

intérieur ou aminci des radiales, on remarque à chacun d'elles un petit trou rond, d'où sort un sillon droit et lineaire (fig. 43, s), qui longe la ligne médiane de la face supérieure ou ventrale de chaque article et continue son parcours en remontant aussi de long du milieu de la face ventrale des radiales suivantes." This interior truncated portion of the radials is really their ventral face; while the openings at its central portion are the ends of the axial radial furrows descending to the lower part of the calyx, and the furrows proceeding outwards from them are the ventral radial furrows (Pl. VIIIa. fig. 7; Pl. X. figs. 1, 4—*vrf*) as described and figured by Sars, though Ludwig took them for interbasal sutures. Sars's fig. 42 is particularly instructive in this respect, as four out of the five first brachials are *in situ*, and their ventral furrows are seen to be continued downwards on to the radials.

The ventral interrarial furrows which are so marked on the upper aspect of the calyx of many Comatulæ are absent or but slightly indicated in *Rhizocrinus*. Traces of them may be seen, however, in fig. 42 on Tab. ii. of Sars's memoir. But the adjacent muscle-plates of every two contiguous radials are intimately fused and also slightly everted. Each is separated from its fellow on the same radial by a well marked, ventral radial furrow; and the united halves of the inner faces of adjacent radials thus assume somewhat the appearance of isolated interrarial plates resting within and against the outer faces of the radials. Ludwig was thus led to consider them as basals, and so to fall into exactly the same kind of error with regard to their genetic relations as he attributed to Sars.

I have nothing to add to his account of the chambered organ; but his description of the cords which proceed from its fibrillar envelope needs a little modification. He has pointed out that they are interrarial and not radial as described by Sars; but he says that they "verbinden sich dann in den untersten Radialien durch Commissuren, ohne dass vorher eine Gabelung stattgefunden hätte." Were this really the case, *Rhizocrinus* would be a much more anomalous form than it actually is. For in all other Crinoids, recent or fossil, in which this point has been worked out, with the exception of *Bathycrinus*, the primary interrarial cords fork within the basals, and there are two openings either on the inner (Comatulæ) or on the under face (*Pentacrinus*) of each first radial (Pl. XII. figs. 11, 22; Pl. XX. fig. 9). Ludwig, however, figures these cords<sup>1</sup> in *Rhizocrinus* as single so long as they remain within the basals (top stem-joint, Ludwig); and he believes them to fork in the suture between two radials, so that their branches would not enter the radials through their inner or under faces, but at their lower lateral angles.

This is not quite the case, however, and it is probably to be explained by Ludwig's having used the section-method only, without attempting to separate the pieces of the calyx. This operation is one of no little difficulty, and some of the radials are sure to be fractured in the process; but others separate from the basals along the sutural lines, and the arrangement of the canals can then be seen. The radials are comparatively low

<sup>1</sup> *Zeitschr. f. wiss. Zool.*, Bd. xxix. p. 72, 1877, Taf. vi. fig. 18