

**AMY BUSBY.**

Negative kindly loaned by Mr. Falk

PRINTS BY AUTOMATIC PHOTOGRAPH CO.

THE

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## HOLIDAY BUSINESS.

It is pleasing to hear from a number of city and out-of-town photographers that business has taken something of a boom in consequence of the approaching holidays. This is the opportune time for the photographer who is sufficiently up-to-date to have a good specialty or two and business tact enough to push it, or them, diligently, but at the same time in a way that does not offend or irritate customers. It is a very easy matter to prepare, during the few weeks that are so liable to be rather quiet just before holiday business begins, a few *choice* samples for use in coaxing extra business from the holiday shopping people; say, an enlargement in sepia; a delicately colored opal; a carbon in an effective color, several different poses of a pretty, graceful child, printed on one strip of paper. These and other things that will readily suggest themselves, when you once begin, can, if properly handled, make many extra dollars. It does not do, in these days, to consider that because a customer orders a dozen cabinets, it is all that is wanted; and it is safe to say that he who works on this plan will lose many dollars, and, at the same time, acquire the name of being "slow." Specialties have two very good features: (1) When sold they are generally pure additional business, over and above what a customer intended buying; (2) the price is generally far better in proportion than for regular work.

## THE SELECTION OF THE SIDE OF THE FACE IN PORTRAITURE.

By R. W. HARRISON.

Some ten to twenty years ago there was a good deal of dogmatism among photographers, who were considered of the better class, as to which side should be photographed in taking a quartering view of the face. Some were very positive that it was the side toward which the nose inclined, be it ever so little; another famous portraitist invariably chose the side on which the mouth was lower; still another noted the contour of the jaw, and always had the side with the greatest bulge nearest the camera. Mr. H. P. Robinson advises briefly to have the higher eye on the nearer side; another is careful to have the smaller eye closer.

The advocates of each theory would declare that his was the criterion, while an inspection of the portraits painted by men who got large fees shows that none of these rules were strictly adhered to. Of course there is this difference: we photographers are under sharper criticism, founded upon the vanity of our customers, than are the painters, and our authority is not so weighty; we therefore feel it our bounden duty to produce the most favorable likeness possible, without caring so much as to its being characteristic.

In this way portrait photography has established for itself a standard criticism, in which flattery, or at least telling the most pleasing truth, is the dominant factor, and to this fact is due the urgency of the question "which side of the face shall be selected?"

It will be noted by a careful student of faces, that in many instances all or most of these criteria agree. For instance, the higher eye and lower side of the mouth are nearly always on the same side, and frequently the nose is turned that way, and the contour of the jaw is in conformity.

While each of these rules mentioned is a useful hint to the student, it should be observed that they are to be used or not, according to circumstances; for instance, the slant of the mouth or eyebrows can be instantly modified by the tip of the head; the contour of the jaw is of little importance if you select a quartering view of the shoulders, the face looking toward you and the light on the broader side; in fact, in this instance the reverse of this rule is best; in taking profiles the more symmetrical jaw will usually decide which side will be selected, for the jaw is of almost equal importance with the nose, especially when the light falls from behind. As far as the nose is concerned in quartering views I have frequently found the broad side as serviceable as the other.

But it would not be fair to point out where the authorities are wrong without mentioning some points where they are right. Other things being equal, it would be the proper thing to select the side toward which the nose is turned when the face is broad. In portraits where the side or quartering view of the shoulder are taken, with the face turned to-

ward the camera, in men especially, the head naturally tips away from you a little, and in such cases it is important to select the lower side of the mouth. In all instances when the head is not tipped to one side much, Mr. Robinson's hint as to the relative height of the eyes is important. The contour of the jaw is worth noticing when the shoulders are front and the face turned away, and more especially so when the light falls on the farther side of the face.

No one can attain to anything by working haphazardly. The earnest worker will always formulate rules as he progresses, and the more progressive he is the more rules he will formulate—and the more independent of rules he will become. To the studious beginner I should strongly advise a thorough study of the rules mentioned, not because I think any or all of them can be applied in a thorough-going way, but because in such study he or she will learn to almost immediately grasp the situation, to note the peculiarities of the face, and determine at once without hesitation the line of action in both posing and lighting. I would further urge those who work on any of these rules, or others not mentioned, to break away once in a while, and occasionally make an exposure directly in opposition to the pet rule, and see how far actual experience corroborates or contradicts their theory.

One thing the student will be certain to run against, and that probably the first time he tries to apply any or all of these rules, and that is, a complication when by no visible means can the crooked, the small eye, the slanting mouth and the twisted nose, be brought into symmetry, or even a decent condition of unobtrusiveness. In such a state of affairs the direction and intensity of the light is of equal importance with the selection of the side of the face.

This is especially so when the eyes are unequal in size, as the one receiving the most light nearly always contracts a little, and in most cases the eye that is perceptibly larger than the other in a flat light is not obtrusively so when a light is thrown on it and the smaller one shaded. If this fails the only thing left is to use rather a sharp top light which obscures part of the detail of the upper portion of the eye. In this case the shoulders should be quartering, the face and eyes turned toward the camera, and the smallest eye nearest.

Examples might be multiplied indefinitely, but the details would be impossible to follow. In practice there is room for great ingenuity, resource, and still another complication frequently crops up, as many faces are altogether different when a desirable expression has been induced from what they were when the features were in repose during the posing, focusing, etc., then the work has to be done over again; but the advantage of rules and study is here apparent, for it enables you to select a suitable pose and light in the temporary absence of expression necessary to produce a characteristic picture.—*Photographic Times.*

## STOCK SOLUTIONS.

The following method of keeping stock solutions has many advantages, which will, we think, be sufficiently obvious to all those who have experienced the annoyance of finding that the supply of some particular solution has run out just at a cri ical moment. This need never happen if the stock bottles are sufficiently large to hold rather more than enough solution for one day's—or evening's—work, *and* if they are replenished after every day's use. The first of these conditions is easily fulfilled, but the second is not so easy to carry out, unless the bottles are so graduated that it can be easily seen how much more of the solid and how much water is required to fill the bottle.

As the same method can be applied in exactly the same manner to any solution of known strength, it is only necessary to describe in detail the mode of preparing and keeping up a supply of one particular solution, which we will consider to be a stock solution of hypo of the strength of eight ounces to the pint—or forty per cent.—kept in a forty-ounce wide-mouthed bottle. In this particular instance it is, of course, not necessary to make any allowance for the difference between the weight of an ounce avoirdupois and an ounce by apothecaries' weight, as extreme accuracy is not required. Now, what we have to do is to so mark the bottle that when it is only *partly* full we can see at once how many ounces of the crystals should be added to enable us to fill up the bottle with water to the forty-ounce mark, and still have a forty per cent. solution. If the bottle contains eight ounces of hypo in every twenty ounces then it contains two ounces of hypo in every five ounces of solution. Therefore, if we graduate the bottle into five-ounce divisions, and number the marks five, ten, fifteen, twenty, etc., up to forty, starting from the bottom upwards, we can always tell by a glance how much water is required to exactly fill the bottle, and how many ounces of hypo should be added ; allowing two ounces for every division, or one ounce for every half division.

The spaces between the five-ounce marks may be again divided into four, each sub-division showing how much water should be added for every half-ounce of crystals.

As an example we will suppose that the bottle contains solution up to the first sub-division beyond the fifteen-ounce mark ; from this point up to the forty-ounce mark there will be four five-ounce divisions and three sub-divisions, which shows that the amount of hypo to be added is four and three-quarters times two ounces, or nine and a half ounces, and that the addition of solution to the amount of four and three-quarters times five ounces, or twenty-three and three-quarters ounces will be required to fill up the bottle to the forty-ounce mark. These graduations will also enable us to take from the stock bottle a quantity of solution containing exactly the amount of hypo that we require, without using a measuring glass ; and also, if the stock of dry hypo is low, and instead of nine and a half ounces we find that there are only six left, we can add this quantity to the stock

solution, and fill up with water to the proper mark, which, in the case we have imagined, would be the first subdivision above the forty-ounce mark.

With regard to marking the graduations. They can either be marked on a vertical strip of paper gummed on the bottle, or they can be engraved on the glass, the latter being by far the best method.

If a stock solution is required of a chemical which is used by grains, or in very minute quantities, due allowance must be made for the difference between apothecaries' and avoirdupois weight; that is to say, if you weigh the solid chemical by the latter weight you must allow only 437½ minims to the liquid ounce, instead of 480 minims; it is better, when possible, to weigh out solids by the ounce of 480 minims, as this is much less troublesome. We have, however, worked out a table—which will be found in the "Societies' Notebook"—that enables one to see at a glance how much a solution of definite strength should measure when the solid is weighed by avoirdupois weight. This will, we hope, be found very useful in cases of this sort.

Stock solutions very frequently require replenishing after a spell of cold weather. It is not often possible to keep up a constant temperature in the dark room, and the consequence is that many solutions lose strength by reason of the salt crystallizing at the bottom of the bottle. If we attempt to re-dissolve the crystals by warming and shaking the bottle a great deal of time will be spent, and with probably little result, because in many cases the crystals will have amalgamated into a solid mass. If, however, we know what was the specific gravity of the solution when originally made we can pour off the liquid portion of the solution, and quickly bring it up to the proper strength, either by adding fresh powdered crystals, or a strong saturated solution of the same salt; the specific gravity being, of course, tested with the hydrometer. The saturated solution can be made by breaking up the mass of crystals in the stock bottle, and dissolving them in hot water, if the chemical is not one that is decomposed by so doing. In order to know what the specific gravity should be when the solution is at its proper strength, the original solution when freshly made must have been tested, and the reading, together with the temperature, marked on the label of the bottle. This is a very easy operation, and the knowledge is so useful that it is quite worth while to invest half-a-crown in the necessary appliance.—*Photo Notes.*

## AUTOMATIC PHOTOGRAPH PRINTING.

This new process of rapid printing consists essentially of a roll of sensitized bromide paper a thousand yards in length by something over a yard in width, unwound in a room illuminated by red light, fed under two or more negatives, then automatically pressed upward by a platen against the face of the negative, at the same instant also automatically exposed by the flashing of incandescent electric lamps above the negatives, then moved along the proper distance

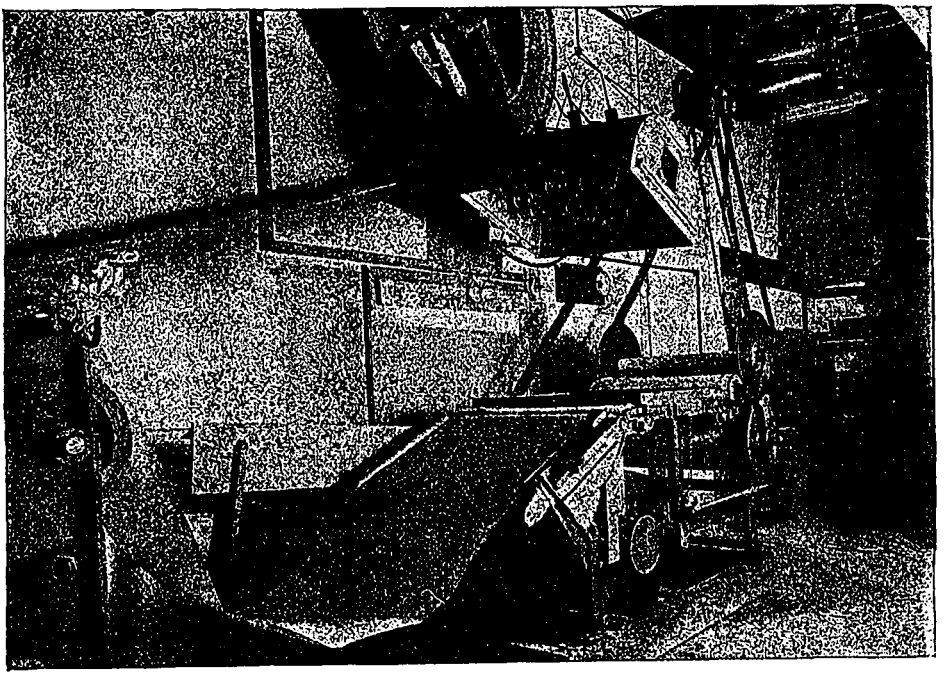


FIG. 1.—AUTOMATIC PHOTOGRAPH PRINTING—EXPOSING APPARATUS.

for a fresh section to be exposed and finally wound up on another roller.

The roll of exposed film is next removed to another room and automatically developed, fixed, alumed, washed and dried, the finished pictures being wound up on a third roll from which they are cut to size and mounted on cards in the usual way.

Actually to see how easily and certainly this process works and learn of the obstacles that had to be overcome not only surprises but astonishes the old time photographer. It is, in fact, a new industry in the line of photographic printing and will be useful in hundreds of various kinds of businesses, where prints by hundreds or thousands from one negative are desired.

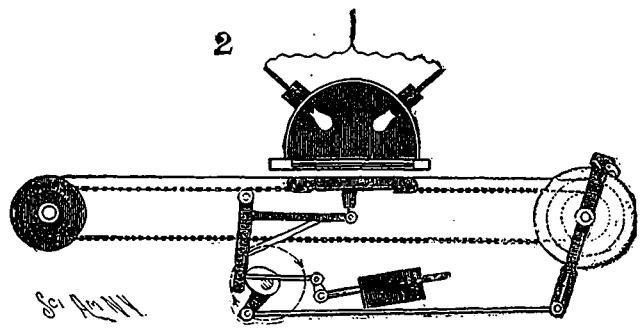
The accompanying photograph of the apparatus in operation gives a very good idea of its construction and working.

Taking the exposing apparatus first (Fig. 1), the roll of unexposed paper supported on a shaft on the left may be seen hanging therefrom in a loose loop and enters the inclined apron, thence passes directly under the negatives, which are secured to the underside of a large sheet of glass by paper strips in the usual way. The glass plate is held in a removable frame, which permits the negatives to be easily located and secured. When the plate is in position vignetting masks are laid on top of the plate over the negative, and if by a trial, the exposure has been found too long for one negative, thin sheets of waxed or tissue paper are interposed to weaken the light to the proper degree. Several negatives of a similar

degree of density may thus be secured to the plate, and each adapted to the light necessary for a proper exposure. Above the negative plate is observed the exposing chamber suspended by a rope passing over a pulley in the ceiling, and balanced at the other end by a weight; this arrangement permits the whole to be raised above the negative plate, giving easy access thereto for the adjustment of vignetting masks. In each side of the case are four thirty-two-candle power incandescent electric lamps connected by flexible cords to a switch on the wall and to the automatic switch below. The heat from the lamps was found to be excessive and ventilation was obtained and the temperature kept quite uniform by forcing in a current of air with an electric fan or air-pump. A square red window on the side allows one to observe that all the lamps go when the switch is turned on.

After exposure the paper is wound over a pull roll, adjoining the exposing chamber, by an intermittent quick movement equivalent to the length of the negative plate, or at any set distance, passing thence to a roll whose axle works in ball bearings, on which it is wound, the roll being rotated by an attendant. A reciprocating motion is imparted to the pull roll by means of a connecting rod attached to a crank shaft located under the feed apron, at the lower left hand portion of the machine.

The end of the connecting rod at the pull roll engages in a slotted lever, the upper end of which has a ratchet and pawl operating in teeth on the periphery of the pull roll. The end of the rod may be moved nearer the centre of the roll in the slotted lever, and so regulate the throw or amount of rotation. A sprocket wheel at the opposite end of the pull roll is connected by a chain with the feed roll. It is evident, therefore, when the pull roll makes a half revolution rapidly, the feed roll is also simultaneously rotated, causing the same amount of paper to be unwound as is taken up at the other end. Geared with the crank shaft under the feed apron is a shaft having a cam for operating at the right moment the electric switch for the lights and another cam for lowering the platen (see Fig. 2). Prior to the moment of exposure, the cam, as it rotates, permits the pivoted weight to draw the bell crank lever supporting the platen forward, and press the platen upward against the underside of the paper, placing the sensitive side of the latter in contact with the negatives during the interval of exposure (usually two seconds); it is then




F.G. 2.—DETAIL OF EXPOSING APPARATUS.

drawn down until a fresh section of paper passes under the negatives and the operation repeated. The movement is quite similar to the platen of a printing press.

The roll, containing two or three thousand exposures, is carefully protected from white light and carried to the room in which is located the

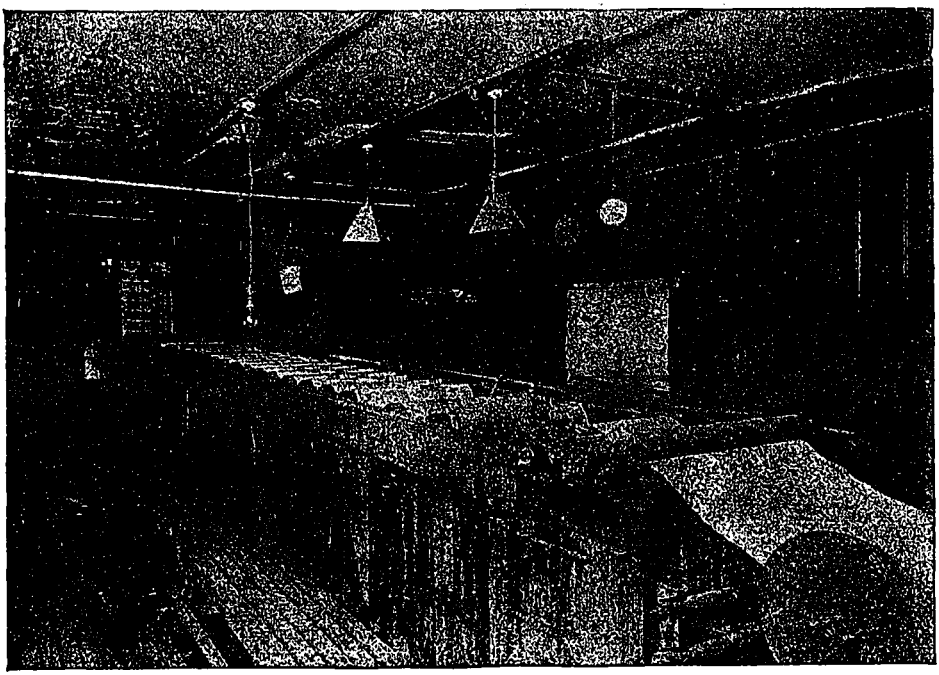


FIG. 3.—AUTOMATIC PHOTOGRAPH PRINTING—DEVELOPING APPARATUS.

automatic developing machinery. (Fig. 3.)

It is a most interesting sight to see the gradual development of the exposures here. As may be imagined, the exposed roll is set on supports at the right hand end of a long wood tank containing separate watertight compartments, and is carried over a roll into compartment No. 1, about three and a half feet deep, filled with 120 gallons of an old solution of ferrous oxalate of potash developer. Referring to Fig. 4, it will be noticed that half way up from the bottom of this compartment is a submerged roll. Running down vertically in the centre of the sides of each compartment is a slotted way to guide the axes of small, loose, brass rollers which carry the paper to the bottom and freely revolve as the paper moves forward.

Over the division of each compartment is an actuating roll, all being geared to a worm screw running along the top edge of the long tank its entire distance, which gives every roll the same speed.

The paper, after passing over the submerged roll (Fig. 4) and down again, thence up out of the tank

over the roll between the first and second tanks, and down into the fresh ferrous oxalate developer in this tank, shows the images half developed out. The electric lamps overhead are a non-actinic red.

Coming out of the second tank, the images are fully developed, thence the paper passes on into the third vat, containing dilute acetic acid, which dissolves out all of the iron left in the paper from the developer, and acts as a check to further development, thence in the next vat the paper is washed with water; next it passes into a fixing vat containing a solution of hyposulphite of soda, is again washed in the following tank, then it passes into a vat of alum water, which hardens the film, and finally goes through two or three vats of water, receiving a final spraying, as shown in Fig. 4.

From the last spraying it is led onto an endless canvass carrier into a long inclosed chamber filled with a current of warm air, heated by a gas furnace noticed near this end. At the end of this heated chamber the paper comes out perfectly dry, and is rolled up with the pictures all on it. When the run is complete the roll of pictures is unwound, they are cut off to the respective sizes desired, and mounted in the usual way.

While the paper is travelling over the several rolls, attendants with sponges sponge off any dirt or light material which may cling to the surface as it is drawn up from the solutions. At the further end of the trough the paper with the pictures upon it may be seen travelling upward.

There are twenty-seven rollers on the large box tank, and the tank itself is not far from one hundred feet in length. The paper travels through the tanks at the rate of ten feet per minute, and it is possible to arrange enough cabinet negatives in the exposing machine to expose 245 cabinet pictures in a minute. But an ordinary day's work of ten hours yields 157,000 cabinet pictures.

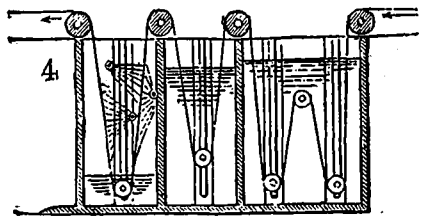


FIG 4.--THE SPRAYING TANK.

We are informed this is the only machine of its kind in this country, and but one other is in Germany. The work which we saw made by it was very satisfactory and uniform.

In dealing with such large quantities of material, uniformity appears to be easily attained, and the applicability of a similar machine, properly modified to the development of negatives and films having had reasonably uniform shutter exposures, may be a possible outcome of this invention.

For the foregoing particulars we are indebted to the Automatic Photograph Company, No. 25 West Twenty-fourth Street, New York, through whose courtesy we were permitted to witness all the details of this remarkable and interesting apparatus and plant.—*The Scientific American.*

## A NOTE ON ANTI-HALATION PADS.

By W. B. Bolton.

The latest novelty, commercially at least, in connection with dry plates is the so-called anti-halation pad, which is intended to replace the always more or less objectionable plan of coating the back of the plate with some kind of non-actinic preparation to absorb the rays of light that pass through the film. In the old days of collodion dry plates the films were so extremely transparent that this was almost an absolute necessity for even ordinary landscape work, and, when interiors or similarly trying subjects were in question, the remedy was at best but a partial one. The ordinarily careful worker of that period would as soon have thought of going out with unbacked plates as with no plates at all, owing to the difficulty in rendering objects clearly when cut against the sky.

The operation of backing the plates then formed an essential portion of the process of preparation, the material used being generally a paste consisting of annatto or burnt sienna in conjunction with gum, starch, or other substance, to bind it to the glass when dry; but, even when efficient for the remedial purpose intended, such preparations were always a nuisance, first in application and afterwards in use, for, unless most carefully compounded with a proper proportion of binding and hygroscopic material, the backing proved a prolific source of dust spots, and many have been the otherwise good negatives utterly ruined from this cause. With burnt sienna, too, there was always a tendency, if it became too dry, to attach itself so firmly to the glass that it was nearly impossible to remove it, even by scraping it, and I have often seen negatives rendered useless from this fault.

To remedy the evils arising from the ordinary methods of backing, the present system of pad was suggested in the *British Journal of Photography*, I should say, nearly twenty years ago; at any rate, I know I adopted it on the occasion of a trip in North Wales in the summer of either 1876 or 1877, when, owing to lack of time before leaving home, I was unable to prepare the usual stock of dry plates. Several dozen partially cleaned glasses, a stock of washed collodion emulsion, and a dozen or more backing pads, together with the usual developing solutions, formed a portion of my travelling paraphernalia, and I refilled my slides each evening with fresh plates coated in my bedroom. It was rather trying work, but I had no reason to find fault with the result.

The backing pads consisted of pieces of unsensitized carbon tissue prepared for use by impregnating them with a mixture of glycerine and molasses, or with glycerine alone, and, when properly done, this forms as perfect a preventive of halation by reflection as can be obtained, for I question whether any means of this kind can prove a perfect remedy. The utility of the method of course depends upon the

preparation of the tissue in such a manner that it can be made to adhere to the backing of the glass in optical, and not merely mechanical, contact, for under the latter circumstances the application is not only no remedy, but I firmly believe magnifies the defect, and this brings me to the subject of my "note."

A few days ago I was called at short notice to take a photograph of the interior of a church while decorated for the "harvest festival," and as I wished to do it as well as possible, I improvised, out of materials at hand, some anti-halation pads. Time was short, so a few pieces of carbon tissue cut a trifle smaller than the plates were soaked in a mixture of glycerine and water until they became sufficiently limp for the purpose. Naturally, it might be supposed that I should say "quite limp," but, until the experiment has been tried, it would scarcely be believed with what reluctance the glycerine permeates the gelatine film; in fact, if pure glycerine be applied to carbon tissue that has been kept under ordinary atmospheric conditions, it will cause it to curl more tightly by extracting what little moisture it contains.

At any rate, in my case the tissue was not soaked sufficiently to remove all the "curl," but enough to enable it to be squeegeed into contact with the glass, where it adhered perfectly and with great tenacity. A plate was exposed on the church interior with, of course, the altar and east window forming the centre of the picture. The window is perfectly plain and filled with faintly tinted glass, the only variety being in slightly darker shades of color in some of the squares. The exposure, as it happened, was far too long, in consequence of my using an "extra rapid" instead of what I supposed to be an "ordinary" plate, probably three times as long as it ought to have been.

On development, the window showed a number of irregular transparent spots of various sizes, which at first I took to be imperfections or abrasions of the film; but careful examination after fixing proved this not to be the case, and the phenomenon puzzled me very considerably. If the window had been taken from the outside instead of the reverse, the effect was just that of a large number of the panes having been broken, but from the inside the irregular black patches—in the print—were altogether inexplicable. Examining the negatives with a magnifier, I at last found that here and there, where one of the spots covered the black divisions between the panes, these, instead of being transparent as they ought to have been in the negative, were black, and also that, where the chains of the hanging lamps crossed the transparent spaces, they also were opaque, although where they were outlined against the rest of the window they were transparent.

Here was reversal of the image, but by what caused? Later on, experimenting with my pads on plain glass, I found that owing to the thickness of the tissue, and its not having been rendered perfectly limp, it was extremely difficult to secure perfect optical contact. In applying it to a dry plate, the opacity of the film

prevents this fact being observable, but on plain glass it is very apparent, as any carbon worker will be aware, the points of non-contact being shown by bright silvery spots and patches, while the rest of the surface is dead black. Here was the explanation. Taken in conjunction with the excessive exposure given in the first place, the light reflected from the back surface of the glass at the points of defective contact had sufficed to bring about reversal of the image, the black diamond-shaped panes being rendered transparent and the cross lines black. In the latter case, partly from over-exposure, but chiefly from the spreading action of development, the lines were considerably veiled, though "transparent" in contrast with the rest of the window; but the additional reflected light had converted the veil into a deposit as dense as, or denser than, that of the open glass.

It is not to be supposed that the imperfect contact of the tissue was only on that part of the plate occupied by the window; it was, no doubt, universal, but in the darker portions of the subject the reflected light was not sufficiently powerful to produce any reversing effect. At any rate, no trace of it can be found, except on the window. To put the matter to a practical test, a portion of a plate was backed in the manner indicated, the remainder left clear, and it was then exposed to the open sky for some seconds, or until I thought the unbacked half would be reversed. The backing was applied somewhat carelessly in order to favor the formation of reflecting points, and in this I succeeded admirably. On development, although the unbacked half was thinner than the other, it had not undergone complete reversal; yet, notwithstanding this, the backed portion was covered with the same kind of transparent spots as those already referred to, but in an intensified form, from the more careless way in which the backing had been applied. If any doubt had existed as to the cause it was now entirely removed, for a large circular "blister," caused by contained air, visible on the back of the tissue before exposure, was fully reproduced as a transparent marking on the plate.

Now, as I have already said, my pads were prepared in a hurry, and were not in perfect condition for use; but this accident points to the possibility of similar ones occurring from carelessness in the use of the most perfect pads. A friend of mine who has used some of the commercial ones with every satisfaction, tells me that they are so thin that it is possible to tell from the back where they are in perfect contact; but this, I think, must be incorrect, for absolute *smoothness* does not mean perfect *optical* contact, and I don't see what other evidence there can be *from the back.* Hence, in using these appliances, it is advisable to exercise every possible means of securing true contact.

It seems to me that, especially with a thick pad, this can only be attained by having the surface in a thoroughly moist condition when it is laid down, and this, of course, entails a considerable amount of care when manipulating dry plates in the dark-room. But that the task is not impossible I

have satisfied myself by experiments on plain glass, when the slightest speck of imperfect contact is visible.

Of course, a specially prepared gelatinous mixture, in which the hygroscopic matter is thoroughly and uniformly mixed, must be easier to apply than an imperfectly impregnated sheet of carbon tissue such as mine; but the tissue may be utilized in the most efficient manner if properly prepared. For this purpose it should be soaked several times in a mixture of glycerine and water, and exposed to the air between the immersions, for the water to evaporate Each soaking then introduces more and more glycerine, until at last the tissue becomes perfectly limp and pliable. In addition to this, it should be squeegeed on to the glass while the water is evaporating, in order to give it a perfectly even surface, as, if this be not done, the solution will run into lines, and cause unevenness from irregular absorption. When once rendered limp, it will remain so, and may be kept, when not in use, squeegeed to glass or thin-waxed tissue paper. Before use it will require drawing over the surface of a solution of glycerine in a dish in order to secure best contact.—*British Journal of Photography.*

## USE OF THE SWING BACK IN ENLARGING.

Directions are freely given, by writers on the subject of enlarging, how, by suitably tilting or inclining the negative, instead of holding it in the usual position, perpendicular to the axis of the lens, the converging lines of a badly bevelled architectural subject may be restored to correct form; but very few of those who devote any of their time to enlarging probably think it worth while to resort to this very simple remedy for a defect that is undoubtedly greatly on the increase in these days of hand cameras.

Many are, no doubt, deterred from making the attempt under the impression that the straightening of the convergent lines in this manner must result in a considerable loss of sharpness; but the idea, though correct enough in the abstract, is unnecessarily exaggerated, since, except in very bad cases, the effect upon the definition is practically inappreciable, and, as we shall endeavor to show, can by suitable measures be reduced to absolute nothingness. We were ourselves unaware, until quite recently, to what lengths this principle can be carried without seriously interfering with the sharpness of any portion of the picture; but the rectification of the uprights of some hand-camera pictures taken by a novice in the use of the instrument, some of which were five or six degrees removed from perpendicularity, quite surprised us by the extraordinary latitude allowed. We have, in fact, by way of experiment, taken a sheet of printed matter the size of a cabinet mount, and inclined at such an angle that the bottom portion was an inch nearer to the lens than the upper, and yet reproduced it with practically uniform sharpness over the whole area, though, of course, distortion of another kind was set up by the treatment. Though we are far from wishing to give advice that

may seem to encourage slipshod methods of working, we shall try to show how this method may enable the use of the swing back, in taking the negative, to be absolutely dispensed with without any loss of quality of result ; or, in other words, we shall show that hand-camera workers who have not a swing back available may derive all the advantages of that movement from a proper manipulation of the negative in copying, whether for lantern slides, or enlarging.

In the first place, we think it must be agreed that in the great majority of cases the greatest amount of general sharpness is obtainable when the axis of the lens is coincident with the centre of the plate and perpendicular thereto. Consequently, any use of the swing back or rising front tends more or less to loss of marginal sharpness, and necessitates the use of a smaller stop. If, then, a negative that is perfectly sharp, and whose only fault lies in convergence of the perpendicular lines from tilting the camera, without using the swing back, can have the rectitude of its lines restored without loss of sharpness, it seems an argument rather against than in favor of the swing back.

Yet such is absolutely the case, and all that is requisite is to incline the negative at a suitable angle to produce perpendicularity, and, at the same time, to swing the back of the reproducing camera, in order to correct the loss of definition on the different planes. The inclination of the negative alone will suffice to bring the perpendicular right, but it will be at the expense of sharpness ; but, if the negative and reproduction be inclined in opposite directions, the whole surface may be got into equal focus and that without the use of an inconveniently small stop. This fact can be demonstrated mathematically.

Let us suppose a square block of buildings, a picture or any object that should be rectangular, to have been photographed in such a way that the negative renders the upper portion of it, say, one-fiftieth of the whole length shorter than the bottom, a degree of "slope" that is far exceeded by many of the hand or even stand-camera pictures we have seen. To restore this to rectangular form, clearly the upper portion of the picture must be enlarged one forty-ninth more than the bottom ; or, in other words, to reproduce it on the same scale, but square, the bottom must be photographed the same length, while the top is enlarged to one and one-forty-ninth its present length, and these conditions can be perfectly fulfilled in the manner described by inclining the negative and the copy in opposite directions.

Let us suppose a lens of eight inches focus to be used, and for the present we will assume it to have a theoretically perfectly flat field. The inclination at which to place the negative is arrived at in this way : The portion representing the base or wider part of the building or picture will have to be removed from the lens twice its focal length, or sixteen inches, while the opposite or narrower extremity will, by the laws of conjugate foci, have to approach nearer, fifteen and forty-two-fiftyths inches being the exact distance. On the other

side of the lens the correct-sized portion of the image will come to focus at the same distance as that part of the negative, namely sixteen inches, while the other extremity will focus slightly further away, or at sixteen and eight-forty-ninths inches; and, if the back of the camera be swung to that extent, not only will the upright lines be found parallel, but the definition stop for stop will be as perfect as if the negative and copy were both perpendicular and parallel. We have spoken of a theoretically flat field, but, so far as flatness and roundness of field go, the only influence they would have in the matter would be that a so much worse effect would be produced with a lens possessing a curved field if the swing back were used in taking the negative; in the process of reproduction the quality of the definition as it exists will be neither improved nor the reverse.

By examining these figures it will be seen that they bear a definite and intelligible relation to the degree of distortion and to the focus of the lens used. On one side of the lens there is a difference of eight-fiftieths of an inch between the lens and the top and bottom of the negative respectively, while, on the other side, the difference is eight-forty-ninths of an inch, two fractions in which the enumerator is represented by the focus of the lens, and the denominators by the degree of enlargement and reduction relatively between the object and copy. This gives a definite rule for fixing the position of the negative, since it shows that the inclination of the latter is equal to the total falling in of the two sides of the building multiplied by the focal length of the lens employed; or the angle at which the negative should be placed to secure correct perpendiculars will be sixteen times the amount of error in either line in the original.

This is for reproduction to the same scale as for a lantern slide; but, if we come to enlarging, we shall find that, while the same principle holds good, the figures are materially altered. For instance, in enlarging to four diameters, we shall find that, while the difference between the two extremities of the object at the negative side are divided by five—the number of enlargements plus one—on the one side, the difference is multiplied by five, a definite relation existing all through between the two positions, which depends entirely on the number of times of enlargement or reduction. In copying to the same dimensions, the differences on opposite sides of the lens are trivial, but, in enlarging, they are apparently very wide apart; but, if size of the enlargement be taken into account, the angles of the negative and copy respectively will be found to be practically the same.

In putting this principle into practice, it will suffice to measure the angle by which the extreme uprights depart from the perpendicular, which is easily done with an ordinary protractor, and to set the negative at that angle, multiplied by twice the focal length of the lens in inches; then, for the other inclination, it will be safe to swing the camera till the lines are parallel or perpendicular, and to focus in the ordinary way.—*The British Journal of Photography.*

## FOREGROUNDS IN LANDSCAPE.

By MAX EMERSON.

Let us look at the matter in a general way. The foreground is generally the most important part of the view for two reasons. As it is the nearest and largest, it is the best place for story-telling, and it can be changed more than any other. The method of changing the foreground seems to be to some a vast incomprehensible mystery. This is speaking of changing the foreground as if we were painters, and could introduce what we wished anywhere we wished it; but, although we cannot alter our pictures as the painter on his paper, we can do on the field what will in the end be of as great advantage to the photograph as the direct alterations made on paper are to the painting. Not even to mention the actual inserting and removing of objects by simply moving the camera up, twisting it round to right or left on the tripod, or by placing it to one side or the other, or moving it backward or forward, one can almost get a greater variety of foregrounds than any painter could even think of. It is in this simple way that the whole aspect and force of the foreground is completely changed. Here the question arises, which aspect is the one to be chosen?

The point that decides the artist whether to choose a foreground or not is this: Does it represent one principal idea? The word idea is here used in a large sense. Will it transfer to the mind of another this one idea? Can this idea be carried out through all of the details? When it fulfils this question it is said to have unity, and the artist chooses the aspect that has unity.

The unity of the picture naturally falls out of the consideration of our subject of foreground.

He chooses the foreground because there has happened in nature such a combination of circumstances that they, as they are, or by changing, will bring to the mind of another either an idea which the artist has had beforehand and now has found a bit of nature to represent, or an idea which the foreground itself has suggested. As far as the foreground goes, he adopts this one idea as the supreme thing, and it is held in mind while treating the details of the foreground. In other words, this unity is the basis on which he founds all his after-proceedings, and all is "clear sailing" after this. It is obvious that the circumstances that have suggested one main idea in one case, and thus gives unity, cannot be absolutely the same in any other case, and, therefore, the basis for after-proceedings varies in all cases. However, there are general laws which everyone must follow after that first important step of deciding upon the unity is made. That valuable artistic judgment which can at once detect which aspect has the choice unity is acquired only after experience in the field and the taking of many pictures. The helps that aid to its attainment we must hardly touch upon here, but turn to some of the things which the artist next considers.

Artists agree that foregrounds

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SPECIMEN OF HALF-TONE ON COPPER

should be broken, should have such a variety of objects that the eye of the spectator may not feel any sense of monotony in the view, such as an unbroken field, a too large piece of road, an expanse of smooth water, as his eye moves about to find rest on the objects that comprise the picture. There are, of course, exceptions to this when it is the special aim of the picture to represent some main idea, the carrying out of which requires this very state of unbroken extensiveness, such as a calm at sea or the rolling prairie might naturally enough possess, but even then it is always a help to have the expanse somewhat broken.

There is space for a passing word only about the light. The light should strike the foreground from an angle to the right or left and never from behind, and thus cast from all objects those dark shadows which make the objects stands out prominently and forcibly. I said the light should *never* come from behind; but there are cases where this is allowable to get certain odd or specially desired effects, but generally an unpleasant flatness and monotony is the result. If you would like to illustrate this go to the field and take a view with the light both ways, and I venture to say you will be so pleased with the effect of it at an angle that you will resolve never to take a view again unless the light comes from the angle. Let us turn now to some of the parts.

The objects should always be distinct, in good variety, and well lighted. There are many times when objects can be placed in a foreground to add a new item of interest, such as a wheelbarrow beside a road, a tub in a washerwoman's back yard, a pitchfork against the farmer's barn door.

Let us look at the relation of the objects to the unity of the foreground. It is obvious that as far as the main idea is concerned the objects must be agreeable, natural, and helpful (helpful implying subordination). They must be agreeable, for if they are not they mar the unity; they must be natural, for if they are not they "shock our sense of propriety"; and they must be helpful, for if not they add nothing to the picture. Let it be fully understood that nothing but being agreeable to the principal idea of the chosen view, natural links in a chain of unity, helpers-out in the telling of a tale, will serve the purpose. Those that do not do this must be changed, covered, or removed.

An illustration of one or two of these points may serve to help out here. An artist one Monday morning, after a refreshing Sunday's rest, took his camera and rode off into the country, determined to find some choice landscapes even if it took the whole forenoon. He had not ridden far when, as he was leaving the cool shades of a forest, on the edge of a clearing, he spied a lonely log-hut built a little way from the roadside. His companion remarked: "I wonder what old bachelor lives in this out-of-the-way place?" As they came nearer an old man made his appearance at the door and bade them good-morning. The artist saw that there was material for a picture, and the name "A Country Bachelor" flashed across his mind. Up went the

camera and soon all was ready. His wife and children have heard the intruders breaking the silence of their retreat and have made their appearance on the scene, and, as so often happens during that tedious time it takes to set the camera on its legs, the charming picture has flown. Wife and children are neither agreeable, natural, nor helpful to the main idea; they cannot be changed or covered and must be removed. A little persuading takes from the scene these objects so detrimental to the original main idea, and a picture of the bachelor and an apparently solitary reign is the result.

Again, an artist had found a tiny brook, and on setting up his camera saw that it gracefully entered the picture at the lower left-hand corner, went winding along across the middle of the plate, and disappeared in some bushes at a distance. "The Trout Brook" was the idea that at once suggested itself, and the need of a person somewhere along its banks seemed to be requisite to bring the idea to completeness. A boy was found, provided with a pole, and posed where he would not be so prominent as to suggest the fishing of the boy rather than the beauty of the brook. Thus simply is the requisite of art fulfilled.

The relation of the objects to each other is the last consideration the artist makes in the weighing of his picture. This must be agreeable, natural and helpful, and whatever fails to fulfil these requirements must be changed, covered, or removed. An example will help you out here. After the artist has taken one picture of "A Country Bachelor" and was strolling near by, he noticed that if he should move the camera a few feet he would bring in a clothes-line at the back of the house. Upon this he resolved to hang some pairs of socks. The day suggested the change of name to "A Bachelor's Monday," and, as you see, the added socks, as far as the man was concerned, were agreeable, natural, and helpful. Let us imagine a few other cases. Suppose the old man's pig should suddenly come nosing about in the yard; it would be *natural*, but, however, not agreeable or helpful, for we have enough without him. If one had occasion to take a picture of a little girl in a field away from home, one might suppose a case where a doll would be *agreeable*, as far as the girl went, but quite unnatural and not *helpful*. It seems as if more illustrations were unnecessary to show that these three words show the requisites of the objects, and it is obvious that if the objects as related to each other fail in agreeableness, naturalness, and helpfulness, they fail also to complete the unity of the foreground.

The picture-maker must *know* he is introducing the right thing, or when he sees the result he may find himself calling himself to judgment, as once a little girl did her Father. I wonder if you have heard the story. This little girl used to pray for the playthings she wanted, and her parents used to listen and buy the things for which she asked. It happened one day that she prayed for a bicycle, but her father and mother considered the matter and thought it best to buy her a tricycle. The next night the little

girl thanked her Father in heaven for the gift, and added, "But, O God, don't you know the difference between bicycles and tricycles?"

It may seem to some that the treatment has been omitted for a case such as a great boulder filling up a large share of the foreground, and being neither agreeable, natural, nor helpful, and which cannot be changed, covered, or removed. By reference to the paragraph on unity it will be recalled that the artist would not choose such an aspect in the beginning.

We have purposely taken illustrations of different subjects to show that the same law runs through the picture irrespective of the material of which the picture is made. It is hoped that the doing so has not led anyone to the extremity of entirely failing to see how any law at all comes in, but we trust that a re-reading will make it all clear to whomever may have been misled. In the re-reading notice how the moving of a camera, inserting or removing an object, the doing of a very little thing, is what has added a charm to the picture.

The writer does not take any praise to himself for anything written here, if perchance it deserves such. The books are teeming with these very ideas. (Let it be said that any suggestions or questions in regard to the ideas and methods in this article will be thankfully received, and further information on any point in it gladly given. Address Newton, Mass. Thus the author would learn more fully the wants of the amateur.) It is a regret that we cannot here even touch upon balance, value, and the introduction of figures.

In closing, a summary may not be out of place to fix the main points in mind.

The foreground must bespeak one main idea as the basis for its unity; must be lighted from the side and broken.

The objects must have variety and distinctness.

The relation of the objects to the main idea and to one another must be agreeable, natural, and helpful.

Along the lines mentioned these four simple considerations, with those that hang on them, comprise all that the artist can make, and his success depends upon his thoroughness, ingenuity of arrangement, and unflinching determination to succeed in art.

If the uninitiated in art will carefully re-read and ponder over what has been said until the simple truth of the principles becomes well founded in the mind, and commit to memory the summary, so as to have the main points ready when needed in the field, there can be no doubt but that it will make a marked change for the better in his next set of views. It is expected that oftentimes cases will come up which apparently cannot be treated in this general way, but if the truths are well grounded in the operator's mind the view will often suggest to him what to do in the treatment.

Sometimes one has to experiment on as many as a hundred pictures before he feels sure of his footing in art. We all know what a charm even a little art adds to the photograph, and once a firm footing is obtained and one sees that laws are running through every phase of his

work, and feels master of these, so that he can be sure of his result, he has reached a most enjoyable plane, and ever afterwards the drudgery of photography, so hated at first, is changed into a delightful fascination. —*Wilson's Photographic Magazine.*

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## LANTERN SLIDES.

AT a late meeting of the South London Society, Mr. Oakden gave a demonstration of lantern slide making. *Photography* reports it as follows: He said slides were made in two ways: (*a*) By contact, when a portion only of a negative was taken; and (*b*) by reduction, when the whole or the selected parts of a negative were included in the finished slide. Slides by contact could be made by placing the lantern plate face downwards on the negative in an ordinary printing frame, and after placing in the back, the plate was exposed to the light of magnesium ribbon, gas, or other illuminant which was convenient. Slides could be made from all fairly good negatives, but those which were technically good were the easiest to work with. Negatives slightly inclining to thinness produced the best results. The lantern plates at present on the market had good qualities, but in purchasing them, freshness should be insisted upon, as they rapidly deteriorated, and no one could obtain the finest results on stale plates. There was a choice in the matter of developers, of which hydroquinone appeared to be the favorite; the formula being as follows:

A

| | |
|---|---|
| Hydroquinone ..... | 80 gr. |
| Sulphite of soda.... | 1 oz. |
| Citric acid ..... | 30 gr. |
| Bromide of potash .. | 15 gr. |
| Water to ..... | 10 oz. |

B

| | |
|---|---|
| Caustic soda ..... | 80 gr. |
| Boiled water..... | 10 oz. |

Use one part A, one part B, and two parts water.

Metol gave very good results, with less contrast than hydroquinone:

A

| | |
|---|---|
| Metol..... | 50 gr. |
| Dissolve in water ... | 10 oz. |
| Sulphite of soda, add | 1 oz. |

B

| | |
|---|---|
| Carbonate of potash. | 1 oz. |
| Water to ..... | 10 oz. |

C

| | |
|---|---|
| Bromide of potash.. | 1 oz. |
| Water to ..... | 10 oz. |

Use one part A, three parts B and ten minims C.

Glycin produced very beautiful slides of bluey-black color:

| | |
|---|---|
| Glycin-Hauff..... | 75 gr. |
| Carbonate of potash | 300 gr. |
| Sulphite of soda... | 300 gr. |
| Water to ..... | 3 oz. |

Use one part to three parts water.

Add a few drops of 10 per cent. solution of bromide of potash in the case of over-exposure. It will not be required in case of correct exposure. It was absolutely necessary, to avoid stain, to wash the slide after development and before fixing in hypo. When slides were made too dense they could be reduced by soaking them for a short time in the following solution:

| | |
|---|---|
| Solution of perchloride of iron (B.P.) | ¼ oz. |
| Hydrochloric acid | ½ oz. |
| Water to | 20 oz. |

and, after washing, immersing them in a fresh hypo solution. If sufficient reduction had not taken place the operation could be repeated. If any scum formed on the surface of the slide it could be removed by the alum clearing solution :

| | |
|---|---|
| Saturated solution of common alum | 1 pint. |
| Hydrochloric or sulphuric acid, add | 2 dr. |

Farmer's reducer (ferricyanide of potash and hypo) could also be used, but was liable to affect the color of the slide if much local reduction was required. Slides which were too thin could be intensified with uranium, which changed them to a red color. Mercuric intensification was unsuitable for lantern slides.

| | |
|---|---|
| Nitrate of uranium | 15 gr. |
| Fer'cyanide of potash | 15 gr. |
| Glacial acetic acid | 1 dr. |
| Water | 5 oz. |

Place the slide in the solution until sufficient density was attained. If the intensification had gone too far, the color and intensification could be discharged by placing the slide in a solution of ammonia, carbonate of soda, or other alkali, after which the intensification operation could be repeated. After intensification the slide was washed for a short time only in water acidulated with acetic acid to remove any yellow stain. Slides were rendered a little more brilliant by varnishing them when they were dry with enamel collodion or celluloid varnish.

## KALLITYPE.

By Richard Penlake.

Now that the dark evenings are approaching some of us are at a loss to know how to spend a little spare time. We have perhaps got all the lantern slides needed, done all our enlarging, etc., and are looking out for "something new." To such I would say, "Take up the kallitype process." The first question which arises is, "What is kallitype?" It is a charming printing process which does not attract half the attention it deserves. It gives results like platinotype. The materials are cheaper, and it is, I believe, the only process that will give an engraving black image from a thin negative. The prints are not so permanent as platinotype, but more so than any process in which silver is employed. It is not a printing-out process, but one in which the picture is developed. This is no disadvantage; quite the reverse, as the developer may be varied to suit different densities of negatives, and the sensitizing solution may be applied to any paper. Mr. W. K. Burton gives the following sensitizing solution :

| | |
|---|---|
| Neutral ferric oxalate | 75 gr. |
| Silver nitrate | 30 gr. |
| Water up to | 1 oz. |

Any good plain paper may be used. Rives paper is recommended for small work, and for large work (say above whole plate) rough drawing-paper is specially suitable. There is enough solution here to coat ten square feet of smooth paper, or five square feet of rough. Lay the paper to be sensitized on a sheet of glass or a clean board,

pour a few drops of the solution on to it and rapidly spread over the surface with a pad of cotton wool, causing the strokes to cross until an even surface is got. However careful one is, it is almost impossible to avoid streaks; but if these are few, they will not show in the finished print. Hang up the paper for one minute, then dry in front of a clear fire, as rapidly as consistent with its not getting hot, as it is liable to fog if unduly heated.

Paper so prepared will keep for several days in any ordinary wrapping, but if required to keep much longer a calcium tube is necessary.

Printing is done in the ordinary printing frame, the time taken being about one-third that needed for ordinary paper. The image is visible, and has the exact appearance of the image in the platinotype process—*i.e.*, the paper is of a lemon-yellow tint, due to the ferric oxalate, and the image is a yellow with a little grey in it, but still not much different in tint, so that it is naturally very faint, while the finer details are not visible at all.

Development is performed by flowing one of the following developers over the surface of the paper, just as in developing a dry plate:

*Developer for a Warm Black*—A saturated solution of borax, 10 ounces; rochelle salt, 1 ounce.

*Developer for Engraving Black*—A 10 per cent. solution of sodium acetate.

*Restrainer*—A 1 per cent. solution of potassium bichromate.

The effect of the restrainer is very marked. Without it the prints are liable to become flat and to have dirty whites. The least that is needed is seven or eight drops to each ounce of solution used, and no more than this should be used for prints from good negatives; but when the negative is very thin more of the restrainer may be added, thirty drops per ounce doing no harm, providing the exposure has been correspondingly increased. In this way it is possible to get brilliant prints from negatives that are too poor to give a print by any other process.

The image develops from a pale yellow color to a black in a few seconds; but if the print be at once removed from the dish it will be found that the high-lights are yellow. When the first bath be used the print must remain for about ten minutes, during which time it will be observed that no further developing action takes place, but the yellowness is removed. Though the developer can be altered to suit different negatives, or even to a certain extent to compensate for error in exposure, the result cannot be modified in any way when once the print is in the developer.

In using smooth paper a number of prints may be developed in the same solution, pouring the developer into a measuring-glass as soon as one print is developed, placing an undeveloped one on the top of the latter, and returning the developing solution; the prints should be kept moving as when toning. When rough paper is used this method is not advisable, as the image gets rubbed and causes a mottled appearance.

If, however, the second developer be used, the print should, when dark enough, be placed for a few minutes

in a clearing bath of a saturated solution of potassium oxalate.

Whichever developer be used, the next process is washing in two or three changes of water; after which fix in

| | |
|---|---|
| Ammonia .880..... | ¼ oz. |
| Water..... | 1 pint. |

Allow the prints to remain therein for fifteen minutes, then wash for half an hour.—*Junior Photographer.*

## DANGEROUS CHEMICAL COMBINATIONS.

PHOTOGRAPHERS are constantly using many chemical compounds which under certain conditions form dangerous explosive combinations. Attention to the following information taken from the *British Druggist* may prevent some careless experimentists from being blown up:

*Potassium Chlorate.*—This is probably more often the cause of explosion than any other chemical which is handled by pharmacists. It should never be mixed in the powdered state with organic substances; even in very small traces in "saline" it is apt, after a time, if all the ingredients and the containing bottles are not absolutely dry, to burst the bottle and violently scatter the contents. It should never be mixed dry with tannin. Occasionally a gargle is ordered containing these ingredients; they should always be dissolved separately. Hypophosphites and chlorate similarly explode when mixed in the dry state. Chlorate of potassium and glycerine alone should never be dispensed nor should it be combined with sulphur or the metallic sulphides.

*Permanganate of potassium* is another source of danger, for the same reason as chlorate—it so readily gives up its oxygen; consequently it should not be mixed with any organic bodies, such as sugar or glycerine, or with spirit of wine or spirituous preparations. When ordered in the form of pills, it should be massed with kaolin and petrolatum.

*Glycerine*, in addition to the cases above mentioned, should not be combined with chromic acid, nor with borax together with alkaline carbonates.

*Turpentine and volatile oils* containing terpenes should not be combined with strong mineral acids, nor with iodine or bromine.

*Iodine* should never be mixed in the free state with any preparations containing free ammonia, especially when combined with fatty matter.

*Oxide of silver*, sometimes ordered in the pilulae form, should be massed with kaolin and petrolatum, and no chloride combined with it.

*Spirit of nitrous ether* frequently becomes very acid in keeping; in this state, when mixed with carbonates or bicarbonates, it liberates carbonic anhydride, and, if tightly corked, the bottle is frequently burst. Such a mixture should not be corked immediately after mixing. Excess of acid in the nitre may be removed by keeping a large crystal of sodium bicarbonate in the stock bottle, occasionally easing the stopper.

## OUR ILLUSTRATION.

Our frontispiece this month is a most interesting one. It is made on the Nepera Chemical Company's Bromide paper by the Automatic Printing Company, of New York City, from special negatives kindly furnished for the occasion by that prince of photographers, "Falk," of New York. Under the heading "Photographic Printing by Machinery," in another column, will be found a most interesting illustrated description of the way in which the pictures are automatically printed, developed, fixed and completed by this company.

The printing of miles of pictures at the speed necessary to turn out, as they do, over 150,000 finished cabinet photographs in ten hours, necessitates the use of a bromide paper that is uniformly of the very best quality. That Nepera Bromide paper proves perfectly satisfactory under such exacting conditions, shows conclusively that it is about as perfect as it is possible to make it.

Nepera Bromide paper works as easily and as satisfactorily in the hands of the professional or amateur photographer as it does on a larger scale with the Automatic Company.

## NOTICE BOARD.

**A Very Notable Issue** of *The Art Amateur* is that for November. Since this admirable magazine set the fashion, years ago, of giving absolute fac-similes of paintings in oil, water-colors and pastels, it has had many cheap imitators; but certainly no "cheap" production of any kind could compete with either of the two superb color-plates *The Art Amateur* gives this month. "A Modern Madonna," by Conrad Kiesel, the German Court painter, is the head of a beautiful woman, and this periodical has never brought out a more dainty flower-piece than the "Yellow Roses and Violets," by Mrs. Mumaugh. The reading matter is most interesting.

**"If You Want Cause to Rejoice;** if you are tired of faded and yellow prints; if your finished prints do not please you; if you are having trouble with your printing paper—try N.Y. Paper." Thus reads a postal card announcement of the N. Y. Aristotype Co., Bloomfield, N.J.

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WE are exceedingly sorry to have to announce the death, on November 8th, at Lane Park, Florida, of Mr. J. Traill Taylor. Mr. Taylor has for many years been widely known in photographic circles, and for the last twenty years has been the editor of the *British Journal of Photography*, a position he filled with great honor to himself and the journal. Mr. Thos. Bedding, who has been associated with Mr. Taylor for a number of years, will be asked to accept the position left vacant by Mr. Taylor's death, and he will, without doubt, prove a worthy follower of an illustrious chief.

## A CHEAP ENLARGING LANTERN AND SOME HINTS UPON ENLARGING.

By JOHN A. HODGES.

IN a courteous manner, very refreshing in these days when discussion is usually conducted in a more or less acrimonious spirit, Mr. Pearce, in the July number of *Scraps*, criticized my advocacy of small plates and subsequent enlargement, and pointed to the costly nature of an enlarging outfit. It is not my intention to attempt to controvert his views here, nor, indeed, would it be the place to do so, but by way of answer to the question of expense I propose now to fulfil a promise made some time since, of giving a short description of an enlarging apparatus which I have myself constructed, by following which any photographer may become the possessor of an efficient enlarging lantern at a purely nominal cost.

Although the practice of enlarging has attracted many photographers, a large proportion of workers still look with a certain amount of disfavor upon that method of producing large pictures, alleging that an enlarged photograph must necessarily lose quality when compared with a picture of the same size taken direct. This objection, however, is not well founded, for in many instances the process of enlarging produces a distinct improvement in the resulting picture.

There are, of course, two methods of working open to us: we may either work by daylight, or use artificial light. Now for amateur workers, and all who use small plates, I have no hesitation in saying that the latter method is by far the best, and it is the one by which the largest proportion of successful prints will be most easily obtained. Daylight, of course, has its advantages, but although it is certainly more economical, the constant variation in its intensity makes the exposure so uncertain that the slight saving in the initial cost of the apparatus is soon counterbalanced by the increased consumption of material through errors in exposure.

The enlarging lantern of the shops is necessarily a rather expensive piece of apparatus, but it will not be found a difficult matter to construct a home-made substitute for a very small outlay. Of course those who use 3¼ by 3¼ plates can employ an ordinary optical lantern, but the majority of the readers of *Scraps* are doubtless users of the more familiar quarter-plate. A large box, or small packing-case, can be utilized for the body of the enlarging lantern, the only object which it serves being to support the optical system—*i. e.*, the condenser and enlarging lens—and prevent the light from the illuminant escaping into the room in any other way than through the lens. It should, however, be of sufficient size to prevent any danger from over-heating, if paraffin is chosen as the illuminant. My own apparatus is made of inch boards, 7 inches wide, and its dimensions are as follows: 14 inches high, 14 inches deep, and 9 inches wide. In the front

a hole 5½ inches in diameter is turned out in a lathe, and into this the condenser just fits. The bottom, also, has about half-a-dozen holes 1 inch in diameter taken out with a brace and bit to allow of ventilation. No door is necessary at the side, the back being left completely open and afterwards closed in by a thick piece of black velvet attached with rings to a bent rod. A bellows front or a small camera is placed in front against the condenser for the purpose of carrying the lens. A piece of sheet-tin with a hole cut in the centre in which a stove-pipe elbow, about 3 inches in diameter, is fixed, will sufficiently serve for the roof and chimney. The last, but by no means least important part of our enlarging lantern is the illuminant. Until recently the majority of those who employed an enlarging lantern used an ordinary parallel wick lamp. This form of illuminant, besides being in its nature rather unsuitable for the purpose, generally caused more or less inconvenience from smell and heat. The electric light, or the lime-light, when available gives most excellent results, but both will probably be out of reach of the majority of my readers, and it is to a comparatively new source of illumination—namely, the incandescent gaslight—that I wish to direct attention. After some months' experience with it, using it in the lantern for ordinary projection purposes, and also for enlarging, I have no hesitation in recommending it as being the best all-round illuminant which the amateur can use. The light is now so well known for ordinary domestic purposes that it is unnecessary here to give a detailed description of it. It may, however, be well to dispose of an objection which has been urged against it—namely, the fragility of the mantles. Although these are undoubtedly of an extremely delicate nature, this fact need not deter the reader from adopting the system. In support of this opinion I may say that I have myself had the same mantle in constant use, both for enlarging and projection, since Christmas last, during which time it has been repeatedly moved from room to room, and on one occasion it survived the ordeal of carriage on the London, Chatham and Dover Railway, to and from Ludgate Hill and Clapham.

No special fitting is required to adapt it to the lantern, any ordinary gasfitter being quite competent to do the necessary work.

Among the advantages of the incandescent gaslight over the ordinary multiple wick lamps are—more even illumination, entire absence of flickering, greater intensity of light, and reduction of heat—all very valuable considerations to the enlarger. The exposure is very considerable less than would be necessary when using a paraffin lamp, the light of the latter being in comparison quite yellow. Having briefly, but I trust with sufficient detail to be of practical benefit, dealt with the construction of a home-made enlarging lantern, I will conclude with a few hints upon the process itself.

When bromide paper was first introduced, and it came forward as a competitor with platinum, a good many people looked upon it with some disfavor, and comparisons, generally unfavorable to the former, were

made between the two processes. I confess in the early days of bromide paper, when its manufacture had not arrived at the acme of perfection which it obtains now, that I shared, to a certain extent, these views. At one time the large proportion of gelatine present in the emulsion, by producing a glossy surface highly objectionable with some subjects, considerably detracted from the artistic qualities of the prints. All that however is changed, and the paper is now so prepared that its natural surface is preserved in a manner which renders it extremely difficult, if not impossible, to distinguish a print in bromide from one in platinum. The secret of success in producing permanent prints (and it should be no secret) is thorough fixation followed by thorough washing. In regard to the first, two freshly made fixing baths should always be used, and ten minutes fixing allowed in each. The washing should be thorough, but need not be unnecessarily long. The prints by preference should be subjected to the action of running water rather than too many changes in still water. Where only a few prints are to be treated, the following is a capital plan to adopt: To the top of a large drawing board is fastened with screw eyes or bent French nails a piece of half-inch lead pipe, one end of which has been turned up for about two inches, the other being completely closed. In this pipe a row of tiny holes half an inch apart should be made. To use this washing apparatus the enlargement is pinned to the board immediately underneath the pipe, and the whole arrangement placed in the sink, at an angle of 45 degrees, the pipe being connected with the water supply by a piece of India rubber tubing, and the tap turned on. Ten minntes, or a quarter of an hour, of such washing will more effectually free the enlargement from hypo than several hours soaking in still water. I should like to say that I claim no originality for this device, having seen it in use in a friend's dark room who possibly may have seen it described elsewhere. It affords, however, such a simple and effective means of washing one or two occasional enlargements that its description is worthy of repetition here.

Although it is perhaps rather placing the cart before the horse to refer to fixation before development, I will conclude what I have to say this month with one or two remarks upon the subject of development.

For a very long time I held the opinion that ferrous-oxalate was the best developer for bromide work, but a year's work with amidol has convinced me that the latter is a most formidable rival. I still think that ferrous-oxalate can hold its own, but with amidol results as good can be obtained with a tithe of the experience and ease which are absolutely essential to success when ferrous-oxalate is empioyed. It has the further advantage that when uranium toning is to be resorted to (and warm tones are apparently still very popular) there is no danger of the enlargement being ruined by traces of iron remaining in the paper combining with the ferricyanide of potassium and forming Prussian blue. Amidol is a very simple and clean developer to use; it does not contain many ingredients, nor, when proper precautions are

taken, does it stain. But like all new things, it requires to be understood before the best results can be obtained. My own method of working is to give a full exposure and develop with a solution fairly strong in amidol, but well restrained. Density is very easily obtained, but almost any effect can be produced by modifying the exposure and the strength of the developer. It is easy with very little practice to get almost any desired result on either brand, but it may be mentioned that the "Ilford Slow" bromide tends to strong prints, and may, therefore, be preferable if the enlargements are to be produced from very thin negatives; whilst the "Rapid" paper, on the other hand, produces a softer print. In the case of negatives which are either abnormally soft or abnormally hard it will be well to bear this fact in mind.

The only practical drawback to the use of amidol is the fact that it readily oxidizes, and does not therefore keep well in solution. This, however, in practice, is not a very serious difficulty. The following is the method of working which I adopt myself: In one quart of distilled water I dissolve one pound of sulphite of soda, and two drachms of bromide of potassium. This stock solution will keep indefinitely. For use I pour out as many ounces as I require, adding the necessary quantity of amidol dry. For a normal developer, five grains of amidol to the ounce of solution may be used; if greater density is required, the quantity can be increased, or *vice versa*. Development takes less time than when ferrous-oxalate is used, the image appears quickly and with full detail, but time must be allowed to obtain sufficient density. I prefer myself, as I have already said, to work rather slowly with plenty of bromide, for by having the developer well under control one can arrest development directly the desired effect is produced, there not being the same amount of reduction or going back in the fixing bath which so often occurs when ferrous-oxalate has been used.

Those who use the hydroquinone developer should not fail to bear in mind a little peculiarity it possesses, as if that is overlooked at this season of the year unexpected difficulties and trouble may arise. We refer to the fact that hydroquinone is rendered proportionately slower in its action in winter than any other developing agent. Of course all developers in cold weather have their action somewhat retarded, but with hydroquinone this retarding action of the cold is much more pronounced, and a *little* longer exposure must be given, and longer time allowed for the development.—*Photo Scraps.*

## LETTER FROM EX-SECRETARY HAYES OF THE P. A. OF A.

SIR,—During the late Photographers' Convention two unfortunate mistakes occurred, both of which I can only attribute to the shortness of time in which the judges had to make the markings, and the awarding committee to make up the prize list. This delay was caused by the unfortunate discussion in regard to the method of appointing the judges. This thing has been brought up year after year since the Association started, but I thoroughly believe that no fairer way can be devised than the