

effectually prevents the forming of air-bubbles and streaks when the prepared surface is brought into contact with the silver bath.

To bring the face of the block into contact with the silver bath, commence at one of the side edges of the wood, and bring the block gently down until the whole surface is resting on the bath solution. Hold the block in such a position as will prevent any part but the surface from contact with the sensitizing fluid. From three to five minutes will suffice to render the preparation sensitive. On removal from the bath, place the block on edge on a few thicknesses of blotting-paper to drain and dry. When dry, the block is ready for printing, which operation may be executed in a suitable printing frame, or the negative may be held to the sensitive surface firmly with the fingers whilst the printing is going on. The printing moves rapidly, so that patience is not severely taxed. When the primitive mode of working is resorted to, register marks applied to the edges of the negative in India ink afford valuable aid in readjusting the negative, in the event of its being moved before the print has attained sufficient depth.

Print but little deeper than the depth required in the finished picture, which, when complete, is produced in a thin layer of pigment that will not wash off; and I am persuaded that the pressure of the graving tool would not cause the color to "chip."

The print need not be toned. Fix in hypo : hypo, four ounces ; water, one pint. Wash thoroughly under a tap, and dry.

The work, as far as the photographer is concerned, is then completed. A little scraping with a piece of glass will remove the stains on the edges of the block ; these, however, are not injurious if left alone, but their presence does not denote a neat finish.

#### THE CALOTYPE PROCESS—BY COL. A. G. GREENLAW.

FIRST examine and select thin negative paper, and reject all that show any irregularities, holes, patches of unequal density, &c.

*Iodize.*

Make a solution of—

Iodide of potassium . . . . .	1,000 grains.
Bromide of potassium . . . . .	300 grains.
(For much foliage the latter may be increased to 450 grains.)	
Distilled water . . . . .	40 ounces,

and add enough of pure iodine to give the solution a dark claret color. Then filter.

Into this place as many sheets of paper as you can do easily, being careful that no air-bubbles exist. Allow the papers so immersed to rest for one hour; then turn the whole upside down, and hang the sheets up to dry, taking off the last drops with white blotting-paper. This may be done in diffused light. When dry, place sheet over sheet evenly in a portfolio in which no other papers, except blotting-paper, are placed. They are then iodized a dark purple, which will keep any time. They, however, turn a light brown color. Be sure, in working, that nothing touches the paper, for the very slightest touch is sure to cause a stain in the development.

*Sensitizing Solution.*

Nitrate of silver . . . . .	2½ ounces.
Glacial acetic acid . . . . .	2½ ounces.
Distilled water . . . . .	40 ounces.

Now float a sheet of your iodized paper on this (smooth side downwards) until the purple has turned an uniform yellow, which is iodide of silver. Allow it to rest for one minute; after this, remove and immerse in distilled water, where it should remain for two or three minutes; if to be kept for some time, remove to another dish of distilled water. Place now on clean white blotting-paper, face upward, and remove by blotting-paper *all* moisture from the surface (these sheets can be again used for ironing out the wax by-and-bye); then place between blotting-paper, or hang up to dry; when *quite* dry, place in your dark slides.

*Development.*

Gallic acid . . . . .	200 grains.
Spirit of camphor . . . . .	1 drachm.
Distilled water . . . . .	40 ounces.



This is a saturated solution of gallic acid ; it soon decomposes ; the spirit of camphor is added to preserve it. When about to develop, filter, and add to every five ounces one drachm of the following solution :—

Nitrate of silver . . . . .	30 grains.
Glacial acetic acid . . . . .	$\frac{3}{4}$ drachm.
Distilled water . . . . .	1 ounce.

Pour into your dish quickly, and *immediately* float the picture side of your paper, which is slightly visible, on it, being very careful that there be sufficient liquid to prevent the paper touching the bottom of the dish. Constantly watch it until the picture becomes visible on the back, and the paper has a kind of brown, greasy appearance. Continue the development until, in holding up a corner when the sky is before the light, you cannot see your finger when moved about between the light and the paper. If it is not dark enough before the gallate of silver decomposes, you have under-exposed. Decomposed gallate of silver ceases to develop.

Do not, when examining your paper, lift more than the corner, as an oxide of gallate of silver forms *rapidly* on the surface like a crust, and, on replacing your picture, it causes innumerable marble appearances ; so also if you do not place your paper speedily on the solution in the first instance. It may be removed by drawing a sheet of blotting-paper over the surface of the solution. Remove to a dish of common water, and wash out the brown tinge caused by more or less decomposed gallate of silver. When *well* washed, you may

*Fix* it by placing it in a solution of hyposulphite soda, one and a-half ounce to one pint of water, till every vestige of the yellow iodide of silver be removed, after which wash in eight or ten different changes of water ; you have then a fine, clear, and dense negative. To render it sufficiently transparent for printing you must proceed to

*Wax* it. This is done as follows :—Place it, when dry, face downwards on clean blotting-paper ; *upon* it put a sheet of blotting-paper, and pass a moderately hot iron over it ; this is to ensure the picture being *perfectly* dry before waxing. Now remove the *upper* blotting-paper, and pass the iron over the picture, following the iron with a piece of white wax until the whole picture is saturated ; do each picture thus. If travelling, you may wax all your

sheets together like a block, with a piece of clean blotting-paper waxed to the top; and another to the bottom. To print from it, you need to remove all the wax you possibly can by placing a sheet of old, used blotting-paper, and passing a hot iron over it, and repeating it till not a vestige of wax appears on the blotting-paper (use red, as it shows the wax spots better than the white.)

I have used this process for years in India, and find it most simple. I obtained the first prize for my pictures so taken at an exhibition. With cleanliness it is certain.