

his figures (pl. xlv. figs. 12 and 13) represent the embryos inverted, unless they very much differ from anything hitherto described. Mr. Busk gave him the benefit of his great experience in considering the affinities of the animal.

Dr. Anton Schneider¹ a few years later published a historical account of *Actinotrocha branchiata*, and also some careful original observations with figures on this and another species (*Actinotrocha pallida*), both from Heligoland, where the larval form was first discovered by J. Müller. He mentions the test or tube in which the "worm" (produced by the transformation of the Actinotrocha) lives, and gives a general account of its development and anatomy under the heads of the larval sac, circulatory system, alimentary canal, tentacles, and lastly its metamorphosis into a Sipunculid.

Kowalewsky, again, in his Inaugural Dissertation in 1867² first clearly pointed out the relationship between the foregoing larval form (Actinotrocha) and *Phoronis*. Unfortunately the original paper, which is in Russian, has not been seen, but Leuckart's student, Oulianin, has given a digest of it in his (Leuckart's) Bericht for 1867.³ Kowalewsky found that the larval form (Actinotrocha) abounded in March, whereas *Phoronis*—from September to April—was without eggs. In the early larval condition the alimentary canal and body-wall consist of a single cellular coat, but in the body-cavity is another cellular layer and a muscular coat with fatty bodies. The umbrella-shaped præoral lobe next appears at the anterior end, and overhangs the mouth; while rudiments of the arms occur in the shape of three and then five warts. The embryo soon bursts the egg-capsule and swims freely in the water, an anus meanwhile appearing, and the body increasing in length. E. Claparède shortly afterwards mentions that Actinotrocha is the young of *Phoronis*, and that he had met with the latter in the Clyde.⁴

An able paper on the development of *Phoronis*, by Elias Metschnikoff,⁵ was issued in 1871. He describes the growth from an early larval stage to the assumption of the adult outline—in specimens procured from Odessa, Trieste, Naples, Messina, and Spezia. These he carefully compares with Kowalewsky's descriptions and accurate figures, and amongst other things he notes the presence of a nerve-cord in connection with the so-called ventral furrow.

A paper by E. B. Wilson appeared in 1881⁶ on the metamorphosis of an Actinotrocha which was found in Chesapeake Bay. The author was enabled to corroborate the observations of Krohn, Schneider, and Metschnikoff, and to carry on the development to a later stage, until, indeed, the adult form was assumed. He describes the blood-corpuscles as developed in solid masses adhering to the stomach-wall near the base of the tentacles, probably in the cavity of a sinus, and asserts that they never float freely in the perivisceral space. The masses break up during the metamorphosis, and are carried into the vessels, an opinion which will be alluded to under its proper head.

¹ Reichert und Du Bois-Reymond's Archiv, p. 47, Taf. i. u. ii., 1862.

² Archiv f. Naturgesch., Jahrg. xxxiii. Bd. ii. pp. 236-238, 1867.

³ Zeitschr. f. wiss. Zool., Bd. xxi. p. 214, Taf. xix. and xx.

⁴ Quart. Journ. Micr. Sci., pp. 202-218, pls. xiv. xv., 1881.

⁵ St. Petersburg, 1867, 41 pp. 2 pls.

⁶ Annél. Chétop. Naples, p. 409, note, 1868.