

Ophiophthalmus normani may well be regarded as most archetypal among the Ophiacanthidae, on account of the fact that their dental and oral plates are similar to those of some Ophiidermatids. *Ophiologimus hexactis* and *Ophiophrura liodisca*, which have the club-shaped dental and oblong oral plates, represent the terminal phase of specialization on one side. *Ophiacantha acanthinotata* and *O. bisquamata* show an opposite line of specialization, bearing very elongate club-shaped dental and squarish oral plates. *Ophiacantha rhachophora* and *O. pentagona* must be other examples of specialization, because their oral plates are axe-shaped, and their dental plates are bar-shaped in outline.

Among the Hemieuryalidae, the Ophiochondrinae are obviously related to some Ophiacanthids, such as *O. rhachophora* and *O. pentagona* in having the typically axe-shaped oral and bar-shaped dental plates and are undoubtedly descended from the latter. Matsumoto also stated that the Hemieuryalidae are evidently a terminal group of the line of specialization represented at the base of *Ophiolebes*, *Ophiosemnotes*, *Ophiochondrella*, etc. I was unable to investigate any member of the Hemieuryalinae personally, but Matsumoto considered that the Ophiochondrinae are very close to the *Ophiolebes*-group and more archetypal than the Hemieuryalinae.

Gnathophiurida.

Matsumoto regarded Amphilepididae as most archetypal, being closely related to the Ophiacanthidae, with only horizontally flexible arms. Moreover *Amphilepis diastata* is certainly related to *Ophiolimna diastata*, *Ophiophthalmus normani*, and some Ophiidermatids in having the axe-shaped oral plate with only moderately developed abradial and less developed adradial muscular areas. The dental plate of the same species, which is a step more advanced in the specialization than those of the latter, in being entire and in having some foramina on the upper portion, shows no marked speciality in its characters. Therefore, I also support Matsumoto's opinion that the Amphilepididae are the most archetypal among the Gnathophiurida. Further, Matsumoto believes that among the rest of the Gnathophiurida, the Ophiactinae are nearest to the Amphilepididae, because they have neither paired infradental papillae nor dental papillae, and from them the Amphiurinae and Ophiothricidae are descended independently. However, it should be pointed out that the oral plates of the Ophiactinae and Amphiurinae are dissimilar. Also the dental plates are essentially different, those of the Amphiurinae being wedge-shaped, while those of the Ophiactinae slipper-shaped. This fact implies that these two subfamilies are descended from the Amphilepididae independently. The Ophiothricidae are the most specialized of the Gnathophiurida, because the dental plate bears a marginal series of small depressions or foramina on the lower portion, and the adradial muscular area of oral plate mostly lacks the lower narrow portion. But they are deemed to be more closely related to the Ophiactinae than to the Amphiurinae, because the dental plate is slipper-shaped, instead of being wedge-shaped.

Chilophiurida.

Matsumoto admits that, as this order is very extensive and varied, it is hard to discern their relationships clearly. But he takes the Ophiarachninae and Ophiochitoninae (= Ophiochitonidae) as the most archetypal among the Chilophiurida, because some of them are so near to the Ophiacanthidae as to be distinguished from the latter only with great difficulty. The dental and oral plates in this order are also very varied, but those of some Ophiidermatidae, as already mentioned, must be most archetypal. The dental and oral plates of the two sub-