

Cambridge University Press

0521020816 - Morphological Change in Quaternary Mammals of North America

Edited by Robert A. Martin and Anthony D. Barnosky

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This book examines case studies of North American Quaternary mammalian evolution within the larger domain of modern evolutionary theory. The book presents previously unpublished studies of a variety of taxa (xenarthrans, rodents, carnivores, ungulates) examined over several temporal scales, from a few thousand years during the Holocene to millions of years of late Pliocene and Pleistocene time. Different organizational levels are represented, from mosaic population variation to a synopsis of Quaternary evolution of an entire order (Rodentia). In addition to specific case histories, the book includes purely theoretical and methodological contributions, for example, on the statistical recognition of stasis in the fossil record, new ways to calculate evolutionary rates, and the use of digital image analysis in the study of dental ontogeny. Perhaps the most important aspect of the studies reported in this book is that they span the time between the “ecological moment” and “deep time.” Modern taxa can be traced back into the fossil record, and variation among extant taxa can be used as a control against which variation in the extinct ones can be understood.

The book will interest vertebrate paleontologists, modern ecologists concerned with the origin of biological diversity, and also evolutionists interested in the competing evolutionary models of punctuated equilibrium and phyletic gradualism.

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Edited by

ROBERT A. MARTIN

Murray State University

ANTHONY D. BARNOSKY

University of California at Berkeley



CAMBRIDGE
UNIVERSITY PRESS

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CAMBRIDGE UNIVERSITY PRESS
 Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo

Cambridge University Press
 The Edinburgh Building, Cambridge CB2 2RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org
 Information on this title: www.cambridge.org/9780521404501

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First published 1993
 This digitally printed first paperback version 2005

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication data

Morphological change in Quaternary mammals of North America / edited
 by Robert A. Martin, Anthony D. Barnosky.

p. cm.

Includes index.

ISBN 0-521-40450-9

1. Mammals, Fossil – North America – Evolution. 2. Mammals –
 North America – Evolution. 3. Paleontology – North America.

4. Paleontology – Quaternary. I. Martin, Robert A. (Robert Allen)
 II. Barnosky, Anthony D.

QE881.M769 1993

569'.097 – dc20

93-12136

CIP

ISBN-13 978-0-521-40450-1 hardback

ISBN-10 0-521-40450-9 hardback

ISBN-13 978-0-521-02081-7 paperback

ISBN-10 0-521-02081-6 paperback

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Contributors

Deborah K. Anderson
Division of Natural Science
St. Norbert College
De Pere, Wisconsin 54115

Anthony D. Barnosky
Department of Integrative
Biology
University of California
Berkeley, California 94720

Jean Chaline
Centre de Paléontologie
Analytique et Géologie
Sédimentaire
URA CNRS 157
Laboratoire de Préhistoire et
Paléoécologie du Quaternaire
de l'EPHE
Centre des Sciences de la Terre
6 Bd. Gabriel
2100 Dijon
France

Andrew P. Czebieniak
Department of Geological
Sciences
University of Texas at Austin
Austin, Texas 78712

Tamar Dayan
Department of Zoology
Tel Aviv University
Ramat Aviv, Tel Aviv 69978
Israel

Philip P. Gingerich
Museum of Paleontology
The University of Michigan
Ann Arbor, Michigan 48109–
1079

H. Thomas Goodwin
Department of Natural Sciences
Loma Linda University
Loma Linda, California 92350

Richard C. Hulbert, Jr.
Department of Geology and
Geography
Georgia Southern University
Statesboro, Georgia 30460–8149

Eric Le Boulengé
Unité de Biométrie
Université Catholique de
Louvain
2 Place Croix du Sud
B-1348 Louvain-la-Neuve
Belgique

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Adrian M. Lister
Department of Zoology
University of Cambridge
Cambridge CB2 3EJ
United Kingdom

Larry D. Martin
Museum of Natural History and
Department of Systematics and
Ecology
University of Kansas
Lawrence, Kansas 66045

Robert A. Martin
Department of Biological
Sciences
Murray State University
Murray, Kentucky 42071

Gary S. Morgan
Florida Museum of Natural
History
University of Florida
Gainesville, Florida 32611–2035

James R. Purdue
Zoology Section
Illinois State Museum
Corner Spring and Edwards
Springfield, Illinois 62706

Elizabeth J. Reitz
Zooarchaeology Laboratory
Museum of Natural History
Natural History Building
The University of Georgia
Athens, Georgia 30602

John M. Rensberger
Department of Geological
Sciences and Burke Memorial
Washington State Museum
DB-10
University of Washington
Seattle, Washington 98195

André Schaaf
Centre des Sciences de la Terre
URA CNRS 11
27–43 Bd du 11 November
69622 Villeurbanne cedex
France

Kevin Seymour
Department of Vertebrate
Paleontology
Royal Ontario Museum
100 Queen's Park
Toronto, Ontario, Canada M5S
2C6

Daniel Simberloff
Department of Biological
Sciences
Florida State University
Tallahassee, Florida 32306–2043

Eitan Tchernov
Department of Evolution,
Systematics and Ecology
The Hebrew University
Jerusalem 91904
Israel

Laurent Viriot
Centre de Paléontologie
Analytique et Géologie
Sédimentaire
URA CNRS 157
Laboratoire de Préhistoire et
Paléoécologie du Quaternaire
de l'EPHE
Centre des Sciences de la Terre
6 Bd. Gabriel
2100 Dijon
France

Richard J. Zakrzewski
Department of Geosciences and
Sternberg Memorial Museum
Fort Hays State University
Hays, Kansas 67601–4099

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Acknowledgments

We are most grateful to our editors at Cambridge University Press, Kathleen Zylan, Robin Smith, Eric Newman, and Camilla Palmer for agreeing to publish the results of our symposium and for their professional help in editing the manuscript.

Kathy Gann at Berry College typed the manuscripts and index on computer and incorporated changes as the editing progressed. Her astute professionalism and punctuality are greatly appreciated. Angela Vitale, Berry undergraduate biology major, helped in numerous ways with the symposium.

Our thanks also go to the administration at Berry College for sponsoring the meeting and providing accommodations for the participants.