IX. Method of whitening the gray marine salt to fit it for domestic purposes instantaneously, and without the aid of heat

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else than the exterior side of the first row of cells, as the illustrious Malpighi supposed. The pith in all plants is composed of hexagonal cells. In herbaceous plants, and particularly those which are highly succulent, these cells are often filled with juices more or less thick or coloured. In ligneous plants, naturally drier, they are, on the other hand, almost entirely empty, and transparent. The cellular tissue in bulbous roots is pulpy and succulent; in the cotyledons it is hard and brittle; and in the albumen and seeds it is dry and arid. The parenchyme of the leaves, of the bractææ, stipulæ, and calyces, is formed by cells filled with a juice almost always coloured, and green. The rich corollæ, which display to the light the elegance of their forms and the splendour of their colours, but of which the beauty and freshness vanish in a moment, are not so thin as the delicate membranes of the cellular tissue: the juices which swell the transparent utriculi of which they are formed give them these colours; the one sometimes diffused into the other by imperceptible tints, sometimes abruptly opposed, and heightening their splendour by the contrast. Here the cellular tissue is so delicate, that the slightest touch is sufficient to alter and tarnish it: the least pressure reduces it to mucilage, and it appears to be the momentaneous product of the air and water. This tissue is observed also in the stamina and the pistils. The pollen, that fine dust which contains the subtle fluid necessary for fecundation, appears to be only an accumulation of small bags formed of the cellular tissue: in a word, it is this tissue which, by dilating itself, produces succulent fruits.

The cells are proportionally more abundant in herbs than in trees, and in young shoots than in old timber. The embryo is composed almost entirely of cellular tissue. The medullary radii, which extend from the centre to the circumference in the trunks and branches of trees with two cotyledons, are sometimes also nothing but a thin membrane of cells.

[To be continued.]

IX. Method of whitening the Gray Marine Salt to fit it for domestic Purposes instantaneously, and without the Aid of Heat. By PAJOT DESCHARMES.*

GRAY or unrefined marine salt, as every body knows, is covered with a thin earthy crust which alters more or less its whiteness; and it is a matter of some consequence, both in

* From the same.

regard

regard to cleanliness and health, to purify it from this heterogeneous substance which covers all the faces of its crystals.

Hitherto this salt has been purified or refined only by solution, filtration, or precipitation, according as the operation is performed on a large or a small scale, and then by evaporation. This method requires time, wood or charcoal, and proper vessels. Many persons, however, are unacquainted with this process; sometimes they have not leisure to employ it; and sometimes they have neither the necessary vessels nor fuel.

I have thought, therefore, that a process which requires neither fire nor particular vessels, is attended with no expense, may be practised at all times, and is within the reach of every one, might be of general utility. This method is as follows:

Take four ounces of gray salt, and, if dry, besprinkle it gently with water till it be only what is called moist; but it will be very seldom necessary to have recourse to this operation. Put the salt into the corner of a table napkin or piece of linen cloth, and form the cloth into a kind of knot or bag, which you must hold in one hand, while with the other you rub and shake the salt against the inside of the cloth for the space of half an hour. Then shift the salt to another place of the cloth, successively repeating the same manœuvre six, seven, or eight times, according as the salt is more or less gray. After the salt has been rolled for the first time, the cloth begins to exhibit spots occasioned by the earth which the salt deposits, and of which the intensity sensibly decreases at each change of place till they entirely disappear. In general, the salt must be besprinkled every two or three times that its place is changed. The bleaching will be accelerated by pounding the salt slightly before it is besprinkled.

After two or three aspersions and rubbings, the salt is, in general, as pure and white as that refined, according to the usual method, by solution and evaporation. The loss in both cases is nearly the same; that is to say, about an eighth, when the salt is dry, and when care has been taken at each change of place to shake off the grains which adhere to the cloth. It is, for the most part, the whitest salt that adheres in this manner; and it may be shaken off without fear, as the earth deposited on the cloth cannot detach itself till the cloth is dry. The gray salt of commerce contains in general 12 per cent. of foreign matters, nearly one-half of which is water, and about as much earth.

This process, which on account of its simplicity I consider as likely to become useful for domestic purposes, might perhaps be applicable to salt manufactories and salt refineries.

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