according to the respective functions which they are called upon to perform.

We shall now examine the several kinds of texture in relation to these functions, in the order of their increasing complexity; beginning with those of vegetables, which are apparently the simplest of all.

§ 2. *Vegetable Organization.*

PLANTS, being limited in their economy to the functions of nutrition and reproduction, and being fixed to the same spot, and therefore in a comparatively passive condition, require for the performance of these functions mechanical constructions of a very different kind from those which are necessary to the sentient, the active, and the locomotive animal. The organs that are essential to vegetables are those which receive and elaborate the nutritive fluids they require, those which are subservient to reproduction, and also those composing the general frame-work, which must be superadded to the whole for the purpose of giving mechanical support and protection to these finer organizations. As plants are destined to be permanently attached to the soil, and yet require the action both of air and of light; and, as they must also be defended from the injurious action of the elements, so we find these several objects provided for by three descriptions of parts: namely, first, the *Roots*, which fix plants in their situation; secondly, the *Stems*, which support them in the proper position, or raise them to the requisite height above the ground; together with the branches which are merely subdivisions of the stem; and thirdly, the *external coverings*, which correspond in their office to the integuments, or skins of animals.

The simplest and apparently the most elementary texture met with in vegetables is formed of exceedingly minute vesicles, the coats of which consist of transparent membranes of extreme tenuity. Fig. 3 is a highly magnified representation of the simplest form of these vesicles.* But they ge-

* These cells are well represented in the engravings which illustrate Mr.