

# TEGMEN ROOF OF *PLAXOCRINUS MOORESI* (WHITFIELD)<sup>1</sup>

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## ABSTRACT

Preparation and study of a crinoid specimen in the Orton Museum collection reveal for the first time the tegmen roof of *Plaxocrinus mooresi* (Whitfield). The roof is flat and composed of 14 small polygonal plates encircled by 10 large spines which project laterally and abut along their sides proximally. The tegmen roof comprises part of the crown of a young individual showing the dorsal cup, plates of the posterior interradius, and adjacent arms. A portion of the tegmen roof of a mature crinoid is also referred to *Plaxocrinus mooresi*. Both specimens were collected near the base of the Allegheny Group, of Pennsylvanian age, at Carbon Hill, Hocking County, Ohio.

The inadunate crinoid *Plaxocrinus mooresi* (Whitfield) was originally described without illustration as *Zeacrinus mooresi* by Whitfield (1882). Later Whitfield (1891, 1895) redescribed the species, with the addition of figures, as *Zeacrinus mooresi*. Morningstar (1922) discussed this crinoid under the name of *Eupachyrcrinus mooresi* (Whitfield), quoted Whitfield's description of the characteristic bulbous primibrach spines, and figured (ibid. pl. 6, fig. 7) a dorsal cup with the primibrach spines attached. However, this dorsal cup (O.S.U. no. 9787) is an abnormal specimen, with three supernumerary plates complicating the basal cirlet on the right side. The first referral of the Whitfield species to *Plaxocrinus* was by Moore and Plummer (1940, p. 77, 356).

All of the specimens figured to date appear to have been derived from the McArthur "shale" phase of the Putnam Hill Limestone, Allegheny Group, at Carbon Hill, Hocking County, Ohio, although the exact original collecting site has not been determined. Moores, who found Whitfield's holotype and for whom the species was named, made additional extensive collections from the Carbon Hill locality. This material, now in Orton Museum, includes several excellent examples of *Plaxocrinus mooresi*.

Included in the Moores collection from Carbon Hill are an essentially complete tegmen roof (fig. 1), another with most of the tegmen-roof spines preserved (fig. 3), and numerous dissociated tegmen-roof spines. The exceptionally well preserved small tegmen roof, O.S.U. no. 15780 (fig. 1) attracted my interest because it is patently a *Plaxocrinus*. However, at first glance, in an apparent absence of the dorsal cup and arms, there seemed no possibility of associating it directly with *Plaxocrinus mooresi*. But investigation of the matrix below the specimen disclosed a few damaged plates, and preparation revealed most of the dorsal cup, with all of the plates of the posterior interradius showing, along with portions of the adjacent arms (fig. 2). The specimen quite evidently comprises most of the crown of a young individual of *Plaxocrinus mooresi*.

The tegmen roof, as noted above, is typical of *Plaxocrinus*. It is flat, and composed of 14 small polygonal plates encircled by 10 large spines that project laterally and abut proximally along their sides.

I have not attempted to prepare the crown completely because of the risk of damaging this extremely rare specimen. Compaction has dislocated many of the plates of the dorsal cup, but in general their relationships are still clear. The stem is missing, and the infrabasals are not showing; if present they are probably detached from the basals. The anterior basal is not in place and may be missing, together with the anterior primibrach; the right anterior primibrach is badly

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damaged. The radial has been overridden by the posterior basal and appears narrower in the sketch (fig. 2) than is actually the case. The anal X and right and left tube plates are also present. Considering the age of this individual and the frequency of variation in the plates of the posterior interradius in *Plaxocrinus mooresi*, these plates appear normal in arrangement.

The large size of the first primibrachs, in comparison with the cup and arms, is characteristic of a young crinoid. Also, in keeping with this stage of growth, these plates are not strongly bulbous proximally, and the spines taper fairly uniformly from the base. The first primibrachs are axillary, and are followed by six uniserial secundibrachs. The sixth secundibrachs are axillary and spine-bearing. A single first tertibrach is exposed above the sixth secundibrach that shows in the C ray.

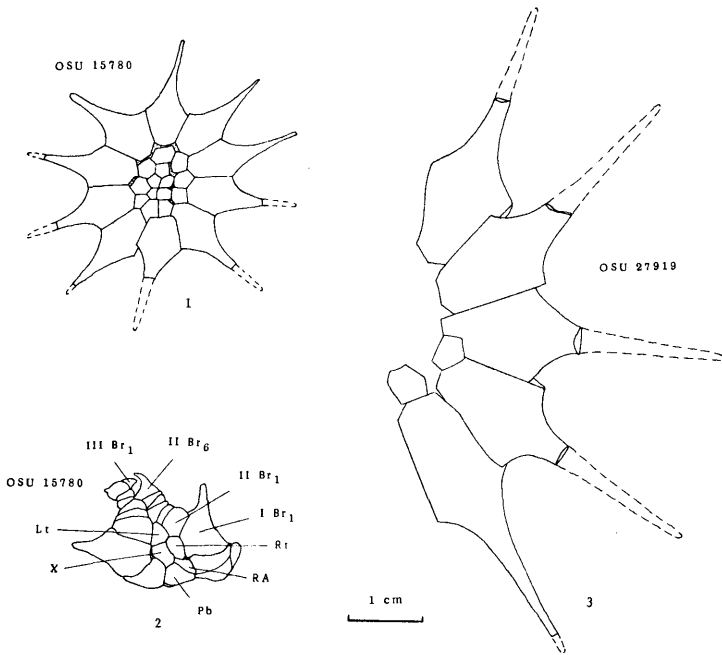


FIGURE 1. *Plaxocrinus mooresi* (Whitfield). Tegmen roof of a young specimen, O.S.U. no. 15780. Missing portions of spines restored.

FIGURE 2. *Plaxocrinus mooresi* (Whitfield). Posterior view of a portion of the crown of O.S.U. no. 15780. pB, posterior basal; RA, radial; X, anal X; rt, right tube plate; lt, left tube plate; IBr<sub>1</sub>, first primibrach; IIBr<sub>1</sub>, first secundibrach; IIBr<sub>6</sub>, sixth secundibrach; IIIBr<sub>1</sub>, first tertibrach.

FIGURE 3. *Plaxocrinus mooresi* (Whitfield). Part of tegmen roof of a mature specimen, O.S.U. no. 27919. Missing portions of spines restored.

The portion of a tegmen roof illustrated in figure 3 (O.S.U. no. 27919) is apparently that of a mature individual of *Plaxocrinus mooresi*. The impression of another spine, which has been lost, is preserved in the matrix alongside the spine at the base of the figure, and portions of four other spines appear in the matrix on the opposite side. It appears likely that 10 tegmen-roof spines were characteristic of *Plaxocrinus mooresi*.

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