

portion of the vault."¹ I have seen a similar arrangement in well preserved specimens of *Marsupites*, while both d'Orbigny² and de Loriol have figured and described the same thing in *Apiocrinus roissyanus*. After stating that there is a considerable amount of variation in the interradial areas, even in the same individual, de Loriol says—"Presque toujours la série commence par une pièce unique, hexagone ou heptagone, qui est la plus grande, et se trouve encastrée entre les premières et les secondes radiales, de chaque côté, reposant sur les tronçatures des premières radiales. Au-dessus il y a deux, trois, et même quatre pièces plus petites, irrégulières, polygonales, qui arrivent au niveau des facettes articulaires des troisièmes radiales, une troisième et une quatrième rangée comprennent encore chacune trois ou quatre pièces polygonales plus petites, et occupent l'espace entre les premiers articles brachiaux; elles sont suivies par d'autres rangées de pièces, plus petites encore, qui paraissent concourir à la formation d'une voûte sur la cavité calicinale."³ De Loriol's enlarged representation of this structure is reproduced in fig 9. Here, surely, there was a "dome" as solid as in any Ichthyocrinoid; but it will scarcely be contended that this dome represents the heavy rigid vault of *Actinocrinus*, rather than the plated ventral perisome of recent Pentacrinidæ and Comatulidæ. The former range back to the earliest Mesozoic times, long anterior to *Apiocrinus*; and the Liassic *Extracrinus* had a vault essentially similar to that of the Apiocrinidæ. But there was no regular calyx-interradial resting upon the upper angles of the first radials. Its place was taken by a number of movable irregular perisomic plates, like those which occur in the same position in *Pentacrinus asterius* (Pl. XIII. fig. 1). They are represented by Miller,⁴ Austin, and also by Quenstedt;⁵ and were continued upwards into those "which cover the dome-like integument over the abdominal pouch,"⁶ just exactly as is the case with their fellows in recent forms.

The Silurian genera *Glyptocrinus*, *Reteocrinus*, and *Xenocrinus* appear to me to have been in the same condition; though I will not go so far as to say that the mouth was open to the exterior. For the peristome may well have been closed by the more or less well defined apical dome plates, which covered the central part of the disk, just as in the Ichthyocrinidæ. The vault of *Glyptocrinus* is best known in *Glyptocrinus decadactylus*. According to Miller⁷ "The regular interradial areas have one plate resting upon the primary radials, two in the second range, three in the third, two or three in the fourth,

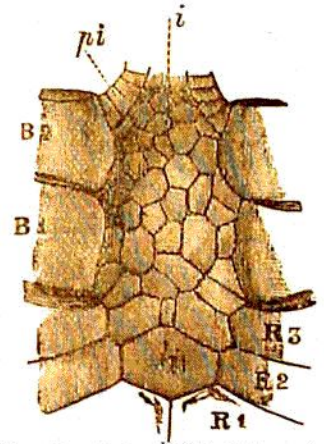


FIG. 9.—Interradial plates of *Apiocrinus roissyanus* (after de Loriol). B1, B2, first and second brachials; R1, R2, R3, first, second, and third radials; *pi*, basal joints of lowest pinnule; *i*, calyx-interradial, resting on the upper angles of two first radials (R1); *i*, smaller interradials, but probably only perisomic plates.

¹ Revision, part i. p. 54.

³ Paléont Franç., *loc. cit.*, pp. 272, 273.

⁶ Encriniden, Tab. 101, fig. 39a.

² *Hist. Nat. des Crinoïdes*, p. 21, pl. iii. figs. 1, 3.

⁴ *Op. cit.*, pp. 57, 59.

⁵ Austin, *op. cit.*, p. 104, pl. xiii. figs. 1a, 1c, 1k.

⁷ *Glyptocrinus* redefined and restricted, *Gaurocrinus*, *Pycnocrinus*, and *Compsocrinus* established, and two new species described, *Journ. Cincinnati Soc. Nat. Hist.*, vol. vi. pp. 220, 221.