

be based on long-term environmental trends or changes indicated by the comprehensive database the Treaty Parties should be striving to assemble.

This is a very complex slate of future concerns, and it would have been useful if *Polar tourism* had begun to ponder this brave new world. And this reviewer hopes that the authors and their publisher would see fit to ensure that there are supplements to this useful, initial step down a long and difficult road. (Ron Naveen, The Oceanites Foundation, 2378 Route 97, Cooksville, MD 21723, USA.)

GREENLAND'S ICY FURY. Wallace Hansen. 1994. College Station: Texas A&M University Press (Military History Series 32). xii + 276 p, Illustrated, hard cover. ISBN 0-89096-579-X. \$34.50.

This is a book about a little-known and little-appreciated, but significant, contribution to the Allied war effort in the Second World War: the setting up and running of both an Arctic weather and rescue station at Comanche Bay (Igtip Kangertiva) on the East Greenland coast and a small outpost on the Greenland ice cap.

There were several reasons for weather and rescue stations in the Arctic, among the most important being the air supply routes between the United States and Great Britain. These supply routes for heavy bombers and, later in the war, long-range fighters leap-frogged up the north-east coast of Canada before crossing to Greenland to refuel. They then headed to Iceland and on to Prestwick, Scotland. The loss in good weather in 1942 of two B-17 Flying Fortresses and six P-38 Lightnings, along with several other aircraft incidents, encouraged the High Command to establish the combined weather and rescue station. The other main reason for the development of the station was to have a centre to fill in some of the vast gaps in the North Atlantic weather reporting network. In the pre-satellite era, the only way to track weather systems was by having the densest possible weather reporting network, and Greenland had long been recognised as a source of some of the weather systems that reached Europe. Ultimately it became essential for the Allied bomber offensive to set up weather stations in Greenland. Some of the larger air and weather stations in Greenland, such as Blue West-1 (BW-1) and Blue West-8 (BW-8), had up to 3000 men stationed on them. The camps also ranged in size to Blue East-2 (BE-2), which had 300 men, and down to the smallest, the Base Ice Cap Detachment (BICD), which had just 19 men and was established close to where Nansen began his crossing of the Greenland ice cap in 1888.

This book is one man's memory of the BICD and covers the time from the building of the camp, in the summer of 1943, to the time when the author, Wallace Hansen, left the detachment, in the autumn of 1944. The BICD had top military priority, superseding most other things in the supply chain, and the crew at the advanced station on the ice cap would record the weather conditions every hour and fill in various forms encoding the information for radio transmission. This information was then

relayed to the base camp, where it was enciphered and sent to the Greenland Base Command, who then broadcast the information to the Allied High Command for operational use.

Hansen describes some of the problems the BICD encountered, such as the burning out of the radio hut. Even weather observations could be difficult, and to launch a meteorological balloon one first had to make the hydrogen for the balloon. Of course, in the wild winter conditions this could be a major problem and on at least one occasion the manufacture of the hydrogen resulted in an explosion. Nevertheless, he obviously generally enjoyed his time in East Greenland.

Hansen was relieved from the BICD in September 1944 by the legendary Captain Robert Bartlett, on the two-masted schooner *Effie M. Morrissey*. Bartlett, who died a year later, was with Robert E. Peary for most of the controversial 1909 North Pole expedition, before being sent back just before Peary's final dash for the Pole. He had been contracted by the US Army to ferry supplies and people from the BICD to one of the larger staging posts (BE-2).

The main interest in the book, however, lies in the point of view from which it is written, that of an enlisted man (albeit a highly educated one) who obviously enjoyed his task. *Greenland's icy fury* has some nice qualitative explanations of the Arctic climate and of various meteorological effects, such as the aurora, the ocean currents in the region, and how katabatic winds develop, but it also describes many personal anecdotes from the era and is a pleasant light read. (Mark Brandon, British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET.)

DERECHO INTERNACIONAL DE LA ANTARTIDA. Francisco Orrego Vicuña. 1994. Santiago de Chile: Dolmen Ediciones. 685 p, illustrated, soft cover. ISBN 956-201-234-4.

Upon scanning the table of contents of Professor Orrego Vicuña's book, one is greeted with an immediate focus on Antarctic cooperation and utilization of resources. This should be no surprise, given the author's previous publications on this subject. One soon discovers that the analytical structure of the work assumes knowledge of the basic components of the 1959 Antarctic Treaty. In this sense it is not a 'statement of the law,' as the work by Sir Arthur Watts (1992) has been described, a fact further evidenced by the absence of an appendix. Instead, it is an insightful discussion of the emergence and meaning of the Antarctic Treaty System (ATS) in the light of contending legal interests among members of the international community. These interests are here focused on the question of resource utilization, whether viewed from an historical perspective, or from the present predicament of environmental preservation, or in an assumed future revival of pressure for commercial exploitation. The mineral resources regime is therefore treated as fully relevant, both

as an integral part of the ATS process of accommodation, and as a potentially operative regime for future generations.

The work may be influential in shaping the legal policies of the Chilean government. This is highlighted by the notion of sovereignty as applied to Antarctica. It is here a markedly inclusive concept. While it is linked to the classical issues of title to territory, the specific claims of various states regarding Antarctica are not examined, in contrast to the emphasis on this point by co-national Sahurie (1992). More importantly, the content of sovereignty claims regarding Antarctica, on the one hand, is explained in function of concurrent legitimate interests within a process of successful international cooperation, on the other. The latter can thus not exist without the former, nor vice versa. This is reflected in the characterization of the ATS as one of 'limited internationalization.' Where relevant to the discussion, the author points to the role that the Chilean government has played in the ATS, for the benefit of the reader's awareness.

The author offers his own preferences on certain issues of external accommodation (for example, Antarctic maritime zones), and on the continued development of the ATS for this purpose. His doctrinal viewpoints are outlined regarding the legal effects of the ATS on third parties. The hard facts of international cooperation would support the existence of a legislative function carried out by the ATS, especially in regard to environmental matters. The author is more cautious, however, on the thorny questions as to whether this amounts to an objective regime, and whether customary international law has developed from the ATS. Despite increasing international participation by both governmental and non-governmental organizations, and the fact that the ATS parties account for roughly three-fourths of the world's population, the most challenging aspect of the accommodation process in Antarctica will be that of the distribution of the benefits derived from resource utilization.

The book is divided into three parts. The first part traces, in four chapters, the development of the ATS towards the integration of a framework for resource utilization. These chapters deal, respectively, with the evolution of Antarctic cooperation; the normative expansion of the ATS with respect to resources; approaches to sovereignty and jurisdiction; and the relation between Antarctica and the Law of the Sea. The second part deals specifically with the ATS resources regimes, also in four chapters. These cover, respectively, the basic elements of a mineral resources regime; environmental protection; models and alternatives for the distribution of powers within resources regimes; and the institutional framework of the ATS. The two chapters of the third part discuss, respectively, the participation of non-Consultative Parties and the perspectives of the international community at large towards the ATS. There is much helpful cross-referencing in the text.

In conclusion, the work is a relevant contribution to the

ongoing legal discussion on Antarctica, deserving, it must be said, of greater editorial support than that displayed in this volume. (Alejandro A. Escobar, Trinity Hall, Trinity Lane, Cambridge CB2 1TJ.)

References

- Sahurie, E. 1992. *The international law of Antarctica*. New Haven: New Haven Press; Dordrecht: Martinus Nijhoff.
Watts, A. 1992. *International law and the Antarctic Treaty System*. Cambridge: Grotius.

COLD CLIMATE LANDFORMS. D.J.A. Evans (Editor). 1994. Chichester: Wiley. xvi + 526 p, illustrated, hard cover. ISBN 0-471-94043-7. £95.00.

This book, which concentrates largely on papers dealing with permafrost and periglacial landforms, is part of a wider geomorphology series on 'Classic papers in translation.' The series was apparently developed because of a perceived ignorance within the English-speaking scientific community of important papers in geomorphology — the study of landforms — not published in that language.

Cold climate landforms contains 21 papers in English translation. These papers are divided into seven parts, on permafrost landforms and regional reconstructions (5 papers), periglacial landforms (6 papers), glacial and fluvioglacial landforms (4 papers), marine and lacustrine landforms (2 papers), polygenetic landforms (1 paper), cold climate slopes (2 papers), and rock glaciers (1 paper). Each translated paper is preceded by an 'Editor's review,' which summarises the general context of each specific contribution and points out its particular significance.

As the title of the volume implies, there is a clear and deliberate emphasis on landforms in the choice of papers. This is, presumably, 'classical geomorphology,' but I was often hankering for more information on the internal structure of the depositional forms that were discussed, since this is clearly a basic tool in understanding the processes responsible for their development.

The selection of papers for a volume such as this is critical, and the editor has, quite rightly, consulted widely before coming to his final choice. My own view is that the book would have been enhanced by the inclusion of several of the most significant English-language papers on cold climate landforms. It would then have become more representative of the total literature available and, thus, more useful to students of the cold regions and their landforms.

There is also a sense in which at least a proportion of the scientific information translated within the volume is already accessible in English. This is especially so where authors have published some of their work in English-language journals. From my knowledge of the literature on rock glaciers, for example, I would have thought that a number of the major points made in the paper by Barsch were to be found already in English.

The book is very well presented, with a particularly attractive cover, and this is a credit to the editor. The figures are in general clear, and I assume that a number