

MORPHOLOGY OF THE CUMACEA.

The morphological relationship of the Cumacea to the other groups of Crustacea is rather obscure, and hence their systematic position has been much disputed. At first they were even considered by some of the greatest authorities, as Milne-Edwards, Dana, and L. Agassiz, as merely larval forms of higher Crustacea. Both Kröyer and Goodsir, however, clearly showed them to be adult animals, and thus it was necessary to range them within the carcinological system. These two authors regarded them as lower forms of Macrura, whereas Dohrn and others seem to be more inclined to associate them with the Edriophthalmia (Isopoda). I think their affinity to either of these groups is so very slight as to justify the establishment of a distinct order for their reception. More recently, Dr. Boas has discussed the affinity of the different groups of the Malacostraca from a phylogenetic point of view, and has been led to the conclusion that the Cumacea are very nearly related to the Mysidæ, and may have descended directly from this group of Schizopoda. With this view I cannot, however, fully agree. It is undoubtedly a matter of great difficulty, if not quite impossible, to arrange the recent groups of Crustacea in a genealogical manner, as most of them in all probability represent very diverging branches, the origin of which from one or a few ancestral forms may go back to a very remote period of geological time. The Cumacea would seem to represent such an isolated branch, and cannot, of course, in my opinion, strictly be derived from any of the recent groups.

As to the external appearance of these peculiar Crustacea, one would perhaps be most inclined to associate them with the Podophthalmia, but on closer examination we find them to differ materially in many points, and even in that important character from which the name of the above-mentioned group has been derived. The anatomical details present, on the whole, a peculiar mixture of the podophthalmous and edriophthalmous type, and the development is rather unlike that of the Podophthalmia, and evidently much more similar to that of the Isopoda. The oral parts, which are generally regarded as affording highly important characters, I find—in contradiction to the opinion of Dr. Boas—very different from those in the Mysidæ, and on the whole constructed on the same general type as in the Isopoda. On the other hand, the presence of well-developed