

Supplement to *Journal of Paleontology*
(ISSN 0022-3360)
JPALAZ 60(3) II 1-36, MAY 1986

Volume 60

MAY 1986

Supplement to No. 3

Part II of II

JOURNAL OF PALEONTOLOGY

THE PALEONTOLOGICAL SOCIETY
MEMOIR 19

Late Kinderhookian (Early Mississippian)
Ammonoids of the Western United States

MACKENZIE GORDON, JR.



Memoirs of The Paleontological Society are occasional publications consisting of monographs and symposia that are too extensive for publication in the *Journal of Paleontology* as part of the regular issues. Ordinarily, memoirs are published as supplements to a regular issue of the *Journal*. Inquiries concerning submittal of manuscripts for inclusion in the Memoir Series may be made to the Editors of the *Journal* for The Paleontological Society.

Communications concerning the cost and availability of back numbers of the Memoir Series 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 1986

President

NORMAN F. SOHL, Washington, DC

President-Elect

STEPHEN J. GOULD, Cambridge, MA

Past-President

HELEN TAPPAN-LOEBLICH, Los Angeles, CA

Secretary

JOHN POJETA, JR.
U.S. Geological Survey
E-501 National Museum of Natural History
Smithsonian Institution
Washington, DC 20560

Treasurer

ROGER L. KAESLER
Dept. of Geology
University of Kansas
Lawrence, KS 66045

Program Coordinator

ROGER D. K. THOMAS, Lancaster, PA

Managing Editor

RICHARD D. HOARE, Bowling Green, OH

Associate Editor

DON C. STEINKER, Bowling Green, OH

Technical Editors

RONALD R. WEST and GEORGE R. CLARK, II
Manhattan, KS

DAVID K. ELLIOTT, Flagstaff, AZ
DONALD L. WOLBERG, Socorro, NM
MARK A. WILSON, Wooster, OH

Book Review Editor

CARL F. KOCH, Norfolk, VA

Paleobiology Co-Editors

J. JOHN SEPKOSKI, JR., and PETER R. CRANE
Chicago, IL

Special Publications Co-Editors

THOMAS W. BROADHEAD and KENNETH R.
WALKER
Knoxville, TN

Councilors

JUNE P. ROSS, Bellingham, WA
PETER D. WARD, Seattle, WA

Section Chairpersons

North-Central: RODNEY M. FELDMANN
Kent, OH

Northeastern: JEAN M. BERDAN
Washington, DC

Pacific Coast: LINDA RITTERBUSH
Thousand Oaks, CA

Rocky Mountains: STANLEY S. BEUS
Flagstaff, AZ

Southeastern: PATRICIA H. KELLEY
University, MS

The Paleontological Society

MEMOIR 19

**LATE KINDERHOOKIAN (EARLY MISSISSIPPIAN)
AMMONOIDS OF THE WESTERN UNITED STATES**

MACKENZIE GORDON, JR.

United States Geological Survey,
Room E-501, U.S. National Museum of Natural History,
Washington, D.C. 20560

Copyright © 1986 *by*
THE PALEONTOLOGICAL SOCIETY, INC.
MAY 1986

CONTENTS

| | |
|--|----|
| ABSTRACT | 1 |
| INTRODUCTION | 1 |
| NEW MEXICO LOCALITIES | 2 |
| NEVADA LOCALITIES | 2 |
| UTAH LOCALITIES | 4 |
| IDAHO LOCALITIES | 4 |
| MONTANA LOCALITY | 5 |
| REGISTER OF COLLECTIONS | 5 |
| COMPARISON WITH LATE KINDERHOOKIAN AMMONOIDS OF THE MIDCONTINENT | 7 |
| PALEOECOLOGIC DISTRIBUTION OF KINDERHOOKIAN AMMONOIDS IN THE UNITED STATES | 8 |
| MUENSTERCERAS, AN OSAGEAN GENUS | 9 |
| OSAGEAN AGE OF SOME AMMONOIDS FORMERLY ASSIGNED TO THE KINDERHOOKIAN | 10 |
| DISTINGUISHING KINDERHOOKIAN FROM OSAGEAN AMMONOIDS | 10 |
| COMPARISON WITH EURASIAN AMMONOID SEQUENCES | 10 |
| SYSTEMATIC PALEONTOLOGY | 12 |
| GENUS <i>Protocanites</i> Schmidt, 1922 | 12 |
| <i>Protocanites lyoni</i> (Meek and Worthen, 1860) | 12 |
| GENUS <i>Imitoceras</i> Schindewolf, 1923 | 16 |
| <i>Imitoceras</i> sp. (of Montana) | 16 |
| <i>Imitoceras</i> sp. (of Nevada) | 17 |
| <i>Imitoceras?</i> sp. (of New Mexico) | 17 |
| GENUS <i>Gattendorfia</i> Schindewolf, 1920 | 18 |
| SUBGENUS <i>Gattendorfia</i> (<i>Gattendorfia</i>) s. str. | 18 |
| <i>Gattendorfia</i> (<i>Gattendorfia</i>) <i>bransonii</i> Miller and Youngquist, 1947 | 18 |
| <i>Gattendorfia</i> (<i>Gattendorfia</i>) <i>costata</i> Vöhringer, 1960 | 18 |
| <i>Gattendorfia</i> sp. | 19 |
| <i>Gattendorfia?</i> sp. indet. | 19 |
| GENUS <i>Kazakhstania</i> Librovitch, 1940 | 20 |
| <i>Kazakhstania</i> sp. | 20 |
| GENUS <i>Pericyclus</i> Mojsisovics, 1882 | 20 |
| SUBGENUS <i>Pericyclus</i> (<i>Pericyclus</i>) s. str. | 20 |
| SUBGENUS <i>Pericyclus</i> (<i>Goniocyclus</i>) n. subgen. | 21 |
| <i>Pericyclus</i> (<i>Goniocyclus</i>) <i>blairi</i> (Miller and Gurley, 1896) | 21 |
| <i>Pericyclus</i> (<i>Goniocyclus</i>) <i>cooperi</i> n. sp. | 24 |
| <i>Pericyclus</i> (<i>Goniocyclus</i>) <i>costulatus</i> n. sp. | 24 |
| <i>Pericyclus</i> (<i>Goniocyclus</i>) <i>antelopensis</i> n. sp. | 25 |
| <i>Pericyclus</i> (<i>Goniocyclus</i>) <i>rockymontanus</i> n. sp. | 26 |
| <i>Pericyclus</i> (<i>Goniocyclus</i>) <i>filaris</i> n. sp. | 26 |
| <i>Pericyclus</i> (<i>Goniocyclus</i>) sp. indet. | 27 |
| <i>Pericyclus</i> (<i>Goniocyclus</i>)? <i>decipiens</i> n. sp. | 28 |
| GENUS <i>Rotopericyclus</i> Turner, 1948 | 30 |
| SUBGENUS <i>Rotopericyclus</i> (<i>Rotopericyclus</i>) s. str. | 30 |
| <i>Rotopericyclus</i> (<i>Rotopericyclus</i>) <i>pinyonensis</i> n. sp. | 30 |
| SUBGENUS <i>Rotopericyclus</i> (<i>Hammatocyclus</i>) Schindewolf, 1951 | 31 |
| <i>Rotopericyclus</i> (<i>Hammatocyclus</i>) <i>brazerensis</i> n. sp. | 31 |
| <i>Rotopericyclus</i> (<i>Hammatocyclus</i>) sp. | 32 |

| | |
|-----------------------|----|
| ACKNOWLEDGMENTS | 33 |
| REFERENCES | 33 |

ILLUSTRATIONS

| | | |
|---------|---|----|
| FIGURES | 1—Index map of the western United States, showing ammonoid localities | 2 |
| | 2—Paleotectonic map of the conterminous United States, showing ammonoid localities | 9 |
| | 3—Correlation chart of North American ammonoid genera of late Kinderhookian and early Osagean age | 11 |
| | 4—Prolecanitidae: <i>Protocanites lyoni</i> | 13 |
| | 5—Sutures of <i>Protocanites lyoni</i> | 15 |
| | 6—Imitoceratidae: <i>Gattendorfia</i> (<i>Gattendorfia</i>), <i>Kazakhstania</i> , <i>Imitoceras?</i> , <i>Gattendorfia</i> , and <i>Imitoceras</i> | 16 |
| | 7—Sutures of <i>Imitoceras</i> sp. (of Montana) | 17 |
| | 8—Sutures of <i>Gattendorfia</i> (<i>Gattendorfia</i>) | 19 |
| | 9—Pericyclidae: <i>Pericyclus</i> (<i>Goniocyclus</i>) | 22 |
| | 10—Sutures of <i>Pericyclus</i> (<i>Goniocyclus</i>) | 23 |
| | 11—Pericyclidae: <i>Pericyclus</i> (<i>Goniocyclus</i>)?, <i>P.</i> (<i>Goniocyclus</i>), <i>Rotopericyclus</i> (<i>Hammatocyclus</i>), and <i>R.</i> (<i>Rotopericyclus</i>) | 29 |
| | 12—Suture of <i>Rotopericyclus</i> (<i>Rotopericyclus</i>) <i>pinyonensis</i> | 31 |
| TABLES | 1—Distribution of ammonoid genera and subgenera in rocks of late Kinderhookian age in the United States | 8 |
| | 2—Dimensions and proportions of <i>Protocanites lyoni</i> | 14 |
| | 3—Dimensions and proportions of <i>Gattendorfia</i> (<i>Gattendorfia</i>) <i>bransonii</i> | 19 |
| | 4—Dimensions and proportions of <i>Pericyclus</i> (<i>Goniocyclus</i>) <i>blairi</i> | 23 |
| | 5—Dimensions and proportions of <i>Pericyclus</i> (<i>Goniocyclus</i>) <i>filaris</i> | 27 |
| | 6—Dimensions and proportions of <i>Rotopericyclus</i> (<i>Hammatocyclus</i>) <i>brazierensis</i> | 32 |