

disagreements between Moor and Smith over access to supplies and provisions. The documents chosen by the editors to illustrate this unhappy wintering relate a sad tale — the journal accounts of Isham, Smith, the ‘Clerk of the *California*,’ and Henry Ellis are laced with petty jealousies, accusations of theft and preferential treatment, and even the sniff of a murderous conspiracy. Weakened by scurvy and squabbling, the crews of *California* and *Dobbs Galley* finally sailed from York Factory in the spring of 1747 to continue their explorations along the northwest coast of Hudson Bay. Little was accomplished during the next few months as the discoverers explored Wager Bay (a narrow body of water that Dobbs had accused Middleton of failing to adequately investigate), examined portions of Rankin and Chesterfield Inlets, and measured tides off Roes Welcome Sound. The friction between Moor and Smith resulted in the lack of any coordinated plan for the expedition, and the documents show *California* and *Dobbs Galley* operating almost independently during much of the voyage along the Hudson Bay coast north of the Churchill River. By the middle of August 1747, the discoverers sailed for home, entering Hudson Strait by the end of the month and reaching the Orkney Islands near the end of September.

Frustrated again in his search for a navigable passage, Dobbs blamed ‘the Timidity, ill Conduct, or bad Inclinations of some of the Commanders and Council’ of the Moor and Smith expedition and launched his campaign for a Parliamentary review of the HBC charter. An enquiry was convened in 1749 and heard evidence from a number of quarters. The Company maintained that no passage existed within its coastal territories and argued that any further investigation represented a waste of time and money. Dobbs’ petition was eventually defeated in the House of Commons by a margin of more than two to one, the government’s verdict effectively putting an end to privately financed expeditions in search of a Northwest Passage through Hudson Bay. If the expedition of Moor and Smith added little to the geographical knowledge of northwestern Hudson Bay, however, the publicity that Dobbs and others brought to the search for a passage increased interest in the Canadian sub-Arctic as well as the workings of the Hudson’s Bay Company.

In *The voyage of William Moor and Francis Smith 1746–1747*, Barr and Williams have organized a disparate, and often contradictory, collection of documents into an effective narrative of flawed exploration. These accounts contain the seeds of the expedition’s failure, laying bare the rival agendas, poor planning, and personality clashes that marked both the voyage and its aftermath. Short introductory segments, along with a judicious use of footnotes and two short appendices, provide context for the documents and help the reader piece together the story of the expedition. Although the voyage of *California* and *Dobbs Galley* added little to the eighteenth-century quest for a navigable passage to the Pacific, *The voyage of William Moor and Francis Smith 1746–1747*, together with Volume I of the series, which deals with the voyage

of Christopher Middleton, succeeds in providing interesting insights into British perceptions of western Hudson Bay and its hinterland. (Robert Coutts, Parks Canada, Winnipeg, Manitoba R3B 3E8, Canada.)

THE SCHIRMACHER OASIS, QUEEN MAUD LAND, EAST ANTARCTICA, AND ITS SURROUNDINGS. Peter Bormann and Diedrich Fritzsche (Editors). 1996. Gotha: Justus Perthes Verlag. 448 p + 8 annexes in separate volume, illustrated, hard cover. ISBN 3-623-00760-9. DM128.00.

This book represents the research efforts of scientists from the former German Democratic Republic, who collaborated with their colleagues in the Antarctic Programme of the USSR between 1976 and 1989 in the Schirmacher Oasis and its surroundings. Its major value lies in the fact that it is the most complete summary of the work done that is likely to be available at any time. In many ways, it also reflects the history of the political changes of the late 1980s and early 1990s. After unification, this group of researchers was transferred to other institutes and organizations, mainly in the ‘new,’ unified Germany, and it is likely that much of the information in *The Schirmacher Oasis* would have been lost if this monograph had not been published. Considering the difficulties these changes presented, the editors have to be commended for bringing together and publishing years of research work in this format.

The Schirmacher Oasis consists of 10 chapters, with numerous subdivisions, illustrations, maps and diagrams, and a separate volume containing maps and colour plates. Chapter 1, ‘The Schirmacher Oasis as a part of Queen Maud Land,’ places the area in its regional setting. It is introduced by background information on Antarctic oases in general and a history of discoveries and research in the region. Much of this is interesting and, although none of it is new, it sets the context in which the research was conducted. The only small criticism I have is that the chapter has been subdivided excessively, which I found rather irritating. An example is ‘Geophysical investigations,’ which is identified as section 1.3.2.1.3.2. The rest of the chapters are reports of investigations within a number of scientific disciplines. Each of these chapters has a brief introduction that includes the rationale for doing the specific type of research in the Antarctic, and a useful outline, in relatively simple terms, of the research that has been carried out. The remainder of each chapter consists of more detailed reports for the specialist.

As an Earth scientist, I was particularly interested in the sections on geology and solid Earth geophysics. The chapter on the geology of the region is the most detailed of the reports in this book. The high-quality photographs are very effective for giving the reader a good concept of the field geology of the region. Unfortunately, some of the diagrams and maps have been reduced to such an extent that they appear cluttered and are difficult to interpret. Although the authors have integrated the geophysical and geological data in their conclusions, the data presented are

already dated and few of the ideas are new in 1996 or they have been overtaken by much more sophisticated models of crustal evolution.

Some of the information on weather and climate, the continental ice cover in the surroundings of the Schirmacher Oasis, and satellite sea-ice observations is highly descriptive, but the reports on continental ice cover in Chapter 6 include stable isotope data, which will be useful to increase data for climate-change studies. As a layperson, I enjoyed reading the sections on morphological minor forms of the snow and ice surface and the studies on moraines as indicators of Late Quaternary regional glacial history. The satellite observations are of particular value to understand sea-ice behaviour in the Southern Ocean and will be important for future predictions and long-term logistical planning.

The hydrology and biology of Antarctic oases are extremely important for the study of the adaptation of life forms to extreme conditions. More information may ultimately lead to a better understanding of the origin of life. Although I cannot judge the contribution on hydrology as a specialist in the field, I found the report interesting and believe that its importance for the biology and surface physiographic processes of the area probably makes this one of the most significant contributions to this book.

Annexes in the form of black-and-white and colour photographs, hydrographic maps, and biological distribution dot maps are included as a separate volume. These are worthwhile additions to the scientific contributions and especially the hydrographic–morphological maps will be of great value to future researchers. The book is bound in good-quality cloth, and it is therefore a pity that plastic holders were used to enclose the Annexes in the second volume. Mine were torn when I received it, and clearly not of good enough quality for mailing.

The use of language and grammar in *The Schirmacher Oasis* is reasonable. Literal translations do occur in places, but never to the extent that it detracts from the book. Editing has been good, although the occasional typographical error has slipped through.

The Schirmacher Oasis is an attempt to ensure that a record exists of the work that was done in the area and to make this available to a wide audience. It is inevitable that the research has had to be summarized and generalized, but the strength of the book lies in the fact that a large community of scientists has been informed about previously little-known scientific literature about the area, and some of this is referenced in the book. However, there are two major weaknesses, which cannot be overlooked. The first is one that affects all scientific literature seeking to reach a multi-disciplinary audience: in attempting to make a book accessible to a wide audience, the layperson should be able to read outside his own field, but in doing so, the scientific content is diluted for the specialist. *The Schirmacher Oasis* does attempt to overcome the problem by giving general introductions to individual chapters, but I am not convinced that it succeeds entirely. A more serious problem lies with the decision to present only older

data, although I do have sympathy with and understand the rationale behind this approach, considering the problems of collating the work. Notwithstanding these comments, it is important for the Antarctic scientific community to take cognizance of the work completed in the Schirmacher Oasis and environs, and the main target audience should therefore be institute and university libraries. (Johan Krynauw, Department of Geology, University of Natal, Private Bag X10, Dalbridge 4014, South Africa.)

MOVING LOADS ON ICE PLATES. Vernon A. Squire, Roger J. Hosking, Arnold D. Kerr, and Patricia J. Langhorne. 1996. Dordrecht, Boston, and London: Kluwer Academic Publishers (Soil Mechanics and its Applications 45). xii + 230 p, illustrated, hard cover. ISBN 0-7923-3953-3. £88.00; \$US129.00; Dfl 195.00.

This is a welcome treatment of a topic that has not yet been covered systematically in a book, but that is of great practical importance in Arctic engineering and of considerable scientific interest. The authors are a distinguished group of research workers with considerable experience of field and theoretical studies in this area.

The authors state that 'the goal of this book is to present a modern technical account of our state of knowledge of vehicles and aircraft operating on floating ice,' and, indeed, they have limited themselves strictly to this goal, no doubt due to space limitations in the monograph format. This makes for a tight, systematic, and very well organised treatment that covers the topic in a clear manner. However, it also makes for a shortage of connecting material in which the question of understanding the response of a floating ice sheet to moving loads could be set within a historical context and within the wider context of related scientific problems, such as wave generation in floating ice sheets by wind.

The first chapter of the book, or 'preamble,' does contain a fascinating, but limited, account of historical efforts. The reader is presented with photographs of the Chinese emperor being drawn along a frozen river on a sledge pulled by eight men, and of a railway laid across a frozen river in Manchuria by the Japanese during World War II. However, the serious and sometimes fatal nature of the moving load problem is not fully brought out. For instance, in 1974, when I was in the Canadian Arctic, a Lockheed Orion four-engined turboprop airliner landed on a sea-ice runway at Melville Island delivering a change of crews to a drilling camp. The landing was successful, but, as the aircraft slowed through a critical speed, the wave created by its initial landing caught up with it, the ice cracked around it and the plane went through into the water with the loss of 34 lives. Such tragedies are by no means rare, and demonstrate the importance of understanding the phenomena of wave creation in an ice sheet by a moving load.

Chapter 2 is a useful review of the structure and properties of ice plates in so far as they are relevant to the book's topic. This includes formation mechanisms of sea, river, and lake ice; the development of the brine cell