CORALS OF THE DEVONIAN TRAVERSE GROUP OF MICHIGAN
PART I, SPONGOPHYLLUM

BY
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INTRODUCTION

The Traverse group of rocks is widely known for the abundance of remarkably well-preserved corals which it contains. Many of these corals have been identified, but many more remain to be described.

Alexander Winchell (1866, pp. 83–97) described several species of corals from the Traverse group of the Little Traverse Bay region. The exposed rocks of this group were assigned by Pohl (1930, p. 5) to three units which in ascending order he designated the Gravel Point stage, the Charlevoix stage, and the Petoskey formation.

Carl Rominger (1876, pp. 1–155) described many species of Traverse corals in a monograph on the fossil corals of Michigan, but the exact stratigraphic position of many of his species is yet to be determined.

G. M. Ehlers and T. E. White (1932, pp. 93–100) assigned Alexander Winchell’s *Cyathophyllum panicum* to the genus *Cylindrophyllum* and noted its occurrence in the Petoskey formation of the Little Traverse Bay region and the Potter Farm formation of Alpena County in northeastern Michigan. They also described a new species, *Cylindrophyllum hindshawi*, from the Potter Farm formation of Alpena County.

Mildred A. Fenton (1937, pp. 115–18) described two new species of *Aulopora*, *A. michiganensis* and *A. socialis*, from the Gravel Point
stage and redescribed three of Winchell’s species, *Aulopora aperta*, *A. cyclopora*, and *A. conferta*.

L. L. Sloss (1939, pp. 52–73) described several new species of *Tetracoralla* from the Traverse group of the Little Traverse Bay region and redescribed some of the species previously defined by Winchell and Rominger.

David H. Swann (1947, pp. 235–318) described species of the *Favosites alpenensis* lineage, collected from many outcrops in the belt of Traverse rocks extending westward from Alpena County to the Little Traverse Bay region.

Some of the conditions under which the corals of the Traverse group lived and the reefs which they produced have been discussed by A. W. Grabau (1903, pp. 338–40), E. C. Case (1927, pp. 420–29), and M. LeCompte (1938, pp. 11–17).

This paper, which initiates a study of new species of Traverse corals and of known species in need of revision with respect to zoological classification and stratigraphic position, describes two new species of *Spongophyllum*, a genus heretofore unreported from the Traverse and other Devonian rocks of Michigan. The Rockport Quarry limestone and Potter Farm formation, from which the new species were collected, have been described by Warthin and Cooper (1943, pp. 580–81, 590–93) in their paper on the Traverse group of the Thunder Bay region.

**SYSTEMATIC DESCRIPTIONS**

**Phylum COELENTERATA**

**Class ANTHOZOA**

**Subclass TETRACORALLA**

**Family Columnariidae**

**Subfamily Spongophyllinae**

**Genus Spongophyllum** Edwards and Haime

*Spongophyllum* Edwards and Haime, 1851, p. 425.

Generic description.—Coralla cerioid or subcerioid, of hemispherical or subhemispherical form, and composed of polygonal or subpolygonal corallites. Corallites with thin, closely annulated epithecae on the proximal side of the corallum and in places where not in contact. Calyces deep with flat bases and erect, never reflexed walls. Septa radially arranged and of two orders, major and minor. Major order long or short and minor very short. In many species minor septa lacking or irregularly developed. Septa always thin and in many forms separated from the peripheral walls by an irregularly developed lonsdaleioid dissepimentarium. In some forms lonsdaleioid dissepimentarium wide and complete; in others narrow and present only on one side of a corallite; and in still others not present. These variations present in different coralla of the same species or in different corallites of the same corallum. Tabularia composed of tabulae, which are typically complete and horizontal. In some corallites, complete tabulae interspersed with incomplete tabulae and in others replaced by distally arched tabellae. In most forms dissepimentaria composed of a single series of large, steeply inclined, elongate dissepiments, each partly or completely overlapping the one previously formed. In some parts of the corallites, dissepimentaria discontinuous so that tabulae touch peripheral walls; in other parts dissepiments may increase in number axially so as to restrict tabulae, over a short vertical distance, to the axial parts of corallites. All these variations may occur in the same species and in different corallites of the same corallum.

Geologic range.—Middle Silurian to Upper Devonian.

Spongophyllum romingeri Ehlers and Stumm, sp. nov.  
(Pl. I, Figs. 1–3)

Description.—Known from four incomplete, cerioid coralla showing no external structures. Coralla roughly hemispherical. Corallites pentagonal or hexagonal in outline and 4 to 12 mm. in diameter, with the majority approximating 10 mm.

In transverse section, polygonal walls thin and curved or straight. Septa range from 32 to 36 in majority of corallites. Major septa
long in some corallites, extending from periphery or from inner margins of lonsdaleioid dissepimentaria to points two-thirds of distance to axes; major septa in other corallites very short. Minor septa almost as long as major in some corallites and very short in others. In a few corallites septa very short and only on one or two sides. Lonsdaleioid dissepimentaria very narrow and intermittently developed; present only in a minority of the corallites and, where present, not on all sides of the corallites.

In longitudinal section, tabularia composed of complete or incomplete, horizontal or distally concave tabulae interspersed with distally convex tabellae. Dissepiments rare in earlier growth stages. In later stages a few large elongate, steeply inclined dissepiments, often difficult to distinguish from the tabellae, present along peripheral walls. Just beneath calyces dissepiments more numerous, increasing to four or five rows occupying as much as one-third diameters of corallites. In these areas dissepiments smaller and less steeply inclined.

Remarks.—This species is transitional between typical species of Spongophyllum and the genus Tabellaephyllum Stumm (1948, p. 41). In Tabellaephyllum peculiaris Stumm (1948, p. 41, Pl. 12, Figs. 1-2, 9, 11), the monotypic genotype species, no septa are present, and the interior is filled with distally convex tabellae.

Occurrence.—Middle Devonian, Traverse group, Rockport Quarry limestone; Presque Isle County, Michigan.

Type.—Holotype No. 24832, Museum of Paleontology, University of Michigan.

Spongophyllum alpenense Ehlers and Stumm, sp. nov.
(Pl. II, Figs. 1-4; Pl. III, Figs. 1-7)

Description.—Coralla cerioid, growing in large hemispherical masses. Most corallites pentagonal or hexagonal in outline and 10 to 18 mm. in diameter; immature corallites tetragonal in outline and 4 to 8 mm. in diameter. Corallites on proximal sides of coralla subcylindrical apically with very thin, annulated epithecae not obscur-
ing peripheral edges of septa. Calyces 4 to 8 mm. in depth in coral-
lites of mature size and with erect walls and moderately flattened
bases. About one-half the corallites with small axial boss.

In transverse section, walls moderately thick and either straight
or curved. Septa thin and 40 to 52 in number in larger corallites.
Major septa long, extending from walls or from inner margins of
lonsdaleioid dissepimentaria to axes or to points two-thirds distance
to axes. Minor septa very short. Lonsdaleioid dissepimentaria wide
and continuous in about one-half the corallites, and narrow, inter-
mittently developed, or absent in remainder. In many corallites septa
composed of ridges on the walls, reappearing as discontinuous crests
on inner margins of lonsdaleioid dissepimentaria.

In longitudinal section, tabularia wide and composed of closely
set, complete or incomplete tabulae, horizontal in some parts of the
corallites and in other parts horizontal axially, depressed periaxially,
and horizontal peripherally. Dissepimentaria very irregularly dis-
posed, typically consisting of a single row of elongate, steeply inclined
dissepiments, each overlapping the one previously formed. In parts
of some corallites dissepiments absent, tabulae being attached to
peripheral walls, and in other parts dissepiments increasing locally
to two or three rows.

Remarks.—This species is a very distinctive form. It can be dis-
tinguished easily from S. breviseptatum Stumm from the Upper De-
vonian Martin limestone of Arizona by its larger corallites, long
major septa, and closely set tabulae. S. alpenense is very similar to
an undescribed species from the Callaway limestone of Missouri.

Occurrence.—Middle Devonian, Traverse group, Potter Farm and
Beebe School formations; Alpena and Cheboygan counties, Michigan.

Types.—Holotype No. 24829; paratypes Nos. 18809, 18811,
18868, 23898, 24830, 24831, and 25579, Museum of Paleontology,
University of Michigan.
LITERATURE CITED


PLATES AND DESCRIPTIONS
EXPLANATION OF PLATE I

(All figures $\times 2$)

1. Transverse section of a specimen showing the irregularly developed septa. Holotype No. 24832, Museum of Paleontology, University of Michigan. Rockport Quarry formation, road cut on U. S. Highway 23 on west side of Grand Lake, 4.8 miles north of south county line of Presque Isle County. Near south line of sec. 8, T. 33 N., R. 8 E. Presque Isle County, Michigan.

2. Longitudinal section of the same specimen showing the well-developed, distally concave tabulae and the crowding of the dissepiments near the calyces.

3. Another transverse section of the same specimen showing zones of tabellae.

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EXPLANATION OF PLATE II

(All figures × 1)

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1. View of the distal surface of a specimen showing the erect calyx walls, the long major septa, and the axial bosses. Holotype No. 24829, Museum of Paleontology, University of Michigan. Potter Farm formation. Shale pit at the northwest corner of the Alpena (Evergreen) Cemetery, SW.1/4 sec. 21, T. 31 N., R. 8 E. Alpena County, Michigan.

2. Side view of a small specimen showing the proliferous budding from a single individual. Paratype No. 24831, Museum of Paleontology, University of Michigan. Same horizon and locality as Figure 1.

3. Distal view of another small specimen on which the calyces are well preserved. Paratype No. 25579, Museum of Paleontology, University of Michigan. Beebe School formation, vicinity of Beebe School, center of E. line of sec. 14, T. 34 N., R. 2 W., Cheboygan County, Michigan.

4. Proximal view of a specimen showing the cylindrical nature of the basal parts of the corallites and the thin epithecae. Paratype No. 24830, Museum of Paleontology, University of Michigan. Same horizon and locality as Figure 1.
Spongophyllum alpenense Ehlers and Stumm, sp. nov.

1. Longitudinal section of a specimen showing intermittently developed dissepiments and closely set tabulae with horizontal axial, inclined periaxial, and horizontal peripheral parts. Paratype No. 18811, Museum of Paleontology, University of Michigan. Same horizon and locality as the holotype.

2. Transverse section of a specimen showing weakly developed lonsdaleioid dissepimentaria. Paratype No. 23898, Museum of Paleontology, University of Michigan. Same horizon and locality as the holotype.

3. Longitudinal section of the same specimen as Figure 1, showing irregular spacing of the tabulae.

4. Transverse section of a specimen with well-developed lonsdaleioid dissepimentaria. Paratype No. 18809, Museum of Paleontology, University of Michigan. Same horizon and locality as the holotype.

5. Another transverse section of the same specimen showing the thick walls.

6. Longitudinal section of the same specimen as Figure 2 showing the single row of overlapping dissepiments.

7. Longitudinal section of specimen with unusually large corallites showing horizontal tabulae and an unusually wide zone of dissepiments. Paratype No. 18868, Museum of Paleontology, University of Michigan. Same horizon and locality as the holotype.
VOLUME VII


4. Pleistocene Stratigraphy and Paleontology of Meade County, Kansas, by Claude W. Hibbard. Pages 63–90, with 1 plate. Price $.75.


