

# Paleobiology

(ISSN 0094-8373)

Volume 26

Number 1

Winter, 2000

## CONTENTS

### *Matters of the Record*

- Beyond competition *Stephen Jay Gould* 1

### *Articles*

- Competitive displacement among post-Paleozoic cyclostome and cheilostome bryozoans

*J. John Sepkoski Jr., Frank K. McKinney, and Scott Lidgard* 7

- The muricid gastropod subfamily Rapaninae: phylogeny and ecological history *Geerat J. Vermeij and Sandra J. Carlson* 19

- Modern mucociliary creeping trails and the bodyplans of Neoproterozoic trace-makers *Allen G. Collins, Jere H. Lipps, and James W. Valentine* 47

- Contrasting evolutionary flexibility in sister groups: disparity and diversity in Mesozoic atelostomate echinoids *Gunther J. Eble* 56

- Bivalve taphonomy in tropical mixed siliciclastic-carbonate settings:  
I. Environmental variation in shell condition *Mairi M. R. Best and Susan M. Kidwell* 80

- Bivalve taphonomy in tropical mixed siliciclastic-carbonate settings:  
II. Effect of bivalve life habits and shell types *Mairi M. R. Best and Susan M. Kidwell* 103

- Fenestrate theoretical morphology: geometric constraints on lophophore shape and arrangement in extinct Bryozoa *Robert W. Starcher and George R. McGhee Jr.* 116

- Can C3 plants faithfully record the carbon isotopic composition of atmospheric carbon dioxide? *Nan Crystal Arens, A. Hope Jahren, and Ronald Amundson* 137

- Instructions for Contributors* 165

A quarterly journal of The Paleontological Society  
© 2000 The Paleontological Society. All rights reserved.  
Mailing Date: March 16, 2000  
CODEN PALBBM 26(1) 1-170 (2000)

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

Dr. Douglas H. Erwin and Dr. Scott L. Wing  
PALEOBIOLOGY  
Department of Paleobiology, NHB121  
Smithsonian Institution  
Washington, DC 20560

Address all requests for **Permissions** to the Editorial Office.

website: <http://www.uic.edu/orgs/paleo/paleobio.htm>

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

*Matters of the Record* EDITOR: ARNOLD I. MILLER  
University of Cincinnati

EDITORIAL ASSISTANT: FINNEGAN MARSH

COPYEDITOR: NATASHA ATKINS

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

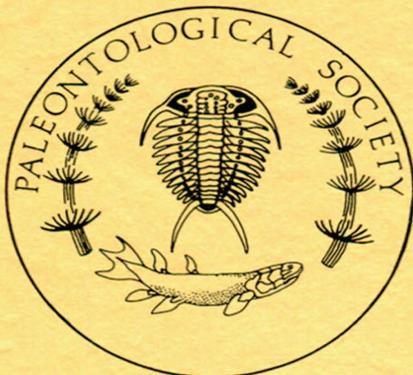
Address **ALL** matters regarding **SUBSCRIPTIONS** to:

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 1999, 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 issues: \$4.00 for members, \$16.00 for nonmembers. Price includes postage and handling.



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. Periodicals 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.

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

The Paleontological Society gratefully acknowledges Patrons of *Paleobiology* for 1999.

The Patrons Fund was established 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, NHB121  
Smithsonian Institution  
Washington, DC 20560

#### PATRONS

AMOCO PRODUCTION  
RICHARD K. BAMBACH  
MICHAEL G. BASSETT  
JAMES R. BEERBOWER  
DAVID J. BOTTJER  
J. DAVID BUKRY  
LEO W. BUSS  
WILLIAM A. CLEMENS  
CORNELL UNIVERSITY  
PETER R. CRANE  
MIGUEL DERENZI  
DOUGLAS K. DEW  
SAMUEL R. EDWARDS  
DOUGLAS H. ERWIN  
KARL W. FLESSA  
CAROLE S. HICKMAN  
STEVEN M. HOLLAND  
FREDERICK H. C. HOTCHKISS  
AUGUST ILG  
IN MEMORY OF JACK SEPKOSKI  
CHARLES KING  
TAMIO KOTAKA  
WANN LANGSTON JR.  
DAVID LAZARUS  
DAVID R. LINDBERG  
JERE H. LIPPS  
ERNEST L. LUNDELIUS  
BRUCE J. MACFADDEN  
GEORGE R. MCGHEE  
FRANK K. MCKINNEY  
PAUL MORRIS  
GROVER E. MURRAY  
NATHAN P. MYHRVOLD  
WILLIAM A. OLIVER  
OXFORD JOURNALS  
A. RICHARD PALMER  
RUDOLF A. RAFF  
JOHN M. RENSBERGER  
SHERMAN SUTER  
ROGER D. K. THOMAS  
KEITH S. THOMSON  
WILLIAM D. TURNBULL  
JAMES W. VALENTINE  
JOHNNY A. WATERS

