

Photographic Notes

Developing Trays.

These can be made out of old cardboard plate-boxes, lids or wooden boxes by simply coating them with a solution containing equal proportions of gutta-percha and paraffin wax. The gutta-percha chips should be first melted over a slow fire. When thoroughly melted add the paraffin, and stir until quite thin. The box should be warmed, and can then be painted with the solution, which will resist any alkali or acid, and the article will be waterproof.—E.E.F., in *Photo Beacon*.

Negative Improvements.

By W. ETHELBERT HENRY, C.E., in *The Photogram*.

A too dense negative can be easily reduced by immersion in hypo one ounce, water eight ounces, red prussiate of potash ten to twenty grains. The amount of the latter salt governs the rapidity of reduction.

A too thin negative must, of course, be intensified. Many intensifiers contain mercuric chloride, which is very undesirable. About the best intensifier is one introduced by J. B. B. Wellington, in which the intensification is due to silver nitrate and a pyro developer. It is made thus: Mix 100 grains of silver nitrate in two ounces of distilled water. Add to this solution 240 grains of ammonium sulphocyanide, which will form a precipitate which will ultimately be re-dissolved. On diluting this to ten ounces with water another precipitate is thrown down. Hypo must now be slowly added until the precipitate is just dissolved; the resulting mixture constitutes the stock solution. To intensify, take one ounce of stock solution and add sodium sulphate twelve grains, ammonium bromide two grains, ammonium hydrate six minims, and pyro three grains. Flow this over the wet negative, and keep it moving until sufficient density is gained. More ammonia may be added if the developer prove not sufficiently energetic. This intensifier is capable of giving extreme density without fog, and a great advantage is that absolute freedom from hypo is not necessary.

Transparent spots and pinholes should be carefully filled with an opaque water-color diluted to match in depth the opacity of the surrounding film. "Photopake," introduced by the Vanguard Co., is most useful for this purpose as well as for blocking out objectionable backgrounds, such as generally appear in photograms of machinery taken in sheds and fitting-shops.

Cracked negatives are difficult to print satisfactorily unless proper precautions are first taken. When the glass is cracked, while the film remains sound, the negative should be supported on a sheet of

sound glass, and immersed in a bath composed of hydrofluoric acid one dram, in water ten ounces. When the edges of the film begin to frill, let them be worked towards the centre of the plate, and the film will be rapidly detached. The loose film can then be transferred to clean water, and lifted out on a new sheet of clean glass. When dry it may be again washed, intensified, or reduced as may be necessary. As hydrofluoric acid attacks glass, and also the glass-like enamel of porcelain dishes, it is obvious that a papier-mache, ebonite, or varnished or waxed wooden dish should be used for the stripping mixture.

Scratched negatives are a trouble to printers. If the scratch is on the film side, the only cure is to spot it as carefully as possible in order to fill up the clear part and make it print in accordance with the rest of the negative. If the scratch is on the glass side it is still liable to show conspicuously in printing, but the following is a simple and effective plan of preventing any ill effect. The glass side must be made as clean as possible, and the scratches must be freed from dirt. Then warm the plate gently and place it, glass side down, upon another piece of warm clean glass, on the centre of which has been placed a few drops of thick Canada balsam. Place the plates on a warm slab of fire-brick or an iron plate, and apply a gentle pressure until the Canada balsam exudes from the edges; then allow to rest until cold and firm. If the scratches are few and small they may be simply filled with Canada balsam (without using an extra glass), and thus become imperceptible.

Titles on negatives may be put on in various ways, to print either in white or dark letters; in most cases the white letters are preferable. In a large business it would perhaps be well to use the "Nameit" rubber type, which is so arranged as to give a reversed impression on the film which, in turn, prints correctly on the finished photogram. Another plan is to write the title backwards on the film in small block letters, using a fine pen and "Photopake," while still another (which I have frequently adopted) is to have the title printed from type on clear tracing paper, cut them into strips, and stick them face downwards on the film with a suitable adhesive. Another method, much more troublesome, but far neater in some respects, is to have the titles printed on fine white paper, and then photograph them on a reduced scale and make a transparency by contact. The transparency must then be coated with gelatine and collodion, stripped and cut into slips as required. A simpler method is to print the transparency on thin transparent celluloid film, which may be fastened to the negative film with fish glue.

Printing dodgers of various kinds hardly come within the scope of this series of hints, nor within the space at my command, so they must be held over until another occasion.

WEAK SPOTS IN NEGATIVES—Occasionally the amateur produces a negative which would give excellent results when printed from, but for a light corner, or even a light and faded-looking spot in a very conspicuous place. According to N. Monroe Hopkins (*Scientific American Supplement*) such a negative can be printed from and the print be much improved by strengthening the light in that particular place by means of a large reading glass. The sun's rays should be concentrated on the dense part of the negative, and the glass moved to and from the negative in order not to form a round spot. With a glass measuring five or six inches in diameter the illuminated spot should vary, having an average area of that of a silver dollar, and care should be exercised not to allow the focus to get much smaller, for a fine focus and several seconds' time constitute all the elements necessary to go right through the negative, making a beautiful star of cracked glass on the way.

PHYSICAL INTENSIFICATION OF PHOTO-NEGATIVES.—Lord Rayleigh describes an optical device for the intensification of photographic negatives which are so thin that intensification by chemical processes is insufficient to bring out any effective contrast between the transparent and opaque parts. The new method is purely a physical one, and is described as one of using the negative twice over. On placing a feeble transparency upon a sheet of white paper, the picture becomes clearly visible, even though nothing can be seen when the transparency is viewed by transmitted light. Through the transparent parts the paper is seen with but little loss of brilliancy, while the opaque parts act, as it were, twice over, once before the light reaches the paper and once again after reflexion on its way to the eye. In Lord Rayleigh's method, a flat polished reflector is used instead of the paper, the film side of the negative being placed in close contact with it. On the other side of the negative, and fairly close to it, is a condensing lens, which gives parallelism to the rays from the candle used as a source of illumination. The candle is placed just alongside of the copying lens, the light from it passing through the condensing lens, and falling as a parallel beam upon the negative. After reflexion, the light again traverses the lens, and forms an image of the candle centered upon the photographic copying lens. An optically intensified positive is thus obtained, and by copying it in the same way in the camera, a negative with more pronounced contrast than the original may be made. To obtain satisfactory results, the false light reflected by the optical surfaces employed must be eliminated. In the case of the condensing lens the difficulty is overcome by giving the lens a slight slope with reference to the face of the negative. The false light reflected from the glass face of the negative to be copied may be got rid of by bringing into contact with the negative a wedge-shaped