

to the fabrication of artificial or fancy flowers. M. Grenet, who was the first to fabricate on a large scale, out of various residues of animal bodies of little value, these beautiful and diversified products, many of which previously had been derived from the more costly substance—isinglass, was deemed by the jury to merit the award of the council medal.

Many manufacturers in France have risen to great eminence in this line by following the processes of M. Grenet. H. Castelle, of Paris, exhibited (No. 107) a still more varied assortment of the modifications of gelatine, amongst which were particularly deserving of notice the very large sheets of transparent gelatine, colourless, white, of various well-defined colours, and embossed or stamped with elegant patterns.

Jacob Bell, Esq., M. P., in his lecture on pharmaceutical processes and products, gives a curious illustration of the extent to which the consumer is prejudiced by the obstacles which intervene between himself and producer:—

An ingenious application of the science of chemistry consists in the manufacture of artificial essences of pears, pine-apples, and other fruits. A few specimens which I have received from Mr. Piper, of Upper Winchester Street, Pentonville, are on the table. In the concentrated form, the smell is rather acrid, but when diluted, the resemblance to the fruit is recognised. The best imitations are the pine-apple and the jargonelle pear; the green gage, apricot, black currant, and mulberry, when properly mixed, are fair imitations. They are quite innocuous in the proportions used, namely a drop or half a drop to the ounce. I have been informed, that some of the fees furnished in the Great Exhibition were flavoured with these essences. The introduction of these preparations originated, I believe, in the discovery of the fact, that the peculiar flavour of "pine-apple rum" was due to butyric ether,

which has since been obtained from the fruit itself. Further experiments led to the discovery of other artificial essences.

Here is a series of specimens of scammony from the English collection. No. 1 is pure; the others are more or less adulterated, down to No. 5, which is not worthy of the name of scammony. In the Turkish collection, where we might have expected to find scammony unusually fine. No. 1 is about on par with No. 3 in those above mentioned, and No. 5 would not be recognized as scammony except by the label on the bottle. It is only within a few years that pure scammony has been known in England, and its introduction arose from the circumstance of several samples of scammony being analysed, and found to be adulterated (chiefly with starch and chalk) to an extent varying from about 15 to 60 per cent. The fact being reported to the merchant abroad, he replied, that he made it to suit the demand, and mixed it according to the price. He said he would send it pure if desired, but it would be dear in proportion. From that time, "virgin scammony," as it is called, has been in the English market, but it has not yet found its way to the continent of Europe. Several foreign professors, lecturers on *materia medica*, and possessors of extensive museums, had never seen pure scammony until they saw it at the Great Exhibition, and were glad to obtain a few ounces as a specimen, to take home with them as a curiosity. Similar remarks may be made with regard to opium, of which we had specimens from various localities. This is a drug which, like many others, is adulterated to suit the demand.

NOTE.—We are indebted to the liberality and courtesy of the Proprietors of the Illustrated London News for the stereotyped plate of the Canadian Department of the Great Exhibition. We have also been favoured with stereotyped plates of various articles contributed by Canadians, which we shall introduce into the Journal as occasion offers. We beg to tender our respectful thanks to the Proprietors of the Illustrated London News.

Description of a Mill-Dam and Bridge for a Creek Fifty Feet Wide.

We would remind those of our professional brethren whose minds may soar above the preparation of a plan for a Mill-dam or a Bridge across a creek fifty feet wide, and who may be tempted to smile at the common-place nature of the work we now illustrate, that one object of the Canadian Journal is to impart information on matters of common necessity among the people, in the full conviction that the efficient and permanent construction of such humble works is as essential, in their several localities, to the general progress of the country, as are those of far greater magnitude. In furtherance of this purpose, we invite the co-operation of all whose attention has been given to these subjects, not without the confident expectation that the example set by our intelligent correspondent, whose diagrams and descriptions we give below, will be generously followed by many practical men, whose experience will enable them to furnish materials possessing that rare value which experience alone can give.

The drawings I enclose in this communication were made for a Mill-dam and Bridge across a creek, the banks of which were about 120 feet apart, and of deep loam, the

bed of soft clay. A dam had been previously constructed on the same site, but had been twice carried away, owing to the sudden rise of water, washing away and undermining the banks on each side of the abutments. In order to prevent the recurrence of similar accidents it was necessary to construct a dam with a very wide water way or apron; and to connect the abutments with the banks by puddle ditches and shut piling, as well as to construct the sluices in such a manner as to admit of the water-way being readily enlarged to such an extent as to allow the passage of the water during the heaviest freshets without allowing it to rise above the abutments. These conditions are fulfilled by the design which I will now briefly describe.

The bed of the creek was first excavated to a depth of three feet below its ordinary level under the whole breadth of the dam, (one half the breadth of the creek being completed while the other half served for passing the water, which in the dry season was inconsiderable,) round piles 12 inches diameter were driven to a depth of about 12 feet, as indicated on the plan, to which the cross timbers are notched and bolted—upon these longitudinal timbers are placed and secured. The second row of piles from the upper side, being square, are left sufficiently high to receive the cap piece of the apron, which is

