THE EXPOSURE — Gum Dichromate

The paper, ready to use, is now exposed in the U.V. light burner-unit in tight contact with the film, which is performed exactly as said for the heliogravure (see: '*The film*' in *heliogravure* menu). The only difference is that the image is negative, since there is no double inversion of the tonal scale, but a single step negative towards positive between the film and the final backing.   This is important because – once the file has been prepared and before sending it to be printed on the film – the inversion from positive to negative must be done and it is necessary to evaluate where both ends of the tonal range will fall on and how the halftones behave. Where the film is more transparent, the light will harden in depth the sensitive layer, building the shadows, where the film is more opaque there will be shaped the highlights.

These considerations require a personal evaluation of the maximum and minimum density references to strive for, once again through the creation of a dedicated curve, experienced through the steps of a tonal scale.   In this regard, all the general indications given in heliogravure are valid here too, remembering however that the tonal range of the dichromated gum is rather limited (read contrasted), i.e. it reproduces few gradiation between high lights and deep shadows. Moreover, the ends of the tonal scale tend to get closer when the dye soils the more subtle shades, seeeping through the paper fibers: to have clean lights we may experiment little pigment, though this will give us gray shadows; to have deep blacks we may use – on the contrary – a lot of pigment ... which will mess the highlights!   This must be taken into account first of all in the choice of the subject to print (1) and secondly in the possibility to carry out a '*multiple gum print*', when a wide tonal range is considered essential.

It must be reaffirmed here, however, that the awe of a '*gum print*' is certainly not in the faithful and minute reproduction of details, but rather in the ... roughness of shapes, uncertainty of contours and the capacity to visually generate thickness and substance.

Manual intervention directly on the print during the various phases of the process is essential – corrections which we cannot fail to mention later – to recover details at the ends of the tonal scale and to harmonize the halftones, once the '*stripping*' will be accomplished.

The exposure time therefore, to test in relation to the concentration of the sensitiser and the UV source normally of few minutes, should be adjusted having a pre-visualization of the end result, refined by experience (see: "*Sensitivity of dichromate*" in the *heliogravure* menu).

An example - which is just a suggestion for experimentation of a monochrome print (2) - is to perform a 'multiple gum print' with two or three layers, decreasing exposure while maintaining a fixed concentration of chromium salt (instead of varying the salt's concentration or making more negatives with different contrast). In this way you may create pronounced outlines in the shadows and substantial lights.

With three layers (and relative 'strippings'), the first can be slightly 'overexposed' to fix the highlights, the second accurate or slightly 'underexposed' to allow maximum extension of the halftones and the third positively 'underexposed' to outline only the contours and give shine to the shadows. The two or three layers can be made with different dyes, always matching the tones; the results must be carefully evaluated.

Remembering that each ation must be performed in artificial and indirect light, the exposure in the U.V. burner-unit at this point becomes an automatic operation.

---

(1) The choice of the subject is part of the gum dichromate printing technique choise. Not all subjects are suitable for 'gum' because of its roughness and graininess.
2) Prints to reproduce colour images (RGB or CMYK), require 3 or 4 selection negatives to be superimposed upon the paper, exposed & stripped one at a time. They will not be treated in this context.