Grube, has been most carefully described by Joh. Müller,[1] Selenka,[2] Danielssen and Koren,[3] and Kovalewsky.[4] According to these authors the gastrula, as it grows larger, assumes a distinctly bilateral form; the ventral surface becomes more or less flattened or concave, the dorsal, on the contrary, convex, and the latter projects slightly beyond the mouth and terminates anteriorly, as in *Cucumaria doliolum*, in a rounded præ-oral prominence (Kopfkegel, according to Selenka). The mouth is thus fully ventral. As development advances, the larva loses more or less of its primitive bilaterality, and the mouth becomes more terminal in position. In fact, a bilateral symmetry is distinctly traceable even in many adult forms of shallow-water Holothurids, as, for instance, *Psolus*, *Colochirus*, and the Aspidochirotæ, but, as it seems to me, this bilaterality is nowhere so conspicuous as in the deep-water Holothurids in question. In many Elasipoda the convex dorsal surface projects further than the mouth, which is thus rendered thoroughly ventral in position. That portion of the back which lies in front of the mouth strikingly resemble the rounded præ-oral prominence of the larva of *Cucumaria doliolum*.

As a matter of fact, the first pedicels which become developed not only belong to the ventral surface, but are even disposed in pairs and situated near the posterior extremity of the larva. It is rather surprising to find numerous examples of deep-sea Holothurioidea, as, for instance, *Elpidia purpurea*, *Scotoplanes robusta*, most of the species of *Peniagone*, *Scotoanassa*, &c., which are provided with only a few pairs of pedicels, situated on the posterior part of the ventral surface, while the rest of that surface is completely devoid of pedicels. Moreover, the pedicels of the Elasipoda belong exclusively to the ventral surface, and are distinctly opposed across that surface so as to form pairs with each other. Thus it seems as if even with respect to the pedicels, the conformity between the larvæ and the adult in the Elasipoda is more striking than that which exists in the Apoda and the Pedata.

The simplest forms of calcareous deposits are spicules, and these also appear first in the body-wall of the larvæ of the Pedata, while it is a well known fact that the larvæ of the *Synapta* are provided with small wheel-shaped plates, which are evidently a much more complicated kind of deposit than the former. The perisoma of the Elasipoda, excepting *Deima* and *Oneirophanta*, is regularly strengthened by spicules and wheels, the former of which are far more common than the latter. Thus it must, I think, be admitted that the Elasipoda present a singular resemblance to the larval forms as to their calcareous deposits, these having remained at such a low degree of development. As a matter of fact, simple unbranched spicules alone are found in several species, but spicules with three or four arms

[1] Abhandlungen d. Königl. Akad. d. Wissenschaften zu Berlin, 1846–1854.

[2] Zur Entwickelung der Holothurien (*Holothuria tubulosa* and *Cucumaria doliolum*), (Zeitschrift für wissenschaftliche Zoologie, xxvii., 1876, pp. 155–179, pls. ix.–xiii.).

[3] Bidrag til Holothuriernes udviklingshistorie (Fauna littoralis Norvegiæ, ii., 1856. pp. 47–54, pls. vii., viii.).

[4] Entwickelungsgeschichte der Holothurien (Mémoires de l'Acad. imp. d. Sc. de St. Pétersbourg, vii. série, tom. xi., No. 6, 1867, pp. 1–8, pl. i.).