

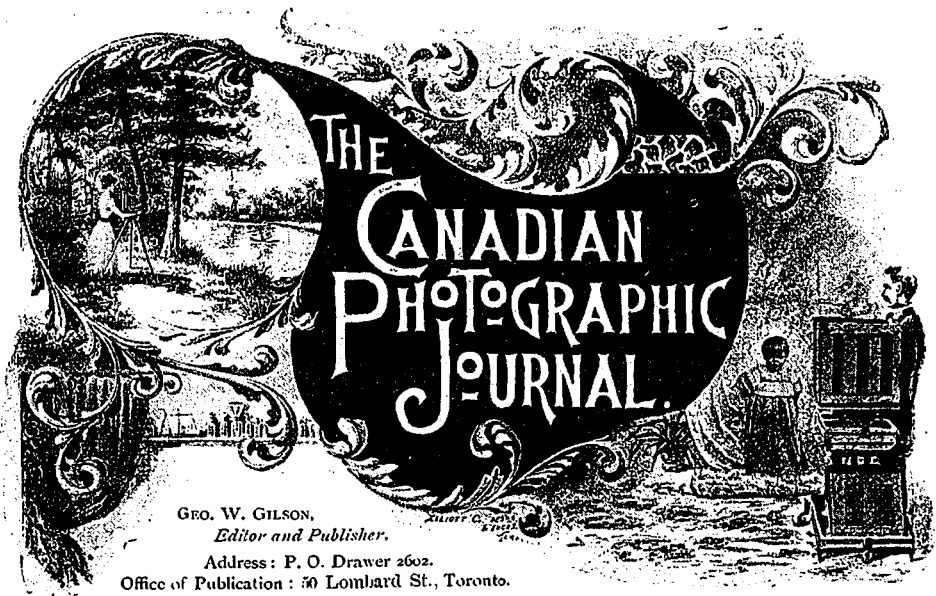


PRINTS ON AMERICAN "ARISTO" PAPER.

PORTRAIT STUDY.

- BY -

DANA, NEW YORK.



GEO. W. GILSON,  
*Editor and Publisher.*

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W. ETHELBERT HENRY, C. E.,  
*Associate Editor.*  
 Sarnia, Ont.

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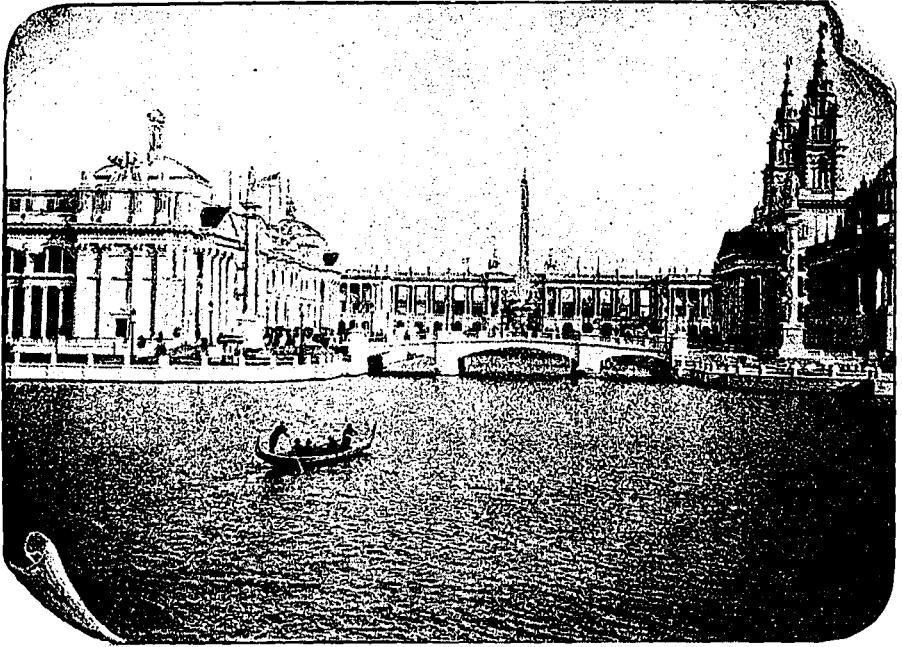
**Our Illustrations**

WE have the pleasure this month of again giving our readers some further specimens of the very good work done by Mr. W. E. H. Massey at the World's Fair.

Our frontispiece this month as a study in posing and lighting, speaks for itself.

**Our Christmas Double Number**

ONCE more we wish to direct the attention of our readers to the forthcoming Christmas Double Number. Since making our first short announcement in the August issue, every effort has been put forth to insure this being as readable and popular a Christmas number as has ever been published. In many particulars it will be unique in photographic journalism—anyway until some of our American contemporaries do us the honor of again following our lead. Owing to the liberality of our advertisers we are enabled to give subscribers considerably more than value for their money. Our Christmas number has been well advertised and a gigantic



Photo, by W. E. H. Massey  
VISTA LOOKING SOUTH TOWARDS THE OBELISK AND COLONNADE.

success is already assured. Its contents will not be a conglomeration of formulæ, but will embrace seasonable papers and useful articles on practical subjects, written for the general reader and not for the scientist alone.

So far as illustrations are concerned we can safely say that nothing of the kind has ever before been attempted, much less accomplished, in Canada. In addition to a beautiful photographic study by a well-known photographer, there will be upwards of a dozen full page half-tone illustrations, and innumerable smaller half tones distributed throughout the reading matter. In this number we shall publish the names of the prize winners in the amateur competition (class A), and announce other competitions, one for professionals and one for amateurs—as well as giving our read-

ers some idea of the improvements we intend to make during the year 1894.

The Christmas number will be worthy of a place in any drawing-room in Canada or elsewhere, and our readers could not send a better or more acceptable present to their friends, nor one that will meet with greater appreciation.

The first edition will be a large one, and we confidently expect will be sold out before going to press. Large orders for extra copies are already being booked in advance—one dealer alone, whose usual sale is twenty-five per month, having ordered *fifty extra* copies of the Christmas Number.

As we said before our advertisers have taken a liberal amount of space, and the benefit of this will be shared with our readers. We are therefore glad to inform them that *there will be*

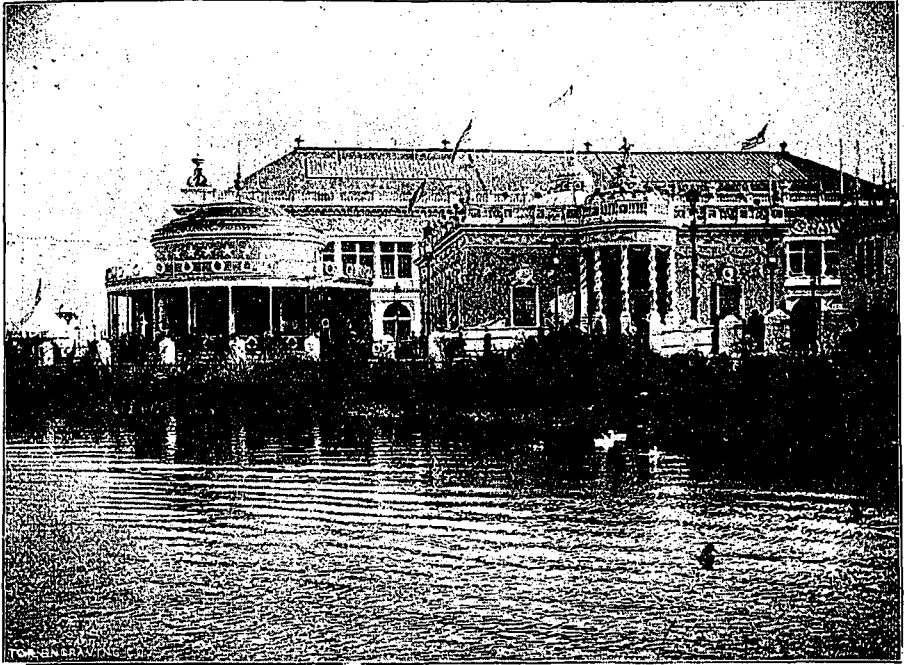


Photo. by W. E. H. Massey

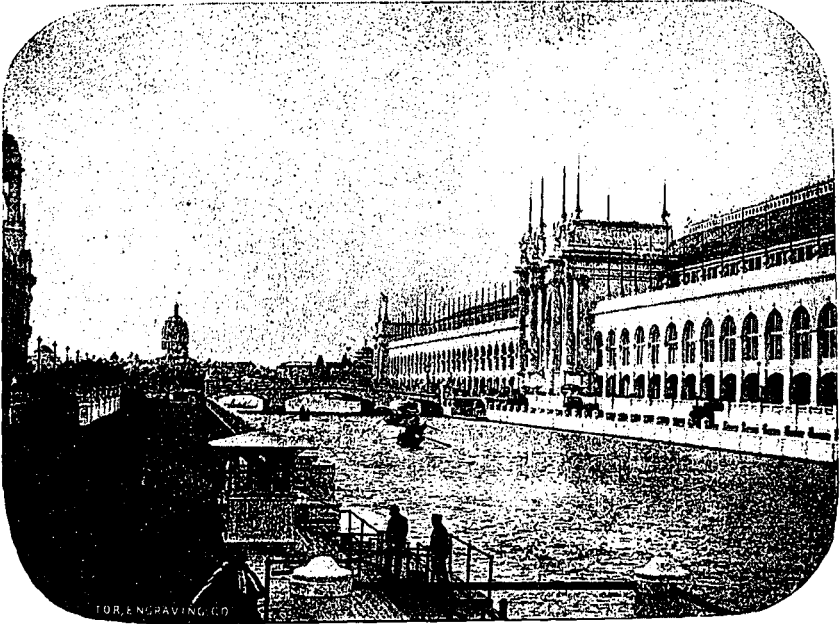
"WHITE STAR" AND "PUCK" BUILDINGS. END OF HORTICULTURAL PALACE IN BACKGROUND.

*no advance in price.* The Christmas Double Number will be obtainable of your dealer at twenty-five cents, and will be mailed free to any address in the world for thirty cents. Send in your orders as early as possible and ensure a copy of the first edition.

### The Convention.

We have been holding the Journal for several days thinking the committee which met lately at Hamilton, and, we understand, transacted business of importance, would think it worth while to have a report of said meeting given to the photographers of Canada through their Journal, especially as we know from personally visiting most photographers of the Dominion, that quite a number never receive the

printed circulars sent out by the committee, either through loss in transit or by not having their name on the list of the secretary. With the very large circulation we now have, it would seem a fairly good thing for the convention to keep members and also non-members posted through our columns as to what is being done by the committee. Also to awaken an interest in the Convention in the minds of the large number of good photographers in Canada, who are not members, by keeping interesting facts regarding the doings of the P. A. C., the attractions for the coming meeting, etc., before them, especially when it does not *cost anything*. The only thing we have learned of the transactions of the late meeting, and that in a round-about way, is



Photo, by W. E. H. Massey

GRAND CANAL BETWEEN THE MANUFACTURERS' AND ELECTRICITY BUILDINGS.

that the views of this Journal regarding the giving of a banquet, as expressed in a leader in our August number have been adopted, which we are glad to notice, as it is a big step in the right direction towards a really successful Convention. We have also heard that our associate editor, Mr. Henry, has consented to read a paper before the Convention. We are sorry that we are unable to give our readers more information regarding the coming convention, especially, as we know that a great many will be disappointed at not finding a full account in our pages as they expect. To those who have written us letters of enquiry, we would say, if not to late, write the secretary, who will undoubtedly, in the interests of the Convention, give you full information.

As this is the last issue that will reach you before the Convention, we wish to take the opportunity of saying that we look forward with pleasure to meeting those of our readers who attend, and we hope you will find the Convention of '93 interesting and instructive. Our temporary office, during the fitting up of our new quarters, will be at the Sales Rooms of Messrs. Mulholland & Sharpe, 159 Bay Street, and we feel we hardly need say, that we shall consider it a pleasure to serve our visiting friends in any way we can. Those we have appointments with, will find us at the above address.

EDITORS C. P. J.

AMATEURS -- Don't forget our Competition.

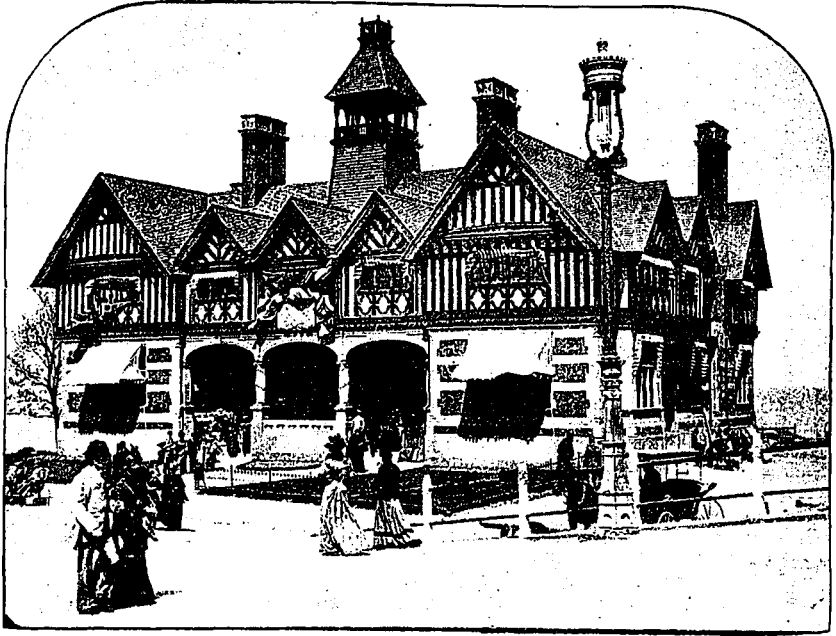


Photo by W. E. H. Massey  
THE BRITISH BUILDING ON THE LAKE FRONT.

### Concerning Developers

The series of valuable experiments upon the action of combined developers recently undertaken by the editor of *The British Journal*, led us to make many trials of various developers in which the active agents, amidol and hydroquinone, were mixed in varying proportions so as to utilize their respective developing powers to their utmost extent.

The first article on the subject set us to work, without waiting for the formulæ which were published later, and we find that our method of working varies very considerably from that pursued by the able experimentalist to whom we have referred.

Many of our readers are probably aware that amidol as a developer for negatives is liable to give an image full of detail but devoid of that

amount of density generally considered necessary for the production of plucky prints. Hydroquinone on the contrary, errs on the other side and gives an amount of density that is somewhat bewildering to an inexperienced worker, and, especially in the case of snap shot work, tends to a lack of detail in the shadows highly suggestive of under exposure.

By a judicious blending of these two re agents we have been eminently successful in the development of instantaneous effects that for wealth of detail, combined with requisite density and absence of fog, have left nothing to be desired by the most fastidious worker.

Without wearying our readers by recapitulating all our experiments and failures we will come at once to the practical issue thereof, only one

remainder being considered necessary, that is, the following formulæ are chiefly intended for the development of very brief exposures, and are based upon experiments conducted with plates of Canadian manufacture.

The first of these formulæ is in the form of a single solution and is as follows :

Hydroquinone ..... 1 ounce  
 Sulphite of Soda ..... 4 "  
 Water to ..... 80 "

When dissolved add Carbonate of Potash, 3 oz.  
 And just before using add to each ounce of developer one grain of amidol.

For many reasons we prefer to use two solutions, and, in our hands at least, we have found it work better and retain its normal condition without so much liability to deterioration. The two solutions we recommend after long and patient trial are composed thus :

No. 1

Hydroquinone.....1 ounce  
 Sulphite of Soda ..... 5 "  
 Bromide of Potassium.....20 grains  
 Amidol ..... 80 "  
 Methylated Alcohol..... 6 ounces  
 Water to .....40 "

Dissolve the Sulphite of Soda and Bromide of Potassium in twenty ounces of water and add the amidol. Dissolve the hydroquinone in the methylated spirits in a separate bottle, and, when dissolved, add it gradually with frequent shaking to the other solution, finally make up the bulk to forty ounces.

No. 2

Carbonate of Potash ..... 3 ounces  
 Water to .....40 "

For use take equal parts of 1 and 2.

In the case of very short exposures the use of additional bromide of potash is not absolutely necessary, but we find it advisable to add a few

drops of a ten per cent. solution to each ounce of developer towards the close of development.

By varying the amounts of Nos. 1 and 2, and by adding more bromide, fully timed negatives may be readily developed. In this case they must be mixed in *about* the following proportions :

FOR FULLY TIMED NEGATIVES.

No. 1.....2 drams  
 No. 2 .....1 "

10 % Solution Bro.-Pot. 20 drops (more or less.)  
 Water to .....2 ounces

In cases of over exposure the amount of bromide may be increased. Opals and bromide paper may also be developed satisfactorily if the developer be further diluted — say six ounces of water instead of two in above formula.

Our readers who have an opportunity of visiting Toronto can see a specimen opal which we developed according to this formula and mentioned in another column, we may add, for the benefit of any one using this developer for the first time in instantaneous work, the image generally flashes up very rapidly, so rapidly as to indicate a foggy spoilt plate. This need not disturb one in the least—no matter how flat and foggy may be the first appearance—our advice is to take it calmly and "*let her come.*" The density will follow and the result cannot fail to meet with the unqualified approval of those who give it a fair trial.

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 "PROFESSIONALS"

Look up a half dozen or so of your prettiest baby negatives! We will have something to say about them shortly that will interest you.

### Editorial Chat.

DEVELOPMENT BY ELECTRICITY appears to be a probability of the near future. Herr Liesegang has succeeded to some extent in this direction although the deposit is considerably reduced in the fixing bath. He fills two vessels, one of which is of porous clay, with a solution of bisulphite of soda; the porous vessel being placed in the other, a current of electricity is passed through by means of two platinum electrodes. The exposed plate is placed in the vessel containing the negative electrode. It is said that development takes place in a few minutes, the deposit being of a brownish color.

OUR AMERICAN contemporary *The Photographic Times*, is following our example and is about to produce a Christmas Double Number. We are glad to see this movement, and we think the time is not far distant when all the illustrated photographic periodicals will give their subscribers a special treat at that festive season.

Well done, *Times*! Who will next follow our lead?

ACCORDING to an English contemporary a photographer in one of the principal thoroughfares in the west end of London announces one cabinet and two *cartes* for one-and-nine-pence (about forty-two cents).

Surely that photographer — even though he occupies so pretentious a situation as the west end of London — must have a very poor opinion of the status of photography, or else he must have fallen low indeed, before he could bring himself to offer work for such a miserable pittance. Such men are a disgrace to the business.

ALLUMINIUM is coming to the front as a substitute for magnesium flash-light work. Mr. Bolas demonstrated this very successfully before a recent meeting of the P. S. G. B. by obtaining a fully exposed negative by means of a grain and a half of aluminium burnt in an ordinary flash lamp.

The metal has several decided advantages over magnesium, it is not so liable to oxidise, it evolves no irritating smoke during combustion, it gives a greater amount of light from a given weight of metal, and it costs only one half the price of magnesium and is becoming cheaper day by day.

MON. QUENISSET has been successful in photographing the double tailed comet of 1893, and has communicated the result to the Paris Academy. The photogram was taken by means of a Hermagis lens of six and a half inches aperture and an exposure of forty minutes.

OUR AMATEUR COMPETITION has not yet drawn any very good work. Considering the valuable prizes we offer, *and intend to give no matter how few enter the lists*, we are somewhat surprised to see so little good work. We shall be sorry to see our magnificent casket of lenses go to a poor picture, but, unless we receive something better in the future than has come to hand at present, there seems to be every probability that this will be the case. At present the prospects look rosey for novices of twelve months' experience. Come along, friend amateur, have a try for our prizes and let folks see what you can do.



### Gelatio-Chloride Emulsion for Transparencies by Development

W. ETHELBERT HENRY

The production of lantern slides has always been remunerative to any professional capable of turning out results that will give thorough satisfaction to the lantern operator, as well as a source of much pleasure to the studious amateur. Most of my readers will probably be aware that the great desideratum of a first-class slide is a fully detailed image of good body and color, yet so delicate in its gradations as to admit of small print being easily read through the deepest shadows when the slide is laid down upon a newspaper. The portions forming the highlights should be absolutely without fog or stain of any kind—in fact, just as clear as a piece of plain glass that has no coating whatever.

To obtain these results without the use of collodion, is often a source of so much trouble to the average worker that he prefers to decline any occasional orders he may receive rather than go to the trouble of attempting work that may not be altogether satisfactory to his customer, hence the work is almost invariably sent to professional slide makers outside of the Dominion.

There is no reason why this should be, and there are many lecturers who would gladly pay an extra price to have their work executed in Canada, and so escape considerable delay and a heavy duty. Of course I am aware that commercial lantern plates may now be bought in Canada—some better than others—but I propose to show my readers how they may make for themselves lantern plates giving the best results possible upon gelatine at a cost of about ten cents a dozen.

I will describe the method of working given some years ago by H. J. Palmer, M.A., which is so very simple as to be equally fitted to the requirements of the busy professional photographer, and of the amateur whose daytime is fully occupied away from home.

The first requirement is a stone-ware bottle of moderate capacity (say ten ounces) or, if such an one cannot readily be obtained, a "hock" bottle of ruby glass will do equally well. Failing either of these a makeshift can be made by pasting brown paper over an ordinary beer bottle so as to exclude all light.

Before going to bed put into the bottle:

Tap water .....	5 ounces
Common salt .....	100 grains
Hard gelatine .....	125 grains

and leave them to soak until the morning.

Next morning before going to business, place the bottle in hot water until the gelatine is dissolved, which will not take more than about ten minutes.

Have ready a well-fitting clean cork, take the bottle into the dark room—or any ordinary fairly dark cupboard will do just as well—and add quickly

Silver nitrate (large crystals).....	150 grains
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cork the bottle as quickly as possible and shake it steadily until you are satisfied that the silver has all become incorporated; I recommend a thorough agitation for *at least* fifteen minutes (after the silver nitrate has been added, the emulsion must on no account be exposed to actinic light, or fogged plates will be the result. The washing and coating must all be done in the dark room by ruby light, an abundance of which may be used with safety.)

Next cover the cork with a layer of red flannel (as a danger signal) and tie it down with as many intricate knots as possible—this latter precaution will be unnecessary if you have neither hired girl nor children likely to investigate the contents in the interest of science.

The next thing is to ask your wife, if you are fortunate enough to possess one, or your landlady if you are not, to permit the precious bottle to rest near to the stove during your absence from home. It must be left just near enough to keep the contents in a fluid condition but not near enough to make them hotter than about 100° F.

Also ask the good lady to give the bottle an occasional shake. Upon your return in the evening, remove the bottle, and, holding it horizontally, turn it slowly beneath a stream of cold water so as to cause the emulsion to set in a thin coating all over the sides of the bottle. When it is quite set, take it into the dark room and fill the bottle with cold water, cork it and allow to stand for half an hour, change the water at intervals of half an hour, until bed time—say about six changes in all—and finally fill with water and let it stand all night. Next night drain the bottle thoroughly and the emulsion will be ready for use as soon as you like.

The principal requisites for plate coating are clean glass plates as thin and colorless as possible; a strip of glass accurately levelled; a cream jug and a dark cupboard or box in which to dry the plates.

The operation of coating is quite as simple as preparing the emulsion. First place the bottle in hot water to dissolve the contents; then filter the

emulsion through a piece of clean white flannel (previously wrung out in hot water) into the cream jug, which should be kept hot by standing in hot water. Balance a plate on the tips of the fingers and pour a pool of emulsion on to its center and flow it steadily over the entire surface. Drain off the surplus (not too closely) and put the plate on the levelling shelf to set. About a dram of emulsion will coat a plate  $3\frac{1}{4} \times 4$  inches—or proportionately less is required if the English standard of  $3\frac{1}{4} \times 3\frac{1}{4}$  be adopted.

The shelf should be long enough to accommodate a dozen plates and by the time the twelfth is coated the first will be ready for placing in the drying rack. The best way to avoid a mistake is to remove the first and second then put the thirteenth in the place originally occupied by the first and remove the third; in this way there will always be a vacant space between the newly coated plates and those already set.

The plates will be quite dry and ready for use on the following evening, when they should be carefully packed in light tight boxes.

The process is so exceedingly simple throughout and the resulting transparencies so beautiful, that I sincerely hope my readers—some of them at anyrate—will try their hand at making this emulsion, or try even *half* the quantity as an experiment.

Any good developer will develop an image on these plates, but it must be used weaker than for negatives.

For ordinary black tones, an exposure of about a second in contact with a negative one foot from a kerosene lamp, is ample.

By variations in exposure and developer it is possible to obtain almost any tone desired.

The foregoing amount of emulsion is sufficient to coat about forty-five plates  $3\frac{1}{4} \times 4$ , or sixty  $3\frac{1}{4} \times 3\frac{1}{4}$  inches.

Next month: "The Development of Gelatino-Chloride Transparencies."

### Our Amateur Competition.

We hope a goodly number of our readers are now at work on their three prints for our Landscape Competition. It is quite usual in a competition of this kind, to wait until as late as possible before sending in prints, so as to be sure that the best work of the amateur has been sent. This is not really a prize winning way to do. It is better to send at once, your very best three, then, if you decide that something else you have is better, or if you happen to get a special good thing or two after having sent in your prints, why sent in another set, send in three or four or six sets, the more you send the more chance you stand of winning. And there is *no limit* set upon the number of sets sent by any one competitor.

A number have already been received. Among them several from the States. We hope our Canadian amateurs will see that the prizes do not go out of Canada. At present it is "anybody's race."

OUR READERS are reminded that November 1st is the last date for sending in applications for space at the Bristol International Exhibition. Particulars were given in our August number.

### Our Scrap Album

*A Trick of the Trade.*—Photographer: "There now, madam, look as pleasant as you can! Try to think of something exhilarating."

Customer: "Well, but what, I wonder?"

Photographer: "Consider, for instance, that you have only got to pay me six shillings per dozen cartes, while my competitor over the way charges nine shillings!"

"*Bless us*, old fellow, what has happened to you that you smile so much? What, is it that is so good?"

"Oh, nothing at all, but you see one never knows nowadays but somebody may be photographing him with a detective camera."

*Corroboration.*—Inquiring Friend: "This paper says some of the greatest achievements in the photographic art have been made by amateurs. Is that so?"

Amateur: "Of course. If you don't believe it, ask any——"

Friend: "Photographer?"

Amateur: "Any amateur."

*The Queen* was again photographed the other day in the dress she wore at the late Royal wedding, the proofs of which are stated to do Her Majesty more than justice, for they make our Gracious Queen look fifteen years younger than she really is, and about three inches taller. In looking at a copy of a likeness of the Queen taken in the pretty dress she wore when only twelve years of age, at a ball given by Queen Adelaide on the 24th May, 1831, there is a remarkable resemblance to the recent modern photographs of Her Majesty which

over sixty years of time has not defaced.

*To patent* an invention all over the world costs £2,910. There are sixty-four countries in which a patent can be protected.

*An English Firm*, Messrs. Van Wart, Leighton & Co. are now adopting aluminium in the manufacture of cycles. Hitherto there has been no suitable solder for making the joints, but this they have now discovered, as well as an alloy combining sufficient strength and lightness. One of the largest cycle manufacturers in England is already at work on the different parts, and the finished article, fitted with gear case, is to weigh considerably under fourteen pounds.

An American firm has also been successful in using aluminium for this purpose, but without the aid of solder.

*Nero's Eyeglass*, through which the near sighted tyrant watched the gladiatorial games, was an emerald cut into the form of a lens.

*Notes from the Secretary's desk.*

### **The Society of Amateur Photographers of New York.**

#### FIXTURES.

Thursday, Oct. 5th.—The steamboat "Chelsea," will convey the members of the Society and guests to the International Yacht Race.

Tuesday evening, October 10th, at 8 o'clock, regular monthly meeting.—Mr. W. Murray will read a paper on "Development." Mr. E. W. Newcombe will exhibit a new camera, also some examples of Ilford Alpha Slides and Ilford Printing-out paper, and other novelties. A demonstration will be made of "ILO Paper" by Mr. Henry Miller.

Friday, October, 27th.—Lantern Slide Exhibition. Slides by the Cin-

cinnati, Schuylkill, Baltimore and Newark Camera Clubs.

#### ANNOUNCEMENTS.

The municipality of Brie (the village in which Daguerre spent the later years of his life, and where he lies buried,) have asked the co-operation of the photographic societies throughout the world in erecting a monument over his grave. The subscription is under the patronage of the Minister of Instruction and Fine Arts.

The Executive Committee of the American Lantern Slide Interchange expect to meet in New York about November 15th, in order to test the slides sent in by the twenty societies in membership. The Boston and Harvard Camera Clubs have applied for admission. The San Diego Club has been dropped. The Foochow (China) Camera Club is desirous of making an exchange of slides.

At the International Exhibition, held at Geneva by the Photographic Association of Switzerland and the Photographic Society of Geneva, in August, Mr. W. B. Post, of this society, was awarded a bronze medal.

An article on "Amateur Photography at the Fair" will shortly appear in the *Cosmopolitan*. Members who have good prints of Fair subjects and who would be willing to loan them for reproduction, (proper credit being given,) are requested to communicate with the secretary at once.

Messrs H. Coutanta and E. Trillard have been elected to fill vacancies upon the Board of Directors.

Mr. J. Wells Champnéy and Mr. Chas. Simpson have returned from abroad. Mr. Simpson is stocked up with enough material for lantern slides to last for a couple of years.

T. J. BURTON, Secretary.  
October 1, 1893.

### Something New in Photographic Measures.

We have often in our early experience in the Art, puzzled over the meaning of 10% and saturated solutions, worried over the conversion of grammes into grains, etc., while the compounding of the different formulæ tried, was a source of great anxiety and stretch of memory. Although after having mixed up some hundreds of the developer formulæ given us by well-wishing friends, we eventually became as careless as the ordinary drug clerk in handling prescriptions. It seemed as though our experts thought that the more complicated the formulæ, the better it worked, and as developers were not then put up ready for use and warranted to suit any plate under any and all conditions we used to rather pride ourselves upon our array of graduates and scales with bottles of different *feel*, containing different ingredients forming our pet developer of that particular moment.

Now, it would seem, from the following formula, just given out in good faith in a leading exchange, the process of mixing our developer is to be greatly simplified, just a little teaspoon, that is all that will be required with perhaps the addition later on of the teacup that has been useful in the family for ages to measure out the "one cup of sugar, three cups of flour, etc." (Generally one with a broken handle and retired from active service.) This is the formula and one can see at a glance how easy it will now be to prepare our different developers:

Water.....	1 quart
Metol.....	1 rounded teaspoonful
Sodium Sulphite (granular),	1 heaping teaspoonful
Hydroquinone.....	1 teaspoonful, scraped off flat
Sodium Carbonate (granular)....	1 teaspoonful
One part above to two parts water (or one cup above and two cups water.)	

### Our Notice Board

MESSRS. Mulholland & Sharpe, Bay Street, Toronto, have favored us with liberal samples of their Ilford opals and N. Y. aristotype paper. Of the good qualities of the paper it is hardly necessary for us to speak, so well known is it becoming throughout the Dominion. We can but echo the general verdict of professional photographers; it is most excellently prepared, is free from blemishes, prints quickly and takes almost any tone desired.

The Ilford opals are not yet so well known, but we feel sure that they are bound to meet with a welcome from our photographers. They are very easy to work and portraits on them always command good prices. For our part, knowing what fair prices are, we would advise our readers to charge *not less* than one dollar each for cabinets. At this price our professional brethren will sell far more than they would at a lower figure, because they are a high class production that appeal to the cultured and to them alone. We cannot speak too highly of the samples Messrs. Mulholland & Sharpe sent to us, but we advise our readers to see specimens for themselves.

We had much pleasure in sending a finished opal portrait (*absolutely untouched*) to Messrs. Mulholland & Sharpe, who have it on exhibition in their store. It was developed with the mixed developer mentioned in our editorial this month.

Messrs. Anderson, Robinson & Co. have sent us samples of their anti-halation plates which are already well known in the United States as "Waestner." They are recommended for photographing interiors in which

windows have to appear, or in other cases where halation is likely to set in. The plates give good results.

We hardly thought it would be necessary to request dealers and manufacturers, when sending samples of their goods for notice, to prepay postage or express charges. The samples that are submitted do not always amount to any value, and we can hardly be expected to pay express charges for the privilege of noticing small samples of goods free of charge in these pages.

It is a curious fact that the dealers (and others) who send goods of any value *invariably* prepay their charges, while the few who omit to do so rarely send any goods worth the sum charged. In any case small samples are rarely of any use to us, and in many cases we have to go considerably out of our way to give them a fair and proper test before noticing them in this column. After this date we shall refuse to accept delivery of goods for notice unless charges are prepaid.

### Books and Pictures Received

We have just received the catalogue of half tone proofs issued by W. H. Bartholomew, Photo-Engraver, New York City. It proves to be one of the most artistically gotten up catalogues that we have ever seen: The heavy plated paper which forms its pages showing up well the beautiful work in half tone done by this firm.

We have to thank Mr. S. J. Jarvis of Ottawa for an 11 x 14 copy of his big group of the members of the Canadian House of Commons. The original is six by eight feet, and is now on Exhibition at the World's Fair, attracting

much attention. The grouping is most novel and artistic. We are having a full page half tone prepared of this most interesting picture for our Christmas Number, and Mr. Jarvis has kindly consented to add to its interest by giving our readers in the same number a description of how it was made.

### Correspondence.

*To the Editors:*

Dear Sirs,—I am delighted to find such an excellent Journal as yours, contrasting as it does so favorably with the American and English photographic periodicals.\* \* \* \* \*

I am very glad to see that you are agitating the question of a revision of the copyright regulations for photographers; as you point out, the present system is most unjust, and Mr. Sampson's suggestion is, I think, worthy of consideration.

I am yours, etc.,

W. BULL.

Quebec.

*To the Editors:*

Thanks to your Journal. I have sold my Gravenhurst Gallery. I, for one of your many readers, am very much pleased with the great, continued improvement the JOURNAL makes month by month. May its shadow never grow less.

Yours truly,

G. T. EARLY.

Peterboro.

"AMATEURS" be sure to send in your three best "Landscapes" for our Competition. Full particulars in this issue.

### Rochester the Home of the Camera.

Rochester, N. Y., is certainly the home of the camera and all that pertains to the interesting instrument. A few days spent there lately conclusively convinced the writer of that fact. Among the most prominent of the many who manufacture there, things to please both professional and amateur camera users, may be mentioned :

The Eastman Kodak Co., with an immense establishment, giving work to hundreds in furnishing us with the world known Kodak, and their popular Solio and Bromide papers.

The Bausch & Lomb Optical Co., whose output of fine lenses of every description, and for every purpose, is almost beyond belief in magnitude to those who have never seen their enormous factory. Here we find from forty to fifty men working in just one department, making the diaphragm shutter of this firm, which is indeed a "thing of beauty."

The Gundlack Optical Co., whose make of Lenses and Telescopes are "Beyond compare" are also located here, to own one of this firm's "Rectographic" lenses is to be happy.

Here we also find the Rochester Optical Co., whose "Universal" and "Premier" cameras are found in all parts of the world and who are desperately behind orders for their new production, the dainty little "Premo."

The Rochester Camera Mfg. Co., whose make of cameras and all things photographic, have an enviable reputation and who are justly proud of the success of their new 4 x 5 folding, the "Poco," which, as the ladies say, is "just to sweet for anything."

For quality and quantity of work turned out, what city can compare with Rochester?

### Practical Formulæ for Practical Men.

#### ACID FIXING BATH.

The *Bulletin* of the photographic club of Paris recommends :

Water.....	350 c.c.
Bisulphite of soda.....	10 grammes
Hyposulphite of soda.....	40 "
Chrome alum.....	2 "
Citric acid.....	15 "

The bath is said to keep indefinitely, fix rapidly and obviate staining of the plates.

#### TO REMOVE GREEN FOG.

Dr. Meniere, of Paris, recommends soaking the negative in water for five minutes and then immersion in—

Water.....	100 parts
Bromide of sodium.....	3 "
Bromine water.....	3 "

for ten to fifteen minutes. The bleached image is well washed and dried and then re-developed with amidol.

#### DAMP PROOF GLUE.

A glue very suitable for use in such parts of glass studios as are exposed to damp, may be made by dissolving common glue in the smallest possible quantity of water and then, while hot, adding linseed oil, stirring well together. This is said to be very strong and to resist the action of the weather.

The Britannia Works Co., of Ilford, Eng., in reply to an enquiry as to the best method of burnishing and enanelling their P. O. P. paper, write :

"The key-notes to success in burnishing are, prints not 'bone dry,' and a roller that is not too hot. The small amount of moisture prevents the heat attacking the gelatine, and soon cools the roller, unless the gas is

kept burning. A bar burnisher is not recommended for this purpose.

Prints that are to be burnished *must* be passed through an alum bath, as given on the instructions.

**ENAMELLING.**—Take prints when wet, after final washing, lay face down on sheet of glass, thoroughly cleaned, rubbed with French chalk, dusted, and held under tap, and squeegee into close contact. Before the print is dry, with an ordinary starch mountant, paste on the back of the print a sheet of cartridge paper or thin ivory board. When dry, the print and backing will strip off the glass together, and can then be mounted on the card with a mountant made as below :—

Take, best thin Scotch glue.....	3	ounces
Water.....	3	"
Golden syrup.....	3	"
Methylated spirit.....	3	"

Soften the glue in two ounces of the water in a jar, heat gently in a pan of hot water, when thoroughly liquid add the syrup. Add the remaining one ounce of water to the spirit, and pour this *slowly* into the jar, keeping the mixture stirred all the time. This mountant will keep good indefinitely, and is always ready for use by gently warming the bottle in hot water. It dries readily but not too quickly, and is a perfect mountant for this and any purpose."

A waterproof cement for filling cracks in wooden trays used for development and similar purposes is made thus :

Resin.....	1	part
Beeswax.....	2	parts
Paraffin wax.....	3	"

Melt and apply while hot.

*The Mount Forest Representative* speaks in glowing terms of Mr. G. F. Chapman and his new photographic studio, adds.—"Mr. Chapman's his-

tory is only another illustration of the fact that nothing succeeds like success, and his success is deserved from the fact that his motto is to give the best work possible and to keep up to times in all new styles." Mr. Chapman also has galleries in Durham and Harriston. Bravo! friend Chapman, we wish you continued success.

**Personal Mention**

Mr. N. S. Bowness, of Summerside, P. E. I., was in Toronto a few days last week, on his way to Chicago and the World's Fair.

Mr. J. C. Walker, President of the P. A. C., and one of Toronto's leading Photographers, has bought the gallery of Mr. Westlake, of Woodstock, and will leave for that city at once.

Mr. George Westlake, of Woodstock, has bought Mr. J. C. Walker's gallery in Toronto.

Mr. Westlake should do well in Toronto, as he is a photographer of large experience, having been one of the leaders in Woodstock for some years. He is busy making some needful changes in his new place and will run strictly first-class artistic work.

We had a pleasant visit lately from our friend Mr. Boorne of the well-known firm of Boorne & May, Calgary, whose views of the North-West and along the C. P. R. are now so popular. Mr. Boorne was on his way to the World's Fair where his firm have a very large exhibit. Mr. Boorne's description of his viewing trips through the mountains to the coast, which territory he covers about ten times each year is most interesting and would be described more fully here, but for the fact that Mr. Boorne has promised to speak for himself in our Christmas Number.



## Posing and Illumination

Read before the World's Congress of Photographers.

BY E. M. ESTABROOKE, ELIZABETH, N. J.

It has devolved upon me to prepare and read before this assembly of artist photographers a paper on posing and illumination in the photographic studio.

It is a pleasing duty, as portrait photography has been the delightful occupation that has claimed my energies for many years of the past, and I hope the pleasure will still be mine during many years of the future.

The subject of posing and illumination in the photographic studio is more nearly related to the artistic than to the scientific part of photography, and therefore there will naturally be a wider diversity of thought and opinion on this subject than might be expected concerning the more scientific and therefore more exact branches of our profession, such as are practiced more particularly by the dark-room worker or the printer, although there can be no doubt that each of these is successful in accordance with his knowledge of art principles and his ability to apply them in his work.

The successful photographer may well claim to be an artist, for the highest product of his genius must be the exquisite flower of the combination of the purest and most cultivated taste and the highest skill.

The artist, however, they say, is born, not made. Nature must first have endowed him with gifts that would have constituted him an authoritative connoisseur in all art matters without having studied either line or rule. The endowment of artistic taste, however, does not carry with it the ability of mechanical expression; taste is of the intellect, inward; mechanical expression is of study and practice, outward.

Taste is God-given; it may be improved by

cultivation, but cannot be acquired by study.

Manual skill is only acquired by long and generally painful exertion and only retained by constant practice.

The artist, therefore, in whatever line (whether as the musician who charms and enraptures us with heavenly sounds, or the painter who enchants us with harmonious colors, or the photographer who delights us with beautiful effects of light and shade), is one who has been impelled to acquire the manual dexterity or skill to give outward expression to the beautiful in sound, or color, or light whose origin is from within.

All photographers may not be artists in the highest sense, because art is inherent, not acquired; but that which a man has may be improved by study, and observation of the works of artists who have made for themselves a name and reputation as such.

All photographers may and should be students eager to find out for themselves every means that may enhance the beauty or value of their work.

At no time in the history of art has the study of art principles in the beauty of form, color, and shade been so easy or the opportunities so numerous as at the present time, the near ending of the century.

Posing and illumination under the photographer's skylight or in the painter's studio must be governed by the same rules, and these rules or laws have so frequently been published in photographer's journals and have been so frequently commented on by eminent photographers for the instruction of their fellow-workers, that it appears unnecessary on this occasion to occupy time by any detailed discussion thereof. I would, however, remind you that you have the works of H. P. Robinson, of Edward L. Wilson, and many other eminent authorities equally accessible, and I would strongly recommend the study of the same and the application of their ideas in your daily work in your studios.

The time is now past when any photographer poses and illuminates any subject without study and consideration.

It is not the rule now to seat your subject carelessly before the camera and fire away, considering that any outcome must be a likeness and therefore good enough. The light now furnishes the modelling and the lens cuts it in; therefore the handling of the light and the use of the lens must receive the study and practice that are necessary to the skilful use of the pencil and the brush.

If the artist photographer has any appreciation

of the line of beauty, he will easily understand that in posing his subject under the skylight, he should develop or bring into prominence the curve, rather than the angle, and that the center of gravity should fall within the base.

He should understand that symmetry and proportion must characterize his work, whether of the one or of the many, the single figure or the group.

He must understand that in composition, lines must have supporting lines when not perpendicular, and that a picture is unsatisfactory that carries no idea of firmness and support.

The artist having these elementary principles constantly in mind, will practically make a study of each face and form that comes under his studio light; viewing the subject or model from every direction and by every method of illumination; studying the face by front, three-quarter or profile view, both toward and from the light; and also by the various arrangements of the light, such as broad Rembrandt or shadow lightning, or by any recognized method of lightning that the studio will admit of, that may impart character, form or piquancy to a face or figure that may perhaps lack one or all of these graces when in repose, while abundantly interesting when animated by conversation or engaged in the common affairs of life.

Every face will present some one view that will be more pleasing or interesting than any other. The long, thin face may perhaps be more pleasing from the front; the broad face may look better from the three-quarter view; one view may suppress an angle and develop a color, while an inconsidered pose might bring out the reverse.

The tilting of the head from one side or the other, the raising of the chin or the reverse, may give piquancy to this one and picturesque effect to the other.

In this manner he will decide on that view that gives the most pleasing outline, and that method of illumination that gives boldness and brilliancy where features are small or insipid, or that tones down the harshness of a too rugged face without losing altogether its characteristic quality, for it is well to keep in mind that an indication of character adds as much to a portrait as does action or life to a pose, avoiding always the commonplace. Tameness in expression, pose, or lightning is contemptible, and will rob even the finest execution of every charm; at the same time an evident straining for effect in pose or lighting is objectionable to any refined taste, and should be avoided as strenuously as the other extreme,

however true it may be, that the daring innovator may sometimes produce charming effects that may not come strictly within the approval of a too cultivated taste.

In my opinion a resort to ultra effects is only justifiable in cases where the face and form of the subject are not amenable to ordinary methods, and when it may be desirable or profitable to experiment.

When posing a single figure in either full or three quarters, certain accessories may be used with good effect—but care should be exercised in making the model the central point of attention; everything should be subservient to the portrait.

The three-quarter length will always be better without accessories unless in a sitting or leaning position, in which case the proper support will necessarily be provided.

Groups of two or more require the exercise of common sense and a knowledge of the capabilities of light and lenses. In form, the group should be as symmetrical as may be, with dark complexions and dresses placed next the light; and in large groups, most attention should be given to the general than to the individual effect.

The best photographic light is received from two windows—a top window or skylight joined to a side window, which shall reach to within three feet of the floor of the studio.

The dimension of the sky-light should not be less than ten feet square if space permits, but preferably larger if convenient, the pitch of the upper light only enough to easily and safely carry the snow and ice of winter and shed the rain of summer without leakage.

The quality of the top light is softness and delicacy of detail, but with two heavy shadows beneath projection.

The quality of the side light is vigorous harshness with abrupt lateral shadows.

The one corrects the other to any extent desired, so that having a top and side light properly shaded with movable curtains, every description of face may be so lighted as to make prominent all the good points and to lessen or entirely suppress all that is not desirable.

By a proper arrangement of the top and side light we can give boldness and prominence to small or weak features. We can by similar means soften and refine coarse and rugged faces.

By seating the model facing the light and at a suitable distance therefrom it is possible to remove to a great extent the appearances of age; the wrinkles and crowsfeet are lighted up, but cast no shadows.

In fact it is possible to change the shape of the face of any subject to a great extent by judicious management of the light.

Having a good light, use all of it that may be used with advantage according to the method of lighting adopted for that particular subject.

Many photographers shade their lights down closely and give long exposures; but the preponderance of opinion among artists of recognized ability is in favor of using all the light the model will bear and make shorter exposures comparatively, thus obtaining bolder modelling, finer gradations, and more brilliant effects, while not losing the softness that is characteristic of all really first-class work.

I have stated that time of exposure has much to do with the quality of the negative; it is also very true that the character of the dry plate has an important bearing on the resulting negative. I have always found that thinly coated plates invariably has a tendency to make negatives whose printing quality tended to contrast because of the fact that the shadows were always thinner than they looked. Such plates require longer exposure, and the subjects should be more evenly lighted than when plates of a thicker coating, although of even sensitiveness, are used.

The effect of the lighting of the subject will not be the same on the sensitive plate as it is on the retina of the operator's eye; therefore the photographer by closely observing the action of the lens will learn to see photographically, or to understand the precise effect on the sensitive plate of any method of illumination he may employ for his subject.

Also he must understand that the time of exposure will greatly modify the effect he may be desirous of obtaining.

The subject should be posed well out under the light and generally at a proper distance from the background to get what is called atmospheric effect. Then if the whole figure or head is well lighted a proper exposure will give the effect of daylight illumination, while a short exposure will produce the effect of artificial lighting.

By daylight illumination I mean that the figure or head will be fully lighted with soft modellings and easy gradations from high light transparent shadows, while by artificial illuminations the lights are chalky or flatted and the gradations are abrupt to heavy shadows. I therefore consider that it is safer to err on the side of over-exposure than to under-expose, although I have known eminent photographers to lean constantly to the short exposure for picturesque eff.cts.

Picturesque effect of pose and light should be aimed for in all photographic portraiture, and a thorough knowledge of the peculiarities of light and lens should be acquired by the artist so that his judgment may ever readily arrive at the proper methods of arrangement of the light and the exposure for lens to produce the effects desired for any face or figure with as little delay and hesitation as possible.

This promptness of decision will secure the confidence of the sitter and facilitate matters in a large measure, the natural result being more patrons, enlarged business, and increased profits. That such may be the good fortune of all who have listened to my views on the subject under discussion is the sincere wish of your friend and fellow-laborer.

### Talkee, Talkee, No Workee

“COSMOS,” of the *British Four-nal*, asserts that we are in danger of too much talkee, talkee. To some extent I feel contrained to agree with him, though in a slightly different direction to that implied in his caustic paragraph. It is not altogether to the papers at Conventions, Conferences, and Congresses that I would refer to, but to schemes so elaborate in their nature, or so sentimental in their conception, that they are foredoomed to failure.. They are so much “talkee, talkee,” and that's all.

True they serve to air certain men's proclivities for fame—such as it is—and raise them to the dignity of a top-hat. Their scheme is written about, criticised, and generally they receive a considerable amount of credit, besides the pleasure of seeing their names in the photographic press. The scheme may even be started, and officers elected. All talkee, talkee. Nothing further results.

Upon the sentimental side must be placed the pretty little resolutions passed at the Convention and Congress in America. This fraternity,

this feeling of unity, this desire to learn and teach each other is merely talkee, talkee. It is not a bad thing for a Convention or a Congress, and it will hardly do much harm. It affords the opportunity for the budding orator, it gives play to fine stretches of imagination, and the tongue turns over the choice morsels of word-linking with gusto. It sends a thrill of patriotism and photographic enthusiasm through the body, we applaud, and perchance endeavor to go one better ourselves, in high flown language as soon as the speaker finishes his oration.

It is nice to read how ardently the whole of Great Britain and Ireland, India, and all our colonies, are yearning for a complete photographic unification. It sounds well. And, moreover, how every English photographer is dying to fraternise with the Americans. The papers are full of it at the present time.

Still, but little harm will result, it will die down in a short while. Such resolutions and such speeches are merely bunkum, and the American is too wide awake to treat them as anything else.

My American friends will perhaps consider these remarks as showing bias against them and their nation. If they do they must, that is all. But I have no intention of so doing. Editorial friends over the water know full well, by the magazine itself, and from the frequency with which the men and matters of America are therein dealt with, that I am no bigot of this sort. The criticism is levelled at sentimental talkee, talkee, no workee.

Let us look at union affairs in England. The Photographic, Benevolent Association has never been in

a flourishing condition, in spite of the efforts of its hard working officials. It is not supported in any reasonable way by photographers. The union of assistants was going to revolutionise the world, to effect wonders. It didn't, but fizzled out instead. The National Association of Professional Photographers seems doomed to perpetual impotency. Even the Convention is but a sorry show, considering the number of photographers in the kingdom.

Nevertheless, we must do a lot of big talkee, talkee, with friends over the water. Would it not be better to workee, workee, a little in our own country?

And how much do the rank and file of English amateurs and professionals alike concern themselves with the matter at all. To them it may be interesting talkee, talkee, but there it stops.

Then take these elaborate international schemes, what earthly chance have they? Even our own exchange of print agencies and surveys, are always in a more or less languishing condition. A glance at the committee appointed will settle the question. They reside, severally, in England, America, India, France, and Japan. This must be termed a very handy body—for work.

Why cannot we have more robust manliness in our photographic world, why all these inane little sentimentalities? The British Convention was bad enough, but the Congress at Chicago appears to have reeked with compliment and talkee, talkee. Not that it is at all new, but as the old Scotch proverb puts it

"An auld tout on a new horn is little minded."

WALTER D. WELFORD.

—*Review of Reviews.*

### Orthochromatic Photography and its Practical Application.

A paper read at the Congress of Photographers, held at Chicago.

BY JOHN CARBUTT, PHILADELPHIA

IT is very evident that the prominence given to orthochromatic photography at this World's Congress of Photographers reflects the growing interest in the use of color sensitive plates, not only to produce monochromatic results from nature and the production of the artist, but a close realization of that long sought desideratum—photographs in the colors of nature.

Since the first intimation by Col. Waterhouse for the use of dye-eosin in collodion to overcome the inability of the collodion process to render other than the blue and violet rays of the spectrum, scientists have worked assiduously to overcome the difficulties that were inherent in the old wet, and the dry plate process of the present, and to no one are we so much indebted for the present success in orthochromatic photography than to Dr. Herman Vogel of Berlin. We owe also much to the research of Mallman and Scolik of Vienna, Botnamly of England, and others we might mention, who by their liberal contributions to the literature of orthochromatic photography have done much to aid those who have made it their business to produce commercially the plates for the photographer's use.

The dyes now generally used, either by mixture with the emulsion before coating the glass plate or celluloid film, or dyeing the ordinary gelatine plate afterwards, are eosine, erythrosine, rose bengal and cyanine, the latter we believe but rarely used, ow-

ing to the unstable character of the plates made with it. To the above may be added azaline, a compound of Dr. Vogel's invention, said to consist of chinoline red and cyanine blue.

Orthochromatic photography has had its greatest advocates in Germany and Austria in the reproduction of works of art in monochrome. Since the introduction by myself in 1885, of orthochromatic plates, the use both by the amateur and professional photographer has had a steady growth. The intelligent amateur as seems to be always the case on the introduction of any improvement in photography, was the first to test its merits, then the professional copyist of art works took hold of them, and their results now vie with the best products of Europe.

The professional photographers of America were the last to take hold of and use the orthochromatic method, and the wonder to me is that they are not more used by them. One reason is, I believe, a want of acquaintance with the orthochromatic plate, and with many the idea prevails that a color screen must be used under all circumstances; this arises it seems to me, from an unwillingness on the part of photographers to read the literature provided for them on the subject which, if read, would make many things plain that they remain in ignorance of, and as is often the case, lose business for the want of the little knowledge so easily acquired.

It is, however, very pleasant for me as a manufacturer of orthochromatic plates to say, that since 1891 the increased use of these plates has been very large as compared from the time of their introduction in America up to that date.

The use of the color sensitive plate may be used under all conditions when a plain bromide plate has previously been employed, Its use is to harmonize contrasts, whether in the dress of the sitter or a view from nature. Greens and yellows are rendered with more detail and color value, while blues and light reds in drapery are given their proper color value instead of being rendered lighter in the photograph as in common on the ordinary gelatine plates.

#### THE COLOR SCREEN—WHEN AND HOW TO USE IT.

For ordinary landscape work a very light yellow screen is all that is necessary, a dark yellow or one of orange shade would falsify distance. The most suitable place for the color screen is at the back of the lens board, sliding it in two grooved cleats, and should be placed in position when focusing. A screen of such a tint as this one would require an increased exposure of four to six times, depending on the state of the atmosphere, the yellower the light the shorter the exposure, and towards evening may be dispensed with, the value of a light yellow screen is best shown where the vista is slightly hazy, or where the clouds are included in the view. Their outlines and forms will be much better rendered in the negative.

#### USE OF SCREENS IN COPYING PAINTINGS.

In this class of work the selection of the proper color screen is of more importance than in landscape work, and the photographer should be provided with two or three, ranging in tint from a moderately strong yellow, medium and dark orange. Paintings

are best photographed in direct sunlight, and by examining the painting through the color screen it will not be difficult which one of the screens to select. For instance take a modern French painting, consisting of light and brilliant colors—a yellow screen will answer, but with a German or English painting, containing light reds and dark blues and green, we would select an orange color screen, and correspondingly increase the time of exposure. It may astonish some of you to learn that as much as ten minutes' exposure is given in direct sunlight on paintings that are old, or painted in strong colors.

#### PHOTOGRAPHY IN THE COLORS OF NATURE.

The objective point that has been striven after for years seems now near of being accomplished. I do not mean the actual photographing of either objects or nature in colors, but through and by the agency of the orthochromatic plates. By the patient and scientific research of Dr. H. Vogel of Berlin, and Frederick E. Ives of Philadelphia, the first as achieved by the triplicate negative and a like number of superimposed impressions, reproductions of objects in color so true to the originals in color as to be quite a commercial success, and in this country is being carried out by Mr. Kurtz of New York. Of Mr. Ives' work I have seen a great deal; it differs in result from that of Dr. Vogel's, in that the final picture is a triple image—a positive—on glass, viewed through three color screen in an instrument invented by him called the Heliochromscope and the object as viewed is seen in all of nature's brilliant coloring.

COLOR PHOTOGRAPHY—SO CALLED, Is now achieved by making three negatives of the object on orthochromatic plates through three different color screens, viz: Violet, green and red. I have here samples of such screens. In printing by the colotype, or half tone block, as in Mr. Kurtz's work, inks in the three primary colors are used, viz: Blue, red and yellow. The proper selection of tints, however is a very important manner. Reproductions by this method are shown in Mr. Kurtz's exhibit in the gallery, north end of Liberal Arts building.

#### DEVELOPING OF ORTHOCHROMATIC PLATE.

The same developer as used for the color sensitive plate, except that we find it best to use it slightly diluted; as the color sensitive plate more readily takes on density, and the exposure should always be generous, it is necessary in order to get full color values.

#### KEEPING OF ORTHOCHROMATIC PLATES.

A certain amount of doubt as to the keeping qualities of orthochromatic plates has been disseminated in this country. I can only say with regard to those of my own make, that I have evidence of many cases where they have yielded perfect results from nine months to a year and more after leaving the factory. Plain plates orthochromatized by the bathing process writers tell us, are not to be depended on over a few weeks. From past experience I am led to believe that plates from a proper orthochromatic emulsion have as good keeping qualities as the plain plates from same emulsion.

In conclusion I may say that I am firm in the belief that color sensitive plates will in time replace the plain bromide plates as the latter has the old wet collodion.

(*Pacific Coast Photographer*).

### Shutters Theoretically and Practically Considered.

BY SANFORD ROBINSON, PH. B.

(*Continued from September number*).

In this article I have used certain shutters to illustrate my theories because they are the best known. There are, of course, many others, but all constructed on some of the principles mentioned. I have therefore investigated all the various *types*, and draw the following general

#### CONCLUSIONS:

First—That it is immaterial what kind of shutter we use for stationary objects and comparatively long exposures. A shutter, a lens cap or a felt hat are equally good for the purpose. That in analyzing and comparing shutters we must do it with reference to *quick work and moving objects, taking illumination and displacement into account.*

Second—That to do this we must make the *total* duration of the opening of the lens *equal* in all cases and then compare by the *amount of illumination.*

Third—That a shutter should have parallel opening and closing edges or, as in the case of the Radial Revolver and Prosch, edges so arranged with reference to each other as to have the same effect.

Fourth—That a circular orifice is entirely wrong in principle, whether applied to a Drop, Revolving, Prosch, Iris Diaphragm or other form of shutter, and that the square orifice shown in the Gregg is also erroneous in principle when moving along the *diagonal* line of the square.

Fifth—That shutters may be divided into two sub-class or types, as follows:

First Class—Comprising those that open from one side and close from the same side. This class may be divided into two sub-classes.

(a.) Straight Drop. Examples: Drop with square orifice and same with circular orifice.

(b.) Revolving Drop. Examples: Revolver with radial orifice and same with circular orifice.

Second Class—Comprising those that open from the middle line or a diameter of the lens toward the sides and close from the sides to the middle. This may be divided into two sub-classes:

(a.) With straight edges. Examples: Prosch, Gray, Low, etc.

(b.) With circular orifices. Examples: "Segmental" Shutter.

Third Class—Comprising those that open from the center of the lens toward the circumference and close from the circumference to the center. This class may be divided into two sub-classes:

(a.) With circular opening. Examples: Bausch & Lomb, Iris Diaphragm.

(b.) With square opening. Example Gregg.

Fourth Class—Moving as near as possible to the focal points of the rays from the lens. Example: Focal Plane.

That shutters of the first and fourth classes and those of the second and third are radically distinct in principle, because those first named open the lens and expose the plate to the rays for a period the duration of which is *double* the time of effect of each ray on the sensitive surface, or in other words, double the nominal time of the shutter, while on the contrary the latter have a duration of opening and

nominal time equal to each other. *With reference to moving objects*, therefore, this becomes an important distinction which must be taken into consideration in making comparisons of effectiveness.

Sixth—That the largest quantity of illumination obtainable from a circular lens is expressed by the abstract amount .7854. An illumination of 1 could theoretically only be obtained by an impossible form of lens which must be square. That no shutter can obtain an illumination of .7854 without remaining open *double* the time allowed to each ray to effect the plate, as has been shown in the case of the drop, unless we imagine an impossible form of shutter which instead of crossing the lens shall simply disappear from every point of it at the same instant, remain absent for a period expressed by 1, and then simultaneously cover every point.

Seventh—That that shutter which will in a total duration of opening expressed by 1, afford an illumination the nearest approaching to .7854, must be the best for the "instantaneous" photographing of moving objects.

Eighth—That the form exemplified by the Prosch approaches this figure more nearly than any other type of shutter except the Focal Plane *under certain circumstances*.

Ninth—That for rapidly moving objects where extreme shortness of exposure is a requisite, the Focal Plane presents the most perfect form. That at low velocities it is very inaccurate and unsuitable for scientific purposes, but that at extremely high velocities, or more correctly speaking, when giving extremely short exposures many times less than those attainable with ordinary shutters, its



errors decrease and it becomes at a certain velocity capable of giving the shortest exposures with the maximum of illumination and with less error than any other form and that at such extremely short exposures it is not comparable with other forms.

Tenth—That the Gravity form of the Focal Plane possesses no merits whatever and is the worst form of shutter that can be devised.

Eleventh—That the Iris Diaphragm form of shutter is entirely incorrect in principle.

Twelfth—That the Gregg form is also incorrect in principle.

Thirteenth—That the best forms in other respects are limited as to their velocity by shock. An exception to this may be made in the case of the Thornton-Pickard, which while not of the best type, is the best of its type. Its freedom from shock is due to its extreme lightness and not to anything new in principle.

Fourteenth—That excluding the Focal Plane from consideration, that being under certain circumstances the best, the two best shutters manufactured are the Prosch and the Thornton-Pickard in the order named, each being the best of its type.

Fifteenth—That the only correct and scientific form of *lens* shutter is one that shall open with *straight* edges from a diameter of the lens. Any improvement beyond this must consequently lie in the direction of better mechanism and the prevention of shock at high velocities.

Sixteenth—And that, from what has been demonstrated in the foregoing article, it would appear that a system of shutter numbering might be adopted that would express the illumination and thus serve as a means

of comparison. The decimal point may be dropped and the highest amount of illumination attainable be expressed by the figure  $78\frac{1}{2}$ . The Prosch consequently would have its efficiency expressed by 45, the drop with square orifice by 39, the Bausch & Lomb by 26 and so on.

My object in writing this article has not been to praise or decry any particular shutter. I have used most of the standard shutters in practice and impartially consider both their merits and defects. There is no reason why I should have any prejudice. As far as I am concerned I want the best shutter and don't care who makes it. When I commenced a careful investigation of the underlying principles of shutter construction, I had no idea what the result would be nor any preference, and I confess that some previously formed ideas have been completely upset. I have only mentioned maker's names because it was necessary to do so. In many cases a particular shutter is the type itself, and in mentioning the type I was obliged to use the name. These shutters mentioned are all on the market, and as each is claimed by the maker to be the best, all are fair subjects of criticism. The manufacturers can therefore have no right to object to an examination of their merits or demerits. For the results, the figures are responsible, not I. My main object has only been to throw what light I could on the principles that in my opinion should govern the construction of this very important instrument. I have therefore started with the fundamental proposition, one that must be conceded, that the most important quality of an instantaneous shutter is its capacity for giving illumination.

A difference of a very small percentage is of very great moment in quick work where the effort is always to obtain a sufficient exposure. A shutter is not perfect if it departs at all from correct principles. The fact that it may be used for the purpose of obtaining *pictures* does not prove it to be of the best form. In the case of shutters as in the case of everything else, the nearer we can arrive at perfection in the instrument the better must be the results in work. It is only by a correct understanding of underlying principles that perfection can be arrived at or closely approached in anything, and it is evident from the diverse forms given to shutters in essential points, that not all inventors or manufacturers have given the subject careful consideration. Especially is this found to be the case with drop or revolving shutters, in which we almost invariably find the circular orifice. This is also very manifest in the case of the Gregg. A very little investigation would have shown the inventor that the simple expedient of altering the direction of the motion of his orifice with reference to its side, would have enabled his shutter to furnish 50 per cent more illumination in the same time, the shape and area of the orifice remaining the same.

I have said but little about "automatic time" attachments because they are simply accessories and have nothing to do with the form of the shutter *per se*. They are besides, from the necessary delicacy of the mechanism, even if accurately timed at the beginning, liable after use to change their rate like a poor watch. In addition, I do not think the amateur ought to use a shutter of this kind.

Differences of small fractions of a second are unnecessarily nice, and for exposures of a quarter of a second up to five or six or even more he should learn to count time. For longer exposures the watch can be used. Any one can soon acquire the faculty of estimating seconds, and if one learns to depend upon his shutter for his time he will be all at sea without it. There is no difficulty in estimating a half or quarter second, and when one goes below that time he is getting into "instantaneous" work and wants to go to the limit of speed of his shutter at once. The Prosch can easily be slowed to one-half of its maximum speed, and above that one would go to one quarter or one half of a second, always having the diaphragms to depend upon to regulate matters. In treating of the various instantaneous shutters I have taken no account of diaphragms, as generally they would not be used, and if they were it would make no difference in the conclusions arrived at.

In concluding this article I will give a method of obtaining the time of a shutter. It is not a new idea, although I have never seen it in print, and it is probably the only practicable method for the amateur. As the subject is somewhat analogous to the one already treated, and may further elucidate the principles already discussed, and as it may be useful to those who wish to try the experiment but may not be familiar with the method, I have thought it a fitting conclusion to this article. Of course an instrument might be constructed (probably employing electricity) that would accurately measure the time of a shutter, but it would be complicated and expensive. Such instruments of

precision are in use by astronomers. The only really simple and practicable method is that of the exposure of a plate and the photographing of a falling body, applying well-known physical laws to the calculation of the time. I will explain the process in as simple a manner as possible, so that any one can easily perform the operation.

Erect a rod, say ten feet in height, which should be perfectly vertical. Make it some five or six inches wide. Paint it a dead black and draw on it fine and distinct white horizontal lines to denote feet, tenths and hundredths of a foot. The feet should be plainly numbered in white, commencing at the first foot from the top or zero point and numbering downwards. The best place to erect this rod would be immediately in front of an open barn door, as there one can obtain the blackest kind of a background. At one side of the rod and so close to it as to just clear it, suspend by a thread a white ball. The ball should be quite heavy in proportion to its diameter so as to minimize air resistance and in order that air currents should not deflect it from a vertical descent. A solid rubber ball or wooden croquet ball, say about three inches in diameter, would answer very well, but a leaden ball would be better. When suspended, the center of the ball should be on a line with the top or zero point of the rod. Having set up the camera at such a distance that the whole rod is shown on the ground glass, carefully focus same, put in plate and draw slide. Then at a signal let an assistant cut the thread with a pair of scissors. At any point in its descent "catch it on the fly" with the

camera. Of course this experiment should be made on a bright day. Develop the plate and note the exact number of feet, tenths and hundredths (estimating the thousandths) opposite the point where the center of the ball first appears on the plate. This will be the distance fallen by the ball at the time the shutter commenced to open. Note also the feet, tenths, hundredths and thousandths opposite the center of the ball where its image on the plate disappears. This is of course its position at the time the shutter closed. Now calculate by the formula before given

$$t = \sqrt{\frac{2h}{g}}$$

"t" being the time in seconds, "h" the distance in feet fallen by the ball, and "g" equal to 32.0833.

Suppose for instance that the first distance noted is 4.535 feet and the second distance 7.258 feet. We have by substituting values in the above equation, for the first distance

$$t = \sqrt{\frac{2 \times 4.535}{32.0833}} = \sqrt{\frac{9.07}{32.0833}} = \sqrt{.2827} = .53169 \text{ seconds.}$$

and for the second distance, by substituting 7.258 for "h" in the above formula,

$$t = .67264 \text{ second.}$$

Deducting the first from the last, the time occupied by the ball in falling (2.723 feet) is found to be .14095 seconds (or a little more than  $\frac{1}{700}$  of a second), this being the time that the shutter remained open. As already shown, a drop shutter gives to each and every ray a duration of effect on the plate equal to the time taken by the lower edge of the shutter orifice to cross the lens opening,

because each ray, after admittance to the plate, is cut off by the upper edge of the shutter orifice in just that length of time. The time that elapses between the first opening of the *top* of the lens by the *bottom* edge of the shutter orifice until the final closing of the *bottom* of the lens by the *top* edge of the shutter orifice is just *double* this. As the ball will have been photographed from the first opening at the top until the final closing at the bottom of the lens and be falling during all that time, the distance fallen will correspond to *twice* the true time of exposure given to each ray.

Therefore the time of the square drop and radial revolver, *with reference to the motion of the object*, is the calculated time of the ball's descent and the time of *effect of each ray* on the sensitive plate is one-half of this. In the example above given the time of effect would be .070475, or say  $\frac{1}{14}$  of a second. For shutters of the Bausch & Lomb, Prosch or Gregg types, the calculated time of the ball's descent must be taken *without division*, because with these the duration of the exposure of the ball is the same as the nominal time of the shutter. As we have heretofore found, however, that the amount of illumination or effective time of the last named three shutters, as well as the drop and revolving shutters with circular orifices, is more or less than that of the square drop or radial revolver, we must, to arrive at the *effective* time of these, apply the percentages already found. Thus, for a drop with circular orifice we must take one-half of the calculated time of the ball and 83 per cent. of that half. This is equivalent to  $41\frac{1}{2}$  per cent. of

the calculated time. To sum up, for the *absolute duration* of opening take the calculated time of the ball's descent for all shutters except the focal plane. For the *effective time* of plate exposure take the following percentages of the calculated time of descent. The percentages are based on .7854 as the maximum amount of illumination possible with a lens. It must also be understood that the shutter allows a full opening of the lens:

Prosch.....	57
Square Drop and Radial Revolver..	50
Segmental.....	42 $\frac{1}{2}$
Circular Drop and Circular Revolver.....	41 $\frac{1}{2}$
Gregg.....	38
Bausch & Lomb.....	34

The above percentages must not be misunderstood as indicating for instance that the Prosch form gives only a little more exposure than the square drop or nearly twice as much as the Iris Diaphragm. In the same time of "equivalent" exposure the fall of the ball indicates but half the time with the Prosch as with the square drop, and therefore 50 per cent. of the latter is equal to 100 per cent. of the former, and so on for the others. Example: The ball indicates with the circular drop a time of  $\frac{1}{14}$  of a second. This is the duration of shutter opening, and the displacement on the plate of a moving object will correspond to this time. The *effective* exposure of the plate is  $41\frac{1}{2}$  per cent. of  $\frac{1}{14}$  second or  $\frac{1}{33}$  of a second. That is to say, if the plate could be exposed, *without a shutter*, to all the rays, through an open lens for  $\frac{1}{33}$  of a second, the effect on the plate would be the same as a nominal exposure of  $\frac{1}{14}$  of a second by a drop shutter with a circular orifice. In

the same example the Prosch would show an equivalent exposure of  $\frac{1}{210}$  part of a second.

If the ball has shown a time of  $\frac{1}{100}$  of a second for each of the types mentioned in the above table, we will have by applying the corresponding percentage given, the following results as to effective exposure in the order given above :

Effective exposures :  $\frac{1}{175}$ ;  $\frac{1}{200}$ ;  $\frac{1}{211}$  ;  
 $\frac{1}{268}$ ;  $\frac{1}{294}$ .

From this it will be seen that we are exposing plates a much shorter time than we have had any idea of, and this will account for the apparently wonderful results by the focal plane shutter, by showing that its exposures, as compared with other shutters, are not as short as they appear to be.

In the forgoing calculations we will have obtained *two* results, one indicating the *absolute length of time* during which the shutter has remained open, the other the time of *effective exposure* of the plate. The first shows how long a time the motion of the object will affect the plate, enabling us to judge of distance, speed of object, etc., so as to avoid evidence of that motion in the image, or in other words to get a sharp picture. The other enables us to judge of light, development, etc. Both results are therefore of value in obtaining a good picture.

The result as to time will be the same no matter at what point of its descent the ball is photographed, although in the same time it will cover more distance if near the ground than if near the top of the rod, and as it is moving slower during the first part of its descent [than at the last, it will be well to catch it above the middle of

the rod. The camera should be near enough to the rod to get a distinct image of the divisions on its face, bearing in mind, also, that the nearer it is to the rod the greater will be the velocity of the image of the ball on the plate. The camera should be horizontal, and for greater nicety might be set up at such a height as to bring the line of collimation of the lens to or near the five foot or half way mark on the rod.

The formula is only absolute for a body falling in a vacuum, but is correct for all practical purposes as the resistance of the atmosphere will have but a very slight proportional effect in the short distance fallen. It will be observed that I have recommended that the rod be black and the ball and division lines white. It is plain that we can get a better and sharper image of a white ball than a black one. It is the ball and division lines that we want to photograph and not the rod, which is a mere supporter of the lines.

(Concluded next month.)

### Dodges.

BY C. O. GREGORY.

(Concluded from page 268)

*Cardboard Shades.*—For landscapes a bent cardboard shade is very useful, and is a simple means to dodge a negative with a thin foreground. If any clouds are in the negative it will help, if not entirely, to bring them out. I show you an instance of a print from a negative without a shade, and another using a shade, and I recommend you to try it. I first saw this idea mentioned in a paper by Mr. Blanchard, and I consider it a valuable dodge.

Negatives are further dodged by working on the back. In the case of a group some of the faces may print too dark, in which case a light touch of pale blue paint on the back of the negative will improve the print; also tissue paper can be pasted on the back or gummed by the edges and worked on with a pencil or crayon to increase the high lights, cutting away parts of the paper to increase shadows. I show you a portrait which I think treatment of this kind has improved. It is from the negative of one of our members who kindly lent it me to experiment with. No. 1 is a print from the negative in its first state. No. 2 the same after intensification with mercury and ammonia. No. 3 is after the negative has been backed with tissue paper and worked on roughly with pencil to take out the brick marks, also vignettted. The cabinet is from the same negative printed in a half-plate frame as before described.

Matt varnish on the back of the negative is also another means of improving a print, but, unfortunately, it is a dodge of itself how to get the varnish on the plate, and I do not think it will be out of place to describe how it is done. When you first try it you will perhaps get the varnish on the under-side of the plate, or over your fingers, up your sleeve and on the carpet—in fact, anywhere except the right side of the plate.

To coat a plate with matt varnish, the plate must be cold; but with spirit varnish it must first be warmed. When varnished the plate must be laid at one side to dry, and when dry and hard can be worked upon with pencil and brush and parts scraped away with the knife to increase the

shadows if necessary. This mode of dodging is useful in adding clouds to a weak sky. Get a suitable cloud negative as a guide, and, with pencil or crayon and stump to shade off, copy as well as you can the cloud negative; with a little practice it is easy to get passable results.

When thinking over this matter, it occurred to me to try ground glass itself, and I think (after trial) that it has some advantages. It is remarkably easy to work upon, and can be used over and over again. To use it, take a piece of ground glass and place it ground side up on the top of negative film side up, work on it to increase high lights as usual with black and blue pencil, blue for medium effects. To increase the shadows it is not possible, of course, to scrape away the matt, but the same effect can be obtained by thin gum water; put it on lightly with a small brush, the thinner the better (this is important, because if thick it will have a diminished effect), and let it dry. After doing what you think necessary, place the ground glass at the back of negative, the ground side next back of negative, then print as usual. A softer effect will be produced by placing the ground glass on back of negative, working on it and printing in the same position. In the former case, only one thickness of glass intervenes between the ground side of glass and the film of negative; in the latter case there are two thicknesses. If you wish to use the ground glass again, the work can easily be removed by that useful kind of soap that "won't wash clothes." Matt varnish is very inferior to ground glass because of its liability to damage.

*Vignetting*—There are many ways

of doing this, and many effects to be produced. A good plan is to make a cardboard screen for the purpose, to fit on top of printing frame, leaving a space between negative and cardboard. Cut a hole half inch smaller than you wish your vignette to be, then gum tissue paper round the edges, also a piece of tissue paper over the whole aperture, this softens the effect. It is also advisable—in fact with gelatino-chloride paper necessary—to stuff wool between the cardboard and glass to prevent the light unduly spreading over the whole print.

*Distortion.*—It may happen that, notwithstanding the use of a swing back, distortion occurs through the camera being pointed too much towards the sky. This can be cured as follows:—First make a transparency in the enlarging camera, tilting the negative and plate for transparency until the picture appears as it should do. Develop the transparency, then make a negative from the corrected transparency, or, if the transparency is not quite right, the negative can be further corrected in the same manner, and, with care, the result should be satisfactory.

*A Shifting-back Printing Frame.*—This frame I bring under your notice was some time ago broken and repaired in such a manner as to be useless owing to the back so easily shifting. For a time it was discarded, but since it has been found useful in placing prints on the negative again in cases of under-printing. Place the negative in the frame, and secure it to prevent it shifting, then place the print to be corrected as nearly as possible in its proper position fasten up as usual, and it will be

found that that the back and print will shift about together, so that by looking at the front it can be accurately adjusted to the negative with very little trouble. I find it useful when letting inexperienced persons do printing, as I can quickly correct a dozen prints, and find it a useful contrivance.

*Exposure.*—There is often a great discrepancy in the calculation of exposure by different persons, in my experience as much as 6 to 11. The pulse-beat in middle-aged persons is nearly correct for seconds. A dodge is also recommended of repeating, as rapidly as possible, 1, 2, 3, 4—2, 2, 3, 4—3, 2, 3, 4, and so on; each four figures will so nearly represent seconds that the difference may be disregarded. It is also recommended to hang from under the tripod head a small weight on a cord 40 inches long—39 inches I believe to be correct—this will give seconds each sway of the weight. A much shorter cord is undoubtedly more convenient, such as used on an exposure meter in the market. This, to give half seconds, should be  $9\frac{3}{4}$  inches long. The swing to and fro will be one second. Considering the inventive genius shown in photographic matters, I am surprised that no one has yet placed in the market a small, simple seconds' ticking instrument, so that by giving a few turns the instrument would tick seconds when required. It seems to me to be a want in the dark room when enlarging.

*Toning.*—When I first tried gelatino-chloride printing-out paper, I found great irregularity in toning. The first prints toned all right, but the last of the batch hardly got any gold owing to the greediness of those first dealt

with. This difficulty can be overcome in the following manner:—Suppose there are eighteen prints to tone, make up the toning bath, pour half of it into the toning dish, and place six prints in it; when they are toned, take them out and add half of the remaining bath to that already in the dish and tone six more; take them out and add the remainder of the bath and tone the remainder; all the prints will by this arrangement be toned in a regular manner. I mention this as I have heard of this difficulty twice within the last few days.

*Registering Clouds.*—This is a subject which I think deserves some consideration. Clouds too often look very funny in our landscapes, printed without much regard to lighting, and my object in mentioning this matter is to suggest a method of knowing what clouds will fit a landscape. In one of the journals, some time ago, there was a paper on the subject, and it was recommended to take various particulars—time of day, point of the compass, etc., and a diagram, rather a complicated proceeding, and I confess I did not get quite to the bottom of it. My plan is a simpler one, and is this:—Paste on the top of camera a small piece of cardboard, or paper, marked like the face of a watch, with the XII. pointing the same direction as the lens. When a plate is exposed draw an imaginary line from the center of cardboard to the sun and mark the plate in your exposure plate the No. the line intersects—say it is 8, No. 8 cloud and No. 8 landscape will always fit; No. 8 cloud reversed will fit a No. 2 landscape, and so on. The number need not be very exact; a No. 5 or No. 7 cloud may do for No. 6 landscape. I don't say the

cloud will suit, I only say the lighting will be the same. The altitude of the sun should perhaps be taken into consideration, but this can be readily discovered by referring to your notebook for the time of day the negative was taken. This system is easy of adoption. It is not necessary even to have a diagram on your camera, for with your watch on the top after each exposure, a note of the number can be obtained.

*Printing Clouds.*—I have very little time for cloud printing, and am obliged to adopt the following rough-and-ready dodge to print clouds quickly. For this method you must have a thin negative. I do not use a frame, but paste brown paper to the bottom and top; place the print on the negative, and turn the brown paper at the top and bottom over the print. I then place the back of a printing frame in the usual way and clamp one side to the negative holding the other between finger and thumb of left hand. I shade the front portion with brown paper or anything that comes handy, roughly follow the outline with wool, and print in direct sunlight. Should there be a tower or high building with sharp outline, print it on a separate piece of sensitised paper, cut it out correctly, and stick it on the print and proceed to print from the cloud negative. Nearly all my clouds are done in this manner, and only take a very short time each.

One other contrivance I will mention, and that is a convenient way of drying sensitised plates. You may attempt to develop a plate not exposed; don't throw it away, well wash and dry. There may be other occasions when you may be puzzled



for the want of a drying cupboard. For a few plates it is not necessary to have a cupboard; use your old plate boxes; the shape I show you is excellent (a sliding box). When you have a plate to dry, let it drain, wipe the back, place in the empty box film side up and close; you will find it quite dry in the morning, presuming the box had previously been kept in a dry place.—*Read at the North Middlesex Photographic Society.*

### A Few Notices.

#### PHOTOGRAPHIC COMPETITION.

The CANADIAN PHOTOGRAPHIC JOURNAL published in Toronto, Ont., is one of the most progressive periodicals of its kind on this continent. The publisher is now conducting an amateur photographic competition, similar to those conducted annually by *The Illustrated Buffalo Express*. He offers \$150 in prizes. The competition will be open until December 1st, and prize-winners will be announced in a fine Christmas number of the Journal.—*Buffalo Express.*

In its notice of the late P. A. of A. Convention, *The Practical Photographer* says, "Mr. James Inglis showed bromide enlargements on his own paper, with unusually rich deep shadows and plenty of half-tone gradation. We have seen no English bromides combining such vigour and such softness, except some of the toned bromides made a year or two back by W. Ethelbert Henry."

Your Journal improves with each issue, I am very much pleased with it.

Yours truly

S. J. JARVIS,

Ottawa, Ont.

### Carbon Printing.

A paper read before the Photographic Society of Great Britain.

BY MR. W. E. DEBENHAM.

Mr. Debenham said carbon printing was a large subject, and one which included more than he would have selected to deal with in a single evening, but the late Mr. W. Bedford had promised to give a demonstration of the process, and as Mr. Bedford had unfortunately been taken from them, he, (Mr. Debenham) had undertaken to take the matter up. Carbon printing went into a good many ramifications which he did not propose to follow on the present occasion, and he simply intended to go through the process as it was likely to be worked by those who had not hitherto been accustomed to use it. The object of these demonstrations had, he thought been misunderstood in some quarters; he had for instance received a letter asking whether he was going to bring forward anything new, in which case his correspondent would like to come and see it. He did not think these demonstrations were intended to show anything new, but rather to bring certain branches of photography under the notice of members who might not have practiced them, and to make it easier for them to start working such branches. There were many members who confined themselves to one or two particular lines, perhaps exposing and developing gelatine plates and possibly printing in albumen or gelatine, but who would like to undertake other work if they could see their way to getting a fair start without too much difficulty, and it was to smooth the way for such as those that the demonstration had been instituted. The process under

consideration was called carbon printing, but it was not at all necessarily or essentially carbon that was used, and it was often and perhaps better called pigment printing. There were certainly other pigment processes, but the term "pigment printing" described this fairly well. The essential principle of it was this, that bichromated gelatine when acted upon by light underwent a certain change, in virtue of which the gelatine was no longer soluble in hot water. If therefore with the gelatine were locked up a certain pigment—and carbon was originally chosen as being unchangeable and permanent—by exposing a part to the light and washing away the rest, it was obvious that some kind of a picture would result, and that was the origin of the process. In most prints, so-called carbon, carbon was still used largely, some other pigment being added for coloring, because the color of carbon alone as obtained in lamp black or Indian ink was not to many so agreeable as when some other tint was mixed with it. There was this peculiarity about carbon printing, that it was necessary to wash away, or "develop" as it termed, from the side of the film which had not be exposed, and consequently a reversed image was obtained. The paper upon which the gelatine was coated was simply used for a convenient support for the sensitive material, which would be affected by light to a greater or less depth according to the degree of transparency of the negative. If then the print were at once placed in hot water for development, those parts which had been affected by exposure to the greatest extent would remain on the paper, but where the film had only

been rendered insoluble to a slight depth, the water would get underneath and cause those portions to float away, consequently there could only be two tones—black and white—and the half tones would disappear. In order, then, to secure the half-tones, the unaffected gelatine must be washed away or developed from the side next the original support. That was at first done by cementing the sensitive surface with indiarubber to paper or other support, when the original support being removed, the development could proceed from the back, and a half-tone picture could be produced. This, of course, gave an image reversed side for side and the same was the case with ordinary carbon printing to-day, for by developing from the side which had not been exposed we got a reversed image, in which the right-hand side became the left; for some purposes to which carbon printing was applied this was immaterial. The process was constantly used for printing enlargements, and it was only necessary to make a reversed negative for the enlargement—which could be done easily enough in the camera, and that negative, which if printed in platinotype or silver would give a reversed image, would in ordinary carbon printing give an image in its proper position. Where the carbon tissue was placed on the paper and developed direct, it was called "single transfer." It was found that it was not necessary to use a cement for the purpose of fastening the tissue to the paper support. If the tissue were moistened with water so as to cause the gelatine to commence to swell, and, if before the gelatine had swelled to the

full, it were placed in contact with an impervious substance such as glass, and squeegeed on to it, the gelatine would go on absorbing the water between the film and the glass, and in so doing it would be cemented on to the glass. Single transfer on glass might be, and was accomplished in that way for the making of carbon transparencies. Mr. Debenham then proceeded to demonstrate the process, sensitising a piece of pigmented tissue in a solution of bichromate of potash. He said he used the solution somewhat weaker than was usually recommended, namely, an ounce of the salt to a quart of water, and sometimes even weaker than that. If the crystals were placed in the bottle in a muslin bag with the top of the water just above them they would easily dissolve and the muslin would also filter the solution. The material called carbon tissue sensitised in this instance was "red chalk tissue," pigment mixed with gelatine and spread upon paper for convenience, and in that state it was not sensitive. The tissue was sold ready sensitised, but he preferred to sensitise it himself as required. Ready sensitised tissue would keep somewhat longer than home sensitised but would not print nearly so quickly. The main point, however, was that one was obliged to use up a quantity of ready sensitised tissue or it would become useless, while if one sensitised the tissue one's self, only just as much as was required need be prepared. The tissue was sensitised by complete immersion. He had not found that the addition of ammonia to the bichromate solution improved the keeping qualities of the tissue, but if the bichromate contained an excess of chromic acid, ammonia would no

doubt prove advantageous. The sensitising could be done in a good light, the tissue being scarcely if at all sensitive while wet. The immersion could be continued until the tissue was pretty well softened, and it should not be so long as to cause the tissue to curl back upon itself, or it would be inconvenient to work. Upon removal from the sensitising solution, the tissue was squeegeed on glass to get rid of superfluous moisture, and it was generally advised to then remove it from the glass and hang up to dry. Mr. Debenham, however thought it better to leave the tissue to dry in contact with the glass. The surface was finer if dried in contact with the glass, and being finer it more perfectly rendered all the minute detail of the negative, and as it need not be stripped from the glass until required for use, the surface was kept from the air. Also if dried in dry warm weather, the tissue was apt to curl very much, but if dried on the glass it was flat and convenient for use. When it was intended to dry the tissue in contact with the glass, it was necessary to prepare the glass by rubbing it with talc, or the tissue would stick to it. The secret of this operation was that the talc must be rubbed in hard, mere dusting on and wiping off would not suffice; it must be rubbed in thoroughly, and then the talc may be apparently all wiped off. If this was done carefully, the tissue when dry could easily be stripped from the glass. The wet tissue was laid on the glass and covered with a piece of water-proof sheeting, and squeegeed first from the middle to one end, and then to the other. If this was done at night the tissue would be dry and ready for use the next morning. He had some-

times got it ready in an hour by placing it at a certain distance from a fire, and of course away from the light; a gas stove with a kettle on it might be used. The paper being sensitised and dried the next step was the printing, and in this respect there were one or two peculiarities about carbon printing. In the first place if one were merely to print on a piece of carbon tissue as on albumen paper it would be found that it would not stick to the paper for development. •Where dark portions of the picture came near or up to the edge of a carbon print the gelatine had so little adhesiveness that it would come off unless surrounded and held round its edges with some gelatine which had been acted less upon; therefore what was called a "safe-edge" was used in carbon printing, the margin of the negative being sometimes painted out and sometimes blacked out with a cut-out mask. Mr. Debenham showed a double safe-edge which he used, consisting of a folded cut-out mask of opaque paper for placing on both sides of the negative, the opening next the film being very slightly larger than the other, and marked with a line to show the exact position to be occupied by the tissue. If the simplest form of safe-edge was used paint or an opaque mask on the film side of the negative, any dark part of the picture near the edge would be as a vertical wall of black on the surface of the paper or glass on which it was developed, and the film left by the unexposed part of the tissue might not be strong enough to support that wall, and the water would consequently get under it and wash it up. If, however, the safe-edge were outside the negative, instead of between

the negative and the tissue, the wall of black near the edge of the picture would take a slanting direction, and offer a greater resistance to the water in development. If the print is from an inverted negative all that has to be done is to develop it on a piece of "single transfer paper," which was an article of commerce—that is, if the resulting print was to be on paper. The tissue had to be soaked in water until a certain quantity of water had been taken up, but not all that it would absorb. If it remained in the water until it had absorbed all that it would absorb, it would not take up the water between itself and the surface upon which it was to be developed, and consequently there would be no adhesion. The tissue must be left in the water until it became tolerably soft, or else it could not be got in good contact, but he thought the sooner it was out and squeegeed down the better. It was not always absolutely necessary to blot off the tissue and its adherent support, but it was rather better to do so, as the water was thereby removed and the tissue left with a greater appetite for taking up what water there might be between the two surfaces so as to cement them together. Mr. Debenham then proceeded to squeegee a print on to a finely ground opal glass for double transfer. The print he said, would be developed on the glass, but not left there; it would be stripped off on to a piece of paper and so would present itself in the proper position, right side to the right. The double transfer process was necessary for landscapes, and in fact for most purposes where a reversed negative was not used. The glass or other support in double transfer had to be prepared by rubbing on

a very small quantity of a solution of beeswax and resin in turpentine, otherwise the print would not strip. The exposure had no visible effect on the tissue, and it was necessary to ascertain the time of printing by means of an actinometer. He thought the most convenient form of this instrument was that introduced by himself in 1877, and now, with a trifling alteration, obtainable as "Sawyer's Actinometer." But he particularly wished to show how to work the process with as few appliances as possible, and to this end he described a simple form of actinometer, all but the head of a portrait negative of average speed in printing being blocked out and that head used as a guide by printing on albumen or gelatine paper. The carbon tissue would, with a negative of equal density, be sufficiently exposed in from one-third to one-fourth of the time necessary for a silver print. The print and the single transfer paper having remained for a few minutes were placed in hot water. Mr. Debenham remarked that he did not use thermometers in this process, not because he did not like exact measurements when they could be had, but because different tissues varied as to the heat they required, and the same tissue would vary according to the time it had been kept. When the original support of the tissue could be slightly shifted sideways by pressure with the fingers it was ready for stripping, during which operation the whole should be carefully kept under water. After a little while the hot water could be flung over the print, when the unaltered gelatine would be washed away, leaving the picture on the transfer paper or other support. Until the safe-edge had all been washed clear it was evident

that development had not proceeded far enough; it would not be completely removed, and by looking closely a certain amount of deposit could always be seen. The print developed appeared to have been somewhat over-printed, and Mr. Debenham remarked that there was some control in such a case by using hotter water and prolonging the development which was done, and eventually development was stopped by changing the print into cold water. The prints would not bear treatment with boiling water. The print which had been squeegeed on to opal glass having been developed in a similar manner, was afterwards placed in alum solution to harden the film. In the case of double transfer the plate or flexible support or whatever the image was developed upon, was treated in the same way, but after removal from the alum solution and washing the print was placed in contact with paper prepared with gelatine, and when dry it would leave the double transfer paper and adhere to the final support. In what was known as the Lambert-type process a piece of plain or opal glass was waxed and coated with collodion and the print developed on it when dry it was spotted with oil color and then transferred, so that there was no spotting or other work upon the glossy surface of the print. It had been said that the action set up in the tissue by exposure to light was continued in darkness, prints partly exposed one day and developed the next, showing no signs of under exposure. This had been called the continuing action of light. It might be too, that as the whole tissue was becoming less soluble, the more a certain amount of exposure would suffice to harden it.

Mr. Debenham thought it a pity

that the process was not more worked, especially by amateurs. The great value of it was, of course, its permanency. The same might be said of platinotype, but had become fashionable and had somewhat hindered carbon printing. Platinotype did not give such perfect registration of detail in the shadows as a process in giving a glossy black surface.

Mr. Burton said vigorous negatives were necessary to obtain good prints.

A vote of thanks was passed to Mr. Debenham for his demonstration, in acknowledging which he expressed the hope that it would lead to, at all events one or two members taking up carbon printing.

### The Toronto Camera Club.

OFFICERS 1892-3.

E. HAVELOCK WALSH,	President.
A. W. CROIL,	1st Vice-President
W. H. MOSS,	2nd Vice-President.
ERNEST M. LAKE,	Secretary.
R. G. MCNEZ,	Treasurer.

Club Rooms and Studio:  
COR. YONGE AND GERRARD STREETS.

THE first Lantern evening of the season was held on Monday the 9th inst., and there was a good attendance of members and friends. The meeting nearly turned out a failure owing to the absence of limes. The club's supply had run out and it happened none of the dealers in the city had any in stock. A member who had a private supply was expected every moment but did not put in an appearance and when a quarter to nine arrived and no limes, Mr. Neilson who was to operate the lantern, was in a quandary. Telephone messages were hastily despatched to several likely quarters without success. It seemed as though the meeting would be obliged to adjourn when Mr. Bert Smith suggested using a common clay pipe. He immediately put his words into actions and soon returned from a neighboring

Tobacconist with a handful. The bowl of one of the pipes was put on in the place of the lime and the oxygen turned on. A small cylinder with only a little gas in it was used first with only fair results, owing to lack of pressure, but when the large cylinder was used, a well illuminated disk was obtained, the light being so good as to be hardly distinguishable from the light when the regular lime is used. Slides by Messrs. H. Neilson; A. W. Croil; W. H. Moss; H. M. Glover; J. Cameron; and Dr. E. E. King were shown and were of good quality with a few exceptions.

The secretary has for some time been in correspondence with the Customs Authorities at Ottawa with a view to having the duty removed from lantern slides and photographs by amateurs which are sent here for exhibition purposes and then returned to their owners. We are glad to be able to inform our readers that his efforts in this direction have been successful and through the kindness of the Hon. N. Clarke Wallace, Controller of Customs, the matter has been satisfactorily arranged. The following letter is of interest:

Customs Department, Canada,  
Ottawa, September 23rd, 1893.

ERNEST M. LAKE, ESQ.,  
Hon. Sec., Toronto Camera Club,  
17 Jordan St., Toronto.

SIR,—I have the honor to acknowledge receipt of your letter of the 16th inst., addressed to the Controller of Customs in which you refer to yours of the 15th May last, in both of which communications you ask that special arrangements may be sanctioned by this department, whereby photographs and lantern slides by amateur photographers in the United States and England, and intended for exhibit before the various Canadian Camera Clubs comprised in the Canadian circuit, and to be returned to the country from whence imported after such exhibit, may be admitted free of customs duty.

I am now desired by the Controller of Customs to advise you that instructions have gone to the Collector of Customs at Toronto, under which he will collect from your club the duty which would be in the usual course exacted, on the understand-

ing that, should the photographs and lantern slides be re-exported by you, a refund of the duty so paid will be granted by this Department, on your producing the usual proofs of such re-exportation.

I have the honor to be, Sir,  
Your obedient servant  
THOS. J. WATTERS,  
Acting Commissioner

### Snap Shots.

MR. W. ETHELBERG HENRY paid a friendly visit to the club on Monday evening 9th inst.

DR. E. E. KING was highly successful with his camera at the World's Fair, and has a large number of fine negatives in consequence.

MR. J. G. RAMSEY also took a few shots at the White City last week with good success.

MESSRS. W. B. BAYLEY and H. English were successful exhibitors at the Western Fair, held recently at London, Ontario.

MR. JOHN J. WOOLNOUGH has been doing some good genre work lately.

IT is intended during the coming season to hold a "World's Fair evening" of lantern slides from negatives made by our members in Jackson Park during the past summer.

IT is to be hoped that the stock dealers in the city will lay in a supply of limes before spring.

THERE are a number of amateurs in the city who are not members of the club. They evidently do not know the advantages arising therefrom. Support the cause of amateur photography, by sending in your names, gentlemen—now is the time to join.

THE annual general meeting for the receiving of reports, election of officers for the coming year, etc., will be held in the club rooms on Monday evening, Nov. 6th prox. A large attendance is expected.

### Elementary Stereography.

[North Middlesex Photographic Society.]  
A PLEA FOR STEREOSCOPIC PHOTOGRAPHY.

**M** CORRECTLY prepared stereoscopic slide or transparency, when examined in the stereoscope, shows us the original view with all the realism that invested it at the moment we exposed our plate upon it. Stereoscopic pictures, binocularly observed, take us one step further than does the faculty of memory. The latter recalls to the mental gaze scenes invisible to the material eye; the former re-create, if not the veritable scenes themselves, at least transcriptions of them, perfect in all respects but two, namely, movement and color. Atmosphere, distance, solidity, height, depth and breadth, are more than merely suggested in stereographs; to the eye, or rather to the brain, they appear as though they were really present in them. No single or monocular photograph, however skilful or cunning in the management of its lights and shadows, suggests more than a faint similitude of the attributes of actuality I have enumerated. The æsthetic beauty of good stereographs is inferior to that of Nature herself alone; their fidelity to that original can be scientifically demonstrated, and yet, while they allow little rein to the fads and freaks of your modern photographic impressionists, they are, nevertheless, artistic, as most of us understand that indefinable, yet easily realisable term. The delight at viewing stereographs is so genuine and lasting, they are so easily prepared, and the educational advantages of stereography are so considerable, that there is room for wonder at the comparatively few photographers who practice it. Stereography is an art within an art, and it is

readily acquired by anybody having an ordinary acquaintance with monocular photography. I have called it a thing of beauty. That it is a joy forever, that its fascinations are of an enduring nature, may be proved by broaching the topic to most veteran photographers. The deep affection they retain for binocular work, their regret at its decadence, their pleasure at its resuscitation, can only be understood by stereographers.

#### SOME MISTAKEN IDEAS.

I have been extremely surprised, and just as much amused, at the large numbers of photographers—professional and amateur, veterans and novices—who are ignorant of the fundamentals of stereography, and whose ignorance leads them into all kinds of blunders when they come to talk or write of it. The supposition that stereoscopic effect is obtainable from two similar pictures is a common fallacy, and quite recently formed the groundwork of articles and papers by people posing as teachers of their subject. As two dissimilar pictures are necessary to obtain stereoscopic effect, the absurdity is manifest. The other day, too, the novel property of "stereoscopicity of effect" was claimed for negatives on multiple-coated plates. Then, not long ago a writer of considerable scientific eminence said he had stood outside a shop window filled with monocular photographs, and, at a distance of several feet, saw them stereoscopically. Such a thing can't be done by any mortal man. Consider: I am quoting photographic "authorities" who enjoy the profit and dignity attaching to that agreeable reputation. I can more readily excuse the ignorance of a bystander (an

amateur, I divined, by his conversation) who, when I was recently using a binocular camera in Norfolk, told a friend who was with him that the function of my two lenses was to "unite the two images in the camera;" but even he like the supposedly better-informed gentlemen I have quoted, had two eyes and could not have known how, why, or what he saw with them.

#### STEREOGRAPHY IN A NUTSHELL

For here—in the philosophy of eyesight, in binocular vision—lies the whole subject of stereography ready cut and dried for assimilation by the meanest capacity. With our two eyes we see stereoscopically—that is, through them two dissimilar or unlike pictures of an object are carried to the brain, which combines them to form a third, which is what we think we see with the two eyes simultaneously. Now mark the analogy between the eyes and the stereoscope. In the latter, two lenses are placed side by side to enable us at short focus to look at two dissimilar photographs—that is, photographs taken from slightly different points of view—and these pictures are conveyed through the eyes to the brain, which combines them to form a third picture having all the illusion of reality. That there are two points of view in binocular vision necessarily follows from the fact of the eyes being separated, but anybody can practically test the point for himself by using, first, the right eye alone, and then the left to look at a view or object, when it will be seen that the right eye takes in more of the right side of the view or object, and the left eye of the left side, while the picture seen, or supposed to be seen, by the two eyes differs from both the monocular pictures. Further-



more, the convergence of the optic axes upon near or distant objects enables us to appreciate solidity, relative size, and relative distance, and when looking through a stereoscope at two dissimilar photographs, convergence of the optic axes by refraction again comes into play to separate the planes of the subject, and to, in short, impart to the picture what I have already termed the realism of the original view or object.

Now suppose a pair of lenses, mounted on a camera front and separated by about the distance that separates the eyes, and a twin or binocular negative to be taken. The point of view of each lens was different, hence there must, in theory, be a dissimilarity in the two pictures, just as we have seen that there is in the two pictures seen by the two eyes. Practice agrees with theory in this. The right-hand negative has more of the right side of the picture than the left-hand negative has, and the left-hand negative has more of the left-hand side of the picture than the right-hand negative; and where the two negatives are joined the amount of subject included on those sides is severally less than that on the corresponding sides. Prints from such negatives having the same relation in the matter of right and left, and inclusion of subject as the double view as seen by the two lenses had, fulfil every condition necessary for binocular examination. Put it in another way. Imagine the lenses to be your eyes. They saw two dissimilar pictures of the view, and your positive prints are, practically, what your eyes or your lenses saw. The stereoscope lets you see the two views under the same angular conditions as they were taken, the result is a coalescence of the dis-

similar results in the brain, and Nature herself over again, a perfect *facsimile* in miniature.

#### THE STEREOSCOPIC CAMERA AND LENSES.

Although not essential to the production of binocular pictures, I shall assume the use of a binocular camera in stereography—that is, a camera fitted with a pair of lenses and a collapsible division extending from back to front, and virtually making two cameras of one. The lenses must be accurately paired as regards focus and diaphragms. For most kinds of work single lenses are employed, although rectilinear doublets have an advantage in the matter of extra rapidity and for short-focus work in giving freedom from distortion. A focal length of five inches will be most convenient; but for confined subjects a pair of wide-angle doublets, of about four inches focus, and for distant objects a pair of singles, of, say, seven inches, are desirable. Beyond that focal length it is seldom desirable to go, and I shall show you later that the occasions when even a pair of seven inches would be found serviceable are not frequent in the course of ordinary work. I do not wish to dogmatise on the debated point as to the distance of separation of the lenses when mounted on the camera front, but, from my own experience, would recommend three inches from center to center. The acme of convenience is, of course, gained by having the power of adjusting the lenses to suit near and distant objects, the rule to follow being, the nearer the object the less the separation, and the more distant the object the greater the separation. Three

inches, however, will be found to strike a happy mean, and will obviate exaggeration of relief in most subjects. It need hardly be said that such a shutter must be used as will allow of simultaneous exposure of the two halves of the negative. Some photographers use a double cap.

A camera of the old-fashioned square bellows form is necessary, with an extra front for the twin lenses, and the collapsible septum already spoken of. A half-plate or larger camera is a stereoscopic camera *per se*, and can be converted for practical use at a small cost. As to size, I do not recommend anything larger than  $7\frac{1}{2} \times 5$  or  $8 \times 5$ ; using whole-plates and upwards for binocular work is a waste of plate area, and renders contact work, either for lantern slides or stereoscopic transparencies, out of the question if one wishes to have choice of the whole of the subject. Briefly, anything larger than half-plate is unnecessary, and has its drawbacks.

Mention of the camera gives me an opportunity of condemning the, it is to be feared, still existent mania for taper-bellows cameras. These, perhaps, have some slight advantage in lightness, but often put a barrier in the way of the effective use of the rising and sliding fronts, and are useless for stereoscopic purposes. For these and other reasons I would strongly recommend the beginner to procure a camera of the square form. Many of my friends lament having sacrificed so much for the privilege of knocking off an ounce or two's weight. Up to about ten or a dozen years ago, such makers as Lane, Meagher, Spicer, and others, always sent out their square-form cameras with a detachable elastic division to be used for binocular

work. In those times, however, the division was rarely, if ever, required, stereography being virtually a dead letter, and I remember that in the establishment of a well-known firm with whom I was then connected, there was quite an accumulation of these useless divisions. By-and-by, the makers ceased sending them out altogether.

#### SELECTION OF SUBJECT.

As this is a branch of stereography upon which little has been written, I enter upon it with peculiar pleasure.

Most subjects are suitable for binocular treatment. In exercising the faculty of selection, a safe rule for the young stereographer is to split up his subject into several planes, and to assume that, in the foreground, the middle distance, and the distance, some prominent object, or series of objects, is placed. Such a rule simplifies the selection of subject considerably. Ninety photographers out of a hundred working monocular cameras, would either despise or overlook subjects capable of producing the most charming effects in the stereoscope.

*(Concluded next month.)*

AMATEURS — Don't forget our Competition.

"AMATEURS" be sure to send in your three best "Landscapes" for our Competition. Full particulars in this issue.

### Answers to Correspondents.

*Arrangements have been made with a photographic expert of acknowledged ability, whereby our readers may have the benefit of his experience, through this column, absolutely free of charge. Queries must be received by the first of the month to ensure their appearance in the current issue.*

*Correspondents requiring detailed advice by mail, must enclose a fee of One Dollar.*

*All communications for this column to be addressed*

W. ETHELBERG HENRY,  
SARNIA, ONTARIO.

LEWIS.—The spots are undoubtedly caused by metallic contamination. Judging by the cheap class of mount and the printing thereon, we should say that the trouble is entirely due to the particles of bronze powder so literally strewn over the whole area of the mounts. We advise you to burn the lot and buy decent ones in future.

TRIAL.—You will find them in our advertising pages,—all our advertisers may be relied upon for fair dealing.

ZERO.—The address is 25 Newman Street, London W., England.

A. I. E.—A weak solution of citric acid (about 20 grains to the ounce) will remove the opalescence which is due to lime in the washing water.

J. L.—We do not accept that class of advertisement; you might probably find one in a very low class sporting paper, but we hope you will not.

GELATINO.—Next month we shall treat the subject in full.

TELESCOPIC.—Why not use our Sale and Exchange column? It will cost you nothing.

H. WILLIAMS.—Wash the print and bleach it in a bath of chloride of copper, about 80 grs. to oz.; then well wash and develop with amidol. The print will then appear of good tone and the yellowness will disappear.

EVANGELINE.—Bromide paper may be rendered flexible by soaking in a mixture of glycerine five ounces, and water twenty-five ounces. After drying, the prints will not curl and are admirably adapted for the purpose you name. Heavy papers are the best for book illustration.

MIKADO.—Thank you. Yes, I expect to remove to Toronto before many months, and can then give you personal demonstration. In cases of this kind, where the entire success depends upon manual dexterity, this is by far the best plan.

### "OUR CHRISTMAS NUMBER"

We have a rare treat in store for our readers, and all interested in photography, in the shape of a DOUBLE CHRISTMAS NUMBER, that we intend shall be the finest thing of the kind ever published. Full description of this elegant number of the CANADIAN PHOTOGRAPHIC JOURNAL will be found elsewhere in this issue. If you are already a subscriber oblige us, and your friends, by telling them about it. If you are not a regular subscriber, send in your subscription now, only \$2.00 for the year, including the handsomest Christmas number ever gotten up in the interest of photography.

### "PROFESSIONALS"

Look up a half dozen or so of your prettiest baby negatives! We will have something to say about them shortly, that will interest you.