Zoology Part LII: Report on the CRUSTACEA MACRURA. By C. Spence Bate. Bound in Volume 24,1888.

done to show that a long, strong tooth, somewhat similar in character to the rostrum, projects from the anterior surface of the epistoma, and that the mandibles exist as sharp-pointed organs, but the presence of a synaphipod could not be determined. Only one pair of gnathopoda could be seen, which I took to be the second; it consists of a long cylindrical basal joint supporting two branches, the permanent ramus being four-jointed; each joint is furnished at its distal angle with a long ciliated hair, and the terminal joint has four; the outer or deciduous branch consists of one long and one minute joint, the former furnished with a long ciliated hair on the inner and one on the outer distal angle, and the latter with four at the extremity.

One feature of interest in the development of the species from which this specimen comes, is that all or at least five out of the seven somites that belong to the pereion are developed as perfect somites posterior to the carapace. This I also found to be the case in Claus's figure of the Protozoea of *Penæus*, and in his figure of *Ericthina*, but it is not the case in Dana's figure of the typical specimens of *Ericthina*, which is believed by Professor Brooks to be the Zoea form of the genus *Leucifer*.

The next form to be considered, and which Dr. v. Willemoes Suhm says comes from the latest Elaphocaris, is that which he has described as being in the *Amphion*-stage. It is desirable in tracing the life-history under the present circumstances, when one form is said to succeed and arise from another, to take into consideration the relative sizes of the specimens, for after allowing for the variations that may occur from various conditions and circumstances, the difference of size is a great factor when we consider how gradual are the changes in the progressive history of the stages that are known. The largest Elaphocaris is about 1·7 mm., and Suhm says the *Amphion*-stage is 3·5 mm., or more than double the length.

The specimens in the Challenger collection that belong to the *Amphion*-stage of Suhm in the progressive development of *Sergestes*, are similar to those that have been described by Claus under the name of *Acanthosoma*. Of these there are several varieties, as if they were the young of more or less closely allied species, but there are two forms in which the characters are so distinct, that I think there cannot be any doubt they are stages of two different but closely allied genera. These may be arranged for convenience under the names of *Acanthosoma brevitelsonis* and *Acanthosoma longitelsonis*, leaving it to future research to determine the parent of either form. None of our specimens correspond in minute details with that figured by Claus. That given by him in his Crustaceen System (pl. v. fig. 5), of which he has represented the rhipidura only, corresponds with that of *Acanthosoma longitelsonis* (Pl. LXIV. fig. 3), whereas his figure 6, on the same plate, corresponds with that of *Acanthosoma brevitelsonis*. Professor W. K. Brooks[1] says:—"The telson is slightly notched in *Lucifer;* deeply forked in *Acetes*, and in *Sergestes* the prongs of the fork diverge so much as to form a right angle."

[1] *Phil. Trans.*, pt. i. p. 102, 1882.

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