

thorax the full-grown Copepod has five abdominal segments, which are not furnished with appendages.¹

The seven-appendage-stage in the development of the Copepoda Claus calls the Metanauplius-stage. According to him, the Malacostracous Crustaceans pass through the same stage. In the two groups (Copepoda and Malacostraca) the two pairs of antennæ and the mandibles are homologous; the maxillæ and the maxillipeds of the Copepoda are represented in the other group by two pairs of maxillæ; finally, the first two pairs of rowing-feet of the Copepoda correspond to the two pairs of maxillipeds of the Malacostraca.

Let us now return to the comparison of the Copepoda with the Cirripedia. Suppose the hypothesis of Claus is correct, then the mandibles develop from the third pair of larval appendages, and the fourth pair produces the maxillæ and also the second maxillæ; the fifth pair of appendages might then, as Pagenstecher² supposed, change into the first pair of cirri, in which case the other five pairs of cirri might be considered as homologous with the five thoracic feet of the Copepoda. To accept this supposition, it would, however, be necessary, Claus says, to prove that the fifth Nauplius-appendages could not possibly be lost by the Cirripedia.

If, on the contrary, the fourth pair of appendages develops into the maxillæ, and the fifth pair into the second maxillæ, or if, as seems to be the opinion of Claus, both pairs of maxillæ develop from the fourth pair of appendages, the fifth pair being lost, then the five thoracic feet of the Copepoda must be considered as homologous with the first five pairs of cirri of the Cirripedia. Finally, Claus is inclined to suppose that the knobs on the genital segment of the Copepoda, which may be shown to be a rudimentary sixth pair of rowing-feet,³ correspond to the sixth pair of cirri of the Cirripedia. While the highly rudimentary genital knobs of the Copepoda, which ordinarily have totally disappeared, and which, when present, consist merely of a single articulation, are taken into consideration, the so-called caudal appendages of the Cirripedia, which in *Alepa*s, e.g., are eight-jointed, and which must be considered as a branch of a rudimentary seventh cirrus (Gerstaecker), are totally ignored. In conclusion, Claus says, that it does not matter much whether the one or the other hypothesis (viz., that of Pagenstecher or his own) proves to be true; they are of equal value for the main question, for in both the body of the Cirripedia is directly compared with the body of the Copepoda, and both hypotheses acknowledge the same appendages and the same segments for the body of Copepoda and Cirripedia. When both hypotheses can be true, of course they may both be false also. As long as neither of them is based on directly observed facts, the

¹ Claus. Lehrb. d. Zool., 4th Aufl., 1880, p. 544.

² Pagenstecher, Beitrag Zur Anat., &c., Zeitschr. f. wiss. Zool., Bd. xiii., 1863.

³ "Welcher nachweisbar ein rückgebildetes sechstes Ruderfusspaar ist" Claus says (Geneal. Grundl., p. 82). It is indeed curious that such a very interesting detail can be proved, yet never has been. In his classical monograph on the free-living Copepoda (Marburg, 1863), when describing the appendages of the body, the genital knobs are not mentioned at all, and in his Lehrbuch (4th Aufl., 1880) the same appendages are passed over in silence.