

1856. BATE, C. SPENCE.

On the British *Edriophthalma*. [From the Report of the British Association for the Advancement of Science, for 1855. Meeting held at Glasgow in September]. London. 1856. pp. 18-62. Plates XII.-XXII.

This Report considers the second division of Crustacea as *Edriophthalma*, using Leach's term as synonymous with *Tetradecapoda* of Blainville, and *Choristopoda* of Dana, though recognising that not all sessile-eyed Crustacea belong to the division, and that not all members of it have fourteen legs. Dana's view is accepted that the *Læmodipoda* of Latreille cannot rank as an order parallel to the *Amphipoda*, but his order of *Anisopoda* is not approved, the true view being supposed to be that *Læmodipoda* and *Anisopoda* should be separated from *Amphipods* and *Isopods* proper as subordinate groups.

In a discussion headed "The Homologies," the following opinion is advanced:—"The epistome appears with little doubt to be the inferior aspect of the mandibular ring, which is seen on the external lateral surface of the head, and which can be identified from the fact of its carrying the mandibles. This relation of the epistome to the mandibular segment is not admitted by Mr. Dana, who rather, from analogy with the higher types, than by direct evidence of the subject before him, identifies the epistome as belonging to the inferior (or external) antennal segments." Two modes of expression are applied to the Amphipod extremity or telson. In one it is spoken of as the twenty-first ring, only "to be contemplated in the character of an obsolete segment with its rudimentary appendages;" in the other, "it is a rudimentary appendage, modified upon the type of the preceding three" (pairs of appendages). I may here remark that Milne-Edwards, *Hist. Nat. des Crust.*, pl. i. p. 23, regards the telson definitely as the twenty-first ring or segment. He considers that the cleft telson in certain species of Amphipods offers a striking example of the division of a ring into two symmetrical and lateral halves. He adds in a note that this is seen in *Gammarus othonis*, *Gammarus locusta*, &c.; but that in most Amphipods these rudiments of the seventh abdominal segment are completely wanting. This is a very strange observation for him to make, and quite the reverse of the fact. Huxley, *The Crayfish*, p. 161, regards the telson as a median outgrowth of the sixth abdominal segment, which has become moveably articulated therewith.

After a detailed account of the mouth-organs, gnathopods and peræopods, Mr. Spence Bate produces many arguments to show that the epimeron or side-plate in the Amphipoda "belongs to the leg and homologically is the first joint (or coxa), and that it is not a lateral or separate portion of the annular segments of the body of the animal, and in fact that no side pieces or epimerals exist." He maintains the following propositions:—

- "1st. That seven joints are the normal number in the legs of all the Malacostracous Crustacea.
- "2nd. That the branchia is normally an appendage of the leg and attached to the coxa.
- "3d. That the moveable power of the leg is always between the coxa and the leg, and never between the coxa and the body.
- "4th. That the coxa (the so called epimeral) in *Amphipoda* overlaps the segment to which it is attached, and except by a small portion only, is not united by the whole of the margin in juxtaposition with the segment.
- "5th. That there are no epimerals where there are no legs.
- "6th. That epimerals are found in no other type, except the *Edriophthalma* among Crustacea."

It does not seem inconsistent with these arguments to suppose that the first joint of the leg is in fact coalescent with the side plate, and that the side plate is a protective outgrowth from the segment.