Zoology Part LX: Report on the CRINOIDEA. Second Part.-Comatulæ. By P. Herbert Carpenter. Bound in Volume 26,1888.

(Pl. XLVIII. fig. 3). But in other cases they show a considerable alteration both in the size and in the character of their component joints, as seen on the left side of fig. 1 on Pl. XXXVI.

The double row of lateral projections on the joints of these proximal pinnules is developed in rather a singular manner. Their basal joints are somewhat flattened against the arm, and the upper edge of their broad dorsal surface is sharpened, and more or less carinate, while its distal end is marked by a median process of variable prominence, as is well seen in Pl. XXXVI. figs. 4–6. As the following joints lose their flattened appearance, and become more rounded, the carination of the upper edge develops into a strong blunt process at the distal end of the joint on its inner side; while the mediodorsal prominence passes into a corresponding process on the outer side (Pl. XLIX. fig. 2). There is much variation, however, in the exact nature and mode of development of these processes.

The frequency of the ray-divisions of this species, and therefore the number of arms, is subject to great fluctuations. A second post-radial axillary only occurs in the single specimens which I named *Antedon variipinna* and *Antedon crenulata* respectively, and sometimes also in the form which was described by Bell as *Antedon irregularis*. A large number of individuals were obtained by the "Alert," and the majority of them have two or more palmar series, though in others, as in the Challenger specimen (Pl. XLIX. fig. 1), palmars are entirely absent. Bell gives the number of arms as ranging from eleven to twenty-two, but seems to have overlooked one example in which there are twenty-five. The occurrence of an individual with only eleven arms makes it quite possible that a ten-armed variety of this protean type may be eventually discovered. In fact, the two individuals which I formerly called *Antedon dubia* are not improbably of this nature. The one has two distichal series, and the other only one. But in each case they result from regeneration of the arm at the syzygy in the third joint above the radial axillary. This may perhaps have originally supported a distichal axillary; or it may have given rise to one arm only, which was replaced by two after fracture, as is so often the case, an excellent instance of it having been described by Dr. Carpenter in *Antedon rosacea*.[1] Under these circumstances I have therefore thought it safer to assign *Antedon variipinna* a place among the ten-armed species, to which it can definitely be referred if ever an individual is found in which distichal series are entirely absent. No harm will be done if it never turns up, and should it do so, it will run less risk of being baptised as a new species, having undergone that process too frequently already.

There is one point relating to the extremely variable characters of this species, which seems to me to be of special importance. The variations which I have noticed above are not altogether due to difference of locality. Varieties Nos. 5 and 6 were found

[1] *Phil. Trans.*, 1866, p. 725, pl. xxxviii. fig. 8, B.

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