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THE TYPE SPECIES OF THE
PALEOZOIC TABULATE CORAL GENERA
CLADOPORA AND *COENITES*

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THE UNIVERSITY OF MICHIGAN
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7. The Type Species of the Paleozoic Tabulate Coral Genera *Cladopora* and *Coenites*, by Erwin C. Stumm. Pages 133-138, with 1 plate.

THE TYPE SPECIES OF THE PALEOZOIC TABULATE
CORAL GENERA *CLADOPORA* AND *COENITES*

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ERWIN C. STUMM

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INTRODUCTION

THE genus *Cladopora* was described by James Hall (1851, p. 400). He included seven species, all from the "Niagara" limestone at Lockport, New York, and gave the following diagnosis for the genus:

Ramose or reticulate; branches cylindrical or slightly compressed, terminations terete; coral composed of a series of tubes or cells radiating equally on all sides from the axis, and opening upon the surface in rounded or subangular expanded mouths; cells more or less closely arranged, but not always contiguous, and apparently destitute of septa or rays.

The corals of this genus form a very distinct and well characterized group, sometimes in masses of closely arranged, slender, parallel or branching stems, and in other species of beautiful reticulated forms. Where the cells are empty and well preserved, the openings on the surface are margined by a thin projecting lip or calicle on the lower side, having a nearly semicircular outline, and gradually sloping below into the substance of the branch. In worn specimens the surface has no prominences, and the apertures of the cells are subangular or rounded, being a little more expanded than the cavity below. Where the cells are filled with calcareous matter, they frequently separate in prismatic forms like *Favosites*, but there is no evidence of transverse septa. The cells are not always contiguous, and there is often a space between the walls, which appears to be solid in one or more species.

These corals belong apparently to a group, some species of which have been referred to *Alveolites* by different authors, but which do not possess the essential characters of that genus; neither do they belong to the genus *Chaetetes* or *Favosites*. All the species yet known are branching, the reticulated forms being produced by coalescing of the branches, which, at the extremities, are often free or ramose. Probably some of the smaller reticulated species have been referred to *Retepora*, from

which they are readily distinguished by the branches being poriferous on all sides, as well as in the form of the cell.

Hall's first described species, *C. seriata*, was chosen as the type species by Miller (1889, p. 178). Lang, Smith, and Thomas, in their *Index to Palaeozoic Coral Genera* (1940, p. 39), stated that *C. seriata* is a species of *Coenites*. This opinion was concurred in by Shimer and Shrock (1944, p. 111), but Lecompte (1939, pp. 62-65, 75-78) maintained that *Coenites* and *Cladopora* were not congeneric. He described the internal structures of *C. seriata* (1939, p. 77), from a topotype specimen sent to him by G. M. Ehlers, but did not publish any illustrations of the species.

A study of the internal structures of *Cladopora seriata* and of *Coenites juniperinus*, the type species of *Coenites*, confirms Lecompte's contention that the two species are distinct and that *Cladopora* is a valid genus.

SYSTEMATIC DESCRIPTIONS

Genus *Cladopora* Hall

Cladopora Hall, 1851, p. 400; 1852, p. 137.

Type species.—By subsequent designation of Miller, 1889, p. 178, *Cladopora seriata* Hall, 1852, p. 137, Pl. XXXVIII, Figs. 1a-m, Middle Silurian, Lockport dolomite, Lockport, New York.

Diagnosis.—Dendroid, phaceloid, or reticulate corals, with corallites rising obliquely from median axes of stems. Corallite walls thin. Apertures circular to lunate. Mural pores irregularly scattered. No tabulae present.

Remarks.—The forms with lunate apertures may be mistaken for dendroid or phaceloid species of *Alveolites* but differ from them in lacking tabulae.

Geologic range.—Silurian and Devonian.

Cladopora seriata Hall

(Pl. I, Figs. 4-6)

Cladopora seriata Hall, 1851, p. 400; 1852, p. 137, Pl. 38, Figs. 1a-m.

Description.—Corallum dendroid or phaceloid, composed of cylindrical stems averaging about 2 mm. in diameter. Stems composed of obliquely directed corallites diverging at a very steep angle from the axis. Corallites gradually expanding toward periphery, with a maximum diameter of .5 mm. and a length of 2 to 3 mm. Apertures sublunate or lozenge-shaped, with a slightly projecting lower lip. No septal ridges or spines present in apertures. Mural pores relatively large, irregularly scattered. No tabulae present.

Remarks.—Another common species, *Cladopora reticulata* Hall, occurring at the same horizon and locality, has internal structures identical to

those of *C. seriata*, but differs in having round apertures and a reticulate growth pattern.

Occurrence.—Middle Silurian, Lockport Dolomite, New York.

Types.—Syntypes, No. 1679, American Museum of Natural History; hypotype herein illustrated, No. 40227, Museum of Paleontology, University of Michigan.

Genus *Coenites* Eichwald

Coenites Eichwald, 1829, p. 179.

Type species.—By subsequent designation of Miller, 1897, p. 727, *Coenites juniperinus* Eichwald 1829, p. 179. Drift [*ex* Silurian] near Vilna, Lithuania.

Diagnosis.—Dendroid, phaceloid, or encrusting corals with corallites rising obliquely from stems or from median axis in encrusting forms. Corallite walls thin axially, becoming thickened peripherally. Apertures lunate, lozenge-shaped, or crescentic, typically with two well-developed septal ridges on lower lip and one on upper lip. Mural pores irregularly scattered. Tabulae complete, horizontal, closely spaced.

Remarks.—Although he referred to *Coenites juniperinus*, Lecompte did not illustrate the species. He has based the distinction between *Cladopora* and *Coenites* largely on the thickening of the corallite walls in species of the latter genus, causing constriction of the apertures. The type species of *Coenites*, however, has only slightly constricted apertures and possesses the three distinct septal ridges. Other species referred to *Coenites* by Lecompte and other authors have thicker corallite walls, more constricted, or crescentic or slitlike apertures, and no septal ridges. It is possible that they are generically distinct.

Geologic range.—Silurian and Devonian.

Coenites juniperinus Eichwald

(Pl. I, Figs. 1–3)

Coenites juniperinus Eichwald, 1829, p. 179; Edwards and Haime, 1851, p. 301; 1854, p. 265, Pl. 65, Figs. 4–4a; Nicholson, 1879, p. 134, Pl. 6, Figs. 5–5b.

Description.—Corallum typically phaceloid, composed of cylindrical stems averaging .5 cm. in diameter. Stems composed of obliquely directed corallites diverging from axes. Corallites steeply oblique in axial region, becoming less so as they approach the periphery; averaging about .5 mm. in maximum diameter and about 1 cm. long. Walls thin in axial region becoming progressively thicker as they approach the periphery. Apertures sublunate to lozenge-shaped, with a slightly projecting lower lip. Two parallel septal ridges prominently developed on lower lips of apertures. A

median septal ridge is present on upper lips of apertures of most corallites. Mural pores large, irregularly scattered. Tabulae confined to axial and periaxial regions, numerous, complete, horizontal, spaced from .2 to 1 mm. apart.

Remarks.—The presence of septal ridges, thickened corallite walls, and tabulae distinguish this species from species of *Cladopora*. *Coenites juniperinus* has an internal structure similar to that of dendroid species of *Alveolites* but differs in the arrangement of the septal ridges and in the peripheral thickening of the corallite walls. The type species of *Alveolites*, *A. suborbicularis* Lamarck, has a single well-developed row of septal spines on the lower lips of the apertures and other rows of septal spines faintly developed in some corallites. In other species of *Alveolites* rows of septal spines are developed on both upper and lower lips of the apertures, and in still other species septal spines are absent.

Another genus with similar structures in *Platyaxum*. The species of this genus have the corallite walls thickened in the peripheral region as in species of *Coenites*, but differ from them in having a palmate growth habit with flattened stems and in having one thick septal ridge on the lower lip of the aperture.

Occurrence.—Middle Silurian; England, Gotland, Eastern Baltic region.

Types.—Repository of syntypes unknown; hypotype herein illustrated, No. 3862, Museum of Paleontology, University of Michigan.

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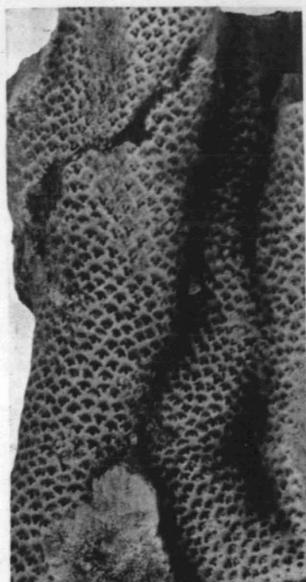
PLATES

EXPLANATION OF PLATE I

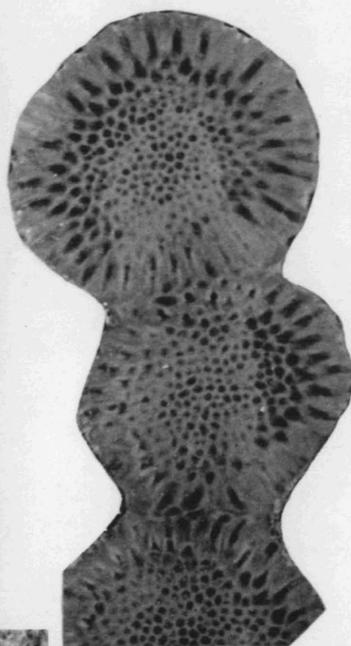
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<i>Coenites juniperinus</i> Eichwald	135
FIG. 1. Exterior of hypotype No. 3862, Museum of Paleontology, University of Michigan, showing lunate apertures with septal ridges, Middle Silurian, Gotland.	
FIG. 2. Transverse section of same specimen showing thickened peripheral parts of corallites.	
FIG. 3. Longitudinal section of same specimen showing axial and periaxial tabulae.	
<i>Cladopora seriata</i> Hall	134
FIG. 4. Exterior of hypotype No. 40227, Museum of Paleontology, University of Michigan, showing smooth lunate apertures.	
FIG. 5. Transverse section of same specimen showing thin-walled corallites.	
FIG. 6. Longitudinal section of same specimen showing steeply inclined corallites without tabulae.	

PLATE I



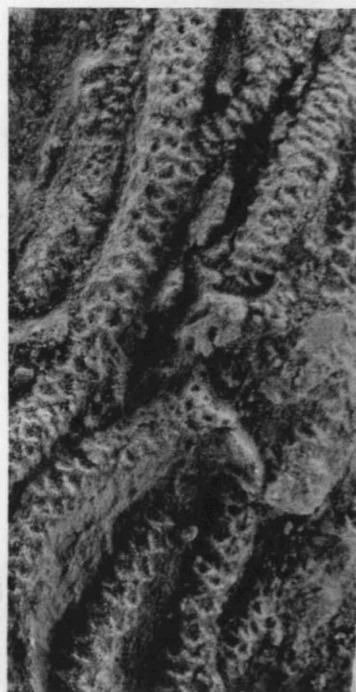
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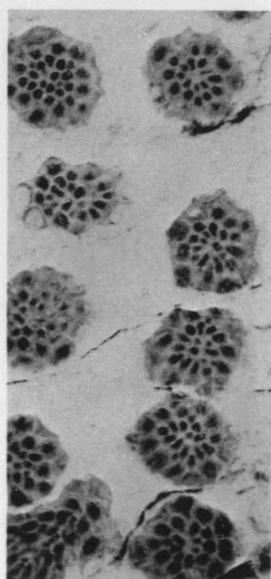
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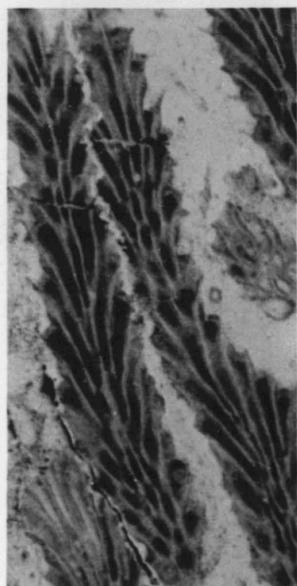
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