

THE CAMERA AND DARK-ROOM

JANUARY 1904



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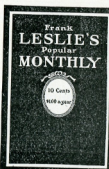
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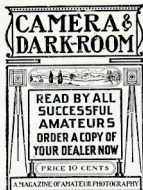
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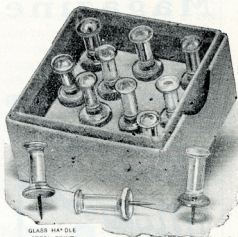
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New York, January, 1904

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Photographic Amusements.

By G. H. Claudy.

In Three Parts.—Part I.

THERE is no greater popular fallacy in regard to photography than that expressed in the words "The camera cannot lie." Not only can the lens and sensitive plate be made to prevaricate in a most surprising fashion, but, by suitable manipulation, they not only pervert truth but create fiction in a most extraordinary manner. Of course, manipulations of this character are, in no sense of the word, "straight" photography. On the contrary, they are crooked in the last degree and as such will hardly have the support of the operator who never allows himself to get any result except by the most orthodox rules and precedents.

Without attempting to apologize for the instructions contained in this and the two papers to succeed it, it may not come amiss here to give a logical reason

for the occasional practice of some of the operations to be described. Photography is a subject much bigger than its average devotee realizes. It has its pictorial side, its record-of-fact side, its scientific side, its legal, medical, microscopical, and a host of other aspects. The pictorial worker firmly believes that the principal end and aim of the camera is to make "pictures," using the word in its art sense. To do this, however, the operator must first have a first-class working knowledge, not only of his apparatus and how to use it, but of its utmost capabilities, and what can and cannot be done with sensitive material. As there is no branch of photography which taxes the ingenuity and resources of the operator more than making "freaks," it follows that the amateur can very well afford to use a few dozen plates in photographic ex-

periments in order to familiarize himself in the shortest possible time with the capabilities of his tools. It seems, therefore, not too much to claim that the making of amusing photographs which have, in themselves, no pictorial value, is a study not unworthy the attention even of those who have advanced and dignified pictorial aims, and to the man who is satisfied with record-of-fact work, some of the experiments to be described cannot help but offer a most fascinating field of work.

Trick photography has a much larger scope than can be entirely treated of in the space allotted me. Moreover, many of the tricks require extensive

and expensive apparatus. Quite a few, however, require no paraphernalia beyond that readily improvised at home and, both on account of lack of space and ease of following instructions, attention will be called here only to the experiments possible to everyone.

Almost all trick photography is the result of double exposures of one sort or another. One of the simplest and easiest ways of making a picture puzzling to the uninitiated is by the use of a little instrument termed a duplicator. To make one of these instruments, procure from the druggist a pill-box slightly larger than the barrel of your lens. Discarding the top of the pill-box, draw a line across the outside of the bottom through the center of the box. To one side of this line, draw another parallel to it and a distance from it equal to one-sixth the diameter of the round bottom of the box. This last line, then, will divide the circle into two parts, one one-third and the other two-thirds of the entire surface. With a sharp knife, cut out the piece which is one-third of the bottom and blacken with paint or India ink the interior of the box.

By means of this little instrument, two pictures of the same person or object can be taken on the same plate without there being any indication of a joining line between the two photographs. Before describing the operation of making such a double picture, attention is called to the illustrations of this branch of photography presented herewith. A little girl is just about to start taking herself for a ride in a small wagon, in one of them, and in the other a lady is looking at herself.

The manner of securing this effect is as follows. The subject is posed and focussed upon the ground glass well



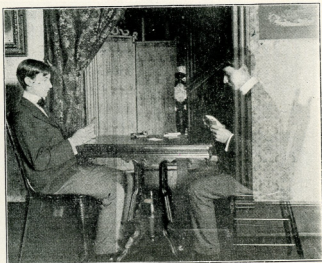
Double exposures on one plate. Two different size images. Actually the bottle is much smaller than the statue.

to one side of the center of the plate. The duplicator is then slipped over the lens so that the opening comes on that side of the lens nearest the figure. An exposure is then made, about one-fourth in excess of what would ordinarily be given. The shutter is then closed and the subject re-posed so that the image will fall well within the other half of the plate. The duplicator is then twisted around on the lens barrel to a position exactly opposite to what it first occupied and, without having

have been imprinted upon the entire plate.

It is hardly necessary here to suggest the amusing effects which can be obtained by this process. A man playing cards with himself, sparring with himself, fighting a duel with himself, will all naturally suggest themselves.

A third illustration is presented herewith showing the results of an imperfectly made duplicator. It did not fit tightly enough upon the barrel of the lens, and so one of the exposures ex-



ESSEX WILLOUGHBY

IMPERFECT EXPOSURE

moved the camera, a second exposure of the same length is given. If the work has been carefully done and the box correctly cut, there will be no joining line visible between the two successive exposures. If not enough has been cut from the box, there will be an unexposed streak up and down the center of the picture. If too large an opening has been made in the duplicator, the result will look like an ordinary double exposure, inasmuch as two images will

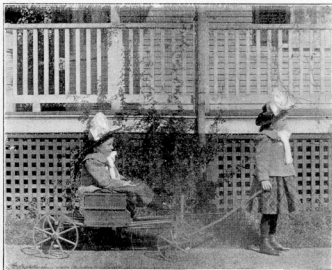
tended over the entire plate. The result is that the young man is seen playing cards with what appears to be his astral body. A result of this description can be obtained purposely without the duplicator, but will be taken up further on when attention is called to the making of so-called "spirit" photographs.

Another method of utilizing the double exposures for producing odd effects is by the employment of a perfectly

black background. Probably many who read this have seen, at one time or another, upon the stage, the illusion made famous by the late Hermann under the name of "Black Magic." When the curtain is raised, the audience is confronted by a proscenium composed of a blazing arch of electric lights. Behind the arch nothing is visible but inky blackness. Against this blackness the most surprising performances take place. Tables and chairs, and even people, appear and disappear in the

object looked at be of a very light color. The background is of black cloth and against this background black figures can move around pulling black cloths off of furniture, which thus becomes visible, and catching objects tossed to them in black bags without any of their movements being seen by the perplexed audience.

This principle, greatly simplified, applied to photography can produce some unusual effects. A perfectly black background shaded from light will produce



C. M. LEWIS Made with a duplicator f8—May, noon. 7-10
second exposure on Orthonon plate

twinkling of an eye, and sections of bodies float around in the air in the most bewildering fashion. A small boy is picked up by the prestidigitator and tossed into the air, where he remains for an interval of time before he suddenly and completely vanishes. The secret of the performance is found in the fact that the audience is unable to see behind the plane bounded by the semi-circular arch of lights unless the

no effect upon the sensitive plate even if quite a lengthy exposure be made upon it. It is possible, therefore, to make two or three or more exposures upon objects placed in front of a black ground and have the two objects seem to occupy the same space at the same time in the resulting picture without any background showing through to spoil the illusion. The accompanying cut of Clytie within the glass-stoppered

bottle was produced by this means. The method of operation is as follows:

The statue was first focused to the desired size near the bottom of the plate. It was standing upon a piece of black paper, which continued backwards and upwards to form a background. Light was only allowed to fall upon the statue and not upon the background itself.

the black background only, would not in any way alter the image just impressed upon the plate by the statue. No light is reflected from the background and therefore this double exposure would be without effect. The bottle, however, is placed in the light in such a position that its image falls over the image of the statue. It of



A. G. WOODMAN

A DUPLICATOR "DOUBLE"

An exposure was made and the slide returned to the plateholder, which was then removed from the camera. A bottle, actually much smaller than the statue, was then placed against the black background and the camera adjusted so that the image in the bottle filled nearly the entire plate. A second exposure was then made with the result shown.

In analyzing the operation, we find that the second exposure, if made upon

course impresses the sensitive plate, but the black background shining through on to that portion of the plate occupied by the image of the statue does not effect the plate.

A great many very surprising effects can be obtained by the use of the black background, especially if combined with a duplicator such as described, or a piece of cardboard placed between the folds of the bellows on the inside of the camera and cutting off a portion

of the plate. A man holding a pigmy edition of himself in his arms could, of course, easily be made by two exposures against a black background at varying distance from the object. To have the two objects register together exactly, a pencil mark upon the ground glass would be all the guide required.

Should the operator require gruesome effects, they can be as easily obtained. As there is no reason, however, to leave the domain of the pleasant in order to get subjects for freak photography, I will not attempt to give detailed instructions for the making of decapitated figures, gentlemen breakfasting off their own heads or wheeling that most important part of themselves in a wheelbarrow.

Rather interesting, and often laughable, caricatures can be made by means of the double exposure at different distances. A very large head, perfectly true to life, can be set upon a ridiculously small body or vice versa. A man's head can be put on a woman's body or a woman's head upon masculine shoulders. The wise operator, however, will beware of trying this latter trick unless with a very intimate woman friend! Caricatures can also be made by double printing, and in fact almost any effects obtainable by two exposures on a plate can be made by a double printing upon paper from two different negatives. If printing-out paper is used, the process is somewhat easier to manage than where the double picture is made upon a plate where the process cannot be watched. On the other hand, however, they are not usually so decided in character as those made by the former method.

While on the subject of double expo-

tures, it will not be amiss to say a few words about composite photography, which, at one time, was very popular among amateurs, but which has since dropped into oblivion except for statistical studies. It is a valuable process when it is desirable to arrive at a type of any one class of objects and is so simple as to deserve all the popularity it once enjoyed. If it is required, for instance, to get a picture which would be typical of the medical profession, as many separate photographs of individual physicians as can be conveniently secured are put upon the copying board and an exposure made on the same plate for each picture successively. The exposure given in each case will be the fractional part of the correct exposure for ordinary copying indicated by that correct time divided by the number of exposures made. It is advisable to register as nearly as possible the eyes and noses of the various pictures, letting the other features fall as they will. If carefully done, the result will be a photograph somewhat hazy in outline but characteristic of all the salient characteristics in all the faces.

Enough has been said about double exposures and the manner of making them to allow any intelligent amateur to develop this variety of photography to its utmost capabilities. There is, of course, an immense latitude allowed individual choice and much room for ingenuity. There are a great many varieties of double exposures which have not been touched upon because a description would simply mean repetition of the foregoing.

In the next paper, double printing, queer lighting effects, and spirit photography will be described.

Photographic Post-Cards.

By CHAS. E. FAIRMAN.

THE use of the souvenir post-card has become almost universal. Not only is the post-card used as a medium for sending brief messages, such as may with safety be read by the curious through whose hands the message may chance to pass, but in a majority of instances the post-card seems designed for purely advertising purposes, for the exploitation of the charms of summer resorts and seaside attractions, until the message is but a secondary consideration, and the selection of post-cards containing pretty

pictures—which shall be treasured as souvenirs by the person receiving these brief records of the places visited by the tourist—has become a custom which is growing in popularity as the seasons pass.

In some localities the revenue derived from the use of post-cards during some seasons of the year far exceeds the revenue received from the sale of stamps for letters, and to such an extent is this sending of souvenir cards practiced that the Post Office Department has adopted very liberal rules, and almost



CHAS. E. FAIRMAN

EXAMPLES OF AMATEUR POSTAL CARD WORK

anything mailable can now be sent as a post-card. At one time it was necessary to have printed on every private mailing card, in addition to the words "Private Mailing Card" or "Post-Card," "Authorized by Act of Congress, May 19, 1898," and cards failing to contain this notice were subjected to letter postage of two cents. At the present time it is only necessary that the card should contain on the address side the words "Post-Card," and that only the address should be contained on that side. Although in some instances I have found cards carried through the mails which contained on the address side a suggestion of the name or the business of the writer.

With these simplified postal regulations the opportunity for the amateur photographer to manufacture his own post-cards becomes so easily within the reach of all that some suggestions in this direction should prove of interest to the readers of the *CAMERA AND DARK-ROOM*, and with this view this article is presented; not with the idea of furnishing a summary of fixed rules, nor is this written with the idea that it will contain all that may be written on the subject, but rather with the idea of calling attention to the possibilities which may be found in this direction, and by this means arousing interest in what may furnish a pleasant source of entertainment during the winter months, when the stock of negatives already on hand may be used, and the possibilities of really artistic ideas being expressed through the tiny pictures which may find their way to the post-card and add a greater interest to the message of a word or two sent to absent friends.

I have said that the words "Post-Card" are all that is needed on the

address side of the card to make the card mailable. I am not certain that this is actually necessary, but think to avoid any question with the department, it will be safer that these words appear. If the amateur is the possessor of even one of the smallest printing presses, the printing of a sufficient number of post-cards will only occupy a very short time. If the reader is not so fortunate as to own a small press, it is an easy matter to have a rubber stamp made containing these words in large clear type and then the rule of "every man his own printer" is easy to follow. For cards a good quality of bristol board will answer the purpose, and the boards can be easily cut to the desired size of the post-card ($3\frac{1}{4} \times 5\frac{1}{2}$) by the ordinary print trimmer.

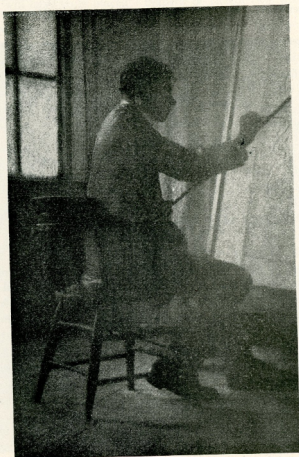
Having secured our cards, cut to a suitable size, it is then necessary to sensitize the cards for printing. For this purpose it must be admitted that the simplest form of sensitizer is the ordinary blue print solution. Formulas for this solution can be found in any of the annuals devoted to photography or in recent numbers of the *CAMERA AND DARK-ROOM*, but for those who do not care to go to the trouble of compounding the blue print solution I can recommend Azurol powder which only needs to be dissolved in water to be ready for use. Other sensitizing powders giving prints in brown, black and sepia, can be purchased from the Graphol Company, who have placed on the market several compounds suitable for sensitizing solutions and which are readily dissolved and easily manipulated.

I cannot commend too strongly the careful selection of the negative for the small print which is to be used to decorate the post-card. It often happens

that a choice view may be found in some corner of a negative which taken as a whole would be utterly lacking in interest. -The close study of the negatives on hand is recommended, and these should be examined not only as a whole but with reference to tiny portions

be occupied by the pictorial part of the post-card.

The choice of the best portion of the negative may be aided and time saved by the use of several differently formed masks, the opening of which is to represent the size of the picture. By view-



ARTHUR WILDE

THE ARTIST

which might be utilized from a portion of the negative, and this selected portion used as an enlargement or a reduction, as its size may correspond to the space which you may feel should

ing different portions of the negative through this mat opening we bring to our view only the portion seen through the mask and exclude other portions from our consideration. This enables

the mind to select with much greater readiness such portions of the negative as may seem to us of the greatest interest.

In sensitizing the cards we may perform the work in a neater manner if we cover with a piece of blotter such portions of the card as we do not desire to have covered by the picture. The sensitizer may then be applied readily with a wad of absorbent cotton, remembering that a thin coating of the sensitizer is all that will be required. The fingers should be protected from contact with the sensitizer by the use of rubber finger tips. This precaution should not be neglected for the reason that not only are stains avoided by this method, but in some instances people are more than usually susceptible to chemical poisoning, and this precaution should always be remembered.

With the blue print picture card a thorough washing is all that is needed to complete the picture after it has been printed. With other sensitizing solutions some chemical method of fixation is usually required, but as ample directions are contained with the sensitizing powders, further reference to such fixing and washing as may be required will be unnecessary. It may be well to mention that if the words "post-card" are to be printed by the use of a rubber stamp, it will be well to omit such printing until the picture has been printed and fixed and washed, otherwise the ink used for the rubber stamp might become so much washed out and mingled with the picture, that an undesired effect would be obtained.

For that class of negatives which seem to be so well composed that a small portion cannot be used without destroying the best effect of the picture it will be well to make a reduced trans-

parency upon a lantern slide plate, and from this make a small negative by contact. To those who are fortunate in the ownership of an enlarging and reducing camera this will be an easy task, but for those who are obliged to depend upon home-made apparatus, the making of reduced negatives will entail no small amount of labor, but if the work is attempted in a systematic manner reductions may be made with a minimum of trouble by using those near-at-hand things which can easily be obtained, if they are not already found in the home of the amateur. For this work a board of sufficient length to represent the distance required from the negative to the camera will be needed in order to reduce the negative to the size of a lantern plate or smaller. At one end of this board fasten rigidly a box of a size large enough to admit the largest negative to be reduced. In the bottom of the box cut an opening slightly smaller than the negatives from which the reductions are made, and furnish the box with parallel cleats so that the negatives can be placed in the grooves thus formed. At the other end of the board nail parallel strips of $\frac{3}{4}$ -inch board so that the view camera will slide between these strips with just enough friction to keep it in proper position. A groove should also be cut through the board which will admit the tripod screw, by which the camera can be secured at any point after the correct size of the reduction has been found. The distance between the camera and the box containing the negative can be covered by the focussing cloth laid upon strips of wood, resting at one end on the camera, and at the other end upon the box in which the negative is secured. This apparatus can be easily prepared

by any one from the usual articles found about the home, and the flat-dweller can utilize the family ironing board for the camera stand if other boards are not available.

It will naturally suggest itself to the camera worker that the box containing the negative will have to be placed

as the usual negative plate. In such cases as it seems to be necessary to enlarge a portion of the negative a similar apparatus will answer the purpose, provided that the camera is furnished with a sufficient length of bellows.

It may be, however, that some of the readers of this article are so situated



H. P. HIGGINS

THE WADERS

so that it may receive the light from a window, and that the light should be diffused by the use of tracing cloth or tissue paper. It will also be known to all that a "kit" to contain the lantern slide plate can be made from cardboard so that it can be used in the ordinary plate-holder in the same manner

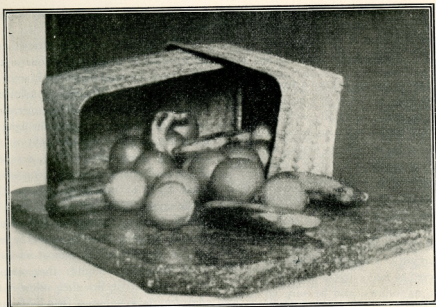
that they have but little time during the day that can be devoted to photography. For this class there is abundant opportunity to prepare the post-cards from papers which are designed for use by artificial light. Several manufacturers of bromide or gaslight papers have placed on the market post-cards

ready for exposure, and these goods are quite easily manipulated and the results are all that the most exacting could wish. It will be found upon experimenting with these gaslight cards that much time can be saved if the work is systematized so that so far as possible guessing is eliminated. In this kind of work a printing frame of liberal size should be used so that all sizes of negatives can be accommodated with one frame. The inner portion of the glass of the printing frame should be covered with a heavy non-actinic paper. In the lower right hand corner of the paper a space should be marked off of the exact size of the post-cards to be used, and the right angle line thus formed should be framed with strips of cardboard forming in this manner an angle in which the post-cards may be placed and each card will then be in accurate register. An opening will have to be cut through the thick paper of sufficient size to accommodate the largest picture to be used, and by the use of masks upon the negatives it will be possible to bring each picture in proper position on the card. It making a series of exposures from different negatives, it will be advisable to select either a negative of the greatest or the less density of the collection, and from this make a standard of exposures, varying the exposure as the different negatives are denser or thinner than the standard selected. It is also advisable to have a fixed distance for exposure between the lamp or gas jet and the printing frame, by adopting such a distance we have one known condition, and the only remaining condition to be considered is the length of exposure, which should be governed by the

condition of the negative used as related to the negative used as the standard.

Concerning the manipulation of the sensitized post-cards it will usually be sufficient if the directions which accompany the paper used are intelligently followed. Much of the success in the technical side of photography consists in following implicitly the formulas given. I do not mean by this that there are no exceptions to this very plain rule, but rather that more chances of success can be found in following instructions than in relying upon a "hit-or-miss plan."

I have not suggested in this article the possibility of making post-cards for others, and in this way adding to the photographic revenues of the amateur. It is safe, however, to say that if any of the readers of this article become sufficiently expert in this line of work so that the making of enlarged or reduced negatives becomes perfectly familiar and mechanical, there will doubtless be found many friends who will have a desire to have "post-cards" made from favorite negatives, and in such a case a means of money-making is at once afforded. If, however, the work is only attempted as a source of personal pleasure, it will be found that the absent friends who receive these little souvenirs of places or faces, will feel a much greater satisfaction because of the fact that the work has in it a personal character, and for the further reason that it will not be possible to purchase in the department stores or on the souvenir counter duplicates of the post-card which had a special message in addition to the few words which it contained.



M. NEUMAN

PINHOLE PHOTOGRAPH

Carbon Printing for the Amateur.

PART I.

By A. J. Jarman.

THE production of prints by the carbon process is often desired by the amateur. This process is often spoken of as both intricate and difficult; such is really not the case, excepting where large prints have to be produced from oil paintings, especially from old oil paintings, tapestry and old engravings. It is not proposed to treat upon this subject for the present, the main object being to simplify the method of working, so that any amateur may be able to produce these beautiful and permanent photographic prints from such negatives as he may possess, and thus have the satisfaction of making prints by the carbon process by his own effort and with his own hands.

The carbon process as worked to-day is known under two terms: one, the

single transfer process; the other, the double transfer process. It will be the single transfer process that will be first dealt with, because it will be the simpler one for the beginner and enable him to become more easily acquainted with the necessary points for successful manipulation.

Very few chemicals will be required, and those that are required are both cheap and easily obtainable. The following material and utensils must be provided:

- ½ lb. bichromate of potash C. P.
- 1 lb. powdered white alum
- 4 oz. glycerine
- 2 oz. carbonate of ammonia
- 1 doz. pieces of carbon tissue
(8 x 10 size will answer)

These can be obtained in assorted colors from any large photographic stock dealer.

1 doz. sheets single transfer paper, 8 x 10.
 1/4 yd. thin white India rubber water-proof
 cloth.

1 six inch squeegee.

3 Japanned tin trays, two 10 x 12 and one
 about 14 x 17, not less than two inches deep.

Japanned trays are not a necessity, the trays may be made of zinc and answer just as well. A small package of absorbent cotton will also be required and two yards of cheese cloth, one 6-in. plain glass funnel and half a dozen clean glass bottles, wide mouthed, each holding about 20 ounces fluid measure, excepting two of them, which should be of about 60 ounces capacity, as they are to hold the sensitizing solution.

Having procured the above material, proceed to make up the sensitizing solution, as follows, and be sure to mark the bottle in plain letters "Sensitizer for Carbon Tissue."

Bichromate of potash C. P.	2 oz.
Distilled water	50 oz.
Carbonate of ammonia	40 grains.
Glycerine	15 drops.
Salicylic acid (dissolved in hot water)	15 grains.

About three ounces of the fifty of distilled water may be used to dissolve the salicylic acid. Be sure that this chemical is completely dissolved, then add it to the solution that contains the bichromate of potash and the other ingredients, and shake them well until all the chemicals are dissolved. The bichromate of potash can be bought in a powdered state. The use of this will save time because it will quickly dissolve. The sensitizing solution now being ready, it must be filtered into another 60-ounce bottle, by pressing into the neck of the glass funnel a small plug of absorbent cotton. To prevent this plug of cotton from lifting, a strip of glass or a glass rod should be placed upon the cotton, resting against the side of the funnel. The piece of cotton must not be pressed in too tight or the

filtering will be retarded; only a light pressure is required.

The solution now being filtered and the trays well cleaned, take one of the 10 x 12 and pour into it some of the bichromate sensitizing solution, about one inch deep. This operation should be carried on under the light of a small gas jet or by the light of an oil lamp. Lay upon a table, or upon the work-bench a piece of clean sheet glass 14 x 17 inches to squeegee the tissue upon. Take one of the pieces of carbon tissue by the end and completely immerse it, prepared side up, in the sensitizer. It will curl up almost as soon as it enters the liquid; then simply unroll it until it lies flat, allow it to soak for three minutes, then lift it out, lay it face down upon the piece of sheet glass, hold the tissue down at the corners with one hand and apply the squeegee, by removing it with a scraping motion from the centre of the tissue to the outside, then reverse the action, the object being to get rid of the excess of sensitizing solution. Having accomplished this, tear off a piece of clean cheese cloth and wipe off the excess of liquid. Now take a couple of wood clips, known as photographic clips, lift each upper corner of the tissue, insert a clip at each corner, then lift the tissue off the glass and suspend it in a dark room or closet to dry. Several pieces of tissue should be prepared in this way, and then allowed to dry in complete darkness, because the prepared tissue when dry is very sensitive to light, even to the light of an ordinary gas jet or that of an incandescent lamp. When the tissue is dry it may be cut into the sizes required, or, better still, place it in a printing frame 8 x 10 size, in which has been placed a sheet or two of plain glass, with a piece of black paper in-

serted between them so that no light can reach the tissue from the front. The prepared tissue will keep in good working condition under pressure by this means for two weeks or more. It will be necessary to shade the light with orange colored paper when handling the tissue and cutting it up to the required sizes. If the tissue is cut to the sizes desired, it must be kept under pressure in a printing frame, as described, until required for use.

Take the negative, or negatives that it is intended to print from and place thereon a disc or mask of black paper, with a hole cut therein the size of the print wanted; or, if the negative is a view either 4 x 5 or 5 x 7, then stick an edging of black gum paper all around the outside edge, so that a full eighth of an inch of the negative is covered. This is called a safe edge, because it prevents the light from acting upon that part of the tissue, and by this means causes the carbon print to become firmly attached to the transfer paper. Another negative will be required of about the same density and general character of that which is to be printed from, not necessarily of the same subject, only of the same quality. Upon this negative place a strip of printing-out paper. This is to act as a guide in printing upon the carbon tissue. Place in another printing frame the negative from which it is desired to make the carbon print, place upon it the sensitized carbon tissue, adjust the back of the frame. Now place both frames out into the light, so that the sunlight does not strike upon them directly, in other words, print in the shade. After a few minutes exposure, say two or three minutes, take the frame with the printing-out paper strip and examine it. Perhaps it is only one third

the depth you would wish that print to be. If so, the carbon print is done. All that is necessary now is to prepare for the development of the tissue.

Take one of the trays 10 x 12, nearly fill it with clean cold water and place into it a piece of single transfer paper cut about half an inch larger than the negative. Allow the paper to soak for a quarter of an hour, then fill another 10 x 12 tray with clean cold water and insert completely the piece of tissue that has been printed (all these operations may be carried on in daylight). As soon as the tissue lies flat in the water, remove it, lay it upon the face of the transfer paper; while in the water adjust it so as to be central, then with the forefingers and thumbs of each hand, lift it out, allow the water to run off, then lay it down upon a clean board with a smooth surface, the tissue uppermost. Place on the top of this a piece of the India rubber cloth, smooth side up, now stroke the squeegee lightly over the cloth, gradually increasing the pressure until the tissue and transfer paper are well in contact with each other, remove the cloth, lift up the transfer paper with the tissue attached, and suspend it with a wood clip for about twenty minutes. After this time the print is ready for development, which is carried out as follows:

Take the 14 x 17 tray, pour into it some luke-warm water (not hot), insert the transfer paper and tissue, move it about so as to cause the air bubbles to disperse, rock the tray slightly, when it will be seen that the coloring matter is dissolving out at the edges. Now hold the paper down with one hand on the bottom of the tray beneath the water and pull off the paper support of the tissue gently. There is now a dirty looking mass upon the transfer paper.

All that is required is to throw some of the warm water over the print with one hand. The color will soon be washed away, except where the light has acted. It will now be seen that a beautiful print is the result. This print must be carefully washed in cold water and placed into a clean solution of common alum, one ounce of powdered alum to forty ounces of water, and allowed to remain in the solution until all trace of yellowness has disappeared. The print must now be laid in some clean water for a few minutes, and changed once. This is done to wash out the free alum. After this the print must be washed in a gentle stream of water from a faucet, then hung up to dry. The object of the alum is to harden the image and to clear out any trace of bichromate. It

will be observed that the image stands out well in relief, but this disappears when dry.

All that is necessary when the print is dry is to trim it to the size required and mount it, by well pasting the back and when lying face down upon a piece of glass, the print having been wetted and blotted off in the first place. This print will be reversed, that is, every part that was right will be on the left in the picture.

How to produce the picture in the correct position will be shown in the next article, the object of the present instruction is to enable the amateur to master the general working details and thus become acquainted with the practical parts of sensitizing and transfer.



REV. S. S. CONGER

BACHELOR'S REVERIE

Ortho- or Iso-Chromatic Photography.

By Harry L. Shepherd.

FIND that eight amateurs out of ten know absolutely nothing whatever about orthochromatic plates, the ninth has only a hazy idea and it generally is that ortho plates require a great deal of care and are at every step "hard to work." So he, with the other eight, jogs along, blind to the fact that orthochromatic photography is the "royal road" to, we might say, a new branch of photography, which every true amateur ought and must sometime enter. The tenth man knows the value of ortho. plates and understands, through experiments and study, where and how to use them. Now to set your minds at ease let me say that ortho. plates are just as easy to "work" as ordinary ones, the only difference being that you must use more care with your dark-room light.

Now a few words of explanation. The popular idea is that ortho. plates give a better rendering of the "color value" of objects than ordinary plates. Now the term "color values" is to many very misleading. It is not the differences of hue of objects that these plates render more correctly, but rather the "relative brightness" of objects one with another without regard to their color. You must see that you cannot render colors in monochrome. Now I know this point is a "sticker" to many, but space will not permit me to enter into a detailed explanation of the subject.

White light, as perhaps you know, is composed really of seven colors, viz.: red, orange, yellow, green, blue, indigo and violet. This you can see for yourself by darkening a room and allowing

a ray of sunlight to pass through a narrow slit in the window blind. Let this ray or beam of light fall on a white screen, say a piece of white blotting paper. Now in the path of the ray of light, near the screen, interpose a glass prism and you will get the band of colors, called the spectrum, in the order I have mentioned above. It is an experiment well worth trying. Besides the visible spectrum two sets of invisible rays exist, one located beyond the violet, called ultra-violet, the other beyond the red, called infra-red. The ultra-violet rays are the ones which effect all photographic plates most and are thus said to be "actinically powerful." The infra-red has really no effect. Now the trouble with ordinary plates is this. They are so powerfully, i. e. quickly, effected by the ultra-violet, violet and also blue rays, that the green, yellow, orange and red rays do not get time, as it were, to act, or to impress themselves on the plate. If we give sufficient exposure for the green to red rays then the blue, etc., is greatly overexposed.

Try to render blue sky, white clouds and green grass on an ordinary plate. In your print the blue will be rendered as white paper, at any rate there will not be any distinction between the blue sky and white clouds, and the green grass will be rendered many tones too dark. The reason is that the blue effects the plate much more powerfully or quickly than the green and so in your negative the "blue part" is very dense and the "green part" comparatively thin when to the eye the green may be only a shade or two darker than the blue.

To overcome this defect certain dyes

are mixed with the plate emulsion (before coating the plates), and this gives us ortho. or iso. plates, which are thus made much more sensitive to green, yellow, orange and red rays. This property is strongly increased when in conjunction with the ortho. plates we use a ray screen, also called ray filter, which is usually placed over the lens

crease depending on the depth of color of the screen.

All ray screens are for the purpose of absorbing or "holding back" the rays at the violet end of the spectrum. They are made of yellow tinted glass or cells filled with a weak solution of bichromate of potash and are made light or dark to suit certain work.

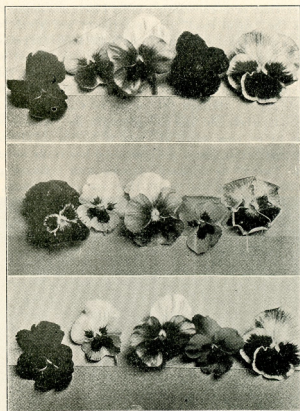


FIG. 1.—Seed Plate.

FIG. 2.—Cramer Inst. Iso plate and ray screen which increased exposure four times, $f/6$, four times that of Fig. 1.

FIG. 3.—Cramer Inst. Iso plate without a ray screen; $f/6$, the exposure same as Fig. 1.

and which to a great or less degree, according to its depth of color, absorbs the ultra-violet, violet, indigo and blue rays, i. e., holds them back, as it were, giving the others a chance to act. In fact it acts as a "compensator" and of course increases the exposure, the in-

crease depending on the depth of color of the screen. For ordinary work, screens to increase the exposure from three to six times are all that are required. Ortho plates, i. e. the "fast" varieties, are equal in speed to all ordinary fast brands of "ordinary" plates. They can be used in snap-shot work just as any other plate,

but under ordinary circumstances for snap-shot work they are not any better than ordinary plates, as the ultra-violet rays effect them to too great a degree. If you possess a "fast" lens and say at snap-shot speed and stop $f16$, you get a properly exposed negative; then if you use a screen which increases the exposure four times and you open your lens to $f8$, you may go ahead and you will get the benefit of

In flower and fruit studies, in fact any place where we have to deal with colors, ortho. plates are a necessity to good results. In the case of flowers, a ray screen is seldom necessary, except where blue and yellow are together, and then one to increase the normal exposure not more than six times, is all that is necessary. If you use too dark a screen you are apt to reverse the "color values" in your subject.

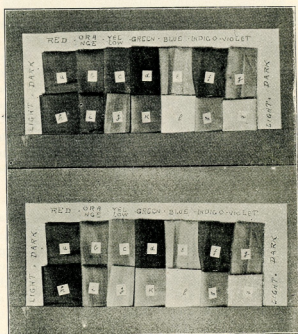


Fig. 4.—Seed plate.

Fig. 5.—Cramer Inst. Iso plate and ray screen which increased exposure four times; *i. e.*, four times that of Fig. 4.

the orthochromatic quality of the plate. You see you increase your exposure 4 times but with $f8$ you allow 4 times as much light to pass ($f8$ is 4 times the area of $f16$).

Most amateurs wish to "get the clouds" in their views. To do this use an ortho. plate and ray screen, except perhaps sometimes about sunset, when the yellow tint of the atmosphere acts itself as a screen.

Fig. 2 illustrates what a vast difference there is in using an ortho. plate and ray screen rather than an ordinary plate as in Fig. 1. Fig. 3 was taken on an ortho. plate (Cramer Inst. Iso. same as Fig. 2) without a ray screen. Fig. 2 gives an almost exact rendering of the "color values" of the original flowers.

The pansy on the left was a dark purple with canary-yellow centre, next

one very light yellow, practically white, brown centre, next top petal light heliotrope, three bottom petals rather dark heliotrope, shading to deep purple near the centre, very centre yellow; next (fourth from left) deep canary yellow, dark brown centre; next (the one on the right) the ground of the two top petals white with deep border of heliotrope (reddish). Three bottom petals purple with white edges.

Fig. 3, taken without a ray screen, shows the pansy the second from the right of too dark a tone, so you see why you should use a light ray screen when you have yellow mixed in with other colors. Leave this pansy out and the rendering of the others in Figs. 2 and 3 are practically the same. Some little time elapsed between taking Fig. 3 and 2, which accounts for the wilted appearance of the pansy on the right in Fig. 2. Notice especially in Fig. 1, that yellow is rendered on an ordinary plate as black. Again Fig. 5 compared with Fig. 4. These were pieces of colored cloth. Notice that a, b, c, h, i and k, Fig. 4, are rendered as practically one tone, whereas b, c, h, i and k were many shades lighter than a, which was a very dark red. Then notice l (sky blue), its relative brightness is much more correctly rendered in Fig. 5 than in Fig. 4. d was a very dark green, almost black, so in both Figs. 5 and 4 it is rendered very dark, but compare k in Figs. 5 and 4. Fig. 5 gives the correct rendering. Note carefully that in both Figs. 5 and 4 e, f, g, l, m, n are practically the same in tone, as they should be, then look at a, b, c, h, i, j and k and you see where ortho. plates show their superiority. The half-tone process will, I am afraid, hardly show the real effect. To get the full benefit it is necessary to see an

original print from the negatives.

Ortho. plates (if we wish to get the best out of our subjects) should be used in flower and fruit studies, marine, autumn landscapes, clouds, interiors where color has to be dealt with, portraiture where blue dresses and golden or red hair come together, in copying paintings and faded (yellow) photographs, etc., etc. So you see their use ought to be pretty general.

I will now deal a little on their manipulation.

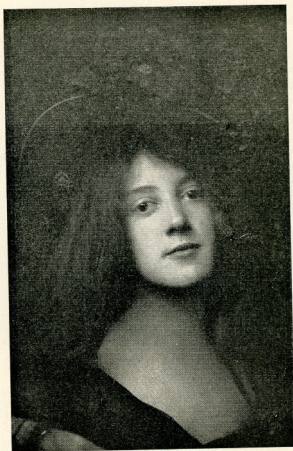
First Exposure.—Calculate your exposure as you would for any ordinary fast plate, i. e., if your ortho. plate is also a "fast" brand, such as Cramer Inst. Iso. If you use a screen that increases the exposure four times then give your plate four times the exposure you have calculated. If the atmosphere has a yellow tinge, as sometimes it has toward sunset, the exposure may be decreased.

Second. Handling in the dark-room.—My dark-room lamp is an oil burner with a window 4 x 2½. I use two thicknesses of deep ruby glass and one thickness of orange tissue paper, and I do not allow any more light than necessary to fall on the plate at any stage. Now, don't think from this that you have to work in the dark. Nothing of the kind, but use care and judgment.

Third. As to developers.—Pyro can't be beaten, the solution soon colors and protects the plate and in your print you get "snap" that I cannot get with any other developer. Take my advice and buy a dozen Cramer Inst. Iso. plates and a light ray screen (if the man you buy it of cannot tell you how many times it increases the normal exposure you will have to experiment and find out) and expose them against a dozen ordinary plates of the brand

you use. Try a flower study, a couple of landscapes, with clouds, an interior where you have color to deal with, etc., and if you work carefully your first dozen ortho. plates will convince you that in a great many cases they are far superior to ordinary plates and

I recognize that fact, but I have written this for the everyday ordinary amateur who wishes to improve and wants to get an understanding of the subject without recourse to text books on chemistry and physics. Unfortunately information, i. e., good solid informa-



C. T. WERNWAG

REMBRANDT STUDY

their "hardness" of working exists, or rather existed in your mind only.

In conclusion let me state that I have tried to make the matter plain and in doing so I have left myself open at certain points to criticism.

tion, is very hard to get on this subject, so I hope this little article will be of benefit to many true amateurs, and if it is, I shall feel amply repaid for my trouble in trying to make it as "plain as a pikestaff."

Indoor Work.

By Robert Lee.

CO some amateurs photography is only a hobby to be practised in the summer when the days are fine, and the camera is laid away after vacation, and probably left so until the next summer. But those who follow photography as a summer pastime know but the half of its pleasures. Photography at home presents no difficulties that cannot be readily overcome with ordinary intelligence. No special apparatus is necessary as the camera you have will fill the bill. A wide angle lens is a great help, although not an absolute necessity. The one thing essential to know are the conditions peculiar to photography indoors as compared with out of doors photography. The amateur who is used to doing all his exposures out of doors in good light finds his first difficulty in realizing the difference of the power of light indoors as compared with outside illumination and the corresponding lengthening of the exposure which indoor work entails. To become successful one must familiarize oneself with the altered conditions of illumination. This familiarity must come by observation and experience. An actinometer, an instrument for determining the photographic power of the light is found very useful indoors, as by its use you are able to determine the length of exposure necessary. As before stated no special lens is needed, although a wide angle lens will enable you to secure better results in confined spaces. As windows are necessarily included in most indoor pictures, the photographer's bugbear, halation, creeps in and non-halation plates should be used, failing these your plates should be backed

with non-halation backing, which can be readily obtained from any photo supply store. This preparation is applied to the glass side of the plate with a brush or tuft of absorbent cotton, and when dry the plate is inserted in the holder as usual.

It seems hardly necessary to caution the amateur that this operation must be conducted by the aid of the ruby lamp and in the dark-room only. The backing is to prevent halation, which is the spreading of light in all directions among the particles of the sensitive film of our plate and aggravated by the light being thrown again back into the film by reflection from the glass support, after it has once passed through the film and reached the plate. The point of view from which the negative is made, the height of the camera, and the general arrangement of the room also need attention. If a good view of the room can be obtained without including a window so much the better. Where only a part of a room can be included in the view care must be taken to see that no prominent piece of furniture is cut in half by the edge of the plate so as to appear inadequately supported. Do not overcrowd the room with furniture, and try to arrange the furniture so that the darker objects receive the best light; the room should also have an air of occupancy, an open newspaper or book on the table, a pair of spectacles on a side table—anything to make the room look homelike and as if it was used. Have as much light as possible in the room, but try to diffuse by means of curtains, etc., so as not to have any large spots of bright sunshine. The quiet light of the early

morning generally gives the best results. If the walls, carpets and furniture are of a dark hue, the exposure must be lengthened. The height of the camera should not be overlooked. If it is placed too high the lines of the floor will convey the impression of a slope. About 40 inches from the floor is the correct height in an ordinary room. Interior work by flashlight is preferred

room a flash sheet will be found convenient and sufficient. Care should be taken not to ignite the flash near curtains, lamp-shades, etc. As much light as possible should be used in the room, but none of the lights should be within the range of the camera. Sometimes an interior has an attractive out-door aspect such as a window opening on a garden. A pleasing picture combining



HENRY J. HUFF

"HOME, SWEET HOME"

by many to daylight, as it permits complete control of the illumination of the room and gives a softer and more diffused illumination. Care must be taken that pictures or mirrors do not reflect the intense light of the flash. This may be determined by holding a match or lamp in the position of the flash; if the reflection is seen from the camera, the mirror or pictures should be tipped to such an angle that the light is no longer visible. The amateur has choice of several flash lamps, but for a small

interior and exterior views can be obtained as follows: make the flash light exposure at night as before mentioned, then leaving the camera in position, lens closed and plate holder with slide in place until the following morning, when upon the same plate and from the same position a second exposure is given to secure the view seen from the window, which should be opened for the exposure. It is hardly necessary to say that the windows of the room should be opened after the flash light exposure

to clear the room of smoke, and to prevent any possibility of the camera being moved the door should be locked over night.

Home portraiture by daylight and flash light are also part of indoor work which falls to the lot of the enthusiastic photographer, but as these branches of the art have been fully canvassed in recent numbers of the CAMERA AND DARK ROOM, no special mention is needed. If any reader of this article

tion, and orthochromatic plates color screen will enable us to secure true color values. Most amateurs among their negatives some which would like to enlarge, and this opens up another field for the at-home worker. Enlarging may be done either by daylight or artificial light. For the daylight enlarging no special apparatus is needed beyond the camera and bellows which were used for making the original small negative, and a couple



OSCAR VON ENGELN

WINTER

has not seen previous articles let him procure from the CAMERA AND DARK ROOM, their little book entitled "How to take Portraits" and carefully peruse same; after which he will be in a position to intelligently take up this branch of in-door photography. The photographing of flowers, fruit and still life subjects forms a delightful photographic hobby for pursuit at home. When tastefully arranged flowers or fruit make a nice picture. A diffused light, of the side or three quarters variety will give the most favorable illumina-

tion, and orthochromatic plates color screen will enable us to secure true color values. Most amateurs among their negatives some which would like to enlarge, and this opens up another field for the at-home worker. Enlarging may be done either by daylight or artificial light. For the daylight enlarging no special apparatus is needed beyond the camera and bellows which were used for making the original small negative, and a couple

large trays for the development and fixing of the enlargement; as the CAMERA AND DARK ROOM, have published articles on enlarging from time to time giving instructions for making any special apparatus, those who wish to take up this branch of indoor work should study up these articles. Next to enlarging the amateur should practice making copies of photos, pictures, etc. The principal difficulty in copying with a small hand camera is the limited bellows extension. It is all right when you only want to secure a small copy

of a picture, but when you wish to make a copy the same size as the original (as to copy a 4 x 5 picture on a 4 x 5 plate) the small bellows extension confronts us. The rule given by most text books is that "the distance between the lens and the original, and the distance between the lens and the focusing screen, must both be fully twice the focal length of the lens." If we have a long focus camera with long extension of bellows this



ANNA BECKSTROM

HELPING MOTHER

can be done; failing this, a short focus wide angle lens fitted to our regular camera may enable us to secure the desired size and sharpness in our copy. Another method is to secure a supplementary copying lens which slips over the hood of our regular lens, shortening its focal length and thus enabling us to secure the desired result. Copying may be done by daylight, but the wide range of exposure is confusing. A simple way in which no guessing at the ex-

posure is needed is to copy by flashlight. This light gives a good well diffused light and will answer the purpose as well as daylight. You can focus by the aid of a lamp held close to the picture, but out of the field of the lens. One flash will be found to give sufficient light if held so as to throw the rays upon the object which is to be copied. For making prints of your negatives at night you have a large number of papers to choose from, Velox, Cyko, Dekko, Vinco, etc. So the amateur who is unable to make his prints during the daylight need not give his negatives to a professional photographer to obtain prints, but can amuse himself by experimenting with these slow bromide papers, and he will be amply rewarded for his pains. The manufacturers of these gaslight papers publish instructions for the use of their papers, and it is the amateurs own fault if after mastering the contents of these booklets he does not make creditable prints from his negatives at night. Making pictures by artificial light is a most enjoyable and fascinating amusement for a fall or winter evening. I remember reading in a pamphlet called "Tolidol talks" of a man who, having some friends to visit him one evening made a picture of them by flashlight and delivered a mounted photograph to them within one hour. This is quick work, but it shows how anyone who is an enthusiast in photography can amuse himself and give pleasure to others in the long winter evenings. Because the summer is over do not let the amateur lay away his camera, but let him experiment along the lines laid down in this article, and he will derive as much pleasure from his hobby as in the long summer days.

Stripping Gelatine Films from Glass Negatives, Enlarging the Same, and Re-transfer.

By A. J. Jarman.



WHenever it is desired to produce a number of enlarged prints from a small negative, the following means is usually resorted to, first, to have a number of prints made with an enlarging apparatus and developed as bromide or similar prints, or, to make an enlarged negative from a special transparency. Whichever plan is adopted, the crispness and good definition of the original negative is generally lost. It is quite possible and practical to remove the film from the original negative, enlarge it and then re-transfer this enlarged film to a clean glass plate.

One great drawback hitherto encountered in the removal of the gelatine film has been due to the extraordinary pertinacity with which the film has been held by the substratum to its glass support. It is well known that even with an acid, or a strong alkaline solution, although the gelatine film composing the negative has been readily removed, that the substratum can only be removed with difficulty, more often by scraping than by any solvent action of an alkali or an acid.

The plan here to be described is both sure and certain in its action, the substratum being removed with ease, together with the film.

If the plate to be stripped is a 4 x 5 the following utensils and chemicals will be necessary:

One hard rubber or composition tray 5 x 7.

Two 6½ x 8½ trays, either hard rubber or composition. (Glass or porcelain trays must not be used.)

Four ounces of Flouride of Sodium and six ounces of citric acid.

A clean glass plate or two, 5 x 7.

To strip the plate proceed as follows: place one of the 5 x 7 clean glass plates in a 6½ x 8½ tray of clean cold water, then mix the following in two separate bottles:

	No. 1.	
Flouride of Sodium.....	½ oz.	
Clean water.....	8 oz.	
	No. 2.	
Citric acid.....	1 oz.	
Water.....	8 oz.	

When these chemicals are completely dissolved, or nearly so (because the Flouride of Sodium will not dissolve completely in the water), take three ounces liquid measure of No. 1, pour this into the 5 x 7 tray, add thereto three ounces of No. 2, rock the tray gently so as to mix the contents thoroughly, then immerse the 4 x 5 negative, see that the film is well covered with the mixed solutions, rock the tray gently, in the course of a minute or two and it will be seen that the gelatine film is loosening from the edges of the plate. All that is required to be done now is to take the film between the thumbs and forefingers of each hand and lift it carefully into the tray containing the clean glass plate, allow it to remain in the water a minute or two then, with the thumbs and forefingers of each hand press the top end of the film down gently and remove the glass and film together, allowing the excess of water to drain from between the film and the plate. The film may be adjusted readily when in the water, and finally so after removal from the tray, by means of a flat, camel's-hair brush.

It will be found that the film has expanded equally in all directions, the degree of enlargement depending upon the

time film is allowed to remain in the water, and the temperature.

This process will be found extremely simple and effective, it can always be relied upon for certainty of action. The true cause of the film lifting is due to the fact that a small quantity of Flourine is liberated when the citric acid is added, which, in contact with the water forms a diluted solution of Hydro-flouric Acid, which in turn attacks the glass through the pores of the gelatine film, which by this means becomes released from its glass support.

There is nothing in the operation that is detrimental to the hands. The writer has worked with bare hands in such a solution continuously for six hours, in stripping films from disused negatives, without producing any ill effect whatever.

It will prove of assistance to anyone contemplating the removal of a film to make a trial upon a negative of no value, especially if the negative be somewhat clogged in the shadows. It will be found upon enlargement that the shadows have cleared up in a very remarkable manner, and will, in all probability, convert a useless negative into a useful one.

If a number of clean glass plates are required, all that will be necessary will be to place the old negatives to soak in the above mixture, when the stripping will be accomplished with ease. When the film has been transferred, the plate must be placed in a horizontal position to dry, never vertical, because the film is apt to split.

The above method of enlarging will enable a 4 x 5 film to become easily a negative 5 x 6, which may be varnished or not.

The mixture will not keep, so that if several negatives are to be stripped, preparation should be made to perform this operation when the chemicals are mixed. Four or five plates could be easily stripped and the necessary enlarging made with the six ounces of mixture above given.

It will be observed from the action



H. DOERMER

CUTTING CABBAGE

described the necessity of using hard rubber or composition trays in place of glass or porcelain. It is also necessary that the bottles in which the chemicals are mixed be thoroughly clean; bottles that have contained old developer should be discarded.

With ordinary care it will be impossible to fail to produce a complete and satisfactory result.

EDITORIAL

CHANGE OF NAME.

OUR FIRM NAME HAS BEEN CHANGED
FROM THE CAMERA AND DARK-ROOM
CO. TO THE W. G. PIERSON PUBLISH-
ING CO., WITH OFFICES AT THE OLD
STAND. TELEPHONE, 538 JOHN.

Readers who are interested in automobiling as a hobby, or would like to become interested, will be glad to learn that we will very shortly issue the first number of *The Motor Car* at one dollar per year. We intend to make *Motor Car* the most popular publication devoted to automobiling. Our readers will make no mistake in remitting for a three months' trial subscription (25c). You will find *Motor Car* a magazine that will interest you, and if you wish to be up-to-date and follow the automobile movement, read the *Motor Car*. Our liberal offer in relation to this magazine, in one of the advertising pages, should be given attention. We are in need of good photographs of automobiles and will pay for all accepted. An attractive roadway showing an automobile in the distance would be interesting, a machine plowing its way through snow, climbing a steep hill, a parade or pictures of well-known people riding. There are many such pictures which would help make an automobile magazine attractive.

During the winter many opportunities occur of procuring cloud negatives, and it is generally found that films are best for this class of work. A small stop should be used and a quick exposure, and the negative should not be too deeply developed. For cloud negatives, hydroquinone is very good. Of course, in using cloud negatives to print later on in landscapes where the sky is clear, intelligence must be used; so that great help will be afforded if the amateur keeps a record of the time of year and day the cloud photograph was taken, and also to what part of the sky the camera

was directed. The reasons for these precautions are obvious, as doubtless many readers have seen prints showing reversal.

To secure good pictures with clouds printed in from a separate negative requires practice, but it is by no means a difficult process, and often lends a charm to a picture that would otherwise be a tame and flat production.

The light is fast declining, and care should be used in exposing. Very often the light there is may be more or less yellow, and though the sun shines the picture will be under-exposed. In the open air it may be necessary to use a stand and give one-tenth second, or perhaps more, according to the speed of plate and lens used. It is now that a good exposure meter, say Wynne's, would be useful to those who are inexperienced. When a long exposure is given, the developing of the negative must be closely followed, and it is always well to presume that the negative has been over-exposed, and add the accelerator as may be needed.

"Rubbing down" with methylated spirits is a most useful means of reducing harsh and over-dense negatives. The wrong way to do it is to spread a piece of wash-leather on the finger, moisten with spirit, and rub away at the dense part. The right way is to cut the end of a bottle cork flat, spread wash-leather or flannel on this, moisten with spirit, and rub evenly backwards and forwards the whole of the negative; the high lights will be evenly planed down, as it were, and the shadows not reduced.

Brown paper is excellent on which to mount warm-toned matt prints. If the print is first mounted on a piece of white paper, and the edges cut to leave a narrow white margin of about a quarter of an inch, the effect is very good.

In trimming prints, each side is usually cut with one stroke of the knife. There will be a much less proportion of tears if an uncut bit be left at the commencement of the stroke to take the "pull" of the knife. This can be cut through with a second stroke.

OUR 1904 EDITORIAL STAFF



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A. G. WOODMAN
RALPH MARTIN

WM. F. THOMPSON

FRANCOIS VOITIER

DR. CHAS. E. FAIRMAN

MALCOLM DEAN MILLER

ALFRED J. JARMAN
WM. H. COOPER

LOUIS ALLEN OSBORNE

What is commonly called green fog or iridescent stain, caused by the use of old plates, forcing under-timed plates in development, or, the use of plates that have not been properly stored, may be removed by bleaching the image in a solution of:

Water	5 ounces
Ferrichloride	60 grains
Bromide of potassium.....	120 grains

When bleached the plate is well washed and redeveloped in old iron oxalite developer. This process is usually effective, if the stains are not too old. Very light stains may sometimes be removed by rubbing them with a tuft of absorbent cotton saturated with methylated spirit.

In local reduction it is often well to mix the reducer with glycerin to prevent it from spreading over portions of the negative where it is not wanted. When fine lines or portions of the negative are to be reduced the solution should be applied with a fine camel's hair brush, while the film is dry, but when large portions are to be reduced the film should be wet. Excellent results may often be accomplished by local reduction, but some skill and a great deal of care is required to make the process a success.

ENTER, PHOTOGRAPHERS.

Camerists from one end of the world to the other will rejoice at the announcement by the St. Louis World's Fair directorate that there will be no restrictions whatever on the carrying of cameras into the exposition grounds and buildings by non-professionals or on their use afterward. The amateur will be on an equal footing with the "fiend," and both may photograph whatsoever and whomsoever they like.

This is not only liberal and sensible, it is "good business" as well. Already the operators of cameras are flocking into the grounds daily by the scores and hundreds, and while probably nine-tenths of them are non-professionals and take the views and then develop and print them only for the pleasure and satisfaction that it affords, both they and the other one-tenth—professionals, who will manage to sneak in as amateurs—will become among the best advertisers of it that the fair could possibly

secure. A Chicago man holds the photographic concession at the St. Louis show and he has been moving heaven and earth to get a ruling that will shut out all photographers—but to no avail. The narrow spirit that moved the Chicago World's Fair management to charge two dollars a day for the privilege of carrying even the smallest camera into the grounds proved to be a boomerang. The revenue from it amounted to little or nothing and the regulation prejudiced visitors against buying photographs inside the gates.

POSTPONEMENT OF CLOSING DAY OF CONTEST.

A great many readers have stated that we have not allowed enough time for them to get their pictures ready for our photographic prize contest. In consequence thereof, we have decided to postpone the closing date from Jan. 2 to February 5. We are agreeably surprised at the excellent quality of work thus far submitted in this competition, and believe that it will be more successful than any previous contest held by us. The postponement will give a great many more of our readers a chance to compete.

Amateurs who are in need of a convenient set of exposure tables should order a copy of CAMERA AND DARK-ROOM tables of their dealer or send to us direct. This little book has just been published, and if orders continue to be received as they have been, we will be obliged to print a second edition at an early date.

Next month we will start a valuable series of articles by our old contributor, Mr. A. G. Woodman of Boston, on "Photography through a Chemist's Eyes." Those who have been reading CAMERA AND DARK-ROOM for the past four years know Mr. Woodman's articles to be very interesting as well as thoroughly practical.

A flat, muddy bromide print may be improved by reducing with Farmer's reducer to clear the high lights and then after a thorough washing intensify in a solution of:

Water	5 ounces
Sulphite of soda crystals	5 drams
Mercuric iodide saturated solution	10 to 50 drops

Washing the print after leaving this bath gives it an unpleasing muddy color, but a warm black color is easily obtained by treating the print with ordinary amidol developer. When the print is blackened with the amidol it gains perceptibly in strength and vigor. A warm tone may be obtained by using ammonium sulphide instead of amidol.

In copying pictures under glass it will be observed that the light must be properly arranged or reflections are the result. Now when glass is not used in front of the print these reflections are not in evidence, and hence are never taken into consideration, and this is just the reason that many copies are spoiled, for the surface of any picture is sufficiently glossy to reflect some light, and though the reflections are not noticeable in focusing, they are sufficiently strong to spoil the brilliancy of the copy and give it a flat, blurred appearance, resembling a print from an overtimed negative. As a matter of fact, when a copy is made without glass the light should be just as carefully arranged as if the glass were used—that is, if good results are to be obtained. As a general rule, it is better to make copies under glass, for then if reflections exist they are easily discernible and can be corrected, while without the glass, the reflections pass unnoticed and the copy is spoiled without the operator knowing the cause.

Prize Competition.

For the best photographs by CAMERA AND DARK ROOM readers.

PORTRAIT STUDIES.

For the best amateur portrait studies we offer the following awards:

First prize.....	\$10.00
Second prize.....	5.00
Third prize.....	2.00

GENRE STUDIES.

First prize.....	\$10.00
Second prize.....	5.00
Third prize.....	2.00

LANDSCAPE STUDIES.

First prize.....	\$10.00
Second prize.....	5.00
Third prize.....	2.00

MARINE STUDIES.

First prize.....	\$10.00
Second prize.....	5.00
Third prize.....	2.00

RULES.

All pictures submitted in this contest must be the work of the competitor, from the exposing to the mounting.

Pictures may be any size at all.

Not more than one first or second prize will be awarded any competitor in any class.

It will not be necessary to use a non-déplume in this competition. The contestant must write his name and full address on the back of each picture, together with the title.

It is preferred that data in regard to the lens, stop, exposure, plate, time, etc., be furnished as far as it is possible to do so.

Entries for this contest must reach us by February 5, 1904.

Address all packages, and send prepaid, "Prize Competition," CAMERA AND DARK ROOM, 108 Fulton Street, New York.

Literary Competition No. 15.

We offer awards to our readers who send us acceptable articles for publication.

There are a great many amateurs who say that they cannot write an article, and yet may be able to jot down points of information worth pages of prose. This month we would like to get articles on the following subjects in particular, although articles on any good subject of interest to the amateur will be accepted in competition:

- "Copying."
- "Marine Photography."
- "Flashlight Photography."
- "Lantern Slide Making."
- "How to make an Enlarging Lantern."
- "Instantaneous Work."
- "Automobile Trips with the Camera."

Articles may be sent with or without illustrations. We will correct your copy. We want your ideas. Write as concisely as possible, and write on one side of the paper only. Articles should contain from between one thousand to two thousand words.

Closes February 10.

- First Prize—Five Dollars, cash.
- Second Prize—Three Dollars, cash.
- Third Prize—Two Dollars, cash.

Fourth Prize—One year's subscription.
Fifth Prize—A copy of "Figures, Facts, Formulas."

Photographic Items of Interest

We are in receipt of a copy of the 1904 catalogue of the Ohrig Camera Co., 165 Broadway, New York. Amateurs desiring to buy photographic materials from a responsible house should send for this little book. The Messrs. Wilmerding have been in the business for a great many years, in fact we believe that they are the oldest photo supply people in New York. Any goods sold by them can always be relied upon.

* * *

"Photograms of the year 1903" has just been issued, and may be obtained from the American agents, Tennant & Ward, 287 Fourth Ave, New York. The price is \$1.00 in paper covers and \$1.50 in cloth binding, post free. This publication is issued by Photogram Ltd., of London, England, and is one of the old standard guide books of photography. The illustrations this year are exceptionally good and the book is well worth the price asked for it.

* * *

The Book-Lover, of 30 E. 21st St., New York, has inaugurated a contest for photographers.

First prize \$5.00, second prize \$3.00, and third prize \$2.00, and \$1.00 for non-prize-winning pictures published. Write title and name and address on back of prints.

All pictures submitted shall become the property of The Book-Lover and paid for if used. Pictures submitted should be suited to reproduction in The Book-Lover and may be of persons, places or things literary, musical, artistic, dramatic, etc.

Address prints to W. E. Price, Editor The Book-Lover, 30-32 East 21st Street, New York, marking "Photographic Contest" on the envelope.

* * *

One of the most peculiar methods of timing exposures, of which we have ever

heard, is herewith appended word for word, of the "inventor" Mr. Jas. F. McGinnis, of Mediaopolis, Iowa. It is very interesting.

"THE MCGINNIS METHOD OF MEASURING TIME EXPOSURES.

Directions.—Load your Plate Holder with a Seeds 26x Plate and follow directions:

1st. Spread a piece of black velvet over your camera bed.

2d. Focus your camera as you always do. See that all is sharp.

3d. Put in the stop you expect to use.

4th. Take a good look at the image on the ground glass; notice all the details and remember them.

5th. Look down at the Velvet until your eyes are at ease then look up to the ground glass and as soon as your eyes reach the ground glass start to counting 1, 2, 3, 4, etc. until all the details show as clear as before. That is the length of the exposure with a Seeds 26x Plate. When you open the shutter, count the same number and close the shutter you have a correctly timed negative. Expose for the Half Tones. A Seeds 27x Gilt Edge Plate is one-quarter quicker than a 26x then you expose three-quarters the time it takes to see the detail on the ground glass. A Seeds 26 is one-quarter slower than a Seeds 26x. Find the speed of your plates and you have it all. Be sure your developer is in harmony with your exposure.

Too much pyro gives contrast with proper time development.

Too little pyro gives a weak negative with longer development.

Too much sal-soda clogs up the negative with quick development.

Too little sal-soda assures contrast and slow development.

The above applies to any other developing agent used in the place of pyro.

All persons are warned against selling or disposing of this method. All rights reserved."

* * *

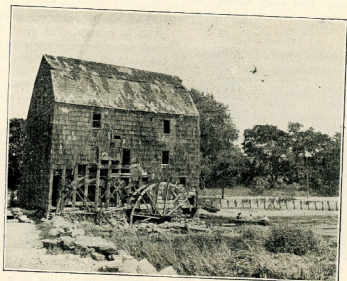
Mr. Geo. L. Barrows, well known on the Pacific coast, who formerly attended to the interests of CAMERA AND DARK-ROOM, and the Anthony & Scovill Co. in the West, is now managing the photographic interests of E. B. Meyrowitz at 104 E. 23d St., New York.

We are in receipt of a copy of the Annual of the Photo-Times Bulletin for 1904, published by the Anthony & Scovill Co., of 122 Fifth Avenue, New York. This book, which has been issued regularly for years, is as good as ever and reflects great credit upon Editor S. B. Hord. It contains numerous articles on photography, and many illustrations. The price is 75 cents in paper covers, and \$1.25 bound in cloth.

We have called previous attention to our readers to the treatise by Mr. Milton Warde of 164 5th Ave., New York, on his "One

water-color. With this, smear or paint over the paper or card, and let dry well, then coat with a solution of potassium bichromate, 3 gm. in 50 c.cm. of water, being careful not to get any of it on the reverse side of the paper or card. Use as for ordinary copying (photographic) purposes.

When negatives are too thin or too dense for ordinary printing purposes, it is best to intensify or reduce them while still wet, as the wet film is in the best condition for such treatment. However, it is often necessary to intensify or reduce a negative that



J. LUDLAW, JR.

THE DEAR OLD MILL AT SAND'S POINT

Man Method." This booklet retails for One Dollar per copy and contains many hints to aid in successful portrait work, including several chapters on the manipulation of development papers.

TO MAKE WRITING-PAPER OR POSTAL-CARDS SENSITIVE TO THE LIGHT

To sensitize letter-paper, postal-cards, etc., so that they can be used for copying purposes, the Photographische Rundschau recommends the following process: (Nat: Drugg.)

Make a thin, gruel-like preparation of rice starch, and color it with any desired

has been dried and in such cases the majority of amateurs have no end of trouble from spots and stains. The causes are not far to seek and the remedies only require a little care. The two principal sources of trouble are the presence of hypo in the film, owing to insufficient washing, and the presence of grease on the film caused by finger marks. The grease can easily be removed by soaking the negative in a strong alkali, such as a solution of carbonate of soda or carbonate of potash, or in a solution of caustic alkali. The hypo can then be removed by a thorough washing. Sometimes plates are not thoroughly fixed, so it is usually best to put the negative in a fresh

hypo bath for five or ten minutes before washing. If all grease is removed from the film by an alkali bath, the negative thoroughly fixed by immersing in a fresh hypo bath and the hypo entirely removed from the film by thorough washing—if these three conditions are fulfilled, troubles need never be experienced in intensifying or reducing negatives that have been dried, provided, of course, that ordinary care is exercised in choosing the intensifying or reducing method. One great trouble with most photographers is that in their anxiety to see results the various operations are very much slighted. This haste causes any amount of trouble in intensification and reduction.

James Thompson gives the following sensitizer for the kallitype process:

Silver nitrate	30 grains
Ferric oxalate.....	75 grains
Iron citrate and ammonia..	10 grains
Copper chloride	9 grains
Distilled water	1 ounce

Dissolve the ferric oxalate in the ounce of warm water and allow the solution to stand for ten or twelve hours. The remaining ingredients are then added in the order given and when dissolved the solution is carefully filtered. Any good photographic paper is sensitized by coating with this solution, and when dry the printing is carried until the detail in the shadows is well defined. Unlike the regular kallitype process, the image is of a salmon color. The developer is made as follows:

SOLUTION I.

Water.....	10 ounces
Rochelle salts.....	250 grains

SOLUTION II.

Water.....	10 ounces
Borax	1 ounce

By mixing these solutions in various portions different colors are attained. The greater the amount of solution II, the darker the tone. A clearing solution must be added to the developer and it is composed of:

Water.....	1 ounce
Potassium bichromate.....	4 grains

From ten to twenty drops of this solution are added to each ounce of developer,

or enough is used to insure clear whites. Development requires from fifteen minutes to half an hour. After development the prints are washed and then cleared for ten minutes in a bath of:

Water.....	16 ounces
Ammonia (strong).....	1 dram

After leaving this bath the prints are washed and dried in the usual manner. This modification of the kallitype process is supposed to overcome the tendency of the regular method to give bronzed shadows when prints are made from contrasting negatives.

Most black Japan varnishes have asphalt as a basis. The great fault of asphalt for many purposes is its non-hardening properties, and varnishes made from it are always apt to be sticky, especially in warm weather. The following is an excellent varnish which does not contain asphalt and gives a hard surface:

Raw linseed oil.....	2 quarts
Litharge	8 ounces
Red lead	4 ounces
Black oxide of manganese.....	4 ounces
Shellac	4 drams

Boil the linseed for two hours at a high temperature, then add slowly the litharge and red lead, then the shellac and finally the manganese. The heat should be continued for several hours. When cool the varnish is thinned with turpentine. This is excellent for coating dark-room shelves, wornout papier mache trays and for various other similar purposes.

PASTING PHOTOGRAPHS WITH TRANSPARENT GLUE

Transparent glue for pasting photographs on glass or glass paper-weights so that the photographs will show clearly through the glass:

1. Gelatin, white.....	5 av. oz.
Acetic acid.....	5 fl. oz.
Water.....	Sufficient

Macerate the gelatin, which should be of the best quality, white and perfectly transparent, in 6 fluid ounces of water for 12 hours; heat the mixture on a water-bath until the gelatin is dissolved; add it to the acetic acid, and then enough water to make 16 fluid ounces.

2. Gelatin, white..... 4 av. oz.
 Sugar, white..... 2 av. oz.
 Water..... Sufficient

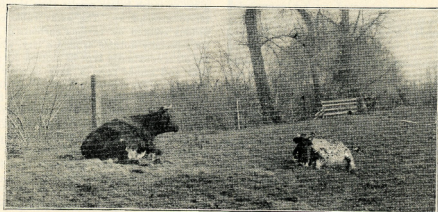
Macerate the gelatin with 10 fluid ounces of water over night; heat the mixture until the gelatin is dissolved; add the sugar; strain through a muslin strainer, and add enough water to make 16 fluid ounces.—Druggist.

PICTURE HANGING

The first essential is a suitable background for the frames, and preferably one which is self-colored; that is, without pattern. It should be in harmony with the rest of the room, and sufficiently subdued to make the pictures stand out well. It is

ally sprinkle a generous allowance of emulsion on the glass side of their plates which, if allowed to remain, will cast a shadow upon the photograph during the printing process. The gelatin comes off more easily if the back of the negative is wiped with a rag immediately after removal from the hypo bath, whereas if it is allowed to harden it may require the more vigorous applications of dilute acids or alkalis.

In the same way marks on the window-pane may cast a shadow on to the photograph in strong sunlight, so that these should also be looked for. It is better, of course, to place the frame upon the sill, where it will lie face upward and print more quickly. Here, again, a precaution is



W. E. CODSWELL

RESTING

a good plan to hang pictures with the nail immediately behind the frame, so that no cord shows. The positions which the frames occupy upon the wall afford scope for taste. Symmetry is to be avoided without sacrificing unity of purpose. Every work should hang "on the line"; that is to say, with its horizon line on a level with the eye of the spectator, and rarely more than two rows are to be admitted, and this only in the case of small pictures. Mr. Ruskin regards the model gallery as consisting of one line only, and wide intervals between each frame.

PRINTING BY DAYLIGHT

It is very important to see that the back of a negative is quite clean before putting up to print, for plate manufacturers gener-

nally works round the sun, shadows are cast from the window-frame or surrounding brickwork, and often the photographer returns to his frames to find his pictures divided in two by a strong line of demarcation of sun and shade.

Where, for any reason, the printing must be done indoors, a good dodge to insure the frames from falling, and at the same time to keep their direction upward to the sky, is to insert a wedge (such as a flat ruler) between the lower window-sash and the frame, the printing-frames resting on the sash, and being supported behind by the wedge. Another way, and one which also preserves the precious negatives from the inquisitive, is to open the window some six

inches and place the frames in the space between the sashes. In this recess they are quite safe, and cannot be blown down by gales nor dislodged by the slamming of doors.

* * *

Modern art has been having a rather severe struggle for existence in Germany lately. Some of the extremists have called down the wrath of Emperor William upon their heads, and the whole body of painters whose ideals are realized more nearly in modern methods of expression have suffered in consequence. More difficulties are anticipated in connection with the German exhibits at the World's Fair to be held in St. Louis next year. A few months ago Dr. Lewald, the German commissioner for the exhibition, appointed an art commission consisting of leading modern artists. The painters of the old school were furious, and appealed to the Government. Count von Buelow has now given orders for the dismissal of Dr. Lewald's commission, and has insisted on the appointment of one representative of artists of the older school. The modern painters say that the Chancellor's action is merely a link in the chain of wholesale reactionary steps recently inaugurated by the Government. The matter will not end there, and it is possible that the German art section will suffer in consequence.—Amateur Photographer.

A New Telephoto Lens.

Telephot is the name which August Vautier-Dufour has given to his latest invention, a new type of camera, in which a long focus, single lens is used instead of a telephoto lens, for photographing distant objects. Those who have used the telephoto lens to any extent know the difficulties encountered in the practical application of this construction. The camera and tripod must be sufficiently rigid to prevent vibrations, which are strikingly apparent owing to the high magnification. Thus the apparatus must be heavy and bulky, characteristics the average amateur will not tolerate. It should not be understood that the vibrations are any more noticeable in the telephoto lens than they are in a regular lens which is of sufficiently long focus to produce the same sized image, but the tube of the telephoto lens projects so far beyond

the camera front that the weight of the lens with such a strong leverage is almost certain to cause the camera front to vibrate, unless it is very strongly built or well braced. Beside, the telephoto lens is so slow, as compared with the regular lens, that the exposure is necessarily long, thus affording abundant opportunity for the camera to be shaken by the wind. This long exposure of the telephoto lens is responsible for another difficulty, which is rarely taken into consideration—the various currents of air which cause so much trouble in making distant photographs, cause greater confusion of the light rays in a long exposure than they do in a short exposure. This is one of the principal reasons why the long focus, regular lens generally gives so much better results than the telephoto attachment. The unfavorable conditions created by various currents of air are especially notable around a city, where the air is constantly kept in motion by the heat and smoke from a vast number of chimneys. The following instance will illustrate: An amateur photographer who had become quite proficient in the use of the telephoto lens made a view of the Brooklyn Bridge from the Statue of Liberty. Upon development the negatives proved to be exceptionally fine, and they were exhibited with considerable pride. Shortly after this the same photographer took a friend to the Statue of Liberty, to demonstrate how easily telephoto pictures could be made. The friend had been having trouble with his telephoto work. Several dozen plates were exposed, and among the views were several of the bridge. Upon development not a single plate out of the several dozen made even a passable negative. After that several attempts were made to get another good negative of the bridge, but without success. This simply shows how far success with a telephoto lens depends upon atmospheric conditions.

Again, the telephoto lens must be very accurately focused, a difficult matter owing to the poor illumination. On the other hand, the telephoto lens has advantages over the regular long focus lens in that it costs less and requires much less bellows—approximately about one-third as much as the long focus lens. Those to whom telephoto work is important a little difference

in cost will not appeal very strongly, as compared to good results, so the advantage of the telephoto need not be considered. The matter of bellows, however, is of great importance. For instance, a telephoto lens could be used on a camera with a bellows of 25 inches very easily, for many of the 5 x 7 cameras on the market have a greater focal capacity than that; but to use a regular lens with a focus of 75 inches would be quite another matter. Such a camera would be very bulky and most decidedly heavy.

Mr. Vautier-Dufour's subject on constructing the telephot is to enable the photographer to make his distant views with a regular lens and at the same time to do away with the extreme amount of bellows usually required. This result is accomplished by a two-story camera. The light passing through the lens is reflected along a zig-zag path by two plain mirrors and is received by the plate placed at the back of the top story. The top story of the camera is made to fold down on the lower section, so the size of the instrument is kept within reasonable bounds. Since any good lens can be used a large field is covered. By removing the ground glass and substituting an eyepiece the telephot may be used as a telescope. On account of the great illumination the telephot is easily focused and easily manipulated. By combining the telephot with the graphlex, or reflex type of cameras, an excellent instrument may be obtained for making instantaneous pictures of birds and animals. The idea is one which might be profitably developed.

Intensification with Hypo and Alum.

A method of intensification for negatives for which a great increase in density and other advantages are claimed is one which has recently been described in the *Photo Revue*. Like so many others, it is based upon bleaching with mercuric chloride. A process in which this bleaching was followed by the application of a blackening bath containing lead hyposulphite was described recently by Valenta. This gives a greatly increased density, but the bath prepared by the double decomposition of sodium thiosulphate and lead acetate is of somewhat uncertain durability. Lead sulphate is apt to separate out. It appears

that various other metallic salts may be advantageously substituted for those of lead, aluminum being the metal which seems likely to be most useful for the purpose. The bath is made by dissolving an ounce of alum in thirty-two ounces of water and then adding six drachms of hypo crystals. This is used after a mercuric bleaching instead of ammonia or sodium sulphite, and it can be employed over and over again. The intensified negative is liable to have a brown color when redeveloped with metallic hyposulphites, whilst ammonia, of course, gives a very black image.

Query Department

This department is open for the purpose of answering questions for our readers and for giving advice as far as it is within our power. We would request that correspondents be explicit in writing us.

Questions received by the 15th of the month will be answered in the next number. Write questions on separate paper.

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PHOTO PASTE.

L. L. G., Memphis, asks for a good photo paste that will keep.

Ans.—Grind 1 oz. of starch with a little cold water and dilute to 10 oz. or so. Boil until the mixture jellifies and for a few minutes longer. Then, while quite hot, add glycerine $\frac{1}{2}$ oz., a few drops of oil of cloves and place aside to cool. When nearly cold, slowly stir in $\frac{1}{2}$ oz. wood alcohol and mix thoroughly.

BACKING FORMULA.

"Ry," New York, wishes to know if a reliable backing compound can be made from burnt sienna, gum arabic and glycerine, and if so, the proportions.

Ans.—Yes. Powdered burnt sienna, 1 oz.; powdered gum arabic, 1 oz.; glycerine, 2 oz. and water 5 oz.

BLUE PRINT SENSITIZER.

L. L. G., Memphis, wants a formula for making blueprint solution for cloth and paper.

Ans.—For paper, (a) ammonio-citrate of iron, 120 grs.; water, 1 oz.; (b) potassium ferricyanide, 120 grs.; water, 1 oz. Mix equal parts of (a) and (b) before use. For cloth use 160 grains of ammonio-citrate of iron instead of 120 grains. The balance of the formula is the same. Mix equal parts and apply to fabric quickly with flat hog's hair brush. Dry before fire.

STOPS.

G. W. Z., New York, sends in the following queries: When the stop on a camera is made smaller, does the picture also become smaller? In other words, if I should use a 32 stop instead of a 16 stop, would my picture be smaller in consequence? Has the shutter or diaphragm anything to do with the size of a picture?

Ans.—No; to all three questions. Shutters and diaphragms have nothing to do with the size of a picture. What do you mean by "size?" The dimensions of the plate used represent the total picture area; the size of any particular object within the picture area varies with the focal length of the lens and the distance between camera and object. Maybe you have in mind the fact that most modern anastigmats when stopped down, cover a larger plate, thus acting as a wide angle.

* FRILLING.

F. E. P., Leavenworth, cannot account for the film washing off the plate when it is placed in the hypo and asks the cause.

Ans.—Frilling may be due to many causes, notably prolonged development, a too warm developer, a too strong fixing bath, an excess of alkali or transferring the plate from a warm developing solution to a cold hypo bath. The fixing bath should be cool but not "ice cold" as you say you use it. Not only will a very cold hypo

solution work slowly, but, as stated above, sudden changes of temperature are likely responsible for the very trouble of which you complain.

DEVELOPER.

J. R. S., writes: (a) I am using Rodinal on Stanley plates and although it gives satisfactory results in portraits, in the same strength solution (1:30) landscape and out-of-door pictures invariably develop up flat. Can you suggest a remedy? (b) Is Pyro preferable to Rodinal?

Ans.—(a) Use a more concentrated solution, say 1:20. If this works too fast, add bromide instead of diluting. Maybe you are overexposing!

It has been called to my attention that a statement made by me on page 399 of the December issue might be misconstrued. Speaking of nitric acid, I said that "by its union with muriatic acid, it forms gold chloride and silver nitrate."

Although I can hardly understand that amateurs of the intelligence of those who read the CAMERA AND DARK ROOM would gather from my remark that gold chloride is formed by combining the two acids, I hasten to explain that the result of such a combination would only be aqua regia, which is made by mixing one part of nitric acid with two parts of muriatic acid and three parts of water. Aqua regia being the only solvent of gold the chloride is formed by dissolving the gold in the nitro-muriatic acid solution.

Silver nitrate is a compound of silver and nitric acid, the former being dissolved in the latter containing two parts of water. The mixture is evaporated by heat to one-half and set aside to cool and crystallize. Chloride of silver is formed by the union of muriatic acid and nitrate of silver.

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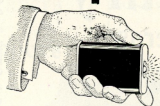
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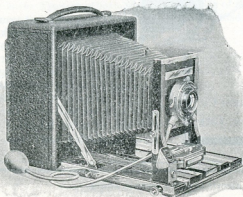
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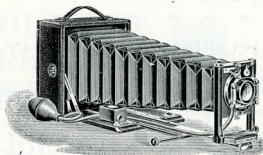
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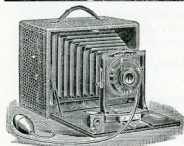


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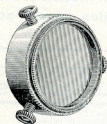
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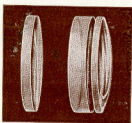
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