

tain action upon each other; for I have found them at the bottom of the crucible, the one incrusting by the other, and very adherent; the globule of iron was in part encased by the earth of the crucible, and the globule of lead, contained in a cavity which it had formed in the upper surface of the iron; the latter was striated on its exterior; the lead and the iron might sometimes be separated, but in general, this could not be effected.

*Glass, coloured blue, by Iron.*

The tritoxide of iron, formerly mentioned, mixed with sulphate of soda, and sub-carbonate of soda, give to the glass which this mixture produces, a blue colour resembling that observed when similar materials are exposed to a partial fusion, and which, in a length of time, form on the surface, about the sides, or in the backs of hearths, both of brick and of stone in reverberatory furnaces, used for the decomposition of muriate of soda, by the sulphate of iron. My observations on this production of colour, were first made about the year 1800, when I had the direction of the glass works at Tour-Laville, and was decomposing the muriate of soda, by sulphate of iron.

I have thought that these several observations which have been made by me at different periods of time, might, if published, lead to important results, and particularly the two last, in the making of ultra-marine.

*On the Parolic Cement.* By THOMAS GILL, ESQ.

THIS cement, which is termed *Parolic*, or *Universal*, from the great variety of purposes to which it is applicable, is of the class of those termed *caseous*; the curd of milk forming the principal part of its composition. It was invented by me in the year 1811; and a considerable quantity of it has since been made and sold by Mr. J. J. Hawkins, under the above title; but the composition of it has hitherto remained a secret to the public. It will perhaps be a convincing proof of its merits, to say that it is a complete substitute for the celebrated *Vancouver's Cement*, now in such universal demand.

To prepare this cement, take the unsalted curd of skimmed milk, after pressing the whey out of it, and break it into lumps: to dry these lumps distribute them upon linen sheets laid upon the floor of an airy room; and frequently, from time to time, as the curd acquires greater consistency, stir and break it into smaller masses, either with the hands, or with the assistance of a flat board, and a bar or rubber of wood; until at length it becomes dry enough to grind in a steel coffee-mill, to a powder about as fine as the best gunpowder; when it must be finally dried over a stove, and kept dry for use.

One hundred pounds of curd, from the cheese-press, will only afford about thirty pounds of the dry curd.

To ninety parts of this dried curd, ten parts of caustic quick-lime, made of blue marble, finely rubbed to powder and searced, and one part of camphor, must be added, and well mixed by rubbing the

whole together with a pallet-knife upon a stone slab; and the whole must be then inclosed in bottles, holding about an ounce each; and well corked immediately afterwards, in order to prevent the access of air to the composition.

In this state the cement will remain good a long time; and, when wanted for use, a little of it must be poured out upon any flat earthen plate, &c. and, by the aid of a pallet or case-knife, be instantly mixed with a proper quantity of water, to render it of a fit consistency for the purpose to which it is to be applied.

The bottle must be again carefully closed, after taking out the quantity of cement required; as, otherwise, the lime would lose its causticity, upon which its solvent action on the caseous part of the cement entirely depends. [Tech. Rep.

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*Process by which Seal Engravers take their beautiful wax Impressions.*

To the Editor of the London Mechanics' Magazine.

SIR,—In answer to a request of a correspondent, to be informed how engravers take their wax impressions, I beg leave to give the following directions; they may be prolix, but as a good impression depends upon attention to minutiae, I consider it requisite to be as particular as I can. In the first place, clean the engraving with soap and water, then prepare the stone as follows:—Take a little grease (very little is requisite,) and rub it thinly upon the back of the hand; then, with a fine brush, (a tooth brush will do provided the hair is very soft,) take it off and brush the stone: there will be sufficient grease upon the stone for the vermilion to adhere to; only be careful not to smear it across, but dab the brush upon it perpendicularly, by which a surface is produced resembling a mezzotinto ground. Many of the engravers pay little attention to this part; but from experience I am well convinced, that unless the stone is properly greased, the surface of the impression will never appear to advantage. Now take a camel's-hair pencil, and dip it in Chinese vermilion; turn the brush upside down, and tap gently upon the table, so that the vermilion may fall into it and not lay upon the top, otherwise it will so clog up the work, that all its sharpness will be lost; apply it to the stone, holding it perpendicularly, to preserve a smooth regular surface; when that is done, blow off the superfluous colour, and proceed as follows. Cut a strip of stout paper to put your wax upon, which melt over a candle, holding it about half an inch from the flame, (be careful not to burn or smoke it;) keep turning it round, so that the stick of wax may be melted all round; when sufficiently so, put it upon the paper, and so on till there is a sufficient quantity: take the paper and hold it over the candle, and when soft, stir it round, and continue doing so till it is of the size necessary. Take it from the candle, and continue stirring till the surface is perfectly smooth and free from air bubbles; keep the greatest portion of wax in the middle,