

## 6. *Balanoglossus* and *Tornaria* of New England.

By T. H. Morgan.

ingeg. 19. October 1892.

During the past summer of 1892, while at the Marine Laboratory, at Wood's Holl, Mass., I made a further and successful attempt to clear up the difficulty that had arisen as to the method of development of the common *Balanoglossus Kowalevskii* found on the New England coast.

In 1873 Alex. Agassiz described the transformation of the *Tornaria* found abundantly at times in the waters along the south shore of New England, and most naturally referred the *Tornaria* to the common *Balanoglossus* of the same coast.

In 1883 and 1884 Bateson, working at the Chesapeake Zoological Laboratory at Hampton, Va. (1883), and at Beaufort, N. C. (1884) showed that *Balanoglossus Kowalevskii* in the Southern waters had an abbreviated development, without the free swimming *Tornaria*.

It then became evident, that, either the New England *Tornaria* did not belong to the *B. Kowalevskii* of the New England coast, or the *B. Kowalevskii* had in the north an indirect and in the south a direct development.

In 1891 I pointed out that the mature eggs of the *B. Kowalevskii* of Wood's Holl were of the same size as those of the *B. Kowalevskii* of the Chesapeake, and that the eggs were larger than the youngest and smallest of the New England *Tornaria*. From this and from other facts the conclusion seemed to follow that *B. Kowalevskii* found at Wood's Holl (and by inference *B. Kowalevskii* of New England) had a direct development.

This conclusion was not entirely satisfactory for two reasons, first because it was possible that *B. Kowalevskii* found at Newport by Agassiz might be different from the Wood's Holl form, and secondly because neither Agassiz nor I had been able to obtain the young of *B. Kowalevskii* of New England.

While on a short visit to Newport I examined, through the courtesy of members of Prof. Agassiz's Laboratory, the *Balanoglossus* found there, and satisfied myself, and others, as to the identity of this form with the Wood's Holl individuals.

Later, at Wood's Holl, I succeeded in finding in great numbers the embryos of the New England *Balanoglossus*.

On Sept. 18 I first found these in the sand in Buzzard's Bay at stages corresponding to stages D to H of Bateson's paper. These were still within the egg membranes. During the following week I succeeded in getting, by the method described below, many hundreds

of these embryos, which had now, for the most part, left the egg membranes.

In order to obtain the embryos I found the method described by Bateson to be, with the following modification, the most satisfactory.

The sand around the adults was carefully collected and allowed to settle in tall glasses filled with water—the water kept in rapid rotary motion. The heavier particles of sand settled first leaving the young worms in the top layers, and more abundantly at the centre of the upper surface of the sand. This sand, *débris*, etc., was siphoned off. If the young are desired alive they can then be picked out with a pipette. The embryos may be collected much more rapidly however by pouring over the sand, that has been collected through the siphon, Kleinenberg's Picro-sulphuric acid, mixed with glacial acetic acid (making two per cent to ten per cent of the whole solution). This quickly colors the embryos dark yellow, leaving the sand uncolored, so that with great ease and rapidity the young may be collected.

Which *Balanoglossus* is the parent of the New England *Tornaria* remains still unknown. I have pointed out its apparent identity with the *Tornaria* found by Bourne on the coast of England, which he believes to be identical with the *Tornaria* of *Balanoglossus Krohnii* of the Mediterranean.

Bryn Mawr College, Bryn Mawr, Pa., Oct. 1, 1892.

## II. Mittheilungen aus Museen, Instituten etc.

### 1. Vorläufiger Bericht über die Thätigkeit der Biologischen Station zu Plön.

Von Dr. Otto Zacharias.

eingeg. 7. October 1892.

Die zu Plön begründete Süßwasserstation ist bekanntlich dazu bestimmt, die systematische Durchforschung eines großen binnenländischen Wasserbeckens zu ermöglichen; und zwar geschieht dies nicht bloß hinsichtlich der Fauna, sondern auch in Betreff der Flora des großen Plöner Sees. Somit sind nicht allein Zoologen, sondern auch Botaniker als Mitarbeiter stets willkommen, was hiermit nochmals hervorgehoben sein mag.

Von den acht überhaupt vorhandenen Arbeitsplätzen sind im verflossenen Sommerhalbjahr vier dauernd besetzt gewesen. Mehr als 100 Fachleute (Universitätsdocenten, Oberlehrer und Studenten) haben bei Gelegenheit von Reiseausflügen die Einrichtungen der Station besichtigt. Letztere sind vollständig ausreichend, um in unmittelbarer Seenähe umfassende Studien vorzunehmen. Dasselbe gilt von den litterarischen Hilfsmitteln, welche — Dank der Munificenz zahlreicher Verlagsbuchhandlungen — schon recht beträchtlich sind.

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