



XXV. On the making of starch

Mr. James Graham

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It will not be difficult, however, to replace them. Paris still contains some very distinguished artists in bronze. In the recent exhibitions of the objects of French industry, bronzes have formed an interesting article.

The exploits of our warriors, and of our august chief, have furnished them with subjects worthy of decorating the public places of Paris and the other cities of France, while the immense quantity of cannon taken from the enemy will supply the materials.

XXV. *On the Making of Starch.* By Mr. JAMES GRAHAM,
of Berwick-upon-Tweed*.

STARCH may be made from a variety of articles:—potatoes, in particular, will yield a considerable quantity; but the great labour attending grinding or grating them down has hitherto prevented any great quantity of starch being made from that vegetable. When the potatoes are grated down, they do not require to be laid in steep to ferment after the manner of flour, but must be immediately strained through a sieve; and if the potatoes are of a good quality, the starch will settle to the bottom almost instantly: indeed the operation of straining after the potatoes are grated down cannot be performed too quickly. The produce, however, even from the best, is far less than most people would imagine; the best potatoes I ever used only produced 4 or 4½ stones of starch from 40 stones of potatoes.

Potatoe starch is not saleable in the shops, not having so long and firm a grain as starch from flour; but if properly made is preferable to all others for blue-makers, as it melts or dissolves so easily, and incorporates with the colour with far less trouble than any other substance whatever.

When starch is made from flour, the wheat is not ground so small as when intended for sale, but ground with a broader flag or bran, as the meal and starch are found to separate more readily from the bran. When laid in to steep as much water must be used as to wet completely the whole meal; in three, four, or five days it will ferment, and in

* Communicated by Mr. John Clennell.

a few days more will settle, and all fermentation cease : after this the stuff is fit to be what is called washed out.

The common time allowed to steep is fourteen or twenty days : as much depends on the temperature of the weather, the exact time cannot be ascertained ; but it is much better to lie a few days longer than to be washed out one day too soon. This operation is performed by the stuff being taken from the vats and put into a strong round basket, which is set across a tub below a pump : one or two men keep going round the basket stirring up the stuff with strong wooden shovels called stirrers, while another keeps pumping water till all the meal is completely washed from the bran, which is emptied into some convenient place to feed hogs : this operation is continued till the vats are emptied of the whole stuff, at the same time that it is strained through the basket into the tub underneath. As fast as the tub fills, it is taken out and strained through hair sieves into what are sometimes called squares, by others frames. It is then suffered to rest twenty-four hours, when the water is drawn off the frame by plugs fixed at different depths. A thin stuff is then found to float above the starch, which is taken off by a tray made of a particular form for that purpose : this is called slimes, and is put into a cistern to feed hogs, by being mixed with the bran or grains : fresh water is then pumped into the squares, and the whole is wrought up with the stirrers till it is completely incorporated with the water ; it is then strained through a fine silk sieve, and suffered to rest and settle twenty-four hours, when the water is again drawn off, and some more slimes will be found floating, or at least in a loose and unsettled state, on the top of the starch ; which being carefully removed, fresh water is again pumped on the starch, and the whole is again wrought up as before ; when it is again put through the silk sieve. It is now suffered to rest for some days,—say four or five,—till the starch is again settled in a very firm state at the bottom of the square. It is necessary to observe, if the starch is wanted to be what is commonly called Poland, that is, with the blue shade ; during the last time of putting through the silk sieve, a certain quan-

tity of the very best smalts must be mixed with the starch. If the smalts are very good, 2lb. per cwt. may do, and sometimes 3lb., according to the depth of blue wanted : if the best smalts are not used, however fine the colour may appear when in a damp state, it will entirely fly off in the stove, and leave the starch of a dingey hue.

When the starch is found to be completely settled, the water is again drawn off ; and if any more slimes are still on the top they are taken off as before, and the starch is now fit for boxing. It is necessary to observe, that the slimes taken off after the starch has been put through the silk sieve are not put into the hog-wash, but are either mixed with some other operation, or again wrought up with water and strained through the silk sieve ; when a considerable part of them will be tolerably good starch.

The boxes may be made of different sizes ; but they are commonly about four feet long, six inches deep, and twelve inches broad, and are bored full of holes, so that any remaining water may drain from the starch. Thin canvass is cut in such length and breadth as to line all the inside of the box, the intention of which is to bring the starch clean from the box after the water is fully drained.

The boxing is performed by digging the starch out of the square with a spade or shovel, and filling the boxes. The length of time for the starch being in the boxes can only be ascertained by the starch coming to a hard solid body, which is sometimes sooner and sometimes longer. The starch is then taken from the boxes by turning them bottom uppermost on a table or dresser ; it is then broken into pieces about four or five inches square, by laying a ruler or round piece of wood underneath the starch, giving the upper side a cut across with a knife ; when a small press of the hand will break the starch into such pieces as are designed.

It is then set upon soft bricks, that is, bricks which have been only half-burned in the kiln : the intention of this is to suck the water out of the starch ; which if not done before it is put into the stove, it is apt to dry into various hard substances called hamy, which will not melt when it comes

to

to be used; so that it will not answer for blue-makers, nor for the purpose of the laundry.

When sufficiently dried on the bricks it is put into the stove, (which is nearly the same as a sugar-baker's,) where it remains some time: the duration must depend on the judgment of the maker, and the degree of heat in the stove. It is then taken out and set on a table or dresser, when all the sides are carefully scraped or pared with a thin knife; after which, it is tied up in paper the same as we see it in the shops; when it is again returned into the stove, and continued with a regular heat night and day till completely dry: it requires some days, but the length of time can only be ascertained by an experienced maker.

It may be necessary to observe, that from the first laying in the meal to steep, till the last operation of taking from the stove to be weighed, the manufacture is constantly under the survey of one or more officers of excise.

XXVI. *Report of Surgical Cases in the Finsbury Dispensary from the Beginning of May to the End of June 1807, with the Appearances on Dissection in a Case of Hydrocephalus.* By JOHN TAUNTON, Esq.

DURING the above two months, there were admitted 187 patients,

Cured or relieved	-	-	135
Under cure	-	-	52
			<hr/>
			187
			<hr/>

Miss M., æt. 5., of a delicate constitution, predisposed to scrophula, had a purulent discharge from the right ear for three years preceding her death: it took place subsequent to the Measles, and was generally copious, for the most part VERY OFFENSIVE, and frequently attended with pains in the head and ear, but in other respects she was LIVELY and HEALTHY.

Two days previous to the 21st of October 1806, she complained