

or jar is to be placed in warm water, which liquefies the mass; it is then ready for use.

A new developer for transparency and lantern plates—

Water.....	60 ozs.
Sulphite of soda (crystals)	60 ozs.
Metol	1 oz
Bicarbonate of soda.....	3 ozs.
Bromide of potassium solution (10 per cent.)	a few drops if necessary.

Dissolve in the given rotation.

Clearness is the first requisite in a good lantern slide, while in a transparency for decorative purposes a slight veiling of the high lights is not objectionable.

Toning and fixing baths for artists types—

Plain Bath—	
Water	32 ozs.
Pure gold	$\frac{1}{2}$ gr.

Acetate Soda Bath—	
Water	24 ozs.
Acetate of soda, saturated soln'n,	$\frac{1}{2}$ oz.
Gold enough to tone.	

Phosphate Soda Bath—	
Water	28 ozs.
Phosphate soda	$\frac{1}{2}$ oz.
Gold enough to tone.	

Neutralize with bicarbonate of soda or borax. Bath should be as near neutral as possible, or but slightly alkaline. If toning should proceed faster than five minutes, dilute with water. Use strong bath for cold tones and a weak one for warm tones.

Do not overtone, some red should be left in the shadows. When toned put them in running water or—

Salt	4 ozs.
Water	1 gal.

Wash in a couple of changes of fresh water before fixing.

Fixing Bath—	
Cold Water	1 gal.
Hypo-sulphite of soda	6 $\frac{1}{2}$ ozs.

Fix ten to fifteen minutes. Never use the same twice.

Should a harder surface be desired, add, after pictures have been in the bath ten minutes, from 3 to 6 ozs. of the following solution:

Alum	1 oz.
Water	12 ozs.

Fixing bath should be cold.

DR. ANDRESEN'S EIKONOGEN FORMULAS.

(1) One solution:

Sulphite of soda (crystals).....	4 parts
Carbonate of potash	2 parts
Eikonogen	1 part
Distilled boiling water	40 parts

This mixture, whilst still warm, should be put into bottles, which must be well corked. It will then keep in good condition for an indefinite time, provided pure boiling water and a good quality of sulphite of soda have been used.

Should the developer prove too strong, it may be diluted with a sufficient quantity of water; for the production of especially delicate negatives the quantity of carbonate of potash should be reduced by one-half.

In case of over-exposure, start developing with a fresh weak solution, to which a few drops of a solution of bromide of potassium have been added; or better

still, develop with a solution that has already been used.

To develop bromide prints, the developer should be diluted with 5 parts of water.

(2) Separate solutions:

(a) Sulphite of soda (crystals)....	4 parts.
Water	60 parts.

To this add 1 part of Eikonogen, and shake till dissolved.

(b) Carbonate of soda (crystals)...	3 parts.
Water	20 parts.

For use, mix 3 parts of (a) with 1 part of (b).

Fixing Bath.—Plates which have been developed with Eikonogen should be well washed, and can be advantageously fixed in an acidulated fixing bath. To obtain this, dissolve 1 part of Fixing salt in 8 parts of water or dissolve 5 parts of Sulphite of soda (crystals) in 100 parts of water, acidulate with 1 part of concentrated Sulphuric acid, and then add 20 parts of Hypo-sulphite of soda.

The bath remains clear even after frequent usage, it hardens the gelatine, and yields negatives of a very fine printing color.

Metol-Hydro Developer.—For transparency and lantern plates.

(a) Water	16 oz
Metol	30 grains.
Hydrochinon	30 grains.
Sodium sulphite (crystals)...	240 grains.
(b) Water	10 oz.
Potassium carbonate	120 grains.
(c) Potassium Bromide	1 oz.
Water	10 oz.

To develop: (a) 1 oz; (b) 1 oz; (c) 10 to 20 drops.

Can be used repeatedly. Temperature should be between 70° and 75° F. Too cold a developer will not give density, while a warm developer tends to give fog.

A BLUE PROCESS.—M. Makahara, at the convention of the Japanese photographers held in Tokio, exhibited some blue prints of rare beauty. The process by which they were obtained was given as follows: A strongly sized paper is necessary. Dissolve 15 grams of gum arabic in 110 c.c. of hot water, while still hot add

Tartaric acid	2 grams.
Chloride of sodium	9 grams.
Sulphate of iron	10 grams.
Perchloride of iron	15 grams.

The mixture is applied with a sponge to the paper, the sponge then squeezed out, and the excess of liquid removed—in fact, as much as possible is removed. Printing is a little longer than for albumen paper; the yellow of the sensitive paper turns white in printing. The prints are developed rapidly with gallic acid, then washed and sponged.

TINTING GELATIN PRINTS WITH WATER COLORS.—They are mixed with water as usual, but it is desirable to pre-

pare the print for their reception. Spray it (using a perfume diffuser) with a weak alcoholic solution of white lac (about 1 ounce in 8 of alcohol). Apply just enough to give a wet appearance, and do not apply too much. When dry (in about ten minutes) it will be invisible, but will help wonderfully in the application of water colors. If they should show any sign of "washing up," apply the spray over them again, and proceed with the work.—*Photo Beacon.*

DEFECTS IN NEGATIVES AND THEIR REMEDIES.—*Want of Detail in Lights and Shadows.*—This is generally supposed to be due to under-exposure, but this is not always the case. For instance, you expose a plate four seconds. It develops in from one to two and a half minutes, and the result is with the above defect. It is a proof that you have used more pyro than the plate required. Now try again. Take a plate out of the same package, give three seconds exposure, use only half the amount of pyro stock solution to the usual amount of sal soda stock solution, and the negative will develop in three or three and a quarter minutes; result, a fine negative in definitions and brilliancy. On the other hand, a negative may have precisely the same appearance as the foregoing one, but it took from five to ten minutes to develop. Try another and double the amount of exposure.

Granularity of Negative.—This defect generally appears during the warm weather. There are two causes, one the result of insufficient mixing of the developer before pouring over the plate, especially if too strong and too high a temperature. Remedy: Dilute the developer with water one-third, or use ice water without the dilution.

Another cause is the fixing bath being too milky, through containing too much alum. Remedy: Never use a fixing bath which is muddy. Filter it.

Flatness, or Want of High Lights in Negatives.—This generally is due to over-timing. The more rapid the plate, the less latitude you have in time of exposure. A slower plate always gives a wider range. Too much sal soda produces flatness, also a developer weak in pyro.

Small, Round, Sharply Defined Transparent Spots.—Some photographers wet their plates before applying the developer. If this is not thoroughly done, air bubbles will be formed on the surface, and hence cause the spots above referred to.

Another cause of similar spots is using water for the developer, which contains vegetable matter, causing it to bubble more or less while pouring it on the plate. Remedy: Use distilled water. Good well water might do.

On account of the extreme rapidity of some plates, great care should be taken that they are developed in a suitable light.

Green glass covered with one or more thicknesses of post-office paper makes a pleasant and safe light for rapid plates.