

He found all the sutural lines in the calyx of both species, including those between the basals, to be "always plainly visible with a lens of moderate power;" and he was therefore naturally surprised at the description of the calyx which was given by Sars as the result of his study of the Norwegian specimens without interbasal sutures. In order to verify the truth of his analysis of the calyx, Pourtalès "forced a needle through the central hole of the calice of a *Rhizocrinus lofotensis* until it split. The fractures followed the joints between contiguous basals and between the latter and the first radials."

These important observations were entirely overlooked by Ludwig,¹ who followed Sars in describing the subradial part of the calyx as an enlarged uppermost stem-joint. He took, however, another and more correct view of the circular plate which Sars had called the basal rosette (Pl. VIIIa. figs. 6, 7; Pl. X. figs. 1, 4—*br*); for he regarded it as an unusual development of the calcareous network which occupies the central portion of the radial funnel in all Crinoids (compare Pl. XX. figs. 4, 6, 8) and surrounds the plexiform gland ascending from the chambered organ (Pl. XXIV. figs. 8, 9; Pl. LVIII. figs. 2, 3—*rp*).

I have long ago expressed my acceptance² of this modification of Sars's views which we owe to Ludwig; but I could never quite reconcile myself to believe in the account which he gives of the basals of *Rhizocrinus*. Having disestablished the rosette of Sars, he found it necessary to seek elsewhere for the missing basals of this type; and here he fell into error, probably, I think, from a too exclusive reliance on his interpretation of sections through the decalcified calyx, without properly considering the characters of an isolated calyx minus its muscles and ligaments, such as was excellently figured by Sars in his Tab. ii. fig. 43.

A horizontal section through the upper part of the calyx (Pl. VIIIa. fig. 7), or a view of the calyx from above (Pl. X. figs. 1, 4), like those given by Sars, shows five (or six) apparently interradian pieces (*mp*) surrounding the so-called basal rosette (*br*), and occupying the interval between it and the large muscular and ligament-fossæ on the sloping distal faces. Sars considered these pieces, and rightly so, as integral parts of the first radials. Ludwig's sections, however, led him to believe that these pieces (Pl. VIIIa. fig. 7, *mp*) "nicht radiär, wie es nach der Sars' schen Auffassung sein müsste, sondern interradian liegen, so nämlich, dass stets die Mittellinie eines jeden Stückes B in die Trennungsebene zweier aneinanderstossender Radialien fällt."³ The interradian position of the pieces in question is, however, shown just as well in Sars's figures as in those of Ludwig, who had no real grounds for stating that Sars had indicated their boundaries incorrectly. He considered that their interradian position precluded their being connected with the radials, and was therefore led to regard them as "nach innen verschobene und

¹ *Zeitschr. f. wiss. Zool.*, 1877, Bd. xxix. pp. 66-68.

² On some points in the Anatomy of *Pentacrinus* and *Rhizocrinus*, *Journ. Anat. and Physiol.*, 1877, vol. xii. p. 50.

³ The apparently interradian position of these pieces (*mp*) is more marked in Ludwig's figures, where they are lettered B, owing to the semidiagrammatic character of these figures and the omission of the interarticular and dorsal ligaments.