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REVISION OF R. P. WHITFIELD'S TYPES OF
RUGOSE AND TABULATE CORALS IN THE
MUSEUM OF PALEONTOLOGY,
UNIVERSITY OF CALIFORNIA,
AND IN THE
UNITED STATES NATIONAL MUSEUM

By
ERWIN C. STUMM

1969

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Ithaca, New York 14850 U.S.A.

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REVISION OF R. P. WHITFIELD'S TYPES OF RUGOSE AND
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ABSTRACT

Thirteen species of Paleozoic corals were described by R. P. Whitfield between 1878 and 1903. Eleven of these are revised and all but one placed in other genera. Three new species, *Amplexizaphrentis ohioensis*, *Acanthobalysites wisconsinensis*, and *Cystibalysites microporus* are proposed and one new genus, *Syringocolumna infundibula* (Whitfield) is proposed.

INTRODUCTION AND ACKNOWLEDGMENTS

Between 1878 and 1903 R. P. Whitfield described 13 species of corals from the Paleozoic rocks of Wisconsin, Ohio, and Iowa. The majority of these were from the Silurian dolomites of Wisconsin. One species was from the Devonian of Ohio, one from the Mississippian of Ohio, and one was a float specimen from the Silurian of Iowa. The specimens are listed under their original designations as follows:

Silurian of Wisconsin:

Rugosa:

Amplexus annulatus Whitfield, 1878
Amplexus fenestratus Whitfield, 1878
Cyathaxonia wisconsinensis Whitfield, 1878
Cystostylus typicus Whitfield, 1880
Zaphrentis racinensis Whitfield, 1882

Tabulata:

Favosites occidentis Whitfield, 1888
Halysites catenulatus var. *microporus* Whitfield, 1882
Halysites catenulatus Linnaeus
Halysites catenulatus labyrinthicus (Goldfuss)
Syringopora infundibula Whitfield, 1878

Devonian of Ohio:

Rugosa:

Stylastrea anna Whitfield, 1882

Mississippian of Ohio:

Rugosa:

Zaphrentis cliffordana Edwards and Haime

Silurian of Iowa:

Tabulata:

Halysites radiatus Whitfield, 1903

The syntypes of *Amplexus annulatus* from the Guelph Dolomite of Wisconsin have not been found. The species *Halysites radiatus* Whitfield has been adequately redescribed by Buehler (1955) and will not be described herein. It is a species of *Acanthobalysites*. The remainder of the corals are redescribed and reillustrated in this paper. Part of Whit-

field's collection was purchased by the University of California (Peck and McFarland, 1954). The remainder was located at the University of Wisconsin until 1960, when it was transferred to the United States National Museum (Batten, 1960). Two of the syntypes of *Stylastrea anna* are in the Geological Museum, Ohio State University.

The holotype of *Alveolites irregularis* Whitfield from the Upper Ordovician of Wisconsin is a trepostomate bryozoan.

The repositories of the types are indicated as follows: U.S.N.M., United States National Museum; U.C.M.P., Museum of Paleontology, University of California; O.S.U., Geological Museum, Ohio State University.

I wish to thank Dr. J. W. Durham and Dr. Joseph H. Peck, Jr. of the Museum of Paleontology, University of California, for the loan of those of Whitfield's types located there. My thanks are also due to Dr. R. A. Cifelli and Mr. Jesse E. Merida for the loan of the types located in the U. S. National Museum.

SYSTEMATIC DESCRIPTIONS

Order RUGOSA

Family METRIOPHYLLIDAE

Genus **ASTHENOPHYLLUM** Grubbs, 1939

1939. *Asthenophyllum* Grubbs, Jour. Paleont., vol. 13, No. 6, p. 546.

1956. *Asthenophyllum* Hill, Treatise on Invert. Paleont., vol. F., p. F 257, fig. 174.

Type species.—*Asthenophyllum orthoseptatum* Grubbs, 1939 (p. 547), by original designation.

Discussion.—The type species is a small ceratoid to trochoid coral in which the calyx extends almost to the base. Protosepta prominent. Meta-septa divided into major and minor series. All septa short.

Asthenophyllum? *racinensis* (Whitfield)

Pl. 12, figs. 4-6

1882a. *Zaphrentis racinensis* Whitfield, Geology of Wisconsin, vol. 4, pt. 3, p. 277, pl. 14, figs. 1-2.

Description.—Holotype composed of a dolomitic mold of the interior of the calyx of a simple trochoid rugose coral. A latex cast of this mold reveals the original appearance of the interior of the calyx. Maximum diameter at top of calyx, 30 mm; at base, 7 mm; maximum depth, 22 mm. Septa 70 in number. Protosepta prominent, short; cardinal septa termina-

ting in a small narrow fossula only visible across base of calyx. Metasepta divided into major and minor series both as short peripheral ridges. Major septa extending maximum distance of 1 mm from the periphery and extending across the small base of the calyx to form a low, relatively inconspicuous axial base. Minor septa extending about 0.5 mm from the periphery terminating before reaching base of calyx. All septa thin, smooth, noncarinate.

Remarks.—It is impossible to determine if the original corallum had tabulae or dissepiments, but judging from the shape of the calyx I believe neither was present. *A.?* *racinensis* is much larger and has many more septa than the type species and, therefore, is tentatively assigned to *Asthenophyllum*.

Occurrence.—Middle Silurian, Racine Dolomite, Racine, Wisconsin.

Type.—Holotype U.S.N.M., No. 136786.

Family STREPTELASMATIDAE

Genus DALMANOPHYLLUM Lang and Smith, 1939

1939. *Dalmanophyllum* Lang and Smith, Some new Generic names for Paleozoic corals, Ann. Mag. Nat. Hist. ser. 2, vol. 3, p. 153.

Type species.—*Cyathaxonia dalmani* (Edwards and Haime, 1851, p. 322, plate 1, figure 6).

Diagnosis.—Solitary ceratoid rugose corals in which the major septa join a bladelike columella produced upward by joined cardinal and counter septa.

Dalmanophyllum wisconsinensis (Whitfield)

Pl. 12, figs. 1-3

1878. *Cyathaxonia wisconsinensis* Whitfield, Wisconsin Geol. Sur., Ann. Rept. for 1877, p. 79.

1882a. *Cyathaxonia wisconsinensis* Whitfield, Geology of Wisconsin, vol. 4, p. 277, pl. 14, figs. 3-5.

Description.—Holotype consisting of a dolomitic cast of the interior of the original calyx. A latex mold reproduces the calyx walls and base. Maximum diameter of calyx 39 mm, maximum depth 23 mm. Calyx walls steeply sloping to a narrow base, most of which being occupied by a blade-like columella 10 mm tall, 6 mm wide in cardinal-counter direction and a maximum of 2 mm wide at right angles to this direction. Septa 76, short, thin, and smooth, the major extending 2-3 mm from periphery, continuing across calyx base to terminate in columella. Minor septa extending about 1 mm from calyx walls, disappearing just before reaching base of calyx.

Cardinal septum forming a prominent fossula 7 mm long, 4 mm wide, and 7 mm deep, almost completely confined to the base of the calyx. No dissepiments visible. Presence or absence of tabulae unknown.

Remarks.—The species resembles *D. herzeri* (Hall), 1882-1884, from the Louisville Limestone of Kentucky but has a much more prominent columella.

Occurrence.—Middle Silurian, Racine Dolomite, Racine, Wisconsin.

Type.—Holotype U.S.N.M., No. 136804.

Family HAPSIPHYLLIDAE

Genus AMPLEXIZAPHRENTIS Vaughan

1906. *Amplexizaphrentis* Vaughan, Quart. Jour. Geol. Soc. London, vol. 62, pp. 275-323.

1944. *Triplophyllites* Easton, Illinois State Geol. Sur., Rept. Inv. 97., p. 35.

Type species.—*Zaphrentis bowerbanki* Thomson, 1883, by subsequent designation of Lang, Smith, and Thomas, 1940, pp. 16-17.

Amplexizaphrentis ohioensis, n. sp.

Pl. 11, figs. 5-8

Zaphrentis cliffordana Whitfield, 1891, p. 576, pl. 13, figs. 1-3; *non Z. cliffordana* Edwards & Haime, 1851.

Description.—Corallum ceratoid, holotype with a maximum length of 39 mm and a maximum diameter of 17 mm. Exterior with weakly developed, faintly wrinkled epitheca through which the interseptal ridges are barely visible. Calyx 10 mm deep with erect walls and a wide, flat base formed on the uppermost tabula. Major septa 1 to 2 mm long on calyx walls, extending across base about one-half distance to axis. Minor septa as weakly developed peripheral ridges. Fossula moderately developed, on concave side of corallum. In transverse section septa 60, major extending about one-half distance to axis, minor as short peripheral ridges. Cardinal septum short producing an indistinct fossula. Major septa thickened peripherally, attenuate axially. Tabulae steeply inclined toward concave side of corallum, complete or incomplete, irregularly spaced from less than 0.5 mm to over 2 mm apart. No dissepiments present.

Remarks.—The species differs from "*Zaphrentis*" *cliffordana* Edwards and Haime, 1851, in having much shorter major septa.

Occurrence.—Middle Mississippian, Maxville Limestone, Maxville, Ohio.

Types.—Holotype, No. 34220, paratypes, Nos. 34219 and 34221 U.C.M.P.

Family HALLIIDAE

Genus NEOCYSTIPHYLLUM Wedekind

1927. *Neocystiphyllum* Wedekind, *Sveriges Geologiska Undersökning*, ser. Ca, No. 19, pp. 77, 78.

Type species.—By original designation, *N. mccoysi* Wedekind, 1927, p. 78, pl. 19, figs. 7, 8.

Diagnosis.—Simple rugose corals with a well-developed dissepimentarium and pinnate or radially arranged septa which may be thin or dilated axially.

Neocystiphyllum? fenestratum (Whitfield) Pl. 12, fig. 8; Pl. 13, figs. 3, 4

1878. *Amplexus fenestratus* Whitfield, *Ann. Rept. Geol. Sur. Wisconsin*, p. 80.

1882a. *Amplexus fenestratus* Whitfield, *Geology of Wisconsin*, vol. 4, pp. 278-279, pl. 15, figs. 1-3.

Description.—The only syntype located is a large simple ceratoid coral that has been completely silicified. Maximum length 11 cm, maximum diameter 5.5 cm. Calyx not preserved. Epitheca worn in most places so peripheral edges of septa and dissepiments visible on external surface. Exterior with widely spaced, periodic swellings. In transverse section septa 107, thin, smooth, and long. Major septa extending at least three-fourths distance to axis; minor septa almost as long. Dissepiments numerous, closely set; dissepimentarium occupying peripheral half of corallum. No fossulae or other modification of the protosepta present in the internal structures. In longitudinal section, dissepimentarium composed of numerous rows of small to medium-sized, axially convex dissepiments. Tabularium partly destroyed by silicification but where tabulae are present they are typically complete, closely set, and distally convex.

Remarks.—The species is placed tentatively in *Neocystiphyllum*. Hill, 1956, placed *Neocystiphyllum* as a junior subjective synonym of *Phaulactis* Ryder (1926), but the genus does not show the characteristic septal thickening and complete lack of pinnate septal development of typical phaulactids. It appears to be a valid genus and possibly should not be included in the family Halliidae. Whitfield's figures of the other syntype (1882a, pl. 15, figs. 1-2) show a relatively deep, bell-shaped calyx with a distinct cardinal fossula.

Occurrence.—Middle Silurian, Niagaran, Waukesha or Racine Dolorite, Cato, Wisconsin.

Type.—Syntype U.S.N.M., No. 136803.

Family **PHILLIPSASTRAEIDAE**Genus **HEXAGONARIA** Gürich

1896. *Hexagonaria* Gürich, Verh. Russ.-Kais. Min. Gesell. St. Petersburg, ser. 2, vol. 32, p. 171.
 1900. *Prismatophyllum* Simpson, Bull. New York State Mus., vol. 8, No. 39, p. 218.
 1909. *Hexagoniophyllum* Gürich, Leitfossilien, vol. 2, p. 102.

Type species.—By subsequent designation of Lang, Smith, and Thomas (1940, p. 69) *Cyathophyllum hexagonum* Goldfuss, 1826 *partim*, p. 61, pl. 20, figs. 1a-b.

Diagnosis.—Cerioid, typically hexagonal rugose corolla having coralites with carinate septa small, globose dissepiments and relatively flat, complete or incomplete tabulae.

Hexagonaria anna (Whitfield)

Pl. 10, figs. 5, 6

1882. *Stylastrea anna* Whitfield, Annals New York Acad. Sci., vol. 2, pp. 199-200.
 1893. *Stylastrea anna* Whitfield, Geol. Sur. Ohio, vol. 7, p. 420, pl. 2, figs. 1-5.
 1938. *Prismatophyllum annum* Stewart, Geol. Soc. America, Spec. Paper No. 8, p. 49, pl. 9, figs. 11, 12.
 1948. *Hexagonaria anna* Stumm, Contr. Mus. Paleont., Univ. Michigan, vol. 7, No. 2, pp. 25, 26, pl. 5, fig. 3; pl. 9, figs. 1-3; pl. 13, figs. 1, 2; pl. 14, figs. 3-6.

Remarks.—This species has been described in detail by Stewart (1938) and Stumm (1948). In addition, Stumm (1967) wrote a paper on the blastogeny of the species. *H. anna* is a widespread species, occurring in the Dundee Limestone and the Silica Formation of northwestern Ohio and in the Bell Shale, Rockport Quarry Limestone, and Ferron Point Formation in the Traverse Group of north-central Michigan. The type specimens apparently are from the "blue" limestone member at the base of the Silica Formation.

Types.—Lectotype (chosen by Stumm, 1948, p. 26), O.S.U. No. 15347, paratype No. 15349; other paratypes U.C.M.P., Nos. 34216, 34217, 34218.

Family **CYSTIPHYLLIDAE**Genus **MICROPLASMA** Dybowski

1873. *Microplasma* Dybowski, Mon. der Zoantharia sclerodermata rugosa aus der Silurformation Estlands, Nord-Livlands und der Insel Gotland, p. 340.
 1880. *Cystostylus* Whitfield, Wisconsin Geol. Sur., Ann. Rept. for 1879, pp. 63-64.
 1882a. *Cystostylus* Whitfield, [as a new genus] Geology of Wisconsin, vol. 4, pt. 3, pp. 273, 274.

Type species.—By subsequent designation of Wedekind, 1927, p. 64,

Microplasma gotlandicum Dybowski, 1874, p. 508, pl. 5, figs. 5a-d. Silurian, Gotland.

Diagnosis.—Coralla with the internal structures of *Cystiphyllum* but being phaceloid instead of simple in growth form.

Microplasma typica (Whitfield)

Pl. 10, figs. 1, 2

1880. *Cystostylus typicus* Whitfield, Wisconsin Geol. Sur., Ann. Rept. for 1879, pp. 64, 65.

1882a. *Cystostylus typicus* Whitfield [as a new species], Geol. Wisconsin, vol. 4, pt. 3, p. 274, pl. 14, figs. 8, 9.

Description.—Corallum phaceloid, composed of parallel or subparallel cylindrical corallites ranging from 7 mm to 9 mm in diameter. External features not preserved. Some corallites in lateral contact; others separated by distances as great as their diameters. Interiors or corallites filled with dissepiments and tabellae from 0.5 to 1.5 mm across and with a maximum length of 1.5 mm. Peripheral zone of dissepiments steeply inclined, convex axially and distally, merging into an axial zone of distally convex tabellae. Border between dissepimentarium and tabularium obscure or lacking. Peripheral spinules, if originally present, obscured by recrystallization of small calcite crystals along walls of dissepiments and tabulae.

Remarks.—The species shows a distinct resemblance to *M. lovenianum* Dybowski from the Wenlock Limestone of England as illustrated by White (1966, pp. 149, 150, pl. 22) but differs in having a smaller, less distinct tabularium.

Occurrence.—Middle Silurian, Niagaran Series, upper coral beds, Sturgeon Bay, Wisconsin.

Type.—Holotype U.C.M.P., No. 34213.

Order TABULATA

Family FAVOSITIDAE

Genus FAVOSITES Lamarck

1816. *Favosites* Lamarck, Hist. Nat. des Animaux sans Vertèbres, vol. 2, p. 204.

Type species.—By subsequent designation of Edwards and Haime, 1850 (p. 1x), *F. gotlandicus* Lamarck, 1816, p. 205.

Diagnosis.—Compound coralla having pentagonal or hexagonal corallites resembling a honeycomb.

Favosites occidens Whitfield

Pl. 12, figs. 9, 10; Pl. 13, figs. 1, 2

1888. *Favosites occidens* Whitfield, Ann. Rept. Geol. Sur. Wisconsin, for 1887, p. 78.

1892. *Favosites occidentis* Whitfield, Geology of Wisconsin, vol. 4, pp. 313, 314, pl. 23, figs. 6, 7.

Description.—Corallum irregularly hemispherical, composed of pentagonal or hexagonal, slightly subrounded corallites. Most corallites averaging a little less than 1.5 mm in diameter and ranging from less than 1 mm in immature corallites to a maximum of 2 mm in irregularly scattered ones, giving the surface of the corallum a diploid appearance. Tabulae relatively thick, horizontal, relatively evenly spaced at about 0.5 mm to 1 mm apart. No true septal spines or ridges present. The apparent presence of septal spines in some corallites due to recrystallization by small calcite crystals. Mural pores almost completely obliterated by dolomitization but appear to have been originally in one or two rows.

Remarks.—The syntypes have been severely altered by dolomitization, but all structures except the mural pores are visible.

Occurrence.—Middle Silurian, Guelph Dolomite, Saukville, Ozaukee County, Wisconsin.

Types.—Lectotype (here chosen) U.S.N.M., No. 136757; paratype U.S.N.M., No. 135945.

Family HALYSITIDAE

Genus **CYSTIHALYSITES** Tchernychev

1941. *Cystihalysites* Tchernychev, Vsesoyuznyy arkticheskiy institut, Trudy, vol. 158, pp. 65-74.

Type species.—By original designation *Cystihalysites mirabilis* Tchernychev, 1941, pp. 70, 71, pl. 2, figs. 5-7; pl. 3, figs. 1-6.

Diagnosis.—Halysitinae with cystose structures in the mesocorallites instead of tabulae and with no septal spinules in the macrocorallites.

Cystihalysites microporus, n. sp.

Pl. 11, figs. 1-3

1882a. *Halysites catenulatus* Whitfield, Geology of Wisconsin, vol. 4, p. 271, pl. 13, fig. 5, non *H. catenulatus* Linnaeus.

Description.—Corallum with ranks of small corallites of two sizes. Macrocorallites ranging from 1.1 mm to 1.5 mm in maximum diameter with an average of 1.31 mm. Mesocorallites ranging from 0.4 mm to 0.7 mm in maximum diameter. Macrocorallites lacking septal spinules and having flat, complete tabulae spaced at an average distance of 0.43 mm apart. Mesocorallites filled with small, closely crowded, distally convex cysts in two to five horizontal rows.

Remarks.—This species has much smaller macrocorallites and mesocorallites than any other species of *Cystihalysites* known to me.

Occurrence.—Middle Silurian, Niagaran Group, Sturgeon Bay, Wisconsin.

Type.—Holotype U.C.M.P., No. 34214.

Genus **ACANTHOHALYSITES** Hamada

1957. *Acanthohalysites* Hamada, Jour. Fac. Sci. Univ. Tokyo, sec. 2, vol. 10, pt. 3, p. 404.

Type species.—By original designation, *Halysites australis* Etheridge (1898) Rec. Australian Mus., vol. 3, pt. 4, p. 78, pl. 17.

Diagnosis.—Halysitidae with macrocorallites and mesocorallites. Macrocorallites with septal spinules.

Acanthohalysites wisconsinensis, n. sp. Pl. 10, figs. 3, 4; Pl. 11, fig. 4

1882. *Halysites catenulatus* var. *labyrinthicus* Whitfield, Geology of Wisconsin, p. 272, pl. 13, fig. 7, non *Catenipora labyrinthica* Goldfuss, 1826.

Description.—Corallum with ranks of relatively large macrocorallites and mesocorallites. Macrocorallites ranging from 1.9 mm to 2.3 mm in maximum diameter, with an average of 2.13 mm. Mesocorallites ranging from 0.4 mm to 0.8 mm in maximum diameter with an average of 0.57 mm. Macrocorallites with 12 septal spinules in well-preserved corallites. Spinules extending an average of about one-third distance to axis. Tabulae of macrocorallites horizontal, spaced from 0.5 mm to 1.0 mm apart. Tabulae of mesocorallites closely set less than 0.5 mm apart and distinctly distally convex.

Remarks.—The distally convex tabulae in the mesocorallites are the distinctive feature of this species. The only other species of *Acanthohalysites* with convex mesocorallite tabulae is *A. encrustans* (Buehler) (1955, pp. 66, 67), and this species has larger macrocorallites and an entirely different growth form. *Acanthohalysites louisvillensis* (Stumm) (1965, p. 79, pl. 80, figs. 8-10) has horizontal tabulae in the mesocorallites.

Occurrence.—Middle Silurian, Niagaran Group, Sturgeon Bay, Wisconsin.

Type.—Holotype U.C.M.P., No. 34215.

Genus **CATENIPORA** Lamarck, 1816

1816. *Catenipora* Lamarck, Histoire Naturelle des Animaux sans vertèbres, p. 207.

Type species.—By monotypy, *C. escharoides* Lamarck (1816). For detailed synonymy see Thomas and Smith (1954); Buehler (1955); and Hamada (1957).

Diagnosis.—Corallum composed of ranks of macrocorallites lacking mesocorallites but provided with 12 rows of septal spinules in each corallite. Tabulae complete and horizontal.

Catenipora microporus (Whitfield) Pl. 12, fig. 7; Pl. 13, figs. 5, 6

1882a. *Halysites catenulatus* var. *microporus* Whitfield, Geology of Wisconsin, vol. 4, pt. 3, p. 272, pl. 13, fig. 6.

1955. *Catenipora microporus* Buehler, Peabody Mus. Nat. Hist., Yale Univ., Bull. 8, p. 44, figs. 1-5.

1957. *Catenipora microporus* Hamada, Jour. Fac. Sci., Univ. Tokyo, vol. 10, pt. 3, p. 400.

Remarks.—Buehler's description was taken from specimens from Michigan and Kentucky, and there are a few differences between his specimens and the holotype.

In the holotype the macrocorallites range from 0.3 to 1.2 mm in larger dimension. The septal spines are short, never extending more than one-half the way to the axis. Both Buehler and Hamada indicate that the longer septa meet to form a pseudocolumella. This feature is not shown on the holotype. The walls are greatly thickened at the junction of the corallites and in some of the thickened walls a small circular pore is present. The tabulae are complete, horizontal, and closely set.

Occurrence.—Middle Silurian, Niagaran Series, upper coral beds, Bailey's Harbor, Wisconsin.

Type.—Holotype U.S.N.M., No. 136760.

Family SYRINGOPORIDAE

Genus **SYRINGOCOLUMNA**, new genus

Type species.—(Here chosen), *Syringopora infundibula* Whitfield, 1878, Geol. Sur. Wisconsin, Ann. Rept. for 1877, p. 79.

Diagnosis.—Phaceloid coralla with internal structures composed of funnel-shaped tabulae, groups of which coalesce axially to form an intermittent columella; no dissepiments, cystose structures, or septal spinules present.

Syringocolumna infundibula (Whitfield) Pl. 11, figs. 9-11

1878. *Syringopora infundibula* Whitfield, Geol. Sur. Wisconsin, Ann. Rept. for 1877, p. 79.

1882a. *Cystostylus infundibulus* Whitfield, Geology of Wisconsin, vol. 4, pp. 274, 275, pl. 14, fig. 7.

Description.—Corallum known only from holotype. Growth habit phaceloid with subparallel cylindrical corallites ranging from 3 mm to 6 mm in diameter. Increase of corallites by lateral gemmation not by transverse stolons as in *Syringopora*. External features not preserved. Outer walls of corallites thin. Tabulae relatively evenly spaced, funnel-shaped. Groups of adjacent tabulae coalescing to make an axial columella, intermittently developed along each corallite. No other structures present.

Remarks.—Whitfield placed this species in his genus *Cystostylus* in which the type species is a rugose coral.

Occurrence.—Middle Silurian, Niagaran Group, Racine Dolomite, Howley's Quarry, Milwaukee, Wisconsin.

Type.—Holotype U.C.M.P., No. 34350.

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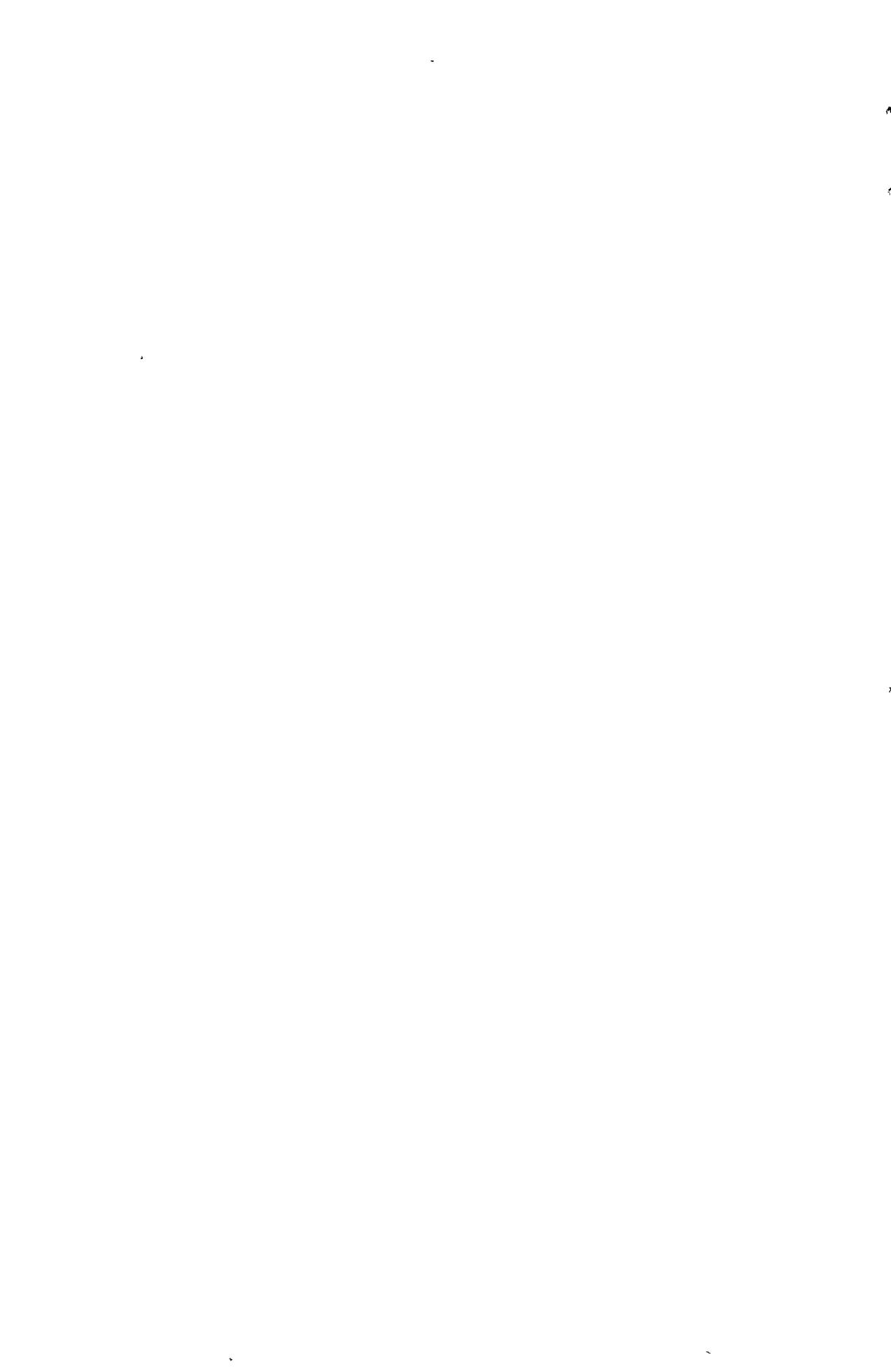
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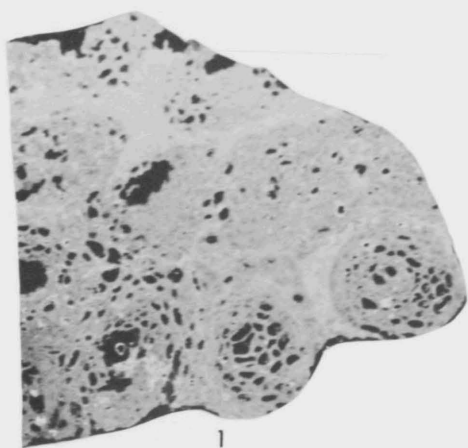


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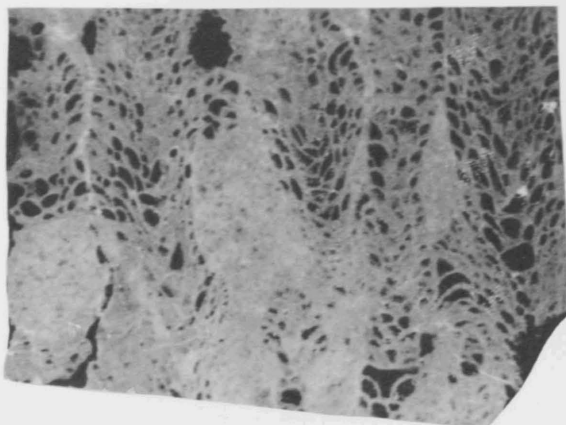
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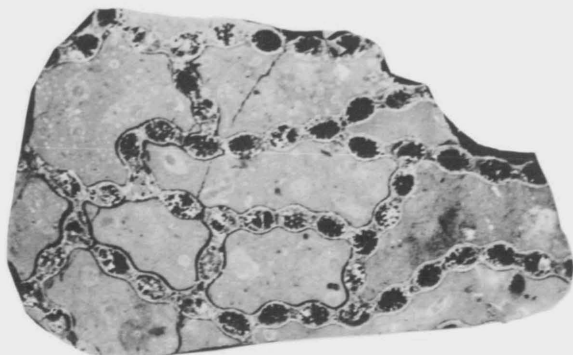
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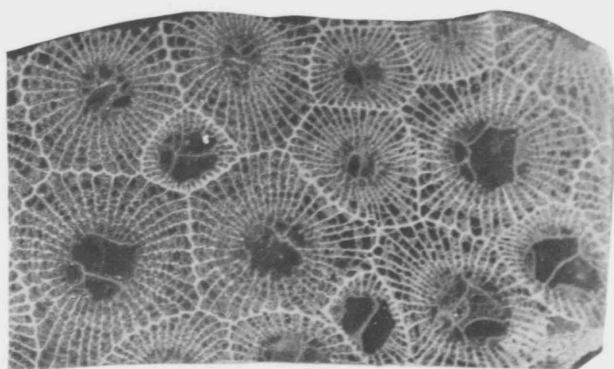
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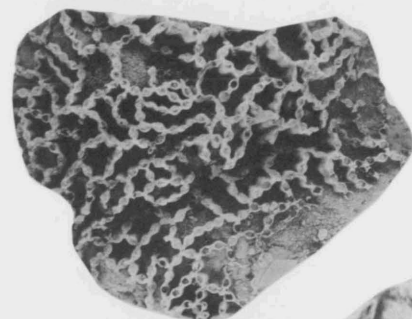
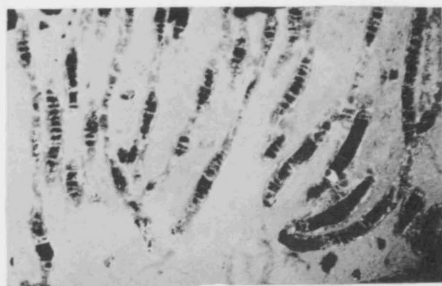
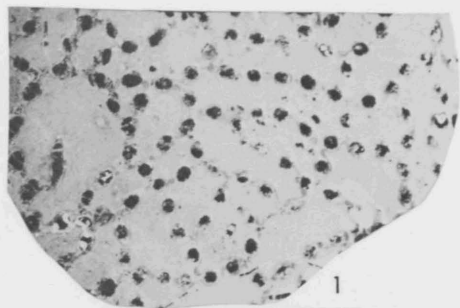
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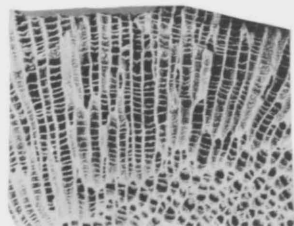
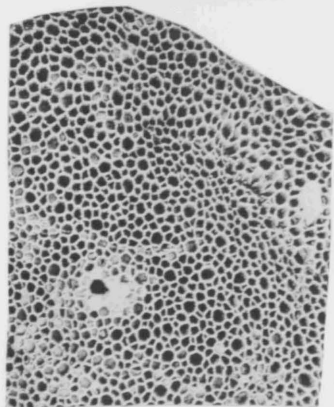
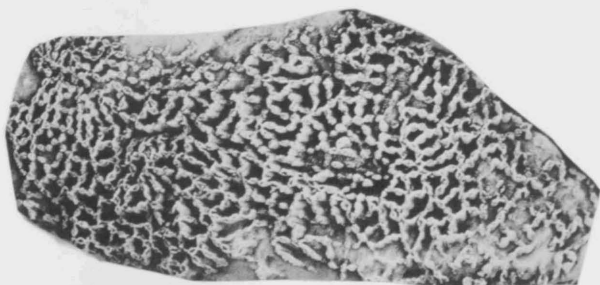
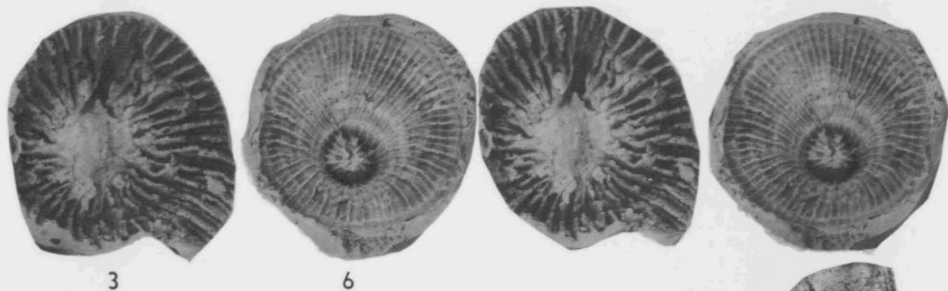
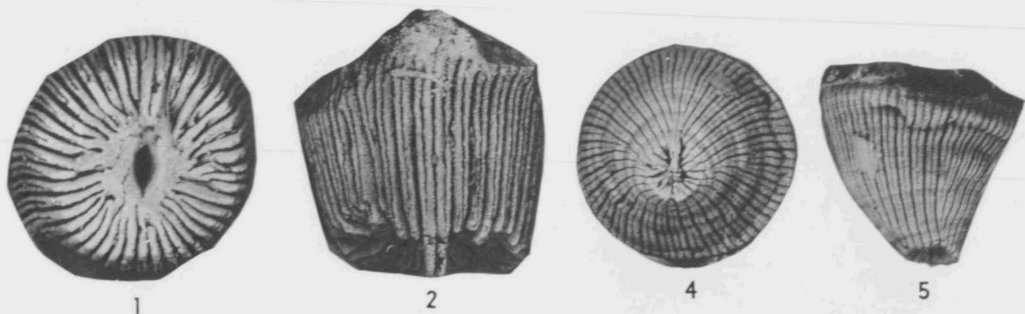
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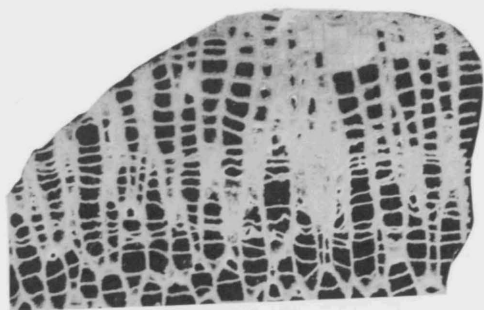
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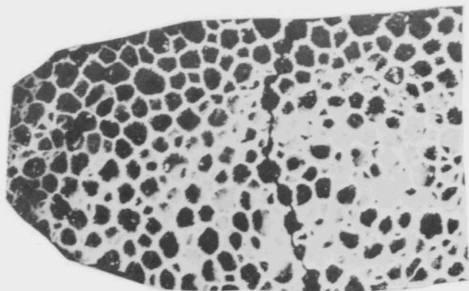
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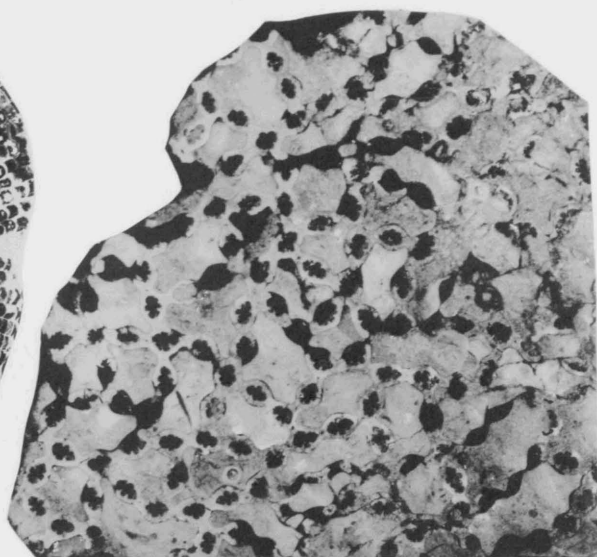
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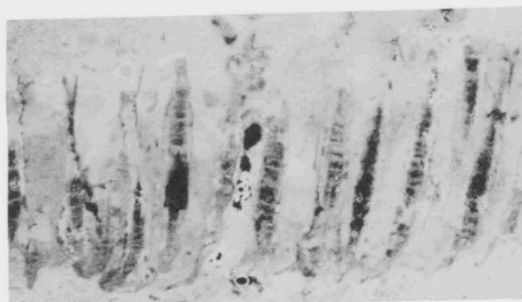
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