

of sea ice, sea-surface temperature, and chlorophyll based on satellite data, and information on foraging ranges of mammals and birds ignores the exciting information that has been collected using the Argos tracking system. Similarly, there are very few data from the deployment of self-contained instrumentation for monitoring activity, foraging behaviour, and growth rates in a range of predators. Chapters 16 and 17, on marine resource exploitation, examine many of the aspects of ecosystem impacts, including the changes resulting from whaling at the beginning of this century. However, they fail to mention (so far as I could ascertain) any of the incidental effects of the present fishery, such as the impact on vulnerable species as by-catches of targeted fisheries, the effects of pollution and debris, and the significant mortality of some seabird populations as a consequence of long-line fishing. Why does the increase in ultra-violet radiation, potentially one of the most important environmental impacts in the Antarctic marine ecosystem, receive no attention except in the epilogue? No other environmental impacts, including potential climatic change, are discussed.

The book as a whole is attractively presented in a large-page format with clear type. There are relatively few tables, and most are easy to read. However, the figures often do not meet the standards of the remainder of the book. The book is copiously illustrated, but nearly all figures are derived from previously published material. It would be unrealistic to expect a consistency of style. However, the reproduction of previously screened figures has provided a complete catalogue of interference phenomena. Maps of Antarctica appear in every possible orientation. Several figures have been re-drawn, but in many cases this is simply as direct copies, and quality has suffered in some. I consider the index to be barely adequate for a book of this sort, which should function as an easily accessible reference source. There are 13 pages in the index, but the entries are dominated by species and geographic references. Although the provision of a comprehensive set of sub-headings in chapters makes it easy to find major topics, I feel that it would have been helpful to bring some more key words into the index to allow cross-referencing between chapters, and possibly separate indexes for species and sites.

It would be unfair to end this review on a low note. George Knox has produced a magnum opus that draws together a vast amount of useful data in a single, easily read volume, and offers interesting and informed comment. However, it needs to be used with caution, and the serious researcher could not rely on it as a short cut through the current literature on Antarctic marine biology. (Julian Priddle, British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET.)

**FARTHEST NORTH: THE QUEST FOR THE NORTH POLE.** Clive Holland (Editor). 1994. London: Robinson Publishing. viii + 305 p, illustrated, hard cover. ISBN 1-85487-282-6. £16.99.

All readers of *Polar Record* will be aware of Clive Hol-

land's important contributions to Arctic history and, in particular, of his monumental encyclopaedia, recently published, entitled *Arctic exploration and development c. 500 BC to 1915*. This is an essential reference book for those seriously interested in the subject. Indeed, this reviewer's copy is already showing signs of overuse!

It is very fitting that, almost contemporaneously with the encyclopaedia, the present book has appeared. This aims to be a popular account, told largely by the participants themselves, of different ventures seeking the North Pole from the sixteenth century to the present. The main title is, of course, the same as that of Nansen's account of the *Fram* expedition, 1893–1896, and on the dust cover there is a different subtitle to that given in the body of the book: 'A history of North Polar exploration in eye-witness accounts.' From the fact that Holland is described as 'Editor,' one might expect that the actual prose written by him would constitute a relatively modest part of the whole. Yet this is not the case. To take one chapter, 'The German and Austrian expeditions: 1868–74,' one finds at the start an account of the dispute between August Petermann and Sherard Osborn relating to the question of the open polar sea and of the most appropriate route to the Pole. This includes a short quotation from Petermann's famous letter to the Royal Geographical Society but otherwise it is pure Holland; and very good it is. The second part of the chapter presents lengthy extracts from Payer's account of his sledge journey to explore the eastern part of Zemlya Frantsa-Iosifa (Franz Josef Land). The chapter concludes with a summing up by Holland of the Weyprecht–Payer expedition and a short account of the later years of Petermann. There is also a brief infill on two relatively little known expeditions by Adolf Erik Nordenskiöld, in which he attempted to approach the Pole, but with very little success.

Holland remarks in his introduction that 'the explorers tell their stories wonderfully well.' From the evidence he presents, this is indeed true, and the integration of original text with comment is an effective method of imparting information on the different expeditions. All the major efforts are covered and there are brief notes on some of the minor ones. Important sections are devoted to the Cook/Peary controversy, with lengthy extracts from the writings of each. Holland comments on the fiction-like prose of the former, which is certainly easier and more congenial reading than that of the latter. Following this episode, emphasis switches to aviation, and Holland covers the work of Amundsen, Byrd, Ellsworth, and Nobile, using that medium of exploration. The *Italia* disaster concludes the classical period of Arctic exploration, and Holland's account of it, with extracts from Nobile, is particularly good. Subsequent chapters are 'From new technology to new adventure, 1931–85' and 'Full circle, 1977–93.' This latter refers to the rise of icebreakers and their recent use in tourism.

The book has deficiencies, although, no doubt, they were occasioned by the need to keep the price down in

order to effect sales. None of the extracts has a specific reference, although there is a list of sources, and there is no index, which is always tiresome. The maps — of the North Polar region, the Ellesmere Island region, Zemlya Frantsa-Iosifa, and Svalbard — are taken from those that appeared in Holland's encyclopaedia, save that the place names have been, where necessary, anglicised. There are also one or two minor slips. According to Holland's encyclopaedia, the leader of the British 1818 expedition toward the North Pole was indeed David Buchan but he sailed on *Dorothea*, while his subordinate John Franklin sailed on *Trent*, not the other way round, as is indicated. The complements of the ships also differ from those quoted in Holland's encyclopaedia. And mention is made of Horatio Nelson's famous incident with the bear, and there is a quotation from Southey's biography of Nelson, but this work is not included in the list of sources.

The presentation of the book is attractive and of a much higher quality than would be suggested by the price. The illustrations are well chosen to inspire the interest of the reader who might casually flip through the work in a bookshop. The dust jacket is very well designed, using the well-known picture of *Fram* frozen in the polar ice on the front and a suitably robust one of Peary on the rear.

To conclude, the book demonstrates that established experts can produce works that will attract the attention of a non-expert reader, hold that attention by careful juxtaposition of original text and inserted comment, and, one hopes, inspire further reading in the subject. At all events, this book is very much more to be welcomed as an introduction to Arctic exploration than some of the recent popular productions by authors whose actual knowledge of the subject is at most very limited. It is highly recommended. (Ian R. Stone, The Registry, University of Kent at Canterbury, Canterbury, Kent CT2 7NZ.)

**THE ALASKA TRAVEL JOURNAL OF ARCHIBALD MENZIES, 1793–1794.** Wallace M. Olson (Editor). 1993. Fairbanks: University of Alaska Press. xv + 247 p, illustrated, soft cover. ISBN 0-912006-70-6. \$17.50.

The Scottish surgeon Archibald Menzies served on board Captain George Vancouver's command, *Discovery*, on the great British expedition to the Pacific in the 1790s. Menzies had previously been to the Pacific, with Captain Colnett, a maritime fur trader, and was thus familiar with certain aspects of the northwest coast and its native peoples. His journal provides a 'window on the world' at that particular time, and its publication in this form is a useful addition to the literature of science and exploration. The full documentation is available in the original, in London and Australia, from whence the editor has gathered materials for this edition.

Menzies, it seems, was a matter-of-fact observer, and his 'travel journal,' as the editor classifies it, is a rather dry and unenlivened account. Even so, Menzies was thorough in his work and particularly careful in recounting that which he saw. It is clear that Vancouver and Menzies had

little in common. The captain did not endear himself to the surgeon-scientist by trying to get hold of the latter's papers and records. Menzies, however, held his ground.

It is not clear to this reviewer that this edition can be classified as 'definitive.' Surely, discussion of Vancouver's near meeting with the North West Company trader Alexander Mackenzie on the northwest coast in 1793 needs proper citation from the W. Kaye Lamb edition of Mackenzie's letters and journals. Moreover, Menzies' appointment to the Vancouver voyage, and his connections with the scientific circles of the day, need further examination. Menzies advised government on what trade goods the northwest Indians would consume, and, as the government was anxious to win friends among these people, its agents took his advice, as they did that of Vancouver. This book has extensive notes, many of which do not include follow-up references, and a bibliography. Of particular value is a list of the botanical collections contained in an appendix. This was a project well worth doing, and northwest coast history is the better for it. Taken together with C.F. Newcombe's *Menzies' journal of Vancouver's voyage: April to October 1792, with biographical note by J. Forsyth* (Victoria: Archives of British Columbia Memoir, 1923), we have a rather full covering of the waterfront, as it were. Much more remains to be discovered about Vancouver, his officers and men, and surgeon Menzies. This book points the way to showing the complexities of the lives of these explorers on such long-ranging expeditions. Not least, this edition brings into print a valuable journal. When Menzies' correspondence is published, and this is promised from the Natural History Museum, we will have an enlarged assessment of Menzies, his life, and times. (Barry M. Gough, Department of History, Wilfrid Laurier University, Waterloo, Ontario N2L 3C5, Canada.)

**THE PHYSICS OF GLACIERS.** Third edition. W.S.B. Paterson. 1994. Oxford: Elsevier Science. ix + 480 p, illustrated, soft cover. ISBN 0-08-037944-3. £25.00.

The 14 years that have passed since the publication of the second edition of *The physics of glaciers* have seen major advances in the understanding, measurement, and modelling of ice masses. So rather than simply revising one of the most-cited glaciological textbooks, W.S.B. Paterson has rewritten much of it in order to produce the long-awaited third edition.

Although the aim of the book, and the level of mathematics, remains unchanged — being appropriate for the graduate level — since both the structure of the book has been altered and much of the information is new, this edition could be considered not so much an update as a new book. The revision includes an original chapter on the deformation of water-saturated sediments at the base of glaciers, and significant chapter rewrites on the issues of basal sliding, glacier surging, glacial hydrology, and numerical modelling of ice masses. One very welcome addition is the appendix on the concepts of stress and