héliogravures

HELIOGRAVURE – The Graining

Once having a perfectly dry plate, the graining (with bitumen dust) of the image can be managed (1). This is done dusting the plate in a traditional aquatint box. We will not linger here on these operations in detail, as they are part of the normal way, in the aquatint engraving process. Simply we say that the dustbox is loaded with impalpable bitumen powder, the plate being laid into the box and left for a suitable time (several minutes) so to evenly dust the surface. If it is considered necessary (by visual inspection), the operation is repeated reinserting the plate rotated horizontally 180° (2).

What follows is the melting of the bitumen: handle the dusted plate from underneath and around the edges, with care, keeping your breath away too ! and/or use an anti-dust mask.

In a normal aquatint process it is possible heating by a direct flame under the plate hanged horizontally, (even in this occasion a small visual practice is usefull to recognise that the melting took place), but in this case, in which a delicate gelatin coat lie on the copper, it is necessary to proceed with a slow heating, uniform all over the surface, so that the layer follows the thermal expansion of the metal; if every previous operation has been carried out carefully (perfect cleaning of the metal plate and removal of any trace of humidity), the image-bearing layer will remain adherent to the copper, otherwise cracking and detachments of part of the dry gelatin will occur, forcing to repeat any 'transfer' operation.

The slow heating is obtained by means of a small flat oven, even home-made, slightly larger in size than the maximum dimensions of the plates to be worked (3), heated electrically and uniformly, initially raised to about 50°C, so as to win the thermal inertia of the oven stuff itself compared to room temperature.

Once the copper is in the oven, wait a few minutes for the slab/oven equilibrium to be reached, then turn on the heating for a known time and temperature (4).

Cooling must also be carried out slowly (10-15 minutes with the oven slightly open), inspection of the melting being operated visually by means of a loupe and/or verifying by dragging a fingertip over the edges not affected by the image: the tip must remain clean.

Now the plate is coated by a messy but uniform blanket of micro 'islands' of bitumen, of various shapes and size (see on page 'The RESIST' in this same menù), surrounded by an equally huge number of 'canals' that will let the acid to seep through, soaking the more or less thick gelatin coat and bite the copper, modulating the etching time and consequently the depth and shape of the grooves.

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(1) It is warmly advisable removing any trace of moisture by wiping the back of the copper with a warm hairdryer bolw, immediately before the grainining. If, on the other hand, graining was chosen to precede the transfer, it is necessary to safely 'pickle' the plate - after graining and before transfer - with diluted HCl, followed by thorough rinsing and drying. In fact, bitumen dust leaves a rather greasy background on the entire surface of the copper, a background that must be removed to allow the gelatin to adhere securely. The advantage of this method lies solely in the possibility to carry the melting of the bitumen without special attention to temperature.

(2) The dusting must certainly be copious in order to keep contrasts especially in the shadows areas of the image (where the biting times are longer) to the acid; the visual inspection needs a minimum of practice that is acquired while learning any engraving techniques: grazing angle vision of the bituminous coat.

(3) An oven for melting the bitumen powder, can be built from a refractory bricks bed, on top of which is placed an electric heating element, same as a household oven (to buy in spare parts shops), over which - contactless - an aluminium sheet a few millimeters thick is placed, for uniform heat diffusion. Our valuable plate will be placed on top of this last 'diffuser', separated from it by small insulating elements, while a glass-wool lid will close it all off. An internal probe – with an external dial – will snoop the inside temperature.
See at ***heliogravures.it*** *home page text, gliding the pointer on the word* o v e n .

(4) The melting temperature of the bitumen is around 120°C; once it has been reached, allow 2-3 minutes at this value for assuring the melting up to the corners of the plate. All operations, times, temperatures, pre-heating, cooling down, etc. must – as usual – be checked and standardised.