

orders; Phrynophiurida, Laemophiurida, Gnathophiurida, and Chilophiurida. But Mortensen (1928) expressed his disagreement with this classification, criticising especially the Phrynophiurida, which contains both the Ophiomyxidae and Euryalids. He thinks that the Ophiomyxidae may well be regarded as the most primitive of Zygophiurids, but that they are not really related to the Euryalids, having quite a different type of vertebrae. He prefers the old classification as more natural, dividing the Ophiuroidea into two orders: Ophiurae (= Zygophiurae) with zygospondylous vertebrae, and Euryalae (= Cladophiurae) with streptospondylous vertebrae.

Yet, the results of my own research show that the vertebrae of *Ophiobyrsa strictima* and *Ophiobrachion hamispinum* (Ophiomyxidae), and of *Ophiomoeris pentagona* (Hemieuryalidae) are in reality streptospondylous. Therefore, it would appear difficult indeed to divide the Ophiuroidea into two groups by means of the arm vertebrae.

The dental plates of the Asteronychidae, the Trichasteridae, the Asteroschematidae and the Gorgonocephalidae are all sub-divided into several portions by transverse fissures, and bear a vertical series of more or less compressed depressions along the median line or a number of small, rounded projections on the adoral surface. The oral plates of these families are axe-shaped or quadrilateral, with rather small abradial and more or less developed adradial muscular areas. The corresponding plates of the Ophiomyxinae are very similar to those of the foregoing; the dental plates are divided, with a vertical series of compressed depressions along the median line, and the oral plates are axe-shaped, with moderate abradial and adradial muscular areas. On the other hand, the dental and oral plates of the Ophiobyrinae are very specialized, the former being entire and the latter more or less oblong in lateral view. However, their dental plates have some resemblance to those of the Astronychidae and the Gorgonocephalidae in bearing a number of small, rounded projections on the adoral surface, and their oral plates can be derived from those of the Ophiomyxinae. Therefore, it is not improbable that these ophiurans belong to one and the same group, having rather similar dental and oral plates. This group corresponds to Matsumoto's Phrynophiurida.

The dental plates of the Ophiacanthidae are generally entire and very elongate, with a vertical series of small depressions along the median line; the oral plates are broadly divergent, more or less axe-shaped, with rather less developed abradial and adradial muscular areas. The plates of the Hemieuryalidae are much more specialized; but they are quite similar to those of some Ophiacanthidae, such as *Ophiacantha pentagona* and *O. rhachophora*, in the fact that the dental plate is bar-shaped and the oral plate is typically axe-shaped. The Amphiuridae and the Ophiothricidae form a different group from the preceding families; the dental plates are entire and bear a vertical series of foramina on the upper portion, and the oral plates are wing-shaped, with the abradial and adradial muscular areas well developed. The plates of the Amphilepididae are a trifle different from those of the foregoing, especially the oral plate, with less developed abradial and adradial muscular areas. However, this difference may not be fundamental. The dental plates of this family also have foramina on the upper portion. Accordingly, it seems reasonable to refer the Amphilepididae to the same group as the Amphiuridae and Ophiothricidae. Thus, on the basis of the dental and oral plates, two major groups can be distinguished, the former (Ophiacanthidae plus Hemieuryalidae) corresponding to Matsumoto's Laemophiurida, and the latter (Amphiuridae, Ophiothricidae and Amphilepididae) to his Gnathophiurida.