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STEREOLASMA, AMPLEXIPHYLLUM, AND
STEWARDOPHYLLUM FROM THE
DEVONIAN HAMILTON GROUP
OF NEW YORK

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THE METRIOPHYLLLOID CORAL GENERA STEREOCLASMA, AMPLEXIPHYLLUM, AND STEWARTOPHYLLUM FROM THE DEVONIAN HAMILTON GROUP OF NEW YORK

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ABSTRACT—Daniel Busch (1941, p. 392-411) described 6 new species of metriophyllloid rugose corals from the Wanakah and Windom shales of the Hamilton group of western New York. After an examination of many serial sections of specimens from these beds it is suggested that Busch’s species can be interpreted as growth stages or variants of the three common species Stereolasma rectum (Hall), Ampelophyllum hamiltoniae (Hall), and Stewartophyllum intermittens (Hall).

INTRODUCTION AND ACKNOWLEDGMENTS

Daniel Busch (1941) identified nine species of metriophyllloid corals, six of them new, from two localities in the Wanakah shale and one locality in the Windom shale, both in the Middle Devonian Hamilton group of western New York. A large number of corals from these localities were obtained when the University of Michigan purchased the Raymond R. Hibbard collection of fossils from western New York. Sections were made of 150 metriophyllloid corallites and serial sections were made of 25 of them.

Busch made a very detailed study of his corals but used variable structures in classifying his specimens. By using such features as corallite diameter, number of septa, nature of septa (amplexoid, dilation), character of fossilia, presence or absence of columella, number and nature of tabulae, and allowing for individual variation, the authors suggest that Busch’s species can be interpreted as typical specimens or variants of the three common species Stereolasma rectum (Hall), Ampelophyllum hamiltoniae (Hall), and Stewartophyllum intermittens (Hall).

The authors wish to thank Dr. Mildred Marple for the loan of Busch’s types from the Ohio State University Geological Museum.

SYSTEMATIC DESCRIPTIONS

**Stereolasma rectum** (Hall)

Pl. 58, figs. 1-16


EXPLANATION OF PLATE 58

All figures X2

**Figs. 1-16**—Stereolasma rectum (Hall). 1-7, Busch’s hypotypes, OSU 18755 and 18754 a-f; 8-10, syntypes of Caninia complexa Busch, OSU 18763 b-e; 11-15, serial transverse sections of hypotype UMMP 36087; Wanakah shale “demissa” bed, along Smoke Creek, 1 1⁄2 miles south of Reserve, Erie Co., New York; 16, longitudinal section of hypotype UMMP 36088, upper part of Wanakah shale, along banks of Smoke Creek at Windom, Erie Co., New York.


29-32, 40-50—Ampelophyllum hamiltoniae (Hall). 29-32, syntypes of Caninia tabulata Busch, OSU 18755b-e; 33-36, Busch’s hypotypes of Ampelophyllum hamiltoniae (Hall), OSU 18759d,e,f, and h; 40-43, syntypes of Allelynia americana Busch, OSU 18772a,d-f; 44-49, serial sections of hypotype UMMP 36089, upper part of Wanakah shale along Smoke Creek, at Windom, Erie Co., New York; 50, longitudinal section of hypotype UMMP 36090, coral layer of lower Windom shale along small stream at Athol Springs, Erie Co., New York.
Strepleasma recta Hall, 1876, pl. 19, figs. 1–13 partim.

Strepleasma ungula Hall, 1876, pl. 19, figs. 14–24 partim.


Caninia complexa Busch, 1941, p. 399, text-figs. 28–33.


Description.—Corallites ceratoid to trochoid, ranging from 0.7 to 5 cm. in length and from 1 to 2.2 cm. in maximum diameter. Average diameter about 1.5 cm. Exterior with vertical interseptal ridges and fine, horizontal growth annulations spaced at various distances apart. Calyces with thin erect walls and an axially sloping basal portion. Maximum depth of calyx 1.5 cm. Septa ranging from 48 to 60 of which the major extend to axis, where by addition of stereoplasm a stereocolumella is formed in the neanic and early ephebic growth stages. In the later ephebic growth stages columella ceases growth and major septa retreat from axis. Point of retreat typically just below base of calyx. Minor septa appear as short peripheral ridges at position where major septa retreat from axis. Tabulae relatively closely set, complete or incomplete, horizontally axially, distally convex periaxially, deflected proximally as they approach the periphery (see pl. 58, fig. 16). No dissepiments present.

Remarks.—The specimen showing dissepiments illustrated by Busch (1941, p. 400, text-fig. 33) is apparently a small specimen of a species of Bethanyphyllum. Busch’s type of Caninia complexa (pl. 58, fig. 8) displays the stereocolumella characteristic of the neanic and early ephebic growth stages of Steroleasma rectum.

Occurrence.—Middle Devonian, Hamilton group, Ludowville formation, Wanakah shale member; Moscow formation, Windom shale member, western New York.

Types.—The holotype illustrated by Hall (1843, p. 209, text-fig. 5) has not been traced. It may have been reillustrated by Hall (1876, pl. 19) but none of Hall’s 1876 drawings exactly match the 1843 drawing. Of Hall’s 1876 hypotypes, the originals of figs. 1, 2, 11, 12, 13 are in the American Museum of Natural History numbered 4464/1; of figs. 3, 5, 7, 8 in the same institution numbered 4464/2; of fig. 9 in the New York State Museum numbered 3740/1. The originals of figs. 4, 6, 10 have not been traced. Some of Hall’s 1876 hypotypes may be specimens of Lopholasma carinatum Simpson (1900, p. 206, text-figs. 19–20) but a tangential section must be made of each specimen in order to distinguish between the two species. Busch’s hypotypes Ohio State University Geological Museum nos. 18754–18755; of Caninia complexa Busch no. 18673; hypotypes herein illustrated, University of Michigan Museum of Paleontology nos. 36087, 36088.

Amplexiphyllum hamiltoniae (Hall) PL. 58, figs. 29–32; 40–50

Strepleasma ungula Hall, 1876, pl. 19, figs. 14–24 partim.

Amplexus hamiltoniae Hall, 1876, pl. 19, figs. 20–23; Busch, 1941, p. 397–399, figs. 17–27.

Caninia tabulata Busch, 1941, p. 401–403, figs. 34–40.

Alleynia americana Busch, 1941, p. 407–408, figs. 56–63.


Description.—Typically ceratoid, rarely trochoid or subcylindrical corallites, many irregularly contorted. Maximum diameter observed 2.1 cm., diameter of average corallite about 1.6 cm. Exterior with relatively closely spaced growth annulations. Maximum length about 4 cm., average about 3 cm. Calyces typically shallow, 3–5 mm. deep with sloping walls. Septa in neanic stage typically thick, rarely thin, becoming thinner toward distal ends, major septa extending to axis, minor septa appearing as peripheral ridges at a corallite diameter of 1.2 to 1.6 cm. Septa in different individuals ranging from 48 to 59. At a corallite diameter of 0.8 to 1 cm. major septa retreat from axis becoming increasingly shorter and thinner distally. Cardinal fossula represented by shortened cardinal septum in late neanic and ephebic stages. Tabulae, complete or incomplete, from 8 to 10 to a centimeter, typically horizontal axially, becoming deflected proximally as they approach the periphery in the majority of specimens. In some, the tabulae remain horizontal to the peripheral wall. No dissepiments present.

Remarks.—A study of serial sections of 12 corallites reveals that the septa vary
THREE METRIOPHYLLOID CORAL GENERA

greatly in thickness. Serial sections of a specimen (pl. 58, figs. 44–49) show that the septa in the neanic stage are long and thick, but become progressively thinner and shorter in the ephibic stage. Number of septa of different specimens at the same corallite diameter are very similar. At a diameter of 1 cm. the septal count in 6 specimens is 21, 23, 26, 23, 20, and 25.

Occurrence.—Middle Devonian, Hamilton group, Ludlowville formation, upper Wana-kah shale; Moscow formation, lower Windom shale, western New York.

Types.—Hall's syntypes (the originals of Hall's 1876, pl. 19, figs. 20–23) American Museum of Natural History no. 4441/1. Busch's hypotypes, Ohio State University Geological Museum no. 18759. Busch's types of Caninia tabulata no. 18765; of Allelyena americana no. 18772. Hypotypes herein illustrated University of Michigan Museum of Paleontology nos. 36089, 36090.

Stewartophyllum intermittens (Hall) Pl. 58, figs. 17–28, 37–39


Description.—Corallum subcylindrical to ceratoid, typically with irregularly spaced flangelike expansions. Calyx relatively flat, peripheral area reflexed in some specimens. Cardinal fossula weakly to moderately well developed (see Hall, 1876, pl. 32, figs. 8–15). In transverse section of neanic stage septa from 16 to 18, thick, extending almost to axis. In early ephibic stage septa from 19 to 22, thick, extending almost to axis in most specimens but only two thirds distance to axis in others. Thick axial ends of septa in lateral contact produce appearance of aulos in a minority of the specimens. In late ephibic stage (just beneath base of calyx) septa extend about two-thirds distance to axis, typically with free axial ends. At this point the minor septa appear as short peripheral ridges. Cardinal fossula moderately to well developed. In longitudinal section the tabulae are complete and incomplete, relatively flat-topped axially. In the peripheral areas they may be deflected upward, downward, or remain horizontal. No dissepiments.

Remarks.—This form can be distinguished from A. hamiltoniae by the flangelike growth expansions on the exterior of the corallum, by the continuously thick and relatively long major septa from neanic to ephibic stage. The tabulae are similar to those of A. hamiltoniae except that they may be horizontal or deflected upward in the peripheral regions.

Occurrence.—Middle Devonian, Hamilton group, Ludlowville formation, upper Wana-kah shale; Moscow formation, lower Windom shale, western New York.

Types.—Holotype of Strombodes distortus not located; syntypes of Stewartophyllum intermittens American Museum of Natural History 4442/1 and 4442/2; Busch's hypotypes Ohio State University Geological Museum 18751; of B. reimanni Ohio State University Geological Museum 18771, of H. bifurcatum Ohio State University Geological Museum 18776.

LITERATURE CITED


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