Palæocrinoids the distal faces of the radials remain permanently in the horse-shoe condition, and the ligaments and muscles must therefore have remained small and poorly developed, just as they are in recent Crinoids until the central canal is completely closed in. The gradual development of complete articular facets, commencing before the horse-shoe stage, has been traced in the radials of the Palæozoic *Allagecrinus*, just as in the Comatulæ;[1] and I see therefore no reason to doubt that many Palæocrinoids had an imperfect articulation and not a suture between the horse-shoe facets of the first two radials. This may perhaps be correllated with the small development of the arms of the Palæocrinoids, relatively to that of the calyx. The integrity of long arms with two hundred or three hundred joints, like those of many Comatulæ, would be much more perfectly preserved if the bundles of muscles and ligaments were large and well developed than if they remained small, as must necessarily be the case on an imperfect terminal facet of a semicircular or horse-shoe shape.

Believing then that in a very large number of the Palæocrinoids the second radials were at least as movable on the first as in *Apiocrinus*, and in some cases a good deal more so, I cannot regard the "differentia" of the Palæozoic and the later Crinoids on which Müller and his followers laid so much stress, as a point of great systematic importance.

Wachsmuth[2] omits all reference to the mode of union of the plates in his diagnosis of the Palæocrinoidea; and had it not been revived by Zittel as a means of distinguishing the two great groups, Müller's name would long ago have fallen into disuse.

The name Palæocrinoidea was proposed by Wachsmuth[3] in 1877 to denote "all true Crinoids in which the actinal side is closed;" but it was not actually defined by him until two years later, nearly simultaneously with the appearance of Zittel's classification. He regards the group as of sub-ordinal value, and as specially distinguished by two characters—(1) the interradials constitute important elements of the test; (2) the absence of external food-grooves or oral aperture. He proposed incidentally to group the later Crinoids together under the name "Stomatocrinoidea"; but he did not attempt to define the group; and so far as I am aware, this name has not been adopted by systematic zoologists, while Wachsmuth himself is now inclined to abandon it. Various reasons, which will be explained more fully subsequently, have induced the writer to propose the name of "Neocrinoidea" for the Mesozoic and later Crinoids. This has been adopted by Prof. Zittel, and also by de Loriol in his work on the French Jurassic Crinoids, and it will be used throughout these Reports.

Although *Marsupites* is ranked among the Tessellata by Müller, and also, together with *Uintacrinus*, by Schlüter and Zittel, I can see no reason for excluding these two

[1] *Ann. and. Mag. Nat. Hist.*, 1881, ser. 5, vol. vii. pp. 283–287.

[2] Revision, part i. p. 30.

[3] *Amer. Journ. Sci. and Arts*, vol. xiv. p. 190.