

in your columns for this week, I shall conclude with an intimation that a series of letters, of which this is the first, will be published in the *Courier*, and that the design is to promote the views of the agricultural society recently formed in the county of Saint John.

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BOTANY.

THE Cellular Integument lies immediately under the Cuticle, and is generally of a green colour, especially in the leaves and branches. It is in most instances the seat of colour—and resembles what is termed the Rete Mucosum, beneath the Cuticle in human beings, which is pale in Europeans and black in the Negro, the analogy holds no farther. *Mirbel* remarks that leaves consist almost entirely of this substance, covered on each side by the Cuticle. The stems and branches of annual and perennial plants are invested with it, but in woody parts it is dried up and reproduced continually, such parts only having that reproductive power.—The old layers remaining are pushed onwards by the new ones, and form at length the ragged dry dead covering of the old trunks of trees. The cellular integument is of the utmost importance in the function of leaves, which will be hereafter shown. In it the principle changes operated upon the juices of plants by light and air, and consequent elaboration of all other peculiar secretions take place.

The Bark.—Lies under the Cellular integument. In plants, on branches only one year old, the bark consists of one layer, and is often not distinguishable from the wood. In the older branches and trunks of trees it consists of as many layers as they are years old; and the inner is called the *Liber*, in which only the essential vital functions are carried on for the time being, after which it is pushed outwards with the Cellular

integument, and like it, becomes a lifeless crust. These older layers are for some time *reservoirs* of the peculiar excreted juices of the plants.

In some roots, although only of annual duration, the bark is thick, as in the carrot, the red part of which is all bark. In the turnip it is thinner, though equally distinct from the body of the root. The bark contains a number of longitudinal fibres giving it tenacity, which when separated by maceration generally exhibit a beautiful net-work structure—which is one of the family of the *Mezeron* in Jamaica—may be separated into an elegant kind of lace, and is then called lace-bark. This peculiar structure is not discernible in the Fir tribe. The bark of the cluster Pine some inches in thickness is separable into thin porous layers, each the production of one season. The bark of oak trees, 20 or 30 years old, if cut and long exposed to the weather, separates into many fine thin layers, of a similar though less delicate texture than the lace-bark of Jamaica; all these layers in a living state are closely connected with each other by the cellular texture, as well as by transverse vessels necessary for the performance of several functions. The peculiar virtues of plants reside chiefly in the bark, and most powerfully in the layers nearest the wood. In this case appropriate vessels are found the resin of the fir and Juniper—the astringent principle of the oak and willow, on which their tanning property depends—the bitter of the Peruvian bark, and the aromatic oil of the Cinnamon. The same secretions pervade the other parts of the plant but in a less concentrated form; when a portion of bark is removed, the remainder has a power of extending itself laterally but slowly until the wound is closed. This is accomplished by each new layer added to the bark internally, spreading a little beyond the edges of the preceding layer. The operation of closing the wound goes on the