

Volume 49

MAY, 1975

Supplement to No. 3

Part II of II

JOURNAL OF PALEONTOLOGY

**THE PALEONTOLOGICAL SOCIETY
MEMOIR 7**

Middle Ordovician Echinoderms from Northern
Illinois and Southern Wisconsin

DENNIS R. KOLATA



EDITOR
MEMOIR SERIES

CHARLES L. ROWETT, Department of Geology, Texas Christian University, Fort Worth, Texas 76129

Memoirs of The Paleontological Society are made up of occasional publications consisting of monographs and symposia that are too long for publication in the JOURNAL OF PALEONTOLOGY. Initially, memoirs will be distributed as a supplement to a regular issue of the JOURNAL. Inquiries concerning submittal of manuscripts to be considered for publication in this series should be made to the editor well in advance of proposed submittal date. Inquirers should read the inside-back cover for instructions on preparation of manuscripts and on publication charges.

Communications about the cost and availability of back numbers should be addressed to the Society of Economic Paleontologists and Mineralogists, P.O. Box 979, Tulsa, Oklahoma 74101.

OFFICERS OF THE PALEONTOLOGICAL SOCIETY

For the year ending November 1975

President

WILLIAM A. OLIVER, Washington, D. C.

President-Elect

ELLIS L. YOCHELSON, Washington, D. C.

Past-President

JAMES W. VALENTINE, Davis, California

Secretary

WARREN O. ADDICOTT, Menlo Park, California

Treasurer

GEORGE J. VERVILLE, Tulsa, Oklahoma

Journal Editors

WAYNE L. FRY, Berkeley, California

JOSEPH H. PECK, Berkeley, California

WILLIAM A. CLEMENS, JR.,

Berkeley, California

J. WYATT DURHAM, Berkeley, California

Memoir Editor

CHARLES L. ROWETT, Fort Worth, Texas

Councilors

STEPHEN J. GOULD, Cambridge, Massachusetts

KARL M. WAAGE, New Haven, Connecticut

Chairman, Pacific Coast Section

NORMAN SAVAGE, Eugene, Oregon

Chairman, North-Central Section

JOHN UTGAARD, Carbondale, Illinois

The Paleontological Society

MEMOIR 7

MIDDLE ORDOVICIAN ECHINODERMS FROM
NORTHERN ILLINOIS AND SOUTHERN WISCONSIN

DENNIS R. KOLATA

Illinois State Geological Survey
Urbana, Illinois

C O N T E N T S

ABSTRACT	1
INTRODUCTION	1
ACKNOWLEDGMENTS	2
GEOLOGIC SETTING	2
STRATIGRAPHIC FRAMEWORK	5
PLATTEVILLE GROUP	5
Platteville echinoderm fauna	7
Correlation and age	9
GALENA GROUP	9
Galena echinoderm fauna	10
Correlation and age	10
PALEOECOLOGY OF THE PLATTEVILLE AND LOWER GALENA GROUPS	11
SYSTEMATIC PALEONTOLOGY	14
Genus <i>Myeinocystites</i>	15
<i>Myeinocystites natus</i> Strimple	15
Genus <i>Pleurocystites</i>	15
<i>Pleurocystites</i> sp. cf. <i>P. squamosus</i>	15
Genus <i>Praepleurocystis</i>	16
<i>Praepleurocystis</i> sp.	16
Genus <i>Coronocystis</i>	16
<i>Coronocystis durandensis</i> new species	16
Genus <i>Cremacrinus</i>	20
<i>Cremacrinus arctus</i> Sardeson	20
<i>Cremacrinus guttenbergensis</i> new species	23
<i>Cremacrinus</i> sp.	24
Genus <i>Anulocrinus</i>	24
<i>Anulocrinus forrestonensis</i> new species	25
Genus <i>Isotomocrinus</i>	26
<i>Isotomocrinus tenuis</i> (Billings)	26
<i>Isotomocrinus minutus</i> new species	27
Genus <i>Hyboocrinus</i>	28
<i>Hyboocrinus conicus</i> Billings	28
Genus <i>Porocrinus</i>	28
<i>Porocrinus pentagonius</i> Meek and Worthen	28
<i>Porocrinus</i> sp. cf. <i>P. smithi</i> Grant	29
Genus <i>Carabocrinus</i>	29
<i>Carabocrinus oogyi</i> new species	29
<i>Carabocrinus</i> sp.	30
Genus <i>Dendrocrinus</i>	31
<i>Dendrocrinus?</i> <i>springeri</i> new species	31
<i>Dendrocrinus</i> sp. A	32
<i>Dendrocrinus</i> sp. B	35
Genus <i>Merocrinus</i>	35
<i>Merocrinus britonensis</i> new species	36

Genus <i>Cupulocrinus</i>	37
<i>Cupulocrinus conjugans</i> (Billings)	37
<i>Cupulocrinus gracilis</i> (Hall)	37
<i>Cupulocrinus humilis</i> (Billings)	38
<i>Cupulocrinus jewetti</i> (Billings)	38
<i>Cupulocrinus molanderi</i> new species	39
<i>Cupulocrinus plattevillensis</i> new species	39
Genus <i>Reteocrinus</i>	41
<i>Reteocrinus rocktonensis</i> new species	41
<i>Reteocrinus spinosus</i> new species	45
Genus <i>Traskocrinus</i> new genus	46
<i>Traskocrinus mahlburgi</i> new genus and new species	46
Genus <i>Raphanocrinus</i>	47
<i>Raphanocrinus buckleyi</i> new species	48
Genus <i>Glyptocrinus</i>	49
<i>Glyptocrinus charltoni</i> new species	49
<i>Glyptocrinus pustulosus</i> new species	50
<i>Glyptocrinus</i> sp.	53
Genus <i>Promopalaearaster</i>	54
<i>Promopalaearaster wilsoni</i> (Raymond)	54
Genus <i>Hudsonaster</i>	54
<i>Hudsonaster</i> sp. cf. <i>H. rugosus</i> (Billings)	54
Genus <i>Urasterella</i>	55
<i>Urasterella?</i> sp.	55
Genus <i>Edrioaster</i>	56
<i>Edrioaster</i> sp. cf. <i>E. bigsbyi</i> (Billings)	56
Genus <i>Cyclocystoides</i>	57
<i>Cyclocystoides</i> sp. aff. <i>C. halli</i> Billings	57
<i>Cyclocystoides</i> sp.	62
Genus <i>Bothriocidaris</i>	65
<i>Bothriocidaris solemi</i> new species	66
Genus <i>Neobothriocidaris</i>	66
<i>Neobothriocidaris templetoni</i> new species	66
<i>Neobothriocidaris</i> sp.	68
Genus and Species Unknown	68
LIST OF REFERENCES	71
LOCALITY REGISTER	74

ILLUSTRATIONS

PLATES 1-15

1	17
2	18
3	21
4	22
5	33
6	34
7	43
8	44
9	51
10	52
11	59
12	60
13	63
14	64
15	69
 Text-fig. 1—Map of the Upper Mississippi Valley Region	3
2—Composite lithostratigraphic section of the Platteville and lower Galena Groups in north-central Illinois and south-central Wisconsin	4
3—Map of study area	6
4—Occurrences of echinoderm species in the Platteville and lower Galena Groups	8
5—Burrowed bedding plane in the Walgreen Member	13
6— <i>Cremacrinus guttenbergensis</i> , reconstruction of crown	24
7— <i>Anulocrinus forrestonensis</i> , drawing of anal and abanal sides of crown	25
8— <i>Isotomocrinus tenuis</i> , diagrammatic representation of dorsal cup	26
9— <i>Isotomocrinus minutus</i> , drawing of posterior side of crown	27
10— <i>Meroocrinus brittonensis</i> , drawing of C and B ray side of dorsal cup	36
11— <i>Cupulocrinus molanderi</i> , diagrammatic representations of arms	39
12— <i>Reteocrinus rocktonensis</i> , drawing of posterior dorsal cup plates	42
13— <i>Reteocrinus spinosus</i> , diagrammatic representation of the A and B rays	45
14— <i>Traskocrinus mahlburgi</i> , drawing of posterior dorsal cup plates	46
15— <i>Glyptocrinus pustulosis</i> , drawing of anterior dorsal cup	53
16— <i>Cyclocystoides</i> sp. aff. <i>C. halli</i> , diagrammatic cross section	57
17— <i>Cyclocystoides</i> sp. aff. <i>C. halli</i> , reconstruction of a submarginal ossicle	58
18— <i>Neobothriocidaris templetoni</i> , diagrammatic representation of a single ambulacrinal tract	67
19— <i>Neobothriocidaris templetoni</i> , drawing of holotype	67
 Table 1—Measurements of <i>Isotomocrinus tenuis</i> (Billings)	27
2—Measurements of <i>Carabocrinus oogyi</i> n. sp.	30
3—Measurements of <i>Dendrocrinus?</i> <i>springeri</i> n. sp.	32
4—Measurements of <i>Cupulocrinus gracilis</i> (Hall)	38
5—Measurements of <i>Cupulocrinus molanderi</i> n. sp.	39
6—Measurements of <i>Cupulocrinus plattevillensis</i> n. sp.	40
7—Important features of the crowns in species of the family Reteocrinidae	41
8—Measurements of <i>Raphanocrinus buckleyi</i> n. sp.	48
9—Measurements of <i>Glyptocrinus charltoni</i> n. sp.	50