

however, that I cannot agree with Wachsmuth respecting its nature. For, like that of *Ichthyocrinus*, it appears to me to represent the plated ventral perisome of the Neocrinoids; while the ridges which radiate to the arm-bases seem to me to consist of the covering plates of the ambulacra. I do not deny that they may have been closed down, either temporarily as in the recent *Pentacrinus wyville-thomsoni* (Pl. XVII. fig. 6), or permanently as in *Platycrinus*. But I cannot imagine that they represent parts of a solid vault like that of *Actinocrinus*.

I would say the same of *Xenocrinus*, of which Miller¹ speaks as follows: "Interradial and intersecondary radial spaces. . . . These long, narrow, depressed areas are covered with small plates, having a tubercle or short spine in the central part of each. There are more than seventy-five plates in each interradial area, and twenty-five or more in each intersecondary radial area before reaching the top of the cup, but the small plates continue over the margin of the vault, and undoubtedly cover it, and also more or less of the long proboscis, which is extended from the anterior or azygous side."

Wachsmuth denies that any Palæocrinoid is known in which the existence of a solid vault has been disproved or cannot be traced by analogy; and also that there can be any homology between this solid vault and the ventral perisome (whether soft or plated) of a Neocrinoid. He has since admitted, however, that the radial pieces in the vault of *Cyathocrinus* and *Platycrinus* correspond to the ambulacral skeleton on the external surface of the body of recent Crinoids; and I venture to think that in the case of *Glyptocrinus*, *Reteocrinus*, and *Xenocrinus*, and also of the Ichthyocrinidæ, the resemblance to the Pentacrinidæ, Apiocrinidæ, and Comatulæ is such as to leave no reasonable doubt that the so-called vault of these Palæocrinoids is homologous with the ventral surface of the body in the Neocrinoids. Except as regards *Coccocrinus*, however, I am not prepared to deny that the mouth was subtegmental, *i.e.*, concealed beneath the apical dome plates, which I regard as representing a permanently closed oral pyramid. When the presence of these plates has been demonstrated in *Coccocrinus*, I will admit that the "Scheitelstücke" which Allman, Wachsmuth, Zittel, and myself have all considered as orals, belong to the interradial system, and do not surround an open mouth as the orals of *Holopus*, *Hyocrinus*, and *Thaumatocrinus* do.

¹ *Journ. Cincinn. Soc. Nat. Hist.*, vol. iv. p. 72.