The glossary is written *for* non-specialists, and, unfortunately, seems to have been written *by* non-specialists, who, *inter alia*, have no knowledge of Latin. We have glaciers forming in Ireland during the Little Ice Age, confusion between ions and radicals, a curious derivation of insolation, the implication that all trace gases are radiatively active, and many others. This spoils what would otherwise be a very useful concluding chapter.

I found the book to be a beneficial read, giving me a fresh viewpoint from those involved with climate change on the economic and political side. I would recommend it as a source that can give scientists a picture of the human side of climate change and that can give economists and politicians a balanced view of the current state of scientific understanding. (Jonathan Shanklin, British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET.)

ARCTIC WARS, ANIMAL RIGHTS, ENDANGERED PEOPLES. Finn Lynge. 1993. Hanover, NH, and London: University Press of New England. xiv + 118 p, illustrated, hard cover. ISBN 0-87451-588-2. US$16.95.

During the 1970s, Inuit watched from a distance as animal-rights groups waged an aggressive campaign to stop the commercial harvest of harp seals on the east coast of Canada. In 1983 the European Community banned the import of skins from harp and hooded seals for two years. The ban was extended in 1985, and in 1989 the boycott of sealskins was extended indefinitely. Virtually overnight, the single most important source of income for many Inuit disappeared — with a devastating impact on their economy and culture. The animal-rights groups then turned to other issues, such as trapping and the harvest of whales.

As aptly stated in the foreword, this rather slim volume is a passionate book by a passionate advocate of environmental protection and the rights of indigenous people. The author contends that the animal-rights movement reflects the growing alienation of urban dwellers from the realities of nature. The introductory section contrasts the traditions and values of hunting cultures with those of urban societies. The next three chapters examine specific examples — the Newfoundland seal hunt, commercial whaling, and the anti-trapping movement — of animal-rights groups infringing on the culture and economy of northern hunting societies. The final chapter explores the implications of these developments and the possibility of reconciling these opposing views.

The author presents a northern aboriginal perspective on hunting, and attempts to redress the misinformation and misunderstanding of aboriginal cultures that he feels have been fostered by animal-rights groups. He analyses the history of each anti-hunting movement and describes the political and public relations tactics used to advance their agendas. The moral and ethical arguments expounded by the animal-rights groups are effectively rebutted, and a number of Inuit myths and traditions are presented to demonstrate their respect for the animals that they harvest. The author argues for a similar respect among human beings and a rejection of the cultural imperialism inherent in the animal-rights movement. His arguments are presented in a simple, straight-forward manner that will be understood by a wide audience.

Although the author presents a good case in philosophical terms, it could be strengthened by discussing the impact of animal rights in tangible terms. Animal-rights groups have argued that commercial aspects of hunting are not consistent with a subsistence lifestyle. Hunting and culture are largely synonymous in northern aboriginal societies. Money earned from the sale of seal skins, as a by-product of the hunt, allowed Inuit hunters to purchase the equipment and supplies required to maintain their subsistence culture. If Inuit cannot afford to hunt, how can they afford the much more expensive and nutritionally inferior foodstuffs from southern origins? This book is a welcome addition to the debate about animal rights — and aboriginal rights — from a perspective that is all too often overlooked. (Kevin J. McCormick, Canadian Wildlife Service, Box 637, Yellowknife, NWT X1A 2N5, Canada.)

CLIMATE SYSTEM MODELING. Kevin E. Trenberth (Editor). 1992. Cambridge: Cambridge University Press. xxix + 788 p, illustrated, hard cover. ISBN 0-521-43231-6. £35.00.

The widespread ramifications of human activities impacting the global environment necessitate improved understanding of the workings of the global climate system, encompassing the atmosphere, ocean, cryosphere, biosphere, and biogeochemical cycles. Up to now, such topics have been treated either in specialist reviews or popular works. Kevin Trenberth, deputy director of the Climate and Global Dynamics Division at the National Center for Atmospheric Research in Boulder, Colorado, has coordinated the contributions of 27 leading specialists to document the state of knowledge about the components of the climate system, their modeling, and future research directions. The book is aimed primarily at an academic, graduate-level audience, but secondarily at scientists who are addressing issues arising from the environmental and societal impacts of climate change.

The book is divided into six parts. Following an introductory section on climate modeling and human effects on the climate system, Part 2 contains six chapters on system components (atmosphere, ocean, land, terrestrial ecosystems, atmospheric chemistry, and marine biogeochemistry), detailing the physical principles underlying the processes within each system and their interactions. Eight chapters in Part 3 treat parallel aspects of modeling the component processes; Part 4 has two chapters on coupled atmosphere–ocean models; Part 5 (four chapters) presents the applications of models in analysing past, present, and future changes in the climate system; and there is a final chapter (Part 6) on modeling prospects. There is an extensive combined reference list and a subject index.

The subjects treated have an impressively wide scope, as illustrated by a scan of the diversity of terms in the index. Many of the chapters provide excellent, up-to-date ac-

counts; among these are the contributions by S. Schneider (climate modeling), T. Turco (atmosphere chemistry), R. Najjar (marine biogeochemistry), P. Sellers (biophysical models), and W. Washington (modeling increased greenhouse gas effects). M.A. Cane carefully describes our understanding of El Niño–Southern Oscillation phenomenon before proceeding to discuss its modeling. Adoption of this structure would have benefited some of the other chapters. There are, however, some imbalances and gaps in the treatment. The crucial issue of cloud radiative forcing receives only a qualitative discussion on pages 97–98 and no cross-reference to the ERBE results (page 712) or to model treatments (page 645). The cloud contribution to planetary albedo (page 8) is not traceable via the index. Low-frequency variability in the atmosphere (blocking modes, intra-seasonal variability) are missing from the chapter on the atmosphere, but are discussed by N.-C. Lau in the context of model simulations. Snow cover receives little attention. It features briefly in the context of modeling results, but there is no systematic treatement as for sea ice and land ice, despite its greater annual variation and areal extent and its important role in the hydrologic cycle. Also missing is a discussion of evidence for recent climatic changes and trends. Whereas paleoclimatic changes are reviewed by J. Kutzbach, there are no diagrams of observed fluctuations of regional and hemispheric temperature and precipitation averages for the last 100 years, although greenhouse gas trends are illustrated in Chapter 2.

The chapters on modeling sea ice (W. Hibler and G. Flato) and land ice (C. van der Veen) will be of particular interest to polar scientists, although the latter is too brief in its treatment of ice-sheet modeling. Other relevant polar topics such as the modeled high-latitude amplification of greenhouse gas-induced warming (pages 655–658) and the nature of the global ocean conveyor belt, treated under global coupled models by G. Meehl rather than under ocean circulation, are not easily located. Ice–albedo feedback in simple zero-dimensional climate models is briefly treated by J. Kiehl (page 324; not indexed), but the usefulness of zero- and one-dimensional model results is unfortunately not discussed.

The production of the book, with standardized diagrams, provides a consistent appearance. There is a list of acronyms and a key to basic notation used in equations throughout the book, although this is inconveniently printed sideways. A glossary would also have been helpful, given the multi-disciplinary terminology (methanotrophs, Newtonian cooling, plastic ice rheology, Rayleigh friction, and till, for example). The index is incomplete: brine formation is referred to page 136 but is fully described on page 413; Arctic, PAR, and jet streams, for example, are missing. Some figures are incomplete. Figures 4.12 and 5.1 need a latitude–longitude grid, and Figure 18.1 a vertical scale.

The editor's intention that 'professors who are experts in one disciplinary area will be able to use this text to teach a course in climate system modeling that introduces students to the other disciplines and the issues involved in coupling among the components of the climate system' may seem an unrealistic aim given the breadth of this work. Nevertheless, it is a welcome step toward the solving of this important educational problem. Perhaps of equal value will be its contribution to educating disciplinary-specialist scientists and professors! The book is excellent value for money and can be strongly recommended for all scientific libraries. (Roger G. Barry, World Data Center-A for Glaciology, University of Colorado, Boulder, CO 80309-0449, USA.)

READINGS IN SAAMI HISTORY, CULTURE AND LANGUAGE III. Roger Kvist (Editor). 1992. Umeå: Center for Arctic Cultural Research, Umeå University (Miscellaneous Publications 14). iii + 142 p, illustrated, soft cover.

The Umeå Center for Arctic Cultural Research already has a fine record for publishing material on the past and present aspects of Saami life. As I indicated in an earlier review (*Polar Record* 27 (161): 142–143, 1991), this is not always uncontroversial, but it is certainly stimulating and informative. This volume has a number of excellent contributions.

Lars Forsberg takes what he calls 'a provocative view' on the proto-Saami Bronze Age. My criticism of this is that to attach ethnic labels to the prehistoric inhabitants of an area implies that these had meaning at that time. It is certainly true that ethnicity has become the opiate of the twentieth-century masses, but whether in past times, where stark issues of human survival may have dominated, people used such a form of differentiation must at least be questioned. A paper by Inger Zachrisson on 'Saami prehistory in the South Saami area' tangentially raises the same issue. She writes of 'colonization,' but is more cautious in attaching ethnic labels until the first references in classical sources.

Gunlög Fur, writing of seventeenth-century Swedish policy towards both Saami and Lenape Indians, is on firmer ground: the comparison is illuminating. Roger Kvist's own paper on 'Swedish Saami policy, 1550–1990' concentrates on policies that were discriminatory, resulting in what he characterises as 'a system of institutional racism,' which, however, has been superseded by more enlightened attitudes. His paper provides the non-Swedish reader with information otherwise difficult to obtain.

Johannes Marainen, himself a Saami, compares social stratification and marriage in two Saami administrative districts, Talma and Könkämä, between 1901 and 1923. His paper is excellent, although one wishes he might have included his own area, Lainiovuoma, which lies between Talma and Könkämä. Kaisa Korpijaakko, working at the Institute for Nordic Law at the University of Lapland (Rovaniemi) discusses the legal aspects of land use by the Saami of Sweden and Finland. It is a key question, which is taken beyond the documents into the domain of public