

spherical lattice-shell (Castanellida), by the halving of this latter, or its splitting into two hemispherical valves; the former hypothesis is more probable than the latter.

The two valves of the lattice-shell (Pls. 123-126) must in the Concharida (as in all other *Phæoconchia*) be distinguished as dorsal and ventral, and may therefore be compared with the two valves of the Brachiopoda, not with those of the Lamelli-branchia. This important morphological distinction is expressed by the constant position of the central capsule within the shell-cavity. The capsule always exhibits the character of the "TRIPYLEA" and has three tubular openings, placed in the frontal or lateral plane of the unicellular body. In the same plane lies the open frontal fissure between the two valves, and the three openings are so disposed in it that the large anterior main-opening (or the astropyle) is placed on the oral pole of the main axis, whilst the two accessory small lateral openings or parapylæ are placed on both sides of the aboral pole, at the right and left. Therefore in a dorsal or ventral view all three openings are visible (Pl. 123, figs. 1, 8a); in the usual lateral view, however, from the right or left side, only two openings are visible, the astropyle on the anterior, and one parapyle (right or left) near the posterior pole of the main axis (Pl. 123, figs. 8, 9; Pl. 124, figs. 6, 10). The posterior view (from the aboral pole) shows the two parapylæ, at right and left; in the anterior view (from the oral pole) the astropyle may be visible, but usually it is completely hidden in the dark voluminous phæodium. This latter envelops sometimes nearly the whole capsule as an opaque conglomeration of green or brown phæodella (Pl. 123, figs. 8, 9); but usually the phæodium fills up the anterior (oral) half of the shell-cavity, whilst the capsule occupies the posterior (aboral) half (Pl. 124, figs. 6, 10).

The dorsal shell-valve is in almost all *PHÆODARIA* smaller or somewhat different in shape from the ventral valve, and this difference is often very striking (Pl. 124, figs. 3-16); but in a few species both valves are so similar, that I could not discover any certain difference. This equality of the two valves occurs mainly in those Concharida which pass over into the Cœlodendrîda; in these latter as well as in the Cœlographida, both valves are usually equal in size and form. Whilst the main axis (or the longitudinal axis of the body) in the two latter families of *Phæoconchia* seems to be normally vertical (in the living and freely floating body), in the living Concharida it is probably horizontal, so that the larger and heavier ventral valve lies below the smaller and lighter dorsal valve.

The geometrical fundamental form of the body is therefore in the Concharida dipleurial or bilaterally symmetrical, and we distinguish in it the same three dimensive axis, as in all other dipleurial forms. On the anterior or oral pole of the main axis (or longitudinal axis) lies the mouth of the shell, and behind it the phæodium; on the opposite posterior or aboral pole lies the hinge of the shell (comparable to the shell-hinge of the Brachiopoda) and in front of it the central capsule. The sagittal (or dorso-