

would have remained unknown, as the characters of the calyx in the recent species have not yet been sufficiently studied to give any satisfactory clue to the detection of their fossil representatives.

Most of the fossil Comatulæ have more or less well defined basals appearing externally, which have not undergone metamorphosis into a rosette as is the case in very nearly all the recent forms; and it is probable that species like *Antedon tessonii* and *Antedon orbigny*, although they show no basals externally, will in reality prove to be no exceptions to the rule. I feel some doubt, however, with regard to the Tertiary species, only two of which are represented by more than the centro-dorsal; and this affords but little information respecting the presence or absence of a rosette. I am inclined to think myself that in the matter of basals the Tertiary species resembled their predecessors rather than their successors. But this view cannot be confirmed till the discovery of a type which shows basals at the interradian angles of the calyx, or of one in which these plates are visible on the under surface of the isolated radial pentagon. But no Tertiary species of this kind are known, and neither *Antedon alticeps* nor *Antedon italica* shows any traces of basals between the radials and the centro-dorsal.

The determination of the generic position of a Mesozoic *Comatula* is often a matter of considerable difficulty; and this is especially the case when only the centro-dorsal is preserved. In most fossil Comatulæ this part bears a considerable number of cirri which are distributed over the greater part of its surface; and it reaches a fair degree of thickness; so that there can be no doubt that these types have been correctly referred to *Antedon*. But there are a few forms in which the centro-dorsal is relatively much thinner and the number of cirri, which are almost or entirely limited to its sides, is reduced. This is the case, for example, in two species from the Great Oolite and Bradford Clay respectively, which I take to belong to *Actinometra*, rather than to *Antedon*. Specimens which have the radials preserved can in some cases be referred to *Antedon* without any difficulty, owing to the large proportion of height to width on the articular faces of the radials. Such are *Antedon æquimarginata*, *Antedon incurva*, and *Antedon scrobiculata*, the calyces of which closely resemble those of the typical forms of *Antedon* figured on Pl. II.

On the other hand, the generic identity of *Actinometra lovèni* from the Gault is equally indisputable. For there is no living *Antedon* yet known in which the centro-dorsal loses all traces of its cirri and becomes separated from the flattened radial pentagon by clefts at its sides; while these changes are not uncommon in *Actinometra* (Pl. LVII. fig. 1; Pl. LXV.). But in by far the greater number of Comatulæ which have the radials preserved, the height of these plates is quite small relatively to their width, as is invariably the case in the living *Actinometra* (Pl. V.). When these radials rest on a thick centro-dorsal which is marked by a number of cirrus-sockets (*Antedon decameros*, *Antedon greppini*) there can be no question that the type in question belongs to *Antedon*. But