just as on the feathery arms of *Antedon eschrichti* and hosts of other Comatulæ; and they are obviously of the same nature as the pinnules of Neocrinoids generally. "When the arms are closed, the two series of pinnulæ of one arm are laid upon each other so neatly, that the arm-furrow must have been thereby perfectly shut off from the surrounding water. No additional covering has yet been observed in these genera, and it was evidently unnecessary. All this seems to point to the conclusion that the pinnulæ had the same functions, partly at least, as the alternate plates in *Cyathocrinus*, &c., and as both have the same position, and evidently could be opened and closed by the animal, we do not hesitate to consider the latter as the homologue of the former, or in fact as rudimentary pinnulæ."[1]

The first sentence of the above passage concerning the pinnules of *Actinocrinus* and *Platycrinus* would apply equally well to any *Comatula* or *Pentacrinus*, whether the ambulacra be plated or not (Pl. XIII. fig. 13; Pl. XIV.; Pl. XVII. fig. 1; Pl. XXVII. fig. 13; Pl. XXXIII. fig. 3; Pl. XLI. fig. 11; Pl. XLVII. fig. 12; Pl. LIV. fig. 1). As regards the last paragraph, I cannot help thinking that it affords an instance in which analogy has been mistaken for homology.

The overlapping of the pinnules so as to cover in the ambulacra may occur in all recent Crinoids; while the grooves of the pinnules themselves, like those of the arms and disk, are often bordered by two more or less distinct rows of minute movable alternating plates, the "covering plates." These may themselves be supported on "side plates," thus making four rows in all, which are sometimes very fully developed as in *Hyocrinus*, together with many Pentacrinidæ and Comatulæ (Pl. Vc. figs. 9, 10; Pl. VIIIa. fig. 5—*cp.* Pl. XIII. figs. 15, 16; Pl. XVII. fig. 8; Pl. XXVII. figs. 4–6, 11–13; Pl. XXXIII. figs. 1–4; Pl. XLI. figs. 4, 11–13; Pl. XLVII. figs. 10–12; Pl. XLIX. figs. 6, 7; Pl. LI. figs. 11, 12; Pl. LII. figs. 5, 6; Pl. LIV. figs. 4, 6–9). Similar plates occur on the pinnules of Actinocrinidæ and Platycrinidæ, their grooves being "covered by a double series of very minute pieces, though, owing to defective preservation, this covering is rarely observed."[2] These pinnules "fit together so neatly and cover the arm-furrow so perfectly that additional plates were scarcely needed."[3]

A teleological argument of this kind is, however, no proof that the brachial ambulacra are unprovided with plates in *Actinocrinus* and *Platycrinus*, when there is a double series on the pinnules which they bear; and, as a matter of fact, the evidence afforded by the Neocrinoids is all against this view. *Hyocrinus*, *Bathycrinus*, and *Rhizocrinus* all have covering plates on the arms as well as on the pinnules (Pl. Vc. figs. 8–10; Pl. VI. figs. 1–4; Pl. VII. figs. 2, 7, 8; Pl. VIII. figs. 3, 5; Pl. VIIIa. fig. 1; Pl. IX. figs. 1–4; Pl. X. fig. 20). The first of these has side plates on the pinnules (Pl. Vc. figs. 9, 10, *sp.*), but they are not distinctly differentiated on the arms; and the same is the case in the Pentacrinidæ and Comatulæ. But except in *Pentacrinus maclearanus*

[1] Revision, part i. p. 25. [2] *Ibid.*, part ii. p. 25. [3] *Ibid.*, p. 24.