given rise to five biserial arms, in accordance with the theory favored by Clark. At best *Comarocystites* could have given rise to only two biserial arms.

3. *Biserial arms and brachiolar pinnules in Caryocrinites.*

Caryocrinites (Plate IV) is anomalous in presenting brachioliferous free arms in which the ossicles of both the brachioles and of the arms are biserial in arrangement. It is anomalous also in other respects. Successive ossicles on the same side of the arm usually alternate strongly in size, the lower ossicle of each successive pair being distinctly shorter, sometimes, in fact, being reduced to a small, transversely cuneate remnant along the inner half of the horizontal suture separating the larger ossicles. When both of these successive ossicles are more nearly of the same size, both are in contact with the base of the same brachiole, the lower, shorter ossicle of each pair being in contact with one of the series of ossicles forming the brachiole, and the upper, longer ossicle of the same pair being in contact with the other series of brachiolar ossicles. Hence, it is possible to regard not only the arm of *Caryocrinites* as made up by lateral junction of two uniserial arms, but, in a precisely similar manner, the brachiole of *Caryocrinites* might be regarded as built up by the lateral junction of two uniserial pinnules, the supporting brachial ossicles of each of these theoretical uniserial pinnules still remaining distinct.

As a matter of fact, the brachioles of *Caryocrinites* may be diagrammed also as uniserial forms, the ossicles alternating in position from right to left, across the brachiole, the lowest ossicle at the base being regarded as the first ossicle of the brachiole.

4. *Biserial brachiolar pinnules in Stephanocrinus.*

Biserial pinnules are so anomalous among crinoids that in the case of *Stephanocrinus*, the only crinoid known to possess them, Wachsmuth and Springer identified them as pinnules. (Revision of the Palaeocrinidea, III, sec. 2, 1886, pp. 283, 284, 292), stating: "that these appendages, although they are equally thin and short, are not pinnules, is proved by the fact that all are supported by a radial plate, instead of being distributed separately along the sides of an ambulacrum." More recently (Zittel, 1913, p. 207) Springer has described *Stephanocrinus* as possessing "arms with one short biserial trunk to the ray, giving off slender biserial, non-pinnulate side arms from the outer shoulder of each brachial."

Evidently, *Stephanocrinus* is as anomalous among crinoids as *Caryocrinites* is among cystids.

In presenting the preceding lines, there is no desire to favor the view that the biserial arms of crinoids have originated