

At the end of this time you can make your two dozen plates in about an hour. Proceed as follows:—Have two porcelain dishes large enough to hold four or six of your plates; into one put sufficient clean water to nearly fill it, into the other put 30 ounces of clear, flat, *not acid*, bitter beer, in which you have dissolved 30 grains of pyrogallic acid. Pour this through a filter into the dish, and avoid bubbles. If allowed to stand an hour, any beer will be flat enough; if the beer be at all brisk, it will be difficult to avoid small bubbles on the plate. At all events, let your preservative stand while you filter your emulsion. This must be done through perfectly clean cotton-wool into a perfectly clean collodion bottle; give the emulsion a good shaking, and when all bubbles have subsided, pour it into the funnel, and it will all go through in five minutes. The filtered emulsion will be found to be a soft smooth creamy fluid, flowing easily and equally over the plates. Coat with it six plates in succession, and place each, as you coat it, into the water. By the time the sixth is in, the first will be ready to come out. Take it out, see that all greasiness is gone, and place it in the preservative, going on till all the plates are so treated.

A very handy way of drying is to have a flat tin box of the usual hot plate description, which fill with hot water, then screw on the cap; on this flat tin box place the plates to dry, which they will do rapidly; when dry, store away in your plate box, and you will have a supply of really excellent dry collodion plates.

Just a word as to the preparation of the glasses before coating. It is very generally considered that it is better the glasses receive either a substratum of albumen, or very weak gelatine. I use the latter on account of the great ease of its preparation. After your glasses are well cleaned, place them in, and rub them with a weak solution of hydrochloric acid of the strength of 2 ounces acid to 18 ounces water.

Prepare a solution of gelatine 1 grain to the ounce of water, rinse the plate after removal from the acid mixtures, and coat twice with the above gelatine substratum; the first coating is to remove the surplus water, and should be rejected. Rear the plates up to drain, and dry in a plate rack, or against a wall, and be careful to prevent any dust adhering to the surface while wet.

Having now described the plates I intend to use, let us next consider what a transparency is, that we may understand the nature of the work we are undertaking. You are all aware that if we take a negative, and in contact with it place a sheet of sensitized paper, we obtain a positive picture. Substitute for the paper a sensitive glass plate, and we obtain also a positive picture, but, unlike the paper print, the collodion or other plate will require to be developed to bring the image into view. Now this is what is termed making a transparency by contact. It often happens, however, that a lantern slide $3\frac{1}{4}$ by $3\frac{1}{4}$ has to embrace the whole of a picture contained in a much larger negative, so that recourse must be had to the camera, and the picture reduced with the aid of a short focus lens to within the lantern size; this is what is called making a transparency by reduction in the camera. Both cases are the same, however, so far as the process being simply one of printing.

Those who have never made a transparency will have doubtless printed silver prints from their negatives, and when printing, how often do you find that to secure the best results you require to have recourse to some little dodge.

Now, let us bear this in mind when using such a negative for the printing of a transparency, for, as I have said before, it is only a process of printing, after all. Although we cannot, when using a sensitive plate, employ the same means of dodging as in the case of a silver print, still we are not left without a means of obtaining the same results in a different way, and this just brings me to what I have already hinted at previously, that a deal more depends on the manipulative skill of the operator than in the adoption of any particular make plate or formula; and not only does this manipulative skill show itself in the exposure, development, &c., but likewise comes into play in a marked manner even in the preparation of the negative for transparency printing.

Let me deal with the latter point first. You will at once understand that a negative whose size bears a proportion similar to $3\frac{1}{4}$ by $3\frac{1}{4}$ will lend itself more easily to reduction; thus whole plate or half plate negatives are easy of manipulation in this respect, and require but little doing up. But as other sizes have at times to be copied into a disc $3\frac{1}{4}$ by $3\frac{1}{4}$, recourse must be had to a sort of squaring of the negative. Now, here I have a negative $7\frac{1}{4}$ by $4\frac{1}{4}$, which is perhaps the worst of all sizes to

compress into the lantern shape, so I have, as it were, to square this negative, and this I do by simply adding to sky. I take a piece of cardboard and gum it on to the glass side of the negative, and this addition gives me a size that lends itself easily to reduction to the lantern disc, and in no way detracts from the picture.

Having said so much about making up the size, let me add a few words as to other preparations that are sometimes necessary. In a good lantern transparency, it is, of all things, indispensable that the high lights be represented by pure glass, absolutely clean in the sense of its being free from any fog or deposit, to even the slightest degree; it is also necessary that it be free from everything of heaviness or smudginess in the details. To obtain these results, I generally have recourse to the strengthening of the high lights of my negatives, and this I do with a camel's hair brush and india ink, working on the glass side.

I nearly always block out my skies, and so strengthen the other parts of my negatives, that I can rely on a full exposure without fear of heaviness or smudginess. This blocking out is easily done.

Having said so much about the preparation of the negative, let me now describe the apparatus I use. I have here an ordinary flat board, and here my usual camera; it is the one I use both for outside and inside work. It is a whole-plate one, very strongly made, and has a draw of twenty-three inches when fully extended; but this is not an unusual feature, as nearly all modern cameras have their draw made as long as this one. The lens I use is a Ross rapid symmetrical on five inches focus, and here I have a broken-down printing frame with the springs taken off, and here a sheet of ground glass. This is all that is required. I mention this because I find it generally believed that a special camera is required for this work, such as to exclude all light between the negative and the lens; in my practice I have found this unnecessary. There is nothing to hinder the use of ordinary cameras provided the draw is long enough, and the lens a short focus one.

Now let me describe how to go to work. I take the negative and place it in the printing-frame, holding it in its place with a couple of tacks, film side next the lens, just as in printing; then stand the printing frame on its edge on the flat board, and place the ground glass in front of it—when I say in front of it, I mean not between the negative and lens, but between the light and the negative. The ground glass can conveniently be placed in another printing frame, and both placed up against each other. I then bring my camera into play, and so adjust the draw and distance from the negative, till I get the picture within the disc on my ground glass. I find the best way is to gum a transparency mask on the inside of the ground glass; this permits of the picture being more easily brought within the required register. This done, focus sharply, cap the lens, and then proceed to make the exposure.

Now what shall I say regarding exposure? Just let us bear in mind again that it is merely a printing process we are following up, as you will all know that in printing no two negatives are alike in the time they require. So in this case no two negatives are the same in their required exposure. Still, with the plates I am going to use, so wide is their range for exposure, that but few failures will be made on this score, provided we are on the safe side, and expose fully.

Although these plates are not nearly so fast as gelatine plates, it may surprise you to be told that working with a negative which to daylight at this dull time of the year required an exposure of sixteen minutes, will, I hope, give me good results in about a tenth of this time; and this I obtain by burning magnesium ribbon.

At first the error I fell into when using magnesium ribbon was too much concentration of light. I now never allow the ribbon, when burning, to remain in one position, but keep it moving from side to side, and up and down, in front of the ground glass while making my exposure; and if there be any dense place in the negative which, as in printing, would have required printing specially up, I allow the light to act more strongly on that part; the result, as a rule, being an evenly and well exposed plate.

I must not forget to explain to you the manner in which I coil up the ribbon before I set it alight. I take an ordinary lead pencil and wind the ribbon round and round, thus making a sort of spiral spring; this done, I gently pull the coils asunder. I then grasp the end of the ribbon with a pair of pinchers, light the other end, and make my exposure.

Having said so much regarding exposure, I shall now proceed