

pearance of stomata. They increase in thickness in the same way as the stem increases. This law obtains both in exogenous and endogenous plants: they do not, however, grow in length by the elongation of any of their parts, but simply by additions made to their extremities. Their ramifications are not the result of the development of buds, as are the branches of the stem; but they arise merely from the additional deposits taking different directions. Almost every part of the surface of the stem or branches may shoot forth roots if they are covered with earth, and properly moistened, and if they are supplied with sap from the circulating system of the plant itself. It is observed, however, that they generally grow from certain points on the surface of the bark, which appear as dark spots, and are termed *Lenticellæ*.* Great variety exists in the form and dispositions of roots in different families of plants, according to the particular purposes they are intended to serve, conformably with their general functions of absorption and of mechanical support. Both these purposes are promoted by their sending out from their sides numerous fibrils, or lesser roots, which increase their firm hold upon the soil, as well as multiply the channels for the introduction of nourishment.

Nature has supplied various plants with certain appendages to the above mentioned structures, the use of which are for the most part sufficiently obvious. Of this description are the *tendrils*, which assist in fixing and procuring support to the stems of the weaker plants; the *stipulæ*, which protect the nascent leaves; and the *bractæ*, which perform a similar office to the blossom. The different kinds of hairs, of down,† of thorns, and prickles, which are found on the surface of different plants, have various uses; some of which are easily understood, particularly that of defending the plant from molestation by animals. The sting of the nettle is of this class; and its structure bears a striking

* This name was given to them by De Candolle, *Annales des Sciences Naturelles*, VII. 1, and *Organographie*, I. 94.

† The finer hairs, and filaments of down, are composed of elongated cells, either single, or several conjoined end to end.