

figures on Plate IX. The column is absolutely round in the type specimens, not only those refigured by us on that Plate, figs. 3a, b, but still better in the original of Billings Plate IX, fig. 4b, of Decade IV, which I have here refigured after additional preparation (Plate I, fig. 6). It is now interesting to find that all the specimens from Kirkfield, some fifteen in all the collections, while very similar to *R. stellaris* in every other particular, have a very large and sharply pentagonal column, so sharp, in fact, that in very mature specimens the sides are concave (Plate I, figs. 3, 4). In the first of these, having about 6 inches of the stem preserved, the pentagonal feature obtains throughout, with no sign of becoming round; but in one rather small specimen, with about two inches of stem intact, it passes from pentagonal to round at about half the distance (Plate I, fig. 5). This would indicate a tendency to variation in this character sufficient to justify the retention of both forms within the genus, and its diagnosis should be modified accordingly. The difference is really a matter of secondary growth, as the axial canal is of the same character in both. This is shown for the new form by figures 1b and 2b, of Plate I, giving cross-sections of the column near the calyx in two specimens; the first, at one of the thin interpolated joints, consisting of a large central, surrounded by five peripheral canals wholly separated from it; and the second, somewhat nearer the base, and at one of the larger, projecting joints, having a larger central canal connecting with the five peripheral ones. In fig. 1b, the central canal is itself pentagonal, with the orientation reversed, *i.e.*, interradiar, but this does not hold good in sections of other stems farther down, where it is round. In *R. stellaris* the stem, while round externally, has the same quinquepartite canal, as is shown by the cross-section of one of Billings' types, 4d, (Plate I, fig. 7), the peripheral canals being radial.

The persistence of the pentagonal stem at Kirkfield, and the constant absence of it in the Ottawa specimens of *R. stellaris*, seem to indicate a distinct species, which may be identical with one having this character from the Trenton of Kentucky, viz:—

RETEOCRINUS ALVEOLATUS Miller and Gurley.

Plate I, figs. 1, 2, 3, 4, 5.

The pentagonal column sufficiently characterizes the species; there are some minor differences, such as the deeper pits at the sides of the