

## Exhibits

### Ultramarine

Take the lapis lazuli, and break it into very small pieces, or rather a gross powder. Put it into a crucible, and cover it securely, to prevent the coals from falling amongst it. Calcine it then with a strong fire for an hour if there be any large quantity, or less time in proportion, and quench it, when taken out of the fire, in vinegar; stirring them well together, and suffer it to remain in that state for a day or two. Pour off then the vinegar, except what may be necessary for moistening the calcined lapis lazuli in grinding, which operation it must then undergo, in a mortar of flint or glass, till reduced to the greatest degree of fineness those means may effect. But, if it appears yet too hard to be easily ground, give it another time in vinegar. The vinegar must then be washed off from the powder, by the putting it to several successive quantities of clean water; each of which must be poured off when the lapis lazuli has been well stirred about in them, and is again settled to the bottom.

It must then be ground on a porphyry stone, with a mullar, till it be perfectly impalpable, and then dried; in which state it is duly prepared to mix with the following cement.

Take of Burgundy pitch, nine ounces, of white resin, and Venice turpentine, six ounces, of virgin wax one ounce and a half, and of linseed oil, one ounce and a quarter. Mix them together by melting in a pipkin over the fire; and suffer them to boil till they acquire so stiff a consistence that, being dropt into water while of this boiling heat, they will not spread on the surface of it, but form a roundish mass or lump. The cement being thus formed, may be poured out of the pipkin in the water, and made into cakes or rolls for use. of this cement, take an equal weight with that of the calcined lapis lazuli, and melt it in a glazed earthen pipkin; but not so as to render it too fluid. Then add to it the calcined matter by very slow degrees, stirring them together with an ivory spatula till the whole appear perfectly mixed. Being thus mixed, heat the composition to a something greater degree, and cast it into a large bason full of cold water. When it has cooled to a consistence to bear such treatment, knead it well like the dough of bread, with the hands rubbed over with linseed oil, till all the parts be thoroughly incorporated with each other. Then make the mass into a cake, which may be either kept til some other convenient time in cold water, or immediately proceeded with in the following manner. Put the cake into an earthen dish or bason; the bottom of which should be rubbed with linseed oil, and pour on it water of the warmth of blood. Let it stand a quarter of an hour, and as the water softens the cake, it will not loose the finest part of the calcined matter; which, on gently stirring the water, but without breaking the cake or separating it into lesser

parts, will be suspended in the water; and must be poured off with it into another vessel. The quantity of water must be then renewed, and the same operation repeated a second or third time; and as the mass appears slack in affording the colour, it must be moved and stirred, in the manner of kneading, with the ivory spatula, but not broken into fragments or small parts; and when so much of the colour is extracted as to render it necessary for the obtaining more, the heat of the water must be increased to the greatest degree. The quantities of the calcined matter (which is now the ultramarine) that were first washed off, and appear of the same degree of deepness and brightness, may be put together, and the same of those of the second degree, the last washings making a third. The water being then poured off from each of these parcels, put on a lixivium formed of two ounces of salt of tartar, or pearl-ashes, dissolved in pint of water, and filtered through paper after the solution is cold. This lixivium, must be put on boiling hot, and the ultramarine stirred well about in it, and then the mixture set to cool. The powder being subdued, the clear lixivium must be poured off, and clean water put in its place, which must be repeated till the whole of the salts of the lixivium are washed away. The ultramarine must afterwards be dried, and will be then duly prepared for use.

Another method of purifying the ultramarine from the cement may be used, which is the pricking the yolks of eggs with a pin, and moistening the matter to be purified with the soft part that will run out, and working them together in a glass or flint mortar; after which the mixture must be put into the lixivium, and proceeded with as is above directed.

In order to free the ultramarine from that part of the water which cannot be poured off from it without carrying away part of the powder, let it be put in a deep pot, such as the cups made for coffee. After the whole is poured off that can be without loss, set the pot so on a table or stand that strings put into it may hang below the bottom. Then take three or four thick threads of loose twisted cotton, and having wet them, put one end of each into the fluid; and let the other, being brought over the edge of the pot, hang three or four inches below the bottom of it. By this means the water, being attracted by the threads, will drop from the lower end till the whole be nearly drained away. The matter may then be poured upon a porphyry, or polished marble, and suffered to dry.

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**Source:** Robert Dossie, *The Handmaid to the Arts*, 2d ed. (London, 1764), 1:71–75.

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