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Photographic Journal

Illustrated

VOLUME II.

1893

GEORGE W. GILSON, - - EDITOR

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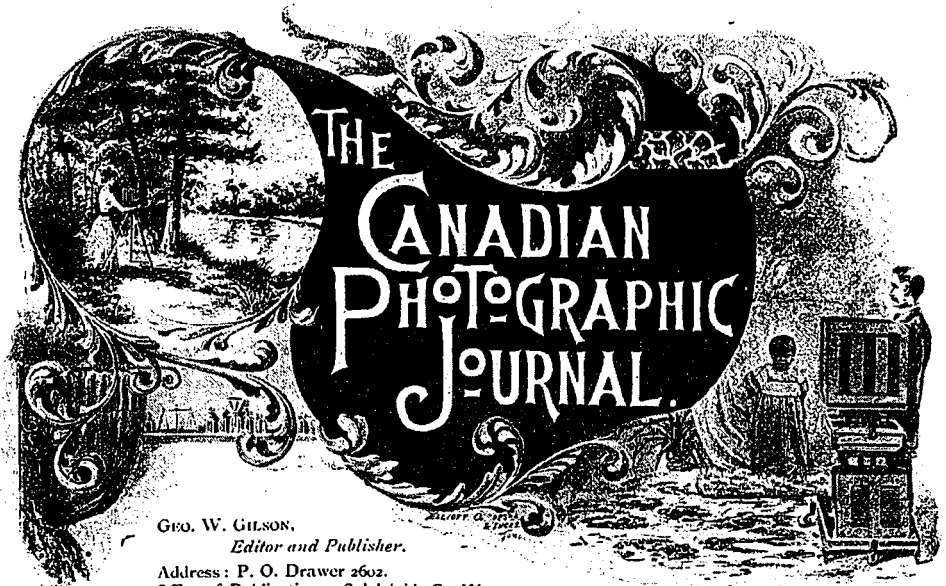
Cramer Plates.

CHILD STUDIES

BY

ALF. G. PITTAWAY, OTTAWA.

American "Aristo" Paper.



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Devoted to the Interests of the Professional and Amateur Photographer.

VOL. II.

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No. 1

Our Illustration.

OUR frontispiece, this issue, is one of a series of exquisite child studies, from the studio of the well-known Ottawa artist, Alf. G. Pittaway.

Mr. Pittaway occupies a finely equipped studio on Ottawa's principal street, and enjoys an enviable reputation as an artistic photographer.

Mr. Pittaway is especially successful with children, with whom he is a great favorite, and probably owes a good portion of his success in photography to that fact, as a photographer who can achieve success with the little folks is pretty sure of the big ones.

It is said "a good workman is known by his tools." Our illustrator has certainly proved himself such by using Cramer's plates and American Aristo paper. The beautiful results of this happy combination, as shown by

the accompanying picture, speak volumes in praise of both plates and paper and will certainly win new friends for these brands.

Pictorial Effect.

BY JOHN CLARKE.

THIS may be considered as a sequel to, or a continuation of, my recent article on "Trimming," as it is just possible that there may be readers of THE CANADIAN PHOTOGRAPHIC JOURNAL who are quite willing to trim, but do not know just exactly how to do so.

Proper trimming implies a knowledge of composition, or at least an acquaintance with some of the so-called "canons of arts," especially those of them that deal with lines, position, and perspective. There are those who turn up their noses at the idea of laws or canons of art, insisting that each

artist should be a law unto himself, and perhaps the "born artist" may be allowed to be his own law-maker, although that freedom often leads even him into absurd eccentricities; but he to whom nature has been less kind will do well to make use of the leading-strings deduced and formulated from the masters old and new by careful critical analysis.

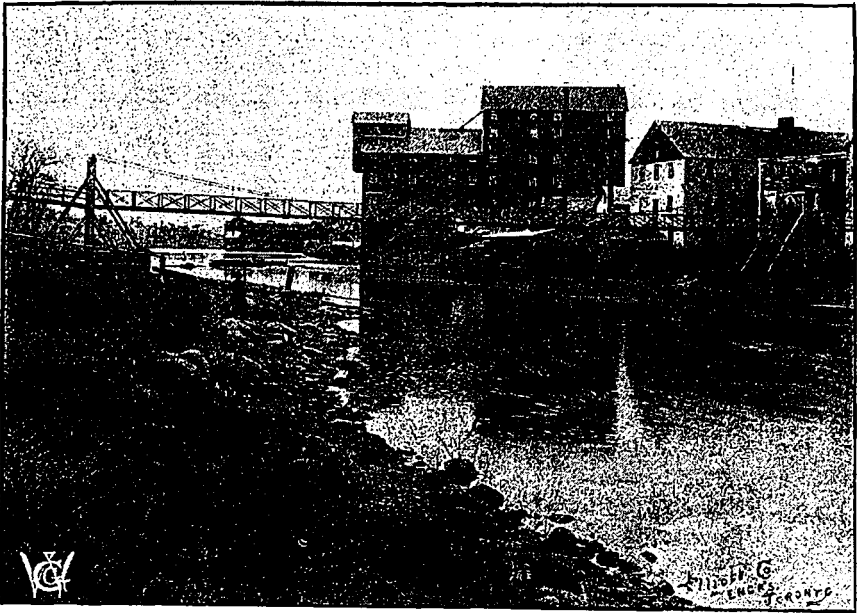
The would-be trimmer who is not a born artist may, with advantage, put himself through a course of self-training in something like the following way. Let him lay a piece of white paper, a direct square, say 7 x 7 inches, on a dark background, and study the effect. It is not satisfactory. Uniformity and equality are the predominating elements, and uniformity and equality are inimical to pictorial effect.

If he will now cut a strip, two inches wide, from one of the four sides of the paper, and again lay it on the black, he will at once see why, almost "with one consent" and in all ages, pictures have been rectangular, either upright or horizontal, and be able to join the ranks of those who condemn the present fashion of mounting lantern slides in direct square, instead of rectangular mats.

Nature abhors straight lines, as she used to be said to do a vacuum, but it is nevertheless desirable to see straight lines in all her masses, and infinite variety and complication of curves, and to recognize the predominating feeling induced respectively by the three classes into which they arrange themselves, upright, horizontal, and angular. The upright line may be seen in the mountain, the stately oak, and the modern sky-scrapers of our American cities and castles of the older countries, and is expressive of aspiration,

strength, and stability; the horizontal, in the horizon itself, the sand on the seashore, and the sweep of the prairie, impresses us with a sense of repose; while the angular, typified by prevailing wind-bent trees and ridge-roofed buildings, conveys an idea of instability, and may never be satisfactorily introduced without a sufficient support of some kind. How easy it is to find such a support may be learned if the student will draw a line of three or four inches in length, and at an angle of, say, 45° to either of the boundary lines, or sides of the picture represented by the 7 x 5 pieces of paper. The lines seem unstable, conveying the idea rather of motion than of rest, but of motion that would be destructive rather than constructive. If now, however, a dot heavier in color than the line, although less than the diameter of a pencil, be placed at about the level of the lower end of the line, and well in front, near, for instance, the point that would be touched by the upper end of the line were it to fall, a change for the better will immediately be seen. The line, though still at an unstable angle, no longer conveys the idea of instability; it has been supported, and the eye now rests on it with the same impression of continuance as on the upright line. A similar effect will result from the addition of longer or shorter and correspondingly lighter or heavier lines placed at opposing angles, giving support, balance and contrast, all of which are essential to good composition or true pictorial effect, but it must always be remembered that the balancing, supporting, or contrasting matter must never be *equal* in size, color, number, or other quality to the lines to be balanced.

Although nature abhors straight lines, and the picturesque requires their



CANTILEVER FOOT BRIDGE AND ELEVATOR, NAPANEE.

exclusion as far as possible, like sin and poverty, they *will* come sometimes, but they must never be allowed to remain near enough to the right or left boundary lines of the picture to seem to repeat them, and where a tree trunk, a horrid telegraph pole, or any other perpendicular does so, the scissors must be applied unsparingly.

Not less, perhaps more, important than anything else in the line of trimming is the horizontal line. Let the student go to the sea shore, kneel down, and cast his eye across the water, and he will find the horizon line, vanishing point, or by whatever other name he may know it—the place where the sky and sea seem to meet each other—exactly on a level with his eye. Let him then go to the top of the highest available building, or the topmast of a ship, and the result will be the same, the natural horizon line is always on a level with

the eye. Now, although true art does not consist in simply copying nature, and in the production of pictorial effect the artist may take many liberties with nature's own arrangements, including considerable alterations and displacements of the true horizon line, it should only be when there are good and sufficient reasons for it. It may be taken for granted that the horizon line should generally be about one-third from bottom of the picture, and where it is not, the scissors should be applied to the foreground to make it so.

Cases may occur in which the foreground is of pre-eminent interest, where indeed the *motif* of the picture is situated, and which make the placing of the horizon line at one-third from the bottom impossible. It must then be placed about one-third from the top, never in, or very near the middle, and this can be accomplished by applying

the scissors to the sky, But this applies only to landscapes, never to marine pictures. In those, no consideration of circumstances, and no desire to include any foreground object should induce the photographer to make a seascape with a high horizon, as it irresistibly impresses the conviction that the water is an inclined plane, on which the pictured ships are sailing up or down hill, a thing which his better judgment tells him is impossible.

The sum of the whole matter, then, is this, that true pictorial effect can only be produced, by those who are not born artists, by as far as possible complying with the canons of art. Those are :

(1) That the picture must have a *motif* or principal object, to which everything else must be subordinate, and with which everything also must be more or less connected.

(2) The principal object must never be in the centre or middle of the picture, but preferably, a little below a horizontal line drawn across the middle, and considerably to the right or left of an imaginary perpendicular line drawn from top to bottom, in the middle.

(3) Lines at angles must be contrasted by opposing lines, and supported by masses, but the supports and contrasts must always be different in mass, form, or strength from those they are to balance, contrast, or support.

(4) The horizon line of a landscape should generally, and of a seascape always, be about one-third from the bottom of the picture, and the foreground must always include something that will lead the eye up to the principal subject.

There are other laws equally important, but as they refer to light and shade, the suggestion of distance by placing darks in front of lights, atmosphere, etc., none of which are

amenable to the scissors, I shall reserve them for a future paper, and conclude this by advising the photographer to make himself thoroughly acquainted with those already indicated. He should then, when examining a subject on the focussing screen, do his best to include them all in his composition, and when he comes to print from the negative, and finds that either through oversight, or in consequence of some inherent impossibility, any one or more objectionable features have been included, he should apply the scissors with the heroism of a military surgeon.

Development of the Photographic Art.

BY W. E. H. MASSEY.

(Read before the Toronto Camera Club.)

N.B.—We have to thank Mr. Massey for copy kindly furnished this journal.—[Ed.]

SO many and such wonderful scientific discoveries have been made within the past six or eight decades, that the nineteenth century will ever be famous in the annals of history, for that reason if for no other.

Not only have the discoveries been wonderful in themselves, but their advancement and rapid development equally so.

Photographs are so common to-day, that we seldom think of how very few years it really is since we came into possession of the art that produces them.

Though photography has had a speedy growth, and has fast approached perfection within the last few years, still it took a long time to establish its fundamental principles.

The genius of man was tried in years of tedious experimenting before anything like success was attained.

No one man has had the honor of making the discovery and perfecting it, but

it has been the work of many—in fact, it is not definitely known which of those who sought to fix the image of the camera-obscura had most to do with bringing the art to light, although it is generally conceded that Daguerre gave it its greatest impetus, when he produced his process in 1839, now known as the Daguerreotype.

Photography is one of the most wonderful applications of modern science. Its present advanced form has resulted from a combination of various discoveries, in reference to the nature and properties of light, made by investigators of different periods.

Therefore, to gain a correct knowledge of the history of this great scientific invention for making pictures by means of light, we must get an understanding of the various discoveries that make up the combination.

The camera-obscura—literally, a dark room—might be termed the germ of photography. This was discovered by Baptista Porta, of Padua, an Italian philosopher, who flourished the latter half of the sixteenth century. By darkening his room, and only admitting light through one very small hole in the shutter of his window, he found that the exterior landscape was described upon a screen, which intercepted the ray of light. Everything in the landscape was of course inverted, but this difficulty was soon overcome by the use of a glass mirror, which reversed the image. Then, by placing a convex lens in the orifice, the picture was rendered much clearer and more distinct in its outlines. The human eye may be said to be a tiny and very perfect camera-obscura.

The camera-obscura was afterwards made in a portable form, and much used by artists. These instruments are frequently exhibited at fairs and a

small fee charged to pass inside the curtain and watch the moving crowds and pretty landscape reflected on the focused screen. There were two on the Toronto Industrial Exhibition grounds last fall.

Scientific genius, later on, conceived a longing desire to fix the image so beautifully pictured on the ground-glass screen, but years of investigation were to pass by before this could be accomplished,

The art of making pictures by means of light, like other branches of chemistry, owes its origin to the alchemists, who, in their search for the philosopher's stone, and "elixir vitæ," discovered a substance, to which they gave the name of *luna cornea*, which would blacken if exposed to the sun's rays.

This property of the substance forms the leading principle upon which the science of photography is based.

More recently, Scheele, the great Swedish chemist, in experimenting with the *luna cornea*, found that it was more sensitive to the blue and violet rays than any of the others, thus proving that the rays of light are not all alike chemically active. This is mentioned in his work published in 1777.

About 1780, Prof. Charles, the inventor of the hydrogen gas balloon, produced some rudimentary photographs, if they can be called such. Using a darkened room he admitted strong solar rays through an oval opening sufficiently large to project a well-outlined shadow of a person's head on a large sheet of paper, previously prepared with a solution of chloride of silver (or *luna cornea*). The parts of the paper exposed to the light soon blackened, leaving the unexposed parts white.

The result was a white silhouette of the person's head whose shadow was

cast on the paper, on a black background. But, having no means of *fixing* the picture, as it is now termed, the white silhouette soon became black like the rest when exposed to the light.

The honor of having produced the first real picture on a sensitive surface, is now very generally ascribed to Thos. Wedgewood, an English chemist.

An account of his researches was published in 1802. He exposed sheets of paper, also of white leather, which had been imbued with nitrate of silver, at the point of focus in the camera-obscura. His great misfortune was that he was unsuccessful in all his attempts to *fix* the pictures—that is, to prevent the uncolored parts from turning dark under the influence of light, just as the unwashed and unfixd proofs submitted by photographers to their customers turn dark; the picture becoming entirely obscured in the course of a short time.

Several other experimentalists produced processes that were more or less successful, but nothing of importance was discovered till the time of Niepce and Daguerre.

Niepce was born at Chalons-sur-Soân, in 1765. He was a natural genius, and began to display his talent when but a youth by various inventions which he and a favorite brother contrived.

Niepce was first to enjoy the satisfaction of producing *permanent* pictures by means of solar light. A tin plate was coated with bitumen of Judea, or asphaltum. This being placed at the focus of the camera-obscura and exposed to the light, the light whitened the resin wherever it fell on it.

After exposure, the plate was developed and fixed in a bath consisting of a mixture of oil of lavender and oil of petroleum, which dissolved only the parts of the bitumen not affected by the

light. The high lights of the picture were formed by the white resin and the dark shadows by the bare metal. This was accomplished in 1814. The name given this process is heliography.

These metallic pictures were not of any great value, being feeble and dull, yet they were the first successful production. In the hands of Niepce the art advanced no further. He had spent ten years of labor on his invention, and, important though it was, it was only the beginning of photography and subject to some grave defects. Bitumen of Judea is acted upon very slowly by the light and it was necessary to make an exposure of from eight to ten hours. Niepce's chief aim was to apply his discovery to the reproduction of engravings. In this he partially succeeded.

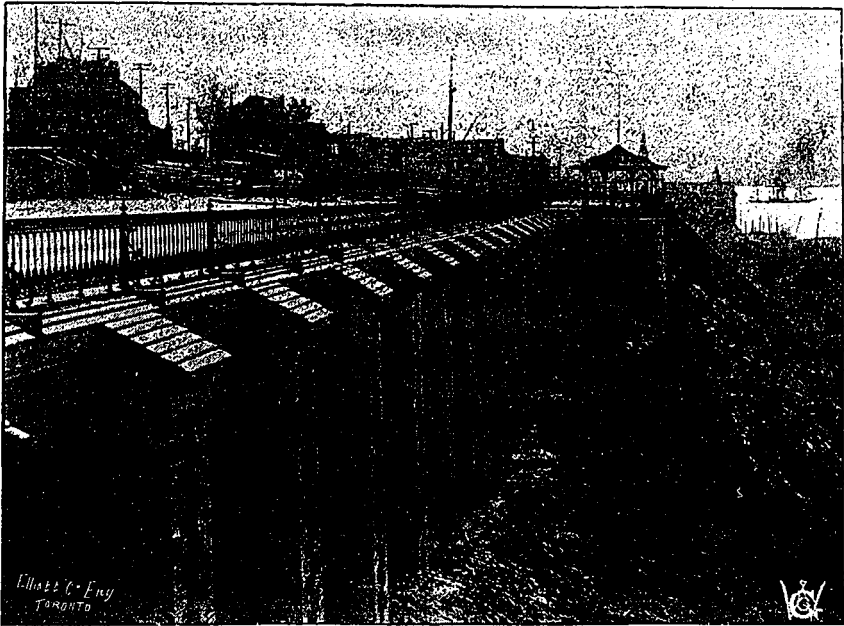
Daguerre was born near Paris in 1787. He was an artist from childhood, and began to take lessons, when quite young, of one of Paris' greatest scene painters.

This proved to be his forte and in a very few years he excelled his master, standing at the head of all scenery painters in France.

He not only obtained a worthy reputation as a painter, but also for his great ingenuity, which brought out many cute contrivances for the arrangement and changing of stage scenery.

Daguerre sometimes, too, took part in the plays where his scenery was used, so that his name became familiar to all Parisians. In 1822, Daguerre and Bouton invented the celebrated Diorama, which spread Daguerre's fame throughout all France.

It was the constant use of the camera-obscura in executing his pictures that instilled in this genius an ardent desire in some way to fasten the pictures so beautifully delineated on the focusing screen. He had heard of the almost



THE TERRACE, QUEBEC CITY.

fruitless attempts of others to make permanent pictures, yet he determined to experiment himself. For some time he worked faithfully with but little encouragement of final success. Still, he had gained some ground and had no thought of giving up. One day Niepce and Daguerre accidentally discovered that they were conducting experiments of a similar character. An exchange of letters was made. At first Niepce was very reluctant to have anything to do with Daguerre, but after some further correspondence and an exchange of samples of work, they met in Paris and formed a partnership. They agreed to share mutually the advantages of one another's secrets. Not long after this Niepce died, leaving Daguerre to work on alone. He did not like Niepce's process with the bitumen of Judea. He saw that it was

decidedly faulty, and went back to his workshop with a firmer determination to win success.

About the time of Niepce's death he accidentally discovered iodide of silver. From this new basis he worked incessantly for two more years, shut up in his little laboratory in the midst of retorts, crucibles, blast lamps and other laboratory paraphernalia, when at last he brought to light the art that has immortalized his name—the Daguerreotype process. It took still another two years to complete it, when Niepce's son formed a partnership with Daguerre to work the new invention.

The photographic images were formed on a plate of silvered copper. The plate, having first been highly polished, was iodized by placing it over crystals of iodine in a box made for the purpose. The fumes of iodine act on the silver,

combine with it and form a yellow coating of iodide of silver.

This plate being sensitive to light, is then exposed in the camera, the light decomposing the iodide of silver wherever it reaches it. The latent picture is next developed. No apparent effect is produced on the plate by the exposure, the image being a latent one, arising from a minute molecular disturbance which results from the action of the actinic rays of light. A development of this latent image was effected by subjecting the exposed plate to the action of the fumes of mercury in a suitable box made for the purpose. The vapor of mercury attaches itself to various parts of the picture in proportion to the more or less intense action of the light.

After development, the picture was fixed—that is, rendered proof against the further action of light—by immersing the plate in a solution of hyposulphite of soda. The picture is subsequently intensified and a finish given to it by pouring over its surface a solution of hyposulphite of gold and applying heat.

This process is called the *Daguerreotype* process. At first the people were very reluctant to take stock in the new invention. Daguerre, however, published his process in August, 1839. It was introduced to the public by an eminent French scientist, who succeeded in getting the French Government to pass a bill securing to Daguerre a pension of 6,000 francs, and to his partner, Niepce's son, a pension of 4,000 francs, both for life, and one-half in reversion to their widows. This was done because the invention would not admit of a patent.

(To be continued.)

For the past few months the American Aristotype Co., of Jamestown, N. Y., have been obliged to refuse orders for American "Aristo" from hundreds of photographers throughout the country, but they are to be congratulated on having now obtained control of raw materials, hitherto unreliable in supply, which warrant them in assuring the prompt filling of all orders.

"Blue Label" is their latest and most perfect production. In point of latitude and speed of printing and the small amount of gold required to tone, marked advance has been made; while in brilliancy, freedom from mechanical defects, keeping qualities, ease of manipulation and uniformity of manufacture, this paper has no equal.

.....

B. W. Kilburn, of Littleton, N. H., a gentleman of large experience in stereoscopic work, has secured the sole right to make stereoscopic photographs on the grounds of the World's Fair.

.....

Ernest Gundlach, who has so long been the leading spirit of the Gundlach Optical Co., of Rochester, has decided to retire from business life, leaving the business in the competent hands of his partners, whom he has instructed in all of the mathematical and optical questions involved in the production of high-grade lenses.

Mr. Gundlach will continue for some time to act as consulting optician for the firm, which will continue to operate under the old firm name.

.....

We are glad to note that Mr. J. C. Anderson, of Star and Eagle plate fame, has sufficiently recovered from his recent illness to be able to give his personal attention again to the steadily increasing demand for these popular plates.

We understand that Messrs. Ross & Co., of London, Eng., will have a very complete display of their well-known lenses and apparatus at the World's Fair. This means an added incentive for those interested in photography to visit the Columbian Exposition.

.....

Among the many good lines shown by the United States Photo. Supply Co. is noticed Talbot's retouching colors. These come in seven collaputele tubes and comprise all the desirable colors. Being prepared with albumen, they adhere immediately to all kinds of negatives or positives and dry with a brilliant gloss. They can be burnished. For spotting out negatives and positives, and for working high lights and shadows, these colors are unequalled. A glance at the page occupied by this firm in our advertising columns, will show the many other excellent lines carried by them.

.....

Our readers have been accustomed to seeing the inside back cover of our JOURNAL occupied by descriptive matter regarding American "Aristo" paper. We would call your attention to the fact that this company and their trade agents, Messrs. E. & H. T. Anthony & Co., consider the best as not any too good for their paper and for the coming year will be found occupying special space on the colored insert noticed in this issue, on which the same true story of a successful printing paper will be told.

.....

The Montreal Photograph Supply, R. F. Smith, proprietor, 164 St. James street, Montreal, are sole agents for Canada for Rodinal, Carbutt's and Harvard plates, Prosch shutters and Gray's lenses and carriers, besides an unusually

fine line of photographic goods and novelties, including platinotype paper. It will pay you to read over their advertisement.

.....

A firm who make their own bromide paper should be able to handle it better than those who simply do enlarging occasionally, using different makes of paper. E. C. Landon, 658 Craig street, Montreal, is now turning out a superior article of bromide paper, and makes enlargements for the trade at a very reasonable rate, considering the quality of work done. Send for his price list.

.....

We would call the attention of our readers to the offer of the Eastman Kodak Co. in our advertising columns. It is to be hoped that our Canadian photographers will carry off some of the prizes offered, a thing, we wish to state, that they are fully capable of doing.

.....

A correspondent writes us that, besides the extremely beneficial properties of Radam's microbe killer as a remedy for the ills that flesh is heir to, it is a splendid preservative for paste or other mountant—a teaspoonful to a pot of paste preventing its souring, or correcting at once any decomposition which might have already taken place.

.....

Nearly 2,000 lantern slides were examined and tested last month by F. C. Beach, William H. Rau and Dr. G. Hunter Bartlett, the-Committee of the American Lantern Slide Exchange. Over eight hours were spent in the work. Fifty per cent. of the total were sorted out as passable. Many of the others were marked with a letter showing the reason for rejection, and returned to the clubs from which they

came. The slides have been arranged in nine sets, and there is also a set of English slides. They are arranged as follows: Portland and New York, Albany and Orange, Philadelphia and Detroit, Newark and Baltimore, Schuylkill and Cincinnati, New-Orleans, San Diego and Oakland, St. Louis and Minneapolis, Rockford, Pittsburg, and Chicago, Buffalo and Syracuse, and the Lantern Society of London. The slides are already going the rounds of clubs in the Exchange. The defects in most of the slides rejected were from under-exposure and too short development.

The joint exhibition of the work of the Society of Amateur Photographers of New York City, the Boston Camera Club, and the Philadelphia Society will be held in the galleries of the Pennsylvania Academy of Fine Arts from April 17th to April 29th.

There was never more demand for cameras for students and young boys and girls than now, according to the dealers. In one large school in Brooklyn there are only two students who have not a camera of some sort.—*Buffalo Express.*

Books Received.

PICTURE MAKING IN THE STUDIO BY PHOTOGRAPHY, by H. P. Robinson; No. 42 of the Scovill Photographic Series. New York: The Scovill & Adams Co.

This work is by a popular author, and will become a popular book. It is a well-written and interesting address to photographers on the subject of the title. It has a frontispiece by the son of the author, illustrating chapter 3, portraits that are pictures, and a supplementary chapter giving in full the author's interesting paper read

before the English Photographic Convention last year. One of the features of the book is a chapter on combination printing, a phase of photography that the author himself excels in. The book can be obtained from the stock dealers, or through us.

We have just received a very attractively bound volume of the *Practical Photographer* for 1892, volume 3. It is full of interesting photographic matter, well illustrated, and is a welcome addition to our table. We take this opportunity of thanking the editor and publishers for it.

Bausch & Lomb Optical Co.'s new catalogue is before us, and contains a description of the high-class lenses manufactured by this company; also of their well-known diaphragm shutter and the Zeiss anastigmat lenses, for the manufacture of which, we understand, Messrs. The Bausch & Lomb Optical Co. are sole agents for the United States. This firm are now prepared to furnish their lenses in aluminum mountings.

Accident with a Burnisher.

To the Editor:

Dear Sir,—I write a few lines as a warning to photographers who are using the Globe enamer with gasoline.

On February 2nd, I had an accident with my burnisher, which was caused from the can that holds the gasoline. In examining the can after the fire, I found little holes which had been eaten through by the gasoline and this caused the oil to leak and run down the pipe, it being unnoticed by my employees, who were working with it at the time. It caught fire with the blaze in the burnisher and in less than a few seconds

the whole room was afire. Before the fire could be got under control it had damaged about \$300 worth of goods. I would advise every photographer using these burnishers to get a copper can made to hold the gasoline and then no danger would occur by the oil eating holes. One of my employees had his hair, hands and face very badly burned in extinguishing the fire. I hope this will be a warning to other photographers using gasoline burnishers.

I remain,

G. F. CHAPMAN,
Photographer.

Mount Forest.

Answers to Correspondents.

AN INQUIRY DEPARTMENT.—We have arranged with photographic and chemical experts to answer any inquiries that may be sent us by readers of this journal. We want our readers to feel at perfect liberty to avail themselves of the service of the gentlemen at the head of this department.

AN EXCHANGE COLUMN.—Beginning with next issue, we shall also start an exchange column for the free use of our readers. Send in anything you wish to exchange; the space is at your disposal, we make no charge for it; we simply ask you to use it.

We would like to make arrangements with correspondents in different parts of the Dominion to send in monthly letters on subjects of photographic interest; including the professional and amateur news of the country. We want to make THE JOURNAL as interesting as is possible. Eight pages of reading matter will be added at once, with a further enlargement later on, and several new features are arranged

for. Such news letters as we ask for above would, we believe, be of interest to all, and we hope to have a liberal response to our inquiry for writers of such letters, with whom satisfactory arrangements will soon be made.

Toronto Camera Club.

OFFICERS 1892-93.

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

Club Rooms and Studio :

COR. YONGE AND GERRARD STREETS.

The Toronto Camera Club is now an incorporated institution, notice to that effect having just reached us, accompanied by the constitution and by-laws very neatly printed. The incorporation of the club is a move well taken, and one made necessary by the steadily increasing membership and the present strength of the club.

On Monday evening, February 6th, Mr. Walter E. H. Massay read a very interesting paper on "The Development of Photographic Art," before the members of the club, which was listened to with great interest. A vote of thanks was tendered Mr. Massay for his admirable paper. A lime-light exhibition was given later in the evening, which was much enjoyed by those present.

The following additional programme has been arranged for February :

2nd Monday—"How to Make Lantern Slides," Mr. H. English; 3rd Monday—"Bromide Enlargements," Mr. C. H. Riggs; 4th Monday—"The Development of a Negative," Mr. J. G. Ramsey.

The Montreal Camera Club will hold its first annual exhibition on Monday, February 20th.

Messrs. Ross & Co.'s New Quarters.

Owing to the immense increase of business, and the great extension of their already very extensive stock of photographic apparatus and appliances, Messrs. Ross & Co. have removed to more commodious quarters, and can now be addressed at 111 New Bond St., London, Eng., which is, we understand, next door to their old stand.

Messrs. Ross & Co. have thoughtfully added a very complete dark-room, in charge of an assistant, for use of amateurs.

The name of Ross has become synonymous with fine grade lenses and high class optical instruments, and is almost a household word with those who, in photography, use the best of tools to work with.

The new catalogue of this firm, just received, is very complete. Section 1 describes fully all their well-known series of lenses, including their new "patent concentric lens," the construction of which the *British Journal Almanac* gives as one of the features of the year 1892. Section 2 is devoted to the Zeiss anastigmatic lenses, for which Ross & Co. are the sole manufacturing agents for the British Empire. Section 3 describes the full line of cameras and photographic apparatus manufactured and sold by the firm. Section 4 is given to microscopes, telescopes, field and opera glasses.

.....

We are glad to hear that the success of Mr. Walter D. Welford's journal, the *Photographic Review of Reviews*, has been such as to necessitate the equipment of offices in London. Mr. Welford edits a bright and pleasing journal, the success of which is well deserved. The London address we note as being 57 and 58 Chancery Lane.

"B. P." Hardener.

Messrs. Bradfish & Pierce, who manufacture the popular "B. P." Aristotype paper are putting upon the market a preparation which will be known as "B. P." hardener, to be used as a substitute for alum in the fixing bath for either paper or plates. Its action is clearing and prevents yellowing or staining, such as frequently occurs with the use of alum.

With plates, its use toughens the film, so that varnishing is practically unnecessary. When used in the combined toning bath, it precludes any tendency towards sulphur tones, and renders the prints tough and easy to handle. The many good features of the "B. P." hardener should create a big demand for it.

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The Amateur Question.

BY J. K. TULLOCH, M.E.*

(Concluded from Page 283.)

MUCH has been said about the generosity of the professional to the amateur. I have gotten much kindness from them, but I have never found them very free to communicate any of these little tit-bits of information discovered by themselves, nor do I blame them; it is not sport they are after, but bread, and in these days of competition one can't afford to burn the midnight oil and then make his discoveries common property. It is easy for the amateur to hurry his little inventions off to the journals; it will take no bite out of his mouth.

As you will see, I am taking up no hard-and-fast position, but rather saying what can be said on both sides. I sometimes feel inclined to ask why should professional photographers cry

*Dundee and East of Scotland Photographic Association.

out so much against the amateur. Does every trade and profession not suffer just in the same way? In my own profession we every day see people put their lives into the hands of amateurs, generally with the very best results so far as the legitimate practitioner is concerned, for it means more work for him in the near future.

But the professional photographer himself is not over-particular. Does he not encroach on the picture-framer quite frequently? And it is just this class of man who is crying out loudest against the amateur.

Having so far opened up the subject, I would make way for the discussion by giving the following opinions:

Professional photography is not on the decline; there is more capital invested in it than ever.

To succeed, nowadays, money must be invested freely, the very best talent secured, and the very best business principles practised. All of the professionals engaged in the business now have not these requirements; therefore some of them are feeling the pinch.

The idea that amateurs are seriously affecting the professionals is laughable. Is there one in our large society who knows any amateur doing work enough to damage any professional?

Admit that, at rare intervals, some poor devil picks up a job of a Saturday afternoon, and gets a shilling or two for it (and, personally, I know of not one such case), do any of you believe that this happens to any serious extent? Do you not rather think, with me, that the large businesses of the day are swamping the small, and that this is the great factor against them, not the amateurs?

So far as I am personally concerned, I hope I would do as I would be done by, but it is not always easy to deter-

mine whether or no anyone is to be injured by certain actions. Professionals are apt to think that everything done by the amateur is loss to them, but they forget that much of the work done by the amateur, even where he degrades himself and sells his productions, would never otherwise be done at all.

Where an amateur takes a commission, where he knows the job *must* be done by the professional if he himself refuse, I suppose we are at one in saying he acts meanly. "Live and let live" ought to be the motto with everyone.

During the summer that has passed I spent a fortnight in an obscure corner of the West Highlands. Receiving much kindness, I had a family group taken at the cottage door, and have since sent them one small copy in a frame. The gratitude of the simple country folks found expression in a gift to me of far greater value than the little picture I made them. Although I have not received money, I have received something which is its equivalent. Have I lost my amateur status? I certainly did not take the picture for my own sport, but deliberately for their benefit. Was this pure amateurism? Then, while I got no money, I certainly received remuneration in country produce. Am I still an amateur? I defrauded no professional.

The little clachan is thirty miles from a studio, and my host and hostess would have lived and died, in all human probability, but for my visit, without having been photographed.

Those gentlemen who decry the amateur so strenuously have generally a curse or two for the quality of his work also. This, to my mind, is their salvation if it exists, for who would give the amateur good money for his vile pro-

ductions when they can get so much better from the professional? Does the argument not seem to say that, bad as the amateur work is, it is at least as good as what we get from the professional, therefore we will go to him?

Let the professional turn out work such as he should do, and surely the amateur "trash" will have no charms for anyone. I don't know if every amateur has the same experience as I have, but I know that the portraits which I do of my friends always seem the work of a madman to them; this, mind you, when I have succeeded, in some measure, in doing something which seems to me original and good. If a man has much of the true amateur spirit in him, he will find precious little sport in doing ordinary five-eighths portraits satisfactory to his friends.

The work of the amateur and the work of the professional ought to be on entirely different lines, with different aims and aspirations. There is not now, and never will be, competition between the amateur and the professional, let them say what they like. No one who takes to photography with presumably artistic tendencies in him will ever continue to sink his artistic perceptions by working to please the public taste unless he has to earn his bread by it, when, of course, one must produce what he can sell.

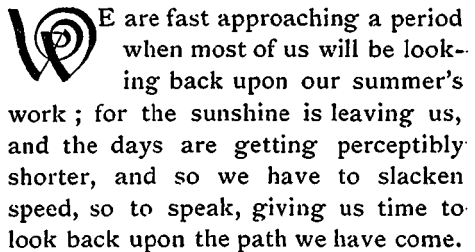
Those benighted individuals who are clamoring for a price for the amateur and another for the professional will succeed in demonstrating their ignorance of John Stuart Mill, but nothing more. A demand such as the amateur of our day can raise will be met, and that at prices current, neither more or less. Those firms declining to supply the wants of the amateur at market prices just because he is an amateur will cause a re-arrangement of business

in which they will be out of it, nothing more. I should advise its being tried on a *small* scale to begin with. I deplore the want of business which many are complaining of, but being an amateur I do not take kindly to the remarks which appear from time to time in the photographic journals over the names of certain of the profession. The amateur has a just cause, or I have been particularly fortunate in my amateur photographic friends.

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Lantern Slides by Reduction.

[Holborn, Eng., Camera Club.]

E are fast approaching a period when most of us will be looking back upon our summer's work; for the sunshine is leaving us, and the days are getting perceptibly shorter, and so we have to slacken speed, so to speak, giving us time to look back upon the path we have come.

We shall be turning out our negatives of '92, not with a view to printing, for this we have been doing for some time past. No! This time we have something else in our mind. We are thinking of lantern slide making, and to that end we shall be reviewing them, good, bad, and indifferent.

We have looked them all over, and made our selection. Negatives brilliant and full of pluck, sharp and vigorous; one or two, perhaps, of the indifferent class—in other respects, perhaps, acknowledged failures; but we have selected them, for there is a small portion including, most likely (if the subject be landscape), distance and middle distance—or, in any case, a piece that is interesting, and from which we can get a good lantern slide by contact. We remember discovering this during their development, and how it had consoled us, to a certain extent,

for our great disappointment at the general result. It was this that gave them their ticket for the fixing bath, and thus they were spared from the dust-heap and oblivion.

WHY IS THE REDUCTION METHOD NEGLECTED?

But, I would ask, how many are there who never made lantern slides but by this one method of contact in the printing frame, regardless of what there is in the negative besides the small piece which is taken to make a picture by itself? Why is it that so many amateurs who take up this most engrossing branch of photography never get any further than this stage? It cannot be that all their pictures require this very extensive trimming. I am not now referring so much to quarter-plate workers as to those who work in the larger sizes, for, obviously, the quarter-plate better lends itself to be used for the making of lantern slides by this means without, perhaps, serious loss of subject. Although even here, in many cases the compulsory cutting down of the picture is anything but an improvement, to say the least of it, especially if care has been taken in the selection of the subject and to get it properly on the plate. In such a case, to do the picture justice, a reduction must be made.

Why is it, I say, that this reduction is not more practised? Why should we not see your work on the white sheet without this mutilation? Let us see it as it is hung in the frames around your room?

THE APPARATUS REQUIRED.

I have not spoken disparagingly of the contact method, neither is it my intention to do so, for it is a very convenient and useful method, which does not require my demonstrating. I simply protest against its indiscriminate

application. The excuse for this is generally, "Oh! it's such a trouble to reduce"; and the idea prevails with some that special apparatus is required. Now, it is my purpose this evening to prove that this is not the case, and I will endeavor to explain to you how lantern slides may be made by reduction from large negatives without any difficulty whatever, without any special apparatus beyond a deal board and two strips of wood. What I am about to describe to you now is no novelty, neither do I claim any originality for it; but it is a simple and, at the same time, practical arrangement. Assuming that your camera and lens are of half-plate size, and that the negatives to be reduced are of similar size, it will be best to have our board about nine inches wide, and for length three to four feet will be ample for all our requirements, the two strips of wood about the same length.

First of all, we set the camera up on one end of the board, then measuring the distance from board to centre of lens aperture, we mark same off upon a strip of wood or cardboard, which can be temporarily tacked on to the centre of the other, and so that it stands up vertically in front of camera. This done, we now take a printing frame, and having removed both back and springs, place in a spoiled negative, on which draw diagonal lines from corner to corner, so as to mark the centre; fasten this in with a drawing-pin top and bottom. Now, we have to secure our frame on the end of the board with open side facing the camera, so that the centre corresponds with the mark on the piece of stick. There are two ways of doing this: either by placing a block of wood underneath and screwing from beneath the board, or by screwing the frame between two upright pieces

which can be secured to the edges of the board ; either method will allow of hinges to be used, so that the frame can be shut down when out of use, but this is not essential to the efficiency of the apparatus.

Having done this, it will be well to test, by focusing in the camera, as to squareness and centring : this is best done by placing the apparatus, for that I will now call it, in a similar position to that which it will occupy when in use, viz., at a window, so that there is nothing to obstruct a clear view of the sky when looking through camera with negative removed. When found correct, take a lantern-cover glass, and, using it as a guide, mark off its dimensions on the centre of the focusing screen ; now shift the camera up or down the board until a full view of the negative in frame is included in this space ; then screw a strip of wood across the board at the back and close up the camera ; this will form a register and keep it in position when the board is sloped (as it will most likely be, to get a clear view of the sky); similar strips or blocks should be fastened down either side to prevent shifting sideways. All that has to be done now is to secure the long strips of wood to the top of the frame—one at each corner—so that the other ends rest on top of the camera at either side, and these can be joined by a strip across ; then cover over with a focusing cloth, which can be secured by drawing-pins underneath, and now you have a serviceable reducing apparatus, and all you require is a lantern-plate carrier for your dark slides, which can be bought for a few pence, or a quarter-plate carrier, if you have one, can with very little ingenuity be adapted.

J. F. STEVENS

Notes on Platinum Printing.

W. F. HAPGOOD.

AS the new cold process platinum paper has become so popular, not only with amateurs, but with the profession and the public generally, a few practical notes on its manipulation may be of interest to our readers, and we trust also of value, for, notwithstanding all that has been written on the subject, several of the hints we shall give are practically new and known to but a limited number of amateurs.

As the paper is quite expensive, one can hardly afford to use it carelessly, or in the hit-or-miss way that most other papers are handled by amateurs generally ; it is desirable, therefore, to take every precaution to insure a good print from every piece of paper, and to do this nothing is more essential than deliberation and care in every step of the operation.

It is an old and but too true a maxim that a good negative is necessary to produce good prints, and this is especially true with platinum paper, so if you have any regard for your pocket do not even attempt to use a thin or flat negative, or one lacking in fairly good contrasts—save these, if they must be saved at all, for experiments with Aristo or similar papers. I might also add : don't waste paper on a negative that does not contain a *picture*, or the elements of an artistic composition, but this is so largely a matter of personal judgment that it is not likely to be observed to any great extent.

Supposing the negative to be a fairly good one technically, with fair strength, good contrasts and detail, although it may still be soft, and of sufficient merit to warrant the trouble and expense, the first point to consider is the print-

ing, and for this it is practically essential to use direct and bright sunlight, as no other light will give the same brilliancy and clearness in the prints. Even in the case of a portrait, which may be printed successfully from a comparatively thin negative, better results will be obtained if a portion of the printing is done in direct sunlight, although it may be finished in indirect light. As a rule, however, indirect or imperfect light, a dull sky, give a dull print. The electric arc light may be employed in cases of necessity, but the results are not generally the best obtainable from the negative. The next point is the depth of printing, and as to this no fixed rule can be laid down, each negative requiring treatment to be determined by an experimental print. The writer has two negatives of one subject, taken at the same time, and apparently about the same in quality, yet one of these negatives requires to be printed until every detail is strong and distinctly visible, while the other must only be printed so the half tones can barely be seen; the resulting prints are almost identical.

Like all things, a little practice is essential to uniform success in platinum printing, but when the requisite skill has been acquired it is not difficult to come very close to the mark on the first trial, and any error of exposure in the first print can easily be corrected in succeeding prints. This point is, however, subject to the qualification that with a "quick light" the print must not be carried quite as far as when the light is slow.

As the paper prints rapidly, it lends itself readily to the various methods of shading, which may be employed to advantage with very many negatives, especially those containing clouds.

After printing comes developing, and this is done with a solution of oxalate of potash, of which a superior quality should be used. It is generally recommended to use a saturated solution, but this I believe is a mistake unless dealing with prints from very hard negatives. Much better results are obtained, and the facility of handling greatly increased, by reducing the saturated solution two-thirds with water.

The temperature of the developer also has considerable effect on the prints, and it is well not to let it get below 60° Fahr., as a cold developer gives flat prints.

As the exact timing of any paper of this description is more or less uncertain, it is advisable to give the print a full exposure, and then, observing the development carefully, to stop it immediately it reaches the desired shade by immersion in the acid fixing bath. To do this correctly when using the concentrated developer is practically impossible, as it acts so rapidly that part of the print may be over-developed before the whole sheet can be properly immersed, and this is an additional reason for using the diluted bath recommended above.

An under-exposed print is hopeless, for not only is it impossible to bring it up properly by prolonged soaking in the developer, but such a course causes the image to sink into the paper, as it were, producing a flat, hazy print. Of course the concentrated developer will bring out more from a scant exposure than the diluted developer would, but it is far safer to follow the other method of over-exposure and a weaker developer, as this gives a much greater average of successes.

When dealing with hard negatives the temperature of the developer may be raised to 80° or 90° Fahr., with ad-

vantage. The addition of glycerine to the developer tends to increase the contrasts of the print, although it retards the development somewhat according to the proportion used. If it is desired to increase the contrast of any particular portion of the picture, as a tree, which we wish to bring out strongly and prominent above its surroundings, a weak developer may be made, in which the print is immersed, and, as soon as the details are well out, the print is removed to a sheet of glass, or opal, and with a brush dipped in strong, hot developer, the dark portions of the picture are painted up, and if reasonable care be exercised no sharp developer lines will appear. After the dark, or emphasized, parts are brought up as far as desired, the print may be placed back in the original developer to finish the milder portions of the print, if they have not already strengthened enough from the developer with which the paper was saturated from its first immersion.

We are told that we may immerse half of a print in the developer, and after it is developed the whole print may be immersed and developed, and no line of demarcation can be seen between two parts in the finished print. I tried this experiment with a print in which I desired to bring out some clouds, immersing the sky portion of the print until the clouds were fairly outlined, and then letting the whole print slide into the developer. A sharp black line across the sky of my print leads me to question the correctness of the statement.

What appears to be a valuable modification in the development of this paper has recently been discovered by some members of the Society of Amateur Photographers of New York, and this is that a solution of Rochelle salts

may be substituted for the oxalate with perfect success, the difference in result being that the print is much softer than when oxalate is used. With this developer the fixing bath is unnecessary, as the prints only require washing after development. This method of development is believed to be entirely new, and may be used with great advantage where soft prints are required.

The final washing of the prints requires no special remark, except we may note that if necessary prints may be washed under a tap with running water for about five minutes and mounted at once. Of course a longer washing is desirable, but a print treated as above will last some months at least with no signs of discoloration. Additional washing may be done at any subsequent time.

Another valuable discovery in the treatment of platinum prints is the burnishing, or calendering of the print after drying, and before mounting, and while the process does not produce a gloss like coated papers, it greatly modifies the dead mat finish of the normal print and gives it a brilliancy of color and effect that greatly enhances its appearance, and it also brings out in a most pleasing manner details that would otherwise be lost. This calendering process is done with a roller burnisher, *unheated*, as follows: Two thicknesses of the smoothest Bristol board, such as is used for mounts, are inserted between the rolls of the burnisher, and the pressure is set considerably greater than would be required for an albumen print. The platinum print, having first been trimmed, is now carefully placed under the cards and between them and the lower polishing roll, face to the latter, and all are then run through the rolls. Two or three passes complete the operation, and the

print is ready to mount. Care must be taken not to stop the rolls while the print is in transit, or a streak will result the same as in burnishing other prints.

In mounting the prints may be wet in the usual way without danger of destroying the surface produced by the calendering, and in this it has the advantage of all other descriptions of paper.

For mounts nothing more suitable or effective is to be found than the plate sunk cards with India tint ground that are now prepared especially for platinotypes, and to be had of any dealer in photographic materials.

In these notes I have not attempted to give a detailed account of the manipulation of platinum paper, but only the latest development in relation to the process as practised by some of the most successful amateurs of this city, with the hope that our readers may profit by such competent observation and expert experience.—*The Photo-American*.

Sound of a Sunbeam.

ONE of the most wonderful discoveries in science that has been made within the last year or two, is the fact that a beam of light produces sound. A beam of sunlight is thrown through a lens on a glass vessel that contains lampblack, colored silk or worsted, or other substances. A disc having slits or openings cut in it is made to revolve swiftly in this beam of light, so as to cut it up, thus making alternate flashes of light and shadow.

On putting the ear to the glass vessel strange sounds are heard so long as the flashing beam is falling on the vessel. Recently a more wonderful discovery has been made. A beam of sunlight is

caused to pass through a prism so as to produce what is called the solar spectrum, or rainbow. The disc is turned, and the colored light of the rainbow is made to break through it.

Now place the ear to the vessel containing the silk, wool or other material. As the colored lights of the spectrum fall upon it, sounds will be given by different parts of the spectrum, and there will be silence in other parts.

For instance, if the vessel contains red worsted and the green light flashes upon it, loud sounds will be given. Only feeble sounds will be heard if the red and blue parts of the rainbow fall upon the vessel, and other colors make no sound at all. Green silk gives sounds best in a red light.

Every kind of material gives more or less sound in different colors and utters no sound in others.

“Positives Direct.”

Charles W. Weatherwax, of Honolulu, S. I., writes to *Anthony's Photographic Bulletin* that he has discovered a simple solvent for metallic silver. His method is as follows :

First, expose plate in the usual manner. Develop with :

NO. 1.

- Sulphite of soda (crystals)... 3 oz.
- Eikonogen..... 1 “
- Hot water45 “

NO. 2.

- Sal-soda 4 oz.
- Water..... 15 “
- Take of
- No. 1 3 oz.
- No. 2 1 “

When the negative is almost developed, expose it to daylight, keeping it well covered with developer. In about thirty seconds you will see the change from negative to positive. Wash and fix in the usual manner, and you will have a well-defined positive.



Yosemite Valley.

THE CAMERA CLUB EXHIBITS ITS COLLECTION OF LANTERN SLIDES.

The California Camera Club gave its thirty-first illustrated lecture to a crowded house in Metropolitan Temple last evening. The subject was "Yosemite Valley." The slides which were made by club members have been exhibited here before, two years ago. Since then they have been over a large circuit through the Eastern States, where they met with unbounded admiration. The slides have just been returned. A duplicate set is now in Europe, where they are being exhibited. There were seventy-eight views thrown upon the canvas last night, embracing the most beautiful scenes in the valley. The lecturer, Charles Albert Adams, delivered a splendid description of the views and points of interest, enlivening his pleasant talk with incidents and traditions. The club very sensibly divided the exhibition into three parts, thus giving two intermissions. During the first recess Robert S. Duncan rendered a basso solo, "The Mighty Deep," and was vigorously encored. At the second intermission J. M. Hutchings, the venerable "Father of the Yosemite," was introduced to the spectators. He spoke feelingly of the incidents that the pictures brought to his mind and related some appropriate short stories. Everyone was pleased with the simplicity and sincerity of the old gentleman's remarks. Miss Alice Loeb, after a vocal solo, was heartily recalled, when she received several large bouquets of chrysanthemums. The last part of the lecture was then concluded, and the gratified audience turned homeward, filled with admiration for the wonderful Yosemite.

—*Chronicle.*

Pinhole Photography in Japan.

[Photographic Society of Japan.]

ATENTION has been called many times to the quality of photographs that can be obtained in a darkened chamber or camera, without special optical apparatus—simply by means of a small hole in a very thin plate.

Amateur photographers can make pictures, pretty large in size, of landscapes, and even of monuments, without being obliged to buy lenses costing from \$10 to \$300.

No doubt, to reproduce plans and engravings, it is necessary to use the famous lenses of Ross, Dallmeyer, Beck, Hermagis, Francais, Nadar and others. But we wish to perceive, when we examine a photograph, the particular effect which is produced on a more or less near-sighted eye by its entire surroundings when it looks at nature from a little distance. It seems to us that suppressing the lens and replacing it by a pinhole gives more artistic results as far as regards monuments or landscapes without moving figures.

"Nevertheless, far from us," says an English journal, "is the idea of crying down the photographic lens, which has, in the last year, attained so great perfection; for in the greater number of cases these instruments are, and will remain, indispensable"; but leaving out the instantaneous photograph, which has such charm for the amateur, and the portrait, the specialty of the professional, let us confine our ambition to obtaining, in as artistic a manner as possible, either landscapes or copies of monuments, and of these latter there are certainly no lack in Japan.

M. Meheaux says that the most suitable hole is round, and drilled in a plate of copper or sheet brass of $\frac{2}{10}$

millimetre in thickness; it is necessary that the borders show no burr, and are bevelled forming a cone.

Captain Colson has remarked that, although the depth of focus is unlimited, the greatest sharpness of definition for each size of hole is found at a determined distance, and he has succeeded in finding the proper focal distances for different diameters of holes. He has thus found that the best definition for a hole $\frac{3}{10}$ millimetre is at 11 centimetres; for a hole $\frac{4}{10}$ millimetre is at 20 centimetres; for a hole $\frac{5}{10}$ millimetre is at 30 centimetres, and for a hole $\frac{6}{10}$ millimetre is at 44 centimetres.

It may be mentioned that the size of the object to be reproduced is proportional to the distance from the apparatus, and to the distance from the hole to the sensitive surface.

It follows from this rule that, after having taken, for example, one view of an entire cathedral with a focal length of twenty centimetres, say with the $\frac{4}{10}$ millimetre diameter of hole, if we wish to have the details of the gateway without moving from our place, it is sufficient to lengthen the focus to forty-four centimetres and to use the $\frac{6}{10}$ millimetre hole.

We may further remark that the Stenope—the name given the above mentioned plates—easily includes an angle of 100 degrees, or even more, without at all deforming architectural lines, and without destroying the perspective, which is far from being the case with even the most perfect wide-angle lens.

The length of exposure presents much less difficulty than with lenses; except we expose enormously beyond the proper time, it is nearly impossible to over-expose; we can always obtain a good negative by developing intelligently.

Nevertheless, if one must have a general approximate rule, we may say, as a general proposition, that the time of exposure is at least twenty-five times longer with the $\frac{3}{10}$ mm. hole than with a lens focused upon the same view, and provided with a medium diaphragm; fifty times longer with the $\frac{4}{10}$ mm. hole; 100 times longer with the $\frac{5}{10}$ mm. hole; 200 times longer with the $\frac{6}{10}$ mm. hole; it being well understood that we use the focal lengths corresponding to these holes.

But we can modify these times of exposure without over-exposing the plate. On the whole, this depends very much on the plates, the developer, and the actinic power of the light. Experience will be the best guide for every class of picture. Just the same as in nature, the sun has here great influence on the clearness of the view, more than it has when using lenses.

To sum up the advantages of using the Stenope:

- (1) More artistic definition than with a lens.
- (2) Unlimited depth of focus.
- (3) Perfect perspective for lines in architecture.
- (4) Mathematical exactness in the scale of plans.
- (5) The angle of view can include as much as 170 degrees.

J. FAVRE BRANDT.

We Hope So, T∞.

To the Editor:

You can put me down for another year's subscription to THE CANADIAN PHOTOGRAPHIC JOURNAL and I hope every photographer in the Dominion will do likewise.

G. F. CHAPMAN,

Photographer.

Durham and Mount Forest.

Clouds.

[Manchester Amateur Photographic Society.]

TO print a photograph of landscape or seascape with a purely white sky is so untrue to nature and so inartistic that nowadays it is a rarity except in the productions of the veriest tyro, and we seldom see it perpetrated. That clouds are an improvement to most pictures is universally admitted, but we must not rush to the other extreme and use this power ignorantly or rashly; rather let us quietly consider how, by its means, we can convert our mere photographs into things of beauty.

SUNNING THE PRINT.

Most certainly the method of obtaining clouds on the same negative as the landscape is to be given the preference over all others; but if there is a clear blue sky you may ask, "How is this to be accomplished?" Well, unless you are using isochromatic plates your sky will most likely print white, and this, as I said before, is untrue to nature. You will have noticed the blue of the sky is darker towards the zenith and lighter when it approaches the horizon; therefore we must try and imitate this by what is technically termed "sunning the print," and is performed as follows: Cover up the lower portion of the print, place it in the sunlight for a few seconds, shading it with a piece of cardboard, kept in movement so as to give a graduated tint on the sky—a very slight tint, indeed, is necessary, which can be gauged by keeping one corner covered by the thumb-nail.

USE OF THE LENS CAP.

Should well-marked clouds appear in the sky at the time of exposure, we should by all means try to obtain them on our negatives by giving the sky a shorter exposure than the landscape.

Many ingenious mechanical means have been devised, but a simple method of taking off the cap is almost as effectual. The cap should be taken off by an upward motion and raised and lowered slowly; that is the whole procedure. There is one class of cloud subject which should invariably be taken with the landscape, or, better still, seascape. I refer to sunsets and sunrisings; the former will, perhaps, be more often attempted than the latter. There is nothing very difficult about it, although I am sorry to say it is rarely that we can secure a true impression of the scene. The principal points to be observed are to wait until the sun retires behind a suitable cloud, and to use a small proportion of pyro in the development.

HOW TO OBTAIN CLOUD NEGATIVES.

It is, however, not often that we can obtain clouds of a suitable quality on the same plate as the landscape, therefore we must have recourse to double printing, but before we do this we must get a number of cloud negatives—mind, I do not say one or two, for we should at least have over a dozen; if not, we shall most likely fall into that popular error of printing and perhaps exhibiting side by side two landscapes with the same cloud, an event that could scarcely happen in nature. It may be asked what kind of clouds we are to photograph, and I answer any kind and every kind we can get hold of—cumulus, stratified, wind-blown, mackerel sky, quiet, sleepy-looking clouds; they will all come in useful at some time. Those clouds with the sun just off the angles of view are the easiest to obtain and, of course, the best illuminated. Use a plate of medium rapidity, by about $f/22$ stop and a slow shutter; use a normal developer, and, so as to get a clear, quick-printing negative, say pyro and soda.

Our friend, Mr. Shirley, advises iso. plates, which, he says, give greater detail, but personally I have found little advantage to be gained, though I may not have carried my experiments far enough.

When photographing clouds the camera should be level or nearly so, with a little of the landscape showing on the negative; it goes without saying that we must have a fairly clear view of the horizon, no poplars or factory chimneys reaching half way up the plate. To steer clear of this difficulty, some people point their cameras at an angle of say 45° , but the results are so obviously wrong that I will not stay now to point out the why and the wherefore. These people may be classed with those who gravely advise you to use your cloud negative upside down for a change.

It is necessary that every one attempting cloud photography should be slightly inoculated with the Emersonian doctrine, for his clouds must not be quite sharp. For this reason, in a landscape we generally have the foreground and middle distance sharp, but the distance is out of focus, therefore it stands to reason that the more distant clouds should partake also of a fuzzy nature. I have some pictures by a well-known artist which show this defect very clearly. The foreground is sharp and the rest of the picture out of focus excepting the clouds, which are as sharp as the foreground.

PRINTING IN CLOUDS.

Having now got our stock of cloud negatives, we must consider next how to use them. There are several kinds of negatives to deal with, which for the purpose of this paper may be roughly divided into two classes: those giving a perfectly white sky, and those showing a decided tint. The former is the easiest to deal with, so we will take

that first. Our initiatory proceeding is to take a print ready for toning in the usual way, then, choosing a suitable cloud negative, place the said print in contact in the printing frame; but, if we made no further preparation, the clouds would print on the landscape as well as the sky. To obviate this, we must take a piece of brown paper and roughly tear it to the shape of the sky-outline of the landscape, taking no notice of trees and such-like dark objects that project into the sky. If the general objects in the distance are dark, then the clouds can overlap, but, if light, more care must be taken in the printing, and one or two thicknesses of tissue paper must project past the edge of the brown paper; this will soften the lower portion of the clouds; or another way is to keep the brown paper moving during printing.

Should the sky in our landscape negative be rather thin, we must resort to a little dodging, thus: Place the back of the cloud negative we intend to use in contact with the film of the landscape, and, taking some Indian ink on the end of the finger, dab it over the high lights of the clouds, softening them off where necessary, then print as before described, but under tissue paper or in shade.

Another method is to keep the whole of the sky white by covering it while the landscape is printing, but this requires great care. It should also be remembered that on a hazy day, when we have an undefined horizon, clouds are not often seen in the lower portion of the sky, therefore should be lightly printed. Indeed, in any case do not be tempted to print the clouds too dark. Many a picture is over-balanced by this fault, and though dramatic in its effects, and so takes with the superficial observer, is oftentimes untrue to nature.

I have already mentioned that we must choose a suitable cloud negative, and much depends upon our judgment in making this choice.

LIGHTING, BALANCE, AND REFLECTIONS.

One of the first things we must consider is whether the lighting of the clouds is in the same direction as the landscape. Cloud negatives on films have here a distinct advantage, for they can be printed from either side. The next thing in importance is the artistic balancing of the picture, and in this we have in our hands a power for good or evil. Some few years ago I attempted to put before you as clearly as I could as to what was implied by a true balance of light and shade in a picture, and then went on to mention how clouds could be made to assist that important phase known as breadth in picture-making. To make this better understood, I will instance a photograph of a landscape taken on a bright summer's day. In the middle distance is a lake, and on the margin a little nearer at hand to the left is a cottage and a tree. Far away is a range of mountains clearly cut in the sunshine; but, unfortunately, the sky line is too uniform and stretches across the landscape in a jagged line, cutting the picture almost in two, thus violating all canons of art. We now, by shading a portion of the landscape, print the mountains above the cottage somewhat darker, thus enlarging our mass of shade. We now take a cloud negative, which prints rather darker to the left than to the right, utilizing it as before described, and it is now obvious that the scheme of light and shade we have been aiming for is accomplished, and will repay us for the trouble expended.

If our picture includes a sheet of still water with perfect reflections, it must be obvious that clouds wind-torn

and jagged are unsuitable, but some well-rounded, quiet-looking clouds must be chosen and lightly printed for such a subject. If a portion of the sky is reflected in the water, we must then turn the cloud negative over and print also on the water, and whilst doing so covering up the sky. The film being separated by the thickness of the glass from the print just gives the right amount of fuzziness, but in carrying this out we must be careful to have the true angle of reflection or the critics will be merciless to our faults.

It is scarcely within the scope of this paper (but might with advantage be individually considered) to do little more than mention the meteorological aspect of clouds. For our purpose the mere rudiments would be sufficient, though it would be rather trying to the temper if we were to send one of our pictures to an exhibition and call it an "Early Morning," the judges awarding it the gold medal, and with a glow of pride and admiration we stand before it and listen to the adulation of others. Soon a rusty old savant comes along and gives a grunt of disgust, blurting out, "Why! the idiot has printed mid-day clouds into a morning picture," and we go home slowly and sadly, hoping that no one else has discovered the fault. But we can console ourselves with the fact that unless we have some scores of cloud negatives with notes as to the time of day and year, aspect of landscape, etc., it would be impossible to use them correctly. This being almost impracticable, we must do the best we can under the circumstances.

DIFFERENT FORMS OF CLOUDS.

It might, perhaps, be advisable to mention the different forms of clouds, and for this purpose they may be classed under three heads, viz., the cumulus,

the stratus, and the cirrus. The first is easily distinguished. It is often in grand rolling masses somewhat like mountains and is essentially a day cloud, forming after sunrise, and attains its maximum at noon. The word stratus indicates at once this form of cloud. It generally lies in low horizontal strata, forming in the evening and dispersing with the morning sun, therefore should only be used in morning and evening effects.

The cirrus cloud is of a fibrous nature and takes many forms; it is often called the mare's tail cloud, and is dependent on the state of the wind. These notes, perhaps, are sufficient to indicate the importance of studying the subject from a meteorological point of view.

J. W. WADE.

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The Telescope of the Future.

For centuries men studied the heavens more or less successfully without the aid of telescopes. Gradually, however, the standard of observation was raised, but with the invention of the telescope a tremendous advance was made. Hitherto, men's observations were confined to the limits of ordinary vision. Not a single observation could be obtained beyond it. With the advent of the telescope, however, the horizon of knowledge was greatly enlarged even at the outset. Then came the desire for greater power, and to obviate the difficulty in the single lens system, long, unwieldy instruments were constructed. Still further advances were made possible by the invention and use of the double achromatic lens, by means of which the aberrations could be corrected and the telescope reduced in length to a convenient size.

Then another difficulty presented itself—to procure discs of glass which would be free from veins and striæ, and at the same time homogeneous. Even toward the close of the last century it was impossible to secure suitable pieces of glass of more than six or seven inches in diameter, and these were often of a very inferior quality. When, in 1825, the Dorpat refractor of $9\frac{1}{2}$ inches aperture was constructed it was considered a masterpiece, and it was considered the limit had been reached.

Gulhand, however, has made better glass possible, and Fraunhofer better workmanship. As a consequence there were constructed in 1845 two object glasses of 15 inches aperture. But this limit was again surpassed when we succeeded in procuring discs for an $18\frac{3}{4}$ -inch glass, which were figured and sent to Chicago. Then followed the 26-inch lenses of the Washington and McCormick Observatories, the 30-inch of the Pulkowa, and finally the great 36-inch lens of the Lick Observatory. It must be remembered that ground had been disputed inch by inch, and that with each succeeding advance the limit of successful glass melting was thought to have been attained. Even quite recently a noted optician, speaking of the possibility of obtaining discs larger than 36 inches, said it appeared to him that the chances of obtaining 40 inch discs in the present state of the art were remote. And yet there are now in my manufactory two remarkably fine discs of 40 inches diameter ready for figuring.

Who then shall set the limit to this phase of the art, considering the great possibilities of scientific improvement and advance of the present day, in view of what has been already accomplished?—*Alvan Clark in the North American Review.*

[From *Photography*.]

Multiple-Coated or Multiple-Film Plates.

BY GREGOR GRANT.

IN speaking of multiple-film plates it is at present impossible to do so in general, for one is compelled to discuss the merits and demerits of the only plate of the kind at present obtainable, rather than to theorize upon the principles of multiple-coated plates generally.

For the purposes of this paper, and in order to obtain a basis upon which to work, it will be well to start with the two advantages claimed by the makers of the Sandell plates for their production, viz. :

- (1) Absence of halation.
- (2) Impossibility of being over-exposed.

Taking these qualities as being those—or two of those—of an ideal plate, it will be well, before passing on, to determine how the Sandell plates fulfil these conditions, to first consider what attempts have been made to produce a plate that will be entirely free from that bugbear of photography—halation, and in order to understand these attempts the better, it must first be determined what the cause and effects of halation are. To deal with the latter first—because most easily disposed of—we are all of us but too painfully aware of the visible results of halation ; in landscape work, the blurring of the outline of foliage against a bright sky ; in interior work, the halo which makes its appearance round a brightly lighted window, often not only obliterating the shafts and bars of the casement, but leaving only an irregular white blotch in that part of our picture where the window should appear.

As to the cause of halation, the first person to lay down any law on this

subject was Captain Abney, and the theory first advanced by him has stood the test of time, and come to be universally accepted as the primary cause of what is known as halation. The theory is briefly this—that the rays of light from the brightly lit portion of the picture penetrate the film which supports the sensitive salt, and, passing through the glass plate, are reflected from its hinder surface back on to the film, and a moment's thought will show that the thicker the sheet of glass, the greater will be the aberration of the reflected image from the original, and, consequently, the greater its interference with it. Though many attempts have been made to overcome or to minimize this reflection, such as grinding one or both surfaces of the plate glass, or backing the plate with either a dead surface or one with the same refractive index as the glass, and of non-actinic color, only the latter can be said to have been adopted, and neither to be satisfactory, for, although the dead surface will absorb all the light rays which reach it, it obviously cannot affect those which are reflected from the back surface of the glass, and the only advantage that backing has over placing a sheet of black paper behind the plate is that by it optical contact is obtained.

Some ten years ago, Mr. W. K. Burton made and gave to the photographic world the results of some experiments, in which he placed below the sensitive film a non-actinic one of gelatine, containing chromate of silver, which could be fixed out with hypo, leaving a clear printing negative. This was found to be fairly efficient, but so awkward to work as to be impracticable for general use.

I believe that the experiment has been tried of coating a plate with a very

rapid, but poor emulsion, exposing in the usual way, and then coating the plate with a thick emulsion, which, it was supposed, would be affected sympathetically by the exposed portions of the under film, and yield on development a good image. Who made the experiment, and what the result was, I do not know and cannot say, but venture to think that the process would prove considerably more awkward to work than that of Mr. Burton.

It having been found that very little light penetrated an ordinary coated gelatine film during a moderate exposure, it was thought that if the film were thickened the chances of halation would be very materially reduced. This theory proved substantially correct, but the thick film presented difficulties and disadvantages. There was the expense of making so thick a film rich, and if it was poor, *i.e.*, if the same amount of silver that would be contained by an ordinary film were spread over the greater thickness, then an insufficient number of particles of the sensitive salt (that is only those near the surface) would be affected to give a good result.

(To be continued.)

Our valued contemporary, *Wilson's Photographic Magazine*, begins its thirtieth year by doubling its size, and issuing monthly instead of semi-monthly.

Our esteemed contemporary, the *Beacon*, has made an addition to its title, and will hereafter be known as the *Photo Beacon*.

Under-Exposure, or Cold Developer ?

There is probably no mistake into which photographers, even those of long experience are so liable to fall, as in the supposition that a negative has been under-exposed, when

from a sudden change in the temperature, the action of the developing solution is so much retarded as to require for its completion a length of time very much in excess of what they have been used to give.

The influence of temperature on the time of development is so well established that it might be supposed to be unnecessary to insist further upon it. We have found, however, that, while yielding a general acquiescence to the fact, there is a tendency to look upon it as one of those theoretical considerations with which the practical worker need not much concern himself; and further that very few indeed at all recognize the extent of retardation which a few degrees of cold will cause.

The way in which the judgment is apt to be misled by the effect of a depression in temperature in slowing the action of the developer, was forcibly presented to us a short time since in conversation with a well-known plate maker. A photographer had complained that a batch of plates had proved to be exceptionally slow, and therefore to be rejected. On trial by the maker they were found to be fully up to the usual standard. Long experience having led him to suspect the true origin of the complaint, he noted the time of development of some plates when the action was carried on respectively at the ordinary temperature on a cool autumn day, and with solution at what might be considered an ordinary temperature for developer in summer time—70° Fahrenheit. The unwarmed solution was only about twelve degrees cooler, and the difference would not be considered great. The actual result that he found was, that when the warmer solution had done its work and the image was fully out, there was so little impression on the other plate, that is represented only as much as would correspond to an exposure of about one-fourth the length of time that it had actually received. Another plate which had received the same exposure as the two first was kept in a cold solution for nearly a quarter of an hour, or four times as long a time as had sufficed with the warmer solution. The image was now quite out, and showed the plate to possess its own proper rapidity, as well as a full amount of density.

We have known even experienced professional photographers to be misled on the first cold day at the approach of winter, by the slowness with which the normal developer

acts at such a time. A plate has been exposed on a sitter, and as, after a time which had previously sufficed for the development of the image, very little is to be seen on the film, a change in the light is assumed, and under-exposure taken for granted. A second plate is therefore exposed for a considerably longer time. This time the image comes up, but very weak. It is, in short, an over-exposed picture, much under-developed. If by this the true cause of the apparent slowness of the plate or light has been discovered, yet another plate is exposed, perhaps for the same time at the first, and either by warming the solution, or by longer time, or possibly by some variations in the proportions of the constituents of the developer, a satisfactory negative is obtained. With less knowledge and experience, however, the cause and extent of the difficulty may not be fully ascertained, and a quantity of unsatisfactory work result.

The cause of the evil being recognized, the best remedy is to keep the dark room at a temperature such as the comfort of the operator would suggest as desirable for himself and his work. Merely warming the developer itself is not so satisfactory, as it will soon chill in a cold dish, and it would be difficult to work a succession of plates in anything like equal conditions of temperature with only this aid. Many dark rooms have no convenience for being specially warmed by a stove, but we have known in such cases a great advantage to accrue from merely keeping a small jet of gas burning through the night, and in the intervals during the day when light is permissible. An ordinary paraffin lamp stood low has also sufficed in some cases to prevent the temperature from falling to an uncomfortable degree. There is yet another advantage in keeping out cold from a dark room besides securing normal development and the comfort of the operator. The water pipes, and cistern, where there is one, are preserved from bursting, and the cost in plumbers' work resulting from a single night's frost may considerably exceed the outlay for gas, paraffin, or other fuel employed to keep out the frost for the entire season.

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