

As its title suggests, this book is based on the journals kept by Oliver during her Atka sojourn. The chapters follow chronologically the 13 months from her arrival in June 1946 through her departure in June 1947. Primarily an account of her own experiences — of the sights and events she witnessed and the friendships she made on Atka, Oliver's chronicle is at the same time a record of Aleut life in Atka and of the strength and resourcefulness of the people of that village in re-establishing their community. Though not an anthropologist, Oliver presents valuable ethnographic information on an important yet poorly documented period of Aleut history. Accounts of sea mammal and reindeer hunting, fox trapping, basket making, and a myriad of other activities are interwoven with the ebb and flow of Oliver's year in Atka, a village that was, as it remains today, perhaps the most isolated community in the United States.

Three appendices are of interest. The first two are autobiographical accounts of life on Attu and the imprisonment of the Attuans by the Japanese during World War II. They were both written or dictated by Aleut men from Attu during Oliver's stay on Atka. The third appendix is a census of Attu at the time of the Japanese occupation as well as of Aleuts born in wartime captivity.

In sum, this book provides a highly personal account of a year in the village of Atka, attempting no cultural or historical analysis. Oliver describes a crucial period in the history of Atka, and of the Aleut people generally, in a sensitive, enjoyable, and informative manner. *Journal of an Aleutian Year* is a thoroughly readable book, which will be of value to anyone having interest in the Aleutian Islands, Alaska Native history, education in Alaska, or Native-government relations.

Douglas W. Veltre
Department of Anthropology
University of Alaska Anchorage
2533 Providence Avenue
Anchorage, Alaska 99508
U.S.A.

GLOSSARY OF PERMAFROST AND RELATED GROUND-ICE TERMS. BY THE PERMAFROST SUBCOMMITTEE OF THE ASSOCIATE COMMITTEE ON GEOTECHNICAL RESEARCH (S.A. Harris, H.M. French, J.A. Heginbottom, G.H. Johnston, B. Ladanyi, D.C. Sego, and R.O. van Everdingen). National Research Council of Canada Technical Memorandum No. 142, NRC Report No. 27952. Ottawa: National Research Council, 1988. 156 p., 24 figs., bib. Softbound. Cdn\$15.00. (Available in English and French.)

This book is a revised version of the 1974 publication *Permafrost Terminology*, prepared by R.J.E. Brown and W.O. Kupsch. In 1982 the Permafrost Subcommittee of the Associate Committee on Geotechnical Research, National Research Council of Canada, decided that this publication should be updated to reflect current usage and the list of terms expanded to include additional terms relating to engineering, ground ice and periglacial phenomena. The authors state in the introduction that: "The primary objective is to present terms that enjoy common usage in the current literature, with special reference to Canada and Canadian conditions." They note that this glossary is intended to be a list of pertinent definitions, not an encyclopedia concerning the permafrost regions of Canada.

The glossary lists 596 terms, with definitions being provided for 201 of them. Each definition where appropriate includes references to related terms, gives the French (or, in the French version, the English) equivalent, defines the term (in some cases with illustrations), gives comments that explain the term in more detail, lists synonyms for the term and concludes with a list of references. The work is well organized, the terms are easy to find and the definitions are easily understood. As a result, this is a good reference work for a wide range of people, including students and scientists working in various disciplines. The references used, which include the classic,

benchmark and pioneer papers, are pertinent and easily available. In addition, the included diagrams and photographs provide excellent illustrations for some of these terms.

There are, however, some points that should be considered. The terms defined are drawn from many disciplines and often somewhat varying definitions are commonly used for the same term. The definitions in use have been developed to answer the requirements of specific disciplines. This work attempts to standardize these definitions, but in doing so the authors have made little allowance for the needs of some disciplines. Much of the weakness in this glossary originates from this attempt at standardization.

Some terms given in the glossary are identified as "not recommended." This was done "to clarify thought and to achieve more precise language; to standardize terminology; to avoid the use of transliterations; . . ."

The reader should be cautious, however, about relying on the "not recommended" label. For example, the use of the term "Cryosolic soils" (p. 23) is listed as "not recommended," in spite of the fact that it is commonly used and widely accepted in the soil science literature (equivalent to accepted terms such as Luvisolic soils or Podzolic soils). The reader should refer to the discipline from which the term originated to determine which terms are deemed acceptable within that particular discipline.

The use of the terms "frozen" and "unfrozen" in reference to soils or rock in this work presents another problem. The 1974 publication, *Permafrost Terminology*, indicates that two definitions of these terms were being used, one temperature-based, the other based on the presence or absence of ice. Brown and Kupsch agreed with the position of those who used a temperature-based definition. In this volume, however, the authors have chosen to define these terms on the basis of the presence or absence of ice. This definition may satisfy the engineering community and some scientific disciplines, but it is inadequate for the needs of many of the scientific disciplines. Temperature, not the presence of ice, is the main controlling factor in biological productivity, soil development and weathering. With the removal of temperature dependency from the definition of the terms "frozen" and "unfrozen," the authors have also removed the ability of scientists to express the distinction between soils capable of sustaining biological productivity (unfrozen) and those incapable of sustaining such productivity (frozen).

Perhaps it should be emphasized here that the stated primary objective of this glossary is to present terms that enjoy common usage in the current literature. With this objective in mind, it is therefore inappropriate for the authors to select one definition of a term over another when both are commonly used in the literature and both fill obvious needs of the disciplines using them.

The definitions of the terms "peat" and "peatland" are also not well handled, especially since this glossary presents the currently used terms, with special reference to Canada. The definition given for "peatland" is ambiguous and does not reflect the accepted national definition regarding minimum peat thickness, which is 40 cm. In addition, defining "peat" by referencing it to peatland is very poor. There is a nationally accepted definition for peat in Canada, and this should have been included since peat material is so common in the permafrost regions.

Other terms presented in this glossary originate from a number of scientific disciplines. It is therefore important when compiling a permafrost glossary and selecting definitions that members of these disciplines be consulted. The authors of this glossary have done this to a certain extent, as shown by the long list of reviewers. In spite of this, some weaknesses still remain in the definitions of the terms and some of their definitions are controversial.

Despite these limitations, the glossary is an important publication both nationally and internationally. The Brown and Kupsch publication, which was published in English and French in Canada, was also translated into German, Russian and Chinese. The current glossary is intended to provide the basis for an international glossary of permafrost terms to be compiled by the Working Group on Ter-

minology of the International Permafrost Association. The glossary, therefore, has both national and international acceptance and is recommended as a useful reference for those involved in permafrost-related fields.

*Charles Tarnocai
Land Resource Research Centre
Research Branch, Agriculture Canada
K.W. Neatby Building
Ottawa, Canada
K1A 0C6*

POLAR BEARS. By IAN STIRLING. Photographs by DAN GURAVICH. Ann Arbor: The University of Michigan Press, 1988. 220 p., 2 tables, 8 figs., 163 colour plates, index, bib. Hardbound. Cdn\$55.00; US\$50.00.

Ian Stirling set out to write "a popular but scientifically accurate book" on polar bears that the reader wouldn't "need a university degree to understand." After 18 years of studying the polar bear and its environment the author has far surpassed this commendable objective.

This volume transports the reader into the polar bears' world. The author sets the scene with information on the available pre-historic knowledge on polar bears and how these carnivores may have evolved within the arctic ecosystem. We are then offered a view of the polar bear in the legends and spiritual beliefs of the Inuit. Stirling stresses the importance and respect this marine mammal holds for these indigenous peoples. This is accomplished through a discussion of how polar bears are and were used by Inuk hunters and by recounting legends and anecdotes that provide a clear image of the polar bears' cultural importance. The author acknowledges the Inuit as the "original polar bear watchers."

The third chapter presents a clear, concise description and review of the techniques that have been developed by scientists enabling them to study polar bears. This review does not attempt to gloss over problems or controversial topics, such as the long-term effects of handling polar bears. Instead, Stirling takes a hard look at the available data, presents a conclusion based on the analysis and his 18 years of study, and finally suggests that scientists studying bears will continue to try to improve the techniques employed. This chapter is much more than "how to study polar bears"; it successfully lets the reader see and appreciate the difficulties that researchers face working on this species. This chapter also frankly discusses the advances that have been made in the area of chemical immobilization of polar bears in the past 20 years. These advances have clearly made handling polar bears today much safer for both the bears and researchers. Stirling allows the reader to feel what it is like to work in the Arctic. His honest, insightful description of one experience where a bear that had received too much drug was given artificial respiration gives an inner glimpse of what working on polar bears can be like. However this anecdote doesn't end there but also provides us with a view of Stirling, scientist and conservationist, who was concerned about the long-term effects this experience might have had on this bear: "However, we caught her again the following spring. She was in excellent health and accompanied by newborn cubs" (p. 55).

After these early chapters, the author presents the life history and general population dynamics of polar bears. Chapters are divided into these general categories: distribution and abundance, reproduction, behaviour, life and death, and what makes a polar bear tick (a chapter on general physiology). Each of these chapters provides a wealth of information on what is currently known about polar bears. However, we are not presented with a listing of scientific data; instead Stirling leads us through the life cycle of polar bears, describing seal hunting, seasonal movements, breeding behaviour, raising cubs, and many other topics. At each step in this cycle we learn and come to appreciate how the polar bears' environment

is always changing and how this animal has adapted to the change. The author clearly points out that the key to survival in the arctic environment is to explore and adapt to change. Throughout these chapters we learn of the intricate relationship of behaviour and ecology that exists between arctic seals and polar bears.

Although a great deal of scientific data exists on most of the topics discussed in these chapters, the author has managed a very readable synthesis of this material that provides the reader with a clear understanding of the ecology of the polar bear. In addition, he has properly pointed out what information is speculation, where populations differ on certain parameters (i.e., age of first reproduction) and, importantly, what scientists don't know about this species.

A separate chapter is presented dealing with the polar bears of Churchill, Manitoba. After a brief review of some historic records from the Churchill area, Stirling documents the management efforts and concerns as well as research findings that have occurred over a 20-year period. As Stirling has conducted the majority of this research during this period, he presents a clear interpretation of the problems that were faced in and around this community. This chapter indicates not only how research programs gathered data needed to properly manage the polar bears in the region, but also how these data filled in information gaps that existed in the understanding of polar bear behaviour and ecology. Stirling and his colleagues filled in these gaps and assisted with the conservation-oriented management programs in effect today.

The final three chapters deal with the polar bears' relationship with man (past, present and future) and with its ever-changing environment. The author details the current management practices in place and also how these practices have reached their present status. Perhaps the most important and impressive management tool reviewed is the 1973 IUCN agreement on the conservation of polar bears and their habitat. This international agreement is unique in that five circumpolar nations have worked together to protect and preserve polar bears and their habitats.

Without taking positions on hunting, human activities, and development in polar bear habitat, the author points out in the closing chapter what is known about environmental threats to polar bears and what the future may hold for other non-consumptive uses of this species. This chapter also includes information on recent developments in which Inuit are assuming management responsibilities for this species, which remains an important component of their cultural identity.

This is a well-written book that allows the reader to learn about the polar bear and its interrelationship with its environment in a way that few books do. Although a great deal of scientific data is presented, it is done in a manner that makes reading a pleasure. First-hand anecdotes, experiences, and Inuit lore provide the reader with a sense of discovery that Ian Stirling seems to still possess after 18 years of studying Nanook. Excellent colour photographs give us a glimpse of the polar bear's world and some of the behaviours described in the text.

However a large proportion of the photographs are not accompanied by captions. On page 18, for example, there are at least 20 bears in the photograph, yet we are told in the text that polar bears "normally live a solitary existence." Surely a photograph of this nature deserves some comment, if only to explain the unusual concentration of bears and where the photograph was taken. Numerous other photographs also deserve captions and would have been easier for the reader if they would have accompanied the corresponding text.

In the chapter on "how do you study a polar bear," no mention is made of applying numbers or letters on captured bears with dye when they are handled. This common and important technique has been used in many studies and in polar bear control programs in Churchill. I assume that for aesthetic reasons no photographs of marked bears were included in this book. Although a series of photographs show various postures associated with play behaviour (p.