

Part II of II

JOURNAL OF PALEONTOLOGY

**THE PALEONTOLOGICAL SOCIETY
MEMOIR 45**

Early Cambrian Trilobites from the Shackleton Limestone
of the Central Transantarctic Mountains

ALLISON R. PALMER AND ALBERT J. ROWELL



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 Managing Editor of the *Journal of Paleontology*.

For information on cost and availability of back numbers of the Memoir Series, please contact: SEPM Business Office, P.O. Box 4756, Tulsa, OK 74159, for numbers 1 (1968) through 16 (1985) or Journal of Paleontology, P.O. Box 1897, Lawrence, KS 66044-8897, for number 17 (1986) and following.

The JOURNAL OF PALEONTOLOGY (ISSN 0022-3360) is published bimonthly by the Paleontological Society, 810 East 10th St., Lawrence, KS 66044, USA. Dues and subscriptions for members of The Paleontological Society are \$59.00 per year. Subscription price is \$99 per year. Second-class postage paid at Lawrence, KS. For information on prices of back issues of the JOURNAL, please contact: SEPM Business Office, P.O. Box 4756, Tulsa, OK 74159, for volumes 1 (1927) through 59 (1985) or Paleontological Society Business Office, P.O. Box 1897, 810 East 10th St., Lawrence, KS 66044-8897, for volumes 60 (1986) and following.

Communications about the JOURNAL, notices, subscriptions, rates, changes of address, and nonreceipt of preceding numbers should be addressed to: JOURNAL OF PALEONTOLOGY Subscriptions Office, P.O. Box 1897, 810 East 10th St., Lawrence, KS 66044-8897, U.S.A. Claims for nonreceipt of preceding numbers must be submitted within three months (six months if foreign) of the date of publication in order to be filled gratis. Communications about membership and requests for blanks for nomination of new members in The Paleontological Society should be directed to the Secretary: Thomas W. (Woody) Henry, Box 282200-16, Lakewood, CO 80228-3108.

Address manuscripts to:

Daniel B. Blake, Managing Editor
Museum of Natural History and Department of Geology
University of Illinois at Urbana-Champaign
1301 W. Green St., Room 245
Urbana, IL 61801

Associate Editors for the Journal are: Deborah A. Bakken, Ralph L. Langenheim, Jr.; Museum of Natural History and Department of Geology, University of Illinois at Urbana-Champaign, IL 61801. Technical editors are: Jack B. Bailey, Geology Department, Western Illinois University, Macomb, IL 61455; David K. Elliott, Department of Geology, Northern Arizona University, Flagstaff, AZ 86011; Frank R. Effensohn, Department of Geological Sciences, University of Kentucky, Lexington, KY 40506-0059; Patricia H. Kelley, Department of Geology and Geological Engineering, P.O. Box 8358, University of North Dakota, Grand Forks, ND 58202-8358; Ellen Compton-Gooding, Virginia Museum of Natural History, Martinsville, VA 24112; Thomas E. Guensberg, Division of Physical Sciences, Rock Valley College, Rockford, IL 61111; Deborah E. Newman, 7923 Moon Walk, San Antonio, TX 78250; Jack Pashin, Geological Survey of Alabama, P.O. Box 0, Tuscaloosa, AL 35486-9780; Michael R. Sandy, Department of Geology, University of Dayton, Dayton, OH 45469; Donald R. Prothero, Department of Geology, Occidental College, Los Angeles, CA 90041; Anne Raymond, Department of Geology, Texas A&M University, College Station, TX 77843.

The JOURNAL OF PALEONTOLOGY is printed offset by Allen Press, Inc., Lawrence, KS 66044.

Copyright © 1995, The Paleontological Society
ALLEN PRESS, INC., LAWRENCE, KANSAS

COPYRIGHT STATEMENT

The appearance of the code at the top of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc., P.O. Box 765, Schenectady, New York 12301, for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale.

∞ This paper meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

The Paleontological Society

MEMOIR 45

**EARLY CAMBRIAN TRILOBITES FROM THE SHACKLETON LIMESTONE
OF THE CENTRAL TRANSANTARCTIC MOUNTAINS**

ALLISON R. PALMER AND ALBERT J. ROWELL

Institute for Cambrian Studies, 445 North Cedarbrook Road, Boulder, Colorado 80304
and Natural History Museum and Department of Geology, University of Kansas, Lawrence 66045

Copyright © 1995 by
THE PALEONTOLOGICAL SOCIETY, INC.
NOVEMBER 1995

CONTENTS

ABSTRACT	1
INTRODUCTION	1
GEOLOGIC SETTING OF THE SHACKLETON LIMESTONE (prepared by A. J. Rowell	1
TRILOBITE ASSEMBLAGES AND BIOSTRATIGRAPHY (prepared by A. R. Palmer	3
BIOGEOGRAPHIC CONSIDERATIONS	4
SYSTEMATIC PALEONTOLOGY (prepared by A. R. Palmer)	6
SUPERFAMILY Eodiscoidea Raymond, 1913	6
FAMILY Calodiscidae Kobayashi, 1943	6
GENUS <i>Neocobboldia</i> Rasetti, 1952	6
<i>Neocobboldia</i> sp.	6
Genus and species undetermined A	6
FAMILY Eodiscidae Raymond, 1913	7
GENUS <i>Pagetides</i> Rasetti, 1945	7
SUBGENUS <i>Pagetides</i> (<i>Discomesites</i>) Öpik, 1975	7
<i>Pagetides</i> (<i>Discomesites</i>) <i>spinus</i> new species	7
FAMILY Redlichiidae Poulsen, 1927	7
SUBFAMILY Wutingaspiinae Chang, 1966	7
GENUS <i>Lemdadella</i> Szdzy, 1978	7
<i>Lemdadella antarcticae</i> new species	8
<i>Lemdadella?</i> sp.	10
Indeterminate redlichiids	10
Pygidium undetermined 1	10
Pygidium undetermined 2	11
FAMILY Dinesidae Lermontova, 1940	11
SUBFAMILY Erbininae Repina in Repina et al., 1964	11
GENUS <i>Pseudoerbia</i> Repina in Repina et al., 1964	11
<i>Pseudoerbia</i> sp.	11
FAMILY Ellipsocephalidae Hupé, 1953	11
SUBFAMILY Antatlasinae Hupé, 1953	11
GENUS <i>Berabichia</i> Geyer, 1990	11
<i>Berabichia</i> cf. <i>B. subditus</i> (Palmer and Gatehouse, 1972)	11
SUBFAMILY Ellipsocephalinae Matthew, 1887	12
GENUS <i>Kingaspis</i> Kobayashi, 1935	12
<i>Kingaspis? convexus</i> Palmer, new species	12
<i>Kingaspis</i> sp. 1	12
<i>Kingaspis?</i> sp. 2	12
<i>Kingaspis?</i> sp. 3	12
FAMILY Emuellidae Pocock, 1970	14
GENUS <i>Balcorcania</i> Pocock, 1970	14
<i>Balcorcania?</i> sp. 1	14
<i>Balcorcania?</i> sp. 2	15
<i>Balcorcania?</i> sp. 3	15
?FAMILY Emuellidae Pocock, 1970	15
GENUS <i>Holyoakia</i> Palmer, new genus	15
<i>Holyoakia granulosa</i> Palmer, new species	15
?FAMILY Ichangiidae Zhu, 1980	16
GENUS <i>Hsuaspis</i> Chang, 1957	16
<i>Hsuaspis</i> cf. <i>H. bilobata</i> (Pocock, 1964)	16
?FAMILY Kueichowiiidae Lu, 1965	17
Genus and species undetermined B	17
FAMILY Yunnanocephalidae Hupé, 1953	17

GENUS <i>Yunnanocephalus</i> Kobayashi, 1936	17
<i>Yunnanocephalus longioccipitalis</i> Palmer, new species	17
<i>Yunnanocephalus</i> cf. <i>Y. yunnanensis</i> (Mansuy, 1912)	19
<i>Yunnanocephalus</i> sp. 1	19
<i>Yunnanocephalus</i> sp. 2	19
FAMILY unassigned	19
GENUS <i>Onchocephalina</i> Repina, 1960	19
<i>Onchocephalina? spinosa</i> Palmer, new species	20
GENUS <i>Pararaia</i> Kobayashi, 1942	20
<i>Pararaia?</i> sp.	20
GENUS <i>Pensacola</i> Palmer and Gatehouse, 1972	21
<i>Pensacola</i> cf. <i>P. isolata</i> Palmer and Gatehouse, 1972	21
<i>Pensacola?</i> sp. 1	21
<i>Pensacola?</i> sp. 2	21
<i>Pensacola?</i> sp. 3	22
GENUS <i>Solontzella</i> Repina, 1960	23
<i>Solontzella?</i> spp.	23
Genus and species undetermined C	23
Genus and species undetermined D	24
Genus and species undetermined E	24
Genus and species undetermined F	24
Genus and species undetermined G	24
ACKNOWLEDGMENTS	25
REFERENCES	25

ILLUSTRATIONS

FIGURES	
1—Index map of Lower Cambrian outcrops in Antarctica	2
2—Map of principal collecting sites in southern Churchill Mountains	2
3—Map of principal collecting sites in upper Beardmore Glacier region	3
4—Deformed Shackleton Limestone	4
5—Gondwana and related areas at 520 Ma	5
6—Calodiscidae	6
7—Eodiscidae	7
8—Redlichiidae	9
9—Dinesidae, Antatlasinae	11
10—Ellipsocephalinae	13
11—Emuellidae and ?Emuellidae	14
12—?Ichangiidae	16
13—?Kueichowiiidae	17
14—Yunnanocephalidae	18
15— <i>Onchocephalina? spinosa</i>	20
16— <i>Pararaia?</i> sp.	21
17— <i>Pensacola</i> and <i>Pensacola?</i> spp.	22
18— <i>Solontzella?</i> and genus and species undetermined	23

APPENDICES

1—Faunal lists and ages for biostratigraphically dated collections	27
2—Faunal lists for biostratigraphically unassigned collections ..	27
3—Shackleton Limestone trilobite locality information	27