Rosita Worl examines the modern Inupiat (northern coastal Eskimo) whaling complex. Her description of crew composition, contemporary equipment used, and outfitting costs adds a recent chapter to earlier accounts of North Alaskan whaling. Of particular interest is Worl's discussion of customary laws applying to possessory rights and whale part distribution. A complex series of judgments are made to determine rights to a dead whale, based primarily on reconstructing the succession of bombs which ultimately killed the animal.

This cooperative volume is praiseworthy as a tool for today and an inspiration for the future. Through the writings of these seasoned authors, we have excellent interpretations of culture history, past and present, which are useful for research and instruction. On the other hand, the volume reminds us of the largely unrealized potential for studying the richest resource available in Alaska today — its native peoples and their history.

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THE ARCTIC AND THE ANTARCTIC: THEIR DIVISION INTO GEOBOTANICAL AREAS. By V.D. ALEXANDROVA (Translated by DORIS LÖVE). Cambridge University Press, 1980. xii + 247 p. + illustrations. ISBN 0 521 231J9 1. $34.50.

With the publication of Kamorov's monograph, "Introduction to an Investigation of the Vegetation of Yakutia" in 1926, a major stride was made toward the division of Arctic regions into geobotanical areas. Dr. Vera Alexandrova has now undertaken the task of synthesizing her own extensive research and that of other northern investigators, including Kamorov, into a well organized classification system.

It has often been said that there are as many different ways to classify vegetation as there are individuals who classify. Although this may be somewhat of an overstatement, one only has to peruse the botanical literature from 1950-1970 to appreciate the theoretical problems which confront phytosociologists. Though one may not agree with the particular classification system or may prefer different ones, Alexandrova has adequately set out and explained the principles and tenets (Chapter One) upon which her system is built: an essential component in a book of this nature.

Her taxonomic units are separated on the basis of diagnostic characteristics which draw on floristic, vegetational, structural, biomass, life form, soil profile, soil formation, faunistic and ecological information. The hierarchy of the classification is based upon Lavrenko's (1947, 1968) system, modified by the author, and includes the following: Dominion, Subdominion, Region, Subregion, Province, Subprovince, and District. The Arctic belongs to the Holarctic Dominion and the Subdominion Arctogaea. Diagnostic characteristics or distinguishing criteria for the remaining five synsytematic units in the hierarchy may be briefly, and somewhat elusively, summarized as follows:

1) *Regions* are distinguished by the distribution of a characteristic zonal type of vegetation on mesic habitats of an area and by the absence of this vegetation type on zonal, mesic habitats of adjacent areas. The presence of a specific set of non-zonal, non-mesic vegetation types is also important in defining regional boundaries.
2) *Subregions* are distinguished by the presence of vegetation subtypes of the characteristic Regional zonal vegetation type and also by the presence of a specific set of non-zonal vegetation types particular to non-mesic habitats of that Subregion.
3) *Provinces* are distinguished by the occurrence of classes and groups of plant associations which are endemic to that province. These are represented by a typical zonal type of vegetation developed on mesic sites and also by the characteristics of plant associations which develop on non-zonal, non-mesic habitats.
4) *Subprovinces* are distinguished by the presence of endemic phytocoenotic units (vegetation subclasses and groups of plant associations) and by the relative abundance of these units in an area.
5) *Districts* are distinguished by the presence of a specific combination of plant associations typical for a particular subprovince. They are also distinguished by the presence of plant associations formed because of the special orographic, type of soil forming bedrock and local climatic conditions which prevail in that District.

Alexandrova concludes the discussion of her hierarchical system with a brief analysis of the problem of placing geographic boundaries around areas that essentially belong to a natural continuum. The remainder of the book (pp. 18-186), with the exception of her concluding chapter, provides an elegant and comprehensive discourse on the nature of specific units within each of her hierarchical levels. As one reads this portion of the book, some of the lack of clarity with definitions of diagnostic characteristics in her synsystematic units is removed. The author concludes with a firm statement that her work should only be considered as a step toward solving the problems of Arctic geobotanical classification: ". . . as an hypothesis launched, which may serve as a departure point for debate and discussion and for further refinement and elucidation."

One cannot conclude a review of Alexandrova's work without a special note of acknowledgement to Doris Löve, the translator. Although my linguistic abilities in Russian are inadequate to judge the accuracy and faithfulness of her translation, it is apparent, as one studies the work, that she has paid close attention to chosing equivalent English terms for the many Russian ecological expressions. This terminological precision is something that is all too often lacking in ecological literature and has been a source of great misunderstanding in the field.

Clearly this is an essential volume on the bookshelf of any arctic ecologist and one that should be a constant companion in the field. It would also be an excellent textbook for any advanced course dealing with northern phytogeography or ecology. I recommend it very highly.

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SEA ICE PROCESSES AND MODELS, Proceedings of the Arctic Ice Dynamics Joint Experiment, International Commission on Snow and Ice Symposium at Seattle, September 1977. Edited by R.S. PRITCHARD. University of Washington Press, 1980. 474 pages. $30.00.

In March 1975 the main camp of the Arctic Ice Dynamics Joint Experiment (AIDJEX) was installed (76°N; 145°W) on the constantly shifting pack ice of the northern Beaufort Sea. Funded by the National Science Foundation, the Office of Naval Research and the Canadian Polar Continental Shelf Project, with headquarters at the University of Washington, Seattle, AIDJEX may still hold the record for being the largest and most ambitious scientific program to have taken place in the high Arctic.

Prior to AIDJEX, an understanding of the basic nature of pack ice dynamics had accumulated since Nansen's crossing of the Eurasian Basin (1893-1896). However, data derived from isolated points such as long-term drifting ice stations precluded significant progress possible through analyses of synoptic data, a basic requirement perceived in the planning of AIDJEX. Thus, during the main experiment until its end in early May 1976, four manned camps were surrounded by a ring of data buoys with the long-term goal of providing answers for the following questions: (i) how is large-scale ice deformation related to the external stress field?; (ii) how can the external stresses be derived from a few fundamental and easily measured parameters?; (iii) what are the mechanisms for ice deformation?; and (iv), how do ice deformation and morphology affect the heat balance?

According to the Director of AIDJEX, Dr. N. Untersteiner, in the initial AIDJEX review paper which introduces the book, these questions maintained their validity throughout the five years of observations and analyses. In hindsight, he poses four more fundamental questions, namely: (i) were the scales of observation chosen correctly?; (ii) were the right observations taken?; (iii) was it possible to deduce the external stresses to sufficient accuracy?; and (iv) did the model development advance our understanding of sea ice mechanics and heat balance?

The answers, a qualified "yes" for each of the questions, form the basis for most of the forty papers presented in the book. These are presented in four sections: AIDJEX review papers; deterministic ice modeling; ice observations; and boundary layers. The latter three also contain research papers from programs other than AIDJEX including sea

ice models with respect to global climate, techniques for predicting ice motion, and regional studies from the Strait of Belle Isle, Antarctica and Chukchi Sea, to name a few.

This book claims to be, and undoubtedly is, not only the culmination of the AIDJEX program, but a documentation of the state of the art in polar ice research. As such it is an essential book for all workers in ice dynamics and polar oceanography. Unfortunately for students and scientists in peripheral disciplines, it is a book compiled by experts for experts. No space is "wasted" providing a historical overview of sea ice research or a final assessment of the achievements of the program with respect to the questions posed at the beginning.

Too often abstracts fail to provide a synopsis of the paper, but rather explain what the author intends to discuss or examine. Too often conclusions are little more than a description of what the paper has already discussed. Neither are useful to inform an expert, let alone a scientist in a peripheral field, that (i) the paper contains information of importance to him or (ii) that the paper is sufficiently interesting to warrant complete reading.

It is a pity that, in taking the trouble to produce a book, greater effort was not made to both educate and interest a wider audience in the merits and importance of studying sea ice dynamics. Otherwise, one wonders if the book might have better remained as individual papers in appropriate technical journals.

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SHADOWS OF THE HUNTERS: STORIES OF ESKIMO LIFE. By RICHARD K. NELSON. Toronto: The University of Toronto Press, 1980. 282 p. No price indicated.

Both lay persons and professionals have recorded the lifestyles of the Eskimos. Some good literature has resulted. Richard Nelson's contribution to this literature is an ethnography, or the description of cultural and social events, portraying the lifestyles of the Inupiat. Unlike most contemporary ethnographies, Nelson's book is neither factual nor analytical. Rather, he describes the Inupiat in a collection of fictional short stories. The stories, each of which relates events that are likely to happen during a particular month, are ordered after the yearly cycle. The first story is titled 'Moon of the Returning Sun' and the last is titled 'The Moon with No Sun'. This format assists the reader in understanding how daily events change throughout the arctic year.

Nelson wrote the book in "the hope of teaching people about Eskimos." The recurring theme is the Inupiat's ability to survive in a harsh environment. The skills and knowledge that Eskimo males must draw upon for successful hunting is emphasized. The importance of the women's skills, such as sewing, and the children's willingness to help with the daily activities is also exemplified. Another aspect of this theme is the Inupiat's ability to borrow, adapt and utilize white technology without becoming completely dependent on a white lifestyle. Nevertheless, some narratives contain information on the problems faced when younger people begin to reject traditional ways. Nelson's descriptions of life during times of danger, security, failure and accomplishments; as well as his descriptions of the various personalities, social relations and world views are both witty and serious.

Following the stories are an appendix, which describes the overall setting of the area, and a glossary, which defines both Eskimo and English terms. Both are clearly presented and useful.

Perhaps the most important aspects of Nelson's book are its success in reaching the general reader interested in the peoples of the Arctic, and its potential usefulness as a reader for school children studying North America native peoples. The people and events in this book are based on real situations, therefore the public is provided with valuable information about Eskimo life that is often difficult to acquire. In my opinion, it is a valuable contribution to applied anthropology, and I would like to see more researchers write books and articles for the general public.

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ESKIMO, REINDEER AND LAND. By R.O. STERN, E.L. AROBIO, L.L. NAYLOR and W.C. THOMAS. Agricultural and Land Resources Management, University of Alaska, Bulletin 49, December 1980.

Eskimo, Reindeer and Land is a well written, informative paperback. The authors, two economists and two anthropologists, study past, present and projected future influences of reindeer herding on northwestern Alaskan society, economics and culture. Pending United States legislation that may create new national interest land makes this concise description timely, especially as the book investigates possible impact of policy changes and land management decisions.

The first five chapters outline reindeer biology, ecology and herd introduction into Alaska, as well as types of herd ownership. Non-native ownership of reindeer (especially by the Lomen Company) dominated the period 1914 to 1940. Native ownership from this time to 1977 existed when most research for this book was completed. I was particularly interested in socio-economic aspects of herd management described here. For example, relationship of village social structure to herd ownership is well portrayed. Herd owners, while kin-related to other villagers, have special status consisting of authority as employers, agents of change and politicians.

The final chapter analyzes herding in terms of present and future influences for change. Future reindeer herding will be influenced by alterations in land ownership, reindeer management and official land-use policies. Such policies include management of tundra fires, use of aircraft and the use of all terrain vehicles. The authors conclude that herders must become more politically astute if they are to maintain their ancestral land and its present reindeer herds. The book is potentially relevant to the Canadian Mackenzie Delta reindeer herders as land claims are prominent now in government-native negotiations.

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