

TRANSACTIONS
OF
THE ROYAL SOCIETY
OF
EDINBURGH



EARTH SCIENCES

Volume 73 (for 1982) Part 3

PUBLISHED BY THE ROYAL SOCIETY OF EDINBURGH
22 GEORGE STREET · EDINBURGH · EH2 2PQ

1983

Editorial Board

B. J. BLUCK
University of Glasgow

D. R. BOWES
University of Glasgow
(Executive Editor)

J. B. DAWSON
University of Sheffield

P. McL. D. DUFF
University of Strathclyde

E. H. FRANCIS
University of Leeds

D. GRANT
Scottish Academic Press, Edinburgh

A. M. HOPGOOD
University of St Andrews

R. M. S. SMELLIE
General Secretary
Royal Society of Edinburgh

G. I. LUMSDEN
Institute of Geological Sciences, Edinburgh

D. B. MACINTYRE
Pomona College, Claremont

R. C. MACKENZIE
Macaulay Institute, Aberdeen

D. G. MURCHISON
University of Newcastle upon Tyne

W. MYKURA
Institute of Geological Sciences, Edinburgh

E. K. WALTON
University of St Andrews

C. D. WATERSTON
Royal Scottish Museum, Edinburgh
(Executive Editor)

W. H. RUTHERFORD
Executive Secretary
Royal Society of Edinburgh

Consulting Editors

H. P. BANKS
Cornell University, Ithaca

R. G. C. BATHURST
University of Liverpool

J. M. BERTRAND
Université de Nancy

J. C. BRIDEN
University of Leeds

T. N. CLIFFORD
University of the Witwatersrand, Johannesburg

W. COMPSTON
Australian National University, Canberra

I. W. D. DALZIEL
Lamont-Doherty Geological Observatory of
Columbia University, Palisades

J. KONTA
Charles University, Prague

R. F. LEGGET
Ottawa

L. B. LEOPOLD
University of California, Berkeley

W. D. MOONEY
U.S. Geological Survey, Menlo Park

M. F. RIDD
British National Oil Corporation, Glasgow

A. SEILACHER
Universität Tübingen

I. J. SELIKOFF
Mount Sinai School of Medicine, New York

D. F. STRONG
Memorial University, St Johns

O. VAN BREEMEN
Geological Survey of Canada, Ottawa

R. H. VERNON
Macquarie University, Sydney

D. E. WHITE
U.S. Geological Survey, Menlo Park

P. A. ZIEGLER
Shell Internationale Petroleum Maatschappij B.V.,
The Hague

Editorial Secretary, Royal Society of Edinburgh: C. A. Anderson

COPYRIGHT: It is the policy of the Royal Society of Edinburgh not to charge any royalty for the production of a single copy of any one article made for private study or research. Requests for the copying or reprinting of any article for any other purpose should be sent to the Royal Society of Edinburgh.

© 1983 The Royal Society of Edinburgh and the authors of individual papers.