

leading researchers in the field, though it provides less comprehensive coverage of other related earth sciences. Contributions to the first section include papers by Johannessen and others reviewing physical processes occurring in the marginal ice zones, by Lawver and others on the tectonics of the Arctic ocean basin, and by Baggeroer and Duckworth outlining improvement in seismic exploration technology and activities in the Arctic ocean since the 1950s. The second section covers sea ice distribution, morphology and thickness. Wadhams provides a valuable summary of the results of 28 000 kms of under-ice profiles by upward-looking sonar mounted in US and British nuclear submarines, and Campbell and others deal with four years of sea ice observations from the Nimbus-5 satellite, providing sequential synoptic information on Arctic sea ice coverage. The third section consists of two studies on ice characteristics and ice deformation properties. Pritchard takes a macroscopic view of sea ice, modelling its behaviour in terms of imposed forces and characteristic ice properties. Weeks and Mellor deal with the material properties of icebergs, shelf ice and sea ice related to their crystalline structure, composition, microstructure, and the influence of impurities.

In his closing remarks, Ned Ostenson notes that the common thread prevailing in all the papers was of the pioneering nature of all the fields of endeavour covered. Introductions by sectional chairpersons, including Judith Kildow, Don Haglund, Leonard Johnson and Norbert Untersteiner, provide the overviews necessary to knit the divers subjects systematically. Many of the papers are illustrated, though some of the black and white illustrations have lost definition and clarity in reproduction. All told this volume is a welcome addition to a limited but growing list of references on Arctic technology, policy and resource development (see also *Arctic Energy Resource*, ed. L. Rey, reviewed in *Polar Record* 22(137): 198–99, 1984). (Howard Hume, Petro-Canada Resources, PO Box 2844, Calgary, Alberta, Canada T2P 3E3.)

SOUTH GEORGIA OBSERVED

THE ISLAND OF SOUTH GEORGIA. Headland, R. K. 1984. Cambridge, Cambridge University Press. 293p, illustrated, hard cover. ISBN 0 521 252741. £14.95.

As Sir Rex Hunt reminds the reader in his foreword to this admirable book, South Georgia is, thanks to President Galtieri's folly, now firmly on the map and in the public eye. Information about the island, however, has tended to be scattered and hard to come by. L. Harrison Matthew's classic account, published in 1931, has long been out of print. Mr Headland's topical and timely review of the island seems likely to remain definitive for many years to come.

Of the book's nine chapters, the first is devoted to a general overview of the island's topography and government, sources of revenue, population and settlement. South Georgia's first township, Grytviken, dates from 1904. By 1913, when the first birth was registered, it had taken on all the characteristics of a Yukon mining community with desperados and a town goal. The discovery of South Georgia, as we learn from Chapter 2 which deals with the early history, dates from Antoine de la Roche's sighting in 1675. He was an Englishman, despite the name. Another Englishman, Captain James Cook, charted a part of the coastline in January 1775 and claimed the island as Britain's first Antarctic territory. Rather than repeat oft-told history Mr Headland is content to let the explorers speak for themselves through selected extracts from their narratives. Thus the naturalist George Forster reminds us that it was his father, Johann Reinhold, who suggested to Cook that it would be proper to name the island 'after the monarch who had set on foot our expedition solely for the improvement of science...'

But as Chapters 3 and 5 reveal, it was commercial enterprise in the shape of the sealing and whaling industries, rather than science, that was to determine the island's historical development in the 19th and 20th centuries. Mr Headland's account of the numerous sealing expeditions recorded as having visited South Georgia from 1788 onwards gives evidence of a careful search of the literature. He has also drawn on his own work on the industrial archaeology of the island to provide an interesting account of the methods employed by the industry, as well as personal details of the sealers themselves, based on information from grave markers and the like. Sealing at South Georgia, however, was seasonal and erratic. With the establishment by C. A. Larsen of the land-based whaling station at Grytviken in 1904, the island became for over 50 years firmly established as a commercial centre of world significance. Mr Headland deals very fully with this important epoch until its final decline in the 1960s. Here he has made good use of the magistrate's records, now held by the Scott Polar Research Institute, as well as the papers of the *Compania Argentina de Pesca*, also happily preserved for scholars.

Alongside this commercial activity science slowly began to assert itself, via a series of expeditions dating from the International Polar Year of 1882–83. During the 20th century their number gradually increased, and in Chapter 4 the author gives us a chronological survey of the activities and accomplishments of each one, culminating in the establishment of the British Antarctic Survey in 1969 with full-time, comprehensive research programmes. Readers interested in a detailed account of these programmes, basically devoted to the life and earth sciences, will find them thoroughly reviewed in Chapters 7 and 8.

With the extinction of the sealing and whaling industries South Georgia has had to turn to other funding; the sale of postage stamps has become of late a profitable source of revenue. In Chapter 6 Mr Headland has much to say of interest to polar philatelists, illustrating his text with photographs of selected stamps, accompanied by a full list of issues in a separate appendix. Finally, as one personally obliged to surrender the civilian contingent on the island to the Argentine invaders and subsequently to become himself a prisoner-of-war, Bob Headland writes with real feeling and from experience his concluding chapter covering the campaign of 1982. By way of an envoi he hazards a guess or two at South Georgia's economic future in the light of Lord Shackleton's reports, with distant prospects of hydro-electric power, hotel accommodation for tourists, and even a revitalized sealing industry. Altogether this is a notable contribution to the literature of a sub-Antarctic island thoroughly known to the author from many visits, and as thoroughly researched. Space has unfortunately precluded a number of historical references, which is a pity. But all readers will welcome the first-rate photographs (some 80 from the author's personal collection) and the excellent purpose-made maps. (H. G. R. King, Scott Polar Research Institute, Lensfield Road, Cambridge CB2 1ER.)

SHORT REVIEWS

EXPLORING ANTARCTICA. Cameron, I. 1984. London, Longman. 61 p, illustrated, hard cover. ISBN 0-582-39287-X. £4.95.

Well told, well illustrated story of Antarctic exploration, first of a series for children produced in collaboration with the Royal Geographical Society (*Exploring Africa* also released, *Australia* and *Himalayas* in preparation).

ANTARCTIC DAYS WITH MAWSON. Fletcher, H. O. 1984. Sydney, Angus and Robertson. 313 p, illustrated, hard cover. ISBN 0-207-14889-9. £12.95.

Personal narrative of the British, Australian and New Zealand Antarctic Research Expedition 1929–31 (BANZAARE), told with relish by one of the zoologists. One of the few accounts of an