

THE NATURALIST.

BOTANY.—II.

Cells of Plants.—The most simple form of a vegetable is a mere vesicle. The green mould which forms on damp walls is an aggregation of these vesicles, and is supposed to consist of an infinite number of perfect vegetables. The crimson snow, which has been observed in the Arctic regions, is also considered to owe its colour to minute vegetables. The following extract from the narrative of Captain Ross's first voyage, gives an interesting account of this remarkable phenomenon:—

"On the 17th of August, (1818,) it was discovered that the snow on the face of the cliffs presented an appearance both novel and interesting; being apparently stained or covered by some substance, which gave it a deep crimson colour. Many conjectures were formed respecting the cause of this phenomenon; and a party was despatched from the ship, to bring off some of the snow. It was found to be penetrated (in many places to the depth of ten or twelve feet) by the colouring matter, and had the appearance of having been a long time in that state. On being brought on board, the snow was examined by a microscope, magnifying a hundred times; and the substance appeared to consist of particles, resembling a very minute round seed; all of them being of the same size, and of a deep red colour. On being dissolved in water, the latter had the appearance of muddy port-wine; and in a few hours it deposited a sediment, which was again examined by the microscope; and, on being bruised, was found to be composed entirely of red matter, which (when applied to paper) produced a colour resembling Indian red. It was the opinion of Dr. Wollaston, (who was consulted when the ship returned to England,) that this was not a marine production, but a vegetable substance, produced in the mountain immediately above." The voyagers soon afterwards encountered some red ice; but it was found to owe its colour to red paint, scraped off the bows of the ship.

Probably every part of a plant, when first formed, is a cell, and the great bulk of many plants is composed of cells; passages being left between them for the sap. Originally these cells are of a round form, but they generally acquire a hexagonal shape from pressure; like the cells in a bee-hive, and probably from the same cause. To illustrate this, we may mention, that if a batch of flat, round cakes be put into an oven, during the expansion caused by baking they will assume a hexagonal form. The pulp of all fruits lies in cells, which, in this case, are generally of a round or of an elliptical form. They are seen well in the orange. Cells are sometimes of a cylindrical form; their length being greater than their diameter.

VESSELS OF PLANTS.

1. **Lymphatic Vessels.**—These vessels are long, hollow tubes; often, but not always, too small to be discerned by the naked eye. They are well seen in an old oak or elm; and in mahogany, appear like black dots. They run from the root to the end of the branches. In very old wood, these vessels are sometimes found filled up.—Their office is to transmit water, which was called by the ancients *lymph*; for they mistook it for a fluid having peculiar properties. They are sometimes called *common vessels*.

2. **Spiral Vessels.**—These vessels are called by some *tracheæ*, or *air-tubes*; the "wind-pipe" of animals (which conveys air into the lungs) being called the *tracheæ*. They are supposed by many to carry air; but their real use is not known. They are not *sap-vessels*, as Dr. Darwin thought they were; for they are never found in the root, and are always dry. M. Dutrochet (a celebrated continental botanist) is of opinion that they convey to the leaves an ethereal fluid, which is coagulable by nitric acid, and serves the same purpose as oxygen does in animals—ministering to respiration. They go to all parts of the leaves, and even to the seeds: they resemble a flat thread, rolled into a spiral form; and may be seen in the stem of a tulip, if we break it cautiously, and draw the fractured ends gently across. Dutrochet thinks that the spiral turns of the thread (which is itself hollow) are connected by a membrane, so as to make a larger tube, formed by the convolutions of the small one.

3. **Proper Vessels.**—These are also called *returning vessels*, because they return the sap, after it has undergone the proper change in the leaves. They take their rise from the back of the latter, and extend through all the plant. Sometimes they end in blind extremities, or *sacs*. If the bark be cut across, these vessels pour out a white fluid. Decandolle (another eminent continental botanist) calls them *repositories*. It is in these vessels (in those plants which yield it) that camphor is found; for that well-known substance is at first in a fluid state, and becomes solid from exposure to the air.

Plants of the lowest class (called *Cryptogamia*) have no vessels at all, but consist entirely of cells. Lately, however, vessels have been found in some of the ferns, which belong to the class in question. When a tree is *bored* or *tapped* it is from its vessels that fluid issues. It is thus that the birch is tapped, and wine is made from the fluid which is poured out; and, in the same way, sugar is obtained from the sap of the maple-tree. In the tropics there is a remarkable tree, which supplies the natives with drink, when no rain falls for months.

BARK OF PLANTS.

The bark is the part in which the medical virtues of plants generally reside; as is the case with cinnamon-bark, cinchona-bark, etc. The design of their containing the bitter principle in the one case, and the odoriferous principle in the other, is probably to defend the plant from insects. The bark of plants often contains gallic acid and tannin. The willow and the walnut yield the latter abundantly, and the plants which grow in bogs contain much of it. This it is which is said to give to bogs their antiseptic properties, by which men have been preserved in them for centuries. A few years ago, there was found in one of the bogs in Ireland the body of a man, who, from the hide in which he was enveloped, was considered to have been one of the ancient inhabitants of the island. We are not sure, however, that the antiseptic properties of bog are owing to tannin; for some bogs do not yield it. St. Pierre informs us, that, in some countries, fallen trees are found, having all their wood decayed, but with the bark retaining its shape. Mrs. Trollope seems to have met with a tree of this kind, in her *pic-nic* in the American forest. In submarine forests, the bark is the only part of the trees which remains perfect.

There is a great quantity of mucilage in the bark of young trees, by which the latter are nourished. Bark for medical use, or the purposes of the arts, should be taken in autumn or winter; for its peculiar principles are absorbed into the wood, if left till spring. In northern countries, the bark of the fir, and other trees, is sometimes ground, and used as a substitute for flour. The bark of many plants is furnished with prickles, as a means of defence. The plants which yield gum-arabic and gum-tragacanth, for instance, are defended by prickles. Some trees are guarded by prickles only to the height that cattle can reach. Many fruit-trees (such as the plum-tree and the pear-tree) are furnished with thorns, in their natural state, but lose them when cultivated in gardens.

Much additional information in that department of Botany which has engaged our attention in this paper, will be found in a "Treatise on Vegetable Physiology," in the "Library of Useful Knowledge." We take the opportunity of recommending, to those who wish to study the higher departments of the science, Dr. Lindley's *Treatise on Botany*, which likewise forms a part of the "Library." We regret that, contrary to the expectation originally held out, it has remained for months, and even years, unfinished.—*N. R.*

From the New England Farmer.

POTATO BLOSSOMS.

MR. BRECK,—I am aware you are acquainted that the potato is the most productive and useful vegetable in Nova Scotia;—the climate and soil of this province being extremely favorable to its cultivation, much more so than our sister provinces of New Brunswick and Prince Edward Island.

On the receipt of your valuable paper, of 25th July last, containing an article on "Potato Blossoms," I was induced to try the experiment, whether plucking off the flower before any balls were formed, would increase, or diminish its productiveness. It may not be improper to preface my remarks that for several years past, there has been a disease in our seed, which has subjected the potato to the *dry rot*, and it has been recommended in the report made by the Agricultural Society lately formed here, and by the most skilful agriculturalists, that the most effectual remedy that can be adopted to eradicate it, "is to plant the potato whole;" but as it is impossible to persuade every one to adhere to this principle, we shall, I fear, be still subject to it. The potato I selected for the experiment was the white kidney (early sort) grown from the apple by the late John Young, Esq., and of course planted whole. The following are the particulars and the result. I selected two rows in my field along side of each other, 39 feet long, each planted at the same time, the same manure, and the same seed—distance potato from potato 10 inches. When I received your paper, the blossoms had just opened. One row I plucked off the blossoms, and on the other I suffered the flower to exist. I dug them yesterday, and the product was as follows:—The row on which the blossoms remained, produced 61 lbs. potatoes.

The row from which I plucked the blossoms, produced 71 lbs. potatoes, not so numerous as the former, but much larger, so that it appears the latter has yielded an increase of one sixth—and of better quality.

Like yourself, I do not pretend to understand the philosophy of it, but of the accuracy of the foregoing statement you may rely upon, but let us remember, that the laws of nature are not yet, nor ever will be thoroughly understood,—the common place opinion however here is, that by taking off the blossom, it throws the strength of the plant to the root, and they justify this opinion, by reference to the lopping off the branches of a young tree, which causes it to spread, and throw out more bush at the bottom.

If this experiment, made upon a small scale, yet applicable to a general principle, can elicit any useful information to the farmer I shall be much gratified. I am not without hope some of your correspondents on your side of the water, have made the same

trial, and I wait with much anxiety to learn, through the medium of your paper, the results in your climate. Yours, &c.

E. BROWN.

Halifax, N. S. 11th Oct. 1838.

SIGNS OF PROSPERITY.—Do you see that are house on that risin' hummock to the right there?—Well, gist look at it, that's what I call about right. Flanked on both sides by an orchard of best grafted fruit, a tidy little clever flower garden in front, that the galls see to, and a'most a grand sarce garden over the road there sheltered by them are willows. At the back side see them everlastin' big barns; and, by gosh! there goes the dairy cows; and a pretty sight too; that fourteen of 'em marchin' Indgian file arter milkin', down to that are medder. Whenever you see a place snugged up and lookin' like that are, depend on it the folks are of the right kind. Them flowers too, and that are honeysuckle, and rose bushes, show the family are brought up right; somethin' to do at home, instead of racin' about to quiltin' parties, huskin' frolics, gossippin', talkin' scandal, and neglectin' their business. Them little matters are like throwin' up straws, they show which way the wind is.—When galls attend to them are things, it shews that they are what our minister used to call, "right minded." It keeps them busy, and when folks are busy, they ha'n't time to get into mischief; and it amuses them too, and keeps the dear little critters healthy and cheerful.—*Sam Slick.*

EXTRAVAGANCE IN NOVA SCOTIA.—Do you see them are country galls there, said Mr. Slick, how they are tricked out in silks, and touched off with lace and ribands to the nine's, a mincin' along with parasols in their hands, as if they were afeard the sun would melt them like wax, or take the color out of their faces, like a printed cotton blind? Well, that's gist the ruin of this country.

It ain't poverty the blue noses have to fear, for that they needn't know without they choose to make acquaintances with it; but it's gentility. They go the whole hog in this country, you may depend. They ain't content to appear what they be, but want to be what they aint; they live too extravagant, and dress too extravagant, and won't do what's the only thing that will support this extravagance; that is, be industrious. Gist go into one of the meeting houses, back here in the woods, where there ought to be nothin' but homespun cloth, and home-made stuffs and bonnets, and see the leghorn and palmettors, and silks and shalleys, merinos, gauzes, and blonds, assembled there, enough to buy the best farm in the settlement. There's somethin' not altogether gist right in this.—*Ib.*

A PLEA IN ABATEMENT.—In one of the Quarter Session courts in Tennessee, one *Joe Phillips* was indicted for an assault and battery. The solicitor called him to the bar and addressed him thus: "You are indicted for a misdemeanor, and stand charged in these words: 'The jurors, upon their oaths, present that Joe Phillips, late of the county of —, on the 10th day of August 18—, with a force and arms, in and upon the body of one John Scroggins, an assault did make, with guns, pistols, swords, dirks, and clubs, with malice aforethought.'"—

"Stop, Mr. Lawyer," says Joe, "there was something of it, but you're making it a deal worse than it was."

"Well, how was it Joe?" says the solicitor.

"Why, I and John met one day on the road, and says I to John, 'this is a bad day for snakin.'—Then says he to me, 'Not very bad neither, for I killed one near upon a rod long.' Then says I, 'That's a lie, for there's nary snake in this country half so long.' Then, after a good many such compliments passed between us, says John to me, says he, 'I doesn't milk my neighbors' cows as some folks do.' And then I hit him a lick with my fist on the side of his head, and then we had a real scuffle; a fair fight; then just so. And we hadn't no gun, nor pistols; nor club, nor dirk, neither; so you needn't be talking all that nonsense over to the Court when there's no such thing; and John says he's willing to fight again, if I'll let him strike first."

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