

angle, the distal ends being directed downward in both cases. Thus there is seen to be a striking analogy, if not homology, between bud and basal polyp. The formation of supernumerary tentacles and other structures is common in this species, so it may be possible to regard the bud as a supernumerary and precociously developed basal polyp.

Notes on the anatomy of Acmæa testudinalis,
Müller: M. A. WILCOX.

The following points were made:

1. There is probable, though not conclusive evidence in favor of a winter migration to deeper water.

2. The inner face of the mantle is uniformly clothed with cilia borne, not continuously, but in patches some 20–30 μ apart.

3. Subepidermal glands are situated at the mantle margin. Unlike those described by Haller in a similar position, they are unicellular. Whether they contribute to the formation of the shell is uncertain.

4. The inner face of the mantle also bears subepidermal glands which are scattered and are probably unicellular mucous glands.

5. Animals killed by agents which produce strong contraction, exhibit folds of the mantle which lie parallel to the foot and contain blood spaces. These seem entirely similar to those described by Haller in *Lottia (acmæa) punctata* but in *A. testudinalis* are artefacts.

6. Both mantle tentacles and those borne on the head are richly provided with sense cells of Flemming.

7. The cephalic tentacles have each a large axial cavity which communicates with the cavity of the head. The wall surrounding the tentacular cavity consists of connective tissue in which longitudinal muscle fibres are imbedded and the tentacle, therefore, is intermediate between the ordinary solid prosobranch tentacle and the invaginable tentacle of the stylomatophora.

8. The chief nephridium closely resembles that of *Patella*, except that the portion which lies on the left side in *A. testudinalis* extends forward to the pericardium and probably communicates with it. The greater portion of this nephridium corresponds to what Haller describes as part of a coelom.

Locomotion in Solenomya and its relatives. G.
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These forms burrow rapidly in mud or sand. The extremity of the foot is provided with two muscular flaps that may lie side by side or be spread apart. When the flaps lie side by side the extremity of the foot is wedge shaped, and the foot can easily be thrust into mud or sand. When the flaps are spread apart they form a very effective anchor. With the foot thrust into the mud and the flaps spread, a contraction of the retractor foot-muscles results in drawing the shell into the mud up to the position of the spread flaps. From this position another thrust can be made.

Beside burrowing, *Solenomya* swims quite rapidly. The thick elastic cuticle extends past the calcareous portion of the shell, along its ventral borders to a distance fully equal to one-fourth the entire width of the shell. The margins of the mantle have united ventrally, leaving a small posterior opening through which water can be forced, and a larger anterior opening through which the foot can be protruded. The region of the united margins of the mantle is occupied by a rather broad longitudinal muscle that spreads out around the anterior and posterior openings to form sphincters. The radial pallial muscles are also strongly developed. These extend from the calcareous margins of the shell to the free margins of the cuticle.

When the foot is protruded nearly to its full extent, and the pallial muscles are relaxed, the anterior opening is much larger than the foot, and through it water can