alcohol until it is of the proper consistency, and filter.

230 MELISSA K. wishes to know how to reduce overprinted albumen proofs.

230 *Answer.*—Several methods have been proposed; we prefer to use potassium ferric-oxalate and hypo, as we recommend it for the reduction of negatives, because the albumen film is not injured by it, and the color remains white. The best and safest thing to do is to make a new print.

231 J. P. of Birmington. "How can I find out whether my sulphite of sodium is pure, or whether it has become oxydized in the sulphate, which, being a forcible restrainer in the alkaline development, would do much harm when developing plates of short exposure?"

231 *Answer.*—Make a 5 p. c. solution of the questionable salt, and test with chloride of barium. If sulphate is present, the solution will turn turbid from the insoluble sulphate of barium formed. Sulphurous acid is not known to combine with barium, hence if the sulphite be pure, no precipitate can possibly occur.



R. DICKINSON JEWETT, PHOTO.

PHOTO-GRAVURE CO., N. Y.

NARRAGANSETT BEACH.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, NOVEMBER 22, 1889. No. 427.

NARRAGANSETT BEACH.

The fruits of summer photographic work are now being shown. "Narragansett Beach," by R. Dickinson Jewett, is a photograph made in mid-summer at this popular American watering-place. It was, of course, an instantaneous negative; but for depth of definition and fine atmospheric effect we have not seen a timed negative, this summer, which can surpass it. The tiniest specks of sail on the horizon are clearly shown, while the figures in the foreground are naturally sharp and life-like.

Perhaps the most remarkable thing about this picture is that it was made on a Carbutt Keystone "B" plate, sensitometer only 16. Of course, there was an excellent light on the subject (the exposure was made at noon) and a very excellent quick-working lens was used. Perhaps the latter fact accounts for the unusual technical excellence in this instantaneous negative on a slow plate. The objective was a Steinheil antiplanetic group lens, number 5, series 2. "Its rapidity is marvelous," writes Mr. Jewett, "and for definition and powerful and even illumination, its equal is not to be found. To this superb lens I attribute my success."

The plate was developed with the hydrochinon developer used by the Washington Camera Club of which Mr. Jewett is a prominent member. The formula is as follows:

HYDROCHINON SOLUTION.

Hydrochinon..... ..... 2.25 per cent.
Sulphite of soda (crystals) C. P...10.00 per cent,
Distilled water.....87.75 per cent.
Eight ounces mixture.

POTASH SOLUTION.

Carbon. of potash (granular) C. P.15.00 per cent.
Sulphite of soda (crystals) C.P....10.00 per cent.
Distilled water.... .....75.00.per cent.
Eight ounces mixture.

"I used only one dram of alkaline to two drams of hydrochinon solution in four ounces of water. Development was completed in about two minutes. The maximum amount of potash solution with four ounces of water is six drams," continues Mr. Jewett.

The excellent reproduction from Mr. Jewett's negative is a photo-gelatine print by the Photo-Gravure Company, of New York. The delicate marine green in which it is printed is particularly appropriate for this subject.

"Narragansett Beach" is a picture which one can look at many times with ever-increasing interest. There is material enough in it for a dozen pictures. It is life itself at a seaside resort.

EIKONOGEN.

SEVERAL weeks ago we spoke briefly of this new developing agent, announcing the results of our earliest experiments and promising to report on later investigation of the same subject.

We have continued our experiments with eikonogen, comparing it with other developing agents and using it in different connections. We do not yet feel fully acquainted with the substance, though, from our work with it, the expectations formed some time ago have been fully justified. We consider it yet too early to say definitely just what place it will fill in the photographic laboratory. It certainly shows superior qualities for developing the most delicate details in the darker portions of the plate, and requires, as a rule, less exposure than is necessary with hydrochinon or the other later developments. Indeed, comparative tests, in which two plates developed side by side, one with eikonogen and one with pyro-soda, seem to indicate that eikonogen requires even less exposure than pyro in connection with soda. In developing the positive image on bromide paper, this greater activity of eikonogen seems even more apparent. When nine seconds' exposure to ordinary petroleum light is required with the ferrous oxalate developer, two seconds were sufficient for eikonogen.

Eikonogen comes to us in several forms; or, rather, in external appearance it differs considerably. One sample quantity which we have experimented with was a grayish crystalline powder; another was of a reddish-brown color interspersed with specks not unlike mica; and a third was of a color which has been described as the "ashes of roses." The color of the solution, of course, differs with the color of the substance, so that we have a reddish-brown, an intensely green, a yellowish green, and paler colors, in accordance with the original color of the substance used.

The solubility of eikonogen seems also to differ with its difference of appearance. We have found that from fifteen to eighteen grains are soluble in one ounce of distilled water, though it is reported abroad that as much as thirty grains are soluble in one ounce of water. In connection with glycerine, the solubility of eikonogen is somewhat increased; and glycerine acts also as a preservative. The developing qualities of eikonogen, however, seem to be the same in all cases.

The amount of eikonogen prescribed in most published formulæ which we have seen, is excessive, judging from our own experience. The amount of alkali is generally still more excessive. We found that a minimum amount of alkali gives much better results than a more concentrated solution. With an amount of alkali proportionate to that used with pyro, eikonogen is almost impossible to control. It does not matter so much what alkali we use with eikonogen. A caustic alkali or a carbonate—potassium or sodium—seem to work with equal effect so long as the quantity is correct. We have found that sulphite of soda is required in greater quantity than is generally prescribed. As much, even, as eight ounces of sulphite with one ounce of eikonogen seems to be the best proportion.

We prefer to use eikonogen, as all other developers, in two solutions, eikonogen and sulphite in one solution, and the alkali in the other. Its action can then be much better controlled than when one solution is used. If, for the sake of simplicity, however, a one-solution developing solution is preferred, we recommend the following as an excellent one:

Sulphite of soda in crystals.....	6 ounces
Carbonate of potash.....	1 ounce
Water.....	30 ounces
Eikonogen.....	1 ounce
Glycerine.....	10 ounces

In its full strength, a solution prepared according to this formula acts almost as energetically as the iron developer does upon a collodion plate. The image appears at once, gains rapidly in intensity—with the addition of a small amount of bromide—and results in a negative which more nearly approaches the collodion plate in appearance than is the case with any dry plate we have yet seen. For general work, it may be found better to dilute this developer somewhat; and the addition of bromide is also desirable, especially when a maximum amount of intensity is desired.

Experimenting with the above one-solution developer in comparison with a pyro-potassa developer in two solutions, we found that two "Harvard" plates of 45 sensitometer which had been exposed exactly two seconds each, the subject being a portrait, developed as follows: The one in the eikonogen solution began to develop at once, though the developer had been somewhat diluted and contained a few drops of bromide, as recommended above; the plate gained a good intensity in about three minutes. The other plate developed in the usual manner, but required six minutes before it acquired the necessary detail and intensity. Though the exposure had been the same in both cases and was perfectly correct for the eikonogen developer, in the case of the pyro and potassa developed plate the middle tints in the shadows were not all that they should have been.

Another eikonogen formula, which gives as good results as the one already mentioned, with perhaps more clearness in the shadows, and a greater brilliancy, is as follows:

Sulphite of soda in crystals.....	194 grains
Carbonate of potash.....	15 grains
Carbonate of soda.....	32 grains
Water.....	8 ounces

Keep the solution in a well-corked bottle, and when required for use, add to each ounce six grains of eikonogen. Instead of fifteen grains of carbonate of potash and the thirty-two grains of soda, thirty grains of carbonate of potash may be used with good results. Bromide may also be added with good effect. This developer works well on bromide paper, and gives a certain crispness to glass negatives which is highly admired by many amateurs.

It must be remembered that eikonogen in one solution will deteriorate faster than in two, just as pyro or hydrochinon deteriorates. After a few days standing a deposit will form, which makes the solution turbid and requires filtering before it can be used. The deposit which is formed diminishes somewhat the force of the developer. We much prefer to use eikonogen in two solutions. By adopting the latter formula given in this article the eikonogen may be preserved separately, and mixed with the developer

just before use, in proportion as the exigencies of the case may require.

We have not yet experimented with eikonogen in the development of color-sensitive plates, but expect to do so soon. We shall continue our tests with this new and excellent developing agent from time to time, always reporting our results in the columns of THE PHOTOGRAPHIC TIMES.

EDITORIAL NOTES.

LAST week we told our readers something about the actual value of the photo-gravures which are presented to them in THE PHOTOGRAPHIC TIMES. They will, therefore, understand why the seeming high price is placed upon these copperplate engravings from photographic negatives when ordered by single copies. Our publishers have made ararngements with the Photo-Gravure Company to supply any photo-gravure published in THE PHOTOGRAPHIC TIMES at fifty cents per copy. Subscribers of the TIMES, however, may have them at the cost price of twenty-five cents each. This arrangement is made in compliance with numerous demands which have frequently been made on our publishers since they commenced to illustrate every copy of THE PHOTOGRAPHIC TIMES with a photo-gravure.

IT has been said — also in reference to the editorial notes of last week — that the leading features of THE PHOTOGRAPHIC TIMES for 1890, which were announced in our last issue, were more than inducement sufficient to make every reader of THE PHOTOGRAPHIC TIMES a subscriber for that year. Any photographer familiar with our magazine during the current year will undoubtedly want it the succeeding and all subsequent years; but, unfortunately, THE PHOTOGRAPHIC TIMES is not known to every photographer in the land. It is, therefore, the wish of the publishers to have it brought to the attention of all those photographers who have not yet had an opportunity of examining it. In order to facilitate this, they offer as an inducement to those already acquainted with our magazine the following premium for every new subscription which is sent in.

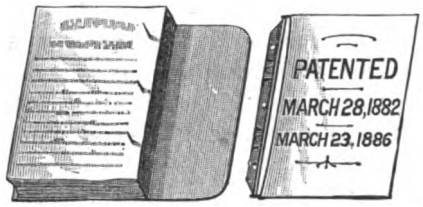
They will give two dollars' worth of books selected from the Scovill Photographic Series to the subscriber of THE PHOTOGRAPHIC TIMES, who sends in a new name in addition to his own renewal, previous to January 1st. If the names are sent in before the date of publication of the special Holiday number, that special issue will be sent in addition to the books selected from the Scovill list. Indeed, all issues in December subsequent to the date at which the new names are received—including the special Holiday number—will be sent to those who subscribe in season.

There is only one condition to be complied with in selecting books from the Scovill Series, and that is, that the issue of "The American Annual of Photography and Photographic Times Almanac" for 1890 be excepted in choosing the books. This one exception is necessary because of the demand, which is greater than the supply, for this particular book.

FOR two new subscriptions in addition to a renewal, or for a club of three formed in a photographic society or elsewhere, three dollars' worth of books selected from the Scovill Series will be sent to the one sending in the three subscriptions. In the case of a club, the books can be divided among the three members composing it; and each one will therefore really get the TIMES for four dollars a year. For a club of five, six dollars' worth of books selected from the same series will be sent, post paid. Remember that if the subscriptions are sent in previous to December 20th, the holiday number is received in addition to the fifty-two numbers of 1890; also that a renewal counts for a new subscription in this premium offer, if sent in with one or more new subscriptions.

THE Scovill Series of Photographic Publications is published in every issue of THE PHOTOGRAPHIC TIMES, with prices annexed. The Scovill Catalogue of Books containing full information of these publications, will be sent free to any address, on application. It is understood that the books selected from this list, as premiums for sending in a new subscription for 1890, with a renewal for the same year, will be sent, post-paid, to the given address. In addition, therefore, to THE PHOTOGRAPHIC TIMES for one year, with its fifty-two and more photogravures, the one sending his renewal previous to December 20th, with a new subscription, secures for his friend the special Holiday Number, free, together with the subsequent issues in December, and for himself, two dollars' worth of books, without extra cost of postage or any expense. It amounts to getting THE PHOTOGRAPHIC TIMES for less than three dollars a year! This offer is made simply as an inducement for our readers to extend the knowledge of our magazine among those who at present are unacquainted with it.

THE PHOTOGRAPHIC TIMES for 1890 is to have a new binder. It will be a universal binder that is easily adjustable and has many convenient and useful features hitherto unemployed in any binder.



It will cost readers of the TIMES one dollar, but will be sent free to the subscriber sending in a new subscriber.

IN order to make the TIMES more widely known, its publishers desire to push it by means of canvassers, and will make liberal terms with those who have the opportunity and would like to make some money by showing THE PHOTOGRAPHIC TIMES to those who are likely to become subscribers. One such canvasser is desired in every photographic society or community in this country. It will pay any one to write our publishers for terms.

IN addition to some of the leading features of the special holiday number, which were announced last week, we may now report that two more illustrations have been secured for this particular number, one is a magnificent architectural picture of a most interesting foreign subject, by W. J. Stillman, to be accompanied by a descriptive article which also gives valuable information on film photography, especially for tourists abroad. The other illustration is by Husnik of Prague also to be published in connection with highly interesting descriptive letterpress by the inventor of the process.

Responses to our invitation of last week for the individual experiences of our readers, are coming in in unexpected numbers, so that from this source alone we shall be enabled to select a large number of short articles of great practical value. The success of the special holiday number is, therefore, already assured. It will be a notable issue. The edition will be more than twice the usual size, and a subsequent edition or editions of this number will be published if the demand requires it.

LENSES.

(*Continued from page* 569 *and concluded.*)

The two lenses forming the combination are often exactly alike, hence the term symmetrical. This form of lens gives us straight lines, hence the term rectilinear. But it has another advantage also, it admits of a larger stop than a single one does to attain the same depth of focus; though for all its advantages it is frequently inferior to the simple single lens in producing pictorial effect. A portrait lens is one of this combination form, working with extra large aperture, often $\frac{f}{4}$, but it is not a symmetrical, the two lenses are quite different. A wide-angle lens is also a similar form, but to make it cover a plate large in proportion to its focus the lenses are placed closer together, and a smaller stop becomes necessary to give depth of focus, so that wide-angle lenses are not so quick as the ordinary rectilinear, seldom working above $\frac{f}{11}$. However, they are often indispensable for workingat short distances, which they do by virtue of their short focus; but as they give an exaggerated appearance to perspective, should never be used when a long-focus lens would do the work. To those who have never done so, it is worth while to note what angle means in respect to lenses. I will attempt an illustration on a half-plate. From corner to corner a half-plate measures about eight inches. Many of you possess half-plate lenses of eight inches focus; now we will see what angle they include. If I draw a line from two extremities of our plate to the lens, so, and now note how many degrees of the circle that includes, we have the answer. There are 360 degrees in the circle, and as our diagram shows us a segment exactly one-eighth of a circle, the angle of lens is forty-five, which is practically an admirable one. The widest angle lens I have yet met with is four inches focus to the half-plate; we shall find its diagram shows just a quarter of a circle, which is of course 90 degrees. Wide-angle lenses are usually about 70 degrees to 80 degrees, which would be about five to six inches focus for the half-plate. The angle of a lens has a very direct bearing upon the artistic side of the question, the nearer it assimilates to our own eyes, the truer the effect. I hope we shall hear something about this in the discussion.

And now a few words about stops or diaphragms. Lenses without stops are like heads without brains —you can do very little with them. A stop has various effects upon a lens, mostly beneficial, though I don't wish to convey the impression that the more stop the better, else the cap would be the millenium; on the contrary, I would rather say the larger or the less stopping the better. The margin of a lens is of necessity more inclined to faults than the centre, and a stop acts beneficially in interfering with those faulty rays. It does not effect this by cutting them off, else the same thing might be done by reducing the diameter of the lens itself; but a stop properly placed "turns the

rays in the way they should go," and that is sufficient for us to-night. True, stopping down diminishes the light, which is generally the reason for using the largest stop you can. Undue stopping down also makes detail too sharp for most artistic senses. The position of the stop should invariably be determined by the lens maker, and if found to be at fault—such as giving flare spot—should be returned to that individual for correction. Stops are, or should be, marked *f* so-and-so. For the benefit of those who may not understand the exact significance of those marks I will explain it.

The figure on the stop refers to the diameter of the aperture in relation to the focus of the lens; thus, if we take our half-plate eight inches focus rectilinear and look at the largest stop, we find it marked $\frac{f}{8}$ and on applying a foot rule find that the aperture measures one inch, so that $\frac{f}{8}$ means an aperture one-eighth of the focus of the lens. If you look at the $\frac{f}{16}$ stop, you will find it measures half an inch, or one-sixteenth of the focus length. The great value of this notation is that, practically speaking, $\frac{f}{16}$, or any figure on one lens, requires the same exposure as the same figure on any other lens, thus giving us a ready means of comparing and adjusting over-exposures. Theory also steps in and says that as you increases or diminish the stop the amount of light admitted amounts to the square of the difference, or, in plain language, $\frac{f}{8}$ being twice the diameter of $\frac{f}{16}$, only requires one-fourth of the exposure, or $\frac{f}{32}$ being only half the diameter, requires four times the exposure. In practice I have found that $\frac{f}{32}$ would be over-exposed with four times the exposure of $\frac{f}{16}$, but we must not rush off to blame theory for that—no doubt the philosophers are right in the main, but there are often disturbing influences. I want to know whether anyone else has observed the same thing.

Before concluding, I would say that there are several modifications of the foregoing lenses being made now, such as a single lens, with a comparatively wide angle, and a symmetrical doublet working with as large an apparatus as $\frac{f}{6}$, the Euryscope. These lenses are invaluable for special purposes, but are not so universal as the others. I have a triplet lens here; this lens is an arrangement of three acromatics, all of different size and focus; it is perfectly rectilinear, and a splendid lens for most purposes, copying in particular, but it has one great drawback to modern ideas—it is very slow. It dates much earlier than the rectilinear you are so familiar with, and in its day was the best lens to be had.

During the last year or so quite a flutter has been caused among us by the discovery of an entirely new glass, known as "Jena." It places quite a new power in the hands of the optician, and great things have been prophesied. Whatever it may be destined to become, we have not heard quite so much of it lately, and I have not yet seen a specimen myself. I think we are now ready to look for the "moral," and seek an answer to the question, "What lens shall I buy?" That is a very awkward question to be asked. If we were asked "What *lenses* shall I buy?" the answer is comparatively easy. We have got into the subject sufficiently to-night to see that to satisfactorily accomplish all-round work several lenses are wanted, and, as a matter of fact, professionals and all amateurs who can command them employ several lenses to their cameras.

The usual, and I've no doubt the best advice to the one lens man is to buy a rapid rectilinear, or one of the same class, for I should like it to be understood that there are at least half a dozen first-class makers turning out a similar lens, and the qualities of all are so much alike that it takes a much cleverer man than I am to detect the difference. The young beginner with a cheap set invariably has only the single lens to work with, but while he sticks to ordinary landscapes or groups, his disadvantage is far more imaginary than real. In fact, as already shown, he may often have an actual advantage. I have necessarily only been able to give a rough outline of my subject, but if its scantiness enables you to commit it the more surely to memory, my efforts will not have been in vain. It is the desire now that you should ask and raise questions, and what I cannot answer others amongst us may. I look forward to the discussion so raised being of far more value than my little paper.

Walter Griffiths.

SOME PRINTING HINTS FOR BEGINNERS.

Use the dusting brush freely when printing; dust off the negative, dust out the printing frame, and even dust off the face of the albumen paper; many specks on the faces of the prints will be prevented.

Use felt or linen blotters, or some moderately soft smooth substance; cut to proper size to lay on the back of the paper when in the printing frame, so that the pressure will be more even on all parts.

When the printing frame cannot be placed so that the stronger rays of light fall directly on the back of the negative, but reach it at an angle, turn

the frame around occasionally when printing, so that each part may in turn receive the same benefit from the slanting rays—especially when vignetting.

If the direct sunlight be very strong or the heat too great (as in summer), cover the frame with thin paper, or remove it to a more subdued light. Much softer prints are so obtained. Follow the old rule: "Print in strong light from a strong negative—in a weak light from a weak one."

When using freshly silvered paper, print until the whites show marked discoloration. If using the ready sensitized paper print until the whites are quite dark. They will be clear when toned and fixed. Tone the prints as soon after being made as possible.

When strengthening old toning baths for further use, add some of all the ingredients in fair proportion and mix well. It is rational to infer that each component part wears out in the same ratio, and adding more gold solution only—as commonly advised—leaves the bath weak in other respects, and frequently too acid to produce desirable tones.

C. M. Brockway.

WRINKLES.

(*The Isle of Thanet Photographic Society.*)

THIS society resumed their monthly meetings on the second inst. During the recess the members have been busy (by land and sea) with their cameras; some of the seascapes are very beautiful, especially that done by two members who have made instantaneous work their study. The society meets on the first Wednesday in each month.

The Vice-President (Dr. R. Hicks) occupied the chair, and expressed the hope that all amateurs in the district would join the society. The following paper was then read:—

The few remarks I am about to make to you on Wrinkles, are not intended for experienced workers, but for the young hand.

If there is one cause of failure more common than another with the amateur at the commencement of his career, it is over-exposure and over-density.

Wrinkle No. 1.—If you have a negative which you think is so thin from over-exposure, and you find it impossible to make a print from it, try this; it is a very old method, used in the days of wet collodion, is very effectual in that process, and is equally so with the gelatine negative. To intensify the negative take a dram of sulphuret of potassium and one pint of water. You leave the plate in according to the density required. It is then well washed, and the operation is complete; by this method you can get a printing negative from what appeared hopelessly thin. In many cases where you have a negative which you cannot reproduce this will prove of value.

Wrinkle, No. 2 will also be found of use in the case of over-density. It works uniformly, and does not stain.

You first make a stock solution as follows:

SOLUTION A.

Alum	4 ounces
Sulphate of copper.....	4 ounces
Common salt.....	8 ounces
Water.....	40 ounces

SOLUTION B.

A cold saturated solution of common salt filtered.

Mix A and B in equal parts; immerse the negative. If the reduction is slow add more of solution A. After the negative is sufficiently reduced, rinse in solution B. Then well wash with water.

The soaking in the brine removes the copper from the film.

You may be aware, no doubt, of other methods, but this I can recommend, and to you who may experience any difficulty in reducing your negatives, try it. Now I will assume that your negative is ready for printing, and it is as perfect as you can make it; and it is from the negative which I hold in my hand that you desire to make a print. I will hand this negative round to you; it is a photograph of the altar of the Sacred Heart, in St. Augustine's of this town (Ramsgate). Many of you, no doubt, have seen it, and know how difficult it is to do it justice by photography, owing to the bad light. The only light you will observe on looking at the negative is from a small window in the side wall high above the altar; it is true there are side windows in the chapel, but they are so situated that the light from them does not reach the altar, and the consequence is that it is very unevenly lighted—the upper part being the only portion in the strong light, the lower part only receiving a weak diffused light from the windows mentioned.

The negative required great care in developing, to keep down the contrast as much as possible.

But all my care would have been of no use, if I could not have resorted to a *wrinkle* in printing which you will do well to remember.

I make a mark which covers all but the dense part of the negative. Now to make a print. I proceed with the printing until the fine tracery and statuary show sufficiently, and is printed the required depth; but you will see by this print that the canopy over the altar is lacking all detail. By

placing the mask over the negative the printing was proceeded with, until the detail shows itself, and the printing is now finished. If you have carefully examined the prints you will have noticed the great difference between the two—the one failing utterly to give a true rendering of the subject, the other as near perfect as possible.

You will find this method of printing of great value; though you may have resorted to *partial* intensification and development, there are occasions when, without masking in printing, your work would be a failure. This method can be applied to landscape and portrait work as well as architectural photography.

You are all troubled at times with blisters, and have no doubt tried various methods with more or less success.

But here is a wrinkle, first given, I believe, by Mr. J. Stuart, of Glasgow:

After toning and washing, immerse in methylated spirit till the print is transparent; now lift out, drain, wash, and then fix. You will have no blisters, and where a small number of prints is required I can recommend it.

I have had shown to me prints with yellowish stain, which, after much trouble, was traced to the varnish. Bleached lac is generally acid. When that is proved to be the case, take one ounce of the varnish, to which add half a dram of strong ammonia. Add this drop by drop to your stock bottle till neutral.

I have been asked by a young member the best time to photograph interiors.

To photograph the interior of any building a visit should be made to ascertain the position of the building, the amount and quality of the light; after ascertaining this you can then decide the best time to do the work.

But with the amateur this is not always possible, and he appears on the scene by chance and unprepared for the work; and he generally finds great trouble with the windows from halation. I will assume he is working with ordinary unbacked plates, and is about to photograph the church, a negative of which I have here and which I will show you. It was taken under just such circumstances as I have described. I found the sunlight streaming through the side windows, and the eastern window in consequence looking as if in a mist; this effect was seen when standing in the centre aisle. You will notice there are no windows on the north side, so that by moving my camera in the south corner, I covered each window by one of the columns bearing the roof, the light being thus screened. I got a good negative of the east window, and a successful photograph of the whole building.

It is by such wrinkles as this that difficulties are overcome.

I have been asked what developer did I use. I will give you the formulæ:

No. 1.

Pyrogallic acid	1	ounce
Sulphite of soda	1½	ounces
Sulphuric acid	2	drams
Distilled water	10	ounces

No. 2.

Bromide of ammonia	3	drams
Bromide of Potassium	2	drams
Liquid ammonia	2	ounces
Distilled water	10	ounces

Take of No. 1 one ounce, water ten ounces.
No. 2 one ounce, water ten ounces.

This will keep good for six months. Its various proportions may be altered, and so made suitable for all kinds of work. There is nothing new in this, but I think it is better to use a developer of which you know what it consists than purchase ready mixed. *George Reading.*

INTENSIFYING WITH URANIUM.

(Written for the "American Annual of Photography and Photographic Times Almanac for 1890, but received too late for publication.)

SOME of the handbooks written in the interest of amateur photography recommend methods of intensifying negatives, which require substances not easily to be obtained, at least so in the Austrian empire, where a special license is absolutely necessary. A paragraph of the laws regulating the sale of poisons, excludes the oxides and salts of mercury from ordinary trade, but permits the sale of cyanogen preparations containing iron, like the yellow and the red prussiate of potassium.

Attention has been repeatedly called to the intensifying of photographic plates, with the salts of uranium and ferri-cyanide of potassium, a method very advantageous in some cases, and originally proposed by *Selle*, of Potsdam. Prof. H. W. Vogel and E. Vogel, Jr. have recently discussed the subject in all its details, so there is but little occasion to repeat here well known formulæ, than to call attention to modifications required for special purposes.

The great force of this intensifier has been stated to certainty, and of high interest to amateurs is its inocuous nature and its easy accessibility.

For line reproductions, eventually to be used in zinc-etching, when, together with perfect clearness and absolute transparency, very high intensity is requisite, the method is simply infallible, and easily

applied too in printing with platinum salts, demanding negatives of more than ordinary density.

I experimented with the intensifier as early as 1865, and find among notes taken at that time the following formula for reproductions on collodion films:

A.

Nitrate of uranium.....	7	parts by weight
White sugar.....	7	" "
Water.....280		" "

B.

Ferri-cyanide of potass...	7	parts by weight
White sugar.....	7	" "
Water.....280		" "

The solutions are successively applied to the film, and result in a highly non-actinic deposit of brown-red color. For gelatine emulsion plates the formula needs modification, and to counteract the influence of ferri-cyanide upon the gelatine, E. Vogel substitutes glacial acetic acid for sugar with good success.

Alcoholic varnish reduces the density of the uranium deposit to a considerable extent, it is better therefore to protect them with a coat of gum arabic mucilage. *Ludwig Schrank.*

Notes and News.

Mrs. Eunice N. Lockwood, the lady photographer of Ripon, Wis., was married to the Rev. Joseph B. Davison, October 27, 1889.

Liberty Photographed.—A brief but very brilliant flash of light suddenly illumined the harbor Monday night. Pilots and seamen on the various craft dotting the waters of the upper bay looked with startled wonder on the strange sight. All along the Battery, in the line of towns on Staten Island and on the Jersey shore the light was plainly visible. It appeared high in air, about on a level with the torch of the Statue of Liberty, but about three hundred feet to the northwest of that beacon. For a brief moment even Miss Liberty's torch paled in its greater brilliancy, and then it vanished as suddenly as it appeared. No one knew whence it came, and the many speculations as to its origin were all idle,

Photographer R. S. Stoddard, of Glens Falls, was taking a flash-light picture of Miss Liberty by night. It was more of an experiment than anything else, as nothing in the way of out-of-door flash-light work of such magnitude was ever attempted before. Mr. Stoddard's instruments, five in number, of various size and power, were situated on the steamboat pier of the island. A wire had been stretched from the torch of the big statue to the mast of a vessel a considerable distance away. Midway on the wire, and controlled by a pulley, were the materials for the flash-light. An insulated copper wire capable of generating a spark in the powdered magnesium and gun-cotton, extended to the electric plant on the island, and at a given signal Electrician Littlefield, who has charge of the torch and other lights on the island, turned on the current. The first attempt failed to ignite the explosives, but the second was successful and a tremendous flash was produced. Over a pound and a half of powdered magnesium was consumed—the largest quantity ever used at one time in taking a photograph. The experiment will probably prove a successful one and the results will be regarded with interest by photographers generally.—N. Y. *World.*

Fatal Explosion of Flash Powder.—An explosion of flash powder occurred at the chemical manufacturing establishment of Wiley & Wallace, No. 123 North Seventh Street, Philadelphia, shortly before 4 o'clock this afternoon, by which three men were instantly killed, one fatally injured, and another seriously injured. A large bottle of flash powder had been standing on a shelf in the works for a long time, and Joseph Wiley, a member of the firm, determined to get rid of it on account of its dangerous nature. He took the bottle to a sink in the rear of the basement, and, calling to his assistance Charles Rhinedollar, a chemist, and Rudolph Lippman, an employé, proceeded to pour the stuff down the sink. Rhinedollar held a hose, and played water on the compound as it ran from the bottle, and Lippman assisted Mr. Wiley. William Kidd, another employé, stood watching the work. Exactly how the explosion occurred will never be known, but it is believed that the powder, on account of its age, was slow in running from the bottle, and that Mr. Wiley must have struck it against the sink to loosen it.

Immediately there was a terrible explosion, accompanied by a deafening report, the force of which shook the houses in the neighborhood. Wiley, Lippman, and Rhinedollar were instantly killed, their bodies being dashed against the walls of the basement and literally torn to pieces. Kidd was frightfully injured, and cannot live, Alfred Moffett, the engineer, had been close to the sink, but a moment before the explosion occurred he walked to his engine, located in the centre of the basement, and thus escaped the full force of the shock. He is badly hurt, but his injuries are not believed to be fatal. Thomas Haslam, the bookkeeper, was slightly injured. As soon as the explosion occurred an alarm of fire was sounded, and the firemen did good service in the way of helping the injured and removing the dead. Thirteen girls and a number of men were employed on the upper floors, and they were panic-stricken by the shock, The girls attempted to jump from the windows, and some of them fainted, thus adding to the excitement. The building and stock were badly damaged, all of the windows and bottles being smashed, the lower floors were torn up, and the walls damaged. Mr. Wiley was thirty-eight years old, and lives in Germantown. He was the senior member of the firm, and leaves a wife and several children. The chemist, Mr. Rhinedollar, was twenty-nine years old and unmarried. Lippman was nineteen and Kidd twenty-one.

The explosion is probably indirectly due to a suit brought against the firm by the father of John D. Cruice, a sixteen-year old boy, who lost his life about a year ago by an explosion of flash powder. Young Cruice was employed in the laboratory, and while he was handling some of the powder it exploded, killing him. The father sued for damages, alleging that the firm was negligent in allowing a boy to handle so dangerous a compound. The case was up for trial to-day, but was postponed; and Mr. Wiley, on his return from court, declared that he would get rid of the powder then in the cellar, which was some

left on hand after the explosion which killed Cruice. He proceeded to destroy the powder, with result related above.—N. Y. *Tribune* of Nov. 12, 1889.

Twelve Photographic Studies.—One of the neatest and most artistic of the Scovill and Adams Company's publications is that entitled "Twelve Photographic Studies." It consists of one dozen photo-gravures taken from prints make by well known artists, mounted handsomely, and well adapted as a holiday or birthday gift. It must be seen to be appreciated.—*The Boston Globe.*

Marrying by Photograph.—A prosperous Slavonian rancher, residing in the south end of the Huachuca mountains has hit upon a happy plan for getting wives for his bachelor neighbors. Sometime ago he visited his native land, and while there, found that there were a large number of worthy young ladies among his acquaintances who would be only too happy to find homes and husbands in the land of progress and liberty. Securing the photographs of a number of these young ladies, he brought them back with him, and lost no opportunity to show them to his bachelor friends. He told them that he had the promise of these young ladies that they would come to America and marry the man he would recommend, and, as a consequence, a great many of his neighbors have secured excellent wives, each one selecting his choice from the photographs.—*Nogales Herald.*

Fame and Photography.—The New York *Sun* tells how a distinguished member of the Bayard family in this country asked General Wilson when he went to Europe this summer on a geneological hunt to get some momentoes and photographs and relics from the estate of the Bayards in the south of France. The chateau which was built by the family at Grenoble eight centuries ago stands to-day in good preservation. General Wilson went through the great old house and saw the room where Pierre du Terrail was born in 1475. He managed to get some things to bring to the gentleman here who gave him his commission, but when he tried at a photographer's to get some photographs of the chateau and castle he found difficulty. Although the chateau is one of the most noted sights at Grenoble, there was not a photographer who seemed to regard it as of much account. The Chevalier was the last and the best example of the institution of knight errantry. He died in battle after having won national admiration for "loyalty, purity, and unscrupulous honor." Yet when General Wilson sought to buy some photographs of the Bayard estate from a picture dealer right in Grenoble the dealer said he had none, and asked: "Who was Bayard, anyway?"

A Canine Photographer.—The latest trick in amateur photography, according to the Boston *Courier*, is to have a trained dog who at a given signal will run and pull a string, by means of which the slide of an instantaneous camera is worked, so that his master may be taken in a group or alone as often as he pleases. It is of course necessary to start the creature at a distance sufficiently great to give the master time to rearrange his features after giving the word, but this is not a difficult thing to manage, and the young man who devised the trick has been exceedingly popular at the seaside hotel where he has passed the summer, as all the pretty and most of the plain young ladies in the house were anxious to have their pictures taken by the agency of the clever little bull-terrier which served as his assistant. One is prepared for anything nowadays, and it may be that it will not be long before the dogs are seen running about with detective cameras upon their own account. It would not be a bad idea to furnish a watch-dog with a flash-light detective camera, and thereby he may take the picture of any villian who invades the domain which he is set to guard. The picture would be an interesting piece of evidence in a trial for burglary, and if it did not carry a conviction it would not fail at least of producing a sensation.

Photographs and True Art.—The Washington *Post* says that the instantaneous photograph bids fair to become a very potent aid to artists who seek to teach their pupils that reproduction is not art; for it is clearly demonstrated by this means that the real is in nowise like the apparent. For example, an instantaneous photograph of a man in the act of running never looks as much like a man in the act of running as the pen-drawing of a true artist does. The reason is that the photograph reproduces the one exact position of the runner at the instant the picture is made, while the artist pictures several positions in one, and makes his man seem to be moving Art always has dealt and always must deal with things, not as they are, but as they seem to be. We sit and look at a runner. He seems simultaneously to bend forward his body, throw one leg away forward and the other far to the rear, with both knees at almost an acute angle. At the same instant he seems to swing one arm forward while the other is drawn back, both being "shut" tightly at the elbows. So it seems, for the eye of the observer is not keen enough to see the position of each instant separately; it sees the positions of a group of instants, and the observer thinks that these positions are simultaneous. The instantaneous photograph shows they are not simultaneous, and in doing this presents a picture that does not look like a man in the act of running. This photograph is going to be—indeed, already is—a great aid to science, but the only thing it can do for art will be to prove that reality does not seem as true as the ideal. What is true of the painter's and the sculptor's art is true also of the writer's. He who describes things as they really are may be a scientist, but only he who describes things as they seem to be is an artist. We frequently hear readers say of characters created by an artistic writer that they have seen just such persons. They think they have, but they haven't. It is the writer's art that makes them think they have. If he had actually described the persons they have in mind, they would say there never were snch beings on earth. Thus it comes about that "truth (reality) is stranger (because less commonly observed) than fiction," and that "fiction (the ideal) hath a nobler end than fact."

Why Physicians Should Cultivate Photography.—Amateur photography is just now much in vogue, and it is cultivated more by physicians than others. There are good reasons for this. The education of the medical man, if thorough, as it should be, fits him well for the "black art." He is, of course, familiar with chemistry, and ought also to be conversant enough with physics and mathematics to master the intricacies of lenses and the calculation of their equivalent foci.

But even without going at all into the science of it, the busy doctor may find photography a useful help in his every day work, as well as one of the best of all possible out-door recreations for his vacation season. Like gunning, it lures its votary out into the fields, along the hillsides, and by the running brooks. Unlike that rougher and more ancient sport, however, it does not lead him through thorny thickets, or, at unchristian hours, though tall, dew-laden grass and miasmatic swamp, thus risking an exchange of his dyspepsia for rheumatism and malaria; but rather tempts him to select for his outings the pleasantest part of sunny days, and permits him to pick his way by unobjectionable paths to the most picturesque and romantic bits of scenery in his neighborhood. The exercise and zest are much the same; but, apart from the effects upon the health, the amateur photographer has usually something better to show for his day's tramp. Supposing that he has acquired a fair amount of skill, he will be sure of at least one or more pictures which may sometimes be really things of beauty, and will then be joys forever. The gunner, on the other hand, however experienced, may not find any game, or, finding it, may fail to hit it; and even when he is most successful the net results of his day's sport are promptly eaten, and thereafter exist in memory only.

Then there is the ethical side of the question—the immemorial tendency of hunters and anglers to stretch the truth, while photography conduces to literal exactitude in all respects—but the contrast need not be pursued further.

Turning now to the practical value of photography to the physician, there are good reasons why every one of us should own a camera and know how to use it. By means of the magnesium flash-powder and the extremely sensitive dry-plates now in use it is not difficult for any person, after a few hours' instruction, to make a passably good negative in an office either by day or night. In this way cases of facial paralysis, spinal curvature, hip-joint disease, and marked skin disease, or any form of bodily deformity can be easily photographed by an instantaneous process, and thus the best of all records be kept of them for future reference.

And for those who devote themselves largely to microscopy, photography opens up an almost boundless field, enabling them to fix in enduring forms the magnified representations of the specimens studied by them.

Moreover, lessons of value are to be learned from even the technique of photography. For example, plates that are exposed too long, as well as those exposed for too short a time, make weak, unsatisfactory negatives. In like manner we find that overfeeding as well as underfeeding may debilitate a patient, rendering him ultimately weak and unfit for severe exertion.

The writer feels himself deeply indebted to photography for one highly important lesson in hygiene, that is, the relative value of out-door sunshine as compared with the diffused light of an ordinary room. Most persons would say that the outside light is two or three times as strong as that within our houses. But the ratio of difference is vastly greater. Carefully prepared tables show that for a view at the sea-shore, comprising sea and sky mainly (with a lens and plate of a certain speed), an exposure of one-tenth of a second is sufficient. An open landscape away from the sea would, with the same lens, the same aperture, and the same plate, require one-third of a second. A fairly lighted interior would require two and one-half minutes, while a badly lighted interior—such as the rooms which most ladies prefer to occupy—would require half an hour to obtain an equally good picture. In other words, patients strolling on the sea-shore in sunny weather are in a light not two or three times, but eighteen thousand times stronger than that in the ordinary shaded and curtained rooms of a city house; and the same patients walking along the sunny side of a street are receiving more five thousand times as much of the health-giving influence of light as they would receive in-doors in the usually heavily curtained rooms.

No wonder such miracles are wrought by sending our sickly human house-plants to the country or mountains, or to the sea-shore, where the stronger sunlight, the purer air, and the invigorating salt water all combine to revivify the vital forces.—*By Boardman Reed, M.D., in the Medical Record.*

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF JAPAN.

A MEETING of the above-named society was held on the evening of September 27th, at the Masonic Hall, Yokohama. The chair was occupied by Lieutenant Bull. The meeting was of a technical character; that is to say, it was for the purpose of exhibiting anything that might be considered in any way new in connection with photography in Japan.

The following gentlemen were elected members of the society: Mr. Kusaka, Mr. M. Nakashima, Mr. B. Hayashi, and Mr. C. H. Pearson.

After some formal business had been concluded, Mr. Kajima exhibited several cameras of English design and Japanese manufacture. These were cheaper than the corresponding English cameras, and the workmanship was generally pronounced to be very creditable.

Mr. K. Ogawa showed some remarkably fine collotype prints, and briefly described the process. The printing is done in a press directly from a plate that has been prepared with a sensitive surface of gelatine and bichromate, and that has been exposed under a negative. The parts that have been insolated will take a fatty ink, the others will not, and it is thus possible to ink up the plate and to draw proofs from it. Several hundred proofs can be drawn from one plate, and an indefinite number of plates can be made from one negative.

Mr. C. D. West showed an arrangement that he had designed for taking photographs of one boat from another. The arrangement consists essentially of a bracket that can be fixed to the main or foremast of a sailing boat, and a universal joint with arrangements for holding a camera which may be aimed at any object and caused to follow it till an exposure is made. Some examples of photographs taken by the aid of this apparatus were shown.

Mr. W. K. Burton showed silver prints made on Whatman's drawing-paper and on very thin Japanese paper. The process consists in coating the paper with an emulsion of resin and gelatine, in which is dissolved a small quantity of a soluble chloride. The paper is then dried, and is sensitized with an ammonia-nitrate of silver solution, the sensitizing being twice repeated in the case of the drawing-paper.

Mr. Kajima showed some Japanese fans which were decorated with photographs produced directly on the paper of which they were made. These were much admired.

Messrs. Cocking & Co. sent a large and interesting exhibit of lenses and other photographic apparatus. Amongst the things shown were a very fine camera by Meager & Co., of London, and lenses by Suter and of Dallmeyer, the latter including several of the new "rectilinear landscape lens."

Mr. Konishi showed a sample of the new developer "Eikonogen," and the Chairman promptly ruled that it should be appropriated by the Society and that certain members should be appointed to experiment with it and to report to the Society on the results of the experiments. Messrs. K. Ogawa and W. K. Burton were instructed to undertake the experiments.

The meeting concluded with a vote of thanks to the lender of the Hall and to the Chairman.

The next meeting will be held on the 18th of October. It is to be a camera field-day, and the place selected is Kamakura. No particular hour is fixed, as it is hoped that some will be able to come early in the morning, and there is no reason why camera work should not be kept up through the whole day. Probably some members will extend their trip to Enoshima.

THE BROOKLYN SOCIETY OF AMATEUR PHOTOGRAPHERS.

The first regular field-day, November 5th, of the above Society was spent by the members in taking views in the vicinity of Irvington and Tarrytown (on Hudson). Although the day was unfavorable for good work still the members succeeded in securing many fair negatives.

A distance of some 15 miles was covered and Sleepy Hollow visited *en-route*. Among the subjects photographed was the House of Washington Irving, the Andre Monument, Old Dutch Church, built in 1609, &c., &c. Many makes of cameras were represented.

A prize is offered for the best set of four negatives secured during the day by any member and a lively spirit of competition was the result.

The day was voted a grand success and similar trips will follow.

THE PHOTOGRAPHIC ASSOCIATION OF BROOKLYN.

The Photographic Association of Brooklyn celebrated the semi-centennial of photography November 6th, at its specious and comfortable rooms in Arion Hall, Wall Street. A fine exhibition of amateur and professional work was displayed in the music room. Among the most meritorious were the photographs of Drs. F. A. Schlitz and Riedel, landscapes, groups, instantaneous and by flash-light exposures, animals and photo-micrograms. George W. Windram excels in landscapes and instantaneous work, and the exhibits of Dr. Emil Rauth, and those marked "Light and Truth," "Minerva" and with other mottoes showed good tact and skill. Of the professional work shown that of Mr. Emil Wagner, the president, stands unrivaled. Messrs. Richard & Co. had a magnificent show of. Ottomar Auschütz instantaneous views, the Schultz's Supply Co. and Lober Brothers exhibited apparatus and photographic utensils, Charles Ehrmann of THE PHOTOGRAPHIC TIMES showed a frame of photographs made by him on Albumn-honey plates in 1852 and a collection of Daguerreotypes made by E. T. Whitney in 1848-49. Several premiums were offered exhibitors, a large antic silver cup, objectives, shutters and three society medals, respectively of gold, silver and bronze.

The exercises of the evening opened with a vocal and instrumental concert, and an address by the President of the Association, after which a lantern exhibition was held. A splendid supper was followed by a hop, which kept the merry company till the wee small hours of the morning.

The Brooklyn Association consists of amateurs and professionals, and has made wonderful progress during the two years of its short existence. It is a society full of life and energy, a large number of its members are scientific men, and they all seem to delight in the task of instructing each other. Under such auspicious circumstances we are justified in predicting a prosperous future to this young society.

LYNN CAMERA CLUB.

THE regular monthly meeting of the Lynn Camera Club was held at 40 Broad Street, as usual, Tuesday evening. The executive committee report that the club is a member of the New England Lantern Slide Exchange, which now contains seven clubs, and slides from them will be shown at the club-room during the coming winter. The Secretary showed a copy of the by-laws of the Chicago Camera Club, which is well gotten up and a credit to that organization. The Committee on Entertainment state that W. G. Chase has kindly offered to deliver his illustrated lecture on "Life Among the Shakers" for the benefit of the club; also that C. H. Currier has offered to deliver some of his recitations both of which were accepted with thanks, and the entertainment will be held on the 21st at Y. M. C. A. Hall. Tickets may be obtained of the members. The proceeds will be used in furnishing the new club house. An application for active membership was received from R. L. Almy, and he was unanimously elected.

The Editorial Table.

"Mountaineering in Colorado—The Peeks About Estes Park." By Frederick H. Chapin. The Publishing Committee of the Appalachian Mountain Club announces the appearance, from the press of John Wilson & Son, of a beautiful volume with the above title by one of the club's most widely known members.

The book contains one hundred and sixty-eight pages, three of which are printed herewith as a sample of the paper, letter-press, and such illustrations as are printed with the text. Besides these (more than forty in number), the work will be embellished with eleven full-page heliotype plates. All the illustrations are from photographs taken by the author upon expeditions described in the text.

The work will have a special interest for lovers of nature, and especially of mountains and their scenery.

We have secured one of Mr. Chapin's negatives for

THE PHOTOGRAPHIC TIMES, which will shortly be published in these columns, with a highly interesting descriptive article by the author of the negative. This will give our readers an opportunity of judging of Mr. Chapin's work. We shall hope to give other results of his mountaineering photography in later issues of our magazine.

It is published in three styles of binding at the following prices: In paper, $1.50; in cloth, $2.00; in half-morocco, $3.00.

Orders should be sent to Mr. Albert S. Parsons, 9 Park Street, Room 17, Boston.

Mr. F. Gutekunst, of Philadelphia, is making a notable collection of famous Americans. We have been favored with a magnificent portrait of Walt Whitman, the "good gray poet." It is a 14x17, showing the venerable man in a characteristic pose, seated in a comfortable arm-chair. The likeness is perfect and the photographic work faultless. We cannot praise this specimen of photographic portraiture too highly. It is entirely satisfactory in every respect, which is saying all that could be said.

We have received from James M. Ferris, of Sandy Hill, N. Y., an interesting "flash" light photograph in which he himself appears. The following is an abstract from the accompanying letter from Mr. Ferris, which we think will interest our readers:

"I am an amateur of two years' practice, spending what little time I could get away from my other work (book-keeping) and working at it what spare time I had evenings. I send you by this mail a print, my second attempt at flash-light, my first one being a total failure. I used a seed plate of 26 sensitometers, developed with pyro and soda, and made the flash with one of 'Scovill's 40 Grain Cartridges,' using a sheet of tin for a reflector. I lengthened the fuse out a little, and then after lighting took my seat and by so doing was able to take my own picture, as you see me, reading THE PHOTOGRAPHIC TIMES. After lighting the fuse, of course I had to make some quick movements to get my seat before the flash."

From Mr. S. P. Davis, of Presque Island, Me., we have received an instantaneous 8 x 10 print of a horse race. It must have been taken with a very rapid exposure, because the figures nearest to the camera, and more than one inch in height are perfectly sharp. It is a very interesting picture of an event of a country fair, and as a technical photograph is of the highest order.

Equally well done, but not quite so interesting is a winter landscape also 8 x 10 inches in size.

Mr. E., of Tarrytown, sends some orthochromatic pictures on Carbutt plates. The ray filter used was doubtlessly of very great intensity as the colors are not correct in the pictures. But Mr. E. has done exceedingly well with the first attempts in orthochromatic photography.

Santa Claus, the new juvenile weekly of Philadelphia, offers four cash prizes for the best amateur photograph—two for those above and two below the ages of 17—and $120 may be won on any Santa Claus first prize.

The three latest numbers of THE PHOTOGRAPHIC TIMES contain a number of frontispieces. All are photogravures reproduced from negatives of the same size. At least two are the work of amateurs. The pictures represent a mill pond, a man ploughing, and a young girl and dog standing in a shaded grove. We are quite in love with each one of these beautiful pictures.—*Fremont Journal.*

Queries and Answers.

232 ADELAIDE wishes to know of a protective varnish for aquarells on opal plates or on albumen paper.

232 *Answer.*—Varnish with a 5 p. c. collodion, or what may be still better, with crystalline or ivory varnish.

233 CHARLES HUNTINGTON.—"Can Daguerreotypes be so copied that the buff-marks of the plate do not show, and that the surface does not reflect images of surrounding objects?"

233 *Answer.*—Exclude all extraneous light with screens of black velvet and place before the camera a screen of the same material, and with an aperture for the lens, and then reflect sunlight upon the Daguerreotype.

234 MISS KATE W.—"Where can I obtain pure erythrosine, and eosine blue shade?"

234 *Answer.*—The Scovill & Adams Company.

235 P. VENGEROTH.—"It may be interesting to your readers to know, that ordinary yellow packing paper, saturated with boiled linseed oil, gives a very comfortable and non-actinic light screen for very sensitive plates."

235 *Answer.*—We thank you very much for the information, but really there is nothing new in it, the same method having been published in one of the German annuals for 1889.

236 PAUL BRETON complains very much of a white deposit settling upon his negatives after fixing them. To avoid frilling of the plate he immerses his plates in an alum bath before fixing. "Has that anything to do with it?" he asks.

236 *Answer.*—Decidedly. If alum remains on the surface of or within the gelatine film when brought in contact with hyposulphite of soda, the well known decomposition of the two salts will take place, resulting in the liberation of sulphur and the formation of hydro-oxide of aluminium. The precipitates adhere with much tenacity to the film. The plate, after coming from the alum bath, and before it is put in the hypo, should be washed very cautiously.

237 A. De La F. would like to know how to make glue like that used on postage stamps.

237 *Answer*—Mix dextrin and water to the desired consistency, and flavor with oil of wintergreen. Apply the paste with a brush, allowing it to dry spontaneously.

238 CHARLES MAGER asks for what purpose iodide of silver is added to the nitrate bath of the wet collodion process.

238 *Answer.*—A pure nitrate of silver bath in the proportion of 1:9 attacks the iodide of silver forming in the collodion film, and gives rise to pinholes. Furthermore, iodide of silver in the bath is productive of better half tones. Reproduction photographers prefer a bath without iodide occasionally, but then the collodion must be prepared accordingly, that is, without excess of haloids.

239 MISS ELSA G. writes to know if ivory varnish is good to use for protecting lantern slides.

239 *Answer.*—It is very good indeed, but the varnish should be thin.

COBWEB.

THE PHOTOGRAPHIC TIMES.

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A SPIDER'S WEB.

WE are indebted to Mr. Horace P. Chandler, of Boston, for the extremely beautiful picture of a spider's web, which embellishes our pages this week. The photo-gravure was made direct from the negative without enlargement or reduction, or any change whatever. It is a beautiful reproduction of an exceedingly rare negative. Only the most conducive circumstances could make such a photograph possible. As the Rev. Henry C. McCook, that fascinating writer on spiders and kindred subjects, truly says in the interesting remarks which follow; the photograph was made early one morning while the dew was still wet on grass and foliage, and the early mist of the dawn obscured a too bright sunlight for such delicate photographic work. Mr. Chandler has made many remarkable cobweb pictures, but none that approach this in beauty or interest.

The photo-gravure preserves all the delicate detail of the original negative, and the peculiar charms of the picture. Such a photographic reproduction, perfect of its kind, is an inspiration in itself. But let us read what Doctor McCook has kindly written for our readers concerning this particular cobweb and its builder:

"The photo-gravure is an excellent reproduction of a photograph of that form of spider webs most familiar to the general public. The tribe making the snare is known among naturalists as the *Orbitelariæ*, or Orbweavers. The popular names are the 'Garden spider' and the 'Geometric spider.' The particular species making this web was not collected by the gentleman who made the photograph, but a study of the details shows that it was constructed by one of our common nest-making Orbweavers; that is to say, those who are in the habit of weaving a pretty, silken, dome-shaped nest or a nest of leaves, at one side of their snares.

"In these nests they remain during the day, holding fast to a 'trapline' which passes out of the open nest to the center of the orb. At this point it is attached by several branching threads. The web is drawn, and held taut by the spider, and thus every agitation made by the captured insects is communicated from any part of the orb along the taut trapline to the highly sensitive feet of the spider. When informed of the presence of prey by this species of telegraphy, she runs along her trapline to the center or hub of the orb, and thence to the point where the insect is entangled, wraps up the fly in swathing cloth, and carries it back to her den, or nest, where she feeds upon it at leisure.

"In the photo-gravure, the nest is seen at the upper left-hand corner just underneath the branches of spruce on which the snare is hung. It is a dome-shaped silken tent, whose mouth opens downward. The trapline may be seen passing out of it to the center of the snare as above described. The upper lines of the orb are partly anchored to the lower margin of this tent, and as for the rest, are hung to the various outgoing lines which form the frameework or foundation of the snare.

"The species making this beautiful web very certainly belongs to the genus *Epeira*, and is probably *Epeira trifolium*, the Shamrock spider one of the most beautiful of our American spider fauna, and which is very common along the Atlantic coast, through the New England States and northward.

"The web, as is readily seen by examining it with a hand-glass, must have been photographed in the early morning, as the spiral concentrics appear to be covered with dew, and are all drooping from the weight of the drops. The dew drops can also be seen on the outlying foundation lines. At various points in the orb, the beaded spirals or concentrics may be observed interblended, the central parts of the strings being united as though they had been twisted. This has been caused by the viscid beads on the several lines being brought in contact with each other by the weight of the dew and the action of the wind. This appearance may be continually observed in the case of Orbwebs, and oftentimes a whole section will be thus

twisted, or even torn out, marking the spot where a fly has been entangled, and from which it has been cut out and carried away by the spider."

EDITORIAL NOTES.

We wish to call attention to the article by C. D. Mosher, in another column of this issue. It will be found worthy of consideration, as Mr. Mosher is a photographer of ability, with forty years of experience, who thinks as well as works. He has one of the largest galleries in Chicago, at which a permanent exhibition of historic photographs, numbering over two thousand, may be seen by any one interested. Mr. Mosher is among the leading photographers of our country.

We have received from Mr. McMichael, of the committee appointed last August at the Boston Convention of the P. A. of A. to prepare a suitable memorial to Daguerre, a convenient blank book for acknowledging and keeping record of the subscriptions of one dollar sent in by photographers. We wish to invite our readers again to take part in this Daguerre Memorial by sending in their subscriptions of one dollar. That is the sum asked from every photographer who feels willing to contribute at all, and if even a small proportion of the professionals and amateurs of this country were to contribute that amount we should be able to raise a sum of money by the first of January which would pay for a bronze or marble figure worthy the memory of our great benefactor. It was thought best to make the sum a small one and the same from all photographers, so that the poorer as well as the wealthier members of our fraternity could take an equal share in the common cause.

Subscriptions will be received at our office at any time between now and January 1st. Each subscriber will be sent a numbered receipt, and his subscription will be acknowledged in the columns of The Photographic Times as well. Let us unite in raising a liberal sum for this worthy purpose!

We have already announced in these columns some of the leading features which will characterise The Photographic Times for 1890. These announcements have been received with unusual signs of approbation and enthusiasm on the part of our readers. We have still others to announce. The Photographic Times will not only be greatly improved in the value of its illustrations and reading matter, but the means of presenting them will also be improved as well. There will be acceptable changes in the type and arrangement, though in this particular the Times has been highly complimented in the past. The dividing line between the columns and at the top of the page will be done away with, giving our pages an improved appearance. The size and shape of the page having proved so acceptable in the past will remain unchanged, as well as the cover, though a new cover will be used on the monthly issues. In a word, it may be said that our publishers intend doing everything in their power to make The Photographic Times not only the best publication of its kind in the world, but without regard to trouble or expense to improve it from time to time as much as is possible.

SAVE YOUR SILVER AND GOLD.

I desire to call the special attention of my brother photographers to the great waste of money which is absolutely thrown away every year by the photographers of America. It is estimated there is from forty to fifty thousand dollars worth of nitrate of silver and gold used by the photographers every year in our little city of Chicago alone, and as much more in the great state of Illinois; and one million dollars worth of nitrate of silver and gold is a very low estimate for the photographers to use every year in making their countless millions of photographs in the United States alone. At least five hundred thousand dollars of this hard earned money could have been saved that was wasted, thrown away, in solutions in the washing and fixing these millions of photographs. Could all of this waste for the past twenty-five years have been saved, the enormous amount would surprise every one of you, as it would reach the fabulous sum of twelve million and five hundred thousand dollars. Quite enough to retire every photographer of America of to-day with an independent fortune, to say nothing about the annual interest of this vast sum, which certainly would have doubled the whole amount that has been wasted in the past twenty-five years.

These are stubborn facts that are really lamentable to contemplate in intellectual America by the learned professionals in photograpy. These enormous wastes that are now thrown away by most photographers, *not all*, is a dead loss to the people of the world; and it does seem it should be a criminal offense to deprive humanity of monies unnecessarily wasted, when so many are suffering for the necessaries of life. The photographers are not alone in this destruction of money in carrying

on their business; there is loss enough by waste and extravagance in carrying on all the business enterprises of the world, that could be saved; quite enough to lay by a sinking fund sufficiently large to pension every poor, infirm man and woman support and educate every poor and needy boy and girl in America. These all are startling assertions, but true. How very, very slow we all are who are working day by day in all the various vocations of life, to learn the all *important lesson:* How to *save* and enjoy the great benefit of economy, frugality and temperance. Could one-half, or even one-quarter of this twelve million five hundred thousand dollars have been saved that has been irretrievably lost for the past twenty-five years, this sum would have built and endowed many photographic colleges. paid liberal salaries to superintendents and teachers, and our employés to-day would have been educated, skilled professionals who would have graduated in our colleges with honors, and the beautiful art of photography advanced in excellence and perfection way beyond the conception of the most learned in our profession. Yes, and there would have been money enough left out of this twelve million five hundred thousand dollars to have laid by every year, which would have accumulated a mammoth sinking fund, upon which could have been established the Photographer's Life Insurance League, with a capital as large in proportion as the strongest life insurance company on this continent, which would have paid to the widow and children of the deceased policy-holder at least from five to ten thousand dollars, and erected the photographer's emblematical monument over his grave to the memory of his life and his profession. Many of you, no doubt, will say: Mr. Mosher, these are idle words, spoken too late to be of any benefit to us now. The old saying is as true to-day as it ever was: Never too late to mend and correct the mistakes of the past. Our failures and experiences in the past are our successes and triumphs of to-day and will be all through the years that are to come in the journey of life.

How many photographers are there in this vast audience, who will resolve from this moment to go home and mend their ways, and save in the future every cent of their wastes, with their needless expenditures and teach industry, economy and temperance to their employés? By such practical teachings in our daily business lives, we all would be able to retire from business at fifty upon a fair competency and live the remaining years to come surrounded with the comforts of life, and a happy old age would be ours to enjoy, with the seeds of industry, economy, and temperance sown in the hearts and in the business enterprises of our children and employees, this would be joy enough.

The following is a carefully prepared table, showing the most economical way to save at least from fifty to eighty per cent. of all the nitrate of silver and gold used in solutions in making photographs.

I use two iron-bound casks for saving silver and gold from solutions. In one of the barrels I put in three or four of the first washings of my prints, when the barrel is full throw the silver down by sprinkling in a little common salt with a small amount of diluted sulphurette until there is no trace of silver in the solution, then run the surplus water off through the faucet until within one foot of the bottom of the barrel.

The other barrel I use for my old hypo solution and old toning baths. When the barrel is full of these washings add about a quarter of a pound of sulphurette dissolved in water, then stir it well and let it stand for two days to settle until perfectly clear, then test it; if no traces of silver are left in the solution, run off the water until within one foot of the bottom of the cask, and repeat the operations as before. *C. D. Mosher.*

ON THE USE OF THE ELECTRIC LIGHT IN PHOTOGRAPHY.*

III.

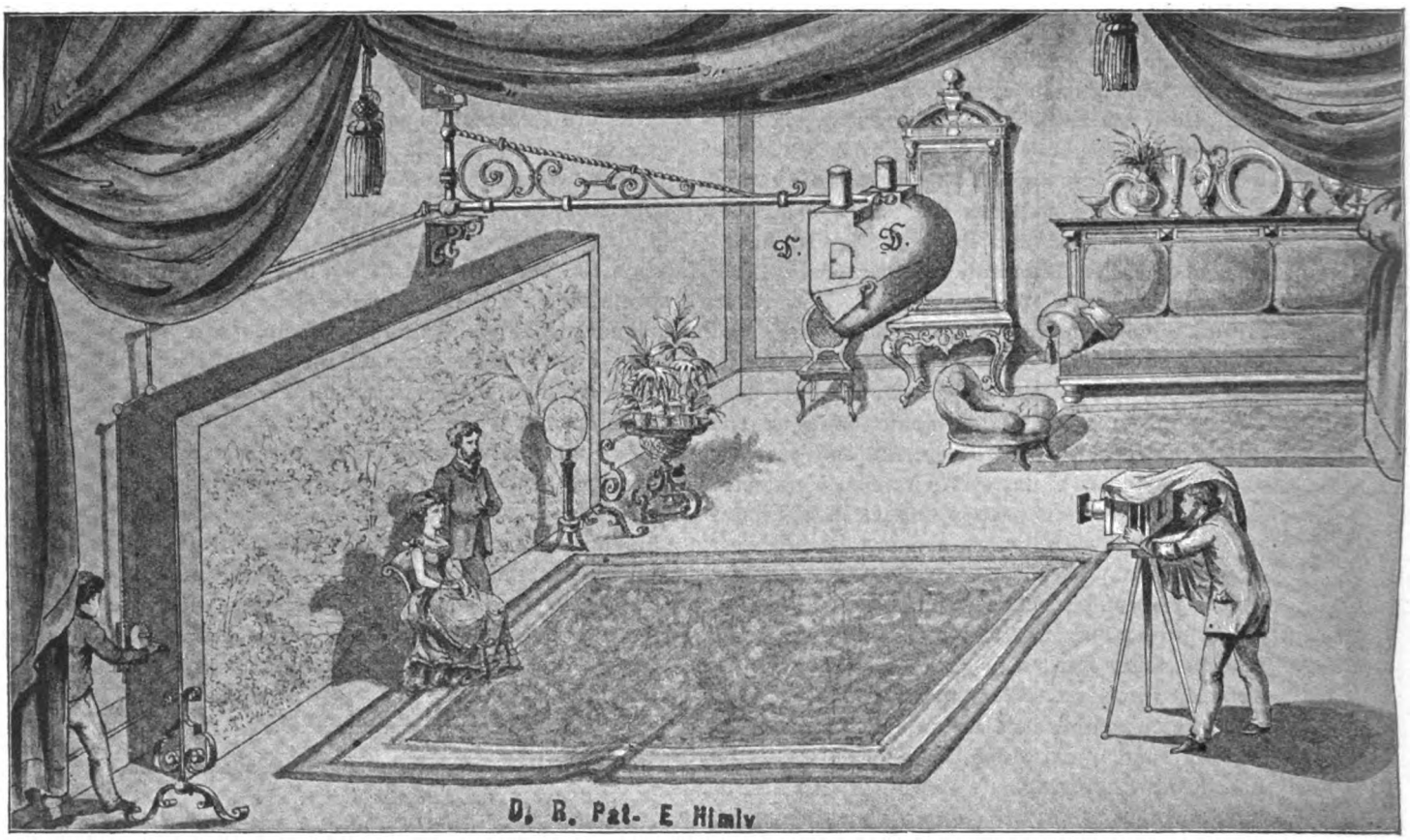
HIGHLY interesting is the electric light installation in the reproduction establishment of the Messrs. Siemens and Halske, of Berlin, under the direction of the photo-technist Capt. E. v. Himly. He uses for photographic purposes only one, but a very extensive light source, consisting of pure arc-light, or when connected with incandescent lamps arranged in rows, the whole system so arranged by peculiarly constructed means, as to make it movable at will and in any desirable direction. A reflector, called diffusor by Capt. Himly, is attached to a sort of crane. It rotates in circles, and as its arms can be lengthened or shortened at will, the distance between sitter and source of light can be regulated to suit different cases.†

*Second Paper appeared on page 553, November 8th issue.

†The installation of Mr. William Kurtz, of New York, from which Captain Himly has probably derived much valuable information, does not differ materially from his. The method of illuminating the subject is merely reversed.

Kurtz was aware of the fact that distinctly different shadows are cast from the single lamps of combinations, which becomes the more perceptible and disturbs more the harmony in light and shade effects, the further the lamps are distant from each other and the nearer they are to the subject to be photographed. To avoid these annoying effects Kurtz moves, placed upon a rotating platform, subject, camera, and all, across the light, blending thus the individual shadows into one.

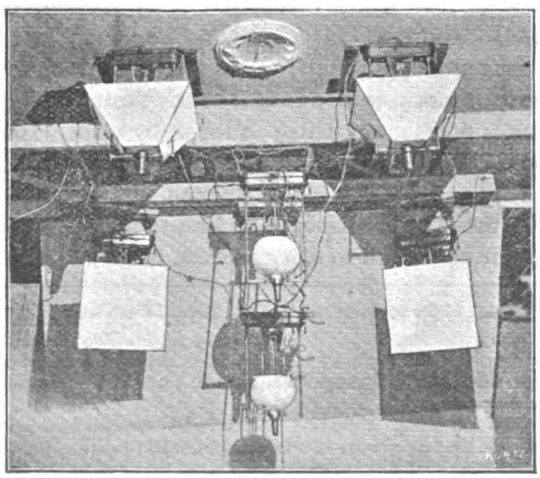
The action of the diffusor is explained by Figure 5.



The diffusor is made of tinned sheet iron wrought into conico-spherical shape, and can be inclined to any desirable angle or position. Within it are placed in appropiate niches two arc-lights, *a* and *b*, in such a manner as to obstruct all direct light from emanating. The light radiates towards the front of the diffusor, is thrown backwards upon its matt-white hollow side by two metallic concave mirrors, *s* and *s*, from which it is finally directed towards the object to be photographed; *m* and *m* are plane metallic mirrors and take part in effectually diffusing the light. Each of the two arc-lights has a force of 1200 candle power. Incan-

The Atelier Kurtz was in perfect working order in the autumn of 1881. Captain Himly introduced his method several years later.

Kurtz's system of lighting consists of 6 arc-light excelsior lamps, each of 1,800 candle power, American measurement. They are hung



upon a crane, connected with a travelling carriage, so constructed, as to enable the operator by pulling a rope, to move the whole combination into any direction or to any distance as occasion requires. Besides that, the lamps can be raised or lowered to suit the necessary height.

The lamps are placed in rows of three, the two central ones are enclosed in ground glass globes, and flanked by the four others, in frustum shaped lanterns of glass, and covered with white tissue paper, the two of the upper tier presenting a side of the frustum towards the sitter, and the lower ones the basis. In this wise, and without the use of side reflectors or additional lamps to brighten up shadows, a good light is obtained if the subject is at a distance of from 16 to 20 feet from the light source. When nearer to it the shadows are very abrupt and strongly defined, and it is then that the rotating platform is used with great advantage.

With this system of lighting, the light action when compared with that of diffused daylight is not as favorably proportioned as is claimed by the majority of others. Careful photometric experiments have proven it to be 1:4 to 1:3, the exposures being from 2 to 5 seconds. On account of its costliness Mr. Kurtz has abandoned his electric light portrait atelier, but in his extensive reproduction and photo-mechanical printing establishment the electric-arc-light has proved to be an extremely useful and reliable assistant. *Translator.*

descent lamps are combined with their light when portraits are to be taken. Switches are connected with them to extinguish their light or use it, as the character of the subject or the desired illumination may demand. With this system of lighting the time of exposure is from three to four seconds. For reproductions Capt. Himly uses the arc-light only.

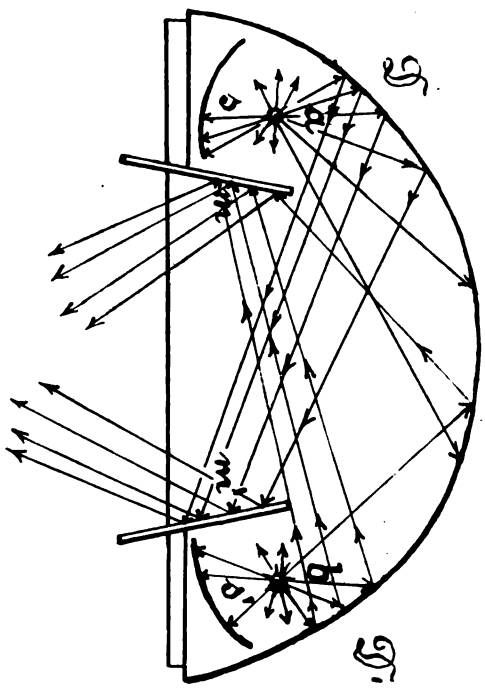


FIG. 5.

The photographic atelier of the Imperial Court and State printing office of Vienna installed electric arc-light in 1888. It is constructed after the Siemens and Halske system, and consists of a dynamo machine of the D17 type, two differential arc lights of 20 ampères, each of 1500 candle power, and hung in semi-cylindrical reflectors, so constructed as to admit a regulation of their height, and distance from each other, as the character of the object to be photographed may demand.

With an adjustable switch in the circuit the light of either of the lamps, or both at the same time, can be employed.

Ottomar Volkmar.

PLATINOTYPE PRINTING.

(*Hastings & St. Leonards Photographic Society.*)

A MEETING was held at the Brassey Institute, on Monday, the 14th inst.

The proceedings were commenced by the Chairman (Mr. W. Shuter) receiving the report of the judges appointed to judge the results of the society's summer excursions. There being only a few exhibitors the original idea of making each excursion a competition was given up, and only two awards made, viz., to A. Brooker (Hon. Secretary), for the best photograph sent in, and J. Downsborough, for the best collection of photographs.

Mr. Jones, the demonstrator from the Platinotype Company, was then called upon, and read the following paper:—

In demonstrating to you the hot bath platinotype process, this evening, I should like to make a few introductory remarks.

A great number of amateur photographers appear to be afraid to work this process; probably being led away with the idea that none but exceptionally good negatives can be printed from successfully. This might have been the case years ago, when the process first came out; but thanks to Mr. Willis (the inventor) the process has been improved, and a tolerably good negative will print as well in platinotype as in any other process, but select negatives rather intense and full of gradation should you want very brilliant prints.

The paper for the hot bath process is sensitized with platinum and iron. On receiving the paper from the Company (which is sent out in plain tins with calcium), it should be transferred to the special calcium tubes with india rubber bands over the joints, making the tube perfectly air-tight. The paper will keep from three to six months in these tubes if the calcium be kept perfectly dry. A safe plan is to take the calcium and place it in an oven for a quarter of an hour once a fortnight. The printing is conducted in an ordinary printing frame, with india rubber pads to keep the paper perfectly dry and to insure contact.

The sensitized surface before exposure to light, is a lemon-yellow color. During exposure the parts affected by light become of a pale grayish-brown color, and finally if the negative be quite vigorous, of a dull orange tint under those parts of the negative which present *almost* clear glass.

When the last change has occurred it indicates that the iron salt has been almost completely reduced, and that further action of the light produces no more visible effect on such parts. When printing from a negative having moderately strong contrasts it is frequently found that the deepest shadows of the print are of this orange tint, and are different and lighter in color than the parts rather less exposed to light.

Parts in which this change has taken place are said to be "solarized." Soft printing negatives not permitting sufficient action of light in the shadows, do not produce this effect, unless the proofs are much over-printed.

Prints from hard negatives are liable to show, when deeply printed, *black* at these parts when developed. Such cases demand a hot and prolonged development. The most suitable kind of negative, when brilliancy is desired, is one intense and full of gradation.

Generally a little "solarization" is desirable in the deepest shadows of the print; but upon this point no precise rule can be given, all depending upon whether a brilliant or soft result is required.

The correct exposure—about one-third of that required with silver printing—is ascertained by inspection of the paper in a rather weak white light in the usual manner. A little experience will enable the exposure to be determined very accurately.

When examining the prints in the printing frames, care should be taken not to expose them unduly to the light; for it should be observed that the degradation of the whites of the paper due to slight action of the light, is not visible until after development. As to the amount of detail visible, all depends upon the nature of the negative, and the eye of the observer. It is found that some can detect differences not observable by others; for this and for other reasons no rule can be laid down.

It should be noted that paper which has been kept some time, tends to render half-tone more than when fresh; hence a too hard negative would print best with "kept paper," provided, of course, that the latter be also in good order.

As soon as the exposure of each print is complete, it should be placed in a calcium tube containing the dry preparation of chloride of calcium, to preserve it from moisture, until it is developed, care being taken to avoid all possibility of contact between the paper and the calcium, which would produce white spots on the prints.

The developer is made by dissolving 130 grains of the oxalate of potash in each ounce of water. It is advisable to use hot water for making the solution, of which a large quantity may be made up; it will keep indefinitely. Sixteen ounces (1 lb.) of the oxalate of potash to 54 ounces of water is sufficiently accurate. A weaker solution must not be used. It is very desirable always to have at hand some unused solution, since, in the event of inferior prints being made, a new bath may at once be tried.

The bath must not have an acid re-action. If it be found to be acid. add a very little carbonate of potassium until slightly alkaline to test paper.

Development should be conducted in a feeble white light or by gas light.

It may be proceeded with immediately after the print is exposed, or, more conveniently, at the end of the day's printing, when the various prints from the negatives may be sorted and heated as appearance may dictate.

The solution is conveniently contained in a flat-bottomed dish of enamelled iron, supported on small circular gas stove; this forms the best means for supplying the heat.

If no gas is obtainable, a spirit lamp may be used for the smallest dish, but the larger dishes require a paraffine stove.

Troughs for large prints are fitted with a tube gas-burner.

The development is effected by floating the printed surface of the paper for not less than five or six seconds upon the "developing solution." To avoid air-bubbles, lay one edge of the print upon the solution near the left-hand end of the dish, then, with a sliding motion to the right, lower the print, with an even movement, without stoppage, until it is entirely in contact with the liquid, where it must remain until complete action has taken place. Then raise, if any air-bubbles appear re-immerse.

A good plan is to place the prints, after removal from the printing frames, in a calcium tube with their printed surfaces outwards. In a short time the prints will receive and retain their curvature sufficiently for the developing operation.

To develop, take the print in the right hand (its printed surface being downwards), lay the left-hand edge on the developer, and then, slowly and continuously, lower the right hand until the whole print is floating; the great point is to well preserve, and if possible increase the curvature of the paper as it nears the liquid. A temperature varying from 130 deg. to 160 deg. Fahr. may be considered the standard temperature for the developer, though higher and lower temperatures may be used on occasion. To test the temperature a chemical thermometer must be used. There is very great latitude (from 100 deg. to 180 deg. Fahr. and upwards) possible in the temperature of the developing solution for the "black" prints. Over-exposed prints may be frequently saved by using a low temperature and weak developer, and those under-exposed by using a high one. The print should not be raised for examination during development, nor be taken off the bath too soon, otherwise brilliant and "juicy" prints will not be produced. Such action produces practically cool development. The bottom of the developing dish should be covered with the developing solution to

the depths of at least one half of an inch, and the solution be occasionally stirred.

After the batch of prints has been developed, the solution should be put without filtering into a bottle for future use; it should not be exposed for any length of time to a strong light, but should be kept in a cupboard.

When the next occasion occurs for the development of prints, the solution probably will be found to be nearly clear, but, of course, tinted by previous use. If this clear solution be not sufficient for use, add to it some of the fresh solution of the potassic oxalate. It is, indeed, a safe plan always to keep the "bath solution" up to its original bulk by this means.

It must not be supposed, however, that a little suspended matter in the bath is of any consequence. The prints after development should be placed in a porcelain dish face downwards in the acid bath, which is made by mixing one ounce of hydrochloric acid with sixty of water; they should have three such baths of ten minutes each, and should be moved occasionally to prevent one print adhering to another and so stopping action of acid.

The prints should not communicate to the last acid bath the slightest tinge of color. If the bath, after the prints have been washed in it, does not remain as colorless as water, the prints should be placed in another acid bath. The object of this washing in dilute acid is to remove all traces of iron salts from the paper before it is passed into the plain water.

It is obvious that if there be the slightest trace of color observable in a large bulk of the last acid bath there will be a very large appreciable quantity of iron salts present; if so, there must be a proportionate quantity also contained in the body of the print. This plain water will not remove; the use of the washing in plain water is to remove the acid.

The prints must not be placed in plain water on leaving the developer; if this is done the prints turn yellow.

After the prints have been through the acid baths, they should be well washed in two or three changes of water for about a quarter of an hour each; they are then finished. In conclusion, I would remind you that there is no licence required for working this process, and I will undertake to say that any one who has successfully worked the process will never return to the tedious method of silver printing.

The plate sunk mounts are the most suitable, and the best mountant is plain starch. It must be plain to every one that platinotype is superseding all the photograph printing processes, and to prove this fact one has only to look around the exhibitions and see the great number of prints which are done in this processs compared with others.

The prints are absolutely permanent, there being no known acid which will affect platinum. Thus, however much exposed to light and air, nothing can destroy the purity of the picture. Dirt may discolor it, but if so it can be bleached with a solution of chlorine which will render it as fresh as ever.

F. E. Jones.

A CHEAP AND EFFICIENT PHOTO-ENAMELLING PROCESS.

(Issued by N. C. Thayer & Co., of Chicago.)

FORMULÆ.

Prepare five separate solutions, as follows:

No. 1 is Plain Collodion.

Alcohol	12 ounces
Ether	20 ounces
Gun Cotton	1 ounce

No. 2 Solution.

Chloride strontia	80 grains
Chloride lithium	80 grains
Citric acid	300 grains

Dissolve all these together in a mortar in as much alcohol as will make 6 ounces.

No. 3 Solution.

Nitrate silver	437 grains
Hot water	5 drams

Dissolve and add slowly as much alcohol as will make 5 ounces in all. The silver will partially crystallize after standing. Redissolve by placing bottle in a pan of hot water.

No. 4 Solution.

Castor oil	4 drams
Ether	8 ounces

No. 5 Solution.

Glycerine	4 drams
Alcohol	8 ounces

To Make Emulsion.—Take 6 ounces No. 1, add to it 6 drams No. 2; filter into this 12 drams No. 3, shaking well all the time. Add to this ½ ounce each No. 4 and No. 5 and shake thoroughly. If desired this emulsion may be colored (it is not necessary, however) by dissolving violet and magenta aniline dye separately in as little water as possible and mixing the two with equal parts alcohol and ether—one or two drops of this is sufficient.

Should the prints ever appear rusty in the shadows, add a little more of No. 3, as the emulsion must be too weak in silver. When the prismatic rays show on the paper when dried, the emulsion is too thin and should have a little cotton added to

it. When negatives are very thin, a better emulsion for such is made by using 4 drams of No. 2 instead of 6 drams. For negatives that are dense, more of No. 2 must be used, also an increased proportion of No. 3. After coating each sheet of paper, add one dram ether to the emulsion. This will break all air bells formed by the emulsion running back into the bottle, and also makes up for any evaporation. The amount of emulsion required to coat a sheet of paper 20x24 is 1½ ounces. Should more be left upon the paper it is thicker than necessary, and may be thinned with ether, to be of such consistency as will only take that quantity.

TONING BATH.

Water.....40 ounces
Hypo..... 8 ounces

Dissolve 15 grains chloride gold in 2 ounces water, and add to hypo. solution; then 75 grains nitrate lead (dry). Tone the prints without previous washing. When they tone too fast, they should be put into an ordinary fixing solution for a few minutes. When they are in the toning bath for ten minutes or over, they will be fully fixed. When prints tone too slow add a little fresh toning solution. Toning bath may be used for some time by strengthening from stock solution. After toning immerse for one minute in ordinary fixing solution with a little salt added. From this on wash and treat same as albumen prints.

THE TROUBLES OF ONE AMATEUR PHOTOGRAPHER.

The family bible bears testimony to the fact that I am still young, and my looking-glass tells me that I am far from ill-looking. I have a comfortable income left me by my father, and yet the stars of heaven do not look down upon a more wretched and unhappy man.

Six months ago I was a jovial and light hearted fellow with a host of friends. In a rash moment I bought a photographic outfit, since which my troubles have followed one another in quick succession.

The morning after making my purchase I said to the young man who occupied the room next to mine.

"Come up on the roof before you go down town and let me take your picture."

He readily assented, and I was soon busily engaged getting him artistically posed against a brick chimney. I then tried resting the camera (which, by the way, was in a carrying case, and had no tripod) on another chimney. Finding this too low, I decided to hold it in my hands. I suppose I was somewhat flurried over what I fondly hoped would be my first photographic triumph, and my hand must have been unsteady. When the plate was finished I held it up to the light, and there stood my next door neighbor with the one head that nature had seen fit to bestow upon him, and with two others in addition! Yes, there he stood, serenely smiling with three mouths!

Of course I was disappointed, but as the likeness was so excellent in all three faces I could not bear to destroy the negative, so spent the afternoon in taking several prints from it. One of these I mounted, placed in an envelope and laid in a conspicuous place in my neighbor's room.

He came down to dinner somewhat late that evening, and looking rather flushed and angry. He did not speak until dinner was almost over, when, with a bloodthirsty glance in my direction, he volunteered the remark to the man next, that "he hated a fool."

The next day I met an old college friend in the street and induced him to come home with me and be photographed. We did not go on the roof this time, but my friend stood bolt upright in the centre of my room, with his feet forming a right angle, as we were taught to do at dancing school.

This picture was excellent from the feet up to the collar, and as far as the right shoulder; but, alas! my friend's head and right arm were nowhere to be seen. A stranger viewing the picture would at once have come to the conclusion that the subject was a victim of the late war; though how a man who had lost his head (in the literal sense) could hold himself erect and keep his toes with such mathematical precision to the seam of the carpet, would have afforded a wide field for speculation.

I had a good laugh over it, but my old friend did not appreciate the joke, and haughtily declined to let me try again.

After several more experiences of an equally unsuccessful nature I decided to betake myself to the country for the summer, so wrote and engaged board at a hotel on the Hudson.

The place which I had chosen was but a short distance from the summer residence of a certain Mrs. Anson. This lady was the mother of a nineteen year old daughter, who was the possessor of a pair of brown eyes one glance of which had made me her slave forever.

I arrived as my destination one hot afternoon, and amid the crowd upon the hotel piazza I recognized the wife of a sort of cousin of mine. She came forward with outstretched hands and warmly bade me welcome. After answering my inquiries about her husband, she said:

"I see you have a camera with you. I am going to ask you to take my children some time."

I said that nothing would give me greater pleasure, and that if convenient for her I would take them that very afternoon.

So having unpacked my things and made myself presentable, I took my camera and went in search of the lady.

She sent at once for her three small daughters, who presently appeared clad alike in yellow curls and very stiff white dresses.

It took some time to arrange them to their mother's satisfaction, but at last the three were artistically posed on the top step of the piazza, and I took up my position in the road and proceeded to remove the cap.

Now it happened that a certain small boy had been sent to bed that afternoon for some misdeed which he had committed. After hearing his father's footsteps die away in the distance he had gotten up and was now hanging out of an upper window, watching my proceedings, and amusing himself my making grimaces at humanity in general.

When I came to develop the plate I found that I had pointed the camera so far upward that instead of the three

simpering little misses whom I had expected to see, the naughty boy wearing his night gown and his unpleasant grin met my view.

I sent a copy of the picture to the mother of the little girls, and with it what seemed to me to be rather a bright and witty note of explanation, at the same time begging her to name an hour when I could again try my luck with the maidens of the yellow curls.

Half an hour afterwards a servant knocked at my door and thrust in a note which proved to be a reply to mine. It was short, and very far from sweet. The lady said that she "regretted deeply having asked me to waste any of my valuable time on her dear children. She considered my joke a poor one, and I would please find enclosed picture of small boy, which she was quite sure could be of interest to no one but myself."

The following day I took my camera and went up to call at Mrs. Anson's. I was received graciously by both ladies, and soon succeeded in inducing the dark-eyed mistress of my heart to sit for her picture.

She held her little Skye terrier in her arms and I arranged her so that she faced the camera. I felt that this picture must be a success, for my heart was in my work as it had never been until now.

Before leaving I took a picture of the mother and had gotten Brown Eyes' promise to drive with me the following afternoon.

"Stop in to-morrow morning," she said, as I was leaving, "and let me see my picture. I shall be dying of curiosity until you come."

I promised, and the next morning saw me wending my way towards Mrs. Anson's cottage with the photo of Brown Eyes in my pocket.

I confess I was not altogether satisfied with my work. In posing the fair one I had entirely forgotten that things in the foreground take considerably larger. In consequence her feet, as they appeared in the picture, would have been large enough for a girl about four times her size, and her hands, which were clapsed around the dog, seemed of similar proportions.

But the face was all that could be desired, and I hoped that she would overlook what seemed to me to be only a natural mistake for a beginner.

When I reached the cottage I found Miss Anson seated on the piazza looking as fresh as a morning rose in her dainty white gown and pink ribbons; but my pleasure at seeing her was soon changed to disgust when I discovered that she was not alone. There in an easy chair at her side sat Reginald Ellis, a fellow whom I had always detested, and whom I had long looked upon as a rival suitor for Miss Anson's affections.

After the briefest possible exchange of civilties between Ellis and myself, Miss Anson asked for her picture.

Why, oh why! did not a thunderbolt strike me, or the earth open and swallow me before I had time to put my hand into my pocket?

But the sun continued to shine and Brown Eyes to smile, and I drew forth the wretched picture and laid it in her hand.

She glanced at it and the smile died from her face. I tried to stammer out an apology, and remember saying something about a "beginner—hoped she would allow me to try again," etc., but before I had gotten out half a dozen words she had torn the picture into small pieces and had dashed into the house, leaving me surrounded by the ruins and to the tender mercies of Ellis, whose mocking laugh rang in my ears as I fled down the garden walk.

Shortly after my return to the hotel I received a note saying that Miss Anson would be unable to drive with me that afternoon.

But hope sprang up once more in my heart after I had had my dinner, and I decided that I would try and reinstate myself in the good graces of at least one member of the Anson family.

Having carefully printed and mounted a picture of the elder lady I sallied forth up the road,

I found Mrs. Anson seated in the garden. After making my best bow and remarking on the beauty of her roses I presented the picture.

What was my surprise to hear her ask:

"Who did you say this was?"

"Yourself, madam," I replied in an embarrassed tone.

"I should have said that it was a colored person," were her next words, spoken in a freezing tone.

I took the unfortunate production of my camera and looked at it carefully. Then, for the first time, I realized that I had prinied it so long that it certainly did resemble an Ethiopian rather than an American.

I tried to change the conversation to some more agreeable topic, but somehow my visit was not a success, so I made it as brief as possible. As I retreated down the road I happened to look around just in time to catch a glimpse of the object of my adoration starting out to walk accompanied by Reginald Ellis.

The best picture I have ever taken was one of the above-mentioned naughty little boy and his younger brother. Both boys had been to the Wild West Show and were anxious that I should take them in costume, so after my return from Mrs. Anson's I decided to devote that afternoon to them.

The elder, attired in a blanket shawl, with sundry smudges of burnt cork on his face and a feather duster by way of head-dress looked the picture of an embryo scalper; while the other boy by merely adding to his usual attire a pair of long rubber boots, his mother's Gainsborough hat (from which he had removed the flowers) and half a dozen table knives which he wore in his belt, easily made himself into a miniature edition of the Hon. Mr. Cody. This picture, as I said before, really was a success, but, alas! like my other photographic efforts, nothing but ill-luck seemed to come of it. The infant Buffalo Bill in removing a knife from his belt managed to cut his finger and ran howling to his mother.

Hoping to appease the good lady's wrath I finished one of the pictures as soon as possible and sent it to her room. Within half an hour it was returned to me with a few lines from the lady herself, saying that her darling child was still suffering from the effects of my folly and she begged to return what could never be otherwise than an unpleasant reminder of things that had better be forgotten.

To make matters worse the elder boy who had investigated the place where I developed my plates, started a report about a mysterious dark closet which I kept full of bottles and glasses.

That evening as I was passing through the hall I encountered two elderly maiden ladies who were conversing together. As I went by one of them cast a significant glance in my direction and murmured in an undertone to her friend:

"Whiskey."

Then both ladies shook their gray curls and I left them deploring my wicked habits.

I took my departure the next morning by an early train and left my camera behind me. I did not leave any address as I did not wish to have it forwarded to me.

I consider it the cause of all my unhappiness and it is my ardent wish that I may never set eyes on it again.

Cornelia Redmond.

Notes and News.

Wedded.—Mr. W. I. Lincoln Adams, editor of THE PHOTOGRAPHIC TIMES, and Miss Daisy Grace Wilson, of Montclair, were married Thursday, November 21, at 12 o'clock, in the First Congregational Church of Montclair, N. J.

International Congress on Celestial Photography.—There was a preliminary meeting of this Congress at Meudon on September 20, to consider the programme that had been drawn up by the Provisional Committee. A few slight alterations were made in the original scheme, but the details of the work were not entered into. It was, however, decided that the greatest latitude should be allowed in the choice of instruments, and that each observer should employ that instrument to which he was accustomed, having no regard to uniformity. In order to indicate the spectroscopic work included in the programme, a change in the style of the Congress was agreed to. It is henceforth to be the "International Congress on Celestial Photography and Spectroscopy."—*Nature.*

The Astro-Photographic Conference.—The *comptes rendus*, containing the full proceedings of the above Congress, which met at Paris during the past month, have not yet been received. The following, however, are some of the points decided by the Permanent Committee:—The centre of the plate is to be pointed not more than 5 sec. distant from the selected point in the heavens, the size of the plate to be 160 millimetres square. The size of the field adopted was 2 deg. square, whilst the *réseau* is to be 180 millimetres square, with lines 5 millimetres apart. The amount of overlapping decided upon was 5 min. Vogel has undertaken the construction and verification of the *réseau*. The distribution of the work among the co-operating observatories has been completed, and to Greenwich is allotted that from declination + 48 to + 40. Plate glass only must be used for the plates; the chemical formula, however, is left open. The sensitiveness for the chart and for the catalogue is to be the same. *Réseau* to be used in both series. A series of standard plates will be prepared by the Paris Observatory, and the time of exposure must be adjusted so as to compare properly with these standards. There will be one or more *bureaux* established for such observatories as cannot measure their own plates.—*Ibid.*

Anthrarobin.—Dr. J. Schnauss recommends making trial of anthrarobin as a developer. This body, which was obtained by C. Siebermann through reducing alizarine by means of ammonia, is a yellow-brown body which has a strong absorbing power for oxygen when in alkaline solution. It is not soluble in water, but dissolves readily in alcohol, alkalics, and glacial acetic acid. One would, of course, select the alkaline solutions for experiment.

Forcing.—Herr E. Kiewning, according to the *British Journal of Photography*, reccommends the following method of forcing when employing iron oxalate as a developer, among its advantages being that one thereby avoids the necessiiy of counting drops inside the dark chamber: Pour one to two drops of fixing soda solution on to a plate, and immerse this plate in about sixty cubic centimetres of the oxalate solution for one to three minutes; then add twenty cubic centimetres of iron solution thereto. The result is surprising! Under-exposed plates come out quite free from cloud.

Herr Liesegang, in a recent number of the *Photographisches Archiv*, gives an interesting account of some experiments which he recently undertook with a view towards rendering images visible at a distance by means of the electric current. The principle of the apparatus with which he experimented is as follows: The reduction of various salts of silver, and also copper, give rise to electrical currents, and conversely electrical currents under certain conditions can bring about the reduction of these salts. Professor Liesegang arranged a copper plate provided with a coating of copper salts in such a way that an image focused on it by means of a lens gave rise to currents at different points, varying in intensity with the degree of illumination of that part of the image. These currents being conducted to a second plate, and there similarly distributed, cause reductions of the salt, coating the plate corresponding exactly to the reductions which originated the various currents; that is to say, an image the exact analogue of a photographic image is produced at an indefinite distance from the original object, and this image illuminated and projected on a screen permitted the success of the experiment to be exhibited to an audience.

By Photography's Aid.—The difficulties which have hitherto largely impeded the accurate measurement of the co-efficient of expansion of bodies at high temperatures, the accurate knowledge of which is frequently of considerable importance in the arts, have, according to *La Nature*, been practically solved by the assistance of photography. The principle involved is, of course, the comparison of the photographic images of the body at two or more different temperatures. M. Le Challeties, who was the first to employ this method, states that by its means accurate measurements down to 0·01 millimetre can be obtained.

Chlorine, Bromine, Iodine and Sulphur in Organic Compounds.—The substance is carefully heated in a small test tube with an equal bulk of zinc powder. On adding a little water, the $ZnCl_2$, $ZnBr_2$ or ZnI_2 is dissolved, and the halogen may be detected by suitable reagents. The addition of HCl to the portion insoluble in water affords H_2S if sulphur were present.—*Pharmaceutical Era.*

Solubility of Glass in Water.—F. Mylius and F. Foerster have carefully examined the solubility of a large variety of glasses in hot and cold water. The glass examined was roughly powdered and sifted by means of two sieves of 72 and 121 meshes to the square centimetre. The portion used was that which passed through the coarser and not through the finer sieve.

From the result of their experiments they draw the following conclusions: "Glass as such is not soluble. The action is essentially a chemical one; the solution always being accompanied by dccomposition, and the ratio of of the constituents in solution is quite different from what it was in the original glass.

Water glass is decomposed by water into free alkali and silicic acid, a certain proportion (varying with the time of action, concentration and temperature) of the latter becoming hydrated and dissolved.

Potash glasses are far less soluble than soda-glasses, but the difference decreases with increase of proportion of lime present.

Soda and potash are united in glass both to the silica and the lime. The resistance of glass to the action of water is dependent on the presence of double silicates of soda or potash and lime.

Of all sorts of glasses the plumbiferous flint-glasses are least soluble in boiling water.

The relative resistance of glasses is different towards hot and cold water.—*Exchange.*

Iodide of Ammonium.—A simple method of decolorizing when decomposed, by John C. Falk, Ph. D. The author, after commenting on the various methods that have been suggested, proceeds as follows:

Having several small lots of decomposed iodide of ammonium come into my hands during the past year, it occurred to me that they might be redeemed in a manner that I have not yet seen in print: This consists simply of placing a lump of carbonate of ammonium into the bottle and allowing it to remain there until the salt has regained its normal whiteness; this may require from several days to as many weeks, the time being dependent upon the amount of material and the degree of decomposition it has undergone. The ammonia that is constantly being disengaged from the unstable carbonate unites with the free iodine present to form iodide of ammonium, and, as the superfluous ammonia is subsequently allowed to escape, there is no resulting contamination with a foreign substance.

I usually remove the iodide to a large salt-mouth bottle wrap a vitreous piece of ammonium carbonate in filter paper, drop it into the bottle, stopper tightly and place aside until the desired change has been affected, then remove the ammonium carbonate, leave the bottle unstopped until the excess of ammonium has disappeared, when the salt is practically pure and ready for use.—*Pharmaceutical Era.*

Sulphite of Soda in the Developer.—It is curious how long we used sulphite before any one (so far as I know) pointed out its influence in modifying the density of the negative. I am not aware that any one observed, till Swan pointed it out in his paper on hydrochinon, that an increase of sulphite beyond certain limits had a very marked effect in increasing the difficulty in gaining density. That he was correct in his statement is easily proved by simple experiments. The advantage of sulphite is, however, so great, and the effect in keeping back density so slight unless a quantity much more than sufficient is used, that few will discard its use on account of Mr. Swan's discovery. It is strange how different is the proportion of sulphite recommended by one plate or film maker than another. My own experience leads me to think that it is difficult to improve on the proportion originally suggested by the introducer of sulphite of soda, Herbert Berkeley. He suggested four grains of sulphite to every one of pyro, and this is really an excellent proportion, although I generally use rather less if I am going to develop only one plate with the developer. I keep to the plan, by the way, that I have so often advocated, of having each of the chemicals to be used in the developer, in the form of a 10 per cent. solution, with the exception of the pyro, which I now always use dry; but it is to be observed that, if the proportion of sulphite be kept much below four times, by weight, that of the pyro the alum bath must not be admitted. It is, however, the last thing that I should ever think of omitting. The alum bath should always be used in ordinary negative work.

What a difference, by the way, there is between the quality of the sulphite that we get now, and that we used to get when first it was recommended by Berkeley. I do know exactly what was the matter with it in the early days, but it was a most uncertain and fickle substance, costing I really forget how much. There can really be no doubt that sulphite of soda, purchasable now at twopence a pound, is less uncertain than was the preparation of about eight years ago, that cost, I think, about two shillings. Sulphite of unexceptionable quality is now to be had at the rate of sixpence a pound.

But how different a thing altogether is development now from what it was when we paid four shillings an ounce for pyro, and had an idea that none but "English pyro" was of any use. If English pyro really had any superiority over foreign other than in the imagination of the dry-plate worker, pyrogallic acid (or rather pyrogallol) is one of the articles of commerce in the manufacture of which the wicked German has most certainly dared to excel us! In those days sulphite was unheard of, and ammonia was the only alkali that was thought of in connection with dry plates. And how slow the plates were! I think they did not average more than about the tenth of the sensitiveness of plates of the present day. I am not speaking, mind, of the days of collodion dry-plates—I can barely remember them—but of the early days of gelatine plates, when we were all crowing at having produced something that did actually and undoubtedly excel in sensitiveness the wet plate. It was frequently claimed for the collodio-bromide process that plates "quicker than a wet-plate" could be produced by it, and I believe that an occasional batch of collodio-bromide emulsion *would* give plates quicker than the average wet plate, but certainly the average sensitiveness of the plates made even by the more rapid collodio-bromide processes was below that of the average wet-plate.

I suppose that there is no one who has worked the wet process who does not at times sigh for the "pretty negatives" that it gives. I know that I do, for one, and I used before I left all my wet-plate negatives behind me in London, occasionally to haul them out and gaze at them with sentimental regret; but it is difficult to say why, for I am fully convinced that as good prints are produced in the present day as ever were from wet-plates, or at least that, if the standard of silver printing has fallen off, it is not on account of the capabilities of the gelatine process, but on account of the change that has taken place in the details of silver printing itself.

There is one thing, however, in which collodion negatives are undoubtedly superior to gelatine negatives. They approach to being permanent. Gelatine negatives are far

from permanent. Apart from chemical abrasion—scratching, etc.—a collodion negative is, so far as we know, imperishable.—*W. K. Burton, in the Amateur Photographer.*

The Editorial Table.

MR. EDWARD W. NEWCOMB, formerly with The Scovill & Adams Company, has gone into the business of manufacturing and supplying photographic goods, at 69 West Thirty-sixth Street, New York. The firm name is Newcomb & Owen. "We have a cozy room," writes Mr. Newcomb, "with chairs to sit in, and a table with papers on it for customers to read." THE PHOTOGRAPHIC TIMES may be seen on this table, and subscriptions are received at the office.

LOEBER BROTHERS, down-town dealers in photographic goods, have started a little monthly photographic magazine. It is called "Photographic Herald and Amateur Sportsman" and is edited by Laury MacHenry. The subscription price is fifty cents per annum. We trust the little magazine will pass that critical time with all infants —its first birthday.

We are complimented with the amount of matter reprinted from our own magazine, but will ask the editor to credit us with what he reprints from THE PHOTOGRAPHIC TIMES hereafter.

CONSIDERABLE interest is reviving in the photo-enamelling process, especially in the West, and agents are busy selling formulæ for conducting the process and are making considerable money out of it. N. C. Thayer, of Chicago, with characteristic enterprise, has purchased and perfected a process for making these popular pictures, and has given it freely to the fraternity in the form of a circular. The formulæ we reproduce in the current number. All the goods required for the process may be obtained at N. C. Thayer & Company's large photographic stock rooms in Chicago.

WE are very glad to hear in a recent personal letter from Mr. David Tucker, of Buffalo, that his health is rapidly returning and that he soon expects to be as well as ever. "I am feeling a great deal better," he writes, "and have for the last week, and will soon be able to attend to business again, should I desire to do so." Nevertheless, we understand that Mr. Tucker will part with his interest in the profitable business of Tucker & Butts if the right customer comes along.

WE have received "with the compliments of V. M. Wilcox," the address which the colonel delivered in the Academy of Music at Scranton, Pa , September 17, 1889, on the occasion of the second reunion of the 132d Regiment, Pennsylvania Volunteers. The address is presented in a neat pamphlet, dedicated to the surviving members of the 132d Regiment, Pennsylvania Volunteers. It has for a frontispiece a picture of the Roulette house and barn where the 132d Regiment formed in line of battle at Antietam, September 17, 1862. The address is supplemented by a number of letters from Lieut.-Colonel Albright, Chaplain Schoonmaker and Captain Townsend to show the sufferings of the 132d Regiment, and the difficulties which beset officers and men during the winter of 1862–3.

Queries and Answers.

240 WILLIAM KLABER has read "The Photographic Instructor," and Mr. Burbank's book on the negative, but, desiring to increase his knowledge, asks what books we recommend him to read now.

240 *Answer.*—"Processes of Pure Photography," by W. K. Burton and Andrew Pringle; Wall's Dictionary; and Professor R. Meldola on Photographic Chemistry; all of which can be had from The Scovill & Adams Company, New York.

241 MARGY P. has made a number of 5x8 negatives with a 5x8 "Favorite" outfit. They were all taken with the $\frac{f}{32}$ stop, and are of superior sharpness. All at once the lens refuses to do similar work; only a circle of about two inches is sharp. What is the matter?

241 *Answer.*—Probably the lens has been taken from the mounting for the purpose of cleaning it, and has been returned with the wrong side out. The convex side should be turned toward the ground glass.

242 BUCKEYE.—"What is meant by 'hypochlorites' spoken of in a recent article in PHOTOGRAPHIC TIMES?' The editor should have mentioned the case with which the hypochlorous acid is combined, we are thinking."

242 *Answer.*—This subject has been so thoroughly discussed in American and foreign photographic journals that it is fair to suppose the readers of the literature of the day are acquainted with all the facts relating to elimination of hypo by any of these salts. To satisfy our correspondent we will mention again that the most effective of hypochlorites is that of zinc, which is popularly known by the name of Flandreau's hypo eliminator. There is further the Eau de Javelle, or hypochlorite of potassium and Labarraque's solution, the hypochlorite of sodium. Formulæ how to prepare either of them, and information of their application may be found in any of the volumes of AMERICAN ANNUAL OF PHOTOGRAPHY.

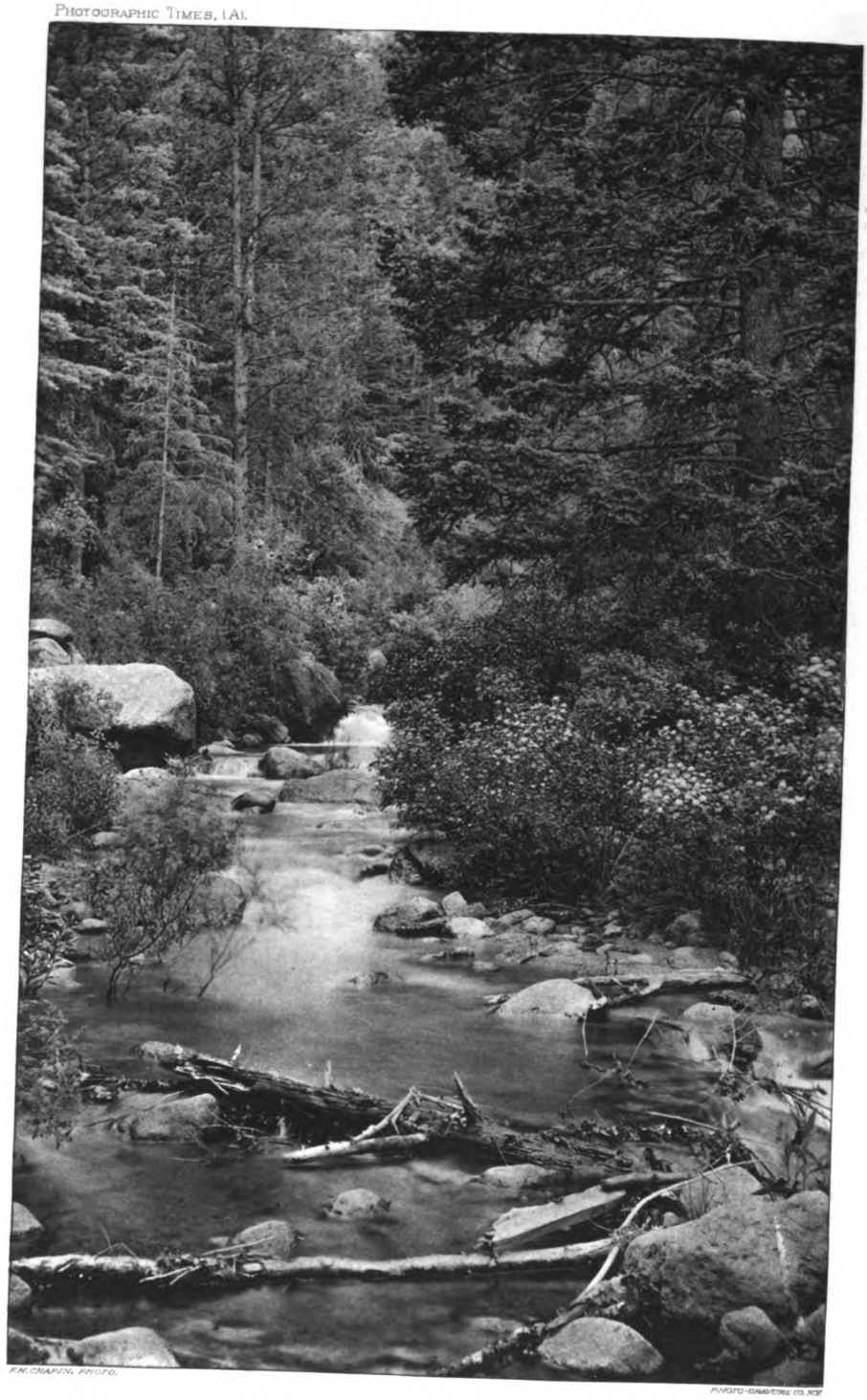
243 ALWAYS IN TROUBLE cannot obtain proper printing intensity with instantaneously exposed plates, developed with pyro-potassa.

243 *Answer.*—If we mistake not, you are using our own pyro-potassa developer, but as you do not state the brand of plates, it is almost impossible to give you satisfactory advice. With some plates, the Harvard, for example, the developer works well in every respect, while with others a soda developer will do better. Let us suppose you have plates of the other kind, the picture is thoroughly brought out in all details, but refuses to build up intensity, remove the potassa developer and use in place of it a strong pyro-soda solution with a sufficient amount of sulphite and a little bromide; the desired density will be soon obtained.

The same method of intensifying an unfixed negative has been recommended, when the result of eikonogen is thin and feeble. It works very well.

Record of Photographic Patents.

414,735.—Roller-holder for photographic films. Thomas Taylor, Glasgow, Scotland.



F.M. CHAPIN, PHOTO.

PHOTO-GRAVURE CO. N.Y.

A COLORADO CANON.

THE PHOTOGRAPHIC TIMES.

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A COLORADO CAÑON.

WE take special pleasure in presenting our readers this week, with the lovely picture of a Colorado cañon which was photographed by Mr. Frederick H. Chapin, of Hartford. The beautiful spot attracted Mr. Chapin's attention while on a deer hunt in Cheyenne Cañon. The scene is in the narrowest part of the cañon, he tells, just below the point where Bear Creek and North Cheyenne Creek join at their upper ends. The photograph was made in midsummer, the year following the date of the hunt, when the scene was first discovered and admired. It is a characteristic Colorado cañon picture. The group of trees on the right, Mr. Chapin writes, is *spiræa*, a very lovely and interesting shrub found in many mountains and mountain parks. The trees above the *spiræa* are *Abies concolor*, which grow in the mountains to a height of a hundred and fifty feet. They have very striking gray-green needles which give them a silvery look. Higher up in the mountains of Pike's Peak is found that peculiar tree, the fox-tailed pine. In his interesting account of "Rambles on Pike's Peak Range" which follows, Mr. Chapin tells more about this picturesque region.

RAMBLES ON PIKE'S PEAK RANGE.

ON the morning of November 8, 188–, I left Colorado Springs for a few days' climbing on Pike's Peak Range. I had already ridden up most of the cañons, and over trails, galloped far out over the plains in many directions, and made the ascent of Pike's Peak to the summit; but I wished to see something of the mountains far from the beaten paths, and to ascend some peak not tramped over every pleasant summer day.

My companion was Mr. E. B. Curtis, who has lived for many years at Seven Lakes, on the Range, and takes care of people in the log house at that place and guides them up the peak. Now, as the mountaineering season for tourists was over, he suggested a shooting excursion for a few days. He has land in the mountains, and was intending to repair the trail leading up to it, and bring down wood after our hunt. So we started off at 10.30 A. M. with one mule and seven burros or donkeys, a large caravan for a party of two. I rode the mule, a very good but sleepy animal, and Curtis rode a burro, Don Juan by name. The other burros were very comical and were named Santa Claus, Cymbals, Pete, David and Jonathan.

These animals pair off during their trips, and where the trail will allow, the same ones generally travel closely side by side; sometimes, however, the affection is all on one side, as for instance, David was very much "struck" on Jonathan, but Jonathan did not care a pin for David. Pythias was left at home, much to his regret, but Damon cared nothing about it. I carried a Winchester rifle and Curtis a Ballard rifle and a shotgun. This was the only occasion on which I went shooting in the Rockies with such weapons; on most subsequent expeditions I carried a camera, and sometimes had better luck.

We rode out over the mesa and struck the trail at 12 o'clock. The cliffs on the west, just before reaching the cañon, are part gypsum and part limestone; then at the mouth strata, thrown up on edge, composed of limestone, gypsum and sandstone; then in the cañon begins the granite, on the upper cliffs solid with a large proportion of quartz, but near the stream it is decomposed, and washed into sand, containing more mica and felspar than quartz. The bed of the creek sparkles with mica The carriage road leading to the trail is along the creek, which winds for miles through cotton woods down to the plains. As we ascend we pass through groves of aspens, scrub oak, maples dwarfed like bushes, wild cherry, black birch, and still higher up, spruce and white pitch pine.

The walls of Bear Creek cañon, which we now rode up through, are not as perpendicular or as high as those in Cheyenne or William's cañons, but the mountains rise higher above, and the falls and

cascades are numerous. Wapita Falls, which are at an elevation of nine thousand feet, are very fine, the water flowing in a succession of little cascades over three hundred feet down, and the gorge at this place is very narrow.

We reached a cabin in Rosa Mont Park at 3.30 P. M., and immediately unpacked the burros, shouldered our rifles and crossed the park to the point where Bear Creek and North Cheyenne cañons join at their upper ends. We went very carefully to the little divide, and peered down into the valley, but did not see any deer. We strolled a little way down Cheyenne Creek where we saw some footprints of deer, and then climbed Mount Kineo, which stands as a sentinel over the two cañons. We had gone down about two hundred feet below our cabin, as registered by barometer, when we began the ascent of this peak; and although the summit was only five hundred feet above us, it was quite a stiff walk to reach it. The rocks have all crumbled and been washed to a coarse powder, and lie at an angle of 30 deg. to 40 deg., and at every step one slips back one-half the distance gained; but the summit is a heap of granite blocks piled up like a cairn, and from these rocks we had a magnificent mountain view. The sun was just setting behind the long ridge of Bald Mountain, and we saw far out on the plains his last rays, all the near country being in the shadow of the great peaks. About three hours up in the sky was the nearly full moon. We were in the heart of the range, so the chief interest was near at hand in the rugged Pike's Peak, Bald Mountain, Monte Rosa, and the lesser peaks with which we were surrounded.

To our cabin we must return by moonlight, but this was sufficient for our purpose. We went down the mountain fast enough, our tracks in the sand looking like steps cut in an ice slope. On gaining our headquarters the first duty was to sweep the cabin, for it was in a bad condition, no one having entered it or slept in it for a year. Mountain rats had made havoc with the coarse bedding, and dust covered everything; but by the light of an immense fire on the hearth we got all to rights, aud cooked beefsteak and coffee for supper. The cabin in which we slept is in a park at an elevation of 9,600 feet above sea level; it is built of spruce logs, is about eighteen feet square and has a large corner fireplace. It is owned by a professor of the College of Colorado, who pre-empted some land in this park, not for its commercial value, but for its beauty alone, and built the cabin intending to spend some of the summer months in it; but the difficulty of getting provisions to this height had prevented his using it for some time. Some picturesque places in the cañons have been built upon, simply because they are romantic spots, and the owners dwell in the cabins in summer regardless of the cry of the mountain lion or the growl of the cinnamon bear. Some of the grass lands in the mountains have been taken up for grazing purposes. A claim of 160 acres, if the land lies along the banks of a stream, will control a thousand acres or more, for no one will take up any Government land unless there is a stream of water running through it; so the first settlers in the mountains have little to fear from those who come later looking for homesteads.

We bunked in early and I slept very well for the first night in the woods. We were up at dawn, and after hurriedly cooking and eating our breakfast, we took our rifles and stole silently out of the cabin just as the sun was tinting the crest of Mount Garfield and the opposite ridges. Our first object was to ascend this mountain, which commanded a view of a number of parks, ravines, and mountain slopes where deer like to graze. At first the work was easy; then we had a half-hour's climbing over large granite boulders on a steep slope—not very easy work with a rifle to carry. This brought us to the ridge leading up to Garfield, the aneroid marking 10,600 feet. We then had a scramble of 200 feet to the summit of the peak, which was the only thing approaching genuine rock climbing that I had seen in these mountains. Near the summit I picked up a very pretty specimen of smokey quartz, and by the cropping out of crystals in the boulders and ledges, I should think that with a hammer one might knock out valuable minerals.

Mount Garfield has several summits, all of about the same elevation; and from one of the sharpest we took a look at the surrounding mountains, scanning their sides for antlers; but I soon forgot all about the deer and the crystals, and gave up everything for the view. As I lay on the rocks I looked over one-half of Colorado, spread out to the north and east, with its rugged peaks around us and its deep cañons beneath. To me these gorges were more wonderful to look down into, than to look up into as one rides up the cañon. At our feet to the east Bear Creek and Cheyenne cañons ran down to the plains. Below us to the north was Crystal Park and Red Rock Cañon; and across the deep valley at Manitou we could see the gateway to the Garden of the Gods, and look down into William's Cañon—a marvelous sight—the gorge appearing as if it had been dug out by a chisel, so regular and square were the

edges of the rocks on the upper lines; but the bed of the cañon looked like a black mark. Far in the north we saw the great mass of the Rockies around Long's Peak, and the sweep of the Snowy Range to the south, until the huge Pike's Peak, looming up three thousand feet above us in the sky, cut off the entire western horizon. This view of the latter peak is truly grand. To the east we could see far out onto the plains, looking over the lonely Cheyenne Mountain, where the distance met the sky in a purplish haze. Forty-five miles to the south we could see the town of Pueblo, with the smoke from its many furnaces rising into the air and distinctly traceable for twenty miles.

We descended Mount Garfield a few hundred feet, to a pass between that mountain and another peak, which pass is a runway for deer. There were many tracks of these animals, but no immediate sign of them. We skirted the wooded sides of the mountain, and descending again to Bear Creek, far above our cabin, we crossed it and ascended another peak on our way to a park under the summit of Bald Mountain. We stopped by the side of a mountain torrent and ate our lunch, and then, between the hours of twelve and two o'clock we had a hard tramp to get up this nameless peak to a pass which would lead us into our park. The slope was at a steep angle, but the great difficulty was in getting over the fallen timber which lay in all directions at every turn—large logs two and three feet in diameter and very difficult to get over, especially when our way was diagonally up the mountain; but we finally reached the pass, which, except that it was formed of loose rocks and sand instead of snow, looked exactly like a Swiss ice-col. This pass is evidently a runway for deer, for their tracks were numerous. When we reached the summit and peered over the rocks we saw a quiet park, with the huge Bald Mountain for a background, and a gorge at the lower end leading down into Cheyenne Cañon; Monte Rosa rising up two thousand feet from the torrent. Even on this November day, when I gazed down into the valley placed at the base of this great mountain, nearly eleven thousand feet above the sea, it was like a quiet pastoral scene. The leaves of the aspen were all fallen and no longer rustled in the wind; the bunch grass was dry and cured for the winter feed of the deer; a wild snow storm flurried on the southern peaks and occasional flakes came down upon us; and yet the sun shone out warm on the peaceful scene, telling us of what it must have been in the gay summer past, when the grass and the leaves were green and the pastures were carpeted with gentians.

Notwithstanding the numerous tracks we found no game, though we searched the whole glade carefully. We thought we might get a sight of mountain sheep on the sides of Bald Mountain, but if any were there they kept shy of us; so we gave it up and hurried back over the sides of the mountains and through several smaller parks, reaching the cabin at dark.

In the morning I parted with Curtis and his burros, mounted the mule, and started for home down Bear Creek Cañon. Many trails lead off into the mountains in different directions, but my guide told me to leave all to the mule and I would be brought safely to Colorado Springs, and so it proved. The sun shone when I left the cabin in the morning. The night had been cold and misty and we thought to see snow on the ground when we looked out; but everything in Rosa Mont Park was covered with beautiful frost work instead. When I reached the cañon I found the trail covered with snow, and the falls and cascades frozen into fantastic forms. As I rode on the snow began to fall again, continuing during my ride; and when I reached the open country and turned around to look at the range that I had just emerged from, it was blotted from sight by the dense snow flakes; and a white covering was spread over the plain.

Frederick H. Chapin.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—(*Continued*).

VARNISHES.

A varnish is any liquid matter which, when applied to the surface of a solid body, becomes dry, and forms a hard, glossy coating impervious to air and moisture, Varnishes generally consist of some resinous substance dissolved in a volatile liquid, which on evaporation leaves the resin in the form of a film. They are generally divided into two classes—*oil* varnishes. and *spirit* varnishes—according to the substance employed as the vehicle or solvent.

For oil varnishes, either linseed oil, or oil of turpentine is employed. The drying of oil varnishes is due to oxidation.

For spirit varnishes the solvent is either alcohol (of not higher specific gravity than .815), methylated spirits, or naphtha. These dry rapidly by evaporation.

The following resins are largely used in the manufacture of varnishes. They are substances which exude spontaneously, or from incisions made in the trunks, etc., of trees. They are solid, more or less transparent, inflammable, inodorous bodies, insoluble in water, but soluble in alcohol.

Amber.—A yellowish fossil resin found chiefly on the southern shores of the Baltic Sea. It is the gum of a kind of pine tree, and is largely used in the manufacture of ornaments, mouth-pieces for pipes, etc. It is soluble in chloroform, and then forms the basis of several varnishes.

Animé, or *gum animé*, is a brownish-yellow transparent resin, the product of the locust tree of Central America.

Rosin, *resin*, or *colophony*, is the solid residue remaining in the retort after the distillation of common turpentine.

Copal, or *gum copal*, is a hard resin which exudes from certain trees that grow in the East and West Indies.

Dammar, or *gum dammar*, is mostly obtained from a coniferous tree which grows in the East Indies.

Elemi, or *gum elemi*, is a pale-yellow, semi-transparent resin, brittle superficially, but soft and tough within. It is used to give toughness to lacquers and varnishes.

Lac is a resin combined with much coloring matter, which results from the puncture of the bark of certain tropical trees by an insect—*Coccus lacca*. *Stick lac* is the crude resin as broken off the trees. When melted, strained, and spread out in thin sheets it is called *shellac*. This shellac varies in color from orange to garnet; the palest being the most valuable.

Bleached lac is made by dissolving lac in a boiling solution of caustic potash, and then passing chlorine through the solution. The lac is then nearly white, and is used for pale varnishes.

Mastic.—A pale-yellowish resin found in transparent rounded beads, which soften when chewed.

Sandarac.—A resin given by two species of tropical trees (*thuja* and *juniperus*).

For photographic purposes spirit varnishes are largely employed for covering the delicate surface of the gelatine film of the negative. They are best prepared by macerating the resin in closed bottles or tins.

Mr. W. Bedford recommends the following varnish for negatives:

Button lac	½ pound
Sandarac	2 ounces
Methylated spirit	½ gallon

Shake up occasionally during a week, by which time the soluble portion will be taken up; but avoid heat, as it is better to filter off the sediment.

The common, or *brown hard spirit varnish* of the shops (when good), is made as follows:

Gum sandarac	3 pounds
Pale shellac	2 pounds
Spirits of wine	2 gallons

Dissolve, and add

Turpentine varnish	1 quart

Agitate well, strain quickly through gauze, and after a month decant the clear portion from the sediment.

When diluted with an equal volume of methylated spirit, this makes a good varnish for negatives.

Crystal varnish is very useful for maps, prints, and articles of paper generally; but the paper must first be sized. It is made by mixing equal parts of Canada balsam and rectified oil of turpentine.

India rubber, or *flexible varnish*, is made by dissolving in the cold one and a half ounces of pure (masticated) rubber, cut small, in one pint of either chloroform, ether (washed), or carbon bisulphide.

Or india rubber shavings (one ounce) may be dissolved by gentle heat in rectified mineral naphtha or benzol (one pint); but this dries badly.

The following varnishes for negatives are taken from the "British Journal Almanac":

No. 1.

Sandarac	4 ounces
Alcohol	28 ounces
Oil of lavender	3 ounces
Chloroform	5 drams

No. 2.

White, hard varnish of the shops	15 ounces
Methylated alcohol	25 ounces

This will be found to be a good and cheap varnish if durability is not required, as it is easily rubbed up for retouching upon, and easily cleaned off. Very suitable for enlarged negatives that are not to be retained.

No. 3.

Tough, hard and durable.

Shellac	1½ ounce
Mastic	½ ounce
Oil of turpentine	½ ounce
Sandarac	1½ ounce
Venice turpentine	½ ounce
Camphor	10 grains
Alcohol	20 fluid ounces

No. 4.

Sandarac	90 ounces
Turpentine	36 ounces
Oil of lavender	10 ounces
Alcohol	500 ounces

No. 5.

This one may be rubbed down, when cold, with powdered resin, and gives a splendid surface for retouching.

Sandarac	2 ounces
Seed-lac	1 to 1½ ounce
Castor oil	3 drams
Oil of lavender	1½ dram
Alcohol	18 fluid ounces

No. 6.

Best orange shellac	1½ ounce
Methylated spirit	1 pint

Keep in a warm place until dissolved; then add a large teaspoonful of whiting or prepared chalk. Set aside to clear, and then decant. This is specially recommended for gelatine negatives.

NEGATIVE RETOUCHING VARNISH.

Sandarac	1 ounce
Castor oil	80 grains
Alcohol	6 ounces

First dissolve the sandarac in the alcohol, and then add the oil.

GROUND-GLASS OR MATT VARNISH.

Sandarac	90 grains
Mastic	20 grains
Ether	2 ounces
Benzole	½ to 1½ ounce

The proportion of the benzole added determines the nature of the matt surface obtained. This varnish must be applied, and allowed to dry, *without* heating the negative. For the other varnishes the glass should be gently heated both before and after they are applied.

W. Jerome Harrison.

(*To be continued*).

SALT AS A HYPO ELIMINATOR.

NOTICING in a recent number of THE PHOTOGRAPHIC TIMES,* the recommendation of Dr. Stolze, of common salt as an eliminator of hypo, it struck me as very doubtful that its efficiency as such an agent can be established by facts. On the contrary I am quite certain it can be shown to retard rather than to hasten the removal of the hypo.

The best way to settle this question will be to wash two equal lots of prints side by side in equal quantities each of salt and fresh water, changed the same number of times. When it is presumed that one of the lots has been sufficiently washed, one or more prints should be taken from each lot and carefully tested for hypo. In this test it will not be safe to trust to the indications obtained from the water. There may be hypo in the plain water, and none in the salt water, while the prints in the latter may, and probably will, retain more than those in the former. I intend to make this decisive test at the earliest convenient opportunity, but at present will only describe some experiments with salt water and hypo in *dialysis*, which appears to have a decided bearing on the subject. On adding a solution of common salt to one of hypo no chemical change takes place in either salt; a more soluble double salt is not formed; the solution is a simple mixture in which neither excludes, or precipitates, or otherwise, interferes with the other. There is not the least doubt then, that if salt does force the hypo out of the print it must accomplish this end by means of dialysis. Hence the experiments to be described ought to demonstrate that fact if it be a fact accomplished or if the contrary be true, they ought to prove that the end cannot be brought about by this means.

To construct a simple apparatus for the purpose in hand I take a wide mouth bottle, and having removed the bottom and ground off the sharp edges of the glass, I stretch a suitable animal membrane over the bottom (i. e. where the bottom was), gathering the skin around the body of the bottle and tying it tightly with a cord around the neck.

If the bottle be now filled with water and placed in a larger vessel, an evaporating dish, for instance the water will slowly pass through the membrane from the bottle into the dish until it is of equal height in both vessels.

Now, instead of water I take a ten per cent solution of common salt and fill the bottle two-thirds full this time, for if the salt proves to have great avidity for water, the solution may rise in the bottle instead of falling. The outer vessel is filled with water to half the height of the solution in the bottle. A flat cork floating on this solution carries an index, which being marked on a level with the top of the bottle, will show any variation which may take place in the height of the solution. After standing twenty-four hours, not the slightest change in the height of the salt solution was perceptible, and only a trace of salt had found its way through the septum.

Next the water and solution changed places, the water in the bottle being twice the height the salt solution in the outer vessel. After another twenty-four hours the water in the bottle stood at the same level as the salt solution in the former experiment, neither the one or the other having fallen or risen during the time.

We now begin, I think, to see the role which salt plays in dialysis—it will neither go through the septum itself nor let anything else through—at most only sparingly.

But let us not be too premature with our conclusion. It may behave differently at the critical

**Photographic Times*, July 19, p. 352.

moment. Provide the proper object on which to exercise its potency. When it comes to displacing hypo from its lurking place on the other side of the septum, it may perform wonders. Let us see.

I now empty out the contents of the bottle and measure into it the same bulk of a fresh twenty-five per cent. solution of hypo, replace it in the ten per cent. solution and await developments. After seventeen hours I take out the bottle with its contents, whatever they are, stir the solution in the outer vessel, probably now strongly impregnated with eliminated hypo, and test it for the same. What do you think I find, oh ye of saline faith?

About one-tenth of a grain to an ounce of salt solution. Inside the bottle a hundred grains and more to the ounce of water. This is becoming interesting. What is the matter? Is the septum impervious to hypo?

Let us empty out the salt solution from the outside dish and substitute fresh water in its place. But hold, while the bottle has been standing by itself—a few minutes only—half the hypo has leaked out. This vindicates the reputation of my septum. So much the better. There is enough left. So I replace the bottle with the remaining portion in the water, and in ten minutes test *that* for hypo and find that ten times as much has been eliminated into the fresh water from the bottle as was so eliminated into the salt water in the whole seventeen hours all told. From which it appears that plain water alone has the ability to extract the hypo solution through a septum a thousand times more rapidly than a ten per cent. solution of salt.

Now, if after all, it turns out that the hypo in the prints is more rapidly excluded from them when submerged in brine than when in plain water, it will indeed be surprising.

W. H. Sherman,

In "The American Annual of Photography and Photographic Times Almanac for 1890"

HISTORIC HOMES.

III.

IDLEWILD.

Doors may lock, but out-doors is a freehold to feet and eyes.

These words of the graceful Willis cheered us as we approached his house tripod-laden, looking as if we meant to take views and our looks not belying our intentions, for although we had received cordial permission from the present owners it was reassuring to remember the poet's welcome to the many pilgrims who had made his home something between a picnic-ground and a literary shrine. He lived before the sunlit days and flashlit nights of amateur photography, yet as if anticipating the descent of the camera fiend he wrote:

"To fence out a genial eye from any corner of the earth which nature has lovingly touched with that pencil which never repeats itself, to shut up a glen or a waterfall for one man's exclusive knowing and enjoying, to lock up trees and glades, shady paths and haunts along rivulets would be an embezzlement by one man of God's gifts to all. A capitalist might as well curtain off a star or have the monopoly of an hour."

Thus emboldened, we drove up in front of the cottage "placed in the midst of seventy acres of hemlock trees and good-for-nothingness," and made ready to focus as sharply as is permitted to our sex upon the yellow brick Gothic structure, whose many ornamentations remind one of its builder's highly decorated verse. Far be it from me, however, to speak slightingly of Willis's writings, for not only have I admired him from my school-reader days, but on this present occasion his environments proved him superior to the worst photographic mishaps. I broke my ground-glass, and was obliged to get a picture actually composed by studying its different sections on a small fragment of reflecting medium shuffled about in the frame. I forgot which plates were "B" and which "special." I exposed by chance; I reduced my tripod to a biped, and finally got something in my lens, not in Morrison's, but in my own good right eye! Consequently I must believe nothing short of the real genius of the place saved my views from being absolute failures. In spite of these distractions we gazed with delight on the ivy-covered house, whose situation on the great Hudson's edge with the wooded glen hidden behind, its owner likened to "life in full view which the world thinks all and life out of sight of which the world

knows nothing." We took one plateful from the lawn with a modern-looking tennis as foreground, getting an unsatisfactory architectural front elevation picture, and then went down the avenue for a glimpse of one gabled end with mountains and river for distance. Nothing short of a composite view or two shots on one negative will bring Idlewild-on-the-Hudson as the public know it before our eyes, because, while Idlewild looks on the river, and the river looks on Idlewild, the photographer may not look both ways at once. We wished light and shade had been less strongly contrasted, or that the limitations of our art would permit different lengths of exposure, for the house and the adjacent grove of trees, as we particularly desired to bring up as much detail as possible out of the hemlocks' emerald tassels, which Willis called his thought-pegs. I trust, too, we secured the window of his up-stairs study, in which so much of his literary work was done before sunrise. Born in 1807, he was a comparatively young man when he came here some time in the "forties," but one who was widely known at home and abroad. His lightness of touch in literature made him a novelty and a sudden favorite, and because of this delicate quality, it seems particularly fitting that his home should be sketched with a sunlit pencil. Perhaps, some day when a developer's language is more generally spoken we may read of those famous ones whose names were writ in pyro! Or would such a reputation be forever stained, do you think? Willis had published the "Convalescent," "Paul Fane," "Pencillings by the Way," a rather too personal guide-book, and many poems, passionate and pious, before he made all our Orange County famous by his "Letters from Idlewild" in the *Home Journal*. He rechristened Murderer's Creek with the Indian name of Moodna, and gave our Butter Hill the better caption of Storm King, and in many ways so gilded the vicinity, that a real estate broker, trying to sell a piece of property in Cornwall, complained that people would not even reshingle their roofs nor patch up their fences, till Willis had written up their farms.

"I say, Mr. Willis, you ain't nobody in particular, be ye?" asked a village boy of him one day, and a quarter of a century later his critics ask the same question. Possibly the genial poet was less able to answer than we, nevertheless we surely owe him a huge debt of gratitude for showing us how to enjoy country life. He looked about him with seeing eyes, and taught others how to see. To-day it is the fashion to tramp about with or without a camera to spy out nature, but once upon a time the city-bred scorned rustic life. Perhaps Willis himself was a bit of a cockney, and I confess the comparison of his waterfall to a *ballet* dancer smacks more of the footlights than anything in John Burroughs' "Wake Robin."

Unfortunately we lingered so long before the house that we were too late to photograph the famous glen, but we found time to scramble down the steep banks and see its lovely wildness Willis complained that "guests were wont to come at noon, when all its shadows were unlinked, when the beauties were there, to be sure, but only in the sense 'Childe Harold' is in a pocket dictionary, to be picked out word for word and put together," but these same shadows were forged into heaviest chains when we crossed the rustic bridges and stood on rocks bearing such names as The Czar, Bayard Taylor, and Mrs. Harry.

"A glen by any other name, or any other glen by this name," began our fiction-loving companion, tempting me with the idea that some negative in its yellow envelope at home would do to illustrate this article, but truth and realism triumphed; hence, we offer no view of these cataracts and wooded banks. Could I have chosen the hour for making such a picture, it would have been on a certain wild, wet, spring morning, when, after the turning of a neighboring stream into the bed of his own, Willis removed some temporary barriers and wedded forever Brook Funny Child and Glen Idlewild. I should like to have caught the sparkle of those meeting waters on a 4x5 plate, though indeed, if one reads the poet's description he has a picture without the trouble of development in the red light.

In the same way Willis touches such homely affairs as pig-tight gates, and dam-building for his waterfalls. He loved to assist nature, and was exceptionally successful in his attempts. He had, moreover, a practical excuse, often humorously given, for his improvements, saying of his improvised cataract, "after its tumbling feet have quivered in the air, it comes down into the meadow and gives a drink to my horse and cow."

Would not we idle amateurs do well to construct some such waterfall, for the double purpose of picture-making and plate-washing?

We thoughtfully climbed the bank, discussing this grave question of uniting utility and beauty, but did not settle it. It was a pity we had no light to use the present cascade for the latter purpose, but PHOTOGRAPHIC TIMES readers cannot regret the omission half as much as we who have seen its loveliness.

Willis without Idlewild Glen seemed like an

unframed picture, for he made others love its fastnesses, because he knew and loved them all.

"I go to see it," he said, "on foot and on horseback, in the morning mood of hope or the evening mood of sadness, with friends or without them, at dawn or by moonlight, all winter and all summer, and with the promise of seeing the same performance of cataracts for as many more winters and summers as shall come round to Idlewild and to me."

Summers and winters still come round to Idlewild, but since a sad March morning in 1867, when he died, no eye so genial, so loving, so sympathetic, has looked on its dancing waters.

Adelaide Skeel.

EXPERIMENTS.

SINCE the leaves have fallen and the gray of winter has covered the landscape, I have put away my "outing traps," and now spend most of my days, and part of the nights, *fussing* in my darkroom, with a view of gaining the knack of development, on a strictly scientific basis. Being possessed of great patience, else I would have dropped photography some eleven years ago, when I began, I have systematically rung all the changes of the numerous formulæ that come to my notice. And what fearfully and wonderfully mixed compounds I have tried. It is to me a constant source of wonder how any ordinary brain can conjure up such erratic compounds as some of the formulæ one reads of in the journals. Not long ago I came across in a *standard* publication of photographic matters, a formula recommending chlorate of potash, as one of the items in a developer. I was sure it was a misprint, so wrote to the editor and was informed that it was no error. Well, after a week's work, with all the proportions changed separately and collectively, I assert now that *chlorate* of potash is utterly inactive. The aforesaid editor wrote me that I was a fool—in a metaphorical way—when I wrote him of my failure to make the formula work.

The great rage now seems to be to try the coal-tar group for reducing agents, and it is marvelous what work, when properly handled, they will accomplish. I have met with great success in the majority of trials, and am constantly discovering new and startling properties.

Last month I carried out a series of experiments by way of comparison to satisfy my rather skeptical mind as to whether it was worth the bother or not, to substitute anything for the old reliable pyro. The result was to me convincing, that pyro, in eikonogen and hydrochinon, has two most formidable rivals.

I have a view out of my laboratory door of a well-shaven lawn for a foreground, a lake with large trees on its shore as the middle distance, and hills with farms and patches of woods for distance, and by turning the camera slightly I can bring into the field on the right a stone church, a stone many-gabled house, with numerous spots of contrast and deep shadows, and a long stretch of Lake Shore and lake for distance; in fact, all the elements necessary to make a first-class view for testing. On the floor, inside the large double door, I have three holes that the spikes of my tripod may always be in the same spot.

At 2 o'clock every day the light is at its best on the above view for giving proper contrasts. I last month, on an exceedingly favorable day (when the sky was bright and dotted with light cumulus clouds and trees in the distance sharply outlined against the sky) exposed one dozen Seeds, 26 plates on the view, using No. 2 Euryscope with low shutter (time and instantaneous) various stops. The plates were then cut into three pieces, and numbered with a diamond — as A1, A2, etc.— through the series. Fresh Standard and Beach's Pyro developer — Eikonogen and hydrochinon mixed — and each piece put into its developer. As I have made over one hundred exposures with accuratd notes on each of this same view, I was sure as to right time; further, I have tested many times the rapidity of *my* low shutter, therefore there was no element of uncertainty about time.

The table on the opposite side will show comparisons:

The other eighteen pieces were from exposures varying from 1½ to 5 seconds and the changes in ingredients were many.

The result when compared showed a greater percentage of good printers or first class negatives from the eikonogen than the hydrochinon; though the latter were superior in all cases to the pyro developed.

The eikonogen negatives came up very quick, too quick for me; as their speed makes me nervous and I anticipate fog, where really fog never comes. The conclusion I have come to from all experiments, is: that for shutter work eikonogen is without a peer; but for time exposures more snap and more contrast can be got from either pyro or hydro, with the advantage largely in favor of the latter.

No. of Plate.	Time.	Stop.	DEVELOPER.	Time Develop-ment.	Fixed.	
A1	1/16	f/16	Beach's	20	15	Fair; thin.
A2	1/16	f/16	Eikonogen, 1 ounce; sulphite, 2 ounces; carbonate potassium, 1 ounce; water, 80 ounces	4	15	Good; thin.
A3	1/16	f/16	Hydrochinon, 210 grains; sulphite, 3 ounces; citric acid, 60 grains; potassium bromide, 80; water, 30 ounces. No. 2—Water, 10 ounces; caustic soda, 70 grains	15	15	Under-exposed in parts; good, however as to printing quality.
B1	1/16	f/20	Beach—More No. B	20	15	Only fair, thin sky.
B2	1/16	f/20	Eikonogen—Preliminary bath (hypo, 2 grains; bichloride mercury, 1 to 100, 1 dram; water, 10 ounces)	8	10	First-class, all detail.
B3	1/16	f/20	Hydro—One-quarter old added to new developer	10	15	Excellent, full detail.
C1	1/16	Full open'g	Beach—Three of water to 1¼ A to 5 drams B	18	15	Good.
C2	1/16	"	Eikonogen—Preliminary bath	2	15	Excellent.
C3	1/16	"	Hydro	10	15	Good; better than C1.
D1	1/16	f/40	Beach—Normal	25	15	Good (intense sky).
D2	1/16	f/40	Eikonogen—Without preliminary bath	8	15	Very fair.
D3	1/16	f/40	Hydro	15	15	Good; intense in parts.
E1	1/8	f/45	Beach—Normal	15	15	Fine; some detail lost.
E2	1/8	f/45	Eikonogen, 1 ounce; sulphite, 1½; carbonate potassium, ¾ ounce; water, 80 ounces	4	15	Fine; but not crisp.
E3	1/8	f/45	Hydro—Same as A8, but water, 10; caustic potassium, 120 grains	8	15	Excellent.
F1	1/4	f/64	Beach—Normal	12	15	Excellent.
F2	1	f/64	Eikonogen—Normal	4	15	Best of the three.
F3	1	f/64	Hydro—Normal	6	15	Excellent.

I think all experimenters with any new reducing agent are apt to cling to old formulæ that have served well in everything but the new factor, hence there is a proneness to dose up pyrocatechin, hydro, and eikonogen with too much sulphite, potass, or bromides, not to mention many acids that cannot but have either a retarding or injurious effect on the proper and gradual working excellence of the agent, be it hydro or whatever you may use. I have reduced, in many cases, the sulphite or hydrates or carbonates nearly fifty per cent., and obtained excellent results. I am now making a series of experiments in that line with more surprises than I anticipated.

With eikonogen I think with others with whom I have consulted, that a preliminary bath is an injury except in case of very quick exposure, as in all cases there is a slight clogging of half tones.

For bromides on any make of paper, eikonogen or hydro are, I think, decidedly superior to oxalate. I can get such a range of tones that some of my friends insist that I have resorted to toning. But beware of bromide of potassium when making paper positives with the above developers, unless you are fond of the "Green and Yaller."

In developing the new transparent film, who has not been bothered with its persistent curling? I know I have caused the recording angel lots of work, but not now, as I bent up some tin like this Ω or as a clip, and shellaced them thoroughly. By putting them on the ends of the film, the films are held flat in the pan, and a smaller quantity of developer used, and the films handled with less danger to their coating. Try them and see if you do not like them! Speaking of films, I nearly lost a whole 6½ roll by a piece of grit getting on the board under the film, and scratching a white line every time the film was wound off for a new exposure. A wipe of the board by a soft cloth is now my practice before putting in the spools. When cut off keep films in an old plate box, weighted down by a piece of double thick glass on top. Saves mussy glycerine and lots of dust.

C. H. Poor.

Notes and News.

What's in a Name? "Photorama" is the latest for a lime-light lantern demonstration, according to *Photography*.

It Is a Simple Matter to take a church, but photographing the churchyard is a matter for *grave* consideration.—*Scraps.*

Eikonogen is now being produced in Germany, in large crystals, which provide a purer developer than the powdered product hitherto known.

"**Amateur**" in its original meaning is "a lover of," and as applied to photography would convey that the man to whom it was applied was an enthusiastic lover of, and consequently a skilled adept in, the art. Now the meaning is degraded, and the man who buys a detective, presses the button, and sends his paper or plates to be developed and printed from, is an amateur. He knows no more of the art than does the organ-blower know of music. We conjure all to deserve the name they bear. —So say *Scraps*, and so say all of us.

"**Don't Discard the Camera** because the bright weather is gone, any more than go on taking shots in the summer at any and everything just because the weather is fine and the trees are in leaf. Good pictures do not by any means depend on such things. A keen eye can detect a picture in trifles and foreground; one or two leading objects, and a little light and shade, go to make a better subject than masses of foliage or stretches of broad light."—*Scraps.*

Hydrochinon.—I do not think that I can add much to the vast amount that has recently been written about this chemical as a developer, and especially in comparing its action with that of pyro. I may say that, after trying it well, and recognizing certain merits in it, I, for the greater part of my work at least, stick to my old friend pyro. Perhaps this is in great measure because I understand it so much better than I do the comparatively new comer. Still, as I say, I see merits in the new friend. It is clean, and that is something More, I should imagine, to people who do not like black fingers, than to me, who have always been indifferent. Then it gives a superb color for transparencies and a good color for gelatino-bromide positive work, and there can be no doubt that it will bring out more shadow detail *in the case of some kinds of plates* than will the pyro developer. I think that sufficient account has not been taken, in the various discussions that have taken place as to the rival merits of the two alkaline developers, of the fact that the one may show decided superiority in the case of one kind of plate, whilst it will show inferiority in the case of another. It is difficult to say with certainty just what is the sort of plate that will give a better result with hydrochinon than with pyro, but I give it (with some hesitation) as my opinion that a plate that has no tendency to chemical fog, that gives density with ease, but that has a tendency to give color-fog, at least in the case of under-exposure and forcing with ammonia, will certainly give a better negative with almost any hydrochinon developer than with pyro and ammonia, and will probably give as good a negative, as regards color, gradation, etc., and a somewhat better one as regards detail, in the case of a minimum of exposure, with hydrochinon and caustic potash or soda, than with *any* pyro developer. To some it may be of convenience that the hydrochinon developer will keep well with all the ingredients in one solution. In fact, it should be a convenience to any who use the developer for work in which an exact exposure can be struck, as in making transparencies. By mixing up the "one solution" in a form as concentrated as the comparatively slight solubility of the hydrochinon will permit, and adding a little of this concentrated solution to the diluted developer after each plate has been developed, the same solution may be used for quite a number of plates.—*W. K. Burton, in the Amateur Photographer.*

THE ETHICS OF HAND CAMERAS.

With the advent of the numerous styles of small and inconspicuous hand cameras, there has arisen a matter of some social importance and interest to photographers. The temptation to photograph anything and everything, regardless of the approval or wish of the subject, and in many cases without informing him of the fact that he has been photographed at all, is a matter which is so easy to cultivate and so difficult to resist that a little talk about the right and wrong of the case may be timely.

How often has the tourist heard the snap of a shutter and looked up to discover by the satisfied grin on the face of some cub of a boy that he, or she, has been photographed in some embarrassing position, and that entirely without his consent or control his picture is to be examined and discussed by entirely unknown and unwelcome critics? Any attempt at remonstrance is useless, and it is practically impossible to avoid the annoyance if the person with camera chooses to persist.

Now while the use of such cameras has been found more convenient for many purposes, and their proper employment has permitted many street scenes and charming bits of grouping and landscape to be secured which would have otherwise been lost, yet there is manifestly a limit to their indiscriminate use, which must be well considered if their users are to expect to retain the friendship and recognition to which they are otherwise entitled.

There are some things which a well-bred man instinctively feels and knows are due to his social position, and of which it would be an insult to remind him, and there is no good reason why the same code should not apply in matters photographic. A man who would look over your shoulder to read the open letter in your hand, or who would apply his ear to your keyhole to listen, or still worse, would repeat with glee to his friends the results of his eaves-dropping, would soon find himself tabooed from decent society, and if detected in any such performances would promptly be kicked down stairs, as he deserved.

The same man, however, will use his unobtrusive camera to perpetuate occasions which he knows full well may be a source of annoyance and mortification to his friends, or those whose friendship he would retain, and yet not feel that he has in any way forfeited his title and right to the grand old name of gentleman.

It is not easy to see wherein the difference lies between the two actions, and, indeed, if there be any difference the discourtesy, to call it by no stronger name, is far greater on the part of the photographer, for his results remain long after the spoken word may be forgotten and dismissed.

Of course this abuse of privilege and power only needs to be fully and widely recognized and appreciated to provide its own remedy, and in the language of a form of notice formerly seen in some public places, "gentlemen will, and *others* must refrain." All that is necessary is for every thoughtful man, and particularly every man interested in photography and its advance, to set his face firmly against this nuisance, and to speak his mind plainly and in unmistakable language upon the subject whenever occasion offers.

Henry Harrison Suplee,

In "The American Annual of Photography and Photographic Times Almanac for 1890."

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held on Wednesday evening, November 6th, 1889, the President, Mr. Frederic Graff, in the chair.

The Secretary reported that at the Conversational Meeting, October 16th, Mr. Milburn, of the Eastman Dry Plate and Film Company, exhibited before the Society the new Eastman Transparent Films, and gave a practical demonstration of their use and development.

The film consists of an exceedingly thin and transparent support, coated with a highly sensitive gelatine emulsion. One of the chief characteristics of the film is its flexibility, which adapts it for use on roll holders in the same manner as the company's old film in which paper was the support. It has the further great advantage, however, that no stripping, oiling, or other after processes are necessary; it being treated in all respects practically like a glass plate. After the final washing it is soaked for a few moments in a special solution of glycerine, alcohol and water, which prevents its curling or cockling in drying. It is then pinned up on any perpendicular surface to dry.

The Committee on Membership reported the election of the following active members: Philip F. Fulmer, Jr., Stephen Minot Pitman.

Mr. Walmsley showed Eastman's Kodak Camera, No. 2. This little box is precisely the same in outward appearance as the well-known Kodak that has been before the public during the past year; differing from it only in size. The older form makes a picture 2½ inches in diameter; the new one, or No. 2, 3½ inches. The lens has a fixed focus, all subjects for five feet distance being sharply delineated. It has also a diaphragm shutter, easily rotated, which gives three (3) sizes of openings, thus greatly increasing the efficiency of the instrument in time work on interiors, etc., and also where great excess of lighting prevails, as in seashore views, etc. The Camera is loaded with the new "Transparent Film" for 100 exposures, requiring no stripping and being treated in all respects the same as a glass plate. A view finder is attached to the front of this camera, enabling the operator to see what he exposes upon at the moment of so doing. Mr. Walmsley also exhibited a number of negatives, made from his own exposures with this camera, as well as prints and lantern-slides for same, all of which showed great capacity in the camera and lens.

Mr. Joseph M. Wilson related some interesting experiences in connection with a trip made through several European countries during the past summer. He carried with him a Scovill hand camera and material for about seven hundred exposures, most of which was made use ot before his return. The camera, in which several ingenious modifications and improvements had been made by Mr. Wilson, was shown, and also a light and convenient alpenstock tripod of his own design, which had been carried throughout the trip.

Dr. C. L. Mitchell showed a Blair Compact Camera mounted on a single leg or "Unipod" for use in instantaneous work in situations where a regular tripod could not conveniently be set up, and where more steadiness was desirable than could be maintained by holding the camera in the hand. With a large camera on board a yacht, or in street work, when sitting up a tripod would attract a troublesome crowd, the unipod had been very useful.

Mr. Wilkinson showed a hand camera obtained by him in Germany, the invention of Dr. Krugener. Glass plates 3¼ inches square were used, thirty being carried on the camera. The box was of oblong shape, about a foot long and four or five inches square. The camera proper was in the center of the box, the lens opening being at the side. Before use the plates were contained in a magazine at one end of the box, and by an ingenious contrivance, after each exposure the plate used was removed to a second magazine at the opposite end, and a fresh plate brought into place ready for the next exposure. The operation was continued until all the plates were exposed and transferred.

Mr. Francis Burrows also showed a new hand camera of his own design, which he described as follows:

I present to you this evening another candidate for your favor.—"The Ultimate," a 4x5 hand camera. It is compact, measuring 5x5¾x9 inches, and yet by drawing out the telescopic front, it will accommodate an eight-inch focus lens.

The front of the box opens, allowing access to the lens and shutter, while in the rear of the lens a flap shutter may be closed during this operation. This box is fitted with a 4x5 Pantagraph lens 5¾ inch focus, and working $\frac{f}{6}$ approximately.

The plate holders are of new design, very small, and of metal; they are double, and are loaded by removing both slides and the movable plug from the top. As any lens from 4½ to 8 in focus may be fitted, the question of focusing comes up. With this lens the front is drawn out about three-fourths of an inch, and there is a line drawn. In this position the lens cuts sharply to within about twenty feet. With an $\frac{f}{8}$ or $\frac{f}{11}$ stop everything beyond this distance is very sharp. Practically I make all views at this point. About one-sixteenth of an inch back of this is another line. When drawn out to this we get better foreground effects, but the horizon will not be quite distinct, and should not be allowed to show unless it is possible to use a stop, as, for instance, a well-lighted subject, or one allowing time exposure.

In case I find it necessary to time a plate I am generally able to find something to place the camera upon—a railing, bench, or stone; or I have made very sharp photographs of several seconds' exposure by holding the box firmly against the side of a house or tree. For those who will carry a tripod I can suggest nothing better.

On motion the society adjourned.

Robert S. Redfield,
Secretary.

The Editorial Table.

MOUNTAINEERING IN COLORADO. By Frederick H. Chapin.

The picturesque illustration which embellishes this number of THE PHOTOGRAPHIC TIMES, and the interesting reading matter accompanying the same—both by Mr. Chapin—give a better idea to our readers of the character of the book before us than anything we could say concerning it. It is richly illustrated with pictures similar to the

'Colorado Cañon," and is interesting and instructive reading from cover to cover. The type and general press work of the book are all that could be desired. It makes a holiday volume that will be very acceptable to amateur photographers and other lovers of out-door sports and occupations, for presentation to friends, as a Christmas remembrance.

The book is published by the Publishing Committee of the Apalachian Mountain Club, of which Mr. Chapin is a widely-known member. Orders should be sent to Mr. Albert S. Parsons, Room 17, No. 9 Park Street, Boston. The book makes its appearance in three styles of binding, at the following prices: Paper, $1.50; cloth, $2; and half morocco, $3. It will undoubtedly have a large sale.

We note that Gayton A. Douglass, photographic merchant of Chicago, has recently been appointeda director of the Chicago Institute for Instruction in Letters, Morals and Religion. Under the auspices of this Institute, there will be held a coarse of popular scientific lectures, during the coming winter, on the testimony of science to evolution. It promises to be a highly interesting and instructive course.

Photography is coming more and more to be the basis of illustration for the finest editions of standard and holiday books. Particularly are photo-gravures being used in this connection, and very acceptable are they to the public, when illustrating holiday editions of standard works.

Houghton, Mifflin & Co. are using photo-gravures in this connection with many of their fine editions, and with what eminent success, is shown especially by the superb copy of Hawthorne's "Marble Faun" which lies before us. The photo-gravures are of pieces of statuary and subjects spoken of in the romance, and make the book an instructive art work, as well as adding great interest to the story itself.

This is a field for photography which it can completely fill with satisfaction to all concerned, and we are glad to see it growing in this direction.

We have received from Dr. O. F. Cobb, Superintendent of the Society for the Prevention of Cruelty to Children, of Troy, N. Y., another interesting photograph of two boys whom he has rescued. They are both bright-looking little fellows, and under proper circumstances would undoubtedly make useful members of society. They were found in the company of two tramps who had been trying to compel them to go with them and do their stealing. Neither of the boys has father or mother. They had been sleeping in barns, and when found were in two trunks.

Doctor Cobb is doing an excellent work in his neigh borhood in this particular direction, and photography is one of his chief supports.

Mr. R. W. Harrison, now of Topeka, Kansas, is open for an engagement in a first-class photographic gallery. Mr. Harrison will be remembered by our readers as a contributor of valuable articles to The Photographic Times. He is an able operator, and could fill an important position in any photographic studio. He was compelled by ill-health to remove to Topeka, Kansas, and would like to fill a position in that city or vicinity.

First Amateur Photographer—Well, did your interview with Miss Exquisite develop anything? Second Amateur Photographer (sadly)—Yes; developed a negative.—*Toledo Blade.*

Queries and Answers.

424 J. Bresler writes that in mixing one hundred and sixty grains of tannin and one ounce of sulphate of iron with one pint of water, a blue-black inky solution ensues, which is clear when filtered. It remains so for about six hours, when a thin coating forms on top of the solution. He has not been successful in preventing this formation.

244 *Answer*—On exposure of the solution to air, ferric tannate is formed, which may possibly be avoided by acidifying your protesulphate of iron solution with sulphuric acid; or, the water may contain some substance that is separated by the chemicals used.

245 E. M. Bray writes as follows: "Can you give me the formula of a toning bath that I can get the tone of the phhto-gravure in the last issue of The Times, if such a thing is possible to attain with silver or aristo paper? The picture I refer to is 'Companions,' in No. 423."

245 *Answer*—The illustration in No. 423 of this jouanal is printed with ink upon a copper-plate press, and to produce a similar tone by photo-chemical printing, you must resort to the green toning of blue prints, recently described in these columns. Print your freshly-prepared ferri-prussiate paper somewhat deeper than a blue print should be, and tone in the following solution:

Water	6½ ounces
Borax	3 drams

Acidify with sulphuric acid to decidedly acid reaction, and neutralize carefully with ammonia. In this solution dissolve twenty-five grains of crude catecha. It takes from five to ten minutes to make a blue print of a very fine green. There is still another method to make green prints. Float paper for three minutes upon a 20 per cent. nitrate of uranium solution, and dry quickly. Print till the picture is fairly well out, and develop with a 2 per cent solution of ferricyanide of potassium, which gives a red tone. Dry, and treat it with a warm 5 per cent. solution of nitrate of cobalt, and dry by heat, when the print will assume a green color. It is not possible to make green tones with chloride of silver, albumen or collodion paper.

246 P. A. Waterhouse, of Florida, tells us that preparatory to a good day's printing he silvered one hundred sheets of albumen paper. The weather having changed, he could print only twenty sheets, and the rest turned so yellow that it was unfit to use for the better class of work on the following day. He adds that in our changeable climate such losses occur quite frequently and become very serious, and inquires how sensitized albumen paper can be made to last for at least two or three days.

246 *Answer.*—Make a solution of citric acid in water of about 1:20, and after the paper is dry, apply to the back with a brush or sponge. But when washing before toning, you must be very careful to remove every trace of acid, which may be best done by adding a trifle of soda carbonate to the last washing but one. The presence of acid will prevent toning.

THE TOILET.

THE PHOTOGRAPHIC TIMES.

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A STUDY OF A FACE.

Were I an artist, purposing to paint
A beautiful young monk, I could have found
Among the clergy of the Southern States
A model for the head I would portray.
It is a countenance pure, delicate
And sweet, with hair, brown-black, like ebony,
And eyes the color of a soft, grey cloud,
Limpid, enlivened with intelligence;
On cheek and brow th' transparent hue which speaks
Frailness of health, but helps to etherealize
The spiritual face, and on the lips
A look of sweetness, so like to a smile,
That smiling deepens it, but does not change.
I have seen gleams of spirit, not less fair
Because they come and go; but have I seen,
Among the treasures of a motley world,
Such sweet expression stamped on any face?

Lelia R. Ramsdell.

THE TOILET.

The figure composition by Montford & Hill, which embellishes our columns this week, is a picture that will be highly appreciated by all readers of THE PHOTOGRAPHIC TIMES. Not often do we find a photographic picture so perfect as this. It is simple, yet complete, and tells its story perfectly at the first glance. A closer study, however, does not fail to discover ever growing beauties in this charming child group.

The picture was first exhibited at the Boston Convention last summer, where it won universal praise. It has been copyrighted, and, we understand, may be purchased in the art stores. Messrs. Montford & Hill's professional address is Iowa City, Iowa. Our reproduction from the negative is by the photo-gelatine process, and the effect is peculiarly satisfactory in this picture.

Our professional readers, and those amateurs who strive to improve in the field of portraiture and figure compositions, will be especially grateful to Messrs. Montford & Hill for the excellent picture which they have freely given for the instruction of all, in the columns of THE PHOTOGRAPHIC TIMES.

LIST OF AWARDS, FIFTY-EIGHTH ANNUAL EXHIBITION, AMERICAN INSTITUTE.

I DEPARTMENT.

GROUP 3.

480 G. Cramer Dry-plate Works, Photographs on Cramer's Dry-Plates, Special
84 F. Gutekunst, Photographs, Taste
768 Geo. G. Rockwood, Photographs, Miniatures and Crayons, Superiority
654 Edward C. Dana, Photographs, Superiority
94 C. D. Fredricks, Photographs, Crayons, Pastels and Water Colors, Superiority
212 M. B. Parkinson, Photographs, Superiority
78 Rudolph Wilhelm, Photographs, Crayons and Pastels, Superiority
234 Joseph Hall, Photographing by Flash Light, Excellence
120 J. B. De Young, Oil Portraits, etc., Merit
794 L. C. Perkinson, Photographs, etc., Merit
470 Anti-Dark-Room Photo. Co., Anti-Dark-Room Photo., Merit

GROUP 4.

802 F. A. Ringler & Co., Electrotypes, Galvano-plastic, etc., Superiority

GROUP 7.

144 The Scovill & Adams Co., Photographic Apparatus, Special
486 Schwartz & Co., Photographic Supplies, Merit

*EXPLANATION OF ABBREVATIONS:—Special—The *Special* Medal (of silver.) Taste—The Medal of *Taste* (of silver.) Superiority—The Medal of *Superiority* (of bronze.) Excellence—The Medal of *Excellence* (of bronze.) Merit—The Medal of *Merit* (of bronze.)

EDITORIAL NOTES.

THE usual winter activity in photographic circles has commenced this season with greater vigor than ever before. It will be noticed in this number of THE PHOTOGRAPHIC TIMES, from the numerous reports of meetings which are given, how many photographic societies are busy. There are reports which were of necessity crowded out until a later issue. Every number will contain full reports of all societies in this country actively engaged in photographic work, but the reports will be condensed, so that all the important matter may be obtained quickly and easily, and without reading a mass of routine and unimportant matter. The reports will also be published *promptly*. The weekly PHOTOGRAPHIC TIMES is enabled to give its readers a great advantage in this respect over any other photographic magazine in this country. The department entitled "Notes and News" will also be full of the latest information from week to week.

THE Special Holiday Number of THE PHOTOGRAPHIC TIMES this year will be issued Friday, December 20th. It will thus be in the hands of all its readers on this continent on or before Christmas Day. The number, which will contain several full-page illustrations, including a photogravure by Doctor J. L. Williams, as well as numerous descriptive and pictorial column illustrations, will be priced at twenty-five cents, though our subscribers, of course, will receive it without additional charge. As has already been announced, it will be sent in addition to the years' subscription for 1890 to all those who subscribe previous to its date of publication, and a great many have taken advantage of this offer. The edition is limited, so that all who desire a copy of this special number, who are not already subscribers to THE PHOTOGRAPHIC TIMES, should send in their names at once.

THE "American Annual of Photography and Photographic Times Almanac for 1890," as promised, was ready on the first day of December. A large edition has already gone to England to fill the orders which awaited it there. The remaining copies have been taken up so rapidly that, as yet, only those who had placed orders with the publishers have been able to secure them. It will soon be ready for general sale, though the first edition is nearly exhausted and the late comers will be obliged to take the second edition.

The authors' *Edition de Luxe* has been delayed on account of the special features which it possesses. It surpasses any of its predecessors even, and is priced at five dollars per copy. All of the Annual's authors will receive their copy in due time, free of any charge.

A review of the book appears in another column.

MOUNTANTS.

The following formulas have been collected from various sources by the writer, and embrace a selection that will doubtless be of value to the readers of THE PHOTOGRAPHIC TIMES.

GELATINE MOUNTANT (No. 1.)

Cooking Gelatine	1 ounce
Alcohol, 95 per cent.	10 ounces
Glycerine	½ to 1 ounce

Soak gelatine in cold water for an hour or more, take out and drain off all the water which will go, add to alcohol in wide-mouthed bottle. Add one-half to one ounce of glycerine, according as gelatine is of a hard or soft kind. Put bottle in hot water, with occasional shaking until gelatine is quite dissolved. Will keep indefinitely, and has only to be heated up when wanted for use. This mountant is applied rapidly and thinly as possible with a broad bristle (varnish) brush. It is very highly recommended for photographers' use.

ANOTHER (No. 2.)

Nelson's No. 1 photographic gelatine	4 ounces
Water	16 ounces
Glycerine	1 ounce
Alcohol	5 ounces

Dissolve the gelatine in the water, then add the glycerine, and lastly the alcohol. Prints mounted with this will not cockle.

PERMANENT PASTE (No. 3.)

Arrowroot	10 parts
Water	100 parts
Gelatine	1 part
Alcohol	10 parts

Soak gelatine in the water, add the arrowroot which has first been thoroughly mixed with a small quantity of the water, and boil 4 or 5 minutes. After cooling add the alcohol and a few drops of carbolic acid.

ANOTHER (No. 4.)

Best Bermuda Arrowroot	1¾ ounces
Sheet Gelatine or Best Russian Glue	80 grains
Water	15 ounces
Methylated Spirit	1 ounce

Put the arrowroot into a small pan, add one ounce of water and mix it thoroughly up with a spoon, or the ordinary mounting brush, until it is like thick cream, then add fourteen ounces of water and the gelatine broken into small fragments. Boil

for four or five minutes, set it aside until partially cold, then add the methylated spirit and six drops of pure carbolic acid. Be very particular to add the spirit in a gentle stream, stirring rapidly all the time. Keep it in a corked stock bottle, and take out as much as may be required for the time; work it up nicely with the brush, and you will have a material as smooth as cream, without lumps or grit, and which will not decompose.

STARCH PASTE (No. 5.)

Pour cold water upon good laundry starch to barely moisten it. Then stir in *boiling* water until proper consistency is reached. Strain if not free from lumps.

Remember that starch paste should be freshly made for each batch of prints.

ANOTHER (No. 6.)

Allow four parts by weight of hard gelatine to soften in fifteen parts of water for several hours and then moderately heat until the solution is quite clear, when 65 parts of boiling water should be added while stirring. Stir in another vessel 30 parts of starch paste with 20 of cold water, so that a thin milky fluid is obtained without lumps. Into this the boiling gelatine solution should be poured while constantly stirring, and the whole kept at a boiling temperature. When cool, add to the whole ten drops of carbolic acid to prevent souring. This makes a very tenacious paste.

CASEIN MUCILAGE (No. 7.)

Heat milk with a little tartaric acid, whereby casein is separated. Treat the latter while still moist with a solution of six parts of borax to one hundred of water, and warm gently while stirring, which will cause the casein to be dissolved. Of the borax solution enough should be used to leave only a little undissolved casein behind.

This is a very serviceable adhesive mucilage.

GOOD MOUNTING PASTE (No. 8.)

Add to 250 c. cm. of concentrated gum solution (2 parts gum to 5 parts water) a solution of one gram. sulphate alumina in 20 c. cm. water. (Alum does not answer the purpose as well). The addition of the sulphate is effective, in that this gum cannot be injured by weak lime paper, and besides, wood can be pasted upon wood by means of it. Its adhesive qualities are, in general, greater than those of pure gum arabic.

IMPERVIOUS PASTE (No. 9.)

Soak ordinary glue in water until it softens, remove it before it has lost its original shape, and dissolve in ordinary linseed oil, on a gentle fire, until it acquires the consistency of a jelly. This paste may now be used for all kinds of substances, as, besides strength and hardness, it possesses also the advantage of resisting the action of water.

THIN MUCILAGE (No. 10.)

A paste that will not draw engravings when pasted down on paper, must be thin. A mixture of equal parts of gum-tragacanth and gum-arabic, forms, with water, a thinner mucilage than either one alone.

LIQUID GLUE (No. 11.)

With any desired quantity of glue use ordinary whisky instead of water. Break the glue in small fragments and introduce these in a suitable glass vessel, and pour the whisky over them. *Cork tightly* and set aside for three or four days when it will be ready for use. Will remain liquid except in very cold weather.

ANOTHER (No. 12.)

Same as above except that acetic acid is used in place of whisky, and that the bottle containing ingredients must be placed in hot water to dissolve the glue.

ANOTHER (No. 13.)

Glue	8 ounces
Water	8 ounces
Nitric Acid, C. P.	2½ ounces

Dissolve the glue in the water by immersing vessel containing same in hot water. When solution is effected add the acid. Effervescence will take place with the evolution of orange nitrous fumes. Now cool. It should be kept in a well-stoppered bottle and will remain permanently liquid. Very serviceable as a cement.

W. H. Gardner.

SOME NOTES ON COLOR VALUES IN ARTISTIC PHOTOGRAPHY.

ONE may confidently put down orthochromatic photography among the burning questions of the day. Its principles are enunciated at length in all the photographic books and journals; it is an exceedingly live subject: and its practice is disseminated equally among those who read them. This being so, one might expect to see a little more actual application of this excellent knowledge in the course of ordinary photographic work. Unfortunately, however, there is not yet the diminution that there might be of black-faced portraits and silhouetted foliage, and more than a few amiable amateurs still go out among the reds and yellows of autumn or the golden greens of spring with ordinary plates and a shutter set to expose a

fraction of a second, and innocently hope to get good pictures.

Then, even at the best, when all the dodges and appliances of plates and screens and long exposures have been made use of, comes in the carping painter with his little demurrers. It is he who always desires to gild refined gold and paint the lily of photographic perfection; and he appals us, after we had it comfortably settled in our minds that no one could cry false values upon this work at least, by the old complaint, "Can't you see that the whole thing is untrue—the values are utterly wrong?"

This study of values is even in painting of such recent date that on this side it still has something of the fervor of a fashion, and has not yet subsided into part of the ordinary necessities of art. Its development is due to the modern school of French painters, whose delicate observation of the harmonies and relations of colors to one another constitutes a great deal of what makes their art so interesting. That is a sufficient definition—the relations of colors to each other; called value, as denoting the worth of each color of a composition in the scale. Reduced to monochrome, from many colors to one, in black and white the value of any color depends on the amount of light it reflects to the eye—and consequently in photography on the amount of light it reflects to the plate. It is to be remembered that in this there is nothing absolute—it is solely and simply a matter of the amount of illumination. A black dress in the sunshine is whiter in its high lights, that is to say produces a more vivid impression on the eye, than a white muslin sheet in the shade; it must be painted so, and it will photograph so. Unfortunately, this unanimity of testimony between eye and lens does not hold throughout, for while the retina reads colors on a system whose standard is yellow, the silver salt as we all know, has a peculiar weakness for violet. When the values are well observed as in a good engraving or etching, either from a painting or from nature, the orchestral effect of the colors will be perfectly preserved. The soft viol and 'cello of the blues, the flutings of the greens and yellows, and the trumpet-notes of the reds will still sing in unison harmoniously from their places, and the proper effect will be produced. When it is the lens that does the translation, it is as if some one should try to hear an instrumental concert whose perception had been educated to a peculiar sensitiveness to stringed instruments, but who could only hear in scarcely half their force the vibrations of the brass.

First and foremost on the list of the minor falsifications of photography are those that ensue in photographing flesh. It is hardly too much to say, as some have said in despair, that as long as these continue we will never have a photograph which is really a faithful portrait of the subject—let retouching do what it may. The untruthfulness of the values that is the cause of dissatisfaction here consists in a disturbance of the just relations between the lights and shadowed portions of the face—more especially the mouth, the nostrils, the ears, and the hollows around the eye. Painters know that flesh is translucent, and wherever the form allows light to come through a little, the shadow tends to assume a reddish tint, due, of course, to the color of the blood. The nostril is an especial example. But the silver's idiosyncrasy may make this fatal to the picture. The fully illuminated portions of the face reflect abundant light to the plate and act strongly on the film; the shadowed portions meet with a colder reception, they lag behind in their action and the film is little affected where they fall. The development, most especially when there is any approach to underexposure, piles up the lights and leaves these shadows almost clear glass. Consequently the print, instead of showing soft transparent shadows blending into clear flesh in a single harmonious tone, displays dark furrowed lines and sharp patches that make the lights look hard and white by contrast and ruin the effect.

The most effective preventive of all this is found in careful lighting. The painter himself, with all his power of altering the model will not choose the exaggerated mode of lighting employed by photographers—and some of them very good ones—when a portrait is in question. The eccentric lights that blaze on the hair and forehead and leave the rest of the face in obscurity, or the "Rembrandt" effects that sharply line in light exactly what ought to shade gently away, are mistakes committed in the ardent research for something new, whether good or bad. A soft light, just a little flat if anything, rather than brilliant, is the thing to be desired. The photographic exaggeration will give relief enough in all probability. As to attempting portraits in bright sunlight, or with ungradated light of any kind, these may be mementoes or curiosities, but seldom portraits. Here, as in all art, it is necessary to cultivate the faculty of seeing the result in the subject—of bringing vividly before the mind's eye the appearance of the picture as it will be when finished. The error of thinking that a subject which looks well to the eye must necessarily look equally well in the photograph is to be got rid of. The constant memory of this, the fact that

one is making a photograph, something new and different from the actual thing, will save many wasted plates and much wasted hope. Every art has its own class of subjects which it is peculiarly fitted to record; photography is rich enough in this respect to be amply able to let pass the unavailable.

Next to lighting comes ample exposure. Probably most photographers know that the greatest effect of the intensely illuminated portions of the subject is expended upon the film in the first few fractions of a second of the exposure; after that its energy grows rapidly weaker, while the more faintly-lit portions work on and to a certain extent catch up with the rest. Everyone has noticed the charm of quiet harmony occasionally seen in a plate that has been stopped just this side of over-exposure, or even passed the limit. It is flat, no doubt, neither crisp nor sparkling, but it more than makes up for this by tone and accuracy of values.

An eye for color is unquestionably a requisite for the good photographer. It will alter very considerably the notions he would otherwise form in regard to proper exposures. In certain types, not only in those of Spanish or Italian blood, but very notably in our own Southern people, the pink and white of the flesh—which at most is not half so pink and white as a great many people think it is—is replaced by decided brownish, yellowish, or even orange tints, exceedingly faint, of course, a mere tinge to the eye, but photographically very considerable. This must be taken into account in determining the time of exposure. Southerners especially have often a peculiar pallid complexion which seems white, but is as a matter of fact very far from it, photographically speaking. Again, many persons have eyes, eyebrows, and even lips which are, photographically, white, and appear so in the proof, to their extreme dismay, although to the careless eye they show the conventional hues, blue, brown or pink. All this must be taken into account, and the offending members accented up to their proper value by being shadowed, or otherwise; even if the owners are surprised, as was the young lady whose brilliantly yellow hair had to be powdered to make it come out of the appropriate lightness in the picture.

The subject of landscape and its color values has already been treated fully and with an ability that leaves little to be desired, in a recent issue of this journal. It is only to be repeated that not only the yellows and reds must be looked after but the greens as well; and that one must not even judge too much by the eye as to what is yellow, red, or green. It is to be recollected that analysis by the prism often shows very considerable quantities of red and yellow light in objects that appear of nearly pure greenish or bluish shades, and *vice versa*. One must not be confused by the common phraseology that calls all leaves green no matter how far they may verge towards blue or yellow, and all dark things black. It is well to make with a green subject a short mental color-analysis of the landscape, and note the tints which, verging toward the violet end of the spectrum, will probably be exaggerated and take lighter than they look, and the reds and browns that will do the reverse. And especially in doing this are the relations, oppositions and contrasts to be noted. If a landscape were all reds and browns, though each separate tint might be darkened in the photographic print, all would have undergone a simultaneous and nearly equal change, and the general tone would be preserved, just as a dozen persons on different steps of a staircase remain at equal distances from each other as long as each one moves up or down the same number of steps. But when extremes meet and we have red leaves and purple hills in the distance, or green leaflets against blue sky, then comes the time to look out, and only long exposure, even at the risk of flatness and loss of contrast, will give a good picture. Hence it is well to carry a little color scale in the mind, and see what the respective quantities are of blues, violets, yellows and reds in the landscape, and whether there exist any violent oppositions of colors at different ends of the scale, and decide the time of exposure, or even the question whether to expose at all, by the result of this process—which sounds far more complicated and difficult than it is, being in practical application done in a few seconds.

It is a good plan in all these color-calculations to go back to first principles, and look at the subject simply, naïvely, as a very young child sees it, that is, merely as a number of patches of different colors having various forms. The different effects of these on the film are then all that there is to be considered, and the time of exposure is, as always, a sort of compromise or average struck between them all, a result arrived at by the consideration of a number of separate items. It is surprising, what unexpected results we get from these complicated conditions at best. Every photographer can recall the startling successes he has had in the case of plates that he was quite certain were under-exposed or absolutely certain were overtimed; much more frequently the latter than the former, however. A little study of lights and color-values will greatly help to clear up many of these mysteries.

In photographing interiors, paintings, china or other objects of the sort the study of color-values and the faculty of estimating them by the eye becomes of supreme importance; and one needs in fact the training of a painter to do this so correctly as to be thoroughly and always successful in work of this character. Here although we have more or less control over the light and unlimited time of exposure, we are far from complete satisfaction or even ordinary certainty as yet, with all the aid notwithstanding that orthochromatic plates can give us. Still there is excellent work to be done with plates and screens, and the very best adjunct to these good things is a scientific knowledge of colors and their effects on the photographic film.

Frederic Hart Wilson.

Correspondence.

THE "SILENT CITY."

To the Editor of THE PHOTOGRAPHIC TIMES.

DEAR SIR:—I have read with interest about the "Silent City" in your October issue. Whether or not there is a "Silent City," or what the "Silent City" is, I will not attempt to state; but the picture has not been given the benefit of doubts that it should have.

One of my friends who has been in the Arctic Ocean every year for nearly a quarter of a century saw a most marvelous mirage off Cape Lisburne six years ago. His vessel lay hauled aback, as near as he could estimate, 125 miles from the Cape. He had been befogged several days. Suddenly the fog lifted, and there directly before him stood Cape Lisburne in bold relief. The delusion was so complete that he hurriedly gave orders to make sail for fear of going ashore, as the neighborhood of the Cape is very dangerous. He has been in that same place since, but has not seen the mirage again. I was there myself and saw nothing, yet because I did not see it that is no evidence that he did not see it.

I lay at anchor off Point Lay, Arctic coast of Alaska, on or about August 7, 1887. The look-out, or man aloft, raised a sail, then another, and another, until we saw three barks, a brig and a schooner. Putting the long glass on them we saw that it was mirage, and they soon stood out, keel upwards, in very bold relief. It was a sight of a lifetime. The master of our ship said it was a rare sight, and so it was. A few days later I was at this same anchorage but saw no mirage, and there may not be any seen there again for years to come. Yet that does not prove that we did not see it.

Mirage is a rare thing. Men who have been at sea for thirty years or more have only seen it at long intervals. Consequently, the fact that people have watched the spot where the "Silent City" is alleged to have been seen, and not seen it, counts for nothing.

Yours, truly,

H. L. Aldrich.

BALTIMORE, MD.,
November 23, 1889.

THE DAGUERRE MONUMENT.

To the Editor of THE PHOTOGRAPHIC TIMES:

DEAR SIR:—At the convention held in Boston under the auspices of the P. A. of A., a committee was appointed to erect a memorial in honor of Daguerre; the money to be raised by dollar subscriptions from among those interested in the art of photography.

For the purpose of reaching that class as far as possible I am sending out check books to all dealers and manufacturers, trusting that they will assist in raising such a sum as will enable us to erect an imposing memorial to the great Frenchman, and one that will reflect credit upon the photographers of America.

This memorial will be placed in the Smithsonian Institute at Washington, D. C., at the opening of the next convention, which will be held in that city some time next summer. A report will be made at the next convention of the amount raised by each house and the name of each person who subscribes one dollar will be deposited within the monument.

The committee, composed of the executive board of the P. A. of A. for 1889, have spent six or eight weeks in corresponding with different artists with reference to style and price of such a memorial and have come to the conclusion that the sketches submitted by the celebrated sculptor J. Scott Hartley of New York are the most satisfactory. Mr. Hartley sends four sketches ranging in price from 2,500 to 6,000 dollars. Nos. 1 and 2 will cost $2,500 each. These designs contemplate pedestals three feet six inches high, No. 1 to be of richly carved oak and No. 2 of granite with bronze bas relief. A design of oak or laurel framing the relief on wood pedestal, showing Daguerre experimenting with camera. Both pedestals to be surmounted by a bust of Daguerre in bronze or marble.

No. 3 can be executed for $3,000, and consists of a globe and rough, unhewn base in granite; globe polished and map incised and encircled with laurel wreath in bronze and mounted with a cast bronze bust of Daguerre—the whole to stand five feet high.

No. 4 contemplates something more elaborate, and consists of a pedestal or base in unpolished granite, the name of Daguerre in polished letters. This base is mounted by a globe of polished granite, map incised, with wreath of laurel, medallion portrait of Daguerre and life-size figure of Fame in standard bronze.

The design represents Fame taking the laurel which encircles the earth and placing it about Daguerre as a frame work. The whole is to stand nine feet high and would certainly present many unusual art possibilities. There would be little profit to the artist at $6,000 for which he agrees to erect it. I think you will all agree with me that it will not be too much for the dignity and importance of the subject.

I hope to have a report from all those holding check books by Jan. 10, 1890, that we may estimate how the subscriptions are progressing, as the committee meets about that time to determine which design will be chosen.

Yours truly,

H. McMichael.

BUFFALO, Dec. 2d, 1889.

Notes and News.

Signs.—A tourist returning from Paris tells of a boulevard photographer, who hangs out the following signs before his studio: "One can speak English here." "Children executed with the utmost despatch." "Collared photographs artfully." These are nearly as good as the Bowery shoemaker's sign of "stock which must be soled before the end of this month."

For 1890.—In a recent letter from Andrew Pringle, we learn that he has just completed his manuscript of a work on lantern slide making. This and other books which he has recently been writing, have prevented him from doing the work for THE PHOTOGRAPHIC TIMES which he had planned. "I hope to start again in earnest," writes Mr. Pringle, "sending you occasional articles for TIMES. This will be for 1890." So hope we all of us!

A Mr. Monterief, of Colorado, struck, on one of his last tours, on a deposit of rock which promises to be the largest and best quarry of lithographic stone. Samples of the same have been polished, engraved, grained and etched, and have shown a wonderful result. The stone is yellowish gray, and it is said to be in great quantities.

Electro-Photography.—Herr Liesegang gives an interesting account of some experiments which he recently undertook with a view of rendering images visible at a distance by means of the electric current. The results attained were that an image, the exact reproduction of a photographic image, is produced at an indefinite distance from the original object, and this image can be re-photographed or projected on a screen for exhibition to an audience.

Pin Hole Photography.—In a British association paper Lord Rayleigh stated that the first camera was a pin-hole camera, and that it was shown in 1880 that a simple aperture is as effective as the best possible lens in forming an image, provided only that the focal length is sufficiently great. In some recent experiments the focal length was about nine feet and the aperture one-sixteenth of an inch, and photographs taken on gelatine plates of a weather-cock, seen against the sky, showed an amount of detail not materially less than that seen by direct vision. It cannot be claimed, however, that photography without a lens is likely to be of more than scientific interest, as in most cases the use of a lens is a vast improvement.

At a Recent Entertainment given under the auspices of the Lynn Camera Club, Mr. G. D. Milburn, of the Eastman Dry Plate and Film Company, assisted by the treasurer of the Camera Club, accomplished an interesting feat. Mr. Milburn photographed the audience by "flash" light early in the evening with his new No. 2 Kodak Camera, and immediately hurried away to a neighboring dark-room, where the negative was developed and a lantern-slide made. Hurrying back to the hall again, he arrived in time to have the slide thrown on the screen before the audience was scarcely aware of his departure. The effect on the audience of seeing themselves depicted on the screen was very amusing. It was the first time that an audience was shown a picture of itself before leaving the hall where it was taken, and Mr. Milburn is to be congratulated on his success.

"The best selling photographs to-day," said Mr. Frank Bacon to the Philadelphia *Item* to-day, "are those of Mrs. Langtry, Mrs. Potter, Mary Anderson, Jane Hading, Edwin Booth and Maurice Barrymore. Mrs. Harrison's photos have never sold well, and the sale of Mrs. Cleveland's likenesses fell off one-half early last Fall. The demand for the pictures of Mary Anderson and Mrs. Langtry has continued uninterruptedly for the past seven or eight years. Men's tastes are much less fickle than women's. For instance, the photographs of popular actors vary in their demand as much as the styles in Spring bonnets. A few months ago Kyrle Bellew's photos sold better than any others in that class. Now there is hardly any demand for them at all. Since he began playing with Mrs. Potter his female admirers have deserted him. Maurice Barrymore is the present feminine idol, and his popularity only began when he was given a chance to play a romantic and heroic part in 'Captain Swift.'"

Photographing Typewriting.—The recently proposed English substitute for ordinary printer's composition is still being experimented with; that is, it has been proposed to photograph from typewriting, and, by reducing the plate at the same time to the size of ordinary pages of print, to place the resulting gelatine plate upon a printing press—this being used instead of the electrotypes made from metal types. For instance, a good typewriter operator can write neatly and with fair accuracy, upon the typewriter from dictation, about three times as fast as an expert with the pen; in fact, in some trials between the pen experts and the typewriter, the advantage on the score of rapidity has been overwhelmingly in favor of the latter, moreover, the latest typewriters insure a wonderfully clear and neat impression, and the use of capitals and small letters renders the page equal to anything in ordinary print. In the new system of work, therefore, the manuscript for a newspaper will be handed in to the editor as at present, either written out in long hand or upon the typewriter, and after correction, handed to an expert operator upon the typewriter to be written out in the shape best suited to the purpose. As soon as finished and corrected, the typewritten sheet or column is fitted into a page, perhaps three or four times the size desired for the printed newspaper, and when this dummy is full a photographic copy is made of it, the camera reducing it in size to the dimensions of the printed newspapers, and from this negative is made the gelatine plate for the press.

Every-Day Science.—If, on the one hand, we have frequent cause for astonishment at the rapidity with which modern life is being transformed under the influence of scientific invention and discovery, we are, on the other, sometimes compelled to wonder at the extreme slowness with which certain useful and entirely practicable reforms, plainly indicated by acknowledged scientific principles, are adopted by the public. There is a law in these matters which has perhaps never been very clearly formulated, but which it would certainly be desirable to understand. The telephone makes its way everywhere without pause or check, and the same is true of electric lighting and traction; while scientific cookery, though its general princi-

ples may be said to be fully established, lags painfully behind. That the latter is a matter of the utmost importance, economically and hygienically considered, needs no laborious demonstration; yet how to interest the public in it seems to be a most difficult problem. People who go wild over the New Jerusalem of "Looking Backward" listen with cold indifference when it is explained to them how they can introduce here and now a most important amelioration in their own lives by economizing at once their worldly substance and the wear and tear of their physical organs. The fact that the reform in question would be particularly beneficial to the so-called "working classes" fails to commend it to those who want a revolution or nothing. It is probably the case that men in general are more interested in spending than in saving, just as they have more admiration to bestow on a great warrior than on a great philanthropist; and that, consequently, inventions that represent and call for expenditure are more attractive than those which simply promote economy. More than one modern "improvement," we doubt not, has been adopted by many, as much from the pleasure of spending and—perhaps a more potent consideration still—of appearing to be able to spend the money required to procure it, as from a sense of its utility.—*From the Editor's Table, in the Popular Science Monthly for December.*

The Necessity for Varnishing Gelatine Negatives.—This is an operation that is too often neglected by amateurs. "I wish to sound a word of warning in connection with this matter," writes Prof. W. K. Burton, in the *Amateur Photographer* of recent date. I say that it is only a question of time—and not of immensely long time—how long a gelatine negative will last, but that the time will be much less in the case of unvarnished than in the case of varnished negatives. The reason why I speak with such confidence is that I live now in a climate (that of Tokio, Japan) in which the influences tending to the destruction of gelatine negatives—damp and heat chiefly, and especially if combined—are of the same nature as those at home, but are so much more intense that the average life of negatives is probably only a tenth part here what it is at home. One has thus an opportunity—by no means a delightful thing—of observing much more readily the destruction of films, and one thing that is evident is, that the amount of protection afforded by varnish is very great.

A Method of Photo-Engraving direct on wood is announced from Russia. The wood is boiled in a solution of sulphate of copper, and afterward in a solution of carbonate of soda, which fills the pores with insoluble carbonate of copper. The block is then dried, its face brightly polished, and the sides and back coated with an asphalt varnish. The face is coated with bichromated gelatine, and after printing is developed with warm water, as in the carbon process. A coat of asphalt varnish, carefully applied, adheres only to the portions from which the gelatine has not been removed. The block thus protected with varnish is placed for an hour in strong nitric acid, and then for an hour in strong sulphuric acid. When taken from the acid the unprotected parts of the wood will be found to be eaten away, and the block may be cleaned by rubbing with a hard brush. The varnish on the face is removed by soaking in benzine and the block is at once ready to print from. While this process may be satisfactory for reproducing diagrams and coarse line drawings, for any fine works, printing on paper and transferring to the block, so that the print may be developed from behind, would be far more likely to give clear and perfect results.

Photographic Societies.

BUFFALO CAMERA CLUB.

At the annual meeting of the Buffalo Camera Club, held November 16th, the following officers were elected for the ensuing year:

President, Dr. G. F. Hunter Bartlett.
Vice-President, Charles W. Hamlin.
Treasurer, Charles E. Hayes.
Recording Secretary, George J. Bailey.
Corresponding Secretary, E. F. Hall, 306 Main Street, Buffalo, N. Y.
Directors—Dr. Bernard Bartow, Thomas Cary Welsh, Edwin L. Burdick, George R. Howard.

CASE SCHOOL CAMERA CLUB.

Our first regular meeting of the season was held Friday, November 22d. A combination demonstration of the virtues of nuktigonia and eikonogen was given by Professor A. W. Smith and M. B. Punnett. A lantern slide plate was exposed and developed in ordinary gas light by the addition of nuktigonia to the eikonogen developer. An ordinary eikonogen developer was used with the variation of more of the eikonogen solution than stated in the formula and none of the hypo-bromide solution. Excellent results were obtained.

The amount of water given in the ordinary formula was found insufficient to dissolve the amount of eikonogen. The club intends at some future meeting to make experiments with regard to the advantages and disadvantages of adding different red and orange coloring matter to the developer as protectors from actinic rays.

HOBOKEN CAMERA CLUB.

On November 1st, Professors Randall Spaulding, Charles Ehrmann, and F. C. Beach, Esq., served as a jury at the competitive exhibition of this club.

The contestants, twelve in number, presented five classes of photographs, namely, landscapes, interiors, marine views and genres, and animals. There were nearly three hundred pictures to be considered. Every exhibit was subjected to careful criticism. When the work was done, the judges and members of the club enjoyed a sumptuous collation, after which followed the inevitable group photographing by magnesium "flash" light. This was conducted by Mons. de la Potterie, an honorary member of the club and a professional photographer of old reputation.

LOWELL CAMERA CLUB.

The annual meeting of the Lowell Camera Club, postponed from the 19th, was held November 25, with a good attendance. The old board of officers was re-elected. The board is William P. Atwood, President, C. J. Glidden, Vice-President, George A. Nelson, Secretary, Henry W. Barnes, Treasurer.

The constitution was amended so as to provide for a librarian, and B. L. Williams was elected to that office. Provision was also made for Associate Members and the assessment increased. Three (3) new members and two (2) associate members were elected. The entertainment for the evening was varied and interesting. Dr. M. G. Parker gave a brief description of a few of his slides of lightning flashes. Later in the season he his to give an evening to the subject. A set of pictures of representatives of the different Indian tribes and their dwellings was particularly interesting. The natural wonders of the Yellow Stone River region were finely brought out upon the screen, showing the geysers, the cañons and the waterfalls. These slides were loaned to the club by the Hon. Charles H. Allen.

THE first annual exhibition of photographic work by the Lowell Camera Club, held from November 12 to 16 inclusive, was the most successful exhibition yet held by Lowell amateurs. There were 820 prints hung upon the walls of Morrill's studio. These included eight bromide enlargements and fifty bromide prints. Twenty-four exhibitors represented, all but three of whom were club members.

The quality of the work shown was of a much higher order than that of any previous local exhibition, which is very encouraging both to the exhibitors and to others who are helped indirectly by the work of the club. The object of these exhibitions is to afford an opportunity for all interested to compare the best work of the year, of members and other local amateurs. Such exhibitions tend to raise the standard of work of all concerned. Judging from indications the interest in amateur photography is very much increased even among those who have not tried to practice it. There was a good attendance upon the exhibition throughout the week.

George A. Nelson,
Secretary.

LYNN CAMERA CLUB.

THURSDAY evening, Nov. 21st, a good sized audience composed of members of the Lynn Camera Club and their friends, occupied Association Hall for the second public entertainment given under the auspices of the camera club. During the first part of the evening the following programme was rendered by Chase's orchestra and Charles H. Currier, assisted by Melvin Rhodes and Bert Alexander:—Orchestra, Crown Prince March: recitations, a. "The Dutchman Setting the Hen;" "Mother's Doughnuts," Charles H. Currier; cornet solo, Culvia Polka; recitation, "No. 5 Collect Street," Charles H. Currier; piccolo solo, "Golden Robin;" orchestra, medley.

At the close of this portion of the evening's entertainment, Mr. Millburn, of the Eastman Dry Plate and Film Company, made two flash-light pictures of the audience, on the new Eastman transparent film, both in a large camera and in one of the Kodaks. The hall was then lighted by the rays from the stereopticon, while Walter G. Chase stepped forward on the platform and began his illustrated talk on "Life Among the Shakers." Mr. Chase evidently spent his time among this peculiar people with good results, for he exhibited some very fine views of the place, and photos of the inhabitants. This portion of the talk was over all too soon to suit the audience, and then came the instantaneous pictures taken by Mr. Chase.

Among the most interesting were those of Mrs. Monmouth and her dwelling, the "Economistes," and the Nahant series of views, including many superb wave effects. One colored view aroused great applause, as it showed what fine effects may be obtained by floating in the colors. The now celebrated picture. "A Many Headed Model," which has been copied by the London papers and the leading photographical journals of this country, won the admiration of the audience. The ghost pictures were fine examples of this class of work, while the "Kodaks," with some of the strange distortions produced by these little instruments, were extremely good. The entertainment closed with the throwing on the screen of the negative of the flash-light taken of the audience in the Kodak in the early part of the evening. As an illustration of what can be done in photography this picture was really remarkable.

THE NEW ORLEANS CAMERA CLUB.

AT the annual meeting of the New Orleans Camera Club, held Wednesday evening, November 27th, President H. T. Howard occupied the chair and nineteen members answered roll call.

The minutes of the preceding meeting were received as read.

A communication from the Shreveport Camera Club was received.

The report of the Treasurer, Mr. P. E. Carriere, was read and approved, and showed a handsome balance in the treasury.

The report of the Secretary, Mr. C. H. Fenner, was approved as read, and showed a membership of 71 active, 11 honorary, and 4 corresponding members. The names of four ladies appear on the rolls.

Mr. A. L. Du Quesnay stated, on behalf of the lantern committee, that during the year eight public lantern slide exhibitions had been given.

Mr. Howard, on behalf of the governing committee, gave a resume of the year's work and read a number of rules, which were adopted unanimously.

The report of the purchasing committee, through its secretary, Mr. R. S. Charles, Jr., was approved as read, and an unanimous vote of thanks tendered the retiring committee for the admirable manner in which they have conducted the construction of the dark-room, the plan of which was devised by Mr. A. L. Du Quesnay.

Under the head of new business, Mr. Carpenter, chairman of the benefit committee, reported that a handsome sum had been realized from the sale of tickets, the proceeds of which was to be set aside for the embellishment of the club. Mr. Carpenter stated that he wished to particularly thank Messrs. S. L. Mitchell and B. C. Shields for valuable services rendered.

Mr. Carpenter was tendered an unanimous vote of thanks as chairman of the committee and also as lecturer.

Mr. Carpenter moved that the governing committee have full power to make all rules and regulations for the government of the dark-room and to enforce them.

The applications of Messrs. B. J. De Grange, Rev. G. A. Rouxel, N. S. Hoskins, W. T. Maginnis, W. E. Underwood, Mrs. Garrett Brown and Mr. Garrett Brown were read, and they were unanimously elected to membership.

The election of officers for the ensuing year now being in order, Mr. H. T. Howard was re-elected President

Mr. Jos. A. Hincks, Vice-President; Mr. R. S. Charles, Jr., Secretary; Mr. P. E. Carriere, Treasurer.

The following committees were appointed to serve for the ensuing year:

Finance Committee—S. L. Mitchell, chairman; B. C. Shields and Chas. H. Fenner.

Membership Committee—Dr. Wm. R. Mandeville, chairman; James Moulton and George H. Dwyer.

Lantern Committee—Horace Carpenter, chairman; Placide Reynes, L. E. Bowman, T. W. Castleman and Reeve Lewis.

For the complimentary lantern slide exhibition, Friday, 29th instant, at which the Louisville Camera Club slides will be shown, Mr. Horace Carpenter was appointed lecturer.

PHOTOGRAPHY AT THE BROOKLYN INSTITUTE.

AMONG the youngest departments at the Brooklyn Institute on Washington Street is that devoted to photography, and the new section is already developing the characteristics of a popular society. At the present rate of increase the department will, before the winter is out, be the largest at the institute. The natural centre of such a society is the laboratory, or dark room, and it is upon the construction of such quarters at the institute that an active committee has been working for some time. November 12th the dark-room, partly completed, but sufficiently advanced to show the general arrangement of the quarters, was thrown open for the inspection of members. The mysteries of such a laboratory, wholly unintelligible to the uninformed outsider, gave much delight to the photographic enthusiasts. In addition to a fully equipped developing room with three developing sections, washing boxes, lockers for members, chemical closets, etc., there is to be an upper gallery for enlarging by daylight, portraiture printing, etc., with every convenience for those who find it inexpedient to make their experiments at home. When completed the dark-room and gallery will be as modern and as ample as anything of the kind in either New York or Brooklyn. Close to the dark-room is a large room which the department will use as a species of library, where records, photographic magazines, books, prints, etc., will be filed and exhibited, the regular meetings taking place in the upper hall of the institute, where a first-class projecting lantern, with oxohydrogen light, is ready for use at the monthly gatherings of the members.

Last night's meeting was the second of the season, President Alexander Black presiding. Dr. H. P. Dawe read a highly interesting paper on "The Chemistry of Photography," in which the chief scientific principles of the photographic method were admirably outlined. The doctor sketched the history of photography as bearing on the chemical evolution of the art,

Mr. Wallace Gould Levison, president of the Brooklyn Academy of Photography, made a black board demonstration of some recent experiments in ascertaining the speed of camera shutters, and Professor Peckham, of Adelphi Academy, exhibited a glass negative plate from which the film had been stripped and upon which was shown an etching effect produced by the developer.

The president reported upon some satisfactory experiments with the new developer, eikonogen, which was declared to be the most efficient and versatile of all modern developing agents. A group of lantern slides made with the new developer and illustrating some summer excursions of the department were then exhibited. Professor Peckham contributed some highly interesting instantaneous diving pictures to the lantern exhibit of the evening, and Dr. Dawe also showed miscellaneous pictures.

The commencement of the plans for the department laboratory has had a marked effect upon the membership of this enterprising section of the institute.

THE CHICAGO CAMERA CLUB.

THE regular monthly meeting of the Chicago Camera Club was held at the club rooms, No. 182 Wabash Avenue, Thursday evening, November 14th, President Williston in the chair. The attendance was large. After the transaction of some regular business, the Secretary called the attention of the members to two new view cameras recently purchased. A 6½x8½ "St. Louis" Camera, with Dallmeyer R. R. Lens and Prosch shutter, and a 4¼x6½ Universal Camera with Baush & Lomb Lens and Shutter. These have been purchased for the use of members of the club, and may be taken from the club rooms for not exceeding twenty-four hours without charge. Attention was also called to several new pictures adorning the walls, including Rosch's "Evangeline," which captured the first prize at the Boston Convention.

Also a large album containing about one hundred cabinet photographs of celebrities by leading artists, which the members might use as examples in lighting and posing.

The chair then announced that the club had imported specimens (probably the first in America) of the new developing agents, pyrocatechin and para-phenylendiamin. Samples had been given to various members to experiment with and reports were asked for from Profs. Garrison and Bartlett, Dr. Nicol, and Messrs. Morrill and Harley. While it is unnecessary to give the report in detail, we will try and mention the principal points. Pyrocatechin is a feathery substance of light straw color, and with a strong odor of carbolic acid. It dissolves readily in water, and is said to be fifteen times the strength of hydrochinon (which we doubt, though the writer developed successfully a 6½x8½ plate in a solution containing only one grain of pyrocatechin). The normal developer (made with carbonate of potash), works a trifle slower than a normal pyrogallol developer and gives less density, but produces negatives of crystal clearness in the shadows, and of fine printing quality.

A transparency was shown which had lain for *two hours* in an old solution (being under-exposed) and had resulted in a perfect picture, and without a stain. The foreign formulas state that pyrocatechin solutions can only be used once, but Dr. Nicol had disproved this by developing twelve plates in the same solution, in an interval of two weeks, the last one being the transparency above mentioned. Para-phenylendiamin had not so many friends, a substance resembling eikonogen (but evidently of entirely different composition.)

It dissolves readily, and is used used without sulphite, which would seriously retard its action. The formula, we think, has never been published, so we give it here. Make a solution of one part of para-phenylendiamin to fifty

parts of water. Take one volume of this with two volumes of a ten-per cent solution of carbonate of potash. Development proceeds very slowly, and results in a negative of a slightly brown, or wine-colored tinge, very clear in the shadows, but somewhat lacking in density. On the whole, it was concluded that neither possessed the good qualities of eikonogen, and if they did, their present high price would be prohibitory, as pyrocatechin now costs about seven dollars an ounce and para-phenylendiamin about one dollar and a quarter. Negatives were shown giving comparative results in which eikonogen was far in the lead in regard to both detail and time, though the impression seemed general that pyrocatechin might be a perfect developer for lantern-slides and other work requiring absolute clearness in the unexposed portions of the plate. The room was then darkened, and the members were entertained with Mr. Buehler's lantern-slide "Trip Around the World," and a series of views taken by Dr. Matteson in Alaska, which were thrown upon the screen with the McAllister lantern.

Fred. K. Morrill,
Secretary.

The Editorial Table.

"The American Annual of Photography and Photographic Times Almanac for 1890."

The fourth issue of this representative photographic publication is now before us, and we realize our inability to do it justice in the limited space at our disposal. We can only call attention to some of its leading features and direct our readers to the publication itself. The advertisement in The Phtoographic Times gives a list of the full-page plates as well as a list of the contributed articles. In that list it will be seen that the full-page pictures reach the unprecedented number of *twenty*. There are also many pictorial plates throughout the advertisements, and illustrating special articles. The articles are more than usually interesting and valuable. A glance at the list gives a fair idea of this department of the book, but only by reading them can one gain an adequate impression of their importance.

Improvements have been made also in the regular departments devoted to societies, standard formulæ, and useful information, the matter being thoroughly revised and greatly enhanced, yet so condensed that it does not encroach upon other departments of the book.

It is bound, as usual, in paper and in cloth, at the customary price of fifty cents in paper; library edition, one dollar. It is so heavy this year that fourteen cents additional is charged for postage where the copies are sent by mail. With The Photographic Times for one year, it is sent for five dollars and a half, post-paid.

Montclair—A Series of Photo-Gravures from Nature, by W. I. Lincoln Adams.

This is a collection of copperplate engravings made by Mr. Adams, during the past several years, in the picturesque town and neighborhood of Montclair, New Jersey. It consists of twelve plates, though about thirty pictures are shown, and represents the lovely town and country under the varying aspects of the four seasons. It is not so much a collection of photographs of the principal streets, buildings, etc., as a preservation of the rarer beauties of wood and hill which so rapidly disappear in the changes of material growth. The collection is most interesting, of course, to those who are more or less familiar with the subjects which it depicts, but most of the plates are pictures in themselves, that do not depend on local interest in order to be appreciated. Our readers have already seen one of the plates, namely, "New Jersey Woodlands," as it appeared in the issue of July 5th. It is a fair specimen of the work. Other pictures are "In the Woods," "Ponds," "Rocks and Wood," "Wood and Water," "Spring," "Summer," "Autumn," and "Winter." "Under the Willows" is a winter moon-light view, especially effective in the photo-gravure.

The collection is secured by a silk cord in flexible covers especially designed for it by the artist, Mr. W. J. Mozart, of Brooklyn, and is put up in a neat paper box. It is priced at four dollars, and only a hundred and fifty copies have been made.

Die Photographie mit Bromsilber Gelatine von Prof. Dr. Josef Maria Eder. 4th Edition. Wilhelm Knapp Halle, a/S.

This, the third part of Dr. Eder's universally acknowledged great work on photography has gone through three editions, separate and individual. The fourth is now before us, greatly augmented with all the newest inventions and improvements; it is one of the most instructive and detailed handbooks on emulsion-photography published.

Emulsion making with bromide and chloride of silver, coating of glass plates and other supports is thoroughly described, and equal attention is given to exposing, developing, and stripping. Valuable instruction in orthochromatic methods, enlargements and, in fact, in every branch of gelatine emulsion work is added.

Dr. Eder's publications have earned a world-wide reputation, and although there are but few of them translated into foreign languages, they are extensively studied in America and England, at least by many amateurs and professionals conversant with German.

We recommend the conscientious reading of this newest and most instructive contribution to photographic literature.

Lehrbuch der Photographishen Chemic und Photochemic von Prof. Alexander Lainer. Wilhelm Knapp Halle, a/S.

The author of this valuable book is well known to our readers from translations of his original articles in *Photographishe Correspondenzen.*

His efforts to give practical photographers a popular and comprehensive handbook of chemistry, interwoven with explanations of photo-chemical processes and theories deserve the highest praise, because of the thoroughness of instruction given, and the selecting of matter that is most valuable in daily practice.

Ueber die Bedeutung und Verwendung des Magnesium Lichtes in der Photographie, von Dr. Max Müller. Weimar. Karl Schwier.

The author describes the different methods of photographing by magnesium flash-light adopted by several well reputed artists, and advises the use of lamps, reflectors

and apparatus constructed to absorb the smoke arising from the burning of the magnesium. To objectives best adapted for flash-light work much attention is paid, and tables tell of the quantities of magnesium requisite to give sufficient light for thorough exposures in proportion to stops used, and the distance of the subject from the source of light.

A very instructive and useful little book in the practice of flash-light photography. It is illustrated with a portrait study by Gottheil, and a view of a cave from the roof of which hang fancifully formed stalactites.

Under the name *Freie Photographische Vereinigung*, a new amateur club has been formed at Berlin, and held its first meeting on October 26th.

Among its members are such eminent scientists and photographers as Captain E. Himely and Doctors Pfeiffer, Bannord and Stinde.

We wish the new society all possible success.

Lux, a new illustrated photographic monthly, edited by A. D. Loman and Charles Shuver, and published by M. Olivior, in Amsterdam, made its first appearance in October last. It is written in the Dutch language. Among other articles contained in the first number, we notice a particularly interesting one on "Instantaneous Photography and Positive Printing.

No. 1 of Volume I of another new photographic paper entitled "The Camera" comes to our table. It is a three page paper put out by the Hoboken Camera Club, containing a historical sketch, and information of that club, and the programme of an entertainment recently given under its auspices. We presume that future numbers will be issued.

The first photographic annual to appear for the year 1890, is, as usual, *Liesegang's Photographisher Almanack und Klender.*

The publishers have retained its usual shape and form. There is the calendar with the dates of events interesting to photographers, useful recipes and formulæ, a very well written article on "Progress in Photography," and several others on special topics.

The almanack is embellished with several antotypes from negatives by Wilhelm Dreesen, of Hensburg.

From Mr. Nelson Shattuck, of Detroit, Mich., we have received an excellent cabinet showing a group of two cats and five kittens. The picture was, of course, taken instantaneously, and represents the animals in a variety of positions. Such pictures are of great value to animal painters.

Record of Photographic Patents.

416,290.—Apparatus for exhibiting panoramic views and the like. Robert Esché, Geneva, Switzerland.

416,440.—Shutter for Photographic Cameras. August Chronik and Louis Chronik, New York, N. Y.

416,621.—Combined photographic and card file. Daniel H. Howd, Paterson, N. J.

416,650.—Photographic Camera. Carl P. Stirn, New York, N. Y.

What a pity it is, says an exchange, that there were no photographers in Adam's time; it would have been so nice to have had pictures of the Adam family, and of dear little Abel and Sethy. As for Cain, he would have been in the rogue's gallery.

Queries and Answers.

247 TYRO asks if albumen prints must be toned in ruby light.

247 *Answer.*—Tone in subdued daylight. You would find it impossible to watch the toning satisfactorily in the ruby light of the dark room.

248 MISS CLARA P. W. asks if collodion plates can be developed with alkaline pyro.

248 *Answer.*—Washed collodion plates can, but wet collodion plates require acid pyro, or, what is still better, the ferrous sulphate developer. We know that you have "The Photographic Negative," by W. H. Burbank, and you will be thoroughly informed if you will read the chapters on the collodion processes.

249 ELLA G. W. asks what is the cause of brownish stains on prints made on Willis & Clement's new platinum paper. The stains seem to be within the tissue, and not on the surface of the paper, and are gradually growing darker.

249 *Answer.*—The prints are not properly fixed. Leave them in the hydrochloric acid water for a sufficient time, and move them occasionally. The final washing in water is as necessary as with silver prints.

250 PAULINE M. has a very good likeness of a dear friend, cabinet size, but the negative is too transparent on the shadow side of the face, to make a good print. Before the half tints of the light side are printed out sufficiently, the shadows are almost black.

250 *Answer.*—Cover the glass side of the transparent part of the negative with some non-actinic color—gamboge with a little gum arabic will do well—and print in the shade. Or, if the intensity be of the light part of the face, reduce it by rubbing with a linen rag dipped in absolute alcohol. If the part to be reduced is small, a leather stump or a pointed stick of soft wood will do better than the rag. Possibly by combining the two remedies, the best final result may be secured.

251 M. A. D. has been told that when Carbutt's "B" plates are exposed the tenth part of the stop number, in seconds, the time is invariably correct. Her own experience has not proved this to be true.

251 *Answer.*—The advice was probably taken from an article in the "American Annual of Photography for 1889," and it is quite right to follow that rule if the subject to be photographed is a landscape or marine view with unobstructed light. But the focal length of the lens must be considered, the color of the object and the distance it is from the camera, the conditions of light and atmosphere, and so forth. For example, if we had an open landscape to take with a Waterbury B lens, stop $\frac{f}{32}$, a Carbutt "B" plate would give a well exposed negative in three and a half seconds. But in photographing a cluster of trees of a group in the woods, it will be found that much more time is necessary to get the same result.

J.L. WILLIAMS, PHOTO.

PHOTO-GRAVURE CO. N.Y.

Winter in Shakespeare's Country.

THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, DECEMBER 20, 1889. No. 431.

WINTER.

SONG OF THE OWL.

WHEN icicles hang by the wall,
And Dick the shepherd blows his nail,
And Tom bears logs into the hall,
And milk comes frozen home in pail;
When blood is nipp'd and ways be foul,
Then nightly sings the staring owl,

To-who;
Tu-whit, to-who, a merry note,
While greasy Joan doth keel the pot.

When all aloud the wind doth blow,
And coughing drowns the parson's saw,
And birds sit brooding in the snow,
And Marian's nose looks red and raw;
When roasted crabs hiss in the bowl,
Then nightly sings the staring owl,

To-who;
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LOVE'S LABOR LOST.—*Act V., Scene 2.*

AMIEN'S SONG.

BLOW, blow, thou winter wind,
Thou art not so unkind
As man's ingratitude;
Thy tooth is not so keen,
Because thou art not seen,
Although thy breath be rude.
Heigh-ho! sing heigh-ho! unto the green holly;
Most friendship is feigning, most loving mere folly;
Then heigh-ho! the holly!
This life is most jolly.

Freeze, freeze, thou bitter sky,
That dost not bite so nigh
As benefits forgot;
Though thou the waters warp,
Thy sting is not so sharp
As friend remember'd not.
Heigh-ho! sing heigh-ho! unto the green holly;
Most friendship is feigning, most loving mere folly;
Then heigh-ho! the holly!
This life is most jolly."

AS YOU LIKE IT.—*Act II., Scene 7*

CHRISTMAS-TIDE IN SHAKESPEARE'S COUNTRY.

THE first of these exquisite Shakesperean gems is one of two songs which are sung in the park of Ferdinand, King of Navarre. It is a song to the owl—the bird of night and winter. I had often been in Shakespeare's country when the woods and fields were presided over by the cuckoo:

"When daisies pied and violets blue,
And lady-smocks all silver-white,
And cuckoo buds of yellow hue,
Do paint the meadows with delight,'

but I had never seen it in winter. In truth, there had been but little winter, as one understands the word who is accustomed to New England winters and Western blizzards, during the three years I had been in England. The seasons were changing the old countrymen about Stratford told me, and the old time winters when the beautiful undulating stretches of country in the Midlands of "Merrie England" were converted into the vast, billowy seas of silent whiteness I had so often pictured to myself, were becoming more and more a thing of the past.

The second song is sung by Amiens to the banished Duke in the Forest of Arden. "Well, this is the Forest of Arden," says Rosalind. "Ay," says Touchstone "now am I in Arden; the more fool I; when I was at home I was in a better place; but travellers must be content." The modern traveller in the English Arden is probably, for the most part, more comfortably situated than Touchstone was, and if he be a lover of Shakespeare and, what naturally follows, a lover of all things sweet and beautiful in nature, he will indeed be fortunate if he can say "when I was at home I was in a better place." Passing fair must be the land which could woo one away from the Warwickshire Arden when its blossoming fields smile beneath the soft, sunny sky of an English midsummer; when the white hawthorn hedges are converted into endless distilleries of the most exquisite perfume; when you watch the lark bounding upward into the blue and sending down a song which makes you envy him as the only creature that can adequately express what you feel. Can winter, at its best, have any charms which will not suffer in comparison with these? I should have answered most decidedly in the negative if anyone had asked me this question as I sat one summer afternoon on the hillside above the "Wier Brake"—the favorite strolling place of the Stratford lads and lasses on Sunday—and breathed in with the delicious air, all the beauty of that living panorama of the most sweetly, peaceful and pastoral country in the world. I should have answered in the negative as I sat one summer night beneath the great elms by the church which holds the dust of the great "poet of all time" and listen to the low, sweet murmur of the Avon at my feet and watched the mysteries of the midnight stars and was suddenly startled into ecstasy with hearing, for the first time in my life, the song of the English nightingale. A thought of winter would have seemed a discord in the music of those happy summer hours and yet,—I stood one January morning in these same spots and thought I had never seen anything so ideally beautiful, so almost unearthly in its dazzling splendor, as the glory of that winter day.

It came about in this way: I went up to London the last of October, having arranged with a friend in Stratford to telegraph me should there come a heavy fall of snow. I had hoped that this might happen some time during the holidays. I had it all most delightfully arranged in my mind. I should get a telegram some morning about Christmas time announcing the arrival of the long-looked-for snow storm. I should invite one or two congenial friends to run down to Stratford with me, where we should arrive early in the afternoon, go at once to the "Red Horse Inn," and order a Christmas dinner, being careful not to omit English plum pudding and some rare old port, which mine host keeps for such occasions, to be served in the cosy little Washington Irving Room. Then we should go for a ramble along down the river, across the white fields and over to the "Wier Brake." We should come home with an armful of holly to garnish our table, and appetites to do complete justice to the repast sure to be spread for us. I had left the rest of the picture to fill itself out as it naturally would under the circumstances, having learned by repeated experiences that there is quite sufficient healthy sentiment to be extracted from English roast beef and home-brewed ale to furnish the necessary material for such an occasion. Christmas came, and New Year's, but never the expected telegram.

London had been enshrouded in one of its midnight fogs for several days, when one afternoon it cleared up a little and I noticed as I walked along down the Bayswater Road past Hyde Park that a beautiful hoar frost was forming on the trees. An hour later the branches were quite heavy with it, and the thought came to me that if the frost deposit continued all night the effect in the morning, in the country, would be exquisitely beautiful. Would it extend as far as Stratford? I would chance it. I knew that I must be there quite early in the morning to see it at its best, for two or three hours of sunlight would end it all. A train would leave Euston at six o'clock in the morning. But Euston was two miles away, and there would be no Metropolitan trains or 'busses running at that hour, and I could not walk that distance and carry my camera and sufficient wraps to keep me from freezing during a four hours' ride in the English refrigerator cars. I went out to a cab-stand and on the strength of a half-crown deposit secured the faithful promise of a Jehu to be at the door at 5 o'clock in the morning. A hasty breakfast, and at the last minute there is the rumble of wheels and the cab lights shine through the darkness from the gate. It is too dark to discover by sight if the frost still remains on the trees, but I take hold of some shrubs in the garden and bring away a handful of the frozen crystals. An hour later the train draws out from the station. As I have the entire compartment to myself, I wrap my shawls and rugs about me, stretch out on the seat, and am soon sound asleep. We are more than half way to Stratford-on-Avon when I awake, it is past 8 o'clock and the sun is shining in through the car windows. With what eager expectancy I

scratch away the frost from the glass and peer out. Never shall I forget my first glimpse of the fairy-land which met my gaze. The scene was almost blinding in its dazzling brilliancy. Every blade of grass, the stem of every weed; the branches of the trees were centres from which projected the most exquisitely beautiful crystals, and every crystal was a prism in which the rays of sunlight were resolved into their primary colors. The effect was wholly different from anything I had ever before witnessed. I remember the delicate, feathery crystals had converted the telegraph wires into glittering ropes more than two inches in diameter. Even now, after the lapse of many months when the first overwhelming effects of that wondrous vision have long since passed away, as I go back in memory to the scenes of that morning it seems to me that words are utterly powerless to convey any adequate conception of the effects that I saw. It was one of the sights before which the speaking mechanism of the mind is hushed into that silence of awe which is the tribute we render to the Infinite during some few of the rare moments of life.

For an hour or more I watched from the car window this changing panorama of fairy land. The forest views seemed the most beautiful where the shining whiteness was relieved by a single touch of color—the green of the holly-leaves. There was something very singular and striking about this effect. All of the other evergreens were everywhere concealed; even the surface of the ivy leaves was completely covered. But the dark, glossy green of the holly was untouched save a delicate fringe of crystals which formed a framework about each individual leaf. Of course there was a bald scientific reason for this beautiful phenomenon, but at such a time one prefers to give fancy a free rein.

I reached Stratford shortly after 10 o'clock and during the next hour secured four photographs, which, while they but very poorly reproduce the wondrously beautiful effects as I saw them, are yet priceless to me for what they suggest. The one accompanying this poorly drawn pen picture was taken from the hillside above the "Wier Brake," a favorite walk along the river bank about a half mile below Stratford. It is one of the few places about Shakespeare's home which has remained almost unchanged from the poet's time. The country people have a legend that it was his favorite walk and that the forest scenery of "A Midsummer Night's Dream" was drawn from this locality. On that glorious morning it certainly was a scene worthy of the great Master's pen. The view looks toward Stratford and the spire of Holy Trinity Church which rises above the poet's grave is dimly seen through the crystalline vista of the branches of the rugged old English oak in the foreground.

J. L. Williams.

THE PHOTOGRAPHIC YEAR.

IT is our pleasant duty once more to record the progress which has been made in photography during the past year. The report on "The Progress of Photography in America," which was read at the Boston Convention of the P. A. of A. last August, and subsequently published in THE PHOTOGRAPHIC TIMES, has already covered most of the ground properly belonging to this brief summary. It may not be out of place, however, at this time, to recall some of the leading facts recorded in that report, especially those which refer to the progress made since January 1, 1889.

Celluloid, as a substitute for glass in photography, has evidently come to stay, and is fulfilling the expectations aroused by its introduction. It has been made so thin that large sheets may easily be coated and rolled upon the roll-holder for exposure. Celluloid has also been adopted by the manufacturers, as a material well suited for making focusing screens and other articles requiring great lightness and strength.

Magnesium is now used most extensively in a pure form for illuminating subjects by artificial light. Many ingenious lamps have been devised for flashing the metal, the pocket-lamp by the the Chevalier Augustus von Löhr being an excellent one.

In development hydrochinon has waxed and waned in popular esteem, and eikonogen has largely taken its place, especially among amateurs. Pyro continues to be largely used, however, by all classes of photographers.

The new principle in heliochromy, introduced by Mr. Frederick E. Ives, of Philadelphia, and announced at Boston, should be mentioned here. Mr. Ives continues his experiments in this interesting branch of photography. Lantern slides and photo-micrographs are being made in greater numbers than ever before, and the color-sensitive plate is being more largely used. Dry plates have improved in quality during the past year. Ameri-

can plates are now regularly exported to England and other foreign countries, where they are highly appreciated by the best photographers.

The formation of photographic clubs has gone on, there now being not less than seventy-five such societies in this country alone. The number of amateurs has also largely increased during the year.

A number of excellent photographic instruction books have made their appearance during the past twelve months, and four new monthlies have sprung into existence in the place of one which has ceased to exist.

The great growth in photographic instruction, especially through the Chautauqua School of Photography, should be mentioned at this time. This remarkable school, founded only three years ago, with a membership of but sixty-one students at the end of the first year, now numbers over one hundred and fifty members. The local classes are conducted at the Schools Headquarters in New York, under the personal supervision of Professor Ehrmann, the Instructor, and the regular Corresponding Classes go on as before. Last summer, at the Chautauqua Assembly Grounds, the practicing classes were larger, more enthusiastic, and accomplished more than ever before.

The improvements made in photographic optics and the manufacture of cameras, tripods and other apparatus, make it possible for photographic practical workers to do better work with greater facility than ever before. The outlook was never brighter for a new year. Let us all unite in making it one long to be remembered. It is with this expectation that THE PHOTOGRAPHIC TIMES wishes all its readers and friends a very merry Christmas and a happy and successful New Year!

PHOTOGRAPHY is like magician's charm—
We nurse the absent in affection warm;
Present the distant, and retain the dead—
Shadows remaining, but the substance fled;
For faces vanish like the dreams of night,
But live in portraits drawn by beams of light.
Exquisite Nature caught in changing dress;
Motion in photography appears at rest.

Friese Greene.

EDITORIAL NOTES.

THE Christmas Number of THE PHOTOGRAPHIC TIMES for 1889 is an accomplished fact. It has been in preparation for several weeks, and much time, effort and money have been put into it. The editors desire to acknowledge the generous assistance which has been rendered them by many of our readers, and hereby thank all those who have co-operated with them in preparing this number of the magazine. Thanks are also due, and cheerfully rendered, to the illustrating companies which have so ably assisted in the pictures they have furnished. As the result of the combined efforts of many, the issue goes to our readers and friends with the heartiest greetings from editors, publishers, and all and best wishes for a very merry Christmas and a happy and prosperous New Year.

WE wish to call the attention of our readers especially to the illustrations which embellish this issue. "Christmas-tide in Shakespeare's Country," as is noted on the photo-gravure plate, is from a negative by Dr. J. L. Williams, author of the "Milton's Cottage," which adorned these pages not many weeks ago. The word of reproduction is by the Photo-Gravure Company of New York, and speaks for itself, and does, indeed, all the high grade process work which is turned out by this company. In the interesting article on the subject, Dr. Williams gives our readers ample information.

The "Dog Portrait" is from a photographic copy of a painting reproduced by the Electro-Tint Engraving Company, and is an excellent specimen of another class of illustrative work. In another column more is said concerning this picture and process.

"The Façade of the Duomo of Florence" is reproduced from a film negative by W. J. Stillman, by the Electro-Light Engraving Company—Charles A. Breck, Manager—and shows still another excellent process of reproduction. It is, moreover, an excellent picture of a highly interesting subject; but the author of the negative himself states more about this picture and his negative on another page.

Then we have a lovely child picture by Husnik, of Prague, with an article descriptive of his method, which is termed "Leimtypie."

The numerous column cuts and illustrations are by various processes already familiar to the readers of THE PHOTOGRAPHIC TIMES.

TO THE articles in this number we can scarcely

call particular attention, as they are all so excellent, though varying in subject and treatment. We can commend all to our readers, feeling sure that they will be read with the interest and profit which they deserve. This number is presented to our readers as a Christmas offering by the publishers, and as a specimen of what THE PHOTOGRAPHIC TIMES will be throughout 1890. As opportunity occurs it will be still further improved. This number is mailed free to all subscribing for the year before January 1st.

WE have already referred to a few of the leading features of THE TIMES for next year, but it may not be out of place at this time to briefly recall some of them.

The illustrations will be of the highest order, both as to subject and method of reproduction. We have already secured negative from the very best photographic artists of this country and abroad, and invite the co-operation of all our readers to enlarge this collection.

The instructive series of pictures from abroad, by Dr. J. L. Williams, will be sure to be highly prized. In this and a previous issue of the journal he has shown what he can do with the camera.

Maxamillian Toch, another artistic amateur, illustrates a journey in the Torrid Zone by a collection of most beautiful negatives.

The prize-winners of the P. A. of A. exhibitions will be shown in photo-gravure, including work from such eminent photographic artists as President Appleton, Ex-President McMichael, O. P. Scott, George Barker, Napoleon Sarony, and others equally as gifted.

The reading matter will continue to be of the highest order. There will be instructive articles from practical photographers like C. P. Duchochois, Charles Ehrmann, Andrew Pringle, G. Watmough Webster, W. H. Sherman, J. R. Swain, W. H. Gardner, Karl Klauser, John Carbutt, Ernest Edwards, W. H. Pickering, and others as well-known.

The publishers desire to call attention to the premium offers announced on the back cover of this issue.

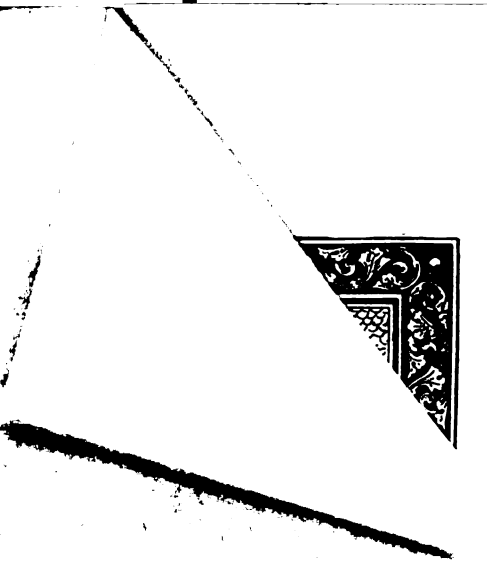
MOST of our readers will remember the marvelous perfection to which the pigeon post was developed by the aid of collodion photography during the time of the seige of Paris, and if we are to believe the Noroe Vremya these wonderful aerial voyagers are to be utilized in another direction to make photography subserve the schemes of men. Pigeons are taken with the rest of the ballast into the car of a balloon in which the æronaut is provided with camera and sensitive films. He makes his exposures, has of course no convenience for developing, and so secures his exposed film in the light-tight cover, attaches it to the pigeon's feet, and the bird when set free at once conveys it to the proper spot and its freight is quickly developed. This is a very pretty tale, but it requires a little rounding off by a description of the sensitive material employed, and the kind of support that sustains it, and a little description of how all this securing of the film against light is arranged in the open car of a balloon.

ACCORDING to our European contemporary, "Humboldt," the Berlin Society for Ballooning are about to employ a novel attempt to employ photography to the purposes of meteorology. The endeavors to ascertain the rate at which the temperarure of the air decreases according to its altitude are, naturally, surrounded with great difficulties, which, however, it is hoped to solve in the following way: A small balloon will be provided with a. thermometer connected with an electric circuit in such a way that, when a certain temperature is indicated, the current will produce a light, which in turn will impress itself upon a photographically sensitive surface. The chemical means will be employed for registering the height attained at the moment when the temperature is registered.

IF any of our readers should desire during the winter to try a little astronomical work with their ordinary photographic appliances there need be no difficulty experienced, for, with the wide apertures of a portrait lens, for example, exposures might be made of sufficient rapidity to reduce to a negligeable minimum the blurring effect of the earth's rotation. But for Stellar work the extending of a point of light to a line, (which would be the effect of a more lengthened exposure), far from being a defect might be just the opposite; for it would serve to discriminate the image of the stars from the effect of the presence of any opaque spot of dust, etc., within the texture of the film. It may be that some of our readers might wish to try the moon as a subject, but were in doubt as to the size of the image their lenses would give. It is very easy to calculate this matter out with the result that, speaking very roughly, the image on the plate would be about the hundredth part of an inch for every inch of focus. Thus a twenty-inch focus lens would give about $\frac{20}{100}$, or $\frac{1}{5}$ of an inch image. More exactly:

J. L. WILLIAMS. PHOTO. PHOTO-GRAVURE CO. N.Y.

Winter on Shakespeare's Cornbury.



THE PHOTOGRAPHIC TIMES.

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The second song is sung by Amiens to the banished Duke in the Forest of Arden. "Well, this is the Forest of Arden," says Rosalind. "Ay," says Touchstone "now am I in Arden; the more fool I; when I was at home I was in a better place; but travellers must be content." The modern traveller in the English Arden is probably, for the most part, more comfortably situated than Touchstone was, and if he be a lover of Shakespeare and, what naturally follows, a lover of all things sweet and beautiful in nature, he will indeed be fortunate if he can say "when I was at home I was in a better place." Passing fair must be the land which could woo one away from the Warwickshire Arden when its blossoming fields smile beneath the soft, sunny sky of an English midsummer; when the white hawthorn hedges are converted into endless distilleries of the most exquisite perfume; when you watch the lark bounding upward into the blue and sending down a song which makes you envy him as the only creature that can adequately express what you feel. Can winter, at its best, have any charms which will not suffer in comparison with these? I should have answered most decidedly in the negative if anyone had asked me this question as I sat one summer afternoon on the hillside above the "Wier Brake"—the favorite strolling place of the Stratford lads and lasses on Sunday—and breathed in with the delicious air, all the beauty of that living panorama of the most sweetly, peaceful and pastoral country in the world. I should have answered in the negative as I sat one summer night beneath the great elms by the church which holds the dust of the great "poet of all time" and listen to the low, sweet murmur of the Avon at my feet and watched the mysteries of the midnight stars and was suddenly startled into ecstasy with hearing, for the first time in my life, the song of the English nightingale. A thought of winter would have seemed a discord in the music of those happy summer hours and yet,—I stood one January morning in these same spots and thought I had never seen anything so ideally beautiful, so almost unearthly in its dazzling splendor, as the glory of that winter day.

It came about in this way: I went up to London the last of October, having arranged with a friend in Stratford to telegraph me should there come a heavy fall of snow. I had hoped that this might happen some time during the holidays. I had it all most delightfully arranged in my mind. I should get a telegram some morning about Christmas time announcing the arrival of the long-looked-for snow storm. I should invite one or two congenial friends to run down to Stratford with me, where we should arrive early in the afternoon, go at once to the "Red Horse Inn," and order a Christmas dinner, being careful not to omit English plum pudding and some rare old port, which mine host keeps for such occasions, to be served in the cosy little Washington Irving Room. Then we should go for a ramble along down the river, across the white fields and over to the "Wier Brake." We should come home with an armful of holly to garnish our table, and appetites to do complete justice to the repast sure to be spread for us. I had left the rest of the picture to fill itself out as it naturally would under the circumstances, having learned by repeated experiences that there is quite sufficient healthy sentiment to be extracted from English roast beef and home-brewed ale to furnish the necessary material for such an occasion. Christmas came, and New Year's, but never the expected telegram.

London had been enshrouded in one of its midnight fogs for several days, when one afternoon it cleared up a little and I noticed as I walked along down the Bayswater Road past Hyde Park that a beautiful hoar frost was forming on the trees. An hour later the branches were quite heavy with it, and the thought came to me that if the frost deposit continued all night the effect in the morning, in the country, would be exquisitely beautiful. Would it extend as far as Stratford? I would chance it. I knew that I must be there quite early in the morning to see it at its best, for two or three hours of sunlight would end it all. A train would leave Euston at six o'clock in the morning. But Euston was two miles away, and there would be no Metropolitan trains or 'busses running at that hour, and I could not walk that distance and carry my camera and sufficient wraps to keep me from freezing during a four hours' ride in the English refrigerator cars. I went out to a cab-stand and on the strength of a half-crown deposit secured the faithful promise of a Jehu to be at the door at 5 o'clock in the morning. A hasty breakfast, and at the last minute there is the rumble of wheels and the cab lights shine through the darkness from the gate. It is too dark to discover by sight if the frost still remains on the trees, but I take hold of some shrubs in the garden and bring away a handful of the frozen crystals. An hour later the train draws out from the station. As I have the entire compartment to myself, I wrap my shawls and rugs about me, stretch out on the seat, and am soon sound asleep. We are more than half way to Stratford-on-Avon when I awake, it is past 8 o'clock and the sun is shining in through the car windows. With what eager expectancy I

scratch away the frost from the glass and peer out. Never shall I forget my first glimpse of the fairy-land which met my gaze. The scene was almost blinding in its dazzling brilliancy. Every blade of grass, the stem of every weed; the branches of the trees were centres from which projected the most exquisitely beautiful crystals, and every crystal was a prism in which the rays of sunlight were resolved into their primary colors. The effect was wholly different from anything I had ever before witnessed. I remember the delicate, feathery crystals had converted the telegraph wires into glittering ropes more than two inches in diameter. Even now, after the lapse of many months when the first overwhelming effects of that wondrous vision have long since passed away, as I go back in memory to the scenes of that morning it seems to me that words are utterly powerless to convey any adequate conception of the effects that I saw. It was one of the sights before which the speaking mechanism of the mind is hushed into that silence of awe which is the tribute we render to the Infinite during some few of the rare moments of life.

For an hour or more I watched from the car window this changing panorama of fairy land. The forest views seemed the most beautiful where the shining whiteness was relieved by a single touch of color—the green of the holly-leaves. There was something very singular and striking about this effect. All of the other evergreens were everywhere concealed; even the surface of the ivy leaves was completely covered. But the dark, glossy green of the holly was untouched save a delicate fringe of crystals which formed a framework about each individual leaf. Of course there was a bald scientific reason for this beautiful phenomenon, but at such a time one prefers to give fancy a free rein.

I reached Stratford shortly after 10 o'clock and during the next hour secured four photographs, which, while they but very poorly reproduce the wondrously beautiful effects as I saw them, are yet priceless to me for what they suggest. The one accompanying this poorly drawn pen picture was taken from the hillside above the "Wier Brake," a favorite walk along the river bank about a half mile below Stratford. It is one of the few places about Shakespeare's home which has remained almost unchanged from the poet's time. The country people have a legend that it was his favorite walk and that the forest scenery of "A Midsummer Night's Dream" was drawn from this locality. On that glorious morning it certainly was a scene worthy of the great Master's pen. The view looks toward Stratford and the spire of Holy Trinity Church which rises above the poet's grave is dimly seen through the crystalline vista of the branches of the rugged old English oak in the foreground.

J. L. Williams.

THE PHOTOGRAPHIC YEAR.

IT is our pleasant duty once more to record the progress which has been made in photography during the past year. The report on "The Progress of Photography in America," which was read at the Boston Convention of the P. A. of A. last August, and subsequently published in THE PHOTOGRAPHIC TIMES, has already covered most of the ground properly belonging to this brief summary. It may not be out of place, however, at this time, to recall some of the leading facts recorded in that report, especially those which refer to the progress made since January 1, 1889.

Celluloid, as a substitute for glass in photography, has evidently come to stay, and is fulfilling the expectations aroused by its introduction. It has been made so thin that large sheets may easily be coated and rolled upon the roll-holder for exposure. Celluloid has also been adopted by the manufacturers, as a material well suited for making focusing screens and other articles requiring great lightness and strength.

Magnesium is now used most extensively in a pure form for illuminating subjects by artificial light. Many ingenious lamps have been devised for flashing the metal, the pocket-lamp by the the Chevalier Augustus von Löhr being an excellent one.

In development hydrochinon has waxed and waned in popular esteem, and eikonogen has largely taken its place, especially among amateurs. Pyro continues to be largely used, however, by all classes of photographers.

The new principle in heliochromy, introduced by Mr. Frederick E. Ives, of Philadelphia, and announced at Boston, should be mentioned here. Mr. Ives continues his experiments in this interesting branch of photography. Lantern slides and photo-micrographs are being made in greater numbers than ever before, and the color-sensitive plate is being more largely used. Dry plates have improved in quality during the past year. Ameri-

if the focus in inches be multiplied by .009 we shall get the size in inches, or decimals of an inch, of the image of the moon produced by that lens. This calculation (which for those unfamiliar with decimals may be put in another way, thus: multiply the focus by nine and divide by one thousand) is simply founded on the decimal, .009 being the value of the natural tangent of the angle of the moon's diameter appears to subtend to the eye.

Prof. Husnik was a co-laborer of Joseph Albert in the perfecting of the lichtdruck, his successful experiments with carbon printing will never be forgotten, and the improvements made by him in similar processes have placed him in the foremost rank of mechanical printers. His book on lichtdruck and other processes has become a standard source of instruction, and by its aid many men have been educated in their profession.

LEIMTYPIE.

THE photo-mechanical reproduction which we present to the readers of the PHOTOGRAPHIC TIMES herewith, illustrates one of the newest and withal one of the most interesting processes of printing photographs upon the ordinary type-press. The inventor of this process, Prof. Jacob Husnik, of Prague, Bohemia, calls it Leimtypie, which, rendered into English, would be best expressed by "Collotypy" or "gelatine relief printing."

The new process of leimtypie is based upon the well known property of gelatine to become hard, to oxidize under the influence of light with the pressure of bichromate salts; and resembles in its main features the photo-engraving process known by the name of "the wash-out" process, with this great difference, however, that with the latter, line or stipple work, only can be wrought into a printable plate, while a leimtypie is the reproduction of a half tone photo in relief and printable upon the type press. The advantages of the leimtypie over zinc etchings of similar character are simply in the more rapid way of producing them, and the enormous resistant power a gelatine plate hardened by light and chromate salts, offers the pressure of the printing machine.

Husnik accomplishes the preparing of durable gelatine reliefs of sufficient depth, exact reproductions of the original, by developing the chromated gelatine film with saturated solution of bichromate of salts on the front side of the film, that is the side exposed to light, by wiping or rubbing it with cold solutions, repeated exposure, hardening of the surface and sides of the film, and finally by a second development.

The fact of Husnik's developing the image with saturated solution of bichromate salts shows a new, heretofore not known, property of the chromates. As experiments have proved, these salts offer advantages over acids; not only like acids do they dissolve the non-exposed portion of the gelatine, but harden to a much higher degree the exposed parts to be developed, and intensify by contact with them the impression produced by the action of light. In this manner a prolonged development can be resorted to, resulting, naturally, in a much higher relief.

A most remarkable novelty is the second development. First development is interrupted by Husnik before the finer details are touched; he then dries the film, covers its white portions, or ground, with printer's ink diluted with turpentine near to the drawing, and exposes a second time.

The relief having taken up much chromate during developing, has not only become extremely light-sensitive, but the surface and sides of the lines have become much harder. The black ink having been removed, developing to any desirable depth can be effected, especially so when the large whites have been previously routed out.

Attaching the gelatine relief to a metal support was in the earlier time of making such clichés attended with great inconveniences. Husnik has done away with these difficulties. The metal support, generally a zinc plate, is well cleansed on the surface, and eventually roughened with emery or sandpaper. The same is done to the sides of the gelatine film to be fastened upon the zinc plate. The grained zinc plate is then coated with a gutta percha solution and dried, heated to about 100 deg. Celsius, and laid aside to cool. During cooling, at about from 44 to 25 deg., the gelatine film is laid upon it. The gutta percha film while hardening unites securely with the metal plate; after it is hard, developing the relief is proceeded with in the manner previously described.

The Imperial Court and State Printing Office of Vienna has without any difficulty printed an edition of 32,000 from such a gelatine relief. After finishing the edition the cliché was found to be perfectly intact, proving, doubtless, its capacity to print still larger numbers.

Husnik's process viewed from a technical point shows many advantages. All the manipulations required are so easy to perform, that an operator of some experience can develop a hundred plates in one day; a great saving of time when compared with the tedious process of zinc-etching.

It is important to keep gelatine reliefs from the influence of moisture and protect them from heat. High temperature destroys easily the exact shape and form of the relief, a great inconvenience, which, however, can be avoided by proper precautions.

The process has been patented, and for that reason all the details of operating can not be made public; but we have given an outline of the method as described by Prof. Husnik, which will enable our readers easily to understand the excellent process.

PHOTOGRAPHING WINTER SCENES.

DOCTOR WILLIAMS shows us a charming winter photograph of a historic subject, and tells us, in his entertaining way, some interesting things about the subject and his photograph. Mr. Thomas Coke Watkins directs our attention to innumerable winter pictures which may be seen by the observing ones on a walk in the country. Our readers will therefore be glad to know just how to depict with the camera, these subjects, so beautiful in nature, but which require a peculiar skill on the part of the photographer to reproduce.

Roughly speaking, there are two classes of winter pictures which the photographer meets with on an outing. A typical landscape of one class is a snow-covered landscape in which trees, shrubs, buildings, everything, are completely enveloped in white. The trees and bushes glitter with ice; the fields sparkle beneath the sun. There are no contrasts, but only a mass of brightness, glitter and glare. In order to photograph it satisfactory, we must select a time of day when the sun is at one side of our camera and a little behind it. This is in the early morning or in the afternoon, according to the point of view which we have chosen for our camera. When the sun is obscured, the shadows are soft and the snow is devoid of reflections. On such days the winter picture we have selected can be photographed with advantage. The exposure should be rather short on such a day, for the light is rather weak, and the brisk development which is required will give a proper contrast and brilliancy to the negative.

Isolated bits of frost-work; a glittering bush sparkling with ice jewels, or a fence-corner covered with dazzling whiteness, should be photographed in a similar manner. Such subjects are very satisfactory when reproduced by the camera. They make pretty Christmas cards, or other winter souvenirs.

Mr. Watkins suggests a number of subjects for winter pictures, exactly suited for this purpose. Place your camera near enough the subject to cut off the surrounding landscape. You have then merely to consider the requirements of the individual bit of winter beauty before you.

The other, and perhaps the largest class of snow scenes, is quite different from the one we have been considering; it is therefore photographed quite differently. In this class we have winter pictures of the greatest contrasts; dazzling whites and profoundest blacks; a field covered with glittering snow, edged with the darkest trees. The photographer must now overcome contrast and give softness to the picture. As before, overcast days are chosen and the exposures are made in the morning or afternoon; but the exposure must be ample, and the development very slow. This will aid in overcoming the brilliant contrasts in the natural view. Orthochromatic or color-sensitive plates may be used with advantage in photographing such scenes. The developer should be rather weak, especially in beginning the process. It may be strengthened as development goes on, until the proper density is secured in the negative.

For developing negatives of the first class spoken of, the developer can be of full strength in order to bring out all the contrasts there may be in the picture, but it should be used cautiously, especially when first applied to the plate. In the development of snow pictures there is opportunity for the greatest skill. A well selected and exposed plate may be lost by careless or ignorant development, while, on the other hand, errors in exposure may be to a great extent corrected by judicious developing. The new developing agent, eikonogen, has been used with good effect in this kind of work, as it renders the most delicate details in the half-tones and shadows.

Fixing, washing, and the subsequent processes are, of course, the same in this as in other classes of photographic work, but in toning and mounting winter pictures there is room for the exercise of good taste. Do not tone a winter picture to a warm brown, and mount on a chocolate card. Let the toning be carried to the cold blacks and whites, and mount on white or pearl cardboards. Bromide paper is peculiarly appropriate for winter negatives, and the platinotype may also be used with good effect. Ferro-prussiate or "blue" paper is especially suitable for printing many snow negatives, and when slightly worked over with colors harmonizing with the appropriate blues and whites of the cyanotype, a delightful art feeling can often be given a blue print of a winter landscape. These additional touches, however, must not be overdone, the merest retouching here and there being all that is necessary to bring out a most pleasing result. They may be mounted with good effect on larger sheets of heavy paper, and framed in plain wood, narrow and light. Bromides and platinotypes should be similiarly mounted. They may be preserved in portfolios or albums, and make attractive additions to the parlor or drawing-room center table.

WINTER PICTURES.

HOW delightful to walk in winter in search of the picturesque!

What exquisite pictures everywhere! The trees delicately etched against the sky; the drooping, ice-covered twigs; the glistening fields, the clear bracing air—all have a charm in themselves to awaken the admiration of the most indifferent observer.

Why is it so few photographers turn their attention to out-of-door winter work? With a nice eye for the subtle and illusive "arrangements" of winter, one might, by persistent out-door study, master many secrets of our winter scenery, and add, beside, a large number of most attractive photographs to one's portfolio.

But close observation of nature at this time does a great deal beside enabling us to make effective pictures. It adds considerably to the pleasure of all our intercourse with the outside world, and especially to the enjoyment of our winter walks.

When the foliage has departed and the fields are white, there is much left that is worthy of attention; much that is full of interest and beauty, if we only can see it. "There is just as much beauty," says Thoreau, "visible to us in the landscape as we are prepared to appreciate—not a grain more. We cannot see anything until we are possessed with the idea of it, take it into our heads, and then we can hardly see anything else."

Let us walk out into the inviting woods, and over

the open fields, and "take it into *our* heads" to find some of these charming bits of winter scenery.

If we would see Nature at her best, we must take the unfrequented road that winds up hill and down, and past the brook in the hollow. The air is so still, that when far away in the woods a handful of snow slips from an over-burdened bough, we can distinctly hear it drop on the yielding mass beneath. The sky is a soft, brooding gray, with a peculiar look of fulness, as if it held just ready to fall another mass of snow like that which is piled in reckless prodigality upon every object in sight. A stray flake, shaken from an over-full cloud, now and then wavers through the air. Near the horizon the gray is luminous; but not a gleam of sunshine disturbs the restful harmony of colorlessness stretching far as the eye can reach. Now the road winds along the base of a low hill, whose crown of spruce and pine is dark and green amid the universal monotone of white; it climbs the upland, bare but beautiful, now that its unsightly logs and stumps have been transformed by the magic of frost. The snow, lodged in every crevice, caught by every branch, interrupted by every leaf, has wrought upon the landscape with that unconscious art which holds the most magical spell of beauty. Even the dead trees, seen here and there, have a plastic purity of form and color, and every boulder shows some sculpturesque effect. Through the woods the road almost ceases to be definable; in advance or behind, the trees close up in apparently unbroken ranks, and one almost wonders whence he came or how he is to find his way out. The long aisles through which we pass seem to lead into the very heart of a sanctuary—so silent, so solitary, so profoundly impressive to sense and thought are the snow-covered woods. The trees, in their vigorous life are not more beautiful than the dead, which have fallen against them and caught the snow in out-spread branches. The trunks that lie prone among their more fortunate fellows have lost all trace of scars and decay, and the under-brush fills in the picture with a free and careless grace of outline and grouping which hints at Nature's prodigality of beauty when she turns artist.

We see the black and the white contrasted most strongly in the swamp, where the inky stems of the ash stand out in bold relief beneath the overhanging whiteness of their tops. From these there are all shades of gray, up to the silvery birch, scarcely less white than the snow around. The winter foliage of the different trees is almost as varied as that of summer. Here at the foot of the hill the alders that fringe the roadside droop over the dark waters of the brook as gracefully as when clothed in fluttering leaves, only the clustering catkins are white instead of green, and the slender branches are so laden with snow that scarcely a twig reveals itself. Just here is the most beautiful forest glimpse, for the trees stand closer together than elsewhere, and on the interlacing branches he white tracery of snow is, in artist's phrase, "lined in" most deeply.

The gnarled apple trees which skirt the sinuous wall stand up with sturdiness, each crooked twig bearing its weight of bloom as bravely as it will its fragrant burden of rose and snow in the coming May-time. The meadow elms look like clusters of drooping ostrich plumes, while the maple boughs, with their long, straight fingers piled with snow crystals, remind us of huge branches of white coral.

Until to-day it has always seemed that no trees were quite so beautiful when laden with snow, as the evergreens; but look at this wide spreading beech that hangs over the wall. It is thickly covered with last Fall's burrs, no longer brown, but purest white; and as their graceful outline is revealed through the feathery foliage that clothes every limb, one can think of nothing but snowy buds just ready to burst into blossom. The illusion is perfect, and this snow effect is one of the loveliest of all that belong to the exquisite landscape. And so one charming bit gives place to another in a long succession of winter pictures, touched with a refinement of form denied the riper and more affluent beauty of the three gentler seasons.

Instead of flat surfaces of dead white, each tree is individualized and stands out in marvelous distinctness, with every branch and leaf outlined in exquisite frost work.

The road now winds on up the hill, and we know that above and beyond are more hills and forests, all clothed in this beauty, not of the earth, earthly; but our eyes are filled with *seeing*, and for to-day we are satisfied.

As we retrace our steps along the picturesque road we notice a bit of prettiness that escaped us before: the delicate grace of an occasional spray of dry, golden-rod that lifts its plumed head above the way-side drift.

From the gray breast of the brooding sky a few downy flakes flutter to the earth, but the wind sleeps on with no sign of waking, and the fair white landscape is still wrapped in snowy silence.

Thomas Coke Watkins.

FILM PHOTOGRAPHY.

TO test the full value of the Eastman system of paper negatives I had sent me from the office of the company in London last autumn several rolls of the American film, the new transparent film not having been then announced. These I carried to Sicily and Greece, and exposed in various places and on all kinds of subjects, interiors, architecture, landscape, etc., sending the spools when exposed back to London to be developed. The Sicilian series of nearly fifty turned out the best in the general qualities of any series I have made. One roll I kept till I got back to Italy and finished it in the northern parts of the peninsula, having made the first exposures in Athens, and one I exposed in various places in Italy, some of the subjects being very puzzling and badly lighted interiors, and this I sent to Rochester, whence I have just received the negatives. I send two* of this roll to THE PHOTOGRAPHIC TIMES as samples. Besides being excellent negatives they are of great interest as subjects, being from the façade of the Duomo of Florence, the new front of that church, which is justly considered the most admirable architectural work of our century. It was completed in the summer of 1887 and uncovered with the most splendid ceremonies of our day. One of the negatives is the entire front, with a portion of Giotto's campanile at the right and the Baptistery at the left, a wide-angle view and taken with a Ross portable of 6 in. focus, aperture $\frac{f}{100}$, and ten seconds exposure. The other is the main door, taken with a Rapid Rectilinear. Both are absolutely untouched.

I do not know how they will turn out for process printing, but the silver prints are perfect, with only two small spots on one of them. I took with me from Rome at the same time two rolls which I had had in my possession for more than a year when I began this journey, and which I supposed to be untrustworthy from age. One of these I exposed this summer in Italy and sent it to London for development. It was as sensitive and as free from defects of any kind as the fresh ones which I got on starting. I had given them up because on trying the first exposure or two of one of them I found that the film showed spots badly, but when I got to the third there was no more tendency to that defect than in the new.

This is a practical trial of the worst kind. The old rolls had been in this hot and rather damp climate for a year before I started and were in the heat of a Greek summer travelling by sea some two or three thousand miles before they were developed, and all had been out nearly a year, the last roll being sent to Rochester last month. Of one old roll exposed at Athens there were very few imperfect negatives, and those almost entirely from over-exposure, as I supposed they would be slow. Of the new roll sent to Rochester there were a few with skies defective from spottiness, but the views were always good, and only one with spots which were serious, and the only failure was a section which had two subjects on it, which is always a defect, even when they are both bad. I took the interior of a church, and then took the front on the same piece of film. They ought to go together, but not so close as that. In some cases I gave three exposures where the subject was important and I could not go back again if the first failed, but I always found that only the shortest exposures were imperfect, and if I had given longer in most cases they would have been better. But I consider that an exposure of ten seconds with the aperture used, $\frac{f}{100}$, was crowding the mourners.

With this arrangement a tourist in Africa can cross the dark continent and keep all the material for a year's work in any heat, if dry, and almost any even damp, and send his rolls home as he gets a chance, with a tolerable certainty of getting good pictures in ninety per cent. of his exposures, if long enough and judicious. The open skies are the only defective parts of the negative, and I think that this is mainly from thinness of the bromide, as I used to have the same difficulty more or less with thin films on glass. But in some of my views I got fine skies and cloud effects as good as any on glass, and the landscape proper, the details of architecture and the solid parts of the subject, were in almost every case as good as I get by the use of any commercial plates.

With the introduction of the new transparent film much of this experience becomes useless, for I suppose the American film will be abandoned on account of the stripping, an operation I found it impossible to do with certainty in a common dark room such as one finds abroad. I propose now to try the new medium, and if the results are as good as those of the old, what I have said will apply with still greater force to it.

W. J. Stillman.

* A photo gelatine print from the other negative will be given in a later issue.—Ed. P. T.

W. J. Stillman, Photo. Electro-Light Engraving Co., New York.

FACADE OF THE DUOMO OF FLORENCE, ITALY.

GHOSTS OF THE STUDIO.

IN the witching hour of midnight,
While fair Nature lay asleep,
And the Studio was bathed
In a silence soft and deep,
Came a rustle through the stillness,
And the sound of moving feet,
Moving to the strains of music,
And the hum of voices sweet.

Stealing through the misty darkness
Shone a beam of silv'ry light,
And the weary artist started
As he saw the wond'rous sight—
Floating shadows circling 'round him;
Peering faces; waving hair;
Priest, and actress, statesmen, sages,
White-haired men, and children fair.

As he gazed in speechless wonder
At the empty oaken frames,
Which, in daytime, held fair portraits—
Youthful maids, and stately dames,
Softer, sweeter grew the music;
Pale and dim the silv'ry light,
And the ghostly rev'llers vanished—
Vanished from the artist's sight.

K. E. Barry.

THE FUTURE OF PHOTOGRAPHY.

WE of the present day are wasting sympathy on the unfortunates of a few years ago who wore out their patience and muscle on the old wet plate process of taking pictures, yet who dare say we will not be laughing at ourselves a few years hence, when we look back and recall the tribulations of fitting up the bath room or a corner of the cellar in which to stain our fingers, and spend hours of anxiety wondering whether we are going to get any picture at all.

The time is almost within our grasp, I believe, when the photographer will take a day off now and then for a trip into the fields and hills, and as he makes each exposure, sit down by some brookside and develop his picture with as much ease as he now develops it with every convenience of his dark-room at hand. More than that, the days of the plain black and white pictures are nearing their end. The other day I saw a picture of a young lady that represented her all dressed in white. But when the picture was taken she was a veritable "symphony in pink."

We may not be able to photograph colors for some years to come, but we certainly ought to give colors their true value more than we do. All plates will soon have to be orthochromatic, and that time must come soon, too. The other day I was showing an instantaneous picture I took of the midnight sun in 1887 with my Scovill detective, to Mr. Carbutt.

"That is fine," said he, as he looked at it, "but I do wish you might have had an orthochromatic plate; it would have been finer." And he was right. I would almost be willing to visit the northern regions again for the sake of trying an orthochromatic on the midnight sun.

Photography has not shown that practical advancement of late years that it should have done, when we consider the brains dabbling in it. Present appliances have been highly perfected, but outside of the magnesium light there have been very few new principles evolved.

But outside of the universal introduction and use of true color value plates, photography needs, more than anything else, a great improvement in the process of making positives, particularly in a greatly simplified method. It is about all an amateur's spare time is worth now to develop his negatives and make his prints. For myself I do not pretend to make prints.

There is one more great field for discovery in photography that has come home close to me lately, as it has to many others. I recently made a trip to the Arctic regions for the particular purpose of writing a book, and of course while on this trip I took several hundred photographs. Now why in the world has not somebody discovered a method of developing or treating negatives, so that illustrations can be made directly from the negatives? Instead, I have to go to an expense of several hundred dollars to have my pictures photographically reproduced. If somebody will kindly invent a process to reproduce pictures *so* that we can take an "India proof" from our negatives, just think what dainty souvenirs we amateurs could make of our summer trips and wanderings for pleasure.

I firmly believe in the near future positives will be made almost entirely this way not only for the trade, but in amateur and fine artistic work, and that they will be a great deal cheaper than such pictures are to-day.

H. L. Aldrich.

ON SUBJECTS FOR PRIZE-PHOTOGRAPHS.

WITHIN the last year prizes have been offered for photographic genre-pictures, illustrating some popular poem, as, for instance, "Evangeline," "Hiawatha," etc. This is certainly very praiseworthy, but the

objection to these prize offers is that the competition is restricted to the professional photographers who possess roomy galleries and the numerous backgrounds and accessories necessary for the composition of the desired picture. The amateur, who possibly may have an artistic taste as fully cultivated as that of his elder brother, the "professional," is virtually excluded from competing for such elaborate subjects as named above.

This consideration leads me to suggest to some future generous prize offerer to select a subject which would be within the reach of every possessor of a camera, with or without a gallery.

For such a subject I would propose a series of photographs of heads or whole figures representing *the emotions of the human soul* in joy and grief, in happiness and despair, in innocent or vicious moods, sounding, in fact, the whole scale of emotions and passions as reflected in the human face.

There exists a series of etchings after drawings of the painter Lebrun (1619–90), President of the French Academy of Painting, under the title of "The Human Passions," which attempt in about twenty plates to depict various emotions, such as: Innocence, Joy, Laughter, Devotion, Pity, Pride, Contempt, Fear, Jealousy, Despair, Insanity, etc. The greatest latitude should be given as to the size of the pictures and the chief criticism directed to their artistic merit.

Some prize offers might suggest specialties, such as to represent "The Deadly Sins," "The Beatitudes," "The Heros and Heroines of Shakespeare, Goethe, Schilier," etc.

All these and similar prize offers might be competed for by every amateur possessing but a four by five camera. As to securing good models, there need not be fear, at least not for the female model, for every American young lady is a born actress.

Karl Klauser.

EXPERIMENTS WITH EIKONOGEN.

SINCE sending the article on Hydrochinon for "The Photographic Times Annual," I have procured a sample of "Eikonogen," and have experimented most assiduously to find the least complex and most efficient formula for its use as a developer. The very first trial made convinced me of its marvelous power as a reducer, but I soon found that the published formula are all too concentrated and clumsy, so to speak, for satisfactory use. Time and space are not available to detail the various modifications which I found resulted in progressive improvement in its work. I simply give now the combination I am now using, and which gives me by far the best general results.

No. 1.

Sulphite soda	240 grains
Water pure	16 ounces

Dissolve and filter, then add,

Eikonogen	120 grains

Dissolve by shaking.

The above amount of eikonogen is as much as will readily dissolve in that quantity of water.

For the No. 2 solution I find the best resulting color of the negative deposit is gained by the use of carbonate of potash.

No. 2.

Carbonate of potash	2 ounces (Troy)
Water	12 fluid ounces

To develop a 5x8 plate use three ounces No. 1 with one part No. 2. Unlike hydrochinon the image begins to appear at once, the plate is thoroughly wetted, and this must be rapidly and evenly done to prevent unequal action.

Printing density will be attained in from three to five minutes, without any "restrainer," or "accellerator." Above all, do *not* add "a few drops of hypo and bromide solution during development," as advised by the German formula.

The result will be a clear, unstained negative, with every detail in shadows and lights clearly brought out, and the exposure may be less than one half that proper for a hydrochinon developer. But there is still, as I fear always will be, with an extremely rapid developer, a tendency to too great density in the high lights, and comparative thinness in the shadows.

I am willing to concede that, so far as we now know, "eikonogen" will stay with us as the *rapid* "developer of the future," but hydrochinon has the unique power of rendering correct values of light and shadow, with a liberal exposure, which would be fatal to any other developer, and that too without persistent attention and "dodging."

Eikonogen is cheap, cleanly, and will not stain anything, and can be used repeatedly. But now comes its most remarkable property, which I discovered accidentally, and I find by my *British Journal*, received to-day, that a German operator has had the same experience.

A spent solution, which has been used for developing several negatives successively furnishes the best developer for permanent bromide paper prints that can be devised, infinitely better than ferrous oxalate, for reasons which will soon be apparent after trial.

I am almost certain that eikonogen as a quick and most energetic developer, indispensable for obscurely lighted, or expressly rapid exposures will soon supplant all others, but will not take the place of hydrochinon for the properties the latter possesses, under many circumstances which in landscape photography constantly occur.

Joseph B. Brown,
U. S. Army.

DOES SALT ELIMINATE HYPO?

IN an article contributed to THE PHOTOGRAPHIC TIMES ANNUAL* of the present year I gave an account of some experiments illustrating the behavior of solutions of common salt and hypo in *dialysis*, from which I theoretically discredited the claim so often and so generally made that salt in the water in which prints are washed is a powerful aid in ridding them of hypo. It was shown that when a ten per cent. solution of salt was in one side of the septum, the hypo on the other side was almost wholly prevented from passing through, and that when water was substituted for the salt solution the hypo passed through quite freely.

From this it appeared probable that the hypo would diffuse itself more slowly out of the prints into salt water than it would into water alone.

To make this conclusion certain I have since experimented directly with prints themselves, and beg to present the following facts bearing on the subject:

Two dozen cabinet prints were placed together after fixing in a salt bath (one pound to the gallon) to prevent blisters. After half an hour one dozen of the prints were removed to a clean pan, the salt bath was poured off and the solution well drained from both lots. Next 40 ounces of water in which were dissolved 4 ounces of salt, were poured into one pan and the same quantity of fresh water into the other. After separating the prints from each other in each pan and after standing another half hour they were changed precisely as before; that is each pan was drained and each was supplied respectively—the one with salt water and the other with fresh. One lot of prints was then in its third salt bath, the other in its second fresh water one. After again standing half an hour each was tested for hypo.

Strange to say, not the least trace was found in the salt water, while in the water bath its presence was rapidly and distinctly manifest.

Evidently, one of two things must be true: Either there was no hypo in the salted prints when the third salt bath was applied to them, which if true would be very remarkable; or, else, the hypo left in them from the *second* salt bath was prevented from coming out by the salt of the *third* bath. The latter alternative if sustained will emphatically preclude salt from the list of hypo eliminators.

The two baths were then emptied and drained off for the third time and this time both pans were supplied with fresh water, there being no further use for the salt bath. After standing the usual length of time the test showed a liberal quantity of hypo in the water containing the prints previously subjected to the salt treatment, while that containing the other prints which had had one salt and three fresh water baths showed only the faintest possible trace. In short, it is well within bounds to say that the prints which had been through three salt baths to the others' one, held three times as much hypo as the others. Or, briefly stated, the more salt the more hypo; the more fresh water the less hypo.

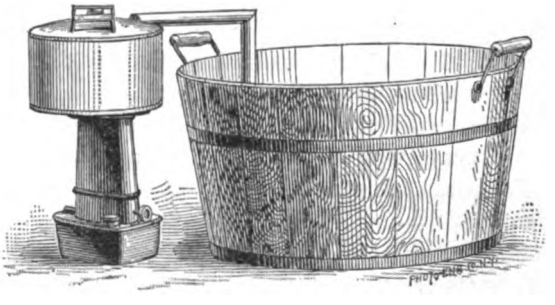
The above experiment proves, I think, undeniably that the function of salt water containing prints impregnated with hypo is to seriously hinder its elimination. It is therefore a serious mistake and loss of time to use it for the purpose of facilitating the accomplishment of that object.

W. H. Sherman.

* Reprinted on page 306 of December 6th issue.

A SIMPLE WARMING TANK.

THE accompanying cut represents a simple and effective apparatus for warming the water for washing the prints before toning. It consists of a galvanized iron basin with the

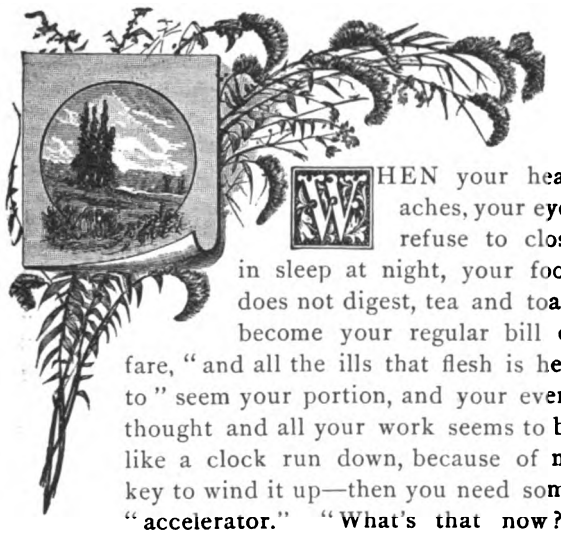


tops soldered on and fitted with an ordinary coa oil can screw for filling the same with water. A tube also extends from the top of the basin at right angles, and down to within half an inch of the bottom of the tub as shown in the cut. The steam generated in the basin by the coal oil stove, or any other convenient means, is conducted by the pipe to the bottom of the tub, and escaping through the

water, warms it very readily. It will raise the temperature of an ordinary washtub, filled with water from 55 to 75 degrees in a little over one hour.

J. R. Swain.

"ACCELERATOR FOR PHOTOGRAPHERS."



WHEN your head aches, your eyes refuse to close in sleep at night, your food does not digest, tea and toast become your regular bill of fare, "and all the ills that flesh is heir to" seem your portion, and your every thought and all your work seems to be like a clock run down, because of no key to wind it up—then you need some "accelerator." "What's that now?" some one says. "Well, my friends, here is the article: Take your family, pile 'em in a good strong wagon, with some groceries and old clothes to wear, a tent and lots of bedding, a gun and fishing rod, and put on two good horses; leave business and care behind, and take an outing—three, four, or five weeks, latter preferred. "Oh, dear me, it will ruin my business. Mrs. Jones will take her new baby to Smith, and I will never catch up again, and the cost of trip will be sogreat. I *cannot* go ! !" says a photographer "weary and worn, with heavy and aching head." Ah, yes, my dear fellow, that may be so, but is it not better to run the risk of losing a little than to loose it all, and pass over the river?

Nearly 25 years the writer has given to this art, and as years come and go they bring us grey hairs, wrinkles, and less patience and vim perhaps to stand the care and trials of even a small business. But we find there is nothing lost by using in good quantities this accelerator. You have a chance to become acquainted with your family, and *that* is considerable. You make other and valuable acquaintance. You see how the world moves away from your own town. You see fields and farms, mountain and river, as you can see them no other way. You take many lessons of inestimable value in light and shade. Nature is a royal teacher, and you lay under the pines (true our 300 or 400 feet tall pines *are* pines), and listen to the winds playing through their tops and it reminds one of angels in whisper, soothing our mind and giving us peace and understanding that can be attained no other way. You fish and shoot, and when your brief outing is over you roll homeward full of fresh air and sunshine, and feeling as if you could make a far more artistic production than ever before. And coming back be sure to tell the boys and girls that they have done well; encourage them all for their efforts while away, and let your every day life and work show that you have most satisfactory harvest from the use of the reaped a "accelerator."

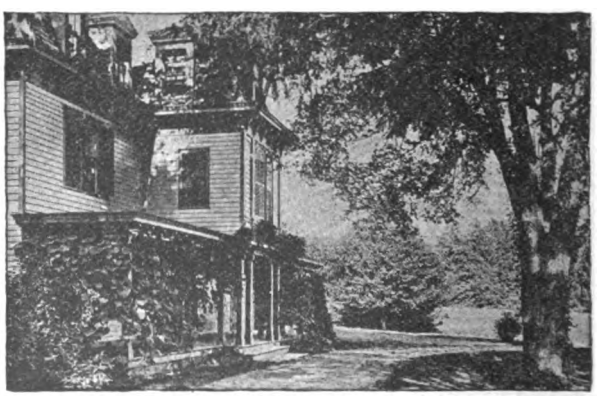
J. Pitcher Spooner.

HISTORIC HOMES.

IV.

Home of Henry Kirke Brown.

IT is an easy task to photograph a friend's house, but another thing to gossip, however kindly, about his life. In a strong afternoon light we had no trouble in obtaining sun-sketches of the Brown homestead, standing on the road-side first to get a view of the piazza framed in grape-vines, and then crossing the bridge to make a picture with moat-like reflections from the opposite side of the still pond. These exposures proved satisfactory, and developed up fairly, but to expose the quiet story of a neighbor's life, or to develop privacy into publicity is less agreeable work.



We always called him Sculptor Brown, and to many of us he was from earliest childhood an embodied idea of marble busts and bronze horses. He was our next-door neighbor, and his tall figure on a grand black horse, a feature on the country roads, of which we were as proud as we are of our Highlands and our Hudson. I am sure he had always a friendly feeling for our blind admiration,

although it would have vastly amused him, could he have known we felt less countryfied in the crowd of New York, when we pointed out to proud city people the statues in Union Square, made by a fellow townsman! We claimed him, but he was in fact born in Massachusetts, in 1814, and had attained much of his fame before 1855, or thereabouts, when he bought a country seat in Newburgh. He chose the oldest house—now sadly modernized by a French roof—in Balmville, a little village near Newburgh, and now swallowed-up by the larger city. He bought the place because he liked the music of the brook running close to his doors, and when advised that he had settled in a district where property was hard to sell, he said, since he had been twice obliged to move because real estate rose in value, he now hoped to be able to afford to stay. And here he stayed for nearly forty years, during all which time scarcely a dozen new houses were built within a mile of him. Thus undisturbed in his big, barn-like studio, he worked out his huge conceptions, and although he hospitably entertained many artists, J. Q. Ward, Walter Brown, Gray, Paige and Leslie, and was also most generous in opening his doors to the public, one instinctively felt that he preferred stillness and quiet. In later years his low voice and wierd appearance added impressiveness to his few words, and I think many of us owe our broadest thoughts to his short suggestive sentences. However dreamy and mystical he grew in old age when mind and body gradually decayed he was most practical and active in early life, and achieved great distinction at home and abroad.

His first marble bust was executed before he was twenty-five, and long before he was fifty he was elected full member of the National Academy in New York. He was engaged in decorating the Capitol in Columbus, South Carolina, when the war broke out, and so changed the nature of things, that a design for the frieze of a slave-dealer under a palmetto tree holding a whip in his hand was never finished! An abolitionist offered to buy a statue of Breckenridge, for "the pleasure of throwing it out of the window." We think our loyal hearted sculptor must have suffered keenly when asked to put but seven stars in the Confederate Flag, and we are glad he satisfied his patriotism later by making the statue of Lincoln for the City of New York. We in Newburgh, are familiar with most of his works through the plaster casts in his studio, but the world owes much to Photography for making it possible for all to study his wonderful creations. Although not an idealist, David, Ruth, Rebecca, Faith and Adonis rank high among the work of contemporary artists, but he will be longest remembered for the excellence of his equestrian statues. His studio of which we give but a corner in the pond-view was a part of his stable and presented few attractive features to seekers after the picturesque. It was, however, a place for work, and was conveniently arranged so that fine horses used as models could be led directly in to the master who sat before the formless clay, ready to copy every muscle and bone. We tried to take a picture of the step leading up to the closed door, now covered with vines, but alas! halation, solarization, fog, underexposure and a few other ills to which Photography is heir, frustrated our wishes in this sentimental direction. A nephew of Mr. Brown's, Henry Bush Brown, now studying abroad often welcomed us in this studio, and our short sketch of the uncle would be incomplete without some brief mention of this talented artist who has already added fresh glory to an honored name.

It is but a few years since Henry Kirke Brown died, and we have not yet grown used to speaking of him in the past tense. It is still the Sculptor's house, the Sculptor's pond, the Sculptor's studio, and the Sculptor's garden at which we point our cameras with the guilty feeling one has who steals a neighbor's shadows. Surely there is an unwritten law bidding artist and biographer use long exposure and slow development if they would fitly show the picture or tell the story of a house and life quitted but yesterday.

Adelaide Skeel.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII.—(*Continued.*)

WATER.

Formula, H_2O. Combining weight, 18.

ICE melts at 32 degs. Fahr., and the liquid water passes into water-gas (steam) at 212 degrees. When cooling, water steadily contracts until it reaches 39 degs. Fahr. (point of greatest density), and then slowly expands until it reaches 32 degs. Fahr., when it suddenly expands about one-tenth, so that ten cubic feet of water form eleven cubic feet of ice. This is the cause of the frequent bursting of water-pipes in frosty weather.

Pure water is a compound of the two gases, oxygen and hydrogen, but ordinary water is far from pure. Indeed, it is doubtful if perfectly pure water has ever been obtained. Ordinary water contains impurities of two kinds: (*a*) matter *suspended* in

the water, as sand, mud, etc.; and (*b*) matter *dissolved* in the water, as salts of lime, etc. From matters in suspension the water can be freed by filtration, while the dissolved substances are left behind when the water is distilled and re-distilled.

Ordinary spring water is more or less *hard* from the presence of salts of lime—usually the carbonate of lime. Rain-water is fairly pure in the country, but in towns, where it falls through dirty air and over dirty roofs, it is always much contaminated with soot, etc. When the rain-water runs over or through the rocks it dissolves some of the materials of which they are composed, and these cause it to be *hard*.

All rain-water contains carbonic acid gas dissolved out of the air, and it is to the presence of this acid that the rain-water owes its power to dissolve limestone rocks. When the hard water is boiled, the carbonic acid gas is driven off, and the carbonate of lime is then deposited on the bottom and sides of the vessel. Such a deposit, called fur, may be seen inside most kettles. Other common impurities in spring or river-water are sulphates of lime and of magnesia, and as these cannot be removed by boiling, they make the water *permanently hard*.

The water of shallow wells and of rivers near large towns usually contains some suspended *organic* matter, derived chiefly from sewage, which may be a cause of great danger to those who drink it.

For many purposes in photography ordinary tap water is sufficiently pure, as for washing the plates after development, washing prints, etc.; but for making most solutions and for mixing the developing solution *distilled* water is far better.

To distil water we require a *still*, or vessel in which to boil the water, a *worm*, in which to cool the steam, and a receiver into which the condensed water may pass. These articles are frequently made of tin, or, better, of copper.

Zinc Bromide.

Formula, $ZnBr_2$. Combining weight, 225.

Prepared by passing bromine vapor over red-hot zinc. It is a white, crystalline salt which greedily absorbs moisture, and so deliquesces when exposed to the air.

Zinc Chloride.

Formula, $ZnCl_2$. Combining weight, 136.

Prepared by dissolving zinc in hydrochloric acid. It is a white, soft, very deliquescent substance, very soluble in water and in alcohol. From its great affinity for water it is sometimes employed for removing the elements of that liquid from organic compounds.

Zinc Iodide.

Formula, ZnI_2. Combining weight, 319.

When zinc filings are heated with iodine, they combine to form iodide of zinc, a colorless, deliquescent, unstable substance.

All these salts of zinc have an acid reaction, turning blue litmus red. They cause vomiting, which is fortunate, as they are strong poisons.

Zinc Hypochlorite.

Formula, $ZnCl_2O_2$. Combining weight, 168

This salt of hypochlorous acid may be prepared by adding a solution of zinc sulphate to a solution of calcium hypochlorite, and then filtering off the insoluble calcium sulphate formed. In this state it will be mixed with zinc chloride, but this latter substance will not interfere with its use as a hypo eliminator. Its use in photography depends upon the fact that a solution of hypochlorite of zinc will decompose hyposulphite of soda, so that it is used to eliminate the hypo from prints after fixing. When a neutral solution of hypochlorite of zinc is added in excess to a solution of hyposulphite of soda, a mutual reaction takes place between the two, sodium hydrogen sulphate and zinc chloride being formed. There is a certain amount of danger in its use, as it is an unstable body and gives off chlorine on keeping. If this chlorine comes into contact with hyposulphite of soda, free hydrochloric acid is evolved, and hydrochloric acid in contact with hyposulphite of soda acts upon it with deposition of free sulphur, which will be deposited in the pores of the paper, and will probably combine with the silver.

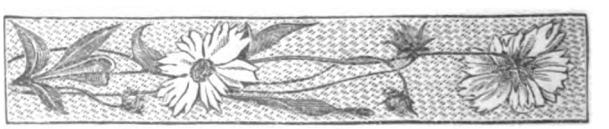
Zirconia (Zirconium Oxide).

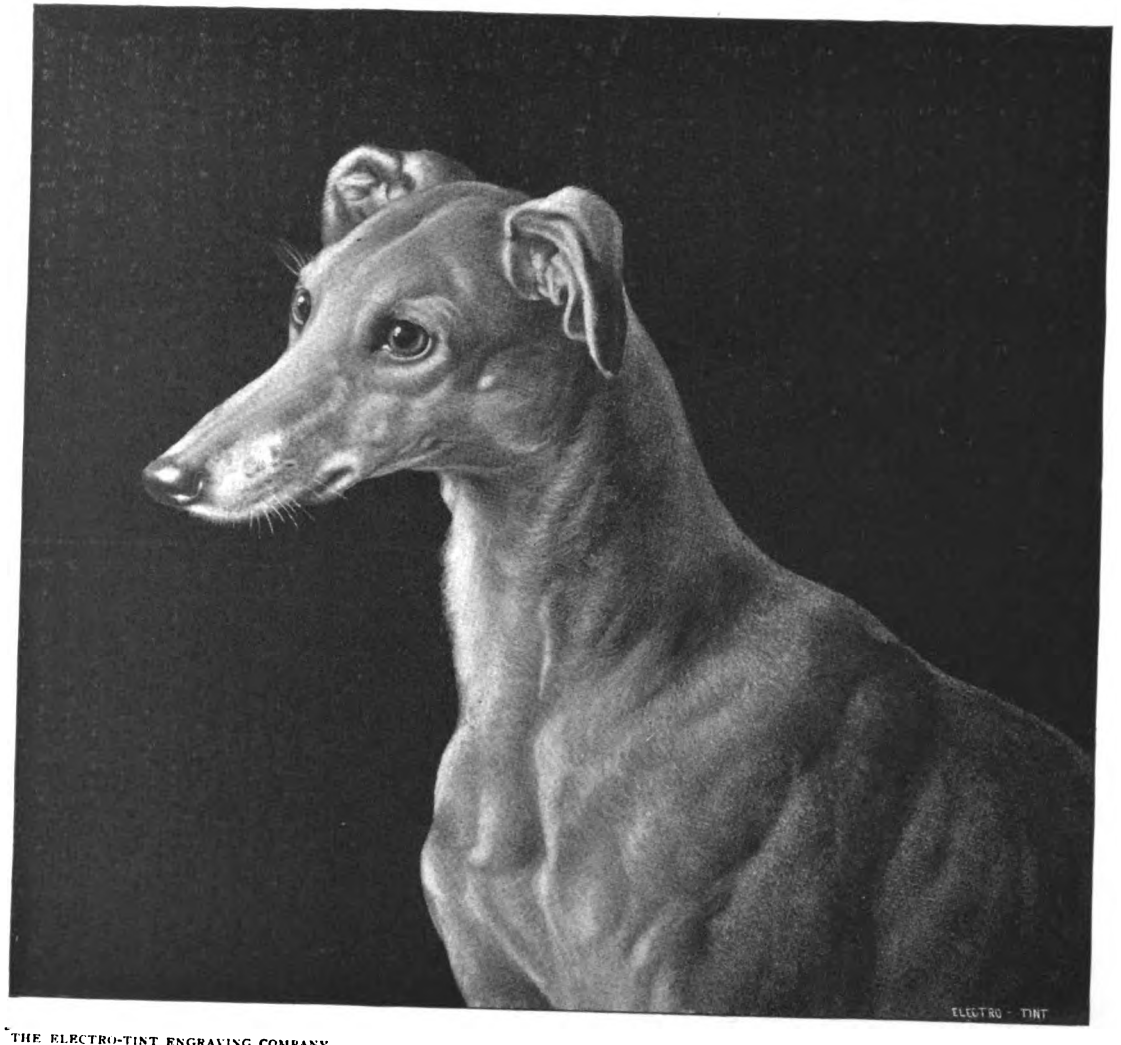
Formula, ZrO_2. Combining weight, 122.

Zirconia is a hard, white powder, resembling silica. Compressed into cylinders, it has been recommended for use in the "lime-light" instead of lime. It is, however, extremely difficult to obtain pure zirconia. It is a non-conductor of heat, so that before the mixed gases it gives a bright, white spot of light not more than a quarter of an inch in diameter.

W. Jerome Harrison.

(*To be continued.*)





THE ELECTRO-TINT ENGRAVING COMPANY,

726 CHESTNUT ST., PHILADELPHIA.

A DOG PORTRAIT.

A DOG PORTRAIT.

THE dog portrait which accompanies this issue of THE PHOTOGRAPHIC TIMES is a photographic copy of a painting, reproduced by the Electro-Tint Engraving Company.

Mr. Glayhorn, Manager of the Company, writes in regard to the process of reproduction, that it has been much improved of late, making it now possible to get a relief plate within a days' time. "The process is a secret one for the most part," writes Mr. Glayhorn, "but is no longer an experiment with us, except as to how to improve; and that is our constant aim. We do not have the necessity of various duplicating processes to get the relief plate from our half-tone negative. Mr. Purton was the first to invent a process of etching on copper from negatives. He puts it on the copper ready for etching, and after the latter is done—requiring but a very short time—the plate is practically ready for the press, needing only 'blocking' and 'proving.' He works this secretly, as we do the negative process."

Apart from the interest which "A Dog Portrait" possesses as an excellent specimen of photo-mechanical printing, it has a pictorial charm which entitles it to a place in THE PHOTOGRAPHIC TIMES. It is a picture entirely possible for photography, and represents a class of work that can be cultivated by the camera with great satisfaction.

HIAWATHA'S PHOTOGRAPHING.

FROM his shoulder Hiawatha
Took the camera of rosewood,
Made of sliding, folding rosewood;
Neatly put it all together.
In its case it lay compactly,
Folded into nearly nothing;
But he opened out the hinges,
Pushed and pulled the joints and hinges,
Till it looked all squares and oblongs,
Like a complicated figure
In the Second Book of Euclid.
This he perched upon a tripod—
Crouched beneath its dusky cover—
Stretched his hand, enforcing silence—
Said "Be motionless, I beg you!"
Mystic, awful was the process.
All the family in order
Sat before him for their pictures:
Each in turn, as he was taken,
Volunteered his own suggestions,
His ingenius suggestions
First the Governor, the Father:
He suggested velvet curtains
Looped about a massy pillar;
And the corner of a table,
Of a rosewood dining table.
He would hold a scroll of something,
Hold it firmly in his left hand;
He would keep his right hand buried
(Like Napoleon) in his waistcoat;
He would contemplate the distance
With a look of pensive meaning,
As of ducks that die in tempests.
Grand, heroic was the notion:
Yet the picture failed entirely:
Failed, because he moved a little,
Moved, because he couldn't help it.
Next, his better half took courage;
She would have her picture taken.
She came dressed beyond description,
Dressed in jewels and in satin
Far too gorgeous for an empress.
Gracefully she sat down sideways,
With a simper scarcely human,
Holding in her hand a bouquet
Rather larger than a cabbage.
All the while that she was sitting,
Still the lady chattered, chattered,
Like a monkey in the forest.
"Am I sitting still?" she asked him,
"Is my face enough in profile?
Shall I hold the bouquet higher?
Will it come into the picture?"
And the picture failed completely.
Next the Son, the Stunning-Cantab:
He suggested curves of beauty,
Curves pervading all his figure,
Which the eye might follow onward,
Till they centered in the breast-pin,
Centered in the golden breast-pin.
He had learnt it all from Ruskin
(Author of the Stones of Venice,'
'Seven Lamps of Architecture,'
'Modern Painters,' and some others):
And perhaps he had not fully
Understood his author's meaning;
But, whatever was the reason,
All was fruitless, as the picture
Ended in an utter failure.
Next to him the eldest daughter:
She suggested very little,
Only asked if he would take her
With her look of "passive beauty."
Her idea of passive beauty
Was a squinting of the left eye,
Was a drooping of the right eye,
Was a smile that went up sideways
To the corner of the nostrels.
Hiawatha, when she asked him,
Took no notice of the question,
Looked as if he hadn't heard it;
But, when pointedly appealed to,
Smiled in his peculiar manner,
Coughed and said it "didn't matter,"
Bit his lip and changed the subject.
Nor in this was he mistaken,
As the picture failed completely.
So in turn the other sisters.

Last the youngest son was taken:
Very rough and thick his hair was,
Very round and red his face was,
Very dusty was his jacket,
Very fidgety his manner.
And his overbearing sisters
Called him names he disapproved of:
Called him Johnny, "Daddy's Darling,"
Called him Jacky, "Scrubby School-boy."
And, so awful was the picture,
In comparison the others
Seemed, to his bewildered fancy,
To have partially succeeded.
Finally my Hiawatha
Tumbled all the tribe together,
("Grouped" is not the right expression,)
And, as happy chance would have it,
Did at last obtain a picture
Where the faces all succeeded;
Each came out a perfect likeness.
Then they joined and all abused it,
Unrestrainedly abused it,
As "the worst and ugliest picture
They could possibly have dreamed of.
Giving one such strange expressions—
Sullen, stupid, pert expressions.
Really any one would take us
(Any one that did not know us)
For the most unpleasant people!"
(Hiawatha seemed to think so,
Seemed to think it not unlikely.)
All together rang their voices,
Angry, loud, discordant voices,
As of dogs that howl in concert,
As of cats that wail in chorus.
But my Hiawatha's patience,
His politeness and his patience,
Unaccountably had vanished,
And he left that happy party.
Neither did he leave them slowly,
With the calm deliberation,
The intense deliberation
Of a photographic artist;
But he left them in a hurry,
Left them in a mighty hurry,
Stating that he would not stand it,
Stating in emphatic language
What he'd be before he'd stand it.
Hurriedly he packed his boxes;
Hurriedly the porter trundled
On a barrow all his boxes;
Hurriedly he took his ticket;
Hurriedly the train received him;
Thus departed Hiawatha.

From Lewis Carroll's "Rhyme and Reason?"

Correspondence.

EIKONOGEN.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I am still continuing my "experiments" with eikonogen, and they more and more convince me that the published formula for the use of eikonogen would never demonstrate the remarkable power of this new developer. I still prefer the proportions given in my article (see page), but find that it works better, in a normal exposure, with a little dilution with plain water after mixing for immediate use. If the development is continued till the darkening of the high lights shows on the back of the plate, printing density will always be secured. About 15 grains of soda sulphite and 7½ grains eikonogen to the ounce of water, give the best results.

Very truly yours,

Joseph B. Brown,
U. S. Army.

ALBION, Orleans Co., N. Y.

A NEW PHOTOGRAPHIC LENS.

To the Editor of THE PHOTOGRAPHIC TIMES.

In these days of optical progress, "Jena glass," invented by a "Swedish scientist," million power microscopes made in Philadelphia, and other wonders, it is surprising that this new lens, called the "Pseudograph," has not attracted more attention, for it has qualities peculiarly its own. I do not think THE PTOTOGRAPHIC TIMES has ever so much as announced it; nor has it ever been advertised in any photographic journal to my knowledge. In fact, I believe that it has not yet been placed upon the market, only a single experimental series of the different sizes having thus far been made.

In giving some account of this lens, let me firste numerate some of the desirable qualities which it possesses in common with nearly all other objectives now in the market, as, for example, the "Phonograph," "Telegraph," "Hektograph," and "Smithograph" rapid rectilinear lenses. It has a beautifully flat field, sharp to the edges; and with this flatness is combined, with admirable harmony, a certain exquisite "roundness" that cannot fail to charm the appreciative and enthusiastic amateur. It is a very rapid lens, owing to its great aperture; and its great depth of focus is also a feature worthy of special remark; in fact, any one at all familiar with optical laws will see at once that the one follows from the other. An over-critical photographer might say that one should stop down for depth of focus, and use well open for speed; but in this lens these are minor points, for it possesses, as intrinsic qualities, great speed combined with depth of focus.

Let us pass over briefly its microscopic sharpness, the clearness of its shadows, its freedom from flare, and the straightness of its lines; all these are excellencies possessed in greater or less degree by its competitors. But in one or two respects it is entirely unique, and stands alone. Owing to the peculiar glass of which it is constructed, and the superior polish of its lenses, it shows objects right-side-up and right-end-to-no "optical lie" of reversal here!

Allow me to mention in conclusion that these lenses will soon be placed upon the market by the Pseudograph

Optical Co., of Darktown, Hohokus Co., N. J., whose name will be ample guarantee for thoroughness of workmanship.

Mr. Editor, I hope I may not have trespassed too much upon your valuable space in thus calling attention to what in my humble opinion will undoubtedly prove to be an important advance in photographic optics.

Allow me to subscribe myself, my dear sir,

Most respectfully yours,

Ed. M. B.

Notes and News.

Focus.—A woman had three sons who went West and settled down on a cattle ranch. Wishing to give this ranch some name, they wrote home, asking the mother to suggest one. She wrote back advising them to call it "Focus," "because," said she, "it is the place where the sons raise meat."—*Exchange.*

W. Irving Adams has been appointed on the general committee of the World's Fair, to be held in New York, in 1892.

Word has been received from the Eclipse Astronomical Party at St. Paul de Loanda, stating that they have proceeded thus far safely on their expedition. The observation station will be at Cape Leod instead of at Muxima, as was at first decided.

The Society of Photographers of New York will hold an exhibition of lantern slides, Friday evening, December 27th, and a special public exhibition on "New York and the Paris Exposition," on Wednesday, February 5th, at Chickering Hall. The meeting of January 14th will be on "Camera Shutters."

The Eye and the Camera.—"The eye requires at least a tenth of a second to close, so that all separate motions which are quicker than that, appear blurred to one looking at them. It can easily be understood, therefore, how a photograph obtained of a moving object by an exposure of one-hundredth, or, even, as sometimes is done, by one-thousandth part of a second. while accurately reproducing the exact position of the object at the time of photographing, is not a representation of the subject as it appears to the human eye. It does not convey the idea of motion, even, but rather of '*petrified* motion,' as some one has said, and seems grotesque and unnatural. Such photographs, however, give investigators an opportunity which they otherwise could not have, of studying separate motions, and are often of the greatest value."—*From an article on "Instantaneous Photograyhy," by W. I. Lincoln Adams, in the December Outing.*

One of the most remarkable feats of photography on record is the photographing the terrible explosion at Antwerp, or, if not the explosion, the immense cloud of smoke produced at the moment. The current number of *La Nature* gives an illustration copied from a photograph of the huge cloud that shot up in the air, roughly in shape like an inverted Florence flask, when the explosion occurred. It has been estimated as being seventeen or eighteen hundred feet across, and according to the journal quoted, the cloud remained motionless for about a quarter of an hour, preserving the form recorded by the photograph.

The First Process Plate.—Photo-engraving for letter-press printing is said to be not by any means so recent an invention as many people imagine. It is only within the last ten or a dozen years that it has come to be so widely used and brought to its present perfection, but it is asserted that it was known and practiced nearly half a century ago. Prefixed to a copy of "The Mirror of Literature, Amusement and Instruction," published in London, the third volume of which appeared in 1848, is a paper on "Palmer's Patent Glyphography," professing to give a copiously illustrated exposition of the art, as well as of the means used to make it available. It is claimed that glyphography, invented by Mr. Palmer, produces effects equal to the best wood engravings, and certainly the examples shown are equal to the best work of the kind done at the present day. The process itself is that patented by Edward Palmer in 1841 and 1842. The artist drew on a prepared plate bearing a composition, which he cut through with a needle point, as in the manner of etching. From this either an electrotype or stereotype was taken. The method was recommended as superior to ordinary engraving in the fact that the drawing need not be reversed.—*Lithographer and Printer.*

Professor Eder sums up his experience of eikonogen in the following note in the *Photographische Correspondenz*, which explains amongst other things how eikonogen appears in this country under varying forms. "Eikonogen," he says, "was discovered by Dr. Andresen, of Berlin, and has been manufactured since the spring by Krugener, of Frankfort; first in the form of a greyish powder, but now in the form of compact granular crystals. It is in reality the sodium salt of Amido-B-naphthol-B-monosulphuric acid, its formula being

$$C_{10}H_{15}\begin{cases}SO_3Na\\OH\\NH_2.\end{cases}$$

It forms a white crystalline powder, the aqueous solution of which does not get brown in the presence of sodium sulphite when exposed to the air. Its action on bromide of silver gelatine plates is to produce very beautiful gradations with delicate half tones. It never clouds emulsion plates, and acts very beneficially in relation to their degree of sensitiveness. It has been for some time employed in the Vienna experimental school of photography."

The Founding of the Royal Society.—Sir Robert Moray, the first president, brought in word from the court that "the king had been acquainted with the design of the meeting. And he did well to approve of it, and would be ready to give encouragement to it." The royal patron fulfilled his promise.

The charter of incorporation passed the great seal on the 15th of July, 1662, and was read on the 13th of August following.

Evelyn's "Diary" of this date contains this passage: "Our charter being now passed under the broad seal, constituting us a corporation, the name of Royal Society, for the improvement of natural knowledge, was this day read; and was all that was done this afternoon, being very long."

Charles affected chemistry and navigation, and, when he grew tired of his wine and his mistresses, would resort to his laboratory, and as the young rakes, who circled about him, imitated the royal exempler's dissipations, so they frequented the scientific lectures and tried to look wise. But even Charles and his fops could not, by their attention, harm the growing sciences in the estimation of good and true men. The reason for this may be found in the recognition of the need of such a society, and the character of the men constituting it. The fame of such men as Sir Robert Moray, Boyle, Evelyn, Pepys, Wallis. Hooke, and Wren, who were among the incorporators, continues lively to this day. It may not be, as has been aid, that the incorporation of the Royal Society was the only wise act of Charles II., yet it has proved itself, without a doubt, his wisest act.—DR. WILLIAM C. CAHALL, *in the Popular Science Monthly for December.*

New Use For Carrier Pigeons.—A new use has been found for the carrier pigeon in Russia—carrying negatives taken in a balloon to the photographer's. A Russian paper gives an account of some experiments recently made in which the Czar's winter palace was photographed in the air, the plates being sealed in paper bags impenetrable to light, tied to a pigeon's foot, and sent to the developer.

Sorrows of the Photographer.—Baldheaded (and very homely) old gentleman, to photographer: "Drat such pictures! Can't you make me look any better than that, after five sittings?"

Photographer (thoroughly exasperated): "I think I can, sir, if you allow me to take the back of your head. It hasn't so much expression as the other side, but it's a blamed sight prettier."—*Burlington Free Press.*

The Society of Amateur Photographers of New York is the largest and most important photographic organization in this country, numbering, as it does, over 250 members, and including in its membership prominent lawyers, physicians, business men, scientists and a number of women. The club rooms are at No. 122 West Thirty-sixth Street, and well repay a visit of inspection. They include three entire floors, the second floor being occupied by the library and reading-room and the commodious apartment for holding the meetings, lantern exhibitions, etc.

In the cosey library and reading-room are kept on file all the current photographic literature, with a conveniently arranged library of photographic reference books, and the latest works on photography published in this country and abroad. Here, also, are provided desks for the use of members, and many interesting collections of photographs are contained in albums on the tables, or, framed, decorate the walls. One album, especially, is full of interest, containing, as it does, the portraits of nearly all the members of the society, with autographs appended.

SOME OF THE PROMINENT MEMBERS.

They include President C. W. Canfield, ex-Presidents F. C. Beach and Dexter H. Walker; J. Wells Champney, and his brother artist, George Boynton; L. P. Atkinson, of Brooklyn; Dr. Powell M. Bradley, also Doctors E. F. Brush, J. T. Ferguson, E. P. Fowler, R. M. Fuller and J. H. Janeway, of the United States Army; Professor H. A. Rowland, of Johns Hopkins University; H. Edwards Ficken, the architect; Charles P. Howell, United States Navy; Dr. A. Hager, U. S. N.; George H. Read, of the U. S. N.; Professor Randall Spaulding, of Montclair, President of the Postal Photographic Club; W. I. Lincoln Adams, Editor of THE PHOTOGRAPHIC TIMES; A. A. Adee, of the Department of State, Washington; John Carbutt, dry-plate maker of Philadelphia; John E. Dumont, of Rochester; Professor L. H. Laudy, Columbia College; John T. Nagle, of the City Health Department; Lieutenant C. L. Brunes, United States Navy; James H. Stebbins, Jr., chemist; the Rev. F. C. Bowles and the Rev. A. H. Hall, Franklin Harper, H. V. Parsell, Mr. and Mrs. David Williams, Mrs. Nathan Appleton, Mrs. Augusta Arnold, Miss Elizabeth A. Slade, Miss C. W. Barnes and Miss S. M. Cory.

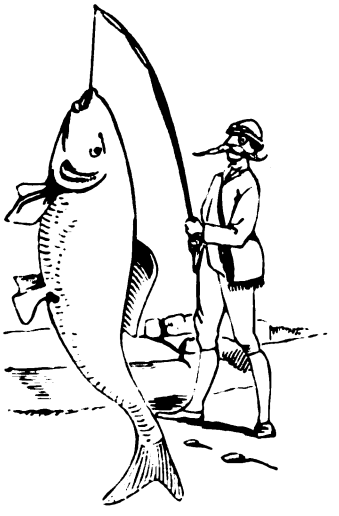
In the assembly room, where fortnightly meetings are held, are many things of photographic interest. Its walls are decorated by prize frames from the exhibitions, and by specimens of superior amateur work from various members and from distinguished members of other photographic associations in this country and abroad. In this room the entertaining lantern-slide exhibitions are given throughout the winter months, to which the members generally bring their friends. They have a pleasant social character that is greatly enjoyed by all. Women, as a rule, are enthusiastic over amateur photography, and those who have not cameras themselves show great interest in the photographic work of their friends.

A COMMODIOUS DARK-ROOM.

On the third floor the commodious dark-room is situated, and here, too, are numerous lockers for the convenience of the members. In the front part of this floor a skylight has been arranged, so that portraits may be made and copying work carried on. A large portrait camera fitted with suitable lenses and a "copying camera" are here. Always in attendance on this floor is a professional photographer, who makes prints from their negatives for the members, at a nominal fee, and developes their plates for them when they so desire. He is here, also, for the purpose of instructing the younger members, and finds that his time is fully and profitably employed. One large lantern hangs in the centre of the dark-room proper, which dimly but evenly illuminates the whole apartment. For the work of developing, a light from the lanterns immediately overhanging the trays is used, and they are made after the most improved patterns. A double door is provided, so that members may make their entrances and exits while the work in the dark-room is going on. Of course nothing but the feeblest red light is admitted in this room, for by no other illumination can photographic work be carried on. Five members may conveniently work in this dark-room at one time, which probably is the case in no other dark-room in this country. Thus it will be seen that these rooms afford every facility to members for working any time of day or evening, either in the dark-room or library—a convenience which is appreciated by those who find it difficult to arrange a dark-room in a city house, and those who wish to read up, at any time, on some particular point in photographic history or practice.—*N. Y. Tribune.*

The Fish.—

When caught and—



Photographed.

—*Exchange.*

Photographic Societies.

CASE SCHOOL CAMERA CLUB.

AT the regular meeting of the club Friday afternoon December 6th, the greater part of the time was spent in electing officers as given below:

President, Wm. T. Rynard; Vice-President, Geo. D. Marshall, Secretary and Treasurer, Edward H. Williams; Corresponding Secretary, Milton B. Punnett (re-elected).

The following named students were elected to membership: Wm. H. Brown, Alfred P. Averill, and Ogden O. Bolton.

Mr. Williams exhibited some fine celluloid positives and said a few words regarding the process of making them and also how to remove the yellow stain caused by the pyro, by immersing them in a bath of red prussiate of potash and hypo.

Milton B. Punnett,
Corresponding Secretary.

TORONTO CAMERA CLUB.

THIS enterprising club has its headquarters in the College of Physicians and Surgeons of Toronto, and for officers the following gentlemen: President, W. Barclay McMurrick; Vice-President, F. D Mauchee; Secretary and Treasurer, E. Havelock Walsh; Executive Committee, Doctor Ellis, T. Langton, G. S. C. Bethune, Rupert Muntz, Hugh Neilson, George McMurrick, D. W. Cameron and A. E. Trow.

It has fitted up, at a great expense, a most improved dark-room, reading-room, etc. THE PHOTOGRAPHIC TIMES is kept on file. The Secretary's address is 219 Beverley Street, Toronto, Ontario. We advise all amateurs or those interested in photography, in the city of Toronto and vicinity, to join this enterprising club.

THE ROCHESTER CAMERA CLUB'S PROSPEROUS CAREER.

THE Camera Club is making a new departure. It has progressed so fast the first twelve months that it has outgrown its present location, and now on the eve of a second year has secured two rooms in the Mansion House Block, State Street, each of which is larger than the present club room. It is intended to fit one up as a dark room, with every convenience for developing, and furnish the other as a club and meeting room. The members will have access to both rooms at any time of the day and evening.

The rooms are steam heated and heat and elevator are available till 11 o'clock each night.

It is intended that the social element shall be encouraged as well as the scientific, to attain this end it will be necessary to raise the fee to $5 per annum, and at the last meeting H. T. Matthews gave the necessary notice of alteration of the by-laws, which will be voted upon at the next regular meeting.

It was also suggested that the photographic manufacturers and stock dealers be invited to contribute to fitting up the rooms.

TORONTO AMATEUR PHOTOGRAPHIC ASSOCIATION.

THE first annual meeting of the above association was held in their new quarters in the College of Physicians and Surgeons, on Monday evening, November 4th., the President, Mr. J. S. C. Bethune, in the chair.

The Treasurer, Mr. F. D. Manchee reported that notwithstanding the heavy expense entailed in fitting up their present premises, there was still a balance to the credit of the association.

The President's report of the year's work proved conclusively that the enthusiasm amongst the members was steadily increasing, and that the efforts of the officers to make the club a success, had evidently been appreciated by all.

During the winter months, three practical demonstrations were given as follow:

J. J. Ramsay, on the "Production of Lantern-slides by Artificial Light."

W. A. Lyon on "Sensitized Paper and Printing Methods."

Mr. Milburn demonstrated for the Eastman Dry-Plate and Film Co. on "Stripping Films," showing clearly how easy it is done when one knows how.

On May 18th, through the kind invitation of the Vice-President, Mr. W. B. McMurrick, an excursion of the association was made to Degrassi Point, Lake Suncoe, where a couple of days were most enjoyably spent under canvas, and a large number of negatives taken.

The first "At Home" of the Association was held on the 18th of September, at which nearly 200 guests were present, a very pleasant evening was spent, some fine musical selections were admirably rendered, and a lime-light exhibition was given of lantern-slides from members' negatives.

After the above reports had been received, some 20 names were then proposed, and the following officers elected for the season of 1889–1890:

President, W. Barclay McMurrick.

Vice-President, Frank D. Manchee.

Sec.-Treasurer, E. Havelock Walsh.

Executive Committee—Geo. S. C. Bethune, Hugh Neilson, T. Langton, Geo. McMurrich, D. W. Cameron, A. E. Trow, Rupert Muntz, Dr. Ellis.

E. Havelock Walsh,
Sec.-Treasurer.

PACIFIC COAST AMATEUR PHOTOGRAPHIC ASSOCIATION.

AT a special meeting called for the purpose on November 31st, Mr. H. S. Bellsmith, of the Eastman Company, appeared before the Association to describe the manufacture of the new film and the subsequent manipulations necessary to produce a negative.

As this was the third appearance of Mr. Bellsmith before the members he was given a right cordial greeting by a meeting fully as large as has ever assembled in the rooms of the Society.

With his direct style, good voice and easy manner he closely held their attention while he described the events which led to the gradual development from the first film produced by the Company, which was on paper and had to be oiled, to the transparent film of the to-day, which is ready for printing as soon as dry after development. The difficulties and objections to the disagreeable work of oiling were humorously spoken of and now that they are on the verge of the past Mr. Bellsmith confessed that there *was* an awful lot of work connected with stripping.

As the process of manufacture of the films used in the stripping process is known to readers of magazines the description given, though interesting, will not be here repeated. Some facts regarding the new film, however, are interesting.

At first it was thought impossible to make a celluloid support long enough for use in the roll holder. After the difficulties in the way had been overcome there was trouble in getting the celluloid thin enough, for when too thick it would not lay flat on the table of the roll holder. After this question had been solved it was found that the emulsion separated from its support, sometimes even before reaching the developer—what is known as dry frill. This was caused by the celluloid not being sufficiently seasoned, the presence of camphor, which is largely used in all forms of celluloid, preventing the necessary adherence. Finally this serious difficulty was overcome and its removal allows the production of the most satisfactory substitute for glass yet discovered.

Having finished his description Mr. Bellsmith had the lights turned down, and with the aid of proper illumination proceeded to develop some exposures. Six pieces of transparent film were soaked in water to make them lay flat and afterwards transferred, one at a time, to a diluted developing solution of eikonogen. They were kept in motion, examined frequently, and in a remarkably short time, about twenty minutes, scarcely longer than the time required to develop a plate, six good negatives were produced. To guard against their frilling, made possible by the heat of the hand tending to dissolve the substratum, they were passed through an alum bath before fixing. After the hypo they were washed in the usual manner and then soaked in a solution of glycerine and water to insure their laying quite flat. Before the final washing they were handed around among the members for examination, and found to equal products on glass.

Judging by sample negatives and prints the results are much finer than those obtained by the stripping process aside from the fact that negatives are easier to make. The skies are perfectly even, without the slightest trace of grain or mottle.

After this successful demonstration Mr. Bellsmith exhibited a number of new cameras, also the first Kodak ever made. Upon this subject the older members, as seasoned veterans of the tripod, could not resist the temptation to "Josh" him upon the subject of "you push the button, we do the rest" but he ably retorted, and by the production of the most compact and complete detective or hand camera yet seen here changed their criticisms to admiration.

First came the enlarged Kodak. No longer a Kodak, said the critics, for it contained a finder and a changeable focus. The size of the image, still circular in form is about double that of the first Kodak. The size of the box is about that of the ordinary detective. Good as this camera is it cannot hold a candle to its companion, the folding hand, or detective camera. The front of this box drops down, and is held in place by two braces. A bellows with lens and shutter attached is drawn out to a registered mark and fastened by the turn of a lever. The shutter is set, the exposure made, and the box closed up all in a moment. Equipped with a roll-holder carrying transparent films sufficient for forty-eight exposures this camera is complete and must become a favorite, particularly if it is furnished with a ground glass, as some of the members suggested. Upon the 5x7 an ingenious arrangement of the rising front permits more sky to be obtained when used either horizontally or vertically, and the finder also changes to suit the shape to be made. Another recommendation is their small cost, fifty and sixty dollars respectively, which places them within the reach of many amateurs.

At the next regular meeting of the Association, Mr. Bellsmith is to be the guest of the evening for the "tomale orgie" which follows. It would take too long to describe what this term means. It is sufficient to say that it is an occasion when there is plenty to eat and plenty to drink, with a sufficient number of good fellows to sharpen ones wits and make:

"Good digestion wait on appetite, and health on both."

A. J. Treat,
Cor. Secretary.

NATURE'S MIRROR.

NATURE, fair Goddess, so the legends say,
Adown a leafy glade, one sultry day,
With careless footsteps strayed, and o'er the brink
Of a cool streamlet bowed herself to drink—
When, lo! upstarting in the mirror clear
The bright reflections of her charms appear.
Delighted with the beauteous vision seen
For the first time, th' imperious sylvan queen,
Summoned the shadow from the depths to rise,
And ART, submissive, stood before her eyes.
Since then, from age to age, the luckless sprite,
With falt'ring steps, the Goddess keeps in sight,
Aping, with toilsome care, each varying phase
Of Nature's matchless symmetry and grace:
Till pitying her distress, the God of Day,
Majestic Sol accosts the o'er tasked fay.
"Oh take my rays," quoth he, "and with them power
To sieze the fleeting beauty of each hour;
Nay, more, outvying Nature's self, 'tis thine
To immortalize the human face divine,
The bloom of youth, the smile, the sparkling eye,
The evanescent charms that else would die,
By thee transfixed shall never more depart:
Be known henceforth as PHOTOGRAPHIC ART.

—*T. J. Piggott.*

The Editorial Table.

"Dost thou love pictures? We will fetch them straight,
As lively painted as the deed was done."
—SHAKESPEARE—*"Taming of the Shrew."*

G. WALDON SMITH, the enterprising photographer of Boston, Mass., has sent us a few child portraits which are unusually good. We shall have something to show our readers, in photogravure, from Mr. Smith's studio, before very long.

IN *Outing* for December there is commenced a copyrighted article on "Instantaneous Photography," by W. I. Lincoln Adams, illustrated with Kurtz's reproductions from actual instantaneous photographs.

In referring to the various "detective" cameras, the author says, "Of making detective cameras there verily seems to be no end. We learn of the 'pocket' camera, the 'book' camera, 'the hat,' the 'cane,' and the 'opera-glass' camera; while in England it has been proposed to apply the familiar 'slot' principle to a camera, so that by merely dropping a coin of the proper weight—with a 'pleasant expression' on one's face—in the place indicated, and remaining for a few seconds before the machine, one may take from the drawer below a finely finished, mounted, and burnished photograph of one's self.

"This is, as yet, largely theoretical, however. The latest design of an instantaneous camera devised by a prominent amateur, is said to consist of two shutters, one having a range of from one-hundredth of a second upward, placed behind the lenses; and the other, with a range of from one-hundreth of a second downward, placed in front of the lenses to act as a hood. The invention requires a holder for films, capable of carrying two or three dozen."

He also speaks of the tripod camera as being "really more widely applicable for the purpose than is at first or generally thought." "Some of the most successful amateurs in this class of work," he writes, "use nothing but a tripod camera, and, as a rule, rather better photographic results, technically considered, are obtained with a stationary camera than with those that are held in the hand. More exact focus may be secured, and a better composition often, when the camera is firmly and easily supported on the adjustable tripod. The camera need not be heavy. It may be of some light wood, like pine, for instance, and can as readily take the roll-holder for exposing the light and sensitive films as the 'detective' boxes. At a pinch, too, it may be held in the hand without regard to the tripod. Often the tripod is not used by experts when photographing certain swiftly-passing subjects, like yachts in a regatta, or a gallant troop of horsemen in a parade. A tripod camera, even of a large size, may easily be supported in one's hands, holding it firmly against the body, while the shutter is released at the right moment, as the subject passes in view. Of course, the 'finder' must be resorted to, in order to determine just when to snap the shutter, and the plate or film must be in its place ready for the exposure."

Other brief extracts are given in another column. The reproductions are particularly good, and well represent the best instantaneous work accomplished by amateurs. The paper is to be concluded in the January number.

THE author of "Agnes Surriage," Mr. Edwin Lassetter Bynner, opens the December number of the *Atlantic Monthly* with an article of interest to the antiquarian, and especially to the student of Old Boston. This paper is devoted to "The Old Bunch of Grapes" tavern, one of the most famous New Englandh ostelries of the last century, and Mr. Bynner gives an amusing account of the various events which took place within its hospitable walls. Mr. Henry Van Brunt's paper on "Architecture in the West" tells about the difficulties which Western architects have to struggle against, and the new school of architecture which is gradually arising to solve the problem of making art keep step with progress without losing the finer and more delicate artistic sense. It will be studied by all Western men, and all architects with a great deal of interest. Prof. N. S. Shaler, of Harvard College, contributes a paper on "School Vacations," and Mr. William Cranston Lawton, whose articles on the Greek drama have been among the best literary papers the *Atlantic* has lately had, writes about "Delphi: The Locality and its Legends." Miss Hope Notnor has a second paper on the romantic

lives of the "Nieces of Mazarin;" and "Latin and Saxon America" (the relations of this country with South American countries) forms the subject of a paper by Mr. Albert G. Browne. Mr. James's "Tragic Muse" is continued, and there is an installment of Mr. Bynner's serial, "The Begum's Daughter." Mr. Thomas Bailey Aldrich's "Two Lyrics"—"A Dedication," and "Pillar'd Arch and Sculptured Tower" have the grace which distinguishes the work of the editor of the *Atlantic*. Beside one or two other articles there are reviews of the "Life of William Lloyd Garrison" and the "Century Dictionary," and these, with the usual departments, conclude a number of solid value.—*Houghton, Mifflin & Co., Boston.*

HOUGHTON, MIFFLIN & COMPANY continue to turn out holiday books of the very highest order. Many are illustrated with photo-gravures and with pictures from photographs or based on photography. The latest volumes from this standard publishing company, which have come to our table, are, "A Rambler's Lease," by Bradford Torrey, full of out-door interest to photographers and descriptive of more than one beautiful picture in nature: "The Hermitage, and Later Poems," by Edward Rowland Sill, that exquisite delineator of all things beautiful and natural—a volume which is an inspiration to the photographer; and "Betty Leicester," by Sarah Orne Jewett, a delightful story for girls, and a book that would be appreciated by the young ladies, to pass a tedious half-hour while waiting for their turn in a photographer's studio. The three books, as all the volumes which issue from the famous Riverside Press, are faultless as to press-work and binding.

IN reply to the many inquiries after the author's edition *de Luxe* of "The Photographic Times Annual" this year, we will explain that the extra pains which are required in the printing and binding of such a book, of necessity delays its appearance somewhat. It will therefore be January 1st before our publishers will be ready with this edition. The regular paper and library editions of the book were sent to all who ordered them, last week. They were not sent out immediately on receipt from the bindery, as they came along in small quantities and it was thought to be more fair to wait until all were received, and ship the seventy-five hundred copies ordered, simultaneously.

Record of Photographic Patents.

416,938.—Photographic Camera. George S. Moler, Ithaca, N. Y.

417,045.—Plate Holder for Photographic Cameras. Max Jurnick, Jersey City, N. J.

417,131.—Photographic Camera. Ottomar Anschutz, Lissa, near Posen, Prussia, Germany.

417,153.—Photograph Burnishing Machine. Hamilton Clary, Chicago, Ill.

417,202.—Manufacture of Flexible Photographic Films. Henry M. Reichenbade, Rochester, N. Y.

TRADE MARK.—Photographic Developing and Fixing Baths; Non-actinic Substances for Use In. C. Spirq and L. Smadbeck.

THE MODERN PHOTOGRAPH.

THERE are many funny fancies—
Some are fit to make one laugh—
But the oddest is the fashion
Of the latest photograph;
Formerly they took your picture
Front face, eyes upon a crack,
Now-a-days the proper caper
Is to photograph your back.

Frank B. Welch in Time.

Queries and Answers.

252 J. T. wishes to be informed in what quantity of water he shall dissolve one ounce of sulphide of potassium, to use as an intensifier.

252 *Answer.*—Dissolve one ounce of sulphide in twenty ounces of water, and bathe the plate in the solution till the desired effect is obtained.

253 A Subscriber asks:—Will you kindly give, in your next issue, a suitable developer of Hydrochinon for Eastman's new transparent Kodak films, and oblige.

253 *Answer.*—The Chautauqua Hydrochinon developer, standard formulæ No. 57, page 268 "American Annual of Photography," for 1890. You can get the developer ready prepared, and under the name S. P. C. Hydrochinon developer at the Scovill & Adams Co.

254 F. P. J. writes as follows: "Please inform me if Morrison's Wide Angle Lens (size 6½ x 8½) should be used as is the Gundlach Rapid Rectigraph, in regard to *diaphragms* and *time of exposure*, i. e., should the *time* be doubled *for each size smaller stop?* According to the experiments I have made, it would seem about right, but I desire to know, if possible, just what is required. I have a lens of each make mentioned, purchased of your house."

254 *Answer.*—You are quite right in the main. But you must always consider the sensitiveness of the plate, the conditions of light and atmosphere, color of and distance from the subject.

255 RICHMOND has a lot of mounted pictures, they are not good, but he wants to utilize the mounts, and paste other pictures over them. He finds that the old pictures shine through the new, and wants to know how that can be prevented.

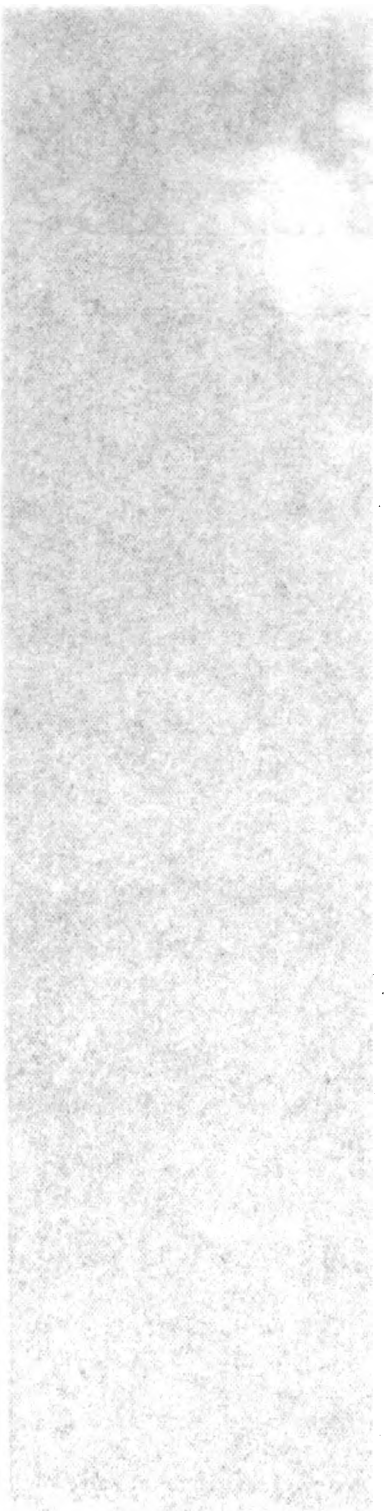
255 *Answer.*—It appears to us this is false economy, and we advise to discard the old pictures altogether, and use new mounts. They are cheap enough.

256 ALICE B. T. has lately had great trouble in stripping bromide transfers from ground glass and opal plates. When the hot water is applied the edges will frill very much, and oftentimes larger pieces of the picture detach from the plate. I have not been able to transfer properly for some time, and am thinking the paper must be at fault, as I never had difficulties formerly.

256 *Answer.*—The paper is as perfect as it ever has been. There can not possibly be any trouble if directions are followed strictly. After squeegeeing the print on the plate, dry under slight pressure, soak for a few minutes in cold water, then apply the warm, which should not be above 100 deg. Fahr., have a little patience, and with slight assistance the paper will come off entire. You use the water too hot in all probability.

MRS. APPLETON, PHOTO. PHOTOGRAVURE CO.,N.Y.

A COUNTRY LANE.



THE PHOTOGRAPHIC TIMES.

VOL. XIX. FRIDAY, DECEMBER 27, 1889. No. 432.

A COUNTRY LANE.

THE "Country Lane," by Mrs. Jeanette M. Appleton, which adorns this issue of THE PHOTOGRAPHIC TIMES, is a picturesque bit of rural scenery in Highland Park, about forty miles from Chicago.

"I chose the early morning light," writes Mrs. Appleton in regard to the picture, "making a long exposure on a Cramer, 40 sensitometer. The plate was developed with a pyro-ammonia developer, using an old developer and working it up very slowly. I never hurry a woodland picture, either in development or exposure, and generally get soft results."

"A Country Lane" certainly shows a very soft and pleasing effect. The bent tree in the foreground, however, is to be regretted, as it considerably mars the otherwise quite perfect composition of this charming rural scene.

Mrs. Appleton further writes, referring to the photo-gravure reproduction of her negative: "I am greatly pleased with the printing process you use. It certainly grows upon one."

EDITORIAL NOTES.

IN this issue of THE PHOTOGRAPHIC TIMES will be found an index for the year. This index, being very complete and systematically arranged, will be of great value to those of our readers who preserve the numbers for binding. Bound also in the new PHOTOGRAPHIC TIMES Binder, referred to in these columns not long ago, the numbers of the year, with the index, make a handy photographic work for reference, as well as a portfolio of over fifty-two high grade photo-gravures from the best negatives by professionals and amateurs, which could be secured in this country and abroad. The index shows, at a glance, the wealth of reading matter which has been published in THE PHOTOGRAPHIC TIMES during 1889. We speak with conscious pride in referring to it, and we feel sure that our readers share this feeling with us to the fullest extent.

WE wish to call the attention of our readers to the Judges' report on the Photographic Apparatus exhibited at the Fifty-eighth Exhibition of the American Institute. Two weeks ago we announced the prize winners, but could not give the complete reports at that time. In another column, this interesting matter, signed by Charles Wager Hull, General Superintendent, is given in full.

WE call attention also to the article on "The Preparation of a Positive Printing Bath," by John R. Clemons, of Philadelphia, as he is probably the best qualified man to write an article on this subject, in the country. Mr. Clemons's professional experience dates back many years. "The receipt," he writes, in the letter enclosing the article, "I have been using since 1872, but never had it published in any journal. I have given it to some of my friends, however, and it has always helped them out, especially when albumenized paper is inclined to be naughty." We are sure our readers will all be greatly benefited by following Mr. Clemons's advice.

WE take pleasure in publishing, this week, the first paper delivered by a woman before any photographic society in this country. So far as we know, it is the first paper thus delivered in the world. The subject is an interesting one worthily treated. We shall all hope that Miss Barnes will favor us again with a paper on a photographic subject "from a woman's standpoint."

BEFORE the Chemical Society of Washington, Mr. R. Hitchcock read an interesting paper upon a Japanese product which might be of use in photographic manipulations. "Japanese lacquer," obtained from a tree, *Ruhs Vernicifera, D. C.* The chief substance we have to rely upon for our

dishes and cabinet ware to protect them from damp or the penetration of water, is shellac, but the lacquer in question appears to possess advantages not known in the use of the Indian product. Mr. Hitchcock states that it gives a surface to wood which is hard but not brittle; takes a polish not to be excelled and which lasts for centuries. It is proof against boiling water, alcohol, and, indeed, seems to beinsoluble in any agent known. It is the best possible application for laboratory tables. He had had in use a set of photographer's developing trays for more than a year, and they were excellent and cheap. One drawback of being poisonous will not go for much with photographers, we think.

MR. JOHN CARBUTT has prepared an excellent eikonogen developer for lantern-slides and flexible positive films. His formula is as follows:

No. 1.

Distilled Water	20	ounces
Sulphite of soda crystals	2	ounces
Eikonogen crystals	½	ounce

No. 2.

Distilled water	20	ounces
Carbonate of potash	¾	ounce

To make the developing solution, equal parts of numbers 1 and 2 are used, and to each ounce of the mixed solution from two to four drops of a ten per cent. bromide solution is added. The developer is then used in the usual manner. With the formula, Mr. Carbutt hands us a number of slides which he had made with this developer, and they certainly testify to the great excellence of his method. They are of various subjects, and will be gladly shown to any of our readers who may call to see them.

JUDGES' REPORT ON PHOTOGRAPHIC APPARATUS.

DEPARTMENT I., GROUP 7, THE SCOVILL & ADAMS COMPANY, EXHIBITORS.

TO THE BOARD OF MANAGERS:

Gentlemen:—After a full and impartial examination of the articles above described, the Judges make report that:

They have given this exhibit a very careful investigation and find that all the claims set forth by the exhibitors arefully sustained.

Both of the Detective Cameras exhibited are extremely ingenious in so far as they do away entirely with the ordinary plate-holder and glass plates, substituting films in place thereof, enabling twenty-four exposures to be made before removing or changing the plates—the entire mechanism of changing the plates, opening and closing the lens, changing the diaphragms, focusing, etc., being operated entirely from the outside.

The new "Irving Camera" is deserving of special recognition. Being exceedingly compact, folding into a space of about two inches (and weighing about three pounds and eleven ounces), having a rack and pinion for focusing with an ingeniously devised swivel front and the new grasshopper back—and, taken altogether, is the most compact and portable camera extant.

The Wonder Camera is certainly a wonder, as far as cheapness is concerned. Camera, lens, tripod and chemicals necessary to produce a photograph—all for the sum of $7.50.

The entire exhibit displays great inventive genius and superior workmanship in every respect. The exhibitors keep up with the times, and in a great many respects are far ahead of all others in this class of manufacturers

We feel warranted therefore in recommending the award of a Special Medal.

The Special Medal awarded.

THE POSTAL PHOTOGRAPHIC CLUB.

ALBUM No. 12 brings to a close the first year since the revival of this now flourishing club From the indefatigable secretary, Dr. Max Müller, of Westchester, Penn., who has been re-elected for the coming year, with Prof. Randall Spaulding, of Montclair, N. J., as President, we learn that seven-hundred and forty-two prints have been exhibited in these albums during the year. Very many of them have been characterized by a high degree of technical and artistic merit. In point of number exhibited, silver albumen prints of course take the the lead; bromides stand second, and platinotypes third. Bromide paper seems to be increasing in favor, especially in the printing from rather weak negatives. There has been used of course a great variety of plates, lenses, developers, and toning-baths. Full data accompanying each print, and comments in the accompanying note books are numerous and pointed. Another fact not to be dispised is that the club starts upon the new year with a balance in the treasury. There is still room for some new members, the maximum number not yet being reached.

Album No. 12 opens with a splendid photo-gelatine print from Mr. Jackson, in which the coloring is something unique. "A Lonely Shore" is from the same artist, and contains a remarkable cloud effect. The sheep and cattle scenes from Dr. Müller, printed in medallion, with a black

background, are choice pictures; as are also Miss Smith's "On the River," Mr. Dumont's "Hello," Mr. Prentiss' "Prospect Cascade," done in sepia; Mr. Walmsley's scenes on the Brandywine, Prof. Spaulding's "Along the Rockaway," Mr. Hausmann's "Valley of the Yunxis," Miss Littlejohn's "Harold." Miss Gillender's "American Ruin," Mr. Davey's "We are Twins," and Mr. Pierce's Panoramic Views of Washington.

The advantages of this club are manifest. It enables its members to enjoy quietly at home during the year hundreds of specimens of our most successful amateurs' work. Correspondence may be directed either to the Secretary or to the President of the club.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER XII. (*Concluded*).

TABLE OF THE PRINCIPAL SUBSTANCES WHICH ARE KNOWN TO BE ACTED UPON BY LIGHT.

SUBSTANCE.	FIRST OBSERVER.	DATE.
SILVER.		
Nitrate solution, mixed with chalk, gives in sunshine copies of writing.	J. H. Schulze.	1727
Nitrate solution on paper.	Hellot.	1737
Nitrate photographically used.	Wedgewood and Davy.	1802
Nitrate on silk.	Fulhame.	1797
	Rumford.	1798
Nitrate with white of egg.	B. Fischer.	1812
Nitrate with lead salts.	Herschel.	1839
Chloride.	J. B. Beccarius.	1757
Chloride in the spectrum.	Scheele.	1777
Chloride photographically used.	Wedgewood.	1802
Chloride blackened.	Lassaigne.	1839
Iodide.	Davy.	1814
Iodide by action of iodine (on metallic silver).	Daguerre.	1839
Iodide photographically used.	Herschel.	1840
Iodide with gallic acid.	Talbot.	1841
Iodide with ferrous sulphate.	Hunt.	1844
Chloride and iodide by chlorine and iodine (on metallic silver).	Claudet.	1840
Bromide.	Balard.	1826
Bromide by action of bromine (on metallic silver).	Goddard.	1840
Sulpho-cyanide.	Grotthus.	1818
Nitrite.	Hess.	1828
Oxide with ammonia.	Mitscherlich.	1827
Sulphate.	Bergmann.	1779
Chromate.	Vauquelin.	1798
Carbonate.	Buchholz.	1800
Oxalate.	Bergmann.	1779
Benzoate.	Trommsdorf.	1793
Citrate.	Vauquelin.	1798
Kinate.	Henry and Plisson.	1829
Borate.	Rose.	1830
Pyro-phosphate.	Stromeyer.	1830
Lactate.	Pelouze and Gay-Lussac.	1833
Formiates.	Hunt.	1844
Fulminates.	Hunt.	1844
Sulphide by vapor of sulphur (on metallic silver).	Niepce.	1820
Phosphide by vapor of phosphorus (on metallic silver).	Niepce.	1820
GOLD.		
Oxide.	Scheele.	1777
Chloride on paper.	Hellot.	1737
Chloride on silk.	Fulhame.	1794
Chloride in ethereal solution.	Rumford.	1798
Chloride with ferro-cyanide and ferri-cyanide of potassium.	Hunt.	1844
Chloride and oxalic acid.	Döbereiner.	1831
Chromate.	Hunt.	1844
Plate of gold and iodine vapor.	Goddard.	1842
PLATINUM.		
Chloride in ether.	Gehlen.	1804
Chloride with lime.	Herschel.	1840
Iodide.	Herschel.	1840
Bromide, Cyanide	Hunt.	1844
Double chloride of platinum and potassium	Döbereiner.	1828
MERCURY.		
Oxide (mercurous).	Gay-Lussac and Thenard.	1811
Oxide.	Davy.	1812
Oxide (mercuric).	Davy.	1797
Oxide (more accurate observations.	Abildgaard, Harup not till	1797 1801
Chloride (mercurous).	R. Neumann, previously to	1789
Chloride (mercuric).	Boullay.	1803
Chloride with oxalic acid.	Bergmann.	1776
Sulphate.	Meyer.	1764
Oxalate (mercuric).	Bergmann.	1776
Oxalate (mercurous).	Harff.	1836
Sulphate and ammonia (mercurous).	Fourcroy.	1791
Acetate (mercurous).	Garot.	1826
Bromide (mercuric).	Löwig.	1828
Iodide (mercurous).	Torosewicz, Artus.	1836 1836
Iodide (mercuric).	Field.	1836
Citrate (mercuric).	Harff.	1836
Tartrate and potassium (mercurous)	Carbonell and Bravo.	1831
Carbonate (mercuric).	Davy.	1812
Nitrate.	Herschel.	1840
Sulphite (mercuric).	Vitruvius.	1, B C.
IRON.		
Sulphate (ferrous).	Chastaing.	1877
Chloride (ferric) and alcohol.	Bestuscheff.	1725
Chloride and ether.	Klaproth.	1782
Oxalate (ferric).	Döbereiner.	1831
Ferro-cyanide of potassium.	Heinrich.	1808
Sulpho-cyanide.	Grotthus.	1818
Prussian blue.	Scopoli.	1783
Ferric Citrate with ammonium	Herschel.	1840
Ferric Tartrate.	Herschel.	1840
Chromate.	Hunt.	1844

Substance.	First Observer.	Date.
Copper.		
Chloride (cupric dissolved in ether.)	Gehlen.	1804
Oxalate with sodium.	A. Vogel.	1813
Chromate	Hunt.	1844
Chromate with ammonium	Hunt.	1844
Carbonate	Hunt.	1844
Iodide	Hunt.	1844
Sulphate	Hunt.	1844
Chloride (cuprous).	A. Vogel.	1859
Copper plates (iodized).	Kratoch.	1841
	Talbot.	1841
Manganese.		
Sulphate.	Brandenburg.	1815
Oxalate.	Suckow.	1832
Potassium permanganate.	Frommberg.	1824
Peroxide and cyanide of potassium.	Hunt.	1844
Chloride.	Hunt.	1844
Lead.		
Oxide.	Davy.	1802
Iodide and sulphite.	Schönbein.	1850
Peroxide.	Gay-Lussac.	1811
Red lead and cyanide of potassium.	Hunt.	1844
Acetate.	Hunt.	1844
Nickel.		
Nitrate.	Hunt.	1844
Nitrate with ferro-prussiates	Hunt.	1844
Iodide.	Hunt.	1844
Tin.		
Purple of Cassius.	Uncertain.	....
Various Substances.		
Cobalt.	Hunt.	1844
Arsenic sulphide (realgar).	Sage.	1803
Antimony sulphide.	Suckow.	1832
Bismuth salts.	Hunt.	1844
Cadmium salts.	Hunt.	1844
Rhodium salts.	Hunt.	1844
Vanadic salts.	Roscoe.	1874
Iridium ammonium-chloride.	Döbereiner.	1831
Potassium bichromate.	Mungo Ponton.	1838
Potassium with iodide of starch.	Becquerel.	1840
Metallic chromates.	Hunt.	1843
Chlorine and hydrogen.	Gay-Lussac and Thénard.	1809
Chlorine (nithonized).	Draper.	1842
Chlorine and ether.	Cahours.	1810
Chlorine in water.	Berthollet.	1785
Chlorine and ethylene.	Gay-Lussac and Thénard.	1809
Chlorine and carbon monoxide.	Davy.	1812
Chlorine and marsh-gas.	Henry.	1821
Chloride and hydrocyanic acid.	Serullas.	1827
Bromide and hydrogen.	Balard.	1832
Iodine and ethylene.	Faraday.	1821

Substance.	First Observer.	Date.
Cyanogen, solution of.	Pelouze and Richardson.	1837
Various other methyl compounds.	Cahours.	1846
Hydrocyanic acid.	Torosewicz.	1836
Hypochlorites (calcium and potassium.)	Döbereiner.	1813
Uranium chloride and ether.	Gehlen.	1804
Molybdenate of potassium and tin salts.	Jager.	1800
Crystallization of salts under influence of light.	Petit.	1722
	Chaptal.	1788
	Dize.	1789
Phosphorus (in hydrogen, nitrogen, etc.)	Bockmann.	1800
Phosphuretted hydrogen.	A. Vogel.	1812
Nitric acid.	Scheele.	1777
Hog's fat.	Vogel.	1806
Palm oil.	Fier.	1832
Asphalt.	Niepce.	1814
Resins (mastic, sandarac, gamboge, ammoniacum, etc.	Senebier.	1782
Guaiacum.	Hagemann.	1782
Bitumens all decomposed, all residues of essential oils.	Daguerre.	1839
Colored extracts from flowers.	Senebier.	1782
Similar coloring matters spread on paper.	Herschel.	1842
Yellow wax, bleached.	Pliny.	1st cent'y, A. D.
Eudoxcia macrembolitissa (purple dye).		10th cent'y.
Other purple dyes.	Cole.	1684
	Réaumur.	1711
Oils generally.	Senebier.	1782
Nitric ether.	Senebier.	1782
Nicoeine.	Henry, and Boutron-Charlard	1836
Santonine.	Merk.	1883

W. Jerome Harrison.

PREPARATION OF THE POSITIVE PRINTING BATH.

In answer to query No. 246, in the December sixth issue of The Photographic Times, I should like to explain the method for making positive printing bath, which I have been using since 1873. It is particularly useful when paper is liable to turn yellow as soon as it comes from the bath, for to fume such is out of the question, if good work is wanted.

The construction of the bath is simple: Take 4 ounces of silver solution from 30 to 40 grams strong and precipitate the same with table salt; wash the precipitate with 5 to 6 changes of water; the last time decant as close as possible. Then add cyanide of potassium in lumps until the chloride is all taken up. Add this to the printing bath and make it decidedly acid with nitric acid C. P.

Shake well; give it sunlight for a half-hour, and decant or filter if not settled enough. Float, dry; fume, and proceed with the work as usual. When finished silvering, pour back and give it all the light you can, until you bring it into use again. If the precipitate should run low, make up more as before.

Sensitized paper from this bath will keep a long time, and the prints require the same handling as those from an ordinary silver bath. It is only requisite to keep the silver very acid at all times.

John R. Clemons.

ON THE USE OF THE ELECTRIC LIGHT IN PHOTOGRAPHY.*

IV.

TOWARDS the end of the year 1888 the Imperial Military and Geographical Institute of Vienna installed electric light, peculiarly arranged for the purpose answering all the demands made by modern reproduction methods, excluding thereby the use of the camera.

The light used there is that of the Guage Company and consists of a Gramm compound electric dynamo machine, making 1,200 revolutions in a minute, driven by a seven-horse power steam power engine, and generating an electric current of 50 amperes and 110 volts.

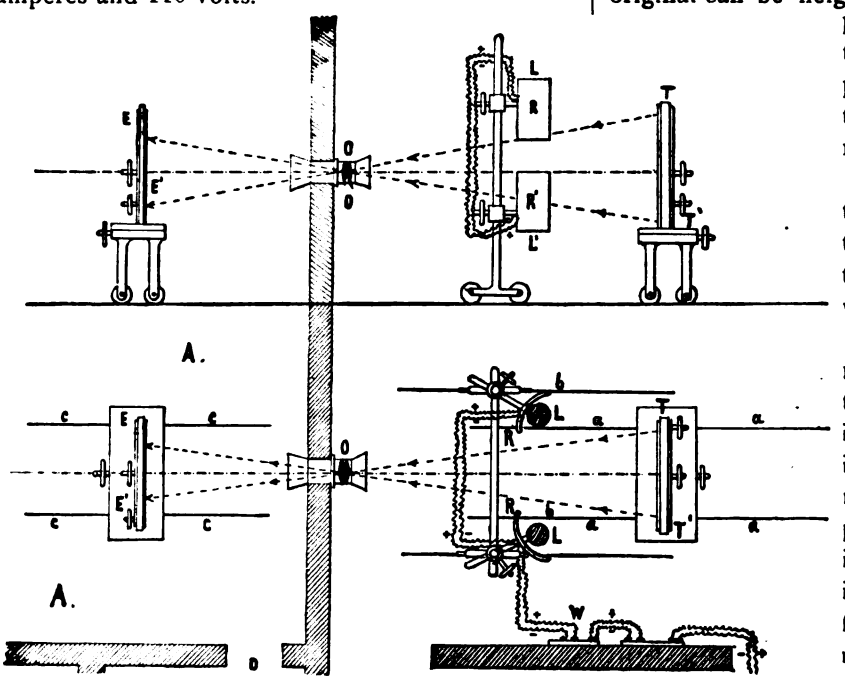


Fig. 6.

Fig. 6 explains the arrangement as it now exists. Upon an iron travelling carriage *R R* are placed 4 arc-lights of the Frangen system; they are enclosed in cylindrical reflectors. Each of them is of 3,000 candle-power, furnishing *in toto* a light of the form of 12,000 candle-power which can be thrown upon the subject to be photographed. The positive poles of these lamps are wick carbons, the negatives homegeneous carbons, the former of 20 m.m., and the latter of 8 m.m. in diameter. The negative carbons are posed excentrally towards the positives, so that when in action a cavity will form in the positive pole, causing thus a concentration of the light to be thrown ultimately upon the object.

The lamps *L L* are hung in twos, above each other, the upper ones carrying the positive poles above and the lower ones in the opposite part of the lantern, by which arrangement the light of the former radiates down and that of the other upwards, concentrating in this manner all the light emanating from the system into one point. A current regulator and Voltmetre are attached to the partition wall *W* to regulate the light force.

The table *T T*, supporting the original ruts upon the iron rail *a a*, is movable by means of castors attached to its feet, and can be propelled nearer to or farther from the object as occasion requires. With levers, bars and thumb screws the original can be heightened or lowered and placed laterally so as to bring it into the centre of the objective and parallel with the sensitive plate to be erected in the operating room *A A*.

At *O*, the partition dividing the light room from the operating room is an aperture for the transmission of light to which the objective is fastened.

A A is the dark operating room, lighted sufficiently for the work to be done in it with incandescent light. The focusing table *E E* runs upon the rail *c c*, by which to find the place, when the sensitive plate is to be inserted. It moves in all directions, so as to ease focusing of the image when in natural size at a reduced or enlarged scale. Focus can be found approximately with the table, and requires only a final adjustment. Connected with the operating room is the dark chamber *D* where the plates are developed and fixed. In the adjoin-

* Third paper appeared on page 589 of November 29th issue.

ing room wet collodion plates are prepared and fixed.

The objective on the partition wall *O*, the tables *T T* and *E E*, are so perfectly isolated that any possible vibration of the building or of the utensils cannot influence the sharpness of the reproduction.

The results obtained with this light installation are highly satisfactory. The Imperial Institute employs a man to do the work by day and by night.

But also for printing purposes the electric arc-light has been experimented with and is in actual use in some ateliers. Malone has printed on albumen paper with a light generated by 40 Grove elements and a Dubosque lamp, and obtained by 15 minutes exposure considerable depth of tone. Sensitized albumen and also pigment papers exposed under a feeble negative gave at a distance of from 30 to 40 c.m. from the light of a Siemens electro-dynamo light a print after two minutes.*

Woodbury printed his photo-relief matrices by electric light as early as 1860; and Dujardin, of Paris, obtained chromo-gelatine reliefs in from 20 to 40 minutes.

The electric light offers great advantages in the enlarging processes. With it Winter, of Vienna, has made enlarged lithographs since 1878 upon textile fabrics sensitized with bromide of silver and by an exposure of from one to fifteen minutes.

Electric light is becoming more popular from day to day, its application for photographic purposes will increase in proportion to its general use. Photographic ateliers will in time migrate from the higher portion of buildings to the lower stories, (perhaps to the basements), but the electric light will evidently be the light source of the future in all reproductive establishments.

Lt.-Col. Ottomar Valkmar.

PHOTOGRAPHY FROM A WOMAN'S STANDPOINT.

[Read before the Society of Amateur Photographers of New York.]

I HAVE been asked to say something to-night on photography viewed from a woman's stand-point. Having trained myself to look at it simply as a worker, you must pardon me if I, occasionally, in the interest of the subject, step off my own special platform. I can only excuse myself for saying anything by the fact of my absorbing interest in this work; combining, as it does, the exactness of scientific truth with the keen pleasure of artistic effort.

Less than four years ago I set up my first camera after much study and many conjectures as to where the image would appear. If discouragement was possible it would have come that first year, for even my inexperienced eyes could see the work was poor. Then acquaintance with a professional friend who knew how to criticise sharply began to have its due effect, and, by his advice, I joined this society nearly two years ago, as the camera club in our benighted city of Albany does not admit ladies. It was a fortunate step for me, as words cannot express my gratitude towards this society for the numerous benefits received from it, and I only wish it were possible to oftener attend its meetings. (In this connection let me thank you for granting my application to become an active member).

In the course of what my friends are pleased to call a "craze" I have found that eye and mind have gained, the one, new power of observation, the other, a broader delight and appreciation of the world about us. Every step in city or country now presents a picture that once would have been overlooked, and every long journey is fuller than ever before of pleasure and benefit. While previous work in art schools and painters' studios has not been wasted, it has yielded place to the mysteries of the dark-room, and the subject is viewed through the sharp eye of a long or short focus lens as may be required, for side by side with the love of art was a latent love of science. It might be called a case of transferred affection, for my hydrometer and graduates seem as beautiful now as once did a new set of brushes and palette, while my myriad collection of bottles, scales, etc., rival the finest colors from Schoenfeld or Winsor and Newton. No knowledge, we are told, is ever really lost, but it sometimes performs a kind of transmigration into some other branch of learning; the training gained in various reading and dramatic clubs has many times aided me in posing a sitter as well as preparing to take an interior.

Speaking from a woman's standpoint, I must confess that landscape work is not ordinarily pleasant, especially in cities where the ubiquitous small boy predominates and seems to rise from the earth at sight of a camera. This and other annoyances do not apply to interiors which, though difficult work, are exceedingly satisfactory if well done, and which make peculiarly suitable work for ladies who possess the requisite taste and patience. I must say that very few people, except practical

* Mr. William Kurtz prints with the light of a Hochhausen Excelsior lamp of 3,000 candle power. Within the 10 working hours of one day he has printed as many as 18 and more proofs from one gelatine negative of ordinary density. To print from a collodion negative (black and white) upon a bichromatized gelatine or albumen film, 20 minutes are required with the same light at a distance of 85 c.m.—*Translator.*

photographers, really appreciate the best points of a fine interior, and do not realize that the picture, to take which one has had to purchase an expensive lens and spend the greater part of a morning or afternoon in focusing, exposing and developing, to say nothing of the subsequent printing, etc., is worth any more than the chance shot of the most ordinary snap camera. Interiors have been shown me with vertical and horizontal lines on what might be called the bias, furniture deprived of all visible means of support, more or less halation, and, if figures were introduced, placed so the light directly faced them. It seems to me thatthisbranch of photography has by no means received proper attention and that it is exceedingly valuable in its results.

More difficult still, and therefore more interesting, is portraiture, from the simplest outdoor view to the most carefully posed sitter under the skylight. Human nature takes on very odd phases, and one needs the eyes of Argus and the patience of Job to see that the work is well done. But there is excitement and thorough satisfaction in a well-taken portrait, especially if the subject admits of being dressed and posed to illustrate some historical, mythological, or other fancy of the artist, when, if sitter and artist are *en rapport*, a world of beautiful ideas may be evolved.

Mr. Seavey painted two of my backgrounds in soft shades, but left the third for me to draw my own designs, to be removed when desired for others. There is a rod with rings in front of and high above the backgrounds on which to hang curtains, while rugs, furniture, and the conservatory are laid under contribution when needed. No trouble is too great when it is repaid by a good picture. Three out of my nine lenses belong in the studio. One is a 3B. Dall, for large heads and the two others are Voigtlander Euryscopes, one of which is the new W. A. Portrait and Group lens. This last has proved absolutely necessary, as my studio is only 9x19, and with it I can take a full-length panel figure at less than eight feet distance. All my developers are made in the dark-room near at hand by hydrometer and scales, and I have just built an emulsion closet for coating lantern-slides. My other lenses are three Dall., one Ross, one Optimus, and one Morrison. Having a good lantern, I generally try my slides before submitting them to your keen scrutiny. My first test-night experience here was very instructive. I had requested that my name be not mentioned, so that the full benefit of your unbiased judgment might be given, as it was, very fully, to my edification and profit. I am a thorough believer in lantern-slide exhibitions and enjoy making slides, as it is much easier than developing negatives. Here let me testify to my intense respect for eikonogen; no other developer shall henceforth touch my slides. I believe thoroughly in its future capabilities, but have only tried it on slides and bromides. I use a single solution, and it requires careful management from the first to the last step of the process, as its rapidity of working seems marvelous. My only lesson in slide-making was watching Mr. T. C. Roche expose and develop one, and I was then told to go ahead, which I have tried to do ever since. I have seen very little of other ladies' photographic work, but have sought for information wherever it could be found, especially here, where the feeling of comradeship is strong enough to lead many of you to take infinite pains with beginners like myself. Such treatment contrasts forcibly with that of a recent writer in the *Photographic News*, signing himself "Perplexed," who gives a number of objections to lady photographers enjoying club privileges. Those of you who see the *American Amateur Photographer* may find some comments on the above-mentioned writer's statements in the December number.

One point more and I have finished. There is a suggestion I would like to make to our representatives on the Joint Exhibition Committee. It may possibly be favored by no other lady competitor, perhaps not by the committee, but I wish to urge it strongly.

It is to abolish the so-called "Ladies' Diploma or Prize." My reasons can be briefly stated. It is not a complimentary distinction, although intended as such, and is considered by outsiders as implying that the lady who wins it competes only against other ladies, which greatly lessens the value of the prize. If I had known before receiving it, at Boston, that at the same time a prize for a special subject was to be given to another lady, I should have hesitated about accepting the diploma. Good work is good work whether it be by man or woman, and poor is poor by the same rule. If the work of men and women is admitted to the same exhibition it should be on equal terms. Do not admit a woman's pictures because they are made by a woman, but because they are made well. If the work is poor reject it. Do not, when she wins a prize, allow the inference to be drawn that it is her's only by courtesy. Let her feel that she has won it fairly in a free field. You admit her to your deliberations, place her work on your walls and on your lantern screen, can you not offer your prizes simply for certain kinds of work and allow the question of sex to be laid aside?

Miss Catharine Weed Barnes.

Notes and News.

The Formation of the Photographic Society of the Argentine Republic, is reported from Buenos Ayres.

Obituary—Mrs. Emma E. Erma Floyd, wife of J. W. C. Floyd, the well-known photographer of Lock Haven Pa., died at the residence of her parents, aged twenty-five years on the morning of December 14th.

Photography as a Life Preserver.—An Atchison man has his photograph taken every year. He says that be has noticed that people who have their photographs taken often are not so apt to die as those who never have any taken. It is always the man who has no good picture to leave of himself who is most apt to die.—*The Atchison Globe.*

The Pyro Developer.—A pyro solution recommended for its keeping qualities by the *British Journal of Photography* is made up as follows:

Pyro.,	1 pound
Recrystallized sulphite soda	5 pounds
Citric acid	¼ ounce
Water (if boiled, so much the better)	2 gallon

The solution will keep for several months without becoming discolored. Ammonia potash or carbonate of soda all work well with it as an alkali.

Reducing Negatives.—The *Bulletin de la Société Photographique* gives an excellent receipt by E. Gosselin for reducing too intense negatives. The negative must be first washed for half an hour and then immersed in a bath of the following composition:

Water	100 c.c.m.
Sulphuric acid	4 c.c.m.
Chromate of potash, solution three per cent.	6 c.c.m.

The reduction takes place very rapidly without causing spotting; and subsequent intensification, if necessary, can be easily accomplished.

Reducing Over-developed Bromide Prints.—In a communication to the Photographic Club, Mr. Adolphe M. Levy stated, as reported in the *British Journal of Photography*, that his experiments showed that a print could be reduced by immersing it for fifteen minutes in mixed ferrous oxalate and hyposulphite of soda solution, the latter being made in the proportion of one ounce old ferrous oxalate to twenty of hypo. solution. The hypo. was made of strength of three ounces to one pint, or sixteen ounces of water. The cause was attributed to the formation of a small quantity of ferric chloride salt, which exercises a strong reducing effect on the silver salts. Other experiments were tried by immersing the print first in a ferrous oxalate solution and then in a hypo. bath, which produced a similar result.

Washing Prints.—Mr. Augerer's method of washing prints is as follows: After a first washing in a pan, the prints are laid on a sort of sloping desk formed of a plate of ground glass, with the ground side upward, and over them a constant spray of water is kept playing. Meanwhile the prints are continually rolled with a glass roller mounted in a fork handle, like a printer's inking roller. This method, now employed in many establishments, seems to rapidly and repeatedly remove—by the pressure of the roller—the saline solution from the pulpy mass of the paper, replacing it by water each time. Indeed, there are several systems for washing prints which involve the same principle of pressure and release while the print is subject to the action of water.

The Photographic Revolver.—It shall no longer be said that woman's brain is not inventive. I hereby provide the disproof, and my original devices are in the line of amateur photography. There is hardly a fashionable house in New York where we fail to meet the young man who, without a word of warning, helps himself to an instantaneous portrait of us; and we cannot spend an evening with a friend but that the mistress announces to us, in the tone of a Lucretia Borgia, "Ladies and gentlemen, you have all been photographed." Resistance would be useless, and whatever may be our disinclination to see ourselves reproduced with a sincerity too often unflattering, the best thing to be done is to let it pass with a smile, for a grimace might only aggravate the condition of the victims. The progress of amateur photography has been rapid, and my inventions seek to utilize it. I have planned a photographic revolver, an instantaneous apparatus whose name indicates its form. It suffices to press the trigger, on sighting a person, in order to obtain an instantaneous portrait. I consider it useless to enumerate the advantages which this weapon has for a revival of dueling. Very soon we may read such items as this: "In consequence of a difference of opinion between Mr. X. and Mr. Z. a meeting was agreed upon. The weapon chosen was the photographic revolver. Two portraits were exchanged without fatal results."

I also propose a photographic shotgun, which will bring the sport of hunting within reach of the members of the Society for the Prevention of Cruelty to Animals. Naturally, the mere existence of the beast's portrait on the plate will show that the shot has reached the mark, and the sportman's vanity—which is the real source of the love of hunting—will be satisfied without the shedding of blood. In case of the fish-line one can simply replace the flies, or angle-worms, by a tiny camera, which the jerking of the fish will bring into action. The portraits thus obtained will have the advantage of preserving their freshness much longer than the original, even in the hottest weather.—*Clara Belle in the Philadelphia Press.*

"Some Minor Matters."—By the use of different printing methods, a greater difference in tone and effect may be obtained, than when one kind of paper is used and reliance is placed solely upon the modifications of the gold toning bath for artistic results. Never have we had so many resources at our command to vary our prints and make the most of every negative! Leaving out, for the time, the various tones to be obtained on silvered albumen paper, we may mention bromide and platinum paper for various cold and warm tones and "broad" effects, as the artists say; plain silvered paper for softer work and line or "sketch" effects; ferro-prussiate paper for blues and whites and other tones that may be obtained by special toners on this paper; chloride and iodide paper for various delicate shades; "Aristo" for rendering delicate detail and

tone; the carbon process (now so little used, but possessing so many good qualities); the various methods on glass; photo-gelatine printing; and, finally, photo-gravure printing in various shades. A glance at the current issues of THE PHOTOGRAPHIC TIMES shows how much can be done in securing an artistic effect by proper selection of the color shade to be used in printing from copper-plate engravings.

My idea is for individuality in photographic work. Let us use the means at our command to modify results in accordance with the requirements of individual subjects.—*W. J. Lincoln Adams, in The American Annual of Photography and Photographic Times Almanac, for* 1890.

Poetical Correspondence.—Mr. S. R. Stoddard, the Adirondack photographer, is also a poet of no mean ability. As a publisher he has some business relations with a brother poet, Wallace Bruce, now United States Consul at Edinburgh, Scotland. The following bit of humorous verse recently passed between these two poets:

U. S. CONSULATE, EDINBURGH, SCOTLAND, Nov. 23d, 1889.

My Dear Stoddard:

Though seas are wide
That roll between—
Your bill is spied
As will be seen;
The face is met
With check you see
And hope to get
Receipt from thee.
Respectfully
And punctually,
Wallace Bruce.

Reply:

GLENS FALLS, Dec. 4, 1889.

Dear Bruce:

Your words from o'er the sea.
Come like a benison to me.
So legal tender, yet so terse—
You never wrote more touching verse.

The scroll that bears the hero's name,
Traced by the hand that wrought his fame,
I value high, but more by half
The scrap that bears thy autograph.

'Cause why? It pays in full to date
My bill for forty-two, naught eight.
Oh, were it more! Oh, happiness—Enough!

Yours ever,
S. R. S.

Photographic Societies.

NEW ORLEANS CAMERA CLUB.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir—I beg to advise you that at a recent meeting of our club, a resolution was adopted extending to all members of the American Lantern Slide Interchange, and to all photographic clubs generally, an invitation to visit our rooms.

Letters of introduction from the president or secretary of their respective clubs, will insure recognition.

Yours truly,

R. S. Charles, Jr.,
Secretary.

UNION COUNTY CAMERA CLUB.

The Union County (N. J.) Camera Club was organized November 25, 1889, with eleven members, five active, five associate, and one corresponding.

The officers for one year are: President, R. M. Fuller, of Cranford, and Secretary and Treasurer, John L. Warner, of Roselle, N. J.

John L. Warner,
Secretary.

THE BALTIMORE AMATEUR PHOTOGRAPHIC SOCIETY

Held its monthly meeting and reception, December 14th, at 106 North Charles Street, Mr. Isaac Tyson Norris presiding. The object of the meeting was to exhibit lantern-slides. The slides exhibited last night were the Philadelphia societies' quota. Cards of invitation to members and friends, and those interested in photography, were sent out. There was a large attendance of ladies and gentlemen. The screen, 10x12, was placed at the end of the room, and upon it pictures were thrown by oxyhydrogen light, manufactured by Mr. W. T. Jones, a member of the society. Among the pictures shown last night were Lake George, Paradise Bay in the Black Mountain, mill at Pincy Creek, West Virginia, mountain road in West Virginia, the celebrated grape vine at St. Gabriel, the Mission Bells at Santiago, the Contentment, August at Berkshire Hills, Saulsbury, Ct., Oak Crest, Pennsylvania (1800), the home of Benjamin Franklin, Gates Ajar, schoolship New Hampshire, Church of the Immaculate Conception, Boston, Revolutionary House, Germantown. Mr. Harry D. Williar is Secretary of the Society.

NEWARK CAMERA CLUB.

THE lantern-slide exhibition given by the Newark Camera Club at Association Hall, December 12th, was a decided success, and it was enjoyed by a large and appreciative audience. The slides exhibited included a number of those contributed to the American Exchange by the Syracuse Camera Club. Some of the scenes provoked much applause and laughter. Every scene exhibited was deserving of praise. Prof. Yrneh Lagu Odem, the Chinese camera tourist, acted as lecturer.

DEMONSTRATION BEFORE THE PHOTOGRAPHIC SECTION OF THE AMERICAN INSTITUTE.

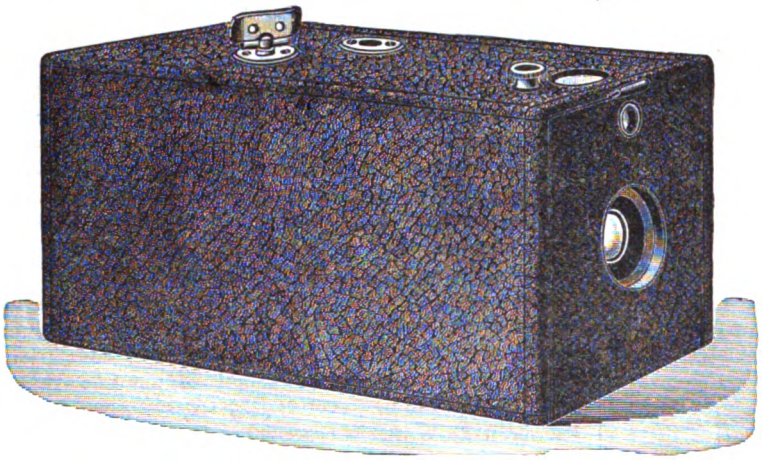
MY part of the evening's entertainment will be to demonstrate how best to proceed with the development of Eastman's new transparent films; also to exhibit two of this firms latest improved large size Kodaks.

In order to show the excellent quality of the lenses in these cameras, and also to show the rapidity of the transent films, I propose to make a flash-light exposure of the audience here present. Any one that has not had the opportunity of using one of these Kodak cameras can hardly realize the pleasure that can be derived from its use. Their greatest point of advantage is that they are always ready for exposure. This may at first not appear to you as any particular advantage, but if you stop to consider that such scenes as you naturally will want to picture

on the street, or on a journey, are constantly moving and altering in composition, you will no doubt concur with us. that cameras which are always ready and set for exposure are very desirable instruments. Many is the time that I have observed natural and artistic groups that have changed in composition, as if by magic, when I have pointed my camera at them to adjust the different attachments that we find on so called Detective cameras.

With the Kodaks the exposures are made before any one is aware of the operator's intentions.

The lens in this what we call No. 2 Kodak is of the universal focus order, and will cut a picture sharp seven to several hundred feet away. We have diaphragms to cut off the marginal rays when necessary, and an adjustment for time exposures. *It makes a circle picture three and a half inches in diameter.*



This is what we term No. 3 Kodak. This camera has the same style of diaphragms and shutter as the No. 2 Kodak, and has a double combination lens that cannot be excelled by any other lens of its size, no matter what name attached. It cuts a very sharp 3¼x4¼ picture, and has a very correct focusing attachment. It has also a very fine adjustment for altering the speed of shutter. We also have a No. 4 Kodak, which makes a good sharp 4x5 picture. It has exactly the same kind of adjustments and lenses as our No. 3 Kokak, only of a larger size. All of these Kodaks are particularly protected from all liability of leakage of extraneous light.

These cameras can all be loaded with transparent films enough to make one hundred exposures, and loaded weigh but two and three-quarter, three and four pounds respectively. To bring a new film in place for exposure you have simply to turn the key. It is here that the greatest advantage of Eastman's new transparent films over glass plates show themselves. Their great flexibility permits one hundred exposures on a spool to be unwound at the pleasure of the operator. A spool of one hundred 6¼x8¼ inches transparent films and a roll-holder weigh no more than about five pounds, whereas glass plates of the same size and quantity and holders of the lightest make, enough to hold twelve plates, will weigh over eighty pounds. This advantage alone is certainly of enough consideration to warrant all of you that are interested in field photography to get better acquainted with these films.

The only question would be, can we produce as fine results on these films as can be made on dry plates? Well that is what I will attempt to prove to you here to-night, that you can. The transparent basis of these films, *i. e.*, the substitute for glass, that which supports the sensitive emulsion, is practically impervious to water and is entirely unaffected by chemicals used in development, therefore is perfect as a substitute for glass for negatives. These films are so thin that we get no halation, and either side of the negative can be printed from.

It affords the Eastman Dry-Plate and Film Company considerable satisfaction to be able to bring these films before you. They have carried on a series of experiments extending over a number of years, to attain this perfection in transparent films, and they have equipped a new, complete factory for manufacturing them on an extensive scale. These films are developed about the same as glass plates, and require no extra work. We recommend the following developer:

No. 1.

Pyrogallic acid	½ ounce
Nitrous or sulphuric acid	20 minims
Water	32 ounces

No. 2.

Sulphite of soda (crystals)	6 ounces
Carbonate of soda (crystals)	4 ounces
Water	32 ounces

To develop, take

Pyro solution	1 ounce
Soda solution	1 ounce
Water	2 ounces

Eikonogen has been found to also work very well on, these films.

We will now make the flash exposure. The flash lamp that I intend to use is of a very ingenious device, containing a magazine of flash powder for a number of flashes manufactured by W. H. Walmsley & Co., and will merit your inspection.

G. D. Milburn.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

THE regular monthly meeting of the Society was held on Tuesday, December 10, at the rooms, No. 122 West 36th Street. Vice-President David Williams in the chair.

A. Peebles Smith read a short paper on "The History of Flash-Light Photography," illustrating his remarks with a few interesting lantern-slides of outdoor flash-light pictures and interiors of theatres. He had invented a safe powder, especially in bringing out the greens and reds.

G. D. Milburn made a flash-light picture of the audience, using the new No. 2 Kodak Camera, making a circular picture of 3½ inches. He also explained the instrument, which had a very simple shutter. It had a fixed-focus lens, made by Bausch & Lomb.

Miss Catherine Weed Barnes read a very interesting paper on "Photography from a Woman's Standpoint," which was received with loud applause. (See page 652.) She has the honor of being the first lady who has ever read a paper before a photographic society in the United States, and it is hoped more will follow.

James H. Stebbins, Jr., showed photographs of a pinhole sensitometer device he had used in testing sensitive plates. His results were very instructive. He also gave the results of his experiments on the solubility of "eiko." in distilled water at different temperatures.

F. C. Beach exhibited Eastman's Transparent Film negatives (instantaneous exposures), developed with the "Ultimate Single Solution Eiko." developer sent by Queen & Co., of Philadelphia, and by the ordinary eiko. two solution developer. The latter gave more density and worked quicker.

Henry J. Newton made a few remarks on a mixed hydrochinon and eiko. developer. The eiko., he contended, was slower than hydrochinon when a caustic alkali was used with the latter. His formula was the same as that given at the recent meeting of the Photo. Section of the American Institute.

The Vice-President announced that F. C. Beach, A. L. Simpson, and C. C. Roumage were appointed a committee of arrangements on the joint exhibition to be held next year in New York.

A Lantern-slide Exhibition, illustrating New York and Paris Exposition is to be given by the Society at Chickering Hall, New York, February 5th.

F. C. Beach,
Secretary.

The Editorial Table.

We have been favored with a copy of "*The Firm of Houghton, Miffin & Company, Publishers,*" and must say that the good taste shown in the attractive publication is entirely in keeping with the reputation which this firm has long enjoyed. The publication of the little book is an appropriate example of the high grade work turned out by this standard company. For a frontispiece, it contains a steel engraving of the Riverside Press at Cambridge, Mass., and has an interesting historical sketch, essentially the same as an article which appeared in one of the Cambridge newspapers not long ago under the title of "A Famous Book-Making Establishment," the *personelle* of the firm, illustrated by an excellent portrait of Mr. H. O. Houghton, "Trade Devices," "Periodicals," "The Riverside Press," "Amenities of Publishing," "Processes at Riverside," "The Lithographic Building," "Functions of Publishers," "Methods of Publishers," "Educational Projects and Results," and the "Conclusion" follow.

We have also received Houghton & Mifflin's Catalogue of Portraits, which includes most, if not all, the eminent American authors, as well as many English and foreign writers. With the catalogue comes the portrait of Emerson, from a steel plate by J. A. J. Wilcox, which we should like to have our photographic friends see, as it is an excellent study in portraiture. In fact, all this series, being by skillful artists, are valuable studies for photographic portraitists, as well as interesting additions to the studio, framed or in albums. They vary in price from fifty cents to a dollar each.

Sun Artists, the fine photographic art journal published by Kegan Paul, French & Company, of London, England, and which has been spoken of so highly by all the European journals, has reached us. The first number consists of four high grade photo-gravure plates from negatives by the well-known J. Gale, "Sleepy Hollow," for which a medal by the Photographic Society of Great Britain was awarded in 1889, "A Foggy Day on the Thames," "Brixham Trawlers," and "Homewards from Plough," are the names of the plates. The letterpress consists of an introduction by the editors, and an interesting account of Mr. Gale, his methods of work, etc., by George Davison, also well-known as an amateur of the greatest artistic skill. The plates are not bound in the journal, but, with the simple title beneath, are inserted loosely, so that they may be framed if desired. We cannot speak too highly of the publication.

It is to be issued quarterly at $2.50 per number. The American publishers are The Scovill & Adams Company, who have recently received a number of copies of the first issue.

The long-expected second edition of *Die Photographie mit Bromsilber Gelatine*, by Lieutenant L. David and Charles Scolik, has at last arrived. It is published by Wilhelm Knapp Halle, a/S, and is in every way a decided improvement on the first edition, which, even in its condensed form, made quite a sensation among German-speaking photographers in this country. This edition treats the subject in a more extensive and scientific manner, still, the book is plainly written, and, to make the work available to all photographers, chemical and mathematical formulæ are omitted.

The volume received is only one of probably three parts, and it treats of the preparation of gelatine emulsions and working with gelatine plates.

The preface states that it was the intention of the authors to give the public their own experience in the art, with the addition of all practical novelties; not to rival other works on the same subject. The detailed information given proves the accomplishment of the task, and we must confess that there is no other book explaining questionable points as well to tyro or experienced photographer. Little is said of American films; doubtless because they are so little known in Europe. Possibly, more may be said later, in an appendix. We regret that orthochromatic photography is not mentioned in this volume, but that we must also wait for until the second part is issued. We do not approve of applying a new name to these methods. "Orthosciagraphie" may perhaps be more descriptive, but the old name is so generally understood now that it is well to retain it. "Farben-empfindlich" is, perhaps, the most comprehensive term, and there is no reason why German authors should discard it.

The Christmas issue of *Sun and Shade* is an excellent number. It contains eight photo-gravure plates, all of appropriate Christmas subjects. The frontispiece is from an allegory by W. J. Mozart. Then follow copies from the famous paintings, "The Madonna of the Angels," by Bouguereau; "The Finding of the Saviour in the Temple," by William Holman Hunt; "Christ Walking on the Sea," by Charles Francis Jalabert; "The Last Supper," Leonard da Vinci; "Christ Leaving the Prætorium," Gustav Paul Doré;" "Golgotha," Jean Leon Gerome; "The Light of the World," by William Holman Hunt.

The price is forty cents; yearly subscription, four dollars. For sale by our publishers, the Scovill & Adams Company; all dealers in photographic supplies; and the publishers, The Photo-Gravure Company, 853 Broadway, New York.

Mr. Sam. C. Partridge, of San Francisco, with commendable enterprise, issues a circular soliciting new subscriptions and renewals to the Times, and other magazines. He announces that city subscribers may have their

journals come to his address, and thus avoid any danger of being broken or bent by mailing singly. Mr. Partridge always keeps a stock of THE PHOTOGRAPHIC TIMES back numbers as well as the "American Annual of Photography," and all photographic books.

THE Forty-fourth Annual Report of the Directors of the Astronomical Observatory of Harvard College, by Professor Edward C. Pickering, is an unusually interesting one. It speaks of the gift of fifty thousand dollars received last summer from Miss C. W. Bruce of New York, for the construction of a photographic telescope of novel form: of the observatory instruments now in use; refers to the Henry Draper memorial and to the Boyden fund; gives considerable miscellaneous matter of interest; concluding with the publications which have appeared during the year, besides the volumes of annals published by the Universary. The report is presented to the Visiting Committee, December 14th, 1889.

"THE Register of the Lehigh University of South Bethlehem, Pa.," for 1889, has come to our table, and contains much of interest and value. It is sent to all graduates who furnish their addresses for this purpose, and to all other persons, on application to the President of Lehigh University. Tuition in this institution is free.

TO MY SWEETHEART'S KODAK.

O Kodak, are you void of sense,
That you so stoically take
The pressure of her fingers fair,
Which all my nerves would wildly shake?

Ah! don't you see her wealth of hair;
Her eyes so softly, brightly blue,
Now bent with tender interest,
O Kodak Camera, on you?

And can't you feel the lively thrill
Of pleasure in her lovely face
When you work well? O, Camera,
I'd like just once to have your place.

Such pictures as I'd take for her!
Such glorious views of East and West!
Like magic they should come. Her smile
Would pay me well to do my best.

You don't appreciate your luck,
O Camera, with glassey eye,
Which staring ever straight ahead,
Sees not the charming maid close by.

If I were you—but never mind,
You're not her lover, that is clear;
While I—I love the very ground
That only serves to bring her near.

But still I scarcely envy you,
Although from me you steal her smiles;
Your deaf and dumb, and blind to all
Her beauty rare, her winning wiles.

And saddest, worst of all your lot—
Ah! this I could not bear and live!—
To feel that I belonged to her,
And then—to take a negative!

M. A. B. Evans, in Outing.

A Temperance Reform, so to speak, has been brought about by the introduction of the "dry" process in photography. Nowadays when the camera is asked to take a mug it instantly answers with a decided negative.—*Terre Haute Express.*

Queries and Answers.

257 W. P. R. has made emulsion of which he thinks a great deal, because trial plates dried with alcohol work very well, but as he fails in drying them in the closet, he wants information on the subject.

257 *Answer.*—The drying of gelatine emulsion plates is as important as making the emulsion. How it should be done cannot be explained in the space of the Query column, but we advise you to read "The Processes of Pure Photography," page 51, and Burbank "The Photographic Negative," page 18.

258 Mrs. W. A. S. has had no success in developing Eastman's transparent celluloid films. True, the details of the picture come out well enough, but she cannot reach the intensity requisite to make a good print. She is inclined to go back to stripping films.

258 *Answer.*—The cause of not being more successful is certainly not to be looked for in the celluloid carrying the sensitive emulsion as our correspondent seems to think. We have found these films to work exceedingly well, and much more rapid than the American film, which makes them better adapted for instantaneous work. Do not make any alterations in the mode of developing. Use David Cooper's original formula, or the Chautauqua developer with pyro-soda, which give excellent results. Of course you must add a little bromide of potassium to either of them.

259 FERROTYPER, after taking his pictures from the cyanide fixing bath, finds them to be occasionally of a greenish blue color, mostly on the thick end of the plate.

259 *Answer.*—The iron developer has not been sufficiently washed from the plate before fixing.

260 O. L. BISHOP has sent three negatives made with the Waterbury detective, largest stop, and on Cramer 80 deg. plates. They are very feeble and monotonous. What is the cause of it, and how can I make better negatives?

260 *Answer.*—Over-exposed. For ordinary purposes use the Cramer 40 or 50 degrees, the smallest stop and quickest speed of the shutter. Develop with pyro-soda.

261 CHARLES QUINN has a pound bottle about three quarters full of sulphite of soda. The bottom part of the soda has become liquid. The crystals on top are covered with a fine powder. He hesitates to use the sulphite in this abnormal state, and wants to know how it can be restored?

261 *Answer.*—Throw it away. Always keep the crystallized sulphite of soda in well stoppered bottles.

262 MECHANICIAN has exposed a Carbutt 27 plate upon a subject fifteen feet distant, with a Morrison 8x10 wide angle, 2½ stop and the light of a No. 1 Scovill magnesium cartridge. Result very much under-exposure. How much powder should be used for a correct exposure?

262 *Answer.*—Take flash powder in bulk and burn of it at least ninety grains under circumstances as stated above.