alternating, and these more than all the other lamellæ. The centrifugal dichotomous ramification of the lamellæ increases gradually towards the periphery, and new peripheral folds are interposed between the centrifugal folds, so that their number at the margin of the disc is much greater than that of the simple radial ridges of the upper surface. The crest of the folds is elegantly denticulate, and from it arise two opposite radial rows of tracheæ. The tracheæ or aëriferous tubules in this *Porpita* are exceedingly numerous, amounting to many thousands. The majority of them are short and end half way up the centradenia. A smaller number pierce the latter and the subjacent support, and project into the exodermal wall of the central siphon and the surrounding gonostyles. They terminate here in the basal half of the latter, inside the exodermal epithelium (fig. 8, *pt*).

The circular concentric ring-chambers of the pneumatocyst communicate one with another by radial apertures or "pneumothyræ," oblique elliptical openings, which are placed in the radial sulci between the folds of the lower face.

The central chamber possesses, as usual, a central stigma in its upper face, as does also each of the surrounding eight radial chambers. From the basal part of each of the latter arises a bunch of three or four short tracheæ. In the basal sulci between these are eight openings, which lead into the first ring-chamber.

Centradenia (fig. 1, *uh*, meridional section; fig. 3, inferior face; figs. 6–8, *un*, parts of sections).—The large central gland (or the so-called "liver") is a biconvex lenticular disc, the horizontal diameter of which is four times as great as its vertical axis; the latter measures in a specimen of 20 mm. diameter (umbrella) 3 mm., the former 12 mm. Its superior face has a regular radiate appearance; innumerable radial folds (thirty-two of which are stronger) fitting into the radial grooves which lie between the lamellar pouches of the inferior face of the pneumatocyst. The height of these folds increases from the centre towards the periphery. The circular margin meets the line which marks the boundary between the gonostylar and tentacular zones.

The inferior face of the centradenia is less convex than the superior, and is divided into a white central disc (kidney) and a peripheral brown radiate zone (liver). The former covers the roof of the central siphon (*sa*), and surrounds it like a broad, white girdle (fig. 3, *un*); the peripheral part of the brown liver (fig. 3, *sh*) surrounds again the former as a dark radiate ring. The gonostyles arise as well from the former as from the latter.

The meridional or vertical section of the centradenia (fig. 1) demonstrates that its solid exodermal parenchyma is traversed by a dense network of innumerable canals, the greater part of which are darkly coloured by a brown (hepatic) pigment. This is wanting in a part of the superficial canals, and in the inferior white central disc ("kidney"), which contains masses of guanin-crystals. Innumerable tracheæ terminate between the canal branches; their distal openings being surrounded by (air-secreting?) exoderm cells (compare the explanation of figs. 6–8).