

the second, they are elongated in cylinders, or slowly tapering cones, thus passing by insensible gradations into the tubular form. Figures 6, 7, and 8, are representations of some of these different states of transition from the one to the other. These various modifications of the same elementary texture have been distinguished into several classes of cells, and dignified by separate technical denominations, which I shall not stop to specify, as it does not appear that they have as yet thrown any light on vegetable physiology.

Many of the cells are fortified by the addition of elastic threads, generally disposed in a spiral course, and adhering to the inner surfaces of the membranous coats of the cells, which they keep in an expanded state. (See Fig. 9.) When the membranes are torn, the fibres; being detached, unroll themselves, and being loosely scattered among the neighbouring cells, give the appearance of fibrous connexions among these cells, which did not originally exist. Simple membranous cells, containing no internal threads, are often found intermixed with these fibrous cells. In many of the cells, again, the original spiral threads appears to have coalesced by their edges; thus presenting a more uniform surface excepting that a few interstices are left, where the pellucid membrane, having no internal lining, presents the appearance of transverse fissures or oval perforations, as shown in (Fig. 10.) Cells of this description are said to be *reticulated* or *spotted*, and, together with those having more regularly formed spiral threads, are very abundantly met with in plants belonging to the tribe of *Orchidææ*.

It has been much disputed whether the cells of the vegetable texture are closed on all sides, or whether they communicate with one another. Mirbel has given us delineations of what appeared to him, when he examined the coats of the cells with the microscope, to be pores and fissures. But subsequent observations have rendered it probable that these appearances arise merely from darker portions of the membranes, where opaque particles have been deposited in their substance. Fluids gain access into these cells by transuding