

that 'in an increasingly interdependent world, in both the economic and the ecological senses of the term, the idea of international cooperation is not just an ideal but an imperative' (page 37). But he is also cautious. Despite evidence of the 'growing ascendancy of environmental values over resource-driven geopolitical visions' (page 229) in the polar regions, 'old habits and attitudes die hard' (page 200). There is no guarantee, he advises, that governments will accept the assumptions underlying the new geopolitics. As a result, it is preferable to view ourselves as living not in a world dominated by the new geopolitics, but rather one in a process of geopolitical transition (page 201). (Peter J. Beck, Faculty of Human Sciences, Kingston University, Penrhyn Road, Kingston upon Thames, Surrey KT1 2EE.)

Reference

ATCPs. 1997. *Draft Report of the Twenty-first Antarctic Treaty Consultative Meeting, 19–30 May 1997*. Wellington: Department of Foreign Affairs and Trade.

VOICES IN STONE: A PERSONAL JOURNEY INTO THE ARCTIC PAST. Peter Schledermann. 1996. Calgary: Arctic Institute of North America (Komatik Series No 5). xvii + 221 p, illustrated, soft cover. ISBN 0-919034-87-X. \$Can25.00.

Peter Schledermann's archaeological research in the Smith Sound region of northern Ellesmere Island during the past two decades has been instrumental to an understanding of prehistoric population adaptations and movements in the Canadian High Arctic and Greenland. *Voices in stone* is intended for the non-specialist, although it will certainly appeal to specialists as well, and serves both as a summary of the results of his 12 seasons of field investigations in the Smith Sound area and as a personal narrative of these investigations.

The introductory chapters briefly summarize current archaeological approaches and methods, introduce the reader to the Polar Inuit (the historic inhabitants of Smith Sound), and describe the archaeological context of Schledermann's research. These are followed by a series of chapters describing successive Paleoeskimo (ca 4000–1000 BP) and Neoeskimo (ca 1000 BP to present) occupations. In addition, one chapter deals with evidence for, and influence of, contact with the Greenland Norse colonies, another with European and Euroamerican exploration and settlement, while the final chapter, entitled 'Lessons from the past,' is essentially a personal philosophical essay.

The book is very well written, and various anthropological concepts, such as cultural ecology — which Schledermann relies on as a unifying thread to explain most temporal changes in population levels and population movements in the region — are explained in a simple, clear manner and applied in a straightforward fashion. Furthermore, it presents an interesting 'history' of a long-term archaeological project, from the initial concept of the project through the various survey and excavation stages. In doing so, it illustrates not only the connections between

the various stages and the often heuristic nature of archaeological field projects, but also how logistical and climatic constraints can significantly modify such projects; many readers will readily identify with potentially important locations that are inaccessible, fog-bound landing areas, tents shredded by gale-force winds, and overly curious polar bears.

The book is richly illustrated with excellent colour and black-and-white photographs and a series of fine bird sketches by artist Brenda Carter. A few minor errors of historical fact occur (for example, McClintock met Qitdlarssuaq's group in 1858, not in 'the early 1860s'), but they do not detract from an otherwise very enjoyable book. (James M. Savelle, Department of Anthropology, McGill University, 855 Sherbrooke Street West, Montreal, Quebec H3A 2T7, Canada.)

PHYSICS OF THE UPPER POLAR ATMOSPHERE. Asgeir Brekke. 1997. Chichester: John Wiley and Sons. xi + 491 p, illustrated, hard cover. ISBN 0-471-96018-7. £29.95; \$US50.00.

Physics of the upper polar atmosphere is an excellent and comprehensive summary of present-day knowledge of this region of the Earth's environment, written by a well-known and widely acknowledged expert in the field. The study begins with a detailed account of the Sun as a source of radiation. This is an ideal approach to the subject, because it gives a good understanding of the solar–terrestrial relationships that are involved in determining the nature and properties of the upper polar atmosphere. Starting with the short-wave extreme ultraviolet emissions and working through to the long-wave radio emissions, the properties of these various radiations are described and their origins in the solar atmosphere specified. Two examples of these important solar–terrestrial relationships may be cited: firstly, the extreme ultraviolet emission (between 0.01 and 0.1 μm) from the solar chromosphere, which generates the Earth's ionosphere by photo-ionisation, and, secondly, the far-ultraviolet emission (between 0.1 and 0.2 μm) from the top of the solar photosphere, which produces thermal dissociation of molecular oxygen in the mesospheric and thermospheric regions of our atmosphere.

The second chapter leads on logically to a detailed study of the solar wind and the interplanetary magnetic field, as this region is involved in the transmission of solar particles and emissions to the Earth and its magnetosphere. This section deals with the Sun's magnetic field, the frozen-in field concept, the electric field in the solar wind, and the well-known 'garden hose' effect.

The third chapter deals with the atmosphere of the Earth — its nomenclature and composition, its temperature structure, its frictional drag on Earth satellites, its behaviour as an ideal gas, and its 'oxygen chemistry.' More topically, and perhaps of more general interest, it also deals with 'global warming' and 'ozone holes.' The former is attributed to increasing amounts of carbon dioxide and other 'greenhouse gases' trapping more heat in the