

narrow ridges, which bifurcate twice within the body.¹ Interradial dome plates larger than the radial, apical plates not prominent and identified with difficulty, interpalmar spaces paved with small pieces." Figures of the vault of *Marsupiocrinus radiatus* and *Marsupiocrinus depressus* are given by Angelin.² The former shows a few larger plates in the centre which may be the apical dome plates; but in the other figure none of the plates in the centre are specially large; so that it is possible that *Marsupiocrinus* may resemble many recent Crinoids in the total resorption of the orals, causing the proximal ends of the interpalmar areas to be thickly studded with plates which tend to obscure the position of the mouth (Pl. XVII. fig. 6; Pl. LIV. fig. 10; Pl. LV. figs. 4, 5, 7). From the numerous bifurcating ridges formed by the radial dome plates, I cannot help suspecting that these plates are not true vault pieces as in the Actinocrinidæ, but the covering plates of closed ambulacral tunnels. They have a very different arrangement from the various series of radials on the abactinal side, which should not be the case if they belong to the vault, *i.e.*, to the oral system. It will be remembered that Wachsmuth has compared them to covering plates, while regarding them as true vault pieces; and he speaks of the interradian areas between them as "interpalmar," a term which is inapplicable to true vault pieces, though I think he has used it correctly in the case of *Marsupiocrinus*. For I have a very strong impression that the so-called vault of this genus is really the strongly plated ventral perisome, in the centre of which the remains of the orals (apical dome plates) are perhaps to be found. I cannot see any such essential difference between it and the plated disk of *Pentacrinus wyville-thomsoni* or of many *Antedons* (Pl. XVII. fig. 6; Pl. LV.) as would lead to the supposition that the homologue of the latter is to be sought for beneath the vault of *Marsupiocrinus*. At the same time I have no intention of asserting the presence of an external mouth and open food-grooves on the calyx of this genus. For although these are present in the apparently similar disks of the recent forms, I think it not impossible that the tentacular vestibule over the peristome of *Marsupiocrinus* may never have opened to the exterior, and that the covering plates of the food-grooves proceeding from it may have been immovably closed down over them. They were thus converted into tunnels, but were still "external," in the sense of not being covered by a "tegmen," as those were which formed the tubular skeleton beneath the vault of the Actinocrinidæ. In the recent *Hyo-crinus*, which has many Palæocrinoid affinities, the food-grooves pass from the oral to the ambulacral system in the body before they reach the arms (Pl. VI. figs. 1-4); and I see no reason why they should not have done the same in some of the Platycrinidæ, the family which is supposed by Wachsmuth to represent an incompletely developed condition of the Actinocrinidæ.

In *Platycrinus*, *Hexacrinus*, and *Talarocrinus* the structure of the vault is

¹ They bifurcate considerably more than "twice" in *Marsupiocrinus radiatus*.

² *Op. cit.*, tab. x. figs. 16, 21.