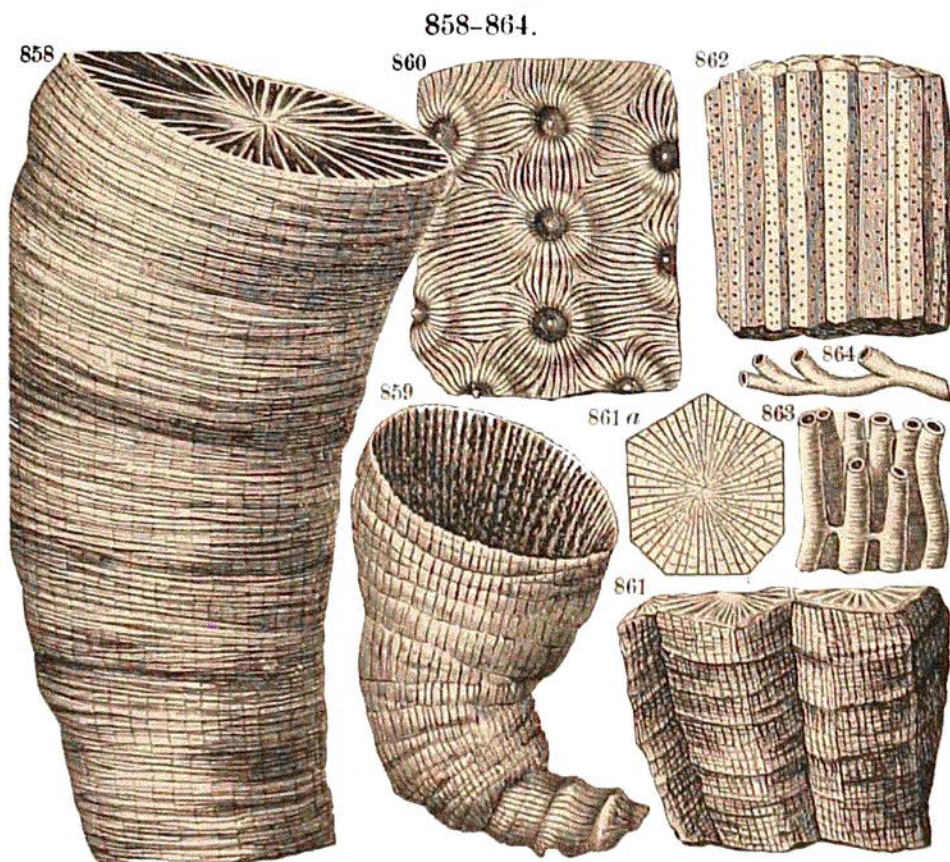


of the genus *Caulopteris*; and *C. advena* Newb. is the name of another species. The trunks of both are three to four inches in diameter. Newberry states that these tree ferns probably grew over the region of the Cincinnati uplift—then an island (C, map, page 412 or 536).

Spores and spore-cases (sporangites) have been reported from the limestone of Ontario County, N.Y. As described by J. M. Clarke they are $\frac{1}{50}$ and $\frac{1}{50}$ of an inch in diameter; he suggests that they may be from Rhizocarps (the lowest of Acrogens) of the genus *Salvinia* (p. 436), and they are referred to the species *Protosalvinia Huronensis* of Dawson.

ANIMALS.—The Upper Helderberg period was eminently, as has been stated, a *coral-reef period*, but besides corals, it abounded also in species of other tribes of invertebrate life characteristic of Paleozoic time.

1. **Sponges.**—The existence of Sponges is indicated by the presence of their siliceous spicules in the hornstone, two slender forms of which are shown in Figs. 853 *j*, *k*, and others in *l*, *m*, *n*. Besides, there are species of *Astræospongia* and *Hindia*. There are also several species of *Stromatopora*, and the last known in America of *Receptaculites*.



POLYPS.—Fig. 858, *Zaphrentis gigantea*; 859, *Z. Rafinesquii*; 860, *Phillipsastrea Verneuili*; 861, 861 *a*, *Cyathophyllum rugosum*; 862, *Favosites Goldfussi*; 863, *Syringopora Maclurii*; 864, *Romingeria cornuta*. Figs. 858, 860, 862, Edwards and Halme; 859, 861, Meek; 863, Yandell and Shumard; 864, Billings.

2. **Polyp-corals.**—Figs. 858 to 864 represent a few of the many Corals: 859 shows the radiated cup-shaped termination to which the name *Cyathophylloid* (from *κύαθος* cup, and *φύλλον*, leaf) refers; 858 has both extremities broken off, but exhibits the interior radiation. Fig. 862 represents a portion