

The papers in the book vary in detail. The two papers on climate and sea ice summarize the factors that shape the weather and climate and that account for past, present, and possibly future sea ice cover of the Arctic. Historical whaling records are examined as a source for reconstructing past sea ice conditions. The biology and ecology of whales are described in three papers that explain the evolution, adaptations, and possible mechanisms of avoiding competition for the beluga, narwhal, and bowhead whales. The two papers on the history and archaeology of native whaling trace the influence of whaling on settlement locations, subsistence patterns, behavior and social identity of natives as well as describe their methods for hunting whales. Three papers describe the history of non-native whaling and present the chronology of the bowhead whale fishery in the eastern and western Arctic and Sea of Okhotsk and the countries involved in the fishery. The history and current management of cetaceans and the scientific basis of the management procedures are described in the last technical paper in the book.

While the papers are informative, they are not without faults. Typographical, spelling, and grammatical errors occur throughout the book. Some sentences are incomplete, awkward, or have substantial parts missing. Citations in some papers are incomplete and headings for tables or figures are occasionally missing or confusing. Because of these deficiencies, the contributing authors do not always provide the reader with a clear understanding of their papers. Some of the papers are also very site-specific with little attempt to more broadly apply the findings. If the Arctic Centre hosts another symposium, more careful editing and broader interpretation of the results would significantly add to the scientific value of the proceedings.

*Arctic Whaling* is a paperback book that is moderately priced. Despite the above-mentioned problems, the book contains useful information for any biologist, anthropologist, archaeologist, or anyone interested in arctic whaling.

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**SYLLOGEUS 55 — CLIMATIC CHANGE IN CANADA 5: CRITICAL PERIODS IN THE QUATERNARY CLIMATIC HISTORY OF NORTHERN NORTH AMERICA.** Edited by C.R. HARRINGTON. Ottawa: National Museums of Canada, 1985. 482 p., figures, tables, maps. Softbound. No price indicated.

This volume is a compendium of papers presented at the 4th meeting of the National Museum of Natural Sciences Climatic Change Project. The aim of the meeting was to focus on "critical periods" of the Quaternary climatic history of northern North America. Apparently no such periods were defined prior to the conference; thus the authors took it upon themselves to both define and describe these periods. The resulting critical periods range from instantaneous to 11 000 years in length! The book suffers somewhat from this lack of definition.

As is common for conference reports, the essence of each paper must be discussed separately. The introduction, by C.R. Harrington, largely introduces and summarizes the remainder of the volume. The book is confessed to be organized "somewhat arbitrarily" by disciplines, rather than by critical periods as might be expected from the title. The disciplines included and number of papers from each are bibliographies (2), instrumental records (2), historical records (6), prehistory (1

abstract), tree rings (1, 1 abstract), palynology (7), glacial geology and geochronology (1 each), and paleoclimatology and glaciology (1, 1 abstract). There is also the text of a special lecture by M.K. Thomas citing the importance of paleoclimatic data to a climatologist and urging paleoclimatologists to advertise the availability and significance of their data.

The Bibliographies section includes summaries by M. Andrews and C.R. Harrington of their bibliographies on Holocene Paleoclimates and Quaternary Climatic Change in Canada respectively. Andrews gives an intriguing look at the mechanics of a search strategy, by itself a useful concept. Both Andrews and Harrington also provide a hint of the uses of the bibliographies by showing the concentration of past work by geographic area (Baffin Island represents about 10% of global work) and by subject (glacial geology and palynology include >25% of all references). No mention is made of "critical periods."

The Instrumental Records papers address the 1930s drought (M.O. Berry and G.D.V. Williams) and the effects of major volcanic eruptions on Canadian climate (W.R. Skinner). The first paper, using water-based wheat yield as an indicator, concludes that the thirties drought, described at the time as "one of the worst droughts in history" in Saskatchewan, was in fact about a 20-year event. An implication might be that a "critical period" may be in the eye of the beholder. The next paper examines the effect of volcanic eruptions in the past 100 years using nationwide temperature and precipitation data. The approach is a good one, but the analysis is flawed. The many histograms are interpreted with a bias and the statistical testing is inappropriate. (Only composites having "an apparent dust veil signal" were tested as to the significance of the signal!) Even in the period of instrumental data volcanic eruptions are not shown to be "critical" in the causation of climatic change. M. Parker, in the Tree Ring section, draws a similar (inconclusive) conclusion of the effects of volcanic eruptions during the 1800s, but also fails to subject her data to rigorous statistical testing.

The Historical Records section examines climate between 1620 and the present. The papers involve proxy data, cover from 1 to 360 years, and conclude the following:

- 1) that the summers of 1816 and 1817 were exceptionally severe in central Canada (A. Catchpole; C. Wilson),
- 2) that the period between 1818 and 1860 was characterized by greater sea-ice cover than at present (M. Dunbar),
- 3) that 1715-1802 data indicate 1760 as a critical year, perhaps marking the end of the Little Ice Age in the Hudson Bay/James Bay region (T. Ball), and
- 4) that the climate of New England since 1620, although only partially reconstructed, shows general warming in the 1900s overprinted by major high-frequency signals (<20 yr) and variability among indicators (W.R. Baron and G.A. Gordon). The ingenuity displayed by all of these workers in data collection and interpretation is obvious and praiseworthy.

The Prehistory section and the second paper of the Tree Rings section (the first is that of Parker, mentioned above) are abstracts. These are tantalizing but offer little hard information. "Critical periods" are not mentioned.

The Fossil Pollen section occupies nearly a third of the book, and deservedly so. The papers (by J.B. Macpherson, R.J. Mott, P.J. Bartlein and T. Webb, III, L.V. Hills and others, and R.W. Mathews) offer an excellent blend of synthesis and new work and cover not only northern North America but the eastern United States as well! Unfortunately, only Mott clearly defines and attacks the problem of a "critical period" of climatic history, in this case the postglacial transition ca. 11 000 B.P.

In the Glacial Geology and Geochronology section, the paper by J.T. Andrews takes a multiparametric approach to the problem of climatic reconstruction. Pollen, niveo-eolian sediment, and marine molluscs are used to infer a glacial chronology since 11 000 B.P. He also warns of the filtering effects of sampling (pollen, sediment) on the inferred climatic record. J.V. Matthews, Jr., and C.E. Schweger take a different tack, defining "critical" on the presence not of climatic change but

of a marker unit (the Old Crow Tephra — 87 000-105 000 B.P.) by which such change can be defined and dated.

Finally, the paper by B.T. Alt uses data from the Devon Island ice core to interpret conditions in the period 1550-1620 — the beginning of the Little Ice Age. That period is shown to have been one of hemispheric cooling and changes in the long-wave patterns in the atmosphere. The abstract by C.U. Hammer is again more tantalizing than useful.

Mechanically, this book is well done, especially for a conference volume from camera-ready text. All of the papers read well and the graphics are of uniformly good quality, although they are inefficiently sized and placed. As individual papers summarizing the methods and spatial and temporal extent of paleoclimatic interpretation and synthesis, this book is a success. As such, it is a must for professionals and students of climatic change in the broad sense. As a summary volume dealing with *critical periods*, however, it is a failure. There is little agreement on the definition of "critical." One could infer that it depends on the nature of one's data and on one's temporal perspective. The result of this lack of definition is that out of 24 papers and abstracts only 10 focus on specific periods of climatic history. Of these, 6 address the climate following volcanic eruptions, specifically that of Tambora in 1815 (4 papers). The other 4 discuss the mid-1930s, 1760, the onset of the Little Ice Age, and the postglacial transition. If the conference conveners are serious about examining the significance of critical periods in climatic history, they might well be advised to define those periods *prior* to a future conference.

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## The Expeditions of the First International Polar Year, 1882-83

by William Barr  
AINA Technical Paper 29. 222 p. plus  
illustrations. 1985.

This comprehensive account of the 14 major and 3 auxiliary polar expeditions of the first International Polar Year highlights the achievements, hardships, everyday life, and weaknesses of each, as well as the scientific programs undertaken.

Supported by 50 illustrations and a lengthy list of references, Professor Barr presents a highly readable, yet scholarly account of the first internationally coordinated attempt to systematically explore the polar regions, mapping new areas and engaging in varied scientific analyses and experiments.

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To order, please send \$21.00 per copy to The Arctic Institute of North America, The University of Calgary, 2500 University Drive N.W., Calgary, Alberta T2N 1N4.

## Unveiling the Arctic

Edited by Louis Rey, Claudette Reed Upton and Marvin Falk

300 pp. plus illustrations, maps, tables, indexes. 1984.

"The history of the discovery of the arctic regions as seen through the descriptions of travellers and the works of cartographers from early antiquity to the 18th century" was the theme of a 1981 Rome conference organized by Comité Arctique International. *Unveiling the Arctic* comprises the 27 papers resulting from that conference, along with numerous illustrations, maps and tables.

This 300-page hardcover book, also produced as a special issue of the journal *Arctic* (Vol. 37, No. 4), is a joint publication of Comité Arctique International, The Arctic Institute of North America, and The University of Alaska, Fairbanks.

*Unveiling the Arctic* may be purchased from The University of Alaska Press, University of Alaska (Fairbanks), Fairbanks, Alaska, U.S.A. 99701, and also from E.J. Brill Publishers, Onde Rijn 33a, Leiden, Holland, for U.S. \$55.00.

## BOOKS RECEIVED

ARCTIC WHALERS — ICY SEAS. By W. GILLIES ROSS. Toronto: Irwin Publishing, 1985. (Irwin Publishing, Trade Editorial Office, 409 King Street West, Suite 401, Toronto, Ontario, Canada M5V 1K1.) ISBN 0-7725-1524-7. xvi + 263 p., illus., maps, index. Hardbound. Cdn\$34.95.

COMPANY OF ADVENTURERS. By PETER C. NEWMAN. Markham, Ontario: Penguin Books. (Penguin Books Canada Ltd., 2801 John Street, Markham, Ontario, Canada L3R 1B4.) ISBN 0-670-80379-0 (bound), ISBN 0670-80877-6 (leather-bound). xxiii + 413 p., illus., appendices incl. bib., index. Hardbound. Cdn\$25.00.

ARCTIC ANIMALS. Text by JONQUIL GRAVES and ED HALL; illustrations by GERMAINE ARNAKTAYOK. Yellowknife, N.W.T.: Government of the N.W.T., 1985. (Publications and Production Section, Department of Information, Government of the N.W.T., P.O. Box 1320, Yellowknife, N.W.T., Canada X1A 2L9.) ISBN 0-7708-7139-9. 96 p., 60 black line illus., names in English, Inuktitut and Latin. Softbound. Cdn\$7.50.

POLAR BEAR: LIFE HISTORY AND KNOWN DISTRIBUTION OF POLAR BEAR IN THE NORTHWEST TERRITORIES UP TO 1981. By D.R. URQUHART and R.E. SCHWEINSBURG. Yellowknife, N.W.T.: Government of the N.W.T., 1984. (Publications and Production Section, Department of Information, Government of the N.W.T., P.O. Box 1320, Yellowknife, N.W.T., Canada X1A 2L9.) ISBN 0-7708-7137. 70 p., maps, illus. Softbound. Cdn\$6.00.

BIOLOGY OF THE ARCTIC CHARR: PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON ARCTIC CHARR. Edited by LIONEL JOHNSON and BONNIE BURNS. Winnipeg, Manitoba: University of Manitoba Press, 1985. (University of Manitoba Press, 244 Engineering Building, University of Manitoba, Winnipeg, Manitoba, Canada R3T 2N2.) Proceedings of the International Symposium on Arctic Charr held in Winnipeg, Manitoba 4-8 May 1981. ISBN 0-88755-137-8. xiv + 584 p., figs., tables, graphs. Hardbound. Cdn\$60.00.