

essentially an annotated dictionary, a successor and companion to his 1974 grammar of the same regional dialects. 305 suffixes are listed in alphabetical order, followed by an appendix of verb tenses and a second appendix listing and classifying the root forms of the suffixes.

The introduction identifies the dialects treated and the characteristics of the language, then explains the choice of orthography — that adopted by the Inuit Cultural Institute in 1976. The introduction concludes with a description of the concept of "base entry", which is the building-block of the dictionary. Harper explains that in Inuttitut the stems of words can end in any of the three basic vowels (a), (i), and (u), or in any of the three consonants — velar (k), uvular (q), and alveolar (t). The form of the suffix may vary according to the ending of the stem that it adjoins, and the form chosen by the author as his prototype of each suffix is called a "base entry".

Each base entry is discussed in six sections indicating the character of the suffix (noun or verb), its position within a word or sentence, its meaning, its alternative forms, examples of usage, and general comments. Kenn Harper calls the objects of his study "derivational suffixes", seemingly identical to what Lawrence Smith, in his parallel work on Labrador Inuttitut, calls "derivational postbases". This confusion of terms is perhaps a reflection of the nascent nature of linguistics.

The organization might have been improved by the identification of those suffixes that "delete" or "assimilate" any consonant that precedes them, but perhaps the process is explained well enough in the example sentences.

Compound suffixes are listed by Harper as base entries if their component parts are not readily apparent, and if the conjunction imparts a special meaning, as in "junnangit" which usually means "cannot", but may mean "never" or "refuses to". He lists *jj* and *ut* as base entries that combine to form a compound suffix, but this seems to me to be an unnecessary dissection of the suffix *jjut* (an instrument).

The appendix dealing with suffixes of tense is fairly conventional, and doesn't indulge in refinements such as distinction between tense and aspect. On page 90, however, Harper introduces the novelty of a suffix *ni* that indicates a past event that occurred unknown to the speaker.

The summary of base entries provides a useful tabular key to the various forms of each suffix, according to the type of vowel or consonant that they follow.

This book is written as a reference for the serious student of Inuttitut (Kenn Harper prefers to use the term "Eskimo" when the text is in English). The language is a readable compromise between the esoteric and the common, and in general the work complements such contemporaries as Ivan Kalmár's super-specialist study of case and context, and Alex Spalding's sequential approach to learning the language.

Although Kenn Harper's book stands on its own merit, it is a tribute to the author's resilience and memory that he produced this work after losing ten years of research notes in the fire that destroyed his home in Arctic Bay several years ago.

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TRUELOVE LOWLAND, DEVON ISLAND, CANADA: A High Arctic Ecosystem. EDITED BY L.C. BLISS. Edmonton: University of Alberta Press, 1977. ISBN 0-88864-014-5. 714 pp. \$20.00.

This book includes 37 papers summarizing the findings of a major integrated investigation into the structure and function of high arctic ecosystems. The studies represent part of the Canadian contribution to the International Biological Programme and were conducted out of the Arctic Institute of North America base camp in the Truelove Lowlands, Devon Island, N.W.T.

The overall ecosystem project objectives were to:

- 1) determine population numbers and standing crop of major biological components;
- 2) determine rates of energy flow through the total system;
- 3) determine the efficiency of the system in capturing and utilizing energy at different trophic levels;
- 4) determine the environmental and biological limiting factors for the growth and development of important plant and animal species; and
- 5) develop static and dynamic models of high arctic ecosystem function and the function of its component parts.

This project, like all other ecosystem modelling projects, sets out to attempt the impossible, attain the unattainable and resolve the unresolvable — when judged in absolute terms. When judged in terms of what it did accomplish rather than what it did not, Professor Bliss, his advisors, and project researchers deserve a round of applause as the book represents a major contribution to our knowledge of high arctic ecosystems.

The book is organized along traditional ecosystem component lines, carrying the reader through the abiotic components, primary producers and consumers to the decomposers, and finally to an attempted synthesis of all these components into an ecosystem model, or submodel. The major sections of the book and some of the topics discussed in each section are:

*Abiotic components*, 6 papers: permafrost, soils, bedrock geology, microclimatology and hydrology.

*Vegetation history and plant communities*, 2 papers: palynological investigations and plant community classification.

*Primary producers*, 5 papers: detailed studies on selected plant communities or groups of primary producers, their ecology and primary production.

*Primary production processes*, 4 papers: gas exchange, energy budgets, nitrogen fixation and annual vascular plant production.

*Invertebrate consumers*, 5 papers: energy flows, population dynamics, nematode densities, invertebrate respiration and energy budgets.

*Vertebrate consumers*, 5 papers: arctic birds, lemmings, arctic hare, muskox productivity and carnivores.

*Decomposition and microbiology*, 3 papers: nature and functioning of community in tundra ecosystem, turnover rates of muskox dung, and growth characteristics of 3 soil bacteria.

*Limnology*, 1 paper: morphometry, thermal regimes, metabolism, and limnology of selected lakes.

*Ecosystem models*, 2 papers: mineral nutrient cycling and the limitation of plant growth, energy budgets and ecological efficiencies.

At this point in the book the editor breaks with the general tone of the previous sections by injecting two sections which have a distinct human element and a broader orientation than the small 43 km<sup>2</sup> study area where most of the other studies were conducted. The first of these sections deals with Inuit utilization of wildlife and the second deals with industrial development and terrain disturbance.

The author of the disturbance study paper states in his introduction that "Much of the impetus toward a comprehensive study of a high arctic ecosystem was based on the concern that industrial development . . . was likely to trigger irreversible environmental damage. . . . Direct examination of some of the effects of human encroachment was thus incorporated as a part of the Devon Island study" (p. 647).

The book concludes with an excellent project summary of the Truelove Lowland ecosystem. It highlights some of the major integrative findings, relates them to general high arctic ecosystem function and discusses their implications for land use management.

The book covers an impressive diversity of topics dealing with a little known area of the globe. It is extremely well referenced and indexed, making it very easy to use. Professor

Bliss has obviously put a great deal of effort into editing for both continuity of thought and writing style.

Although some of the more vociferous minions of criticism will no doubt find areas to implement their art as they read through this volume, they cannot deny that the book definitely deserves a slot within easy reach on the bookshelf of any serious arctic researcher. Professor Bliss and his colleagues must be congratulated and thanked.

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LICHENS OF THE ALASKAN ARCTIC SLOPE. By John W. Thomson. Toronto: University of Toronto Press, 1979. i-ix, 314 pp. Glossary, taxonomic index. Cloth. \$35.00.

In spite of the fact that there are more species of lichens in the Arctic than there are species of algae, fungi, bryophytes or higher plants, and that lichens have considerable ecological significance, and are more predominant in the Arctic than in any other area of the world, they have consistently received scant notice by northern scientists. This is true for a number of reasons: they are often small and identification, in many cases, can be carried out only with the aid of a microscope; few biologists have any training in lichenology and most lack the knowledge to be able to identify lichen species; and, until now, there has been an almost complete lack of easy-to-use, English language, keys to the Arctic species.

Dr. Thomson has for many years been one of the world's leading lichenologists. He has published a widely used book on the lichens of the important genus *Cladonia* and written numerous papers on other lichen topics; taught such lichenological greats as Mason Hale and William Culbertson associated closely with fellow workers; and helped many who have sought identifications or advice. His long-time interest in Arctic lichens had its first major start in 1958 when he devoted the summer to collecting and studying lichens at many places along the North Slope of Alaska. Since that time his research has turned more and more to topics related to the Arctic.

Dr. Thomson's book starts out with discussions of the area and its lichen ecology, then comes a key to genera, descriptions of families, genera and species and keys to species. The book ends with a glossary and taxonomic index. Though written in a scientific style, the writer has taken pains to avoid unnecessary complexity and the text is easy to read and understand. It is remarkably free of errors.