VI. Simple and easy method of cleaning and whitening prints or engravings

M. Fabbroni

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was totally different from those which have been the objects of my researches.

The fulphurous acid gas would be useful in some cases to decompose miasmata, by giving up to them a portion of its oxygen; but it leaves behind it an oxyd of sulphur, the smell of which is extremely offensive: the oxygenated muriatic acid gas ought therefore to be preferred.

The gases which in my opinion ought to be employed for augmenting the portion of unrespirable air, are the carbonic acid gas and hydrogen gas. The first ought to be made to pass through water, and the second through oil. By these means you free the carbonic acid gas from that portion of the acid employed to disengage it from the carbonate used, which it carries along with it; and you precipitate from the hydrogen gas the carbon it holds in solution. The oil, after being used some time for this purpose, is found quite black, and converted into empyreumatic or carbonated oil.

VI. *Simple and Easy Method of Cleaning and Whitening Prints or Engravings.* By M. FABBRONI. From *Annali di Chimica*, by BRUGNATELLI. Vol. XIV.

THE methods formerly employed for cleaning engravings consisted in washing them in pure water, or a weak lixivium of pot-ash, or in exposing them a very long time to the dew. Aquafortis has also been sometimes employed. Leys, however, together with the dirt and filth, carried away part of the colour of the engraving, and aquafortis attacked the vegetable fibre of which the paper of the print was composed.

Since the discovery of the oxygenated muriatic acid by Scheele, and the application of its properties, by Berthollet, to the bleaching of cloth, trials have been made of it also for whitening prints and engravings; and Chaptal's experiments on this subject were attended with the best success *.

* For Chaptal's process see *Phil. Mag.* Vol. II. p. 28.

This process, however, is not so generally followed as it ought to be, chiefly because the preparation of the oxygenated muriatic acid is attended with more trouble than some people will take, and because it is sometimes difficult to procure the acid ready made. This consideration induced M. Fabbroni to make known the following process, which is extremely easy, and may be put in practice by any one.

Half fill a glass bottle with a mixture composed of 1 part of the red oxyd of lead, or minium, and 3 parts of the muriatic acid; and having closed the mouth of the bottle with a glass stopper, put it in a cool place, not exposed to the light. A certain heat will then be produced, which is an indication that new combinations are formed. The oxyd of the lead abandons a considerable portion of its oxygen, which remains combined with the liquor*; the latter then acquires a beautiful gold colour, and assumes the odour of the oxygenated muriatic acid. It holds in solution a small portion of the lead, which does not in the least injure its effect†. It is necessary that the bottle should be of strong glass, and that the stopper be well secured, in order to prevent the elastic vapour which rises from forcing it out. When you employ the liquor thus prepared, take a large pane of glass, and raise a kind of border of white wax around its edge, about two inches in height, and every where equal. By these means you form a sort of trough, into which put the prints, and pour over them a little fresh urine, or water mixed with a portion of ox-gall. At the end of three or four

* Where the oximuriat of pot-ash can be had, the process recommended by Mr. Cruickshank, of Woolwich Hospital, will be found neater than the one here proposed. If the oxygenated muriat of pot-ash be simply added to the muriatic acid, diluted with about an equal bulk of water, the salt is slowly decomposed, and the acid converted into the oxygenated acid. About 1 drachm of the salt, if pure, is found to be sufficient for three ounces of the dilute acid. EDIT.

† If this be a fact, the portion of lead held in solution must be small indeed—otherwise it should be partially revived in a length of time, and produce blackness. EDIT.

days pour off whichever of these liquids you have employed, and supply its place with warm water, which ought to be changed every three or four hours, until it come off perfectly clear. When the matter with which the prints are dirtied is of a resinous nature, which sometimes happens, dip them in a little alcohol: afterwards suffer all the moisture to drain off, and cover the prints with the liquor of the oxygenated muriatic acid made by minium. Place on the edges of the wax another pane of glass, of the same size as that below, in order that you may not be too much incommoded by the smell of the acid; and you will then plainly see the yellowest prints resume their original whiteness. One or two hours will be sufficient to produce the desired effect. Having then poured off the acid, wash the prints, several times, in pure water, and dry them in the sun,

VII. *Observations on the British Trade with Turkey.* From Eton's Survey of the Turkish Empire.

FORMERLY the trade to Turkey was of considerable importance to this country; but of late years it had been languishing, and at last dwindled into a state of insignificance, when the present war entirely put a stop to all communication with the ports of the Levant.

As this trade will be again opened when a peace takes place, an investigation of the causes of its decline, and the means to give it its ancient extension, may not, in the mean time, be unimportant to the government and to the merchants of this country.

The causes of its gradual decline are, 1st, The rivalry of other European nations; 2dly, The diminution of the consumption of our manufactures in Turkey, by the impoverished state of the country; 3dly, Some branches of trade being got into other channels; and 4thly, The monopoly of the Levant Company in London.

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