WESFARMERS has joined its sister company to form

SOUTH WEST CHARTERING

continuing to specialize in Polar Chartering
Over 40 years providing ice-strengthened ships for expeditions to the Arctic and
Antarctic — for charter — for purchase
Our service includes all other types of survey vessels



Contact: Polar Department, South West Chartering (UK) Limited, Suite Five, Lloyds Wharf, Mill Street, London SE5 2BA Tel 01 231 8565 Telex 886819 Fax 01 231 3712 Member of the Baltic Exchange

ANNOUNCEMENTS

POLAR RECORD BACK NUMBERS 1931-87 (1–147) are available from Bluntisham Books, Oak House, East Street, Bluntisham PE17 3LS, UK, Tel (1487) 840 449. Prices: Pre-1982 (1-129) £2.50 each; 1982–85 (130–141) £5.00 each; 1986–87 (142–47) £10.00 each. Postage extra.

ADVERTISING IN Polar Record

Quarter page (118 x 81 mm) : £50.00 (US\$90.00) Half page (240 x 81 mm or 118 x 165) : £70.00 (US\$130.00)

Whole page (240 mm x 165 mm): £100.00 (US\$180.00)

Flier (A4 or A5): £100.00 (US\$180.00) Announcements: £2.00 per column line.

VAT of 15% is payable on all UK orders. Please send payment or an official order form with your order. There are negotiable discounts for running the same advertisment in three successive issues. We make up advertisments (from £20.00) and print fliers (from £50.00) by arrangement.

Contact the Editor, *Polar Record*, Scott PolarResearch Institute, Lensfield Road, Cambridge CB2 1ER, UK.

POLAR SUPPLIERS CATALOGUE

The catalogue for cold climate services and technology

COMPANY LISTINGS OF PRODUCTS AND SERVICES From \$A200 for two issues

Editorial and advertising enquiries to:

NORM LACEY or NIGEL BURCH
FAX: +61 02 721172
PHONE: +61 02 343960
PUT YOURSELF ON THE
MAILING LIST - FREE ANYWHERE IN THE WORLD.

ERSKINE EXPEDITIONS

We have been organizing small, short-term expeditions to Svalbard, various parts of Greenland and Arctic Canada for ten years. The expeditions are mostly summer ones aimed at observing wildlife, but we also run adventure holidavs --- ski-touring, dog-sledging, river-rafting, mountaineering and hiking. Besides camping trips, we charter a 24-passenger vessel in Svalbard, and we arrange for persons to stay at Wilderness Lodges in the Canadian sub-Arctic. We visit historical sites and old expedition buts. and where appropriate, meet the Inuit. Our leaders are naturalists with many years' experience in the North. Our Director, Commander Angus Erskine, was on the British North Greenland Expedition 1951-54, and has travelled extensively in high latitudes since then.

Write for our 1989 Programme.
ERSKINE EXPEDITIONS, 1/8 Ferryfield,
Edinburgh EH5 2PR

Recent Polar and Glaciological Literature

- * has the largest circulation of any bibliography devoted to polar subjects
- * provides wide, annotated coverage of books, papers, reports and reviews on all aspects of polar life and science, both Arctic and Antarctic
- * can be mailed to you directly three times per year from the Scott Polar Research Institute, Lensfield Road, Cambridge CB2 1ER

Annual subscription £15.00

SCOTT POLAR RESEARCH INSTITUTE UNIVERSITY OF CAMBRIDGE Opportunities in Graduate Studies

M.Phil in Polar Studies

A one-year post-graduate course leading to the degree if Master of Philosophy, providing a broad background of polar knowledge and opportunity to study one topic in depth. Some 60 seminars cover the natural environment, peoples, history, resources, development and administration of the Arctic and Antarctic regions.

Ph.D and M.Sc studies

Courses leading to Ph.D and M.Sc are available. Many programmes relate to current research areas within the Institute. Options include glaciology, polar oceanography, marine biology, geophysics, remote sensing, history, anthropology, native rights and northern affairs.

Visiting scholars

The Institute provides facilities for advanced scholars wishing to pursue their own courses of study and research for periods of between a few weeks and one year.

Facilities

The Institute's research facilities include the world's finest polar library, outstanding archival collections and specialized laboratories, including two cold rooms (-40°C).

Cambridge University

The University now accommodates some 12,000 undergraduate and graduate students and has a long tradition of excellence in teaching and research.

FOR FURTHER PARTICULARS APPLY TO: THE DIRECTOR, SCOTT POLAR RESEARCH INSTITUTE, UNIVERSITY OF CAMBRIDGE CAMBRIDGE CB2 1ER UK





TERRA

ISSN 0954-4879

nova

The Official Journal of the European Union of Geosciences

Spanning all the earth sciences

Research, reviews & news

Rapid publication

No page charges

Independent refereeing

First issue, January 1989

Editor-in-Chief

Dr. R. Muir-Wood Cambridge, Great Britain

Chairman

Professor E.R. Oxburgh Cambridge, Great Britain

Advisory Board

Professor L. Rybach, Zürich, Switzerland
Dr. H. Schalke, AE's-Gravenhage,
The Netherlands
Dr. D.C. Smith, Paris, France
Professor Tj.H. van Andel,
Cambridge, Great Britain
Professor F.-C. Wezel, Urbino, Italy
Dr. F. Albarede, Nancy, France
Professor A.J. Anderson, Uppsala, Sweden
Dr. E. Jäger, Bern, Switzerland
Dr. G. Juve, Trondheim, Norway
Professor R. Meissner, Kiel, West Germany
Professor R.A. Reyment, Uppsala, Sweden
Dr. P.A. Ziegler, The Hague,
The Netherlands

Please send all membership and subscription orders to:

EUG Membership Secretary,
TERRA Nova / TERRA Abstracts,
c/o Blackwell Scientific
Publications Ltd., PO Box 88,
Oxford, UK.

- TERRA Nova, to be published bimonthly from January 1989, is the research, review and news journal for all earth scientists, the official journal of the European Union of Geosciences, published by Blackwell Scientific Publications.
- Centred on Europe, TERRA Nova welcomes contributions from, and about, anywhere on earth (and the solar-system).
- TERRA Nova will contain research papers (around 15 each issue) on any aspect of significant earth sciences research. TERRA Nova also carries news, reviews (both books and software), and longer review articles, which will explore new developments, issues and ideas in (and beyond) earth sciences.
- TERRA Abstracts is the sister journal to TERRA Nova. It will publish abstracts from major earth science meetings and conferences.

Information for Contributors

Spanning all aspects of earth sciences · High quality research papers invited · Rapid publication · No page charges · Large circulation · Maximum length 6000 words. For further information contact: Robert Muir Wood, MA, PhD, Editor, TERRA Nova, c/o Department of Earth Sciences, University of Cambridge, Downing Street, Cambridge CB2 3EQ, Great Britain.

Membership & Subscription Information

TERRA Nova will be published bimonthly and the first issue will appear in January 1989. **TERRA Abstracts** will be published three times per year and the first issue will appear in March 1989.

The annual subscription for membership of the European Union of Geosciences is £30.00. Your membership includes a subscription to **TERRA Nova**. An optional subscription to **TERRA Abstracts** will be £15.00.

Students can join the EUG for £17.00. A subscription to **TERRA Nova** is included. **TERRA Abstracts** will be an additional £9.00. Please send evidence of your status with your order.

Subscription rates for non-members/institutions will be £99.50 (UK), US\$223.50 (USA & Canada) and £124.50 (elsewhere). Non-member subscriptions include **TERRA Nova** and **TERRA Abstracts**. All subscription rates include postage.

Blackwell Scientific Publications

PO Box 88, Oxford, UK

Send for your

CAMBRIDGE STUDIES IN POLAR RESEARCH

Vegetation of the Soviet Polar Deserts

VERA ALEKSANDROVA Translated by DORIS LOVE

The wealth of Soviet arctic research is rarely available outside the USSR. This translated work divides the high arctic into areas based on the characteristics of their vegetation. It describes first the general characteristics, geographical and climatic, of these areas and then goes on to discuss soil, microclimate and plant communities, and uses this information to draw conclusions about the adaptations of the vegetation to arctic conditions.

228 pp. 1988

0 521 32998 1 £30.00 net

Biology of Polar Bryophytes and Lichens R. E. LONGTON

This review of the biology of bryophytes and lichens in the polar tundra considers their adaptation to severe environments. Their role in processes such as colonisation and succession, and in energy flow, nutrient cycling and other functional aspects of polar ecosystems is discussed, and the consequences of their reproductive biology for their population ecology, distribution, dispersal are considered. 391 pp. 1988

0 521 25015 3 £55.00 net

Now in paperback

The Living Tundra YU I. CHERNOV

Translated by DORIS LOVE

This fascinating overview of the biology, geography, and climate of the tundra, with particular emphasis on the adaptation of the flora and fauna to the environment, will be of interest to all those concerned with the conservation of the animal and plant life of the tundra.

'Chernov brings the tundra to life by his anecdotal style...'

Times Higher Education Supplement 213 pp. 1988

0 521 25393 4 Pb £12.95 net

Microbial Ecosystems of Antarctica

WARWICK F. VINCENT

This book describes the major physical and chemical features of Antarctic environments and their influence on microbial populations. Each chapter considers a specific environment and the nature of its microbial community, concluding with an overview of the influence of the microbiotic population on larger organisms. Additional chapters deal with the cellular adaptation of micro-organisms to these environments and the influence of man on microbial communities.

c.250 pp. 1988

0 521 32875 6 **£27.50** net Forthcoming (January)

Reindeer on South Georgia

The Ecology of an Introduced Population N. LEADER-WILLIAMS

This in-depth study of the effects of introducing reindeer to the island of South Georgia, an ecosystem previously unexposed to grazing by mammals brings together the results of many years of research. The book discusses a number of aspects of the biology of the reindeer and develops two main themes. Firstly a comparison of the biology and ecology of the reindeer and secondly an investigation of the adaptation of these animals to a new environment.

319 pp. 1988 0 521 24271 1 **£20.00** net

Cambridge University Press

The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU

University Press, 510 North Avenue, New Rochelle, NY 10801.

Claims for missing issues can be considered only if made immediately after receipt of the subsequent issue.

Back Issues

For vols 1-23 inclusive apply to Bluntisham Books, Oak House, East Street, Bluntisham, Huntingdon, PE17 3LS, UK. For vols 24 onward apply to Cambridge University Press, UK or USA.

Advertising

Prices appear in the advertisements section; for details apply to the Editor or to the publishers.

Advice to contributors

Polar Record publishes original articles (2000 to 8000 words) and notes (usually less than 2000 words) of current and historic polar interest. Manuscripts, maps and photographs are accepted on the understanding that they are original, do not infringe copyright, and are not currently being offered elsewhere. Receipt is acknowledged; manuscripts are submitted to referees and any rejected will normally be returned to the author within six to eight weeks. Where the subject matter is appropriate, the Editor is usually prepared to advise authors on ways of making their material acceptable.

Presentation

Typescripts should be double-spaced with 3 cm margins, on one side only of A4 or similar paper. Send two copies and keep one for reference. Give name, affiliation and address of each author on the title page, noting which author the Editor corresponds with. Follow the style of articles and notes in the most recent issue of *Polar Record*.

Articles should start with an abstract of 150-250 words and a table of major headings; secondary and tertiary headings are not listed. Indicate in margins where tables and illustrations fit. Footnotes are discouraged; places where they are considered essential are marked in text with a superscript number, and the footnotes are listed at the end before the References.

Notes are short articles, generally of less than 2000 words. They do not require an abstract or table of headings, but either the first or the final paragraph should summarize the content.

References (essential ones only, please) are cited in text; full references appear in the listing under References at the end; for forms of citations and references see the most recent issue of *Polar Record*. Authors alone are responsible for the accuracy of their references. References to privately printed or other unpublished reports and data are not accepted unless copies of the material are freely available from a named library or similar repository. Tables should be kept as simple as possible and typed on separate sheets. They will normally be fitted across the single- or double-column page, only exceptionally lengthwise.

Illustrations. Drawings, maps and diagrams must be of professional standard, with lettering and numbers pencilled in clearly. Authors may be charged for re-drawing if an illustration is inadequate. They should if possible allow for about one-third reduction in width to fit a column (7.8 cm) or page (16.4 cm). Photographs (black and white only) that add substantially to the material are welcome. Glossy prints with high contrast, about one-third oversize, generally reproduce well.

Contributions on disc

The Editor welcomes contributions on floppy discs. The most suitable format is Apple Macintosh 3.5" disc. Output from a wide variety of word processing packages can be accepted, but in case of doubt, a MacWrite-compatible document should be produced. Diagrams also can be transferred on Macintosh discs. Discs from other microcomputers may be acceptable if the text is in the form of an ASCII file, with no word processing codes. TAB characters are acceptable. Currently, *Polar Record* can accept discs from Acorn BBC and Torch microcomputers, Amstrad PCW series microcomputers and, less readily, IBM PC compatible machines (5.25" discs only). If in doubt, please consult the Editor.

ISSN 0032-2474

POLAR RECORD

VOLUME 25 NUMBER 152 JANUARY 1989

CONTENTS

ARTICLES

Aboriginal rights and litigation: history and future of court decisions in Canada. P. D. Elias p 1

90° South: Antarctic expedition 1986-87. N. McIntyre p 9

Convention on the Regulation of Antarctic Mineral Resource Activities: a major addition to the Antarctic Treaty System. P. J. Beck p 19

SPRI participation in the Winter Marginal Ice Zone Experiment, MIZEX-87. P. Rottier p 33 New records of vascular plants from Heard Island. J. J. Scott p 37

Mammals of central North Greenland. O. Bennike, A. K. Higgins and M. Kelly p 43

The wreck and salvage of SS Telefon. H. R. Heyburn and G. Stenersen p 51

Investigating variations in the gravitational constant. A. P. R. Cooper and M. R. Gorman p 55

NOTES

The Norwegian inquiry of 1906 into Antarctic sovereignty: inexperience or prudence? H. R. Hall p 59

Canada takes steps at both Poles. G. Graham p 60 First Institute of Circumpolar Studies. L. Cruwys p 62

REVIEWS

The Falkland Islands as an international problem. P. J. Beck. A. Airoldi p 63. Politics of the Northwest Passage. F. Griffiths (editor). T. E. Armstrong p. 63. Canada's arctic waters in international law. D. Pharand. T. E. Armstrong p 63. Antarctica. C. Swithinbank. C.Doake.p 64. The North and Canada's international relations. CARC. G. Graham p 64. Antarctica and South American geopolitics: frozen lebensraum. J. Child. R. K. Headland p. 65. The Totorore voyage. G. Clark. P. L. Keage p 65. Sitting on penguins: people and politics in Australian Antarctica. S. Murray-Smith. P. L. Keage p 65. Breaking the ice. R. S. Butler. H. G. R. King p 66. The road to Nunavut: the progress of the eastern arctic Inuit since the Second World War. R. Q. Duffy. H. Myers p 66. Digital image processing in remote sensing. J.-P. Muller. Gareth Rees. p 67. Icebound: the Greenpeace mission to Antarctica. S. Knight. P. Speak p 67. The natural history of whales and dolphins. P. G. Evans. B. Stonehouse p 68. Falkland Islands birds. R. W. Woods. B. Stonehouse p 68. Brief reviews p 68.

CORRECTION p 69

IN BRIEF

European expedition in Antarctica; New Australian Antarctic research ship; New US Arctic research consortium; US commemorative stamps feature Antarctic explorers; Franklin bodies yield antibiotic-resistant bacteria; International conference on penguins; p. 69

OBITUARY

J. E. Cameron; J. R. Green; p 70

SCAR BULLETIN No 92

Twentieth meeting of SCAR, Hobart, Australia, 12–16 September 1988. p 71; Report of Finance Committee p 79; Summary Reports of SCAR Working Groups: Biology p 79; Geodesy and Cartography p 81; Geodesy and Cartography, Geology and Solid Earth Geophysics p 82; Geology p 83; Geology and Solid Earth Geophysics p 845; Solid Earth Geophysics p 85; Human Biology and Medicine p 86; Upper Atmosphere Physics p 87; Logistics and Managers of National Antarctic Programmes p 90

CAMBRIDGE UNIVERSITY PRESS

Published by the Press Syndicate of the University of Cambridge
The Pitt Building, Trumpington Street, Cambridge CB2 1RP UK
27 East 57th Street, New York NY 10022 USA
10 Stamford Road, Oakleigh, Melbourne 3166 Australia

Printed in Great Britain at the University Press, Cambridge.