

CONTRIBUTIONS FROM THE MUSEUM OF PALEONTOLOGY

THE UNIVERSITY OF MICHIGAN

Vol. XX, No. 9, pp. 271-276 (1 pl., 1 fig.)

JUNE 24, 1966

BOTRYOCRINUS NIEMANI, A NEW CRINOID FROM
THE MIDDLE DEVONIAN SILICA FORMATION
OF OHIO

BY
ROBERT V. KESLING



MUSEUM OF PALEONTOLOGY
THE UNIVERSITY OF MICHIGAN
ANN ARBOR

CONTRIBUTIONS FROM THE MUSEUM OF PALEONTOLOGY

Director: LEWIS B. KELLUM

The series of contributions from the Museum of Paleontology is a medium for the publication of papers based chiefly upon the collection 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 to individuals upon request. A list of the separate papers may also be obtained. Correspondence should be directed to the Museum of Paleontology, The University of Michigan, Ann Arbor, Michigan.

VOLS. II–XIX. Parts of volumes may be obtained if available.

VOLUME XX

1. Upper Devonian and Lower Mississippian Pectinoid Pelecypods from Michigan, Ohio, Indiana, Iowa, and Missouri, by Thomas W. Hutchinson and Erwin C. Stumm. Pages 1–48, with 7 plates.
2. Two New Middle Devonian Species of the Starfish *Devonaster* from Southwestern Ontario, by Robert V. Kesling and Jean D. Wright. Pages 49–61, with 4 plates.
3. A Revision of the Ordovician Trilobite *Asaphus platycephalus* Stokes, by David G. Darby and Erwin C. Stumm. Pages 63–73, with 2 plates.
4. *Proctothylacocrinus esseri*, a New Crinoid from the Middle Devonian Silica Formation of Northwestern Ohio, by Robert V. Kesling. Pages 75–87, with 5 plates.
5. Additions to and Revision of the Oligocene Ruby Paper Shale Flora of Southwestern Montana, by Herman F. Becker. Pages 89–119, with 6 plates.
6. Stratigraphy and Paleontology of the McPherson Equus Beds (Sandahl Local Fauna), McPherson County, Kansas, by Holmes A. Semken. Pages 121–178, with 7 figs., 1 map.
7. *Trochiliscus bellatulus* Peck from the Middle Devonian Dundee Limestone of Northwestern Ohio, by Robert V. Kesling and Roger F. Boneham. Pages 179–194, with 3 plates.
8. Hingement and Contact Margin Structure of Palaeocopid Ostracodes from Some Middle Devonian Formations of Michigan, Southwestern Ontario, and Western New York, by James C. Melik, with descriptions of three new species by Martin Weiss. Pages 195–269, with 24 plates, 4 figures.
9. *Botryocrinus niemani*, A New Crinoid from the Middle Devonian Silica Formation of Ohio, by Robert V. Kesling. Pages 271–276, with 1 plate, 1 figure.

BOTRYOCRINUS NIEMANI, A NEW CRINOID FROM THE
MIDDLE DEVONIAN SILICA FORMATION OF OHIO

BY
ROBERT V. KESLING

ABSTRACT

Botryocrinus niemani, sp. nov., resembles two other Middle Devonian species, *B. reimanni* Goldring from the Wanakah Shale of western New York and *B. arkonensis* Goldring from the Arkona Shale of Ontario. It differs from *B. reimanni* in having stronger and more complex ornamentation on the plates of the dorsal cup, shorter *IBB*, and wider *RR* facets, and from *B. arkonensis* in having a nearly round column and more complex ornamentation on the cup plates. In addition, the holotype of the new species is slightly larger than any described specimen of *B. reimanni* and nearly twice the size of the largest known specimen of *B. arkonensis*.

CONTENTS

Introduction	271
Locality	272
Systematic description	272
Literature cited	274
Plate	(after) 274

INTRODUCTION

UNEXPECTEDLY, a new crinoid was recently discovered in the Silica Formation at Silica, Ohio. For many years, the quarries of the Medusa Portland Cement Company have been scoured almost daily by throngs of fossil hunters. Hundreds of thousands of specimens are removed annually. Even though many fossils go directly into private collections and are never seen by paleontologists, numerous crinoids are brought to the Museum of Paleontology from time to time for identification. One might expect, under these circumstances, that all crinoid species would have been found long ago.

In September, 1965, however, Mr. Lee Nieman, of Lincoln Park, Michigan, discovered a well-preserved dorsal cup of an undescribed *Botryocrinus* species. He sent it to the Museum of Paleontology by Mrs. Ruth Berner Chilman for identification. Upon being informed that it was new to science, he agreed to donate it to the Museum of Paleontology of The University

of Michigan, where it was catalogued as No. 52810. In honor of Mr. Nieman's fortunate finding and generous gift of the holotype, I am pleased to name the new crinoid *Botryocrinus niemani*.

LOCALITY

North Quarry of the Medusa Portland Cement Company at Silica, Lucas County, Ohio. Silica Formation, Unit 9 of Ehlers, Stumm, and Kesling (1951, pp. 19-20). Unit at this time exposed atop a ledge by quarrying operations. Bluish-gray shale containing concretionary masses of pyrite and numerous pyritized fossils, strata 2 to 6 inches thick. Numerous *Mucrospirifer prolificus* (Stewart) and *Paraspirifer bownockeri* (Stewart). Specimen found in September, 1965, by Lee Nieman.

SYSTEMATIC DESCRIPTION

Subclass INADUNATA Wachsmuth and Springer, 1885

Order Cladida Moore and Laudon, 1943

Family Botryocrinidae Bather, 1899

Genus *Botryocrinus* Angelin, 1878

Botryocrinus niemani, sp. nov.

(Fig. 1; Pl. I, Figs. 1-5)

Holotype and only known specimen consisting of dorsal cup with one primibrachial attached and proximal section of column.

Dorsal cup.—Cup subconical, not bowl-shaped or bell-shaped. Average diameter at top of *RR* about equal to average height. Columnar facet estimated to be less than $\frac{1}{3}$ diameter of cup. Plates consisting of five *IBB*, five *BB*, five *RR*, one *RA*, and one *X*, as normal for the genus. Plates convex, with slightly protuberant centers, deeply indented corners, and prominent ridges directed to centers of adjacent plates (except in *IBB*).

IBB forming circlet (Pl. I, Fig. 5), subequal, rather high for the genus, about $\frac{3}{10}$ height of dorsal cup (Pl. I, Fig. 1). Each *IB* pentagonal with nearly equal sides, its upper (ventral) apex inserted between adjacent *BB*. Two prominent lobes at base of each *IB*, effectively concealing plane of junction with column; lobes confluent with broad median smooth boss at about $\frac{1}{4}$ height of plate; from median boss, two prominent ridges extending to adjacent *BB*, no ridges linking *IBB*.

BB forming circlet (Pl. I, Fig. 5), unequal in size and shape, averaging one-half height of cup (Pl. I, Fig. 1). *BB* of AB, DE, and AE interrays subequal, hexagonal, each bordered by two *IBB*, two *BB*, and two *RR* (Fig. 1); *B* of BC interray slightly larger, irregularly septagonal, bordered by two *IBB*, two *BB*, two *RR*, and *RA* (Pl. I, Fig. 3); *B* of CD interray the largest *B*, irregularly septagonal, bordered by two *IBB*, two *BB*, one *R*,

RA, and *X* (Pl. I, Fig. 2). Each *B* with protuberant central boss (Pl. II, Fig. 5) and strong radial ridge to each adjacent plate.

RR slightly smaller than *BB*, each pentagonal, that of *C* ray (adjacent to *RA*) slightly smaller than other *RR*. *RR* facets very wide and narrow (Pl. I, Fig. 4). Median boss near top of each *R*, with ridges to laterally and dorsally adjacent plates (*RR*, *X*, *RA*, *BB*).

RA nearly square (Pl. I, Fig. 2), its height (along diagonal) about 3/10 that of cup. Central boss, ridges to adjacent plates forming *X*.

X, first plate of anal series and only anal incorporated in cup, septagonal, about the same size as *RR*. Three ridges extending ventrally, indicating three plates in next tier of anal plates.

*PBr*₁ relatively short, subtrapezoidal, thin, convex, smooth; its distal border approximately 4/5 the width of the adjacent *R* (Pl. I, Fig. 4).

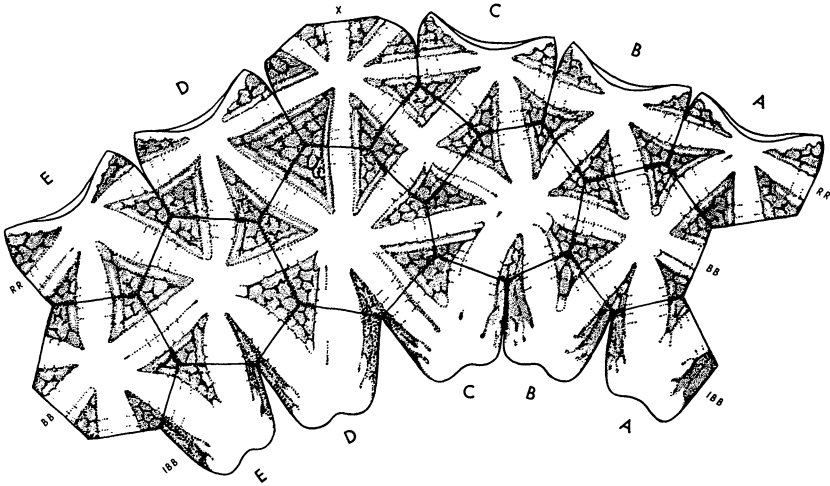


FIG. 1. *Botryocrinus niemani*, sp. nov. Plate diagram; conventional symbols for plate series and rays; small square plate in CD interray is *RA*. Based on holotype, UMMP 52810.

Ornamentation deeply sculptured. In all plates except *IBB*, central protuberant boss confluent with prominent radial ridges to adjacent plates; each radial ridge somewhat rugose, irregular (Pl. I, Figs. 1-3), in some cases split unequally by a radial fissure (for example, ridge from *B* of CD interray to *IB* of *C* ray; Fig. 1; Pl. I, Figs. 2-3) or incompletely cleft (for example, ridge from *B* of CD interray to *IB* of *D* ray; Fig. 1; Pl. I, Fig. 2). On each side and roughly parallel to each radial ridge, one or more smaller ridges normal to sides of plate and aligned with similar ridges of adjacent

plate; smaller ridges may be entire, interrupted, or irregularly discontinuous. Together, all ridges forming concentric triangles around corners of plates.

Corner areas of plates depressed, ornamented with vermiform to irregularly labyrinthic rugosities. Marginal areas between *IBB* covered with irregular ornamentation; ridges on each *IB* to adjacent *BB* forming a *V*, with a variously modified tubercle near or at the junction (Pl. I, Figs. 1-3).

Column.—Columnals of alternating sizes. Each columnal nearly circular with ten protuberances around periphery. Articulating facet of each columnal a central circle with ten long, narrow radial extensions (Pl. I, Fig. 5).

Remarks.—This species resembles *Botryocrinus arkonensis* Goldring (1950, pp. 31-32; Pl. I, Figs. 14-15; Pl. II, Figs. 1-8), from the Arkona Shale of the Thedford-Arkona region of Ontario, in the depth and prominence of ornamentation and in the proportions of plates in the dorsal cup; it differs, however, in having additional ornamentation in the depressed corner areas, in being nearly twice as large, and in having a nearly circular instead of pentangular column. The new species also bears some resemblance to *B. reimanni* Goldring (1934, p. 193; Pl. 2, Figs. 8-12) from the Wana-kah Shale of western New York, in having ridges between centers of plates in the dorsal cup; it differs conspicuously in having a conical rather than bell-shaped cup, deeper and more complex ornamentation, slightly larger size, proportionally shorter *IBB*, and much wider *RR* facets. The largest described and illustrated specimen of *B. reimanni* Goldring (1950, Pl. I, Fig. 6) is 10.2 mm high posteriorly, whereas the holotype of *B. niemani* is 12.4 mm high posteriorly.

Holotype.—UMMP 52810.

LITERATURE CITED

- EHLERS, G. M., STUMM, E. C., and KESLING, R. V. 1951. Devonian Rocks of South-eastern Michigan and Northwestern Ohio. Prepared for the Stratigraphic Field Trip of The Geological Society of America, Detroit Meeting, November 1951. iv + 40 pp., 3 figs., 5 pls. Ann Arbor: Edwards Bros., Inc.
- GOLDRING, WINIFRED. 1934. Some Hamilton Crinoids of New York. Bull. Buffalo Soc. Nat. Sci., Vol. 25, No. 3, pp. 181-200, Pls. 1-2.
- . 1950. Devonian Crinoids: New and Old. Bull. Wagner Free Instit. Sci., Vol. 25, No. 4, pp. 29-37, Pls. 1-2.

Submitted for publication November 19, 1965

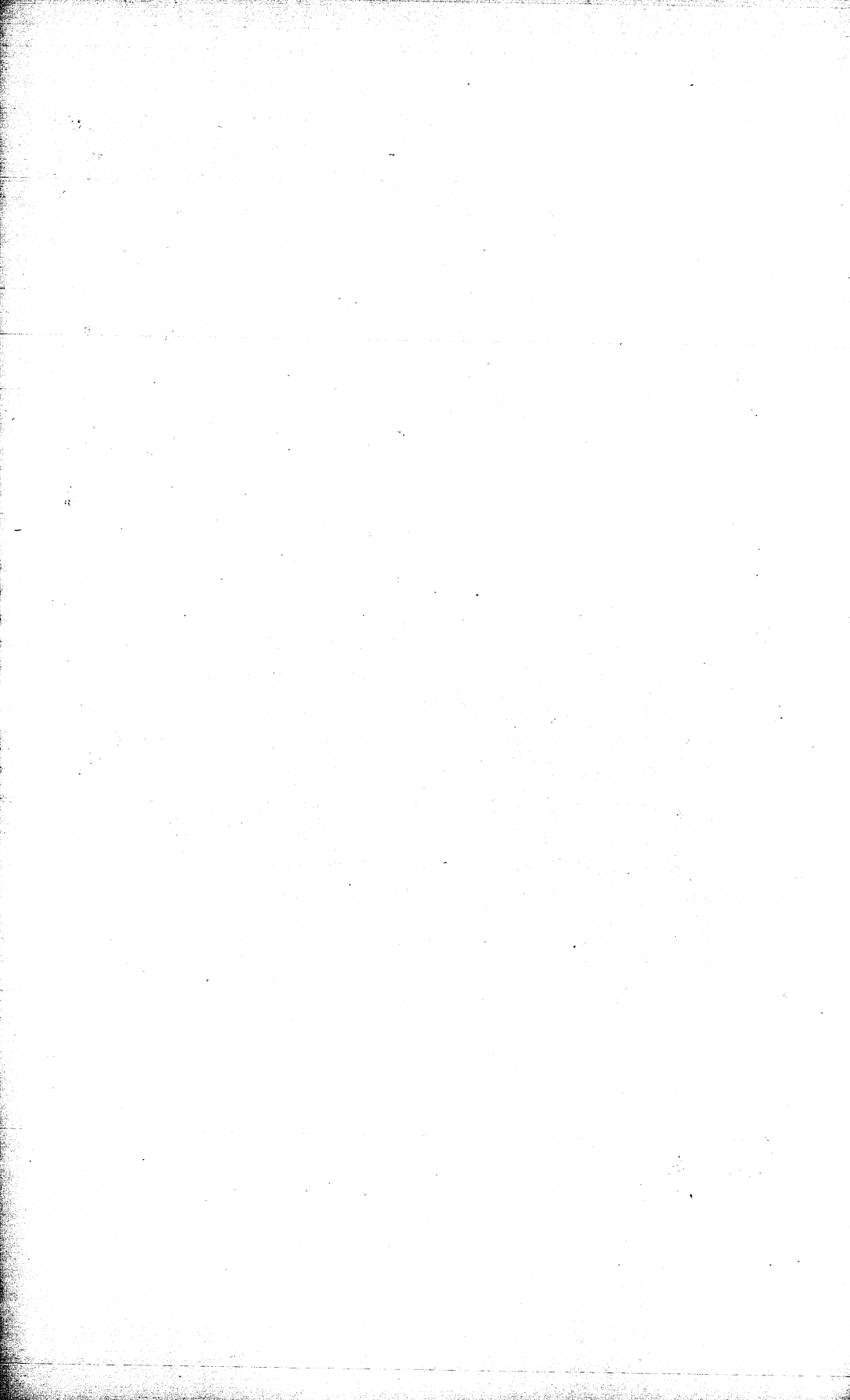
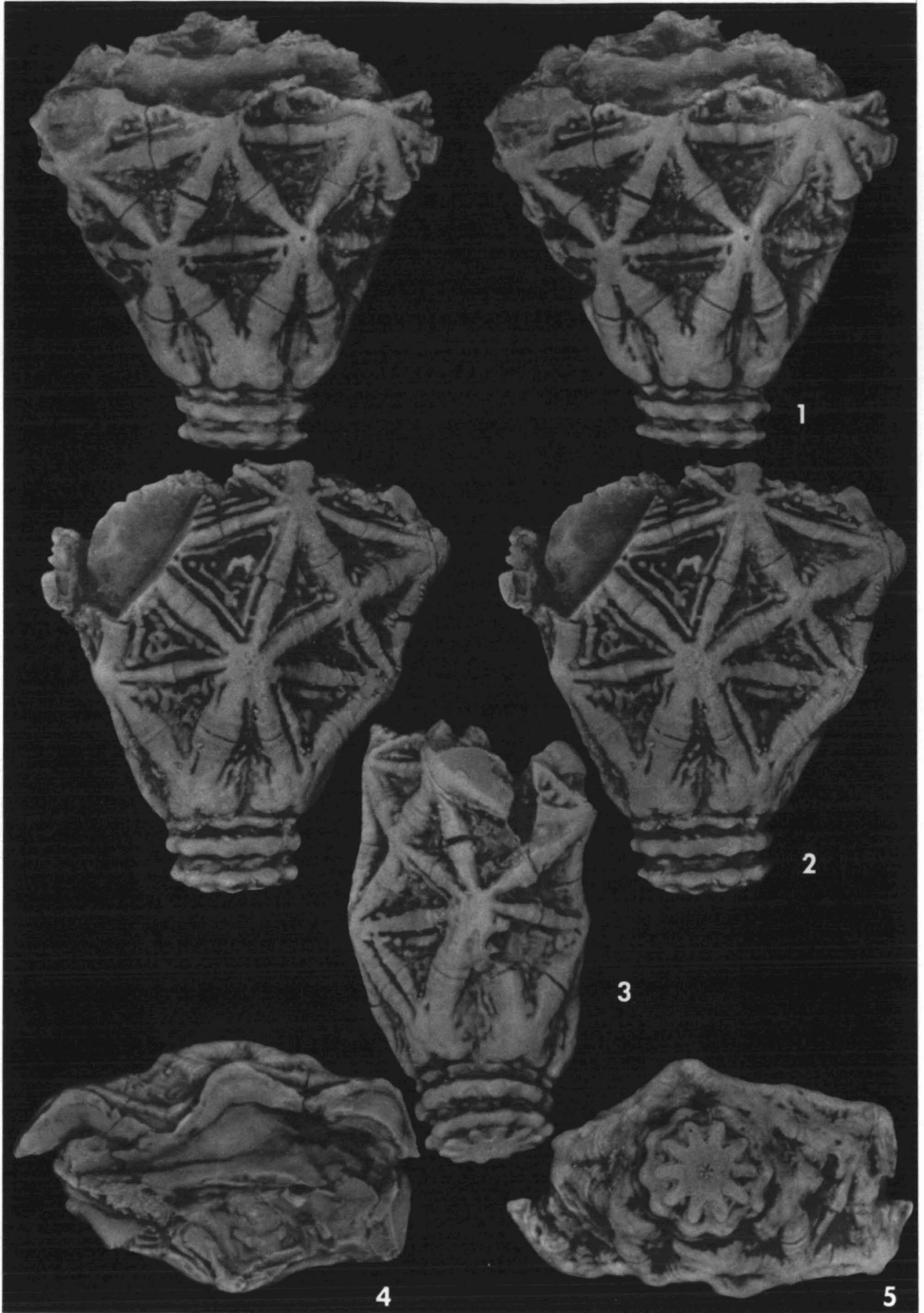


PLATE I



EXPLANATION OF PLATE I
 (All figures $\times 4$; holotype UMMP 52810)

	PAGE
<i>Botryocrinus niemani</i> , sp. nov.	272
FIG. 1. Lateral stereogram centered in anterior (A) ray.	
FIG. 2. Lateral stereogram centered on posterior (CD) interray; part of R in D ray broken off; RA at upper right center.	
FIG. 3. Slightly inclined lateral view centered on BC interray; part of R in C ray broken off.	
FIG. 4. Top (ventral) view, showing wide facets on RR of E, A, and B rays; B ray has PBr_1 ; anterior at top.	
FIG. 5. Basal (dorsal) view, showing articulating facet of column and pentagram formed by ridges connecting <i>IBB</i> and <i>BB</i> ; posterior at top.	

