

The Introduction outlines northwest Alaska's important value to science by looking at prior studies of the region, beginning with early-20th-century reports, on through U.S. Geological Survey work, archeological investigations, petroleum-related research in the 1920s to the present, the Naval Arctic Research Laboratory (1947-81), an Atomic Energy Project near Cape Thompson, the International Biological Program near Barrow and the Outer Continental Shelf Environmental Assessment Program more recently. The "unique aspect of northwest Alaska is its position at the crossroads of a land dispersal route between Asia and North America and a sea dispersal route between the Pacific, the Arctic and the Atlantic Oceans" (p. 9). In addition, northwest Alaska's glacial deposits and marine beds, annual tree-ring growth data and Native oral history provide "a major opportunity to detect warning signs of global atmospheric pollution and climate modification" (p. 11).

A three-page summary of the distinctive social, cultural and political context of the region concludes the Introduction. The potential and real conflict between Alaska Native peoples (mostly Inupiaq Eskimos, some Yupik Eskimos and some Athabaskan Indians, 80% of the total local population) and other users of the land is sympathetically described from the indigenous perspective. Native participants in the symposium voiced their intention quite clearly to be involved in research on their homeland.

Chapter 2 presents "cross-cutting issues." These are summarized succinctly in jargon-free language and include: increasing the local involvement of people in research planning and activity, creating adequate baseline data for almost every attribute of federal reserve lands in Alaska, obtaining long-term funding, the U.S.S.R./U.S. cooperative proposal for a preserve in the Bering Straits area, coordination and cooperation among researchers and the need for regional research/resource centers in Kotzebue, Nome or both, plus strengthening the resource center at Barrow. The latter are needed to develop regional research plans, which would involve local Native people and provide jobs/cash income to local communities.

Chapter 3 provides detailed recommendations regarding scientific research needs. Land dynamics, the effects of fire on vegetation over time, minerals, human-induced environmental change and the effects of tourism and biological harvests by humans are examined in some detail. The chapter ends with a section on the need to preserve oral history in the region and to encourage the prompt and adequate publication of archeological studies and syntheses in other than agency reports.

Chapter 4 describes what local involvement means and why it is essential for current scientific research to include Alaskan Native peoples in all phases of such efforts. This is the most innovative concern, perhaps, of the publication and it is expressed consistently in each chapter. The authors note that words such as "remote," "isolated," "frontier" or "pristine wilderness" can make Native people bristle when their homeland is described in such a way. In addition, reports by scientists have been seen to change if the researcher knows that local people are going to review it. This section concludes by outlining the educational and training needs for Native Alaskans to achieve local involvement in scientific research. Ethical guidelines should be constructed, following the example of the MAB working groups in Canada (1977) and the 1986 "Scientific Research Issues in Draft Principles for an Arctic Policy" of the Inuit Circumpolar Conference.

The final chapter briefly summarizes the main points of the preceding sections.

The names and addresses of symposium and workshop participants are provided in an appendix. Of the authors, Hopkins is director of the Alaska Quaternary Center, Arundale is adjunct assistant professor in the Department of Anthropology and research associate in the Institute of Arctic Biology of the University of Alaska Fairbanks, and Slaughter is principal watershed scientist of the Institute of Northern Forestry, USDA Forest Service, in Fairbanks, Alaska.

The publication is an important and well-argued overview of the kind of sustained, well-integrated scientific research deserved and

needed on federal lands in northwest Alaska. It is very compact but jargon-free and merits reading by anyone involved in conducting or planning scientific research in Alaska. Businesses wishing to extract non-renewable or renewable resources from northwest Alaska would benefit, also, from reading the volume, because it alerts readers to the need for a holistic awareness of the complex links among land, climate, flora, fauna, humans and variable interests of agencies responsible for managing such lands.

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PEOPLE AND CARIBOU IN THE NORTHWEST TERRITORIES. Edited by ED HALL. Yellowknife: Department of Renewable Resources, Government of the Northwest Territories, 1989. 190 p. Softbound. Cdn\$20.00.

This comprehensive book is the first attempt to synthesize the biology and status of all five caribou subspecies found in the Northwest Territories and to provide a link to their traditional and present users. This is a formidable undertaking and the book's success is a tribute both to its editor and 21 separate contributors. This success, however, is not without its limitations. The book covers a lot of ground, sometimes at the cost of treading too lightly on a given topic.

The book is broken down into four major sections: people, science, barren-ground caribou and "other" caribou. There is considerable value in combining a discussion of people and caribou, for in the North they are inextricably bound. The section "People" constitutes about one-third of the book. The chapter on traditional use by Inuit and Dene users includes interesting descriptions of their historical distributions, early culture and capture methods. The chapter on present use consists of an effective montage of black-and-white photographs with short captions. Chapters on nutrition and clothing provide an additional and informative perspective on the relationship between users and their prey.

The final chapter on people relates stories and legends of the Inuit and Dene. This chapter exemplifies, in a striking way, the intimate cultural relationship between caribou and their Dene and Inuit users. The legends are a powerful statement of the myth of oneness that is often articulated by native people. The theme of reincarnation pervades the legends that define the spiritual relationship between the people and their environment. The theme of hunger also runs through the stories, a theme common to all nomadic hunting peoples.

The "caribou" section of the book discusses the general biology of caribou followed by specific chapters devoted to each of the major herds and subspecies. The general sections include discussions of biology and habitat, research and management at various levels of technical detail. Authors have made an obvious attempt to avoid technical jargon, as the book is aimed at a wide readership. However, some terms that are taken for granted by biologists, such as "rut," "sex-ratio" and "composition," will be unfamiliar and bewildering for a general reader or student. A glossary with clear definitions would be a considerable asset and obviate the need for cluttering the text with definitions.

"Research" is an excellent chapter for the lay reader, especially the discussion and illustrations involving caribou surveys and sampling. An excellent chapter on the history of research is awkwardly placed following the "Research" chapter.

Chapters on individual herds and subspecies are informative and interesting but reflect differences in available information and insights of the individual authors. A standardized format maintains consistency, although at a single reading the format becomes repe-

titious. The individual chapters cover several topics, from caribou distribution to population fluctuations and utilization. In some cases fascinating questions are raised, but the reader is often left hanging because of the terse discussion. Questions that could have been elaborated upon include inter-herd movements, migratory versus resident caribou and the implications of preliminary research findings. The individual chapters are for the most part as complete and accurate as the data base permits.

The Porcupine herd chapter is weakened by the omission of a description of the major summer movements of the herd prior to August dispersal. These spectacular midsummer migrations occur annually and are consistent over time, as evidenced by a large number of Kutchin caribou fences coinciding with those movements.

I regret that the chapters on Peary and Woodland caribou were not longer. This book is the first to deal with these interesting subspecies in a popular format. Undoubtedly, the lack of information is a constraint. The Peary caribou chapter was especially well written.

The book concludes with a glossary of caribou names in French and various Dene and Inuktitut dialects, a thoughtful and worthwhile addition. An extensive list of references for further reading by chapter is also appended. The list of references is extensive and representative, with one exception. No reference is made to the original studies that defined the Porcupine caribou herd international range and seasonal distributions. Those studies, carried out over a seven-year period from 1971 to 1977, were published in several volumes of the Arctic Gas Biological Report Series and elsewhere and their omission is unwarranted.

The editing, reproduction and printing of the book are of high quality, and on glossy paper. The coloured maps are clear and helpful in depicting the seasonal distributions of caribou. The illustrations deserve special praise. Colour reproductions of water-colour and pastel paintings and drawings in the people section greatly enhance the text. The large number of colour photographs of caribou throughout the book range in quality from excellent to superb. The selection of photographs presents a good cross section of caribou behaviour and habitats. The photographs show the dramatic range of variation in size, colour and morphology of the various subspecies. A comparison of the Arctic Island Peary caribou on page 169 to the southern Mackenzie woodland ecotype on page 158 illustrates the point clearly. Many of the photos are descriptive of important points of biology. However, some opportunities to point out aspects of caribou ecology, which would be unapparent to the lay reader, are missed by many photo captions. This is a minor criticism, however, but a point for future improvement.

The main weakness of the book is its rather short and uneven treatment of caribou ecology. The text on biology and "science" is good, as far as it goes. However, an opportunity has been missed to pull the common threads of caribou ecology together, especially as it pertains to the large migratory herds. Much more discussion could have been given to such topics as the annual cycle of migratory herds and the specific adaptations of the various subspecies. Such topics as sexual segregation, aggregation predation, the variation in calving areas and calving behaviour are covered only in a cursory way. Although some insightful comments appear within individual chapters of herds or subspecies, they have not been discussed in the context of common attributes of populations. The annual cycle of caribou, which involves seasonal migrations, aggregations and dispersals, deserves more elaboration and discussion. A more comprehensive treatment at the outset would provide the reader with a far greater perspective on the rhythms and ecology of caribou and differences in survival strategies of the subspecies.

Notwithstanding the foregoing comment, this book has accomplished its goal of a comprehensive look at N.W.T. caribou and the relationship between people and caribou. The book is suitable for a general reader and also belongs in every caribou biologist's library. It also should be a useful book for students. There is something of interest for everybody at different levels. This is both its strength and its main limitation. I look forward to a future edition to build

upon those strengths. In the interim I can highly recommend the book for anyone with an interest in caribou, the North and its people.

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BOOKS RECEIVED

- ... "AND THE LAST SHALL BE FIRST": NATIVE POLICY IN AN ERA OF CUTBACKS. By MURRAY ANGUS. Toronto: NC Press, 1991. ISBN 1-55021-064-5. 87 p., endnotes, index. Softbound. Cdn\$9.95.
- ARCTIC ODYSSEY: THE DIARY OF DIAMOND JENNESS 1913-1916. Edited by STUART E. JENNESS. Ottawa: Canadian Museum of Civilization, 1991. ISBN 0-662-12905-1. xliii + 859 p., maps, b&w illus., appendices, notes, index. Hardbound. Cdn\$65.00 + 10% shipping charges in Canada; 20% abroad.
- ARCTIC VILLAGE, A 1930'S PORTRAIT OF WISEMAN, ALASKA. By ROBERT MARSHALL. Introduction by TERENCE COLE. Foreword by MARGARET E. MURIE. Fairbanks: University of Alaska Press, 1991. ISBN 0-912006-47-1. xxx + 399 p., maps, b&w illus., index. Hardbound, US\$28.00; Softbound, US\$20.00. Add \$2.50 p&h.
- GEODYNAMIC MAP OF THE CIRCUM-PACIFIC REGION, ARCTIC SHEET. By GEORGE W. MOORE, MANUEL G. BONILLA, RICHARD H. RAPP, WILBUR A. RINEHART, LEE SIEBERT, TOM SIMKIN, DAVID R. SOLLER, and MARY LOU ZOBACK. Menlo Park, CA: Circum-Pacific Map Project, 1990. U.S. Geological Survey Circum-Pacific Map Series CP-38. (Available from USGS Branch of Distribution, Box 25286, Denver, Colorado 80225.) 1:10,000,000 + 12 p. text. Free-air gravity, state of lithospheric stress, earthquake focal mechanisms, historical faulting, active plate boundaries, and crustal thickness. 8 colours. In map jacket. US\$3.10 + 1.00 shipping to North America; US\$1.78 elsewhere.
- INUKTUN: AN INTRODUCTION TO THE LANGUAGE OF QAANAAQ, THULE. By MICHAEL FORTESCUE. Copenhagen: Institut for Eskimologi, 1991. ISBN 87-87874-16-4. 210 p. (Available from Institut for Eskimologi, Københavns Universitet, Fiolstræde 10, DK-1171 København K, Denmark.) Softbound. Dkr. 46 + postage & handling.
- LANCASTER SOUND REGION, A COASTAL ATLAS FOR ENVIRONMENTAL PROTECTION. By D. DICKENS, I. BJERKELUND, P. VONK, S. POTTER, K. FINLEY, R. STEPHEN, C. HOLDSWORTH, D. REIMER, A. GODON, W. DUVAL, I. BUIST, and A. SEKERAK. Vancouver: DF Dickens Associates Ltd., 1990. Produced for Environment Canada, Environmental Protection, Yellowknife, N.W.T. (Available from Environmental Protection, Conservation and Protection, NWT District Office, Box 370, Yellowknife, N.W.T. X1A 2N3.) ISBN 0-921623-08-9. Maps, bib., appendices, index. Softbound. Price not indicated.
- LONG TERM ADAPTATIONS AMONG ARCTIC HUNTER-GATHERERS. By GEORGE SABO III. New York: Garland Publishing, Inc. 1991. ISBN 0-8240-6111-X. xvi + 403 p., maps, b&w illus., appendices, bib. Hardbound. US\$85.00.
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- SAAMI CULTURAL RESEARCH IN SWEDEN 1990. A survey of projects compiled and edited by ROGER KVIST. Umeå, Sweden: Center for Arctic Cultural Research, 1991. (Available from the Center for Arctic Cultural Research, University of Umeå, S-901 87 Umeå, Sweden.) Miscellaneous Publications of the Center for Arctic Cultural Research, No. 11. ISSN 0283-9687. ii + 57 pp. Softbound. SEK 100 + p&h.
- SNOW AVALANCHE HAZARDS AND MITIGATION IN THE UNITED STATES. By PANEL ON SNOW AVALANCHES. Washington, D.C.: National Academy Press, 1990. Prepared for the Committee on Ground Failure Hazards Mitigation Research. (Available from National Academy Press, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.) x + 84 p., b&w illus., bib. Softbound. Price not indicated.
- THE CAMPUS SITE: A PREHISTORIC CAMP AT FAIRBANKS, ALASKA. By CHARLES M. MOBLEY. Fairbanks: University of Alaska Press, 1991. (Available from University of Alaska Press, 1st Floor Gruening, Fairbanks, AK 99775-1580.) ISBN 0-912006-52-8. xx + 104 p., map, b&w illus., bib., glossary. Softbound. US\$20.00 + 2.00 p&h.