is visible, and the bladder cells have become polygonal by mutual pressure (Pl. V. fig. 17). The second form of cell is found wherever a small patch of matrix can be seen. They are the test cells, and are small (0·008 to 0·01 mm.), ellipsoidal, fusiform, or stellate in shape, and consist of a large nucleus surrounded by a little protoplasm which sometimes stretches out to form long delicate processes. These cells stain deeply with carmine.

Under a low power (50 diameters) this test tissue looks like a fine network minutely dotted over (Pl. V. fig. 14). The meshes are formed by the bladder cells, of which several layers may be in focus at once, and the dots represent the nuclei of both kinds of cells. When magnified 200 diameters the structure is apparent (Pl. V. fig. 15). The outlines of the large bladder cells seem to cut each other constantly; this is due to the fact that more than one layer is visible. If care be taken to focus three or four cells lying in the same plane, it will be seen that they never intersect or open into one another, and that except when they are very crowded a thin layer of matrix lies between them. In some places under this power the tissue looks as if composed of large protoplasts (the patches of hyaline matrix, containing the small fusiform cells with large nuclei) united to one another by radiating processes and leaving large lacunæ between (the bladder cells). This appearance is very striking in some preparations stained with picrocarmine (Pl. V. fig. 17).

A higher power (350 diameters) shows better the nuclei of the bladder cells and their parietal position. Coarse granules are generally visible in these nuclei. Throughout the rest of the head the investing mass has essentially the above described structure; the bladder cells, however, are generally not quite so large, and are much more crowded, being polygonal in shape; sometimes they form regular hexagons, showing no matrix except here and there at the angles. The central part of the head, as mentioned above, is quite spongy in appearance, being channelled out by the vascular appendages. Under a low power (50 diameters) a section of this region presents a curious appearance (Pl. V. fig. 16). The large spaces (about 0·2 mm. across) reduce the tissue to an irregular reticulum, the thick bars of which have the ordinary structure of bladder cells, &c., while here and there are seen threads too narrow to contain a bladder cell; these are formed of the matrix, with its small spindle-shaped test cells.

Towards the base of the colony, on account of the greater number of vascular appendages which have to be accommodated, the spongy area is greater in extent and the amount of tissue in the spongy part is less, being reduced to bars of nearly uniform thickness which enclose spaces of hexagonal form, thus making a regular network (Pl. VIII. fig. 11).

Over the whole head the surface layer of the test tissue differs slightly in structure from the central part (Pl. V. fig. 17). It contains no bladder cells, but is formed merely of the homogeneous matrix and the small fusiform or stellate test cells. This layer can be stripped off as a delicate membrane from the surface of the tissue beneath. The