

mode of growth, as being the simplest of these two kinds of vegetable development.

A Palm tree may be taken as an example of the mode of growth in endogenous plants. The stem of this tree is usually perfectly cylindrical, attains a great height, and bears on its summit a tuft of leaves. It is composed of an extremely dense external cylindric layer of wood; but the texture of the interior becomes gradually softer and more porous as it comes nearer to the centre; though with regard to its essential character it appears to be uniform in every part, having neither medullary rays, nor true outward bark, nor any central pith; in all which respects it differs totally from the ordinary exogenous trees.

The first stage of its growth consists in the appearance of a circle of leaves, which shoot upwards from the neck of the plant, and attain, during the first year, a certain size. The following year, another circle of leaves arises; but they grow from the interior of the former circle, which they force outwards as their vegetation advances, and as ligneous matter is deposited within them. Thus, each succeeding year brings with it a fresh crop of leaves, intermixed with ligneous matter, which leaves, exerting an outward pressure, stretch out the preceding layers that enclose them; until the latter acquiring greater density, no longer admit of farther distention, and remain permanently fixed. This happens first to the outermost layer, which is the oldest: then each succeeding layer becomes consolidated in its turn. As soon as the outer layer has become too hard to yield to the pressure from within, the growth of the inner layers is immediately directed upwards; so that they each rise in succession by distinct stages, always proceeding from the interior; a mode of development which has been compared by De Candolle to the drawing out of the sliding tubes of a telescope. The whole stem, whatever height it may attain, never increases its diameter after its outward layer has been consolidated. A circle of leaves annually sprouts from the margin of the new layer of wood; these, when they fall off in autumn, leave on the stem certain traces of their former existence, consisting of a cir-