

CONTRIBUTIONS FROM THE MUSEUM OF PALEONTOLOGY

UNIVERSITY OF MICHIGAN

Vol. X, No. 10, pp. 221-229 (2 pls., 1 fig.)

APRIL 30, 1953

A NEW BEYRICHIID OSTRACOD
FROM THE MIDDLE DEVONIAN
ROCKPORT QUARRY LIMESTONE
OF MICHIGAN

BY

ROBERT V. KESLING



UNIVERSITY OF MICHIGAN PRESS
ANN ARBOR

CONTRIBUTIONS FROM THE MUSEUM OF PALEONTOLOGY

UNIVERSITY OF MICHIGAN 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 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. Correspondence should be directed to the University of Michigan Press. A list of the separate papers in Volumes II-IX will be sent upon request.

VOL. I. The Stratigraphy and Fauna of the Hackberry Stage of the Upper Devonian, by C. L. Fenton and M. A. Fenton. Pages xi+260. Cloth. \$2.75.

VOL. II. Fourteen papers. Pages ix+240. Cloth. \$3.00. Parts sold separately in paper covers.

VOL. III. Thirteen papers. Pages viii+275. Cloth. \$3.50. Parts sold separately in paper covers.

VOL. IV. Eighteen papers. Pages viii+295. Cloth. \$3.50. Parts sold separately in paper covers.

VOL. V. Twelve papers. Pages viii+318. Cloth. \$3.50. Parts sold separately in paper covers.

VOL. VI. Ten papers. Pages vii+336. Paper covers. \$3.00. Parts sold separately.

VOLS. VII-IX. Ten numbers each, sold separately.

(Continued on inside back cover)

A NEW BEYRICHIID OSTRACOD FROM THE MIDDLE
DEVONIAN ROCKPORT QUARRY LIMESTONE
OF MICHIGAN

By
ROBERT V. KESLING

CONTENTS

Introduction 221
 Register of locality 221
 Systematic description 222
 Literature cited 226
 Plates (after) 227

INTRODUCTION

IN this paper is described a new genus and species of beyrichiid ostracod from the Middle Devonian Rockport Quarry limestone of Michigan. This ostracod is the first arthropod to be described from this formation and the first nonsulcate beyrichiid to be described from the Devonian. Its lobation resembles that of *Apatobolbina* from the Silurian. The two pouches of the female resemble those of another beyrichiid known from the Hamilton group (Kesling, 1953, pp. 19-24). The adult female has an unusual structure in each valve which has not been previously observed. Each female valve has an internal partition along the front part of the pouch, which separates that part laterally from the rest of the valve.

The author is grateful to Dr. George M. Ehlers, Dr. Chester A. Arnold, and Dr. Lewis B. Kellum for helpful criticism of this paper. He also wishes to thank the Horace H. Rackham School of Graduate Studies of the University of Michigan for providing the special photographic equipment used in preparation of the plates.

REGISTER OF LOCALITY

All specimens described in this paper are from the same locality:

LOCALITY

Shale, highly calcareous, buff, very fossiliferous. Lowest 1 foot of Rockport Quarry limestone, immediately above the contact with the underlying Bell shale. NW. ¼ sec. 6, T. 32 N., R. 9 E., abandoned quarry of the Kelley's Island Lime and Transport Company, Rockport, Alpena County, Michigan, on the west bank of a drainage ditch about ¼ mile west-northwest of the quarry buildings. Sample collected by George M. Ehlers, Porter M. Kier, and Robert V. Kesling in 1951.

SYSTEMATIC DESCRIPTION

Phylum ARTHROPODA

Class CRUSTACEA

Order OSTRACODA

Superfamily Beyrichiacea

Family Beyrichiidae

Phlyctiscapha, gen. nov.*Genotype*.—*Phlyctiscapha rockportensis*, sp. nov.

Description of female.—Carapace large, smooth, tumid; subovate in lateral view, subpyriform in ventral view, and subcardioid in end view. Left valve overlapping right valve; overlap greatest in ventral part of carapace. Hinge line straight. Pouch in ventral and posteroventral parts of each valve. Posterior part of pouch confluent with rest of the valve. Nonsulcate. Dorsal part of each valve extending a little above the hinge line as a hump. Marginal ridge around free edge. Small velate ridge parallel to the marginal ridge and close to it. Internal partition between the anterior part of the pouch and the rest of the valve.

Description of male.—Size, ornamentation, hinge line, marginal ridge, velate ridge, and overlap like those of the female. Carapace subovate in lateral view, lanceolate in ventral view, and lanceolate in end view. No pouch. Dorsal part of each valve extending above the hinge line as a hump.

Remarks.—This genus is closely related to another beyrichiid genus from the Hamilton group (Kesling, 1953, pp. 19–24). It resembles that genus in the external form of the female pouch, but it differs from it in being nonsulcate, in lacking surface ornamentation, in having left/right overlap instead of right/left, and in having a small velate ridge instead of a frill. *Phlyctiscapha* resembles *Apatobolbina* from the Silurian in being nonsulcate, but it differs from that genus in having the pouch ventral and posteroventral instead of anteroventral, the posterior part of the pouch confluent with the rest of the valve, and a small velate ridge instead of a wide frill.

The name of this genus is derived from Greek φλυκτις, f. (“a blister”) and σκαφη, f. (“a cradle”) and refers to the form and supposed use of the pouches.

Phlyctiscapha rockportensis, sp. nov.

(Fig. 1; Pl. I, Figs. 1–20; Pl. II, Figs. 1–19)

Description of female.—Carapace tumid; subovate in lateral view; subpyriform, anteriorly acuminate in ventral view; and subcardioid, dorsally acuminate in end view. Greatest height anterior. Greatest width

posterior. Left valve overlapping right; overlap greatest in ventral part of carapace. Hinge line straight. Anterior and ventral borders subround, posteroventral border gently curved, and posterodorsal border acutely subround. Each valve with slight but distinct swing. Valves nonsulcate. Dorsal part of each valve extending above the hinge line as a hump. **Anterior corner surface** separated posteriorly from rest of anterodorsal area by a distinct groove; this groove subparallel to the front part of the dorsal border and the upper part of the anterior border, becoming indistinct near the central anterior part of the valve. Posterior corner surface separated from the rest of the valve as an acuminate, sublunate area by a steep-sided groove; this groove evenly curved from the dorsal border to the central posterior part of the valve, there becoming tangent to the velate ridge, and continuing along the distal edge of the velate ridge in its ventral part.

Pouch in each valve, posteriorly confluent with the rest of the valve, anteriorly separated from the rest of the valve by a distinct depression. Front part of pouch in anteroventral part of valve, but widest part of pouch in posteroventral part of valve. A small partition inside each valve (Fig. 1), sloping downward and inward from the lateral surface to a line near the contact margin, separating the front part of the pouch laterally from the rest of the interior of the valve. Pocket-shaped structure formed by the partition and the anteroventral surface of the valve opens posteriorly. Upper part of partition continuing posteriorly for a short distance as a tapering ridge.

Cardinal angles not well defined. Anterior cardinal angle about 130 degrees. Posterior cardinal angle about 120 degrees.

Surface smooth. Small marginal ridge in right valve. Broad marginal ridge in left valve forming overlap. Small velate ridge parallel to marginal ridge and close to it, not well defined.

Dimensions of holotype, No. 29603, a complete carapace: length, 1.35 mm.; height, .98 mm.; and width, .93 mm.

Description of male.—Hinge line, outline in lateral view, marginal ridge, velate ridge, overlap, ornamentation, and dorsal part of valve like those of the female. Carapace lanceolate in ventral view, and lanceolate in end view. Greatest height anterior, and greatest width posterior. No pouch. The velate ridge is indistinct ventrally. Surface smooth.

Dimensions of allotype, No. 29610, a complete carapace: length, 1.39 mm.; height, .98 mm.; and width, .63 mm.

Third (ultimate immature) instar.—Carapace very much like that of adult male. Groove in posteroventral part of valve becoming indistinct near the central posterior part of the valve. Dimensions of paratype, No.

29615, a complete carapace: length, 1.09 mm.; height, .79 mm.; and width, .56 mm.

Second (penultimate immature) instar.—Carapace with the same shape in lateral, ventral, and end views as adult male. Grooves in anterodorsal and posterodorsal parts of valve shallow and indistinct.

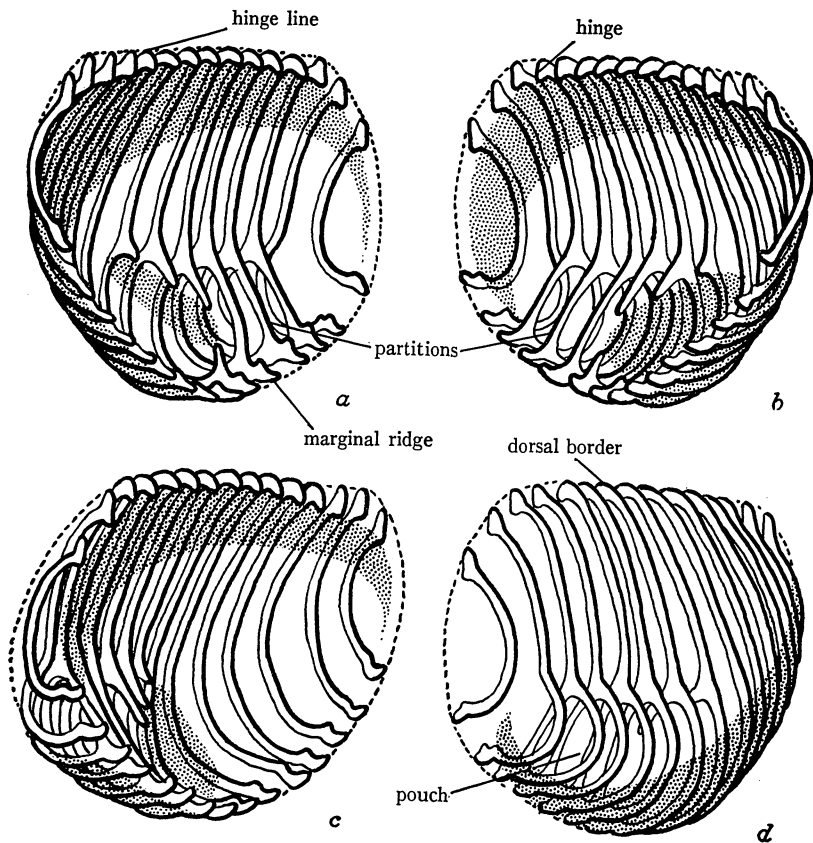


FIG. 1. Valves reconstructed from series of polished surfaces, showing partitions. *a*. Interior of left valve seen from the rear at an angle of 45 degrees. *b*. Interior of right valve seen from the rear at an angle of 45 degrees. *c*. Interior of right valve seen from the front at an angle of 45 degrees. *d*. Exterior of left valve seen from the front at an angle of 45 degrees. The polished surfaces are equally spaced and are shown in their proper relationship in each reconstruction.

Dimensions of paratype, No. 29621, a complete carapace: length, .88 mm.; height, .67 mm.; and width, .47 mm.

First (antepenultimate immature) instar.—Free border nearly sub-

circular, each valve with very little swing. Dorsal border nearly tangent to hinge line, extending very little above it.

Dimensions of paratype, No. 29624, a complete carapace: length, .71 mm.; height, .52 mm.; and width, .39 mm.

Remarks.—The immature instars are numbered above in the sequence which results when the youngest instar found is called the first. Young instars have been found in the carapaces of adult female beyrichiid ostracods by Hessland (1949, p. 125, Pl. XIV, Fig. 9) and by Spjeldnaes (1951, p. 748, Pl. 103, Figs. 1–2). The dark object shown in Plate II, Figures 17–19 is believed to be an immature instar. The width of .133 mm. and height of .20 mm. indicate that it is four instars younger than the youngest instar found free.

An unusual partition inside each valve was discovered on transverse polished surfaces. These partitions are believed to be the same structures as those illustrated, but not described, by Spjeldnaes (1951, Pl. 103, Fig. 1) for *Beyrichia jonesi* Boll. The partitions can be seen on the polished surfaces shown in Plate II, Figures 8–11. The pocket-shaped structure formed inside each valve by the partition and the anteroventral part of the valve ends blindly at its front end but connects with the rest of the interior of the carapace at its rear. It is possible that these structures were not filled with hypodermis during the life of the female, but were open and served as protective spaces for the young instars. The female carapace, exclusive of the pocket-shaped structures and the posterior parts of the pouches, has about the same internal volume as the male carapace. Apparently the anterior part of the female carapace, exclusive of the pocket-shaped structures, was able to accommodate the same size and shape appendages as those accommodated by the male.

The name of this species refers to its occurrence in the quarry at Rockport, Michigan.

Occurrence.—All specimens are from the basal part of the Rockport Quarry limestone. There were no beyrichiid ostracods in samples of the underlying Bell shale nor in the overlying Ferron Point formation.

Types.—Holotype, a complete female carapace, No. 29603; allotype, a complete male carapace, No. 29610; paratypes, twenty-two carapaces including five females, three adult males, and fourteen immature instars, Nos. 29604–29609 and 29611–29626.

LITERATURE CITED

- HESSLAND, I. 1949. Investigations of the Lower Ordovician of the Siljan District, Sweden. I. Lower Ordovician Ostracods of the Siljan District, Sweden. Bull. Geol. Instit. Upsala, Vol. XXXIII, pp. 97-408, 25 pls.
- KESLING, R. V. 1953. A Beyrichiid Ostracod from the Middle Devonian Wanakah Shale of Western New York, Bull. Buffalo Soc. Nat. Sci., Vol. 21, No. 2, pp. 19-24, Pls. 8-9. (In press.)
- SEJELDNAES, N. 1951. Ontogeny of *Beyrichia jonesi* Boll. Journ. Paleontol., Vol. 25, No. 6, pp. 745-55, Pls. 103-4, Figs. 1-3.

Submitted for publication August 27, 1952

PLATES

EXPLANATION OF PLATE I

(All figures $\times 30$)

	PAGE
<i>Phlyctiscapha rockportensis</i> , sp. nov.	222
Figs. 1-4. Right lateral, dorsal, ventral, and anterior views of complete female carapace. Holotype No. 29603.	
Figs. 5-6. Right lateral and ventral views of complete female carapace. Paratype No. 29607.	
Figs. 7-8. Left lateral and ventral views of complete male carapace. Paratype No. 29612.	
Figs. 9-10. Right lateral and ventral views of complete male carapace. Allotype No. 29610.	
Figs. 11-12, 14-15, 17-18. Right lateral and ventral views of three immature carapaces. Paratypes Nos. 29615, 29621, and 29624.	
Figs. 13, 16, 19-20. Right lateral views of Four immature carapaces. Paratypes Nos. 29617, 29619, 29623, and 29626.	

PLATE I

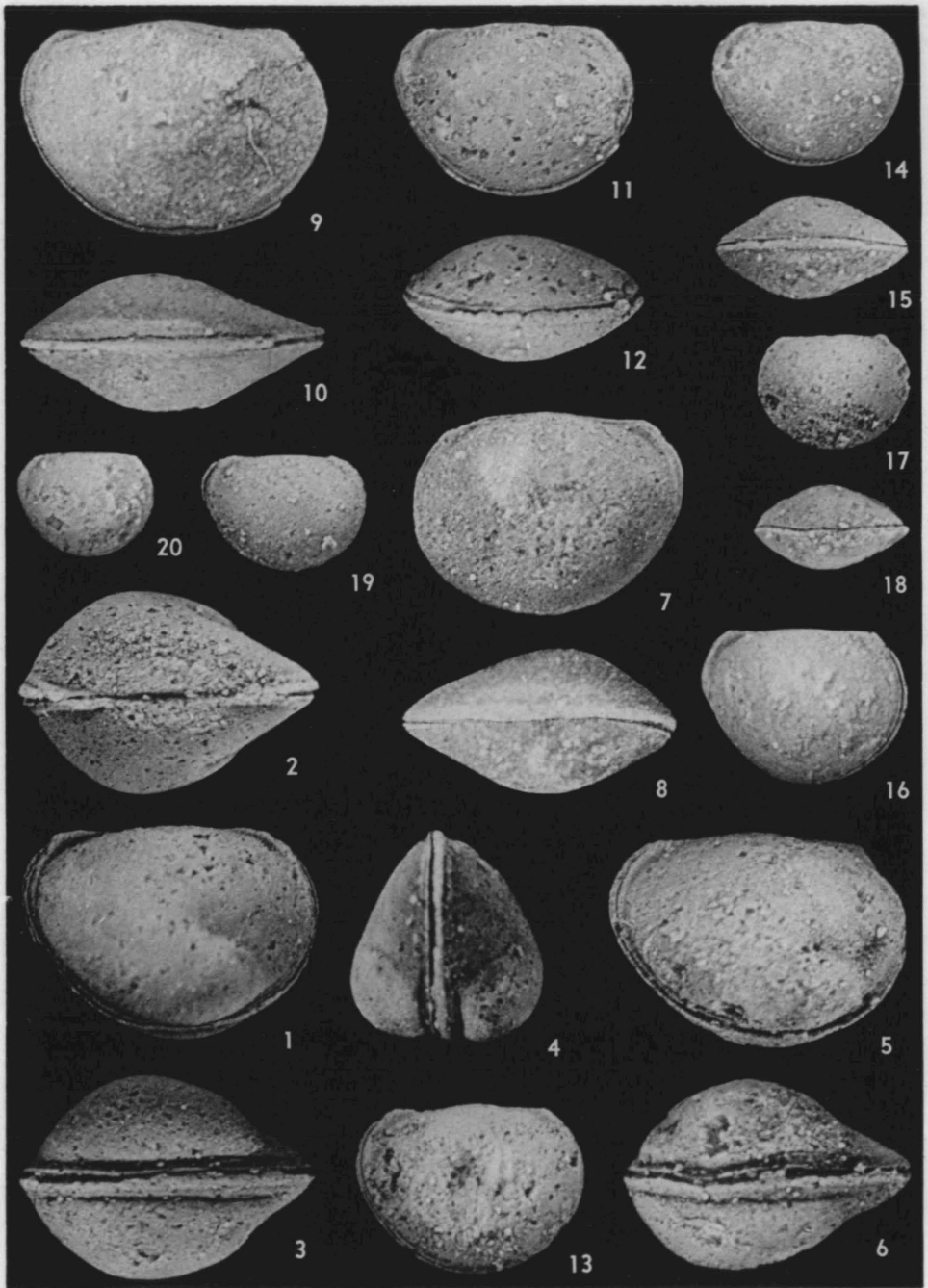
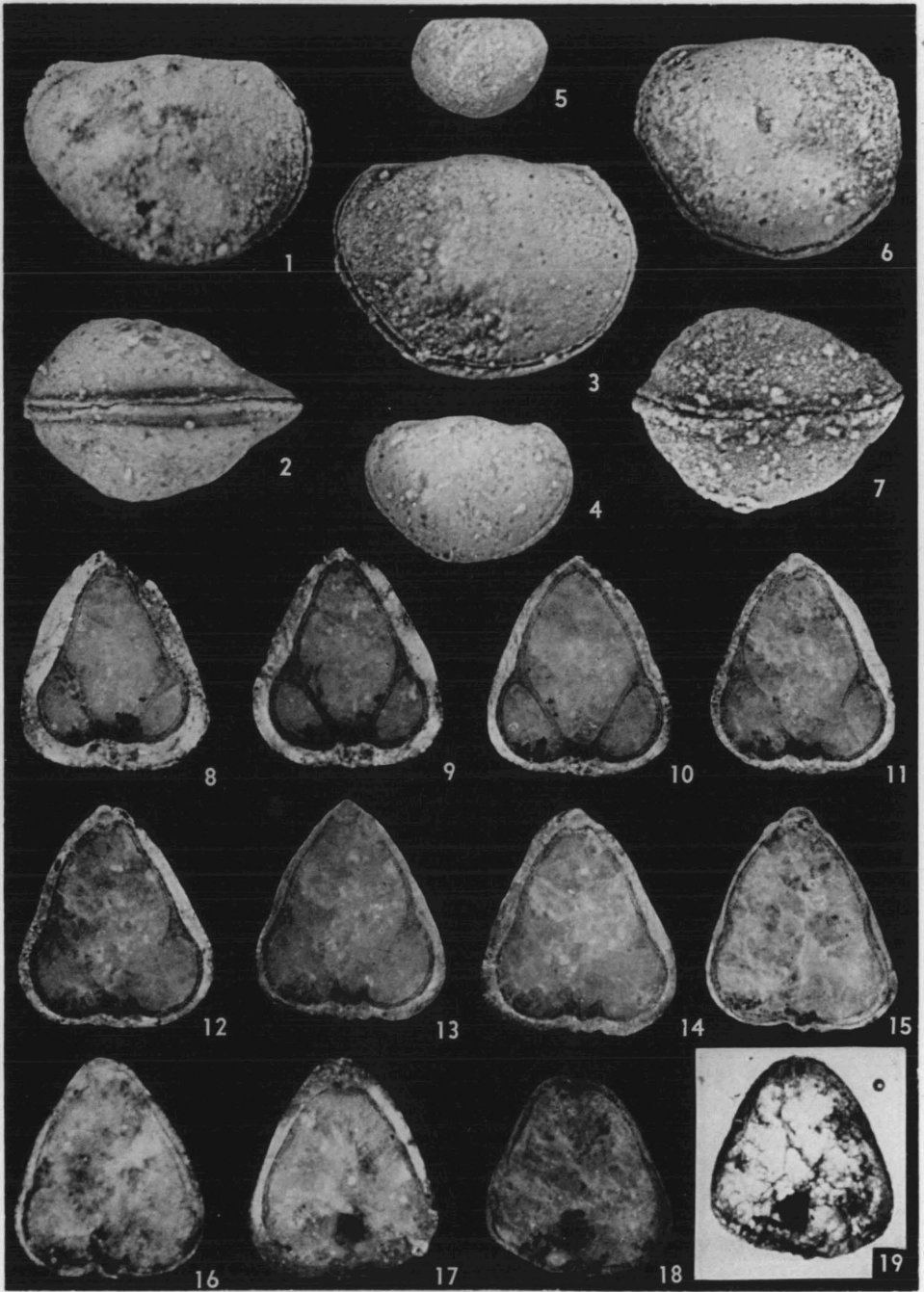


PLATE II



EXPLANATION OF PLATE II

(All figures $\times 30$)

PAGE

Phlyctiscapha rockportensis, sp. nov. 222

FIGS. 1-2. Right lateral and ventral views of female carapace. Paratype No. 29608.

FIG. 3. Right lateral view of male carapace. Paratype No. 29609.

FIG. 4. Right lateral view of immature carapace. Paratype No. 29620.

FIG. 5. Left lateral view of immature carapace. Paratype No. 29625.

FIGS. 6-7. Right lateral and ventral views of female carapace. Paratype No. 29604. Polished surfaces of this specimen shown in Figures 8-18, below. Specimen now preserved as a section, see Figure 19.

FIGS. 8-16, 18. Polished surfaces of same female carapace, paratype No. 29604, as seen from front when illuminated with inclined light from above. Sections in sequence from front to rear.

FIG. 17. Polished surface of same female carapace, paratype No. 29604, as seen from rear when illuminated with inclined light from above.

FIG. 19. Transverse section of same female carapace, paratype No. 29604, as seen from front by transmitted light. The dark object (also seen in Figs. 17 and 18) is interpreted as an immature instar of this species.

VOLUME X

1. Ostracods of the Families Leperditellidae, Drepanellidae, Glyptopleuridae, Kloedenellidae, Bairdiidae, Barychilinidae, and Thlipsuridae from the Genshaw Formation of Michigan, by Robert V. Kesling and John E. Kilgore. Pages 1–19, with 4 plates. Price \$.60.
2. Ostracods of the Families Leperditellidae, Primitiidae, Drepanellidae, Aechminidae, and Kirkbyidae from the Middle Devonian Bell Shale of Michigan, by Robert V. Kesling. Pages 21–44, with 5 plates. Price \$.75.
3. Ostracods of the Family Hollinidae from the Ferron Point Formation of Michigan, by Robert V. Kesling. Pages 45–57, with 2 plates. Price \$.50.
4. Echinoderms of the Middle Devonian Silica Formation of Ohio, by Porter M. Kier. Pages 59–81, with 4 plates. Price \$.70.
5. Ostracods of the Family Hollinidae from the Genshaw Formation of Michigan, by Robert V. Kesling and Norman R. Tabor. Pages 83–100, with 3 plates. Price \$.65.
6. Trilobites of the Devonian Traverse Group of Michigan, by Erwin C. Stumm. Pages 101–157, with 12 plates. Price \$1.50.
7. Lower Mississippian Cephalopods of Michigan. Part I, Orthoconic Nautiloids, by A. K. Miller and H. F. Garner. Pages 159–192, with 3 plates. Price \$.85.
8. Ostracods of the Family Drepanellidae from the Arkona Shale of Ontario, by Robert V. Kesling. Pages 193–202, with 1 plate. Price \$.35.
9. Ostracods of the Family Hollinidae from the Arkona Shale of Ontario, by Robert V. Kesling. Pages 203–219, with 4 plates. Price \$.80.
10. A New Beyrichiid Ostracod from the Middle Devonian Rockport Quarry Limestone of Michigan, by Robert V. Kesling. Pages 221–229. Price \$.40.

