long as the head (Pl. XVII. *Figs.* 11 and 12), and at another contract to hardly more than twice (Pl. XIX. *Fig.* 1) or thrice their diameter (Pl. XVII. *Fig.* 9, *t*). In the latter condition they are strongly wrinkled, transversely.

The whole community, including even the medusæ, when these are present, is covered, from the base to the very tips of the tentacles, by a horny sheath (Pl. XVII. *Figs.* 9, *c*, 11, *c*, and 15, *c*, Pl. XVIII. *Fig.* 8, and wood-cut G, *i*, p. (23), *Fig.* 10, and wood-cut K, *i*, p. (24), *Fig.* 12, and wood-cut M, *h*, p. (24), *Fig.* 14, and wood-cut N, *h*, p. (24), Pl. XIX. *Figs.* 2, *c*, 3, *c* c^1, and 4, *c*, Pl. XX. *Figs.* 1, *a*, 2, *c*, 4, *c*, 5, *c*, 6, *c* c^1). At the lower part of the branches, the sheath is quite thick, tough, and like parchment in texture, but just below the heads it thins out, and becomes an excessively delicate film, which yields to every flexure of the upper part of the body and tentacles. It appears to be made up of irregular concentric layers (Pl. XX. *Figs.* 2, *c*, and 6, *c*). There are no traces of rings or twisting in this sheath, as obtains in other species; but it has a uniform surface, and the diameter of the whole stem being about equal to that of a fine cambric needle (see Pl. XVII. *Figs.* 1 and 10), up to the base of the head, and thence expanding into the club-shaped head, the sheath follows, also, over its surface and that of the tentacles. Over the latter it becomes an exceedingly thin film, not to be easily observed (Pl. XIX. *Fig.* 2, *c*).

At the end of the season of the budding of the medusæ, in the spring, a very remarkable change takes place, not only in the head of the hydroids, but also in the medusæ. As late as the 26th of March, in 1855, the head of the hydroids appeared perfectly normal in its characters, and the medusæ, then budding (Pl. XVIII. *Fig.* 14), had every appearance of being fully developed in all their parts, and about ready to drop from the parent stem. Not three weeks later, April 13, 1855, so remarkable a change had come over the hydroids and the medusa form, that, at first, the specimens then found were thought to be of a different species from those studied in March. There was no appreciable difference to be noticed in those hydroids which had the tentacles all perfect, but everywhere the medusoid was unlike those found in the middle of the breeding season. Very few hydroids had more than one medusoid adherent to them (Pl. XVII. *Figs.* 10, 11, 12, 13, 14, and 15). In some instances the heads were perfect (Pl. XVII. *Figs.* 11 and 12), in others the tentacles were shrunken, and looked more like prominent papillæ (Pl. XVII. *Fig.* 13), and again, the tentacles were all gone, and nearly the whole head with them (Pl. XVII. *Fig.* 14), and finally, no trace of a head was to be seen, but the stem was terminated by a medusoid with its mouth turned directly upwards (Pl. XVII. *Fig.* 15). Still greater and more essential modifications were found in the medusoids. All of them had an elongate, oval or ovate, form (Pl. XVII. *Figs.* 11, 12, 13, 14, and 16), contrasting strongly with the globular contour