PHOTOGRAPHING ON WOOD FOR ENGRAVING

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Up to about the year 1868, pictures which were to be engraved on wood had to be transferred by hand to the block in a reversed position, and as this work was laborious, the artist who made the original picture generally left the transferring of it to the block, to be done by a mere copyist, who was very likely to take a fine spirited original and make a characterless copy of it, and in scientific work often reproducing the subject with such inaccuracy that the illustration when completed was perfectly useless. This led to the suggestion that the photographer should take the place of the copyist, and various photographic methods were tried, beginning with the carbon transfer which made a beautiful copy in the desired reversed position, but very misleading to the engraver on account of the thickness of the film, then the albumen-silver method which made the wood pithy, next the bromo-gelatine which was with a minumum amount of gelatin fairly successful, but which with the necessary amount of washing caused large blocks to swell and crack.

At this time acting upon a suggestion in one of the journals that collodion transfers might be used on wood, I tried it, but found that as used at that time it would not do.

I used the process however as a basis for experiment and finally by adopting the alkaline silver bath which has little solvent action on the haloides on the collodion surface, making a thick collodion with very little iodide and bromide, so as to prevent the lighter shadows and middle tones from blocking up, thus enabling me to give short exposures and force the development, and in fact doing everything to produce a picture on the surface of the film so that no pyroxylin should intervene between the picture and the block (otherwise the picture would be carried away when the film was dissolved). I finally perfected the process and produced a picture of exquisite delicacy, having no more body than a pencil drawing upon the wood. This is the process which has been in use in the Smithsonian Institution since 1869.

For fifteen or twenty years I prepared nearly all of the illustrations for the Smithsonian Institution and its bureaus in this way, and also

for several of the government Departments, but when the cheaper photo-engraving processes were perfected, they supplanted wood engraving, and this method dropped out of use.

Now that there has been a revival of wood engraving I have thought that the publication of this method might benefit those interested in such work. I will begin with the silver bath which should be prepared in the following manner:

Water	100 c.c.
Nitrate of silver	8 grams.
Iodide of potash	2 decigrams.

Add oxide of silver, stirring until an excess remains undissolved, then set in the sun for five or six weeks, when it should be taken in and decanted. This is called an alkaline silver bath and must not be acidified.

COLLODION

Alcohol 95 per cent	60 c.c.
Sulphuric ether	40 c.c.
Ammonium iodide	7 decigrams.
Ammonium bromide	2 decigrams.
Pyroxlin	1.5 grams.

DEVELOPER

Water	100 c.c.
Ferrous sulphate	2 grams.
Glacial acetic acid	13 c.c.

TONING BATH

This should have an acid reaction.

Water	100 c.c.
Gold chloride pure	2 decigrams.

FILM SOLVENT

Sulphuric ether	100 c.c.
Alcohol	50 c.c.

Obtain plate glass without scratches and immerse in nitric acid, then wash and set it in a rack to dry. Take a negative of the object to be engraved, place it in the window as if to make a transparency except that the glass side should face the lens, coat the glass with the collodion and immerse in the silver bath just long enough to sensitize it. Expose in the camera as for an ordinary transparency, develop until all detail appears by reflected light, but keep the whites perfectly clear, wash thoroughly and fix in

Water	1 liter.
Cyanide of potash	10 grams.

Wash thoroughly and tone through to the glass with the before mentioned gold solution and wash and place the plate in water acidified with sulphuric acid. This will loosen the film. When free from the glass, raise it up, holding it in place on the plate with the thumbs and rinse under the tap.

Place an ordinary glass now in a tray with water, turn the picture down upon this and allow it to float off the plate glass.

Center the film now on the glass in the water, raise the glass up, holding the film in position with the thumbs, now take a piece of thin paper, immerse it in the water and lay it down upon the film.

We will suppose that you have in the meantime coated the block with flake white with just enough Heinrich's gelatine to make it adhere to the block. This will be enough to make the picture also adhere.

Raise the paper up now with the film upon it and lower from one side upon the block in such a way as to exclude air bubbles.

Put a piece of moist blotting paper upon it and place in a letter press and put the pressure on for about two minutes, then remove it, strip the paper off in such a way as not to lift up the film and remove the surplus film from the edges and turn the block face down in the mixture of ether and alcohol; this will remove the pyroxylin and leave the image on the wood.

This process also makes an exquisite collodion transfer on paper.