

V.—CLASSIFICATION.

Until the time of Johannes Müller the number of recognised species of Comatulæ was extremely small, not more than a dozen, in fact. Retzius had described one, Linnæus two, Lamarck seven, and two more bore the names of Düben and Koren; but only three of them had more than ten arms, viz., *Comatula rotalaria* with about twenty to twenty-two, *Comatula fimbriata* with twelve to thirty, and *Comatula multiradiata* with forty to fifty.

Under these circumstances the classification of the Comatulæ presented no difficulties. But Müller's descriptive work¹ raised the total number of species to nearly forty, about half of them having more than ten arms. This very obvious character afforded him the means of separating his species into two groups, which he further subdivided according to the arrangement of the syzygies in the arms. Thus, for example, there are two sets of ten-armed Comatulæ, those like *Actinometra pectinata* (Pl. LIII. fig. 15) in which the two joints above the radial axillary are each traversed by a syzygy, and those like *Antedon eschrichti* (Pl. XXIV. figs. 10, 11) in which the first syzygy is in the third brachial. In like manner the multibrachiate forms were separated by Müller into two sets, those in which the brachial axillaries are syzygial joints (Pl. LXVIII. fig. 2), and those in which the axillaries are simple and not traversed by syzygies (Pl. XLV. fig. 2).

All the Comatulæ known to Müller could be placed in one or other of these four sets, no matter to which of the two subgenera they belonged, *Alecto* or *Actinometra*. He never made any definite attempt to separate the species of *Alecto* from those of *Actinometra*, no apparent system being determinable, either in the order of his specific descriptions or in his tabular arrangement of most of the species in the form of a key, a species of *Actinometra* not unfrequently intervening between two of *Alecto*. For more than a dozen years after the publication of Müller's memoir the classification of the Comatulæ remained practically as he left it. No one took up the subject, and no new species were described. In the year 1862, however, a step in advance was made by Messrs. Dujardin and Hupé.² They divided the recent Feather-stars into three genera, *Comatula*, Lamarck, *Actinometra*, Müller, and *Comaster*, Agassiz, the last named being a type which Müller had been unable to recognise as generically distinct from *Comatula*. Of his own subgenera, *Alecto* and *Actinometra*, the latter was raised into a genus by Dujardin and Hupé, who referred to it three species, while they limited Lamarck's name *Comatula* to the forms previously referred by Müller to *Alecto*, and regarded them as constituting thirty-one species. These were divided into groups having respectively ten, ten to twenty, twenty, twenty-six to forty, and more than

¹ *Abhandl. d. k. Akad. d. Wiss. Berlin*, 1849, pp. 237–265.

² *Op. cit.*, pp. 192–213.