

ends. The vertical position of the articular faces is well seen in some forms of *Actinometra lineata*, which has an extremely "wall-sided" calyx (Pl. V. fig. 2e); while in *Actinometra paucicirra* their lower portions actually slope inwards as seen in Pl. V. fig. 3c. The ventral faces of the radials, which in *Antedon* have a steep inward slope (Pl. I. fig. 8b), are almost horizontal in *Actinometra*, sloping very gently inwards towards the central space. Hence the opening of the funnel becomes widely expanded, and when the radial pentagon is viewed from above little or nothing is seen besides the proper ventral faces of its component radials. All the species of *Actinometra* which I have examined have smaller muscle-plates than those of any *Antedon* except *Antedon macronema* (Pl. IV. figs. 3a, b), so that the distal faces of the radials are very low and the muscular fossæ often quite inconspicuous (Pl. IV. figs. 4a, 5c; Pl. V. figs. 1-5, b, 5c). They are separated from the lower pair of fossæ by fairly prominent ridges which are either horizontal or curved slightly upwards. These start from the sides of the radial, run inwards towards the middle line, and then turn downwards so as to leave between them a wide furrow, which gradually dies away below with the disappearance of its bounding ridges. No recent *Actinometra* has the distinct rim on the ventral side of the opening of the central canal that exists in every *Antedon*, even in *Antedon carinata* (Pl. III. fig. 1a) and in *Antedon macronema* (Pl. IV. fig. 3a), perhaps the nearest approach to it being in *Actinometra meridionalis* and *Actinometra pulchella* (Pl. IV. figs. 4a, 5c), where the lower edges of the ridges bounding the intermuscular furrow are somewhat thicker than usual.

These differences in the structure of the calyx in the two chief genera of Comatulæ are of considerable importance. For it is only by means of an acquaintance with them that the generic determination of the fossil Comatulæ becomes at all possible. Every one hitherto found in the Tertiary strata and in the Chalk, of which the entire calyx is known, is an unmistakable *Antedon*, both in the characters of the centro-dorsal and in those of the radials. *Antedon æquimarginata* from the Gault is as clearly an *Antedon* as *Actinometra lovéni* from the same formation is an *Actinometra*. But some of the Neocomian and many of the Jurassic Comatulæ are less easily identified. The wide and low radials with marked intermuscular furrows of *Actinometra cheltonensis* from the Inferior Oolite, and of *Actinometra wurtembergica* from the Corallian of Nattheim, indicate the generic position of these types pretty clearly; while *Antedon scrobiculata* with its high articular faces, much narrower above than below, is an undoubted *Antedon*. But on the other hand, the low and wide radials and thin centro-dorsal of *Antedon picteti* and *Antedon infracretacea* are very suggestive of *Actinometra*; though in both types the articular faces of the radials have a considerable slope and are altogether much like the corresponding parts of other species which are unquestionably referred to *Antedon*. For the present, therefore, the systematic position of these and of other somewhat generalised types of early Comatulæ must remain in doubt.