

*Budding.*

No feature is more striking in this species than the great abundance of buds throughout the entire series of adults inhabiting the coenœcium. Very few exist without them, most presenting from one to three or more buds at various stages, and in all cases these proceed from the terminal region of the pedicle.

The early buds consist of minute and, in the preparations, somewhat pale clavate or pyriform bodies attached by the narrow end to the pedicle. They are situated round or near the tip (which has the thickened investment), and are observed as little processes projecting from the hypoderm. They appear to rise close above the terminal disk, and, in their earlier stages at least, seem to have a channel of communication with the pedicle of the adult (Pl. VI. fig. 1, *ch*). This channel runs upwards along the stalk of the bud as far as the downward bend of the hypoderm (shield) where it is lost. In the earlier buds longitudinal sections, for an examination of the best of which I am indebted to Mr. Harmer, show very clearly the three regions of the body, viz., shield, nuchal region and body-proper, and each has its special spaces. Thus the shield presents its single cavity, the nuchal or collar-region its paired spaces, and the third region contains the body-cavity divided by the mesenteries (dorsal and ventral).

Very soon the pedicle is differentiated from the disk; the young animal consisting of a large, flat, and somewhat thick disk, and a short, broad, and somewhat crenate pedicle attached to the parent. Two ovoid opaque thickenings are observed about this stage dorsally (Pl. V. fig. 3, *lp*), and these are the earliest indications of the lophophoral plumes. In cross section from above downwards the shield consists of a thick layer of hypoderm which attains its greatest development ventrally, for this coat is in the form of a flattened ring round the central chamber. The latter is bounded by a firm investment of basement-tissue having fibres internally. It is this chamber in the younger forms that communicates with the pedicle of the adult. The two dorsal bosses are simply hypodermic growths of the upper layer of the shield, and present an elevation between them.

At a somewhat lower level the elongated cavity in the centre of the shield gives place to a rounded median chamber (Pl. V. fig. 3, *vc*), with the dorsal hypodermic mass above it; while the great bosses of the plumes lie on each side. The latter still present the same structure as the hypoderm of the buccal disk, though there is a faint indication of a linear streak in the centre. In the next slice the two nuchal or collar-spaces appear, with the alimentary canal in the centre. In the septum, between the collar-spaces, the tip of the notochord is observed, and it appears to be larger proportionally in the young than in the adult. The basement-tissue bounding the nervous centre is now defined, and the shield and bosses are diminishing. Behind this the folds of the alimentary canal fill the central region of the body, the intestine being especially distinct as a median canal, the longest axis of which is directed ventrally instead of being transverse