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# **LIPSANOCYSTIS TRAVERSENSIS, A NEW CYSTID FROM THE DEVONIAN OF MICHIGAN**

G. M. EHLERS AND J. B. LEIGHLY

In the Museum of Geology of the University of Michigan there was recently found a cystid with a label, in Dr. Carl Rominger's handwriting, bearing the name *Lepadocrinus hamiltonensis* Rominger, and indicating that the specimen was collected at Partridge Point, Thunder Bay, Michigan. This cystid is probably the one that Rominger had in mind,<sup>1</sup> when he recorded the occurrence of the genus *Lepadocrinus* along with several genera and species of corals, echinoderms, bryozoa, brachiopods, and trilobites in the rocks of Partridge Point, which he regarded as belonging to the Hamilton group. No description, however, of this cystid, or of the species *Lepadocrinus hamiltonensis* Rominger, occurs in the literature. It seems very probable that Rominger, after recording this occurrence of *Lepadocrinus*, thought the cystid to be a new species, labeling it *Lepadocrinus hamiltonensis*, but never publishing a description of it.

<sup>1</sup>Rominger, Dr. Carl, *Geology of the Lower Peninsula, Geological Survey of Michigan*, 3: Part I. 41. 1876.

Upon examination, it became evident that this cystid did not belong to the genus *Lepadocrinus* (= *Lepocrinites*), but to an undescribed genus, for which the name *Lipsanocystis* is proposed.

Class CYSTOIDEA  
Order DICHOPORITA  
Family CALLOCYSTIDAE  
Subfamily Apiocystinae

**Lipsanocystis**, n. gen.

**Definition.** — Apiocystinae with 20 plates, arranged as follows:

Plates 4, 1, 2, 3, in basal row;  
Plates 5, 6, 7, 8, 9, in second row;  
Plates 10, 11, 12, 13, 14, (15), in third row;  
Plates 16, 17, 18, (13), 19, 15, in fourth row;  
Deltoid 23 double, in fifth row.

Deltoid 23 is double, and contains both the madreporite and the hydropore. The former is divided, and appears as two elevations, each with an orifice in its apex. The hydropore appears as a small circular opening below and between the two parts of the divided madreporite.

Anal opening moderately large, entirely enclosed by plate 13, except for about 2 mm. of its periphery, which is formed by the upper edge of plate 8. One basal and 2 upper pectinirhombs, with numerous dichopores, situated respectively on plates 1 and 5, 14 and 15, and 12 and 18. The halves of the pectinirhombs on plates 5, 14, and 12 surrounded by conspicuous raised margins, those on 1, 15, and 18 without marginal walls.

Ambulacra four, simple, extending to the basal row of plates. These are RI, RII, RIV, and RV. Brachioles relatively few in number and rather widely separated.

Column unknown.

Genotype, *L. traversensis*. No other species known.

*Lipsanocystis* shows in its structure relationship with other Apiocystinae, especially *Apiocystites* and *Tetracystis*. Dr. Charles Schuchert,<sup>2</sup> who has examined the specimen, pronounces it "a changed Apiocystites, having become more depressed and therefore has changed somewhat the arrangement of the plates." It has pectinirhombs resembling somewhat those of *Tetracystis chrysalis* Schuchert, but differs from all other genera of the family in having the anal opening almost entirely enclosed by plate 13, only a small part of the border being formed by plate 8. (See Text Fig. 5.) Since this genus is apparently a holdover of a Silurian type, the name *Lipsanocystis* is given to it.

<sup>2</sup>The writers wish to express their appreciation of the kindness of Dr. Schuchert in examining the fossil and offering valuable suggestions as to its structure and relationships.

## **Lipsanocystis traversensis** n. sp.

(Plate X, Figs. 1-5, Text Figs. 4, 5, 6)

Greatest length of theca of holotype 22 mm., greatest width 19 mm., thickness 15 mm. Form and appearance of entire theca shown in Plate X, shape of individual plates in diagram, Fig. 4.

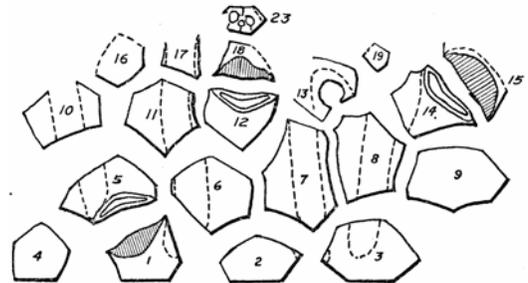


FIG. 4. Diagram of thecal plates.



FIG. 5. Sketch of anal side, showing relationship of anal opening to adjacent plates. x2

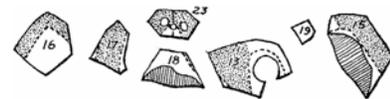


FIG. 6. Diagram showing probably outlines of plates composing rows 4 and 5. Parts covered by ambulacral plates stippled.

Ambulacra prominent, occupying extremely shallow grooves in the thecal plates. Brachioles 14 to each ambulacrum, or 56 to the entire theca. Length unknown.

Pectinirhomb on plates 1 and 5 has about 45 dichopores, that on plates 12 and 18 about 42, that on plates 14 and 15 about 50.

Anal pyramid unknown.

Column unknown.

The single specimen, No. 5414, Museum of Geology, University of Michigan, upon which this description is based, is from the upper part of the Thunder Bay division of the Traverse formation, at Partridge Point, Alpena County, Michigan. Since the name Traverse is now applied to the formation from which this fossil was collected, the specific name *traversensis* is used instead of Rominger's *hamiltonensis*.

The description above is based upon a single specimen in the Museum of Geology of the University of Michigan. The details of the oral parts are masked by the ambulacra. A conjecture as to the form of the plates thus partly covered is shown in Fig. 6, in which the parts of the plates covered by the ambulacrals are stippled. The two upper circles on deltoïd 23 in this figure are interpreted as a divided madreporite, with the hydropore appearing faintly just below and between the parts of the madreporite. These latter parts are elevated, and in appearance closely resemble the adjacent bases of brachioles. They are connected by an elevation above the surface of the plate, and are interpreted as the madreporite on the basis of their apparent similarity to the structure described by Schuchert<sup>3</sup> in *Callocystites jewetti*. "Madreporite ∞-shaped and situated on the two parts of plate 23. Hydropore immediately beneath the madreporite, very small."

There is some doubt concerning the relationship of a small part of the theca situated orally from plate 15, and anteriorly from plate 19. This may be interpreted as a part of plate 19, a part of plate 15, or perhaps as deltoïd 20.

Another doubtful detail is the form of plates 10, 13, 15, 16, 17, and 23. The hypothetical completion of the plates in Fig. 6 is based upon the apparent position of the angles of the plates as indicated by the intersection of the visible parts of their sides produced. The doubt concerning these structural details can only be resolved by the examination of additional material.

UNIVERSITY OF MICHIGAN

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<sup>3</sup>Schuchert, Charles. *On Siluric and Devonian Cystidea and Camarocrinus*, *Smithsonian Miscellaneous Collections*, 47: Part II. 244. 1904.

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## EXPLANATION OF PLATE X

### *Lipsanocystis traversensis*, n. sp. (Natural size)

FIG. 1. View of anal side of theca. Upper part of ambulacrum RV missing.

FIG. 2. View of antanal side.

FIG. 3. Oral view of theca. Deltoïd 23 with divided madreporite appears immediately at left of mouth opening.

FIG. 4. View showing the upper left-hand pectinirhomb and the configuration of the ambulacra. Anal side to the right.

FIG. 5. Opposite side to that shown in Fig. 4, showing upper right-hand pectinirhomb and fragment of column adhering to basal plates.

