CONTRIBUTIONS FROM THE MUSEUM OF PALEONTOLOGY
(*Continuation of Contributions from the Museum of Geology*)
UNIVERSITY OF MICHIGAN

VOL. IV, No. 4, pp. 93–100 (5 pls.) DECEMBER 1, 1932

CYLINDROPHYLLUM PANICUM (WINCHELL) AND *CYLINDROPHYLLUM HINDSHAWI*, SP. NOV., TETRACORALLA FROM THE TRAVERSE GROUP OF MICHIGAN

BY

G. M. EHLERS AND T. E. WHITE

UNIVERSITY OF MICHIGAN PRESS
ANN ARBOR

AIIM SCANNER TEST CHART #2

Spectra

4 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

6 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

8 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

10 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

Times Roman

4 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

6 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

8 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

10 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

Century Schoolbook Bold

4 PT **ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:",./?$0123456789**

6 PT **ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:",./?$0123456789**

8 PT **ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:",./?$0123456789**

10 PT **ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:",./?$0123456789**

News Gothic Bold Reversed

4 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

6 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

8 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

10 PT ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789

Bodoni Italic

4 PT *ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789*

6 PT *ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789*

8 PT *ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789*

10 PT *ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz;:'",./?$0123456789*

Greek and Math Symbols

4 PT ΑΒΓΔΕΞΘΗΙΚΛΜΝΟΠΦΡΣΤΥΩΧΨΖαβγδεξθηικλμνοπφρστυωχψζ≧∓'',./≦±=≠°><⊅⊄>⩽≡

6 PT ΑΒΓΔΕΞΘΗΙΚΛΜΝΟΠΦΡΣΤΥΩΧΨΖαβγδεξθηικλμνοπφρστυωχψζ≧∓'',./≦±=≠°><⊅⊄>⩽≡

8 PT ΑΒΓΔΕΞΘΗΙΚΛΜΝΟΠΦΡΣΤΥΩΧΨΖαβγδεξθηικλμνοπφρστυωχψζ≧∓'',./≦±=≠°><⊅⊄>⩽≡

10 PT ΑΒΓΔΕΞΘΗΙΚΛΜΝΟΠΦΡΣΤΥΩΧΨΖαβγδεξθηικλμνοπφρστυωχψζ≧∓'',./≦±=≠°><⊅⊄>⩽≡

White

Black

Isolated Characters

e	m	1	2	3	a
4	5	6	7	o	°
8	9	0	h	I	B

A4 Page 6543210

MESH HALFTONE WEDGES

65

85

100

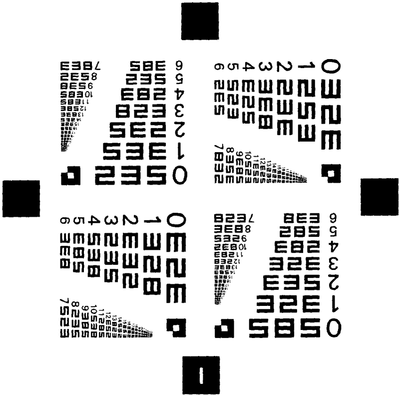
110

133

150

A4 Page 6543210

ROCHESTER INSTITUTE OF TECHNOLOGY, ONE LOMB MEMORIAL DRIVE, ROCHESTER, NEW YORK 14623



RIT ALPHANUMERIC RESOLUTION TEST OBJECT, RT-1-71

PRODUCED BY GRAPHIC ARTS RESEARCH CENTER

CONTRIBUTIONS FROM THE MUSEUM OF PALEONTOLOGY

(Continuation of Contributions from the Museum of Geology)

UNIVERSITY OF MICHIGAN

Editor: EUGENE S. MCCARTNEY

The series of contributions from the Museum of Paleontology was inaugurated to provide a medium for the publication of papers based entirely or principally upon the collections in the Museum. When the number of pages issued is sufficient to make a volume, a title-page and a table of contents will be sent to libraries on the mailing list, and also to individuals upon request. Communications with reference to exchange or purchase of copies should be directed to The Librarian, General Library, University of Michigan.

VOLUMES I–II

A list of the papers published in these volumes may be had upon application.

VOLUME III

Thirteen papers. With 64 plates, 49 text figures, and 1 map. Pages viii + 275. Cloth. $3.50. Postage extra.

Parts Sold Separately in Paper Covers:

1. Indications of a Cotylosaur and of a New Form of Fish from the Triassic Beds of Texas, with Remarks on the Shinarump Conglomerate, by E. C. Case. Pages 1–14, with 1 plate. Price, $.25.
2. Fossil Fishes from the Triassic of Texas, by Aldred S. Warthin, Jr. Pages 15–18, with 1 plate. Price, $.20.
3. Contributions to the Geology of Foxe Land, Baffin Island, by Laurence M. Gould, Aug. F. Foerste and Russell C. Hussey. Pages 19–76, with 17 plates, 1 text figure and 1 map. Price, $.75.
4. Cystoids from the Trenton Rocks of Michigan, by Russell C. Hussey. Pages 77–79, with 1 plate. Price, $.20.
5. Description of a Nearly Complete Skeleton of *Ostodolepis brevispinatus* Williston, by E. C. Case. Pages 81–107, with 3 plates and 12 text figures. Price, $.35.
6. The Color Patterns of Fossil Cephalopods and Brachiopods, with Notes on Gasteropods and Pelecypods, by Aug. F. Foerste. Pages 109–150, with 5 plates. Price, $.50.
7. Additional Notes on Nephriticerina, by Aug. F. Foerste. Pages 151–154, with 1 plate and 1 text figure. Price, $.15.

(Continued on inside of back cover)

VOL. IV, No. 4, pp. 93–100 (5 pls.) DECEMBER 1, 1932

CYLINDROPHYLLUM PANICUM (WINCHELL) AND *CYLINDROPHYLLUM HINDSHAWI*, SP. NOV., TETRACORALLA FROM THE TRAVERSE GROUP OF MICHIGAN

By G. M. EHLERS AND T. E. WHITE

THE genus *Cylindrophyllum* was founded by George B. Simpson,[1] with *Cylindrophyllum elongatum* Simpson from the Onondaga limestone as the genotype.

The genus consists of phaceloid rugose corals in which gemmation is marginal and non-parricidal. The epitheca is thin and annulated; the septal grooves are distinct. The calyxes are deep. Major and minor septa are present; the major ones may or may not reach the axis. In the species described below a low septal ridge is often recognizable between each major and minor septum. Carinae are very numerous on the major and minor septa. The outer zone consists of numerous strongly arched dissepiments, which tend to be arranged in vertical rows. The inner zone is occupied by complete and incomplete tabulae.

CYLINDROPHYLLUM PANICUM (Winchell)

(Plate I, Fig. 1; Plate III, Figs. 3–5; Plate IV, Figs. 3–4; Plate V)

1866. *Cyathophyllum panicum* Winchell, The Grand Traverse Region, p. 90, Ann Arbor, Michigan, Dr. Chase's Steam Printing House.

1876. *Diphyphyllum panicum* Rominger, Fossil Corals, Geol. Surv. Mich., 3, pt. 2, p. 125, pl. 47, fig. 3.

[1] Simpson, G. B., "Preliminary Descriptions of New Genera of Paleozoic Rugose Corals," *Bull. New York State Museum*, No. 39, Vol. 8, pp. 217–218, 1900.

1886. *Cyathophyllum panicum* Frech, Die Cyathophylliden und Zaphrentiden des deutschen Mitteldevon, Palaeontologische Abhandlungen, 3, p. 70, listed.

1909. *Diplophyllum panicum* Grabau and Shimer, North American Index Fossils, 1, p. 75, New York, A. G. Seiler and Co.

Winchell's original description. — "Having the form and size (or somewhat smaller) of detached stems of *Diphyphyllum Archiaci* Billings, but without the double wall. Resembles *C. caespitosum* (Goldf.) E. & H., but is more delicate and more straggling."

Revised description. — Corallum hemispherical, consisting of approximately parallel, cylindrical corallites. Corallum reaches a diameter of at least 28 cm. The average diameter of a mature corallite is about 10 mm.

Epitheca thin, concentrically wrinkled with well-defined annulations; septal grooves well shown.

Calyx relatively deep, with steep walls and slightly expanded margins; in well-preserved corallites the calyxes have depths ranging from 6 to 8 mm. Bottoms of calyxes occupy about one half of the diameter of the corallites and consist of complete or incomplete tabulae.

Carinated septa of two lengths are present (see Plate III, Fig. 4, and Plate IV, Fig. 4). The longer septa are sinuous near the bottom of the calyx; some of them extend over the surfaces of the tabulae for short distances, and a few reach the center of the corallite. The shorter septa, which alternate with the longer ones, do not reach the bottom of the calyx and are about four fifths of the length of the longer septa. Forty-two carinated septa are usually present in mature corallites. Some mature corallites have as many as 46 and others as few as 38.

A single, low, indistinct septal ridge, best shown in well-preserved calyxes, is present between each longer and shorter septum (see Plate IV, Fig. 4). This ridge has a length equal to about one half of the depth of the calyx.

Carinae are numerous and closely spaced and are directed upward at a low angle, some of them being nearly horizontal (see Plate IV, Fig. 3). In the calyxes of mature corallites 3 to 4 are present in the space of 1 mm.

The outer zone of each corallite consists of dissepiments (see Plate IV, Fig. 3). This zone ranges in width from 1.4 to 3.1 mm., its average width being 1.9 mm.

The inner zone of each corallite is composed of complete and incomplete tabulae, most of which arch upward (see Plate IV, Fig. 3). The average width of the inner zone is about three fourths of the diameter of the corallite.

Types. — The basic types of *Cylindrophyllum panicum* are not present in the Alexander Winchell Collection of Traverse fossils in the Museum of Paleontology of the University of Michigan. It is possible that they may be found in the collection of fossils sent to Alma College, Alma, Michigan, by Winchell.

A metatype of the species is preserved in the Museum of Paleontology of the University of Michigan under number 14337 and is illustrated by Plate I, Figure 1, and Plate IV, Figures 3–4, of this paper. It should be made the neoholotype of the species in case the basic types cannot be found at Alma College.

Two plesiotypes, which Dr. Carl Rominger (1876) illustrated by Plate 47, Figure 3, of his *Fossil Corals*, are numbered 8600 in the Museum of Paleontology of the University of Michigan.

Several specimens of *C. panicum*, which were collected by Dr. Carl Rominger from the shore of Little Traverse Bay, are preserved in the Museum of Paleontology of the University of Michigan. One of these, preserved under number 14353 and illustrated in this paper by Plate III, Figures 3–5, is selected as a plesiotype because it shows very well the structure of the calices of the species.

A specimen of *Cylindrophyllum*, which seems to be identical with typical examples of *C. panicum*, was collected by Mr. H. H. Hindshaw of Alpena, Michigan, from the Thunder Bay strata of the Traverse group exposed on the Potter Farm, just west of Alpena, Michigan. This specimen, a plesiotype preserved in the Museum of Paleontology of the University of Michigan under number 14338, is illustrated in Plate V.

Occurrences. — The metatype is inclosed in a buff limestone and bears Winchell's locality number 1020, which refers to Bear Creek, Emmet County, Michigan. A label with the metatype,

presumably written by Winchell, notes the locality as "Little Traverse Bay."

From these data and field observations of the senior author it is certain that the metatype was derived from a limestone of the Petoskey formation of the Traverse group. It is possible that the metatype was obtained from an outcrop of this limestone, which was exposed along Bear Creek at the time of Winchell's visit, but which has subsequently been covered with soil. It is more likely, however, that the metatype was collected from an exposure of this limestone along the shore of Little Traverse Bay somewhere between the mouth of Bear Creek at Petoskey and a point one and one-half miles east of Bear Creek. Without doubt the limestone from which Winchell obtained the metatype is the same as that noted as "bed 3" by E. R. Pohl [2] in his description of the geological section of the Northern Lime Company's quarry just east of Petoskey.

All specimens of *C. panicum*, obtained by Dr. Carl Rominger from exposures along the shore of Little Traverse Bay and preserved in the Museum of Paleontology of the University of Michigan, without doubt were collected from the same stratum as the metatype.

Cylindrophyllum panicum also has been reported by E. R. Pohl [3] as occurring in another limestone of the Petoskey formation exposed in an abandoned quarry in the NE. $\frac{1}{4}$ of the NW. $\frac{1}{4}$ section 34, T. 35 N., R. 5 W., just east of East Bay View, Emmet County, Michigan. In the opinion of Pohl [4] and the senior author this limestone probably occupies a higher position in the Petoskey formation than the limestone containing the metatype and other specimens of *C. panicum* collected by Winchell and Rominger.

The presence of *C. panicum*, plesiotype number 14338, in the Thunder Bay strata of the Traverse of the Alpena region indicates that these strata are equivalent in age to the Petoskey formation.

[2] Pohl, E. R., "The Middle Devonian Traverse Group of Rocks in Michigan, a Summary of Existing Knowledge," *Proc. U. S. Nat. Mus.*, Vol. 76, Art. 14, p. 14, Jan. 10, 1930.

[3] *Op. cit.*, pp. 15–16.

[4] *Op. cit.*, p. 15.

Cylindrophyllum hindshawi, sp. nov.

(Plate I, Fig. 2; Plate II; Plate III, Figs. 1–2; Plate IV, Figs. 1–2.)

Corallum hemispherical, consisting of closely spaced, cylindrical corallites (see Plate I, Fig. 2). Corallites originate by budding from the margins of the calyxes of the parent corallites. From a parent corallite several buds may appear at the same level, thus forming a whorl of corallites (see Plate II, Fig. 1). The buds grow upward parallel with the parent corallite. Mature corallites range in diameter from 8 to 11.4 mm., the average being 9.5 mm.

Epitheca thin, concentrically wrinkled and annulated; septal grooves very distinct.

Calyxes relatively deep (see Plate III, Fig. 2). The depth ranges from 4.0 to 6.6 mm., the average being about 4.5 mm. The walls of the calyxes are steep. The diameters of most of the calyxes, measured across their rims, are the same as the diameters of the corallites just below the calyxes; in some calyxes these diameters are either slightly less or slightly greater than those of the corallites just below the calyxes. The bottoms of the calyxes are about one half of the diameter of the corallites.

Carinated septa of two lengths are present (see Plate IV, Fig. 2). The longer septa are sinuous near the bottom of the calyx. Two or more longer septa, more rarely longer and shorter septa, join near the bottom of the calyx and continue toward the center, in many calices actually reaching the centers. The shorter septa extend to the bottom of the calyx and alternate with the longer septa. The average number of carinated septa is 40; some corallites have as few as 38 and some as many as 44.

A single, very low, indistinct and apparently uncarinated septal ridge is present between each longer and shorter septum (see Plate IV, Fig. 2). This ridge, which is recognizable only in well-preserved corallites, has a length equal to about three fourths of the depth of the calyx.

Upwardly arching, closely spaced carinae are very numerous (see Plate III, Fig. 2, and Plate IV, Fig. 1). In calyxes of mature corallites 3 to 6 carinae are present in the space of 1 mm. The carinae are much more numerous and closely spaced near the top of the calyxes.

The outer zone of each corallite consists of dissepiments, many of which are quite large (see Plate IV, Fig. 1). This zone ranges in width from 0.5 to 2.5 mm., its average being 1.5 mm.

The inner zone of each corallite consists of complete and incomplete tabulae, most of which arch upward (see Plate IV, Fig. 1). The average width of the inner zone is about two thirds of the diameter of the corallite.

Type. — The holotype of this species, which is named after Mr. H. H. Hindshaw of Alpena, Michigan, is preserved in the Museum of Paleontology of the University of Michigan, where it bears the number 14336.

Occurrence. — The holotype of this species was collected by Mr. Hindshaw from the Thunder Bay strata of the Traverse group exposed in a bluff in the cemetery at Alpena.

Remarks. — This species differs from *C. panicum* in the following respects: less annulated epitheca, shallower calyxes, greater number of longer septa reaching the centers of the corallites, greater length of shorter septa, greater number of united longer and shorter septa, larger dissepiments, and more upwardly directed carinae.

EXPLANATIONS OF PLATES

PLATE I

Cylindrophyllum panicum (Winchell)

FIG. 1. Natural longitudinal section of metatype, No. 14337, Mus. Pal., U.M. × ⅔

Cylindrophyllum hindshawi, sp. nov.

FIG. 2. Side view of holotype, No. 14336, Mus. Pal., U.M. × ⅔

PLATE II

Cylindrophyllum hindshawi, sp. nov.

FIG. 1. Part of lower side of holotype, showing distribution of young corallites in whorls. × 1

FIG. 2. Part of upper side of holotype, showing spacing of corallites and calices. × 1

PLATE III

Cylindrophyllum hindshawi, sp. nov.

FIG. 1. A calyx of the holotype as seen from above, showing number of major septa reaching center. × 2

FIG. 2. View of wall of calyx illustrated in Figure 1, showing carinated major and minor septa. × 2

Cylindrophyllum panicum (Winchell)

FIG. 3. A calyx of the specimen illustrated in Figure 5. A few major septa are shown reaching the center, most of which is occupied by broken tabulae. × 2

FIG. 4. View of wall of calyx illustrated in Figure 3, showing carinated major and minor septa. × 2

FIG. 5. Upper surface of plesiotype, No. 14353, Mus. Pal., U.M., showing size and spacing of the corallites. × 1

PLATE IV

Cylindrophyllum hindshawi, sp. nov.

FIG. 1. Longitudinal section of a corallite of the holotype, showing inner zone of tabulae, outer zone of dissepiments and carinae. × 4

FIG. 2. Transverse section of mature and immature corallites of the holotype, showing carinated major and minor septa and a few low septal ridges. × 4

Cylindrophyllum panicum (Winchell)

FIG. 3. Longitudinal section of a corallite of the metatype, No. 14337, Mus. Pal., U.M., showing inner zone of tabulae, outer zone of dissepiments and carinae. × 4

FIG. 4. Transverse section of mature and immature corallites of the metatype, No. 14337, showing carinated major and minor septa and low septal ridges. × 4

PLATE V

Cylindrophyllum panicum (Winchell)

FIG. 1. Side view of the plesiotype, No. 14338, Mus. Pal., U.M., showing budding and annulated surface of epitheca. × $\frac{2}{3}$

FIG. 2. Longitudinal section of a corallite of the plesiotype illustrated in Figure 1, showing inner zone of tabulae, outer zone of dissepiments, and carinae. × 4

FIG. 3. Transverse section of a corallite of the plesiotype, illustrated in Figure 1, showing carinated major and minor septa. × 4

PLATE I

FIG. 1

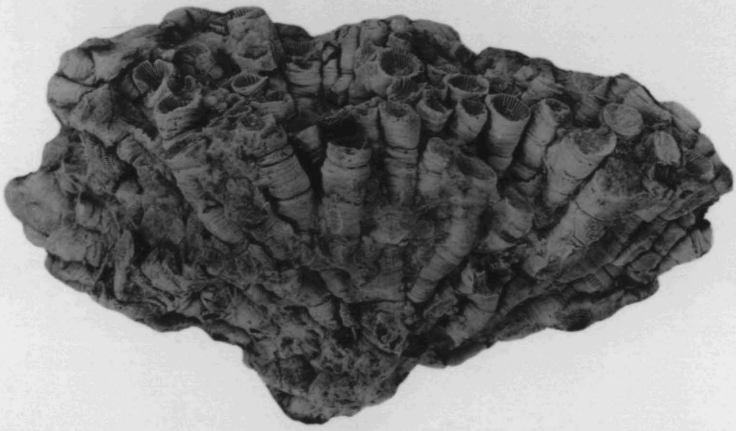


FIG. 2

PLATE II

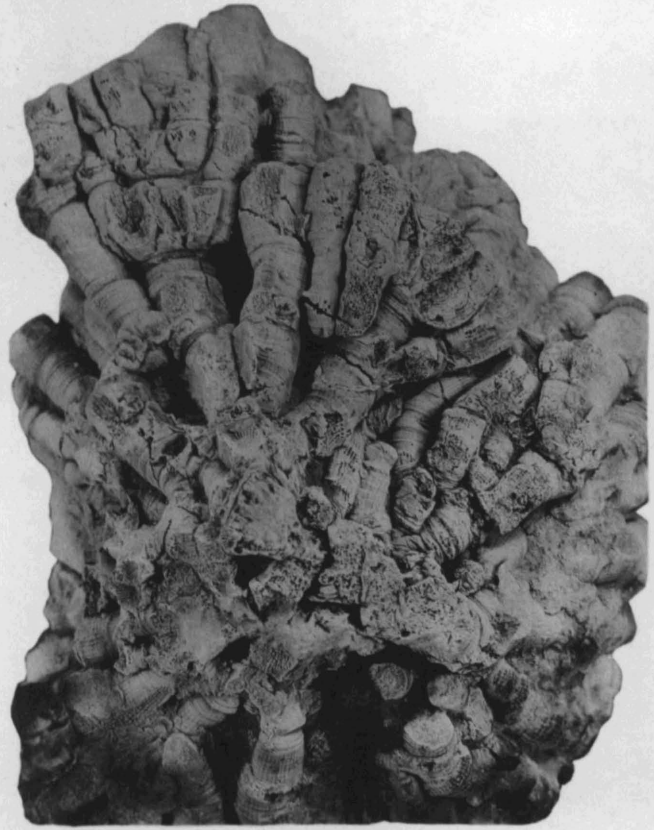


FIG. 1

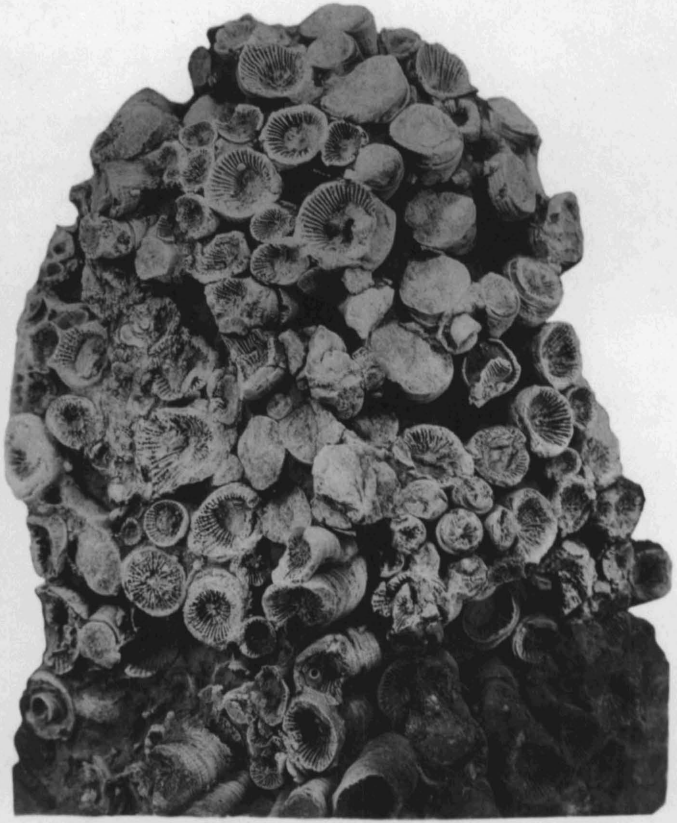


FIG. 2

PLATE III

FIG. 1

FIG. 2

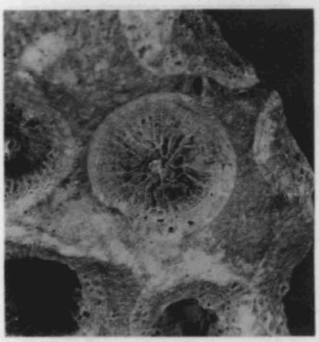


FIG. 3

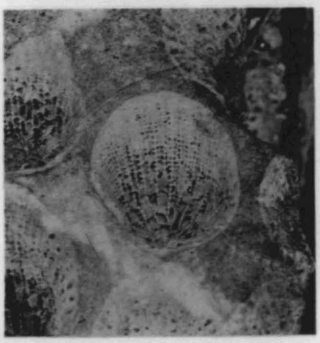


FIG. 4

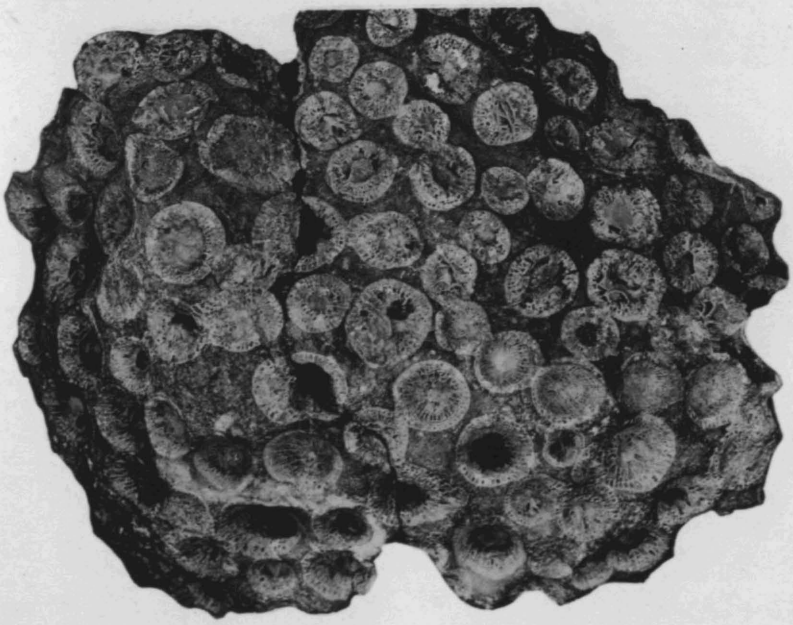


FIG. 5

PLATE IV

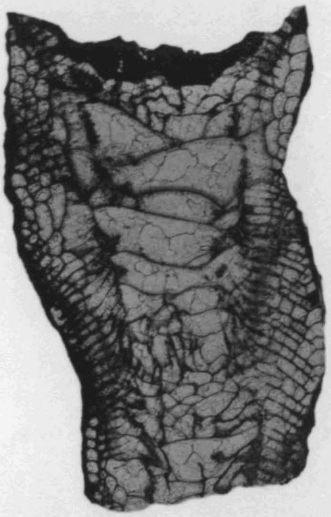


FIG. 1

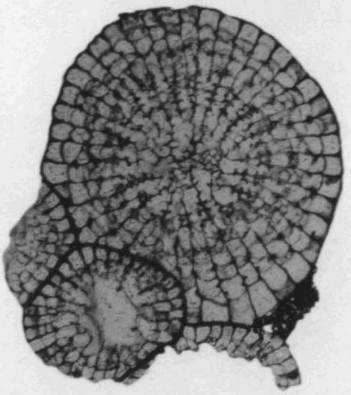


FIG. 2

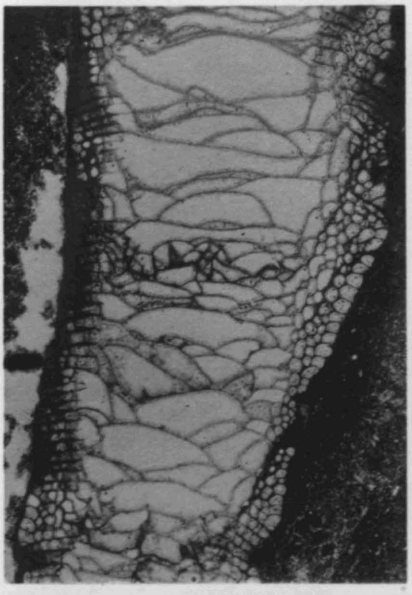


FIG. 3

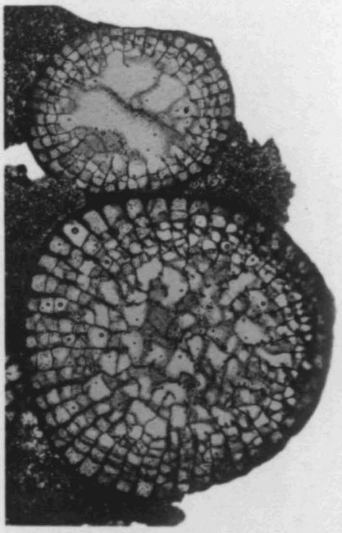


FIG. 4

PLATE V

FIG. 1

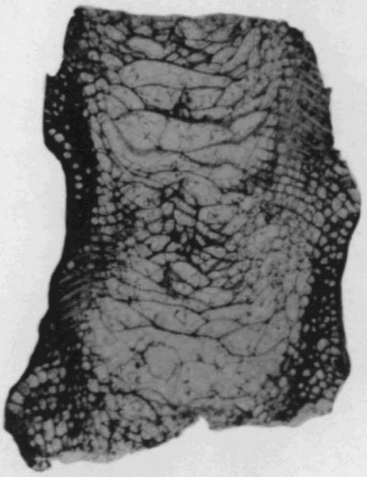


FIG. 2

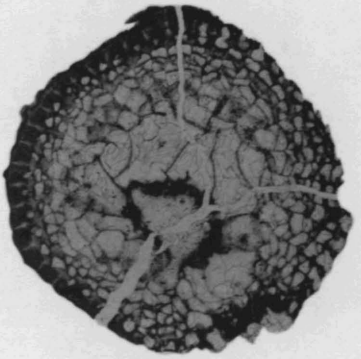


FIG. 3

(*Continued from inside of front cover*)

8. On the Lower Jaw of *Brachysuchus megalodon*, by E. C. Case. Pages 155–161, with 5 plates and 2 text figures. Price, $.30.
9. Arthrodiran Remains from the Devonian of Michigan, by E. C. Case. Pages 163–182, with 5 plates and 13 text figures. Price, $.35.
10. Life Models of the Heads of Two Types of Phytosaurs, by E. C. Case. Pages 183–185, with 1 plate. Price, $.20.
11. Description of a New Species of *Buettneria*, with a Discussion of the Brain Case, by E. C. Case. Pages 187–206, with 3 plates and 11 text figures. Price, $.35.
12. On *Callixylon Newberryi* (Dawson) Elkins et Wieland, by Chester A. Arnold. Pages 207–232, with 7 plates and 9 text figures. Price, $.50.
13. A Description and Stratigraphic Correlation of the Fenestellidae from the Devonian of Michigan, by Charles F. Deiss. Pages 233–275, with 14 plates. Price, $.60.

Volume IV

1. A Collection of Stegocephalians from Scurry County, Texas, by E. C. Case. Pages 1–56, with 7 plates and 45 text figures. Price, $.60.
2. A Perfectly Preserved Segment of the Armor of a Phytosaur, with Associated Vertebrae, by E. C. Case. Pages 57–80, with 8 plates and 6 text figures. Price, $.30.
3. On the Caudal Region of *Coelophysis Sp.* and on Some New or Little Known Forms from the Upper Triassic of Western Texas, by E. C. Case. Pages 81–91, with 11 text figures. Price, $.20.
4. *Cylindrophyllum panicum* (Winchell) and *Cylindrophyllum hindshawi*, Sp. Nov., Tetracorolla from the Traverse Group of Michigan, by G. M. Ehlers and T. E. White. Pages 93–100, with 5 plates. Price, $.20.
5. *Gypidula petoskeyensis*, Sp. Nov., a New Brachiopod from the Traverse Group of Michigan, by R. W. Imlay. Pages 101–103, with 1 plate. Price, $.15.