EXPOSURE - TRANSFER - *(heliogravure)*

The Carbon Tissue, sensitized and dried in a standard way so as to have (as usual!) execution repeatability (1) must now be exposed according to the personal UV equipment, as mentioned regarding light sources, on the pages Sensitising and Dichromate sensitivity.

The coupling under the exposure frame or the simple ultraviolet lamp is done by placing emulsion against emulsion (as normally said, even if they are not really emulsions) between the sensitized layer on the pigment paper and the '*inked*' side of the film (2). Best if the frame is equipped with a vacuum facility for uniform and strong contact (3).

Regarding the preparation of the copper plate, it must be perfectly clean on the side it is going to host the gelatin.
The methods, rituals and individual schizophrenias for cleaning the plate are many: soda, ammonia, carbonates, pumice, solvents or various powders, etc... .
Personally, after a vigorous degreasing with a very fine grain moistened sandpaper (4), I strike with Medoun-white and humid cotton ball to remove the last traces of oxide. Now check that a trickle of water flows evenly over the entire smooth surface. Then immerse the plate (prepared side up) in a basin of boiled and filtered water (5) in which the C.T. will also be immersed after exposure (the jelly side facing the copper), stirring slightly to avoid trapping of air bubbles. After about one minute (gloves!) the softened C.T. is carefully spread and centered against the surface of the copper rolling on the entire surface without pressure to ensure that no air is trapped between the gelatin and the metal.
Remove the sandwich from the water, drain it, place it on a sheet of soaking paper (old-news-paper!), roll carefully in all directions gradually increasing the pressure to squeeze out the excess water without exceeding to avoid distorting the gelatin and with it the image it contains. Overlap a sheet of paper to absorb the back surface of the C.T. excess moisture, rolling and replacing the paper a couple of times (always gloves and recovery of materials that soak and contain Cr^{6+}), then place, under an evenly distributed weight, after overlapping a last absorbent sheet, or in the same frame of exposure to feeble (!) air suction for a few minutes.

After this time, make sure that the back of the C.T. is just slightly damp (this indicates that the clinging to the copper occured), immerse the sandwich in the water of the previous basin (at room temperature) and after a minute switch to a bath about 40 C° (6).
Few more minutes and the dye at the edges of the C.T. (which are not exposed because of the opaque film edge left around the image) will begin to spread in the water, so you can carefully lift a corner of the C.T. that will leave the layer of gelatin on the plate, freeing the paper backing. Do not use any strength during the lifting of the paper from the plate, which must be slow and regular. If necessary, wait and keep the basin slightly stirred.
Discard the paper (in the cromium recovery container) and start a slow and continuous moving of the bath to take away the unexposed gelatin (the stripping).
Change the tinted water (and recover for the disposal Cr) with more at similar temperature, until it is clear, a sign that all the soluble gelatin has left the copper, the last wash will be at room temperature. The image should appear in every detail, '*engraved*' in the swollen insoluble gelatin. Lift the plate from the edges and place it obliquely over the basin, "sweeping" the entire surface with a gentle spray of distilled water or water-alcohol mix-

ture; place it vertically to drain (7) and dry in a dust-free place. Drying must be perfect and may take a few hours at room temperature.
Every operation connected with the transfer is very delicate and must be carried out without ever touching the metal surface.

a. m.

NOTES

(1)... in the dark, with indirect ventilation, in a dust-free environment and temperature control, …

(2)To avoid sticking of the gelatine on the 'written' layer of the film. I suggest to put between the two, a 50 micron transparent plastic sheet or similar.

(3) Framing the film with opaque tape will keep a narrow edge of gelatin 'unexposed' and therefore soluble, all around the image to be transferred. This will make it easier to lift the paper backing during detachment operations. The plate will also be slightly larger than the image to print. The larger size also greatly facilitates the several handlings; afterwards will be cut out and smoothed to print size.

(4) A mild abrasion of the plate, from its 'mirror' state has the double function of reducing the presence of any small scratches and improving the clinging of the gelatin layer to the copper bed during transfer. A finish with a 800 ÷1000 microgrit wettable sandpaper, will NOT affect the subsequent inking of the etched copper.

(5) The use of filtered water ensures that solid particles are not trapped in the contact layer. This always applies to the use of water in the basin, (filter at the draw-off tap). In the case of water used for transfer bath, the presence of dissolved oxygen, normally present in the water, must also be taken into account, which frequently produces small air bubbles in the contact layer. In order to avoid this, the water needed for the transfer is boiled, allowed to cool down and filtered in order to eliminate impurities and insoluble carbonates formed by boiling. It is stored in a closed, filled or soft container.

(6) The back of the C.T. can be "conditioned" as used to say, before soaking, with a mix alcohol/water to make more regular and rapid the penetration of the water between the paper backing and the jelly that – we hope – will stick to the copper.

(7) The passage of water on the surface of the plate should drain perfectly clear liquid; if not, the washing should be prolonged.