



# POLAR RECORD

VOLUME 27 NUMBER 160 JANUARY 1991

CAMBRIDGE UNIVERSITY PRESS

# Polar Record

Journal of the Scott Polar Research Institute, University of Cambridge, Cambridge CB2 1ER, UK.  
Published by Cambridge University Press.

Editor: Dr Bernard Stonehouse

## Editorial advisors:

Terence Armstrong  
Sidney Brown  
W. Nigel Bonner  
G. P. Donovan  
Julian Dowdeswell  
David G. Drewry  
Peter Keage

Geoffrey Hattersley-Smith  
Robert K. Headland  
Tom Høyem  
William Mills  
Gareth Rees  
Gordon de Q. Robin  
W. Gilles Ross

Vernon Squire  
Charles Swithinbank  
Piers Vitebsky  
Peter Wadhams  
David W. H. Walton  
Robin Williams  
Ian Whitaker

Production: Irene Lawton, Ailsa Macqueen, Sally Stonehouse.

*Polar Record* (ISSN 0032-2474) is published four times yearly in January, April, July and October, the four issues making up a volume. First published in January 1931, it appeared twice yearly up to July 1954 and three times yearly up to September 1987. *Polar Record* reports progress in all fields of research for the polar community.

## Contributions

Contributions are invited on all subjects of polar interest, including accounts of fieldwork. The Editor welcomes articles (normally up to 8000 words), notes (up to about 2000 words), letters, brief items of interest, and books, reports, etc for review. Discussion with the Editor beforehand may save time and trouble. For details of style, see a recent copy of *Polar Record*.

Please send manuscripts to The Editor, *Polar Record*, Scott Polar Research Institute, Lensfield Road, Cambridge, CB2 1ER, UK. Manuscripts that appear suitable for publication are refereed, and those accepted for publication will usually be published within a few months — normally less than a year from the original receipt. Authors receive proofs for correction. Authors of articles receive 30 free reprints; additional reprints may be ordered when proofs are returned. Books, reports and other publications for reviewing should be sent direct to the Editor at the above address, marked 'For review'; they will be reviewed at the Editor's discretion.

Copyright ownership is normally vested in the publishers of *Polar Record*, but will be reassigned to contributors on request. Opinions expressed by contributors are not necessarily those of the Editor, the Director or Management Committee of the Scott Polar Research Institute, or the University of Cambridge.

Place names used in *Polar Record* are those authorized by the administrative authorities recognized by the British Government; names not so authorized are avoided or set in quotation marks. Russian names are transliterated by the system agreed in 1947 between the United States Board on Geographic Names and the Permanent Committee on Geographical Names for British Official Use; see *Polar Record* 6(44): 546 (1952).

©Scott Polar Research Institute 1991.

## Copying

*Polar Record* is registered with the Copyright Clearance Center, 27 Congress Street, Salem, Mass. 01970, USA. Organizations in the USA that are also registered with the CCC may copy material (beyond limits permitted by sections 107 and 108 of US copyright law) subject to payment to CCC of the per copy fee of \$5.00. This consent does not extend to multiple copy for promotional or commercial purposes. Code 0032-2474/91. For all other use, permission should be sought from the Cambridge or the American Branch of Cambridge University Press (addresses below).

## Subscriptions

Orders, which must be accompanied by payment, should be sent to any bookseller or subscription agent, or direct to the publisher:

**Cambridge University Press**  
**The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU**

or:

**40 West 20th Street, New York, NY 10011, USA.**

The subscription price of vol 27, 1991, including postage, is: for individuals, £32.00 (US\$63.00 in USA and Canada), for institutions £48.00 (US\$92.00 in USA and Canada). Second class postage paid at New York NY and at additional mailing offices. Separate issues cost £12.00 (US\$24.00 in USA and Canada) plus

(continued inside back cover)