

Paleobiology

(ISSN 0094-8373)

Volume 22

Number 1

Winter, 1996

CONTENTS

Matters of the Record

- Daughter of time *Andrew H. Knoll* 1

Articles

- An evaluation of clade-shape statistics using simulations and extinct families of mammals *Mark D. Uhen* 8
- Hierarchies in biology and paleontology *James W. Valentine and Cathleen L. May* 23
- Biogeographic and stratigraphic evidence for rapid speciation in semionotid fishes *Amy R. McCune* 34
- Morphological diversification of Ptychopariida (Trilobita) from the Marjumiid biomere (Middle and Upper Cambrian) *Frederick A. Sundberg* 49
- Trilobite biogeography in the Middle Devonian: geological processes and analytical methods *Bruce S. Lieberman and Niles Eldredge* 66
- Comparative taphonomy of bivalves and foraminifera from Holocene tidal flat sediments, Bahia la Choya, Sonora, Mexico (Northern Gulf of California): taphonomic grades and temporal resolution *Ronald E. Martin, John F. Wehmiller, M. Scott Harris, and W. David Liddell* 80
- On discerning the cause of late Pleistocene megafaunal extinctions *Michael W. Beck* 91
- Trophic group and the end-Cretaceous extinction: did deposit feeders have it made in the shade? *Jeffrey S. Levinton* 104
- From the Incoming Editors *Douglas H. Erwin and Scott L. Wing* 113
- Instructions for Contributors 115

A quarterly journal of the Paleontological Society
© 1996 The Paleontological Society. All rights reserved.

Mailing Date: March 15, 1996

CODEN PALBBM 22(1) 1-119 (1996)

Address **manuscripts** and **advertising** to:

Dr. Douglas H. Erwin and Dr. Scott L. Wing
PALEOBIOLOGY
Department of Paleobiology, MRC-121
Smithsonian Institution
Washington, DC 20560

CO-EDITORS: DOUGLAS H. ERWIN and SCOTT L. WING
Smithsonian Institution

EDITORIAL ASSISTANT: FINNEGAN MARSH

COPY EDITOR: NATASHA ATKINS

FOUNDING EDITORS: THOMAS J. M. SCHOPF and RALPH G. JOHNSON

Address **ALL** matters regarding **SUBSCRIPTIONS** to:

Paleobiology Subscriptions
P.O. Box 1897
810 East 10th St.
Lawrence, KS 66044-8897

Although published by the Paleontological Society, a subscription to PALEOBIOLOGY is in addition to the society dues. There are five groups of subscribers. For 1995, subscriptions are:

- (1) \$35.00 for regular subscribers.
- (2) \$33.00 for members of the Paleontological Society or the Palaeontological Association.
- (3) \$23.00 for student subscribers.
- (4) \$20.00 for student members of the Paleontological Society or the Palaeontological Association.
- (5) \$65.00 for institutions.

Back volume: \$8.00 for *all* individuals and institutions.

PALEOBIOLOGY (ISSN 0094-8373) is published quarterly by the Paleontological Society, 810 East 10th St., Lawrence, KS 66044, USA. Price for institutional subscriptions, \$65; individual subscriptions, \$35. Second-class postage paid at Lawrence, KS. POSTMASTER: Send address changes to PALEOBIOLOGY, P.O. Box 1897, 810 East 10th St., Lawrence, KS 66044-8897, USA.
PALEOBIOLOGY is printed offset by Allen Press, Inc., Lawrence, KS 66044.

The Paleontological Society acknowledges, with special thanks, Patrons and Institutional Supporters of *Paleobiology* for 1995.

The purpose of establishing the Patrons Fund is to broaden the basis of financial support for *Paleobiology*, and thus to encourage paleontological publication.

\$50.00 to \$100.00,
at the discretion of the Contributor

For you, or your institution, to become a Patron, send a check payable to *Paleobiology* to:

Paleobiology
Department of Paleobiology, MRC-121
Smithsonian Institution
Washington, DC 20560

INDIVIDUALS

CRAIG C. BLACK
DAVID J. BOTTGER
J. DAVID BUKRY
LEO BUSS
WILLIAM A. CLEMENS, JR.
ROBERT E. DEMAR
MIGUEL DE RENZI
DOUGLAS K. DEW
CHRISTOPHER J. DURDEN
SAMUEL R. EDWARDS
DOUGLAS H. ERWIN
STEPHEN JAY GOULD
CAROLE S. HICKMAN
KUNIHIRO ISHIZAKI
JEREMY B. C. JACKSON
WANN LANGSTON, JR.
DAVID R. LINDBERG
JERE H. LIPPS
ERNEST L. LUNDELIUS, JR.
FRANK K. MCKINNEY
WILLIAM A. OLIVER, JR.
KEVIN PADIAN
ALLISON R. PALMER
BOB F. PERKINS
JOHN M. RENSBERGER
ROBERT E. RICKLEFS
GEERT R. SCHEEPBOUWER
J. JOHN SEPKOSKI, JR.
EDWARD M. SNYDER
PETER B. STIFEL
WERNER L. STUNKEL
CURT TEICHERT
KEITH S. THOMSON
YUKIMITSU TOMIDA
JAMES W. VALENTINE
JOHNNY A. WATERS

IN MEMORIAM

PETER G. WILLIAMSON