

ABEL'S PHOTOGRAPHIC WEEKLY

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SATURDAY, MARCH 22, 1913

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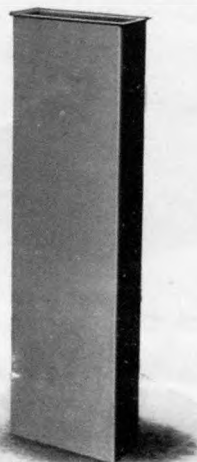
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JUAN C. ABEL, Editor

— CHAS L. ABEL, Associate Editor

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A. A. E. Abel, Publisher and Proprietor

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In Passing By

I ALWAYS had a special and particular desire to see how they conducted a school of photography, so I have just been spending a week down in McMinnville with Daddy Lively. It was mighty interesting, too, to study the different types of would-be photographers in training there. One thing I noticed. The women students seemed to take a much greater interest in what was going on and in asking questions of the different demonstrators and lecturers than the men. The women seemed more sincere in their desire to learn. The boys, or rather young men, and some older ones, too, took everything as a matter of course. They lacked the right enthusiasm, without which it is hard to get very far in any particular line of endeavor. Of course there were one or two exceptions and for those I prophesy some measure of success beyond the mere earning of a scarce sufficient salary.

Daddy Lively certainly knows how to get and keep the interest of his pupils and they all swear by him.



Q UITE a lot of interest is being aroused in the plans of the National Association. So far no particulars have been given out beyond the fact that the main feature will be a studio built into the Convention Hall and in full operation. This is, of course, a big project, enough almost to scare any man, but our president is not easily daunted and I understand he is making plans to give us all a real treat at Kansas City. The details he is keeping dark, but I hope soon to be able to give them to my readers so that they will know what to expect at the July Convention. One thing I can say now. The studio will be a complete one, although much expanded in certain details so as to allow of plenty of view room for the visitors. It will be in charge of capable men and will be more in the nature of a school than a working studio.



A SOMEWHAT unusual convention will be held in Rochester, N. Y., next week. For the first time in the memory of most men in the business the dealers will get together and hold a convention, the purpose of which will be the viewing of new goods shown by manufacturers, the discussion of trade conditions, and suggestions for the uplift of the business. There is plenty of room and to spare

for dealers to get together for their own improvement, but the dealer is worse in his jealousies than the average photographer, and harder still to whip into line when it comes to a matter of upholding prices. If the dealers in this convention can formulate some rules which they will adhere to rigidly in the matter of forbidding price-cutting, forbidding substitution, adhering to established prices, restricting credits, and refusing business which is rightfully the photographer's, then the dealers' convention will have some real reason for existence. As it is, I cannot see that the present dealers' association has much to offer its members. But time will show.

SERMONS IN BRIEF No. 78

Special to Abel's Photographic Weekly

THE COST OF SHIRKING

By Chas. Grant Miller.

A BOOKKEEPER who complained that he was not advanced as he deserved to be had it pointed out to him that his handwriting was bad. Practice in handwriting was repugnant to him, and he remained in the minor position.

Many a man who has done much good work has fallen short of satisfactory success because some disagreeable thing lay in his way which he would not overcome.

Somehow or other it seems that the hard things are the important things. Maybe their importance makes them hard. Maybe the fact that they are hard makes them important. Life is not attainment so much as development. We can be no bigger than the things we do not overcome.

The road to success is a rough one. Flowers bloom at the wayside, it is true, but he who would get on must roll the stones out of his way first and then lie among the flowers afterward.

Lots of us lie among the flowers first, thinking that when we weary of that we will go to rolling stones. But the longer we lie the more distasteful the stone-rolling becomes.

He who defers an unpleasant duty does it twice. Anticipation of it may become a continual torture. It is wise to be done with it in the first place, and then contemplation of it becomes a pleasure.

The shirking of responsibility, the dread of failure, lead many a man to keep doing only the things which he likes and thoroughly understands.

If he is satisfied with moderate success, all right. But he must not expect anything more of such methods.

Some New Corporations

The estate of the late A. J. Rice, the well-known photographer of Montreal, Que., Can., is being incorporated with an authorized capital of \$50,000 under the name of Rice Studio, Ltd.

Bulkeley Studio, Inc., Manhattan, general photographic business; capital, \$5,000. Incorporators, David J. Gue, 2 E. 23rd st.; Florence C. McLaughlin, 518 W. 135th St., both of New York City; George S. Fulton, 155 Lockwood Ave., New Rochelle.

National Camera Company, St. Louis;

capital, \$20,000. Incorporators—James R. Bettis, C. J. Shea and C. R. Dudley.

Fires!

Union City, Tenn, March 1.—\$500 damage done to studio of C. E. Onebaugh. Insurance \$300.

Elk Point, S. Dak., March 2.—Bullis photograph studio entirely destroyed. Insurance not stated.

Whitefield, N. H., March 7.—O'Donnell's gallery damaged by smoke and water. Loss and insurance not stated.

"ECHOES"

Waterproofing Paper Before Coloring With Oils—Possible Effects—Methods—Criticisms

By G. Hanmer Croughton.

I MUST confess to a very bad habit of neglecting to give definite formulae when mentioning solutions or mixtures that were well known to a former generation of photographers. Case in point is the formula for the production of an aqueous solution of shellac.

In the early 70's when the carbon process was first brought to the attention of professional photographers in London by the Autotype Co., the solution was used to waterproof the paper for the temporary support in the double transfer. While using it for that purpose I found it very valuable for many other purposes and have frequently published the formula since. However, as I have received many requests since mentioning it in *Abel's Weekly*, I publish it once more:

Bleached shellac 400 grs.
Borax (dry powdered) 200 grs.
Water 10 ozs.

The bleached shellac comes in lumps, looking something like molasses candy; it must be powdered fine and washed in several changes of water, then drained. The borax, having been dissolved in the water and the shellac added, the whole must be put into an ENAMELLED saucepan and boiled for two hours. If all the shellac is not taken up keep it on the boil until it is, but usually two hours is enough. There will remain a gummy substance at the bottom, but that can be left there; it is of no consequence. The clear part must be decanted and when cool can be filtered. For the purpose I mentioned, viz., waterproofing the print to prevent the oil in water staining the paper, soak the unmounted print for five minutes till it is thoroughly saturated. If the print is mounted the solution can be swabbed on with a swab of cotton or a soft, flat brush. In that case it will be best to give a second coat after the first is dry.

I published some years ago a method of using this solution as a medium for holding the chloride in preparing plain paper for the production of certain novelties in finished work. The occasion was the exhibition of some prints in the show case of a prominent firm of photographers in New York City, and inquiries came to me as to what kind of pictures they were, and I concluded that it was simply a revival of the very first printing process—plain unaluminized paper; but the color (a red chalk) was due to the chloride used and the fact that the prints were FIXED WITHOUT TONING, but they were a novelty, and were a great success for the time.

I prepared for exhibition a number of prints upon different tinted papers by mix-

ing with the aqueous solution of shellac different chlorides and floating the paper upon that for from three to five minutes. I used the chloride of sodium (common salt) for the red chalk and chlorides of ammonium, lithium and palladium.

A very pleasing and novel effect can be obtained in red on a white paper and finished with the red *Cratea Levis*, or wax crayon, mentioned in my last *Echoes*, depending, of course, upon the skill of the one who does the finishing. These same wax crayons in the hands of a skillful colorist can produce transparent colored work that has a quality of its own, something between water color and pastel.

When a photographer prepares his own paper he has a large choice. There is a charming effect to be obtained upon a greenish gray French crayon paper, either in black and white or color, finishing for black and white with hard carbon pencils and touching on high-lights upon drapery and with *Semple's* white water color, and with the wax crayons a tint upon face with the flesh colors. Any colorist can see how the green gray tint of the paper will lend itself in the shadows to the effect.

Then again, there is a tint of the French crayon paper that is light orange, almost a flesh tint, that with a very little work with carbon pencil (simply like retouching), and the use of *Semple's* white for high-lights will produce an effect of finish greatly in excess of the actual work.

Now all these things are good for attracting attention to your exhibit if for nothing else, and as I have stated before, there really appears to be a revival of the interest on the part of the public in smaller finished work to replace the large crayon and pastel work that has been degraded to such an extent that even really good work of this kind has been relegated to the attic. I know of one crayon made by a New York artist whose work fetches two thousand dollars and upward, one of the finest crayon portraits I have ever seen, costing at the time it was made two hundred and fifty dollars, that has been banished simply for the expressed reason that crayon portraits had become so common.

So now I think is the time for those photographers who have some skill with the brush to introduce to their patrons something that they can claim as their own.

For the paper I use *Whatman's* hot pressed and water color paper with a fine grain. The coarser papers are not so good. The French crayon papers can be obtained of any art store or of *DeVoe*, New York, but any art store will get them for you.

For the red chalk add to EACH ounce of the aqueous solution of shellac 16 grains of common table salt. Either float Whatman's paper upon this or brush it over the paper laid flat upon a piece of glass or other flat surface. When dry float upon a solution of nitrate of silver 60 grains to the ounce of water. When dry print under the negative VERY DEEPLY, and then, WITHOUT TONING, fix in strong hyposulphite of soda from 4 ounces to 6 ounces to 20 of water. This paper will not keep in good condition for more than two days, but by adding 6 grains of citric acid to each ounce of the solution besides the 16 grains of salt the paper will keep for a week or more.

Mr. M. L. Masure, of Chicago, has a capital child picture in the left top corner of this week's supplement. The expression and action of the child hugging the doll is particularly happy. The flesh tones are well

kept and the lines are good; altogether a most successful picture.

The edge-lighted portrait by W. J. Bell, Sault Ste. Marie, Mich., is more edge-lighted than we usually see, but the shadow is luminous and round. The left arm would have been less of an angle if the hand had been dropped a little lower.

Mr. Louis Heyn, of Great Falls, Mont., has a cute group of two children, well posed and lighted. I like the little touch of shadow upon the background; it gives atmosphere and distance.

H. C. Wagner, Marietta, Ohio, has a good portrait in a high key. The lines formed by the two arms are too distinct a repetition. The background is flat and is wanting something to cut up the space in front of the figure. The flesh tones and drapery are good.

A Make-shift Enlarging Easel

ONE of the commonest methods of fixing up the bromide paper for enlarging purposes is perhaps the simple pinning of the paper to a board or easel, but while this method has the advantages of simplicity and cheapness, it is certainly not very satisfactory as regards the sharpness of the results. It is, in fact, extremely difficult by any method involving pinning or clipping to make the paper lie flat, even with small sizes, while with large sizes the feat is almost impossible. The paper buckles to a greater or lesser extent, and as it, therefore, does not all lie in the focal plane, the sharpness of the image is not uniform. To obviate this difficulty several excellent enlarging easels have been devised, in which the flatness of the paper is secured by the pressure of a sheet of good plate-glass, the paper being secured between the glass and a back-board in much the same way as the paper is inserted between the negative and the back of a printing frame. Indeed, large printing frames are sometimes used for the purpose, but they are clumsy expedients and do not in any way facilitate the adjustment of the paper in exactly the right place. The proper easels are designed to permit this necessary adjustment with readiness, but this very fact causes them to be more complex, and consequently more expensive. Recently we have attempted to contrive something of the home-made variety that would fulfill the required conditions, and the result being successful beyond our anticipations, a description of it may be useful. The original easel was a plain drawing-board, nailed to the wall, and the problem was to devise some method of securing the bromide paper under glass with, at the same time, ample facilities for adjustment. Our expedient was as follows:—Two wood battens were fixed horizontally at the top and bottom of the board, each

batten being grooved on the inside, so that glass could be slid through and held in the grooves. The grooves were just wide enough to hold two sheets of glass tightly, and two pieces of glass of suitable size were carefully selected. These two sheets were hinged together at one vertical edge with strong passe-partout binding, the idea being that the two together could be removed from the grooves, opening out like a book, and then the paper either for focussing or exposure could be inserted between them and the whole replaced. In practice, however, it was found that the whole arrangement could be worked much more simply. The glasses, being hinged vertically, when drawn three parts out of the grooves could be separated to an extent quite sufficient to permit the focussing paper being withdrawn and the bromide paper inserted. Further, in this process of insertion, which, of course, was carried out with a yellow cap over the lens of the enlarging lantern, the paper could be adjusted quite easily to the right height, while the horizontal adjustment was, of course, secured with equal readiness by simply sliding the glasses horizontally. Though the glasses could be separated sufficiently when three-parts out of the grooves to permit the insertion of the paper, they gripped it firmly when pushed back, and so there was never any fear of the paper slipping down during exposure.

The arrangement as described worked quite well, but of course it admitted of modification. For example, instead of two sheets of glass we could have used one sheet, hinged to a flat drawing-board covered with white paper. Blotting paper would serve well, and if thick and soft, would act both as a focussing screen and as a pad to press the bromide paper into close contact with the front glass. The grooves



Little Miss Nelson,

By

R. C. Nelson,

Hastings,

Neb.

Courtesy of

"Missouri

Valley

Photographer."

in which the board and glass both run could also be fitted with springs, which would insure quite uniform pressure. In a modification which we contemplate the hinged glass will cover only one-half the board, so that this portion can be drawn quite clear of the grooves and opened out widely for cleaning purposes without drawing the board quite out. The whole board will be covered with white paper so that the height of the projected image will be distinctly visible while the paper is being inserted, and this will facilitate the quite perfect adjustment of the paper at the right level. Still, the arrangement as first described works so well that we can recommend it, and it is obviously cheap, nothing beyond two pieces of glass and a couple of grooved wood battens being required. It is desirable to use fairly thick battens, so that the glasses may be an inch or so from the board or wall to which the battens are fixed. This allows room to grip the glass, and renders their adjustment far more easy.

To-day

SURE, this world is full of trouble—
 I ain't said it aint.
 Lord! I've had enough, an' double,
 Reason for complaint.
 Rain an' storm have come to fret me,
 Skies were often gray;
 Thorns an' brambles have beset me
 On the road—but, say!
 Ain't it fine today!

It's today that I am livin'.
 Not a month ago,
 Havin', losin', takin', givin',
 As time wills it so.
 Yesterday a cloud of sorrow
 Fell across the way;
 It may rain again tomorrow,
 It may rain—but, say,
 Ain't it fine today!
 —Douglas Malloch, in *American Lumber-*
man.

Just Personal

I expected to get a good rest when I went down to McMinnville, and I certainly did. With my usual luck, I spent most of the time in bed, but I was able to get around enough to see what Daddy Lively is driving at in his school, and, believe me, his school deserves all the good words one hears about it.

* * *

I was not the only visitor there during the week. Joe Dorella, who insists that he does not know how to make pictures, but only how to sell plates—Cramer plates at that—no other brand will do; Cliff Reckling, who does the same thing for the Hammer plate; John Corbitt, with his wife—quite a new wife, too—who did some demonstrating of Cyko paper; and Cady, of the Eastman forces, were all on hand, and together we gave the pupils at the school a whole lot of useful and ornamental information.

Do you happen to know Joe Lively? He'd rather fish than teach, rather be out in the open than in the studio, but he sure does know how to teach lighting and retouching. Daddy claims that Joe is the best retoucher he knows quite aside from the fact that he is his father. Whether he is or not, Joe is a good, likeable fellow, all right, and will make his mark as a photographer when he gets out into the wide, wide world.

* * *

From McMinnville to Harrisburg, Pa., is some jump, but that is my lot. The Pennsy boys are meeting there, and for a change they are going to have the manufacturers with them. The manufacturers will be in a separate hall, but all under one roof and under one management. Probably this will bring in more photographers than have attended the Pennsylvania conventions of late years. Hope so, anyhow.

* * *

I have been able to make arrangements with one of the best posted men in the commercial field to write me a series of articles covering every phase of commercial photography. The name I will announce just as soon as I know when the articles will begin. This I hope will be in a couple of weeks. Every photographer should be able to take commercial pictures when called upon, and yet but very few are prepared to do so, or know anything about the work. This series will, I believe, be one of the best things that have ever appeared in Abel's.

REDUCING NEGATIVES

THE reduction of a negative may become necessary for any one of several reasons. It may be over-developed and require proportional reduction all over; or it may be too flat and require reduction in the shadows so that they may print darker; or it may be too steep in contrast and require reduction in the highlights; or, finally, it may simply be veiled or fogged and require clearing.

SUIT THE REDUCER TO THE NEGATIVE.

Each of these purposes requires a little different treatment, hence there are several methods of reduction in common use. Many are, however, afraid to attempt such work for fear of failure, the commonest form of which is perhaps uneven action; but there is no real need to fear any such effect if one general precaution is taken. The negative must be thoroughly well saturated with water before any attempt is made to reduce it with the aid of any solvent solution, and if a complete soaking is given there is no reason for anticipating failure at all, provided, of course, that the process of reduction is not carried too far.

CLEAN—AND THEN SOAK THE NEGATIVE.

The first operation is, therefore, soaking the negative, and if there is any suspicion of grease on the film, this grease should be cleaned off with a little ether or alcohol before the soaking begins. It is a good plan always to soak for half an hour, for though a less time may be sufficient with some negatives, it will not be so with all, and it is essential to be on the safe side.

FARMER'S REDUCER FOR FLAT AND "LINE" NEGATIVES.

The most generally useful of all reducers is Farmer's, which, as every photographer knows, consists of a hypo solution to which a little potassium ferricyanide has been added. The hypo solution must be fresh; that is to say, we must not take a portion of a fixing bath that has been used for fixing unless we want to risk stains; but we may quite well keep the hypo in a stock bottle. About 10 per cent strength (2 ozs. per pint) is most useful for reduction, a stronger solution being inadvisable. Further, the solution must be one of plain hypo, and not a stock acid fixing bath. Acids

should be kept out of the reducer because they decompose the ferricyanide, but a little alkali will do no harm, and the addition of a few drops of ammonia is sometimes recommended, though the effect in my experience is not at all appreciable. The ferricyanide is best kept in a stock solution, and if this solution is of 20 per cent strength (4 ozs. to the pint), and made with distilled water, it will keep indefinitely and always be ready for use. Weaker solutions will not keep, and it is useless to make them up.

HOW TO PREPARE FARMER'S REDUCER.

A great deal has been written upon the right proportions of hypo and ferricyanide, but in practice it is unnecessary to worry about them. It is quite sufficient to judge the solution by its color. Adding drops of the ferricyanide to the hypo until a faint straw color is reached gives what we may call a weak reducer. One or two drops to the ounce will be enough for this, and double the quantity will give a strong reducer of a bright yellow color. If too much is added we can dilute with water.

The peculiarity of Farmer's reducer is that it reduces the shadows to a greater relative extent than the high-lights, and is therefore eminently well suited to over-exposed negatives, or to clearing away fog on a line negative where we want clear glass to show. With ordinary negatives for general reduction purposes it is always best to use a weak solution that acts slowly, this being applied in a dish; but when clearing off fog or "cutting" the lines on a process negative we want a strong solution that acts quickly, the process being best carried out by applying the reducer to the lines with a pad of cotton wool, then immediately plunging the negative into a stream of water from a tap. This process is repeated until the lines are clear glass; but while it is a fairly safe and easy process with a line negative, it is somewhat risky with an ordinary negative. When the shadows require extra reduction, or when there is over-much fog to contend with, it is a useful method to employ, but great care is wanted. On the other hand, the slow method with a weak solution in a dish is quite safe, and only requires watching so that the process may be stopped when it has gone far enough. The dish should be kept rocking all the time, and the best stop that can be used is plain water, and plenty of it.

The high-lights are, of course, reduced at the same time as the shadows, though not at the same rate, hence if much action is required in the shadows the high-lights may eventually be too weak. In this case intensification must be the next process, but this is not likely to be wanted unless the negative was a very flat one in the first instance. If the trouble is mainly fog, this will quickly be removed if it is due to undue exposure to the "safe light," or if due to slight over-

exposure. If, however, its cause is excessive over-exposure, or if it is bad chemical fog formed by a wrongly composed developer or a "fogged" emulsion, the remedy will fail, for such fog is too deep-seated in the film to be dissolved out except at the expense of the details. Moderate over-exposure, or over-development, or slight light-fog will, however, very quickly be remedied by the use of a weak Farmer's solution.

REDUCE WITH ALL OR NO FIXER IN THE FILM.

A warning is necessary with regard to freshly fixed negatives. These should either be put straight into the reducer from the fixing bath, or else very thoroughly washed before reduction. Any intermediate course is fatal, for if the hypo is imperfectly washed out uneven action will result. The first method is often convenient, but if the fixer is not quite fresh and clean stains may result. It is safest to put the negative through a quite fresh, plain fixing bath before applying the reducer.

PERSULPHATE OR RE-DEVELOPMENT FOR HARD NEGATIVES.

Very hard negatives in which the high-lights are blocked up by over-development require altogether different treatment. In this case we want a reducer that will have a proportionately greater effect on the high-lights than on the shadows. While a number of such reducers have been suggested, practically the only one in general use is ammonium persulphate. The best strength to use is from ten to twenty grains to the ounce, and a drop of sulphuric acid assists the action. The plate must be thoroughly well soaked before reduction, and when the solution is poured on the dish must be kept rocking and the action closely watched. It sometimes hangs fire for a few minutes, but the beginning is indicated by the appearance of a white, cloudy effect rising like little whorls of smoke from the negative. When this is noted close attention must be given to the plate, for the action often increases very rapidly. When it has gone far enough the plate must be taken out and put in a 5 per cent sodium sulphite solution to stop the action and clear the film. Sometimes hypo solution is used, but this must either be an acid fixing bath or else a solution of hypo and sulphite, otherwise the acid will decompose the hypo, and stains will appear on the negative. Much has been said with regard to the risk of the persulphate reducer, but with due care it acts very well indeed, and no fear for the safety of the negative need be felt. It can, however, produce fatal effects in the hands of a careless worker.

THE RE-DEVELOPMENT METHOD.

A most valuable and perfectly safe method of reducing excessively hard negatives is one dependent on re-development. Bleach



By
Gilbert
&
Bacon,
Philadelphia,
Pa.

the negative first in a solution of ferricyanide and potassium bromide, using the same bath as is commonly employed for sulphide toning. After a thorough wash re-develop in a developer containing 2 per cent of rodinal and 1 per cent of potassium bromide—that is, one containing 1 dram of rodinal and 5 drams of 10 per cent bromide solution in 6 ounces of water. Development will be very slow, but the plate may be left to itself for half an hour or so, as the action cannot go too far. When development is sufficient the plate is fixed, washed and dried.

LOCAL REDUCTION.

Local reduction in a negative can be carried out by rubbing with cotton wool or

wash-leather and a little alcohol. This method is, however, only adapted to moderately large patches, and smaller ones are best dealt with by applying Farmer's reducer with a brush. For this purpose a concentrated hypo solution is wanted, and a drop or two of this with a drop of weak ferricyanide solution should be added to glycerine. This forms a thick fluid, which can readily be applied with a small brush, where required on the dry negative. When sufficient reduction is effected the plate should be held under a powerful stream of water from the tap, so that the solution may be dashed off the plate rapidly before it has time to spread.

Fixing Baths for Plates and Prints

HYPOSULPHITE of soda, or hypo, as it is universally termed, is practically the only substance used as a fixing agent. Other substances, such as sulphocyanide, which likewise dissolve silver bromide, have been recommended but very little used, though potassium cyanide continues in use as the fixing agent in the wet-collodion process because of its greater dissolving power on silver iodide; also because the impurities in the commercial cyanide exert a certain "cutting" or clearing action and contribute to the brilliancy and clearness of the lines in wet-collodion negatives.

Hypo, if of reasonable purity, keeps for an unlimited time in the dry state without special precautions as to corking or bottling; those who use it in large quantities

and buy it in hundredweight casks have no need to fear that its properties become impaired during the time it remains on hand.

DISSOLVING HYPO.

Though hypo is very soluble in cold water, it is best never to use cold water for dissolving it. The reason is that, by dissolving, it greatly chills the water; the process of solution then goes on much more slowly, and the fixing bath when made needs to be warmed or to be left to come to the temperature of the dark room, otherwise it fixes very slowly and is apt to give rise to blisters in prints as a result of the inequality of temperature between it and the developer and the wash-water which follows it.

There is no harm in using even boiling

water in dissolving hypo itself, but water about as hot as the hand can bear is hot enough. This use of hot water applies to the hypo itself, but not to chemicals such as metabisulphite, with which the hypo may be combined in preparing an "acid" fixing bath. Such chemicals should be dissolved only at a tepid heat.

In making up fixing bath in quantity—in gallons—it is best to suspend the hypo at the top of the water so that the chemical as it dissolves falls down, and thus tends to keep comparatively fresh water acting on the hypo. A porcelain cage or a bag of stout muslin allows of this being done, and either results in much economy of time and attention in making up a solution of hypo, or, indeed, any substance.

The weakest fixing bath which should be used for plates is one containing 4 ozs. hypo per 20 ozs.; about as strong as is ever necessary is one containing 8 ozs. hypo per 20 ozs. Something between the two, say 6 ozs. per 20 ozs., is a good working formula. The exact strength is not material except that if a bath is either too weak (or even too strong) it does not fix so quickly as one of about the strength just given. In the case of a plate it can, of course, be seen whether fixing is taking place slowly or quickly, and so the only result of a wrongly made bath is greater or less waste of time. Not so, however, in the case of paper prints, in fixing which the only safe plan is to use a fixing bath of known strength and allow a sufficient time for it to act.

In the case of bromide and developing prints, the image is akin to that on a plate, and a fixer of like strength may be used so far as the image is concerned. But there is another reason for using a bath of somewhat less strength, namely, the liability to frill or blister, which many bromide papers possess if fixed in too strong a hypo bath. One of 4 ozs. hypo per 20 ozs. is about right. Some makers of bromide papers direct 3 or 2 ozs. per 20 ozs., but, as a rule, no ill effects will result from the stronger bath, and the latter has the advantage of requiring less time for its work. And this is all to the good, since bromide papers often do not get the turning over and free exposure to the fixer that they should.

In the case of print-out papers—P.O.P., or collodio-chloride—the hypo bath has an effect on the image, and it is advisable to use a lesser strength, not more than 2 or 3 ozs. per 20 ozs. Self-toning papers are in a class by themselves in this respect, since in some cases they are manufactured specially with a view to obtaining a given tone by means of a fairly strong fixing bath. I deal below with the advantages for certain purposes of the acid type of fixing bath, and therefore it is necessary to say here

that these baths should never be used for print-out papers for the reason that they exert a rather more pronounced effect upon the tone and depth of the print than does plain hypo. On the contrary, an advisable addition to the print-out-paper fixing bath is a little carbonate or bicarbonate of soda. This is particularly advisable in the case of prints which have been platinum-toned since this toner is acid, and though the acid should be all washed out before the prints are passed into the fixer, the carbonate or bicarbonate in the latter is a double safeguard, which it is wise not to neglect. A very little is sufficient, say about 30 or 40 grains per 20 ozs. of fixer.

I believe in the same thing for the fixing of those self-toning papers where the makers direct putting the prints unwashed into a fixing bath. The paper itself contains acid as a rule, and the result of placing the prints direct in plain hypo solution without washing is to set up a species of toning which is not of assured permanence. The paper, I know, will usually give a better tone in this way, but I prefer to dose the fixer with a little bicarbonate or carbonate and prevent acid-hypo toning. If the result is not so good, one has the consolation that at any rate it will last, which cannot be said for a certainty in the case of the other method. This, I think, ends all that there is to say about plain hypo baths; we can now come to the two other classes of fixing bath, viz., (1) the acid or anti-stain, and (2) the hardening, which perform the functions of an alum or tanning bath, in addition to fixing pure and simple and preventing stain.

ACID FIXING BATHS.

To write as I have just done in the preceding paragraph of the evils of acid in the hypo bath, and then straightway to turn to the advantages of an "acid" bath is doubtless puzzling to many. But here is the matter in a nutshell. Of the many acids which exist, one only is harmless in the fixing bath. This is sulphurous acid (the acid of sulphite), and even it is not innocuous except under certain conditions. Roughly, we may say that just as sulphite in the developer prevents staining of the film by the developer, so sulphurous acid in the fixing bath prevents staining due to the developer which is carried into the fixer. Sulphurous acid itself (a liquid strongly smelling of burning sulphur) would do, but for the fact that it gradually becomes oxidized to sulphuric acid, and there we should be with a bath which contained the seeds of decomposing the hypo; a bath which could not be depended upon for permanent fixation. There is an easy way out of this difficulty. It is to mix the sulphurous acid with some sulphide. The sulphide takes up the sulphuric acid, combining it as innocuous sulphate and liberating more sulphurous acid. In fact, we can go a

step further and dispense with the sulphurous acid as such, but use instead a mixture of sulphite and an acid, such as tartaric or even sulphuric. Either of these acids if mixed with a sufficient quantity of sulphite may be added to the hypo bath without fear of decomposing the hypo. I do not think that this is the best method of making the acid fixing bath, but nevertheless it is a quite practicable method, and one which is largely adopted. The best method, so I think, is to use a substance which for our present purpose may be taken as combining both the sulphite and the acid within itself. This is metabisulphite, and there is no better or simpler acid fixing bath than one made up, say, as follows:

Hypo 4 ozs.
(or hypo stock, 8 ozs. fluid)

Potass. metabisulphite 1 oz.

Water to make 20 ozs.

This bath will remain clear as long as it retains reasonable speed of fixing, and its anti-stain properties are of service equally for negatives and bromide or gaslight papers.

If we choose to compound an acid fixer in another way—a somewhat cheaper way—it is important to bear in mind that the acid and the sulphite should be dissolved in one lot of water, and this solution added to that of the hypo. You must not let the acid come into solution with the hypo save in the protecting presence of the sulphite. Therefore, the formula for the bath should be adhered to both as regards the proportions and the order of mixing:

A

Hypo 5 ozs.

or hypo stock, fluid 10 ozs.

Water to make 10 ozs.

B

Tartaric acid 160 grains.

Soda sulphite, crystals 1 oz.

Water to make 10 ozs.

Prepare A and B separately, and mix together to form the acid-fixing bath.

Just a note here as a reminder to those who make much use of the Farmer reducer and are in the habit of preparing it by adding a little ferricyanide solution to an ounce or two of fixing solution. This is not a good practice in any case, but it will not do at all with a fixing bath containing much sulphite. The sulphite destroys the ferricyanide so far as its reducing effect on the plate is concerned, and a great deal more ferricyanide requires to be added when making the reducer in this wrong way. Solution of hypo and of nothing but hypo should be used.

HARDENING FIXING BATHS.

This type of fixing bath is of more use for bromide or gaslight papers than for plates, since frilling troubles with the latter, except in tropical countries, are practically non-existent. In the case of papers, however, it is often necessary to harden

the gelatine emulsion chiefly when the prints are to be glazed by squeegeeing or when they are to be sulphide-toned. The saving of time, which is effected by performing the hardening process simultaneously with fixation, is an advantage in commercial work, whilst as regards sulphide-toning it is found that the use of a hardening-fixing bath containing chrome alum favors the production of a good tone.

The principles of compounding an acid-hardening fixing bath are the same as those in preparing the ordinary acid anti-stain bath, namely, the mixture of an acid with sulphite and admixture of this solution with the hypo and the hardening solution, this latter either ordinary or chrome alum. Chrome alum is a fairly pure substance as purchased in commerce, but care requires to be taken in buying ordinary alum, since this latter in the cheap variety contains iron and other impurities which give rise to bluish stains on the prints and a degradation of the high-lights. It is best to purchase alum which is guaranteed free from iron. As regards the choice of baths for one purpose or the other of the two named above, my advice is to use the chrome-alum formula given below when sulphide toning only, and to employ the alum formula when it is desired simply to harden prints at the time of fixing without subsequent sulphide-toning.

The chrome-alum bath is made up as follows:

Soda sulphite, crystals 2 ozs.

Water 6 ozs.

This solution may be made with aid of heat, but sulphite dissolves best at a temperature of about 100 degs. F. When dissolved add the following mixture, which should be prepared by adding the acid to the water, not vice versa, and leaving to cool:

Strong sulphuric acid 2 drams fluid.

Water 2 ozs.

This mixture of acid and sulphite is then poured into a solution of:

Hypo 16 ozs.

Water 48 ozs.

and addition finally made of:

Chrome alum 1 oz.

Water 8 ozs.

This gives a fixer containing 4 ozs. hypo in 20 ozs., a suitable strength of papers and strong enough also for plates.

Now for the hardener-fixer made with ordinary alum, or, rather, as I have said above, with pure alum:

Prepare first the hypo solution:—

Hypo 1 lb.

Water 60 ozs.

To this add the hardening solution, made as follows, the substances being dissolved in the order named in the formula:

Soda sulphite, crystals 1 oz.

Acetic acid, glacial 3/4 oz.

Alum 1 oz.

Water 5 ozs.

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Lastly, a word requires to be said as to the exhaustion of the fixing bath when using it for bromide or gaslight prints. I know of no means of telling when the bath is losing its powers except putting into the bath a slip of ordinary undeveloped dry plate. The time which is required for the silver bromide to dissolve out from the emulsion is a useful practical test of the

degree to which the bath has become exhausted. One may make a note of the time taken for the plate to become clear in the fresh bath, and when it is found that a similar strip of plate needs twice or thrice this time after the bath has been in use for prints, it is a good enough indication that on the score of permanency it is advisable to throw the fixer away and take fresh into use.

A Stock Hypo Solution

AS hypo solution is used of different strengths and in admixture with various other substances, according to the plate or paper which is being fixed, it may often be convenient to keep it in an extra strong solution, mixing this latter with water or with solutions of the chemicals used in making the acid or hardening fixing baths. A convenient strength for such hypo stock is one containing 1 oz. of hypo in 2 ozs. of the solution. Then instead of weighing out

1 oz. of hypo we measure out 2 ozs. of the stock. Such a stock is made by dissolving 1 lb. of hypo in hot water, and making up the total bulk of the solution to 32 ozs.; or 5 lbs. similarly dissolved to make 1 gallon in all. This solution allows of any one of the strengths of hypo solution in general use being quickly made by addition of water according to the following table, which may be cut out and pasted on the jar of hypo stock:

Hypo required per 20 ozs. of fixing bath.	Mix of stock solution.		Water.	
8 ozs.....	16	with	4	i. e., stock, 4; water, 1
6 ozs.....	12	with	8	i. e., stock, 3; water, 2
5 ozs.....	10	with	10	i. e., equal parts
4 ozs.....	8	with	12	i. e., stock, 2; water, 3
3 ozs.....	6	with	14	i. e., stock, 3; water, 7
2 ozs.....	4	with	16	i. e., stock, 1; water, 4

Clever With Children

THE advertisement for an operator who is "clever with children" is not seen so frequently now as it was a few years ago, and its disappearance may be attributed to several reasons, among which may be mentioned the enhanced rapidity of plates, the general use of electric light, and the more active personal part played by the present-day photographer in the actual work of the studio. Be that as it may, the fact remains that photographers may still be divided into two classes: those who are happy and successful with their juvenile sitters, and those who are not. Many of the latter would doubtless be glad if the state of their business permitted them to display the notice which Fritz Luckhardt showed in his celebrated Vienna establishment: "In no circumstances whatever can portraits of little children be taken," while of the former the greater number feel a real interest and pleasure in child photography, and willingly endure the occasional "terror" for the sake of his more tractable brethren and sisters.

Undoubtedly the child photographer, like the poet, is born, not made. That is to say, that a great element of success lies in a suitable temperament; this, added to an intimate knowledge of the ways of the

youngsters, being almost indispensable. It is, however, quite possible that, as the born poet may remain to the end of his life a "mute, inglorious Milton," so the equally gifted child photographer may, from sheer shyness, never arouse his latent powers. We have in our mind one who, before experiencing the joys of paternity, quaked at the sight of a baby in the studio, but who, after the necessary and inevitable training, could meet even a cross child with sympathy, if not with pleasure. Undoubtedly coolness and patience are the first requisites if natural and pleasing pictures are required; the most amiable man and the most amiable baby are quite likely to misunderstand each other if the former starts jumping about and making weird noises, and if this occurs the operator may "wear himself to a frazzle" without getting a satisfactory picture. More than once we have called on a photographer who has had a tiny sitter in hand, and have heard the struggle from the recesses of the reception-room, which our friend presently entered with the air of a man who has been unsuccessfully competing in some athletic contest.

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ful exposure cannot be obtained in a few minutes it is better to let the little party retire to the dressing-room while another sitter is taken. This gives a rest to the operator and allows the mother to attend to the child's comforts in ways which are impossible in the studio. A mistake that is frequently made is that of a reckless exposure of plates; we have seen a dozen used without a passable result, while with an equally troublesome subject a cooler operator would get a couple of good pictures out of half that number. It is quite useless to make an exposure because a child is quiet unless the position and expression are satisfactory. Of some such pictures a lady once said in our hearing, "I accepted them because baby was so troublesome, but I never gave any away."

For child portraiture it is essential that all apparatus and accessories should work with the greatest ease and smoothness. A squeaky camera stand may spoil the best expression, and a badly-fitting plate-holder slide may cause the loss of the best opportunity of the sitting.

A word as to the use of the electric light. It must never be forgotten, when working

with this illuminant, that we are dealing with a near source of light. With daylight, a few yards one way or the other does not matter, but with the arc light the question of distance is a serious one, it being quite easy to reduce the amount of light to one-quarter by a slight difference in position. If the child is to be taken playing upon the floor the lamp should be lowered to such a position that its distance is about the same as for an adult's sitting figure. If this be not possible, then a platform should be used to raise the child to what may be called the normal position.

In the case of groups of two or more children a reminder as to the value of combination work may not be amiss. It is frequently found that the best pose of one child is accompanied by a terrible "move" on the part of the other. If prints of each of the selected figures are carefully joined and copied the result will be found well worth the trouble. The same method may also be employed with advantage when it is desired to remove the arm or body of a nurse who has had to steady the child during exposure. It is quicker and neater than working each print separately.

Want of Sharpness in Enlarging

WHEN an enlargement does not show as good focus as is required, the blame is generally put on the negative without any further consideration, though, as a matter of fact, there are several other possible causes of trouble connected with the process of enlargement itself. It is obvious that a good lens must be used. One that gives a flat field and is well corrected for chromatic aberration is essential, while it is also necessary that it should cover a sufficiently wide angle with good definition. Here, however, we come to one cause of trouble that is often unsuspected. The lens may be capable of doing everything required so long as it is quite central with negative, while imperfect centering may bring the image just outside the limits that the lens will cover perfectly. In lanterns fitted with sliding carriers it is often easy to get the negative well out of the center line, and if a fairly short focus projecting lens is in use trouble ensues at once. The centering should, therefore, not only be checked to see that it is correct, but stops should be fitted either to the lantern or carrier so that the latter may always be put directly to its proper central position. When short focus portrait lenses are used as projectors bad centering is a far more frequent source of trouble than many people are likely to suspect.

A more obvious cause is looseness of the carrier or of the negative in the carrier. The negative should always be held in correct register by spring clips, while the carrier should fit so closely as to leave no

room for shake, spring bearings being very desirable. It should be possible to change one negative for another without disturbing the focus in the least, and this is quite easy if the carrier is well fitted and if it is rebated on the right side. We have seen lantern carriers rebated on the wrong side, so that when the plates were changed correct register was preserved only from the back of the plate and not from the film. Naturally the register cannot be correct in such cases, and lantern makers seem to have at last realized this point.

Buckling of the paper on the easel is another common cause of unsharpness, which we are dealing with separately; but there are also three other factors that are much less obvious, and therefore more insidious and more prolific of bad effects. The first of these is vibration. If the lantern is put on a table and the bromide paper pinned to the wall of the room it is barely possible to avoid vibration excepting in very exceptional circumstances. If the house is exceptionally well built, and there is no traffic near and no wind, everything may work perfectly; but unless all these conditions are fulfilled there is bound to be a certain minute amount of vibration which is only detectable by some delicate test such as that which we apply when we attempt to enlarge in the way described. It is not the fact that vibration exists which causes the defect, but that the lantern and the paper are vibrating independently and out of unison. If we can make them vibrate together then focus will not be disturbed. There are

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two simple expedients between which we can choose. One is, do not use a separate table to carry the lantern, but put the latter on a shelf fixed to the wall. The other is to use a separate easel, and stand lantern and easel both on the same table. Either method will serve well in ordinary circumstances, while in extraordinary circumstances, when the effect of very heavy traffic is to be guarded against, we can get over all difficulty by suspending the table from the ceiling by ropes or chains from its four corners. In photo-micrography this is often an essential expedient, though the apparatus being smaller a stiffened plank or baulk of timber can well take the place of the table. If the shelf idea is adopted the most effective method is to have a marble or slate shelf built into the wall. Such shelves can be bought cheaply at sales, and we have known one to be used quite successfully in a place where railway traffic was almost incessant quite close to and on several sides of the building.

The next most insidious cause of want of focus is dust, or condensation on either lenses or negative. Dust should not exist, and if condensation does exist it is a sign of deficient ventilation, and the remedy is obvious. Condensation is a very common cause of diffusion when its existence is not suspected, and its effects on focus are disastrous.

The last condition affecting focus that we propose to mention is the light. Very few realize that imperfect adjustment of the light in the case of a condenser system invariably causes the focus to deteriorate, and very frequently the necessity of readjusting the light when the scale of the enlargement is altered is quite forgotten. When the right scale is settled the negative should be removed for inspection of the disc before any attempt is made to secure critical focus, and if this precaution is neglected unsatisfactory definition must be expected sooner or later.

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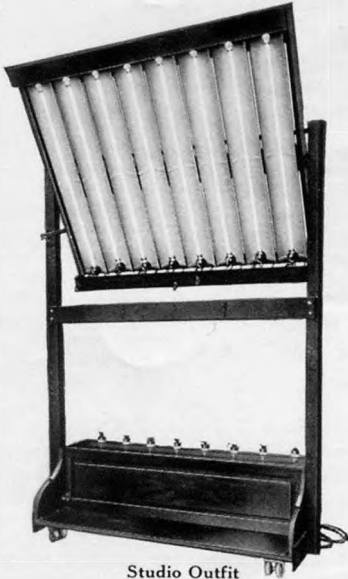
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HELP WANTED

Operator. Must be high-class workman. Submit samples of work and state salary. Sweet Studios, 29 South Tenth St., Minneapolis. 22-3-4

Want first-class all around workman; steady position. Write full particulars in first letter. Ideal Studio, Clarksburg, W. Va. 22-3-1

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Good general workman capable of taking full charge of studio. Ben, care of this journal. 22-3-1

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Oldest established business and finest trade in city of 200,000. Good reason for wishing to sell. Will dispose of at sacrifice. Do not write unless you have cash to invest. Address No. 598, care of this journal. 22-3-4

A position as printer and darkroom man; also can operate. Can give best of reference. A. D. Turley, 2022 So. Lawrence Ave., Wichita, Kans. 22-3-2

As operator in first-class studio, salary \$20.00 per week. Address S. M. Nye, 2205 First St. N. W., Washington. D. C. 8-3-2

Competent finisher wishes position in Cleveland. Can operate. Box A, care of this journal. 8-3-2

In strictly first-class studio, by A-1 all-around man (Japanese), expert in all branches of photography; also skilled in oil tinting and work in backgrounds. Address K., care of this journal. 8-3-2

First-class general workman desires position. Good operator, fine retoucher and accurate printer. Sober and industrious worker. Salary \$18.00 weekly. Frank E. Burnett, Gen. Del., Pittsburgh, Pa. 8-3-2

By present employer in good studio for a well trained young lady assistant. Good finisher; understands air-brush and assists in printing. G. L., care of this journal. 8-3-2

FOR SALE

Operator-retoucher of character and ability with 12 years' experience in high-class studios, seeks permanent position with a good firm. Age 33. Address "Reliable," care of this journal. 22-3-2

Old established studio at Kingston, N. Y., located in heart of business section. Very low rent. Write for further particulars. The price will suit. Address L. Short, 329 Wall St., Kingston, N. Y. 15-2-5

One of the best located and busiest studios in Toledo. No cheap work. Owner leaving city. Sell at once for \$200 rather than move outfit. Any photographer or dealer here can tell you what an unheard of bargain this is; worth \$1,000. Address Photographer, 417 Summit St., Toledo, O. 22-3-1

A rare chance for some one with \$3,000. A photo studio, best location and in fine office building; rent \$32, with lease. City of 60,000; only 3 or 4 other studios. Good prices. Business averages nearly \$6,000; well equipped. A photo supply business included, for \$3,000. Address Marjorie Austin, General Delivery, Colorado Springs, Colo. 1-3-4

14 x 17 view outfit, in A-1 order, as follows: Camera box, tripod, 12 x 16 R. R. lens and shutter, 2 double plate holders, printing frame, carrying case. Have now no use for this, and will sell entire outfit for the cost of the lens alone, namely, \$65. A REAL BARGAIN. Capt. John Phillips, Stanley, Wis. 22-3-4

One almost new 5 x 7 Graflex Camera, Tessar Lens, magazine and plateholders. Lists over \$220.00. Price \$135.00. A. K., care of this journal. 22-3-tf

One 11 x 14 Portrait Camera and plateholder, lists over \$70.00, sells for \$25.00, excluding packing and shipping. A. K., care of this journal. 22-3-tf

The only studio (ground floor) in Goldfield, Nev., equipped to 8x10 work; business \$2,500 per annum; will sell for \$300.00 cash if taken up immediately. Don't write unless you have the cash. No better snap in the states. Rent \$15.00 per month. Address Box 487, Goldfield, Nev. 1-3-4

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