

would justify publication. Progress in our understanding of the geological make-up of Antarctica ensures that this is no longer so. Antarctic geologists accept the need to place their findings in a broader context if our understanding of this part of the world is to advance. This volume does just that, reflecting the Symposium's two main themes, tectonic evolution of the the Antarctic crust, and palaeo-environmental evolution of Antarctica since the Mesozoic.

The first theme takes up some three-quarters of the volume, in five sections. The first 20 papers concern development of the Antarctic craton, most involving detailed evidence from particular regions. The next 17 papers cover topics on crustal development of the Transantarctic Mountains; for example Stump and others propose that the Nimrod and Beardmore orogenies are the same, and Rowell and Rees give a detailed note on the Shackleton limestone. Crustal development of the Weddell Sea - Ross Sea region forms the third section, covering seismic, palaeomagnetic, crustal extension, geochemical and other studies. The largest group, of 33 papers, covers virtually all aspects of Antarctica's Pacific margin. The final section of 10 papers covers aspects of the breakup of Gondwanaland. The second theme includes 17 papers on the evolution of Cenozoic palaeoenvironments, many dealing with palaeontology or glaciology.

No volume of this nature can be expected to show uniform quality. Time will determine which of the contributions prove most significant. Contributors from 19 countries reflect the growing interest in Antarctica by an ever-increasing number of nations: the bulk of research is still being done by Australia, Britain, New Zealand and USA, though increasingly significant contributions are being made by Argentina, Brazil, Chile, Poland and South Africa. Topics and regions not fully represented here include geophysical investigations of Antarctic shelves and studies on the Ellsworth Mountains and Marie Byrd Land. But the editors have assembled a very significant collection of papers on the geological evolution of Antarctica: the volume will become an essential work to which all interested in Antarctic geology will frequently turn.

It is a pity that over three years have passed before these proceedings appeared in print. The editors may be congratulated, however, on achieving a volume with internal consistency without enforcing a stereotyped format on the authors. Diagrams and photographs are generally well reproduced and there are few typographic errors. Spot checks failed to fault the full and useful index. This is an excellent volume, highly recommended to all, institutions and individuals alike, who have interest in the geology of the Antarctic or related regions. (C. P. Hughes, Robinson College, University of Cambridge, Cambridge CB3 9AN).

#### THE FUTURE OF ANTARCTICA

**ANTARCTICA: PRIVATE PROPERTY OR PUBLIC HERITAGE?.** Suter, K. 1991. London, Zed Books. 211 p, illustrated, soft cover. ISBN 0 86232 847 0. £9.95. Aust\$15.00.

My shelves are filling with rows of small books that advise

the world, and the Antarctic Treaty nations in particular, on what they should do about Antarctica. Much of the advice is insubstantial; the Treaty nations rightly view it with suspicion. Keep Antarctica pristine? It hasn't been pristine for years. Make it a continent for science? Scientists are part of its trouble — I'd as soon hand it over to lawyers. Make it an international world park? There is no such thing, and Antarctica is no place for trying one out. Let the United Nations run it? Now that really is fighting talk.

This, mercifully, is a responsible book, written by an international lawyer who has done his homework and tries to be practical. Sketching the background, outlining the Treaty and its works, putting the whole into a context of international law, it sets the scene fairly. Then it draws attention to the deadlock within the Treaty, brought about by loss of consensus, and suggests an interesting way forward. To protect Antarctica, says the author, let us use current awareness of environmental issues (without, one might add, mindlessly banging the green drum). Let us not alienate the Antarctic Consultative parties, for we cannot function without them, and let us not invite in the UN. Let us build on the world park concept, trying to find for it a substantial basis in law — linking it perhaps with a concept of 'public heritage', a variant on the public trust which is gaining growing acceptance throughout the world, and applied at international level.

I do not know if 'public heritage' will prove viable, but this book introduces it simply and sensibly, and merits close reading. If it is not already sold out, I shall recommend it to this year's crop of postgraduate students and see what they make of it. (Bernard Stonehouse, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER)

#### A MAN FOR MOST SEASONS

**A TALENT FOR ADVENTURE.** Croft, Andrew. 1991. Hanley Swan, The Self Publishing Association Ltd. 280 p, illustrated, hard cover. ISBN 1 85421 139 0. £14.95.

Col Andrew Croft DSO OBE has lived through stirring times, making use of every adventure that came his way. This book is packed with good stories from Greenland, India, Svalbard, Lapland, Norway, Corsica, Canada, the North-West Frontier and elsewhere. But Croft is more than an adventurer, and this is far more than a collection of ripping yarns. About half the book is polar: the rest covers a range of activities from 'minding' a budding maharajah to parachuting into wartime France.

Born to a country rectory, educated at Lancing, Stowe, Oxford and Manchester School of Technology, Croft was raised as a middle-class Englishman, neither rich nor poor, destined first for the cotton trade and later for schoolmastering. However, he was one of those astonishing young men, mainly from Oxbridge, who in the 1920s and '30s became competent Arctic explorers, and later distinguished themselves in World War II and in industry, commerce and research. On his first expedition Croft learnt dog-driving and survival techniques from Greenland professionals, and used them well in Greenland.

Later he sledged in Svalbard, and later still worked with reindeer herders in Lapland. Croft writes lingeringly of these times: clearly he was laying down guidelines for later life. He never reached Antarctica, but unknown to him, his influence there was strong. A later generation of sledgers, myself included, learned much from his detailed, sensitive accounts of polar travel and camping.

The rest of the book is no less exciting. Before and between expeditions Croft had lived in Germany and France, acquiring languages and odd experiences. He met Nansen and many other key figures of the times, sat on platforms with Hitler, and may have been the only Englishman to see the Reichstag burning. He came to know Scandinavia well. World War II found him a ready leader. With the army he saw action in Finland and Scandinavia, later with resistance forces in Corsica and mainland France. The army and he seem to have used each other sensibly. Staying in after the war Croft saw service on the North-West Frontier, designed equipment for Korean and all-too-probable Arctic warfare, and took part in Canadian Operation Muskox. Involved in the education of boy-entrants and army apprentices, he brought in — what better? — adventure training to develop character and self-confidence. Betweenwhiles he raised a family of his own. On retirement in 1960 he served a further 11 years as commandant of the Metropolitan Police Cadet Corps, again using adventure training to stimulate initiative and leadership. This turned out to be his most exciting job of all: parachuting, he declares, had nothing on it.

Did adventure make Andrew Croft the full man that he so clearly is? His book provides many clues. Polar and wartime experiences were clearly invaluable, but there were other less obvious influences: he learnt never again to fear any man, not in the heat of battle, but on the shop-floor of a Carlisle cotton factory. A country that values its Andrew Crofts had better ensure that it is still producing them. Does Britain still create young folk of his calibre, and are there adventures still for those who seek them? We shall be sadly impoverished if not. (Bernard Stonehouse, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

#### BRIEF REVIEWS

**THE FROZEN EARTH: FUNDAMENTALS OF GEOCRYOLOGY.** Williams, P. J. and Smith, M. W. 1991. Cambridge, Cambridge University Press. 306 p, illustrated, soft cover. ISBN 0 521 42423 4. £19.50, US\$29.95.

Welcome re-issue in soft cover of a book originally published in 1989: see review by J. Dowdeswell in *Polar Record* 25 (156): 59-60, January 1990. Includes chapters on Periglacial conditions, Morphology of permafrost and seasonally frozen ground, Climate and frozen ground, The Ground thermal regime, The forms of the ground surface (1: slopes and subsidences), The forms of the ground surface (2: structures and microtopography of level ground), Thermodynamic behaviour of frozen soils, Hydrology of frozen ground, The mechanics of frozen ground,

*Geocryology past and future.*

**CANADA AS A BI-POLAR POWER: CANADA'S ANTARCTIC DIMENSION.** Beck, P. J. 1991. Lakehead University Centre for Northern Studies: Occasional Paper 7. 50 p, illustrated, soft cover.

A review of the background to Canada's achievement in 1988 of observer status at Antarctic Treaty meetings, Canada's subsequent role in international debates on Antarctica, and the activities of Canadians in various aspects of Antarctic research and exploitation.

**HARP SEALS: MAN AND ICE.** Sergeant, D. E. 1991. Ottawa, Department of Fisheries and Oceans (Canadian Special Publication of Fisheries and Aquatic Sciences 114). 153 p, illustrated, soft cover. ISBN 0 660 14052 7. Can \$ 28.50; in other countries US\$ 34.20.

A comprehensive account of the biology of harp seals *Phoca groenlandica* off eastern Canada and throughout their European and Greenlandic range. Probably the most numerous northern hair seal, controversial because of hunting and conservation issues, the species has long merited this very full treatment. A scientific study, based on many years' accumulation of evidence, but ending with traditional recipes for seal sausages, seal pudding and seal flipper pie.

**THE SHAPING OF ENVIRONMENTALISM IN AMERICA.** Scheffer, V. B. 1991. Seattle, University of Washington Press. 249 p, illustrated, hard cover. ISBN 0 295 97060 X. US\$ 19.95.

A history of the environmental movement in USA, written for the up and coming generation by a dedicated conservationist with a long professional involvement in sea mammals. Contains illuminating comments on Alaska and the Arctic, and on Antarctic conservation, including US Capt Eddie Rickenbacker's interesting proposal to atom-bomb the south polar plateau, thereby unlocking 'the icy doors that withhold from human knowledge the potential riches of the Antarctic continent'.

**THE YUKON CHRONOLOGY.** Smyth, S. 1991. Whitehorse, Northern Directories. 263 p, soft cover.

**A COMPENDIUM OF DOCUMENTS RELATING TO THE CONSTITUTIONAL DEVELOPMENT OF THE YUKON TERRITORY.** Cameron, K. and Gomme, G. 1991. Whitehorse, Northern Directories. 332 p, soft cover.

These books form a two-volume set on 'The Yukon's constitutional foundations', written mainly for Yukoners who desired a general reference source describing, and providing the texts of, documents making up the constitutional framework of the Yukon. As their foreword asserts, this will stand as an essential reference source for anyone with an interest in the Yukon's constitutional past, present or future. No prices are given: refer to authors via Northern Directories Ltd. for details of availability.

**THE ROYAL GEOGRAPHICAL SOCIETY HISTORY OF WORLD EXPLORATION.** Keay, J. (general editor). 1991. London, Hamlyn. 320 p, illustrated, hard cover. ISBN 0 600 56819 9. £20.00.