

ed, and when and how its functions changed as it was promoted to accounting from non-accounting status. The descriptions are sometimes intensely detailed; that for the Eastern Arctic Patrol, for instance, lists the ships used and their itineraries each year with dates of local stops, the volumes of mail carried, etc., and extends to twelve pages. The author has located and copied the various cancellations used by these hundred or so offices, listing the Ottawa proof dates, earliest and latest field cancellations known, and the different types of postmarks (including colours used) that were applied on each type of mail. For Aklavik, a sizable permanent office, 19 items were recorded — 4 place-and-date cancellations, 6 oblong and 3 borderless parcel cancellations, 3 different registration blanks and 5 different colours. For Yellowknife the entries number 64 — 8 circle letter cancellations, 12 parcel cancellations, 7 circular cancellations and 4 oblong registration blocks for registered mail, plus special cancellations and slogans, such as Canada Savings Bond advertisements, and others that marked special local events, such as the Arctic Winter Games, 1978. There also is one special cachet for the first-day covers mailed from Yellowknife franked with the postage stamp of 1984 that commemorated the fiftieth anniversary of gold mining there.

To accompany these postal records the author has meticulously researched the histories of the different offices, including some quite obscure or ephemeral ones, and many questionable points in the histories of several communities are clarified. One can mention the dates when Tuktoyaktuk replaced Port Brabant and Port Burwell was shifted from Quebec to the N.W.T., the interchangeable use of Resolute and Resolute Bay for that community between 1947 and at least 1981 and the transformation of Great Bear Lake (1932) to Cameron Bay (1934) through a stillborn "Radium City" (1937) to the intermittent but definitive Port Radium (1937). Another point of interest is the first use of an Inuktitut cancellation at Frobisher Bay in conjunction with an inaugural flight (29 April 1981) between that settlement and Nuuk (Godthaab), Greenland. There are a pair of picturesque curiosities: "SS Distributor," a post office installed for the three-week tour of Governor General Lord Tweedsmuir in 1937, and "Fort Michener" (19-20 January 1973) proclaimed by the N.W.T. legislature for the Elks Hall, locale of their annual dance, to honour the governor general, who graced the event by his presence. There also are specimens from "error hammers" — Akulivik, N.W.T. (1977), which is really in Quebec, Fort McKay (1922) and Eaglesham (1973), which are in Alberta, and Herschel Island, N.W.T. (1930), which actually was used for some years before being replaced by a correct version. These examples indicate that postmarks can be used the way historians of ancient and medieval times use coins and inscriptions, to improve their knowledge of many northern communities.

The philatelist, for whom the book was intended, will recognize other benefits. It should demonstrate that mail from most N.W.T. communities (except, perhaps, the largest ones) will likely be more valuable for the postal cancellations than for the stamps they carry and should be preserved as "pieces" or complete covers. The author has moreover opened the door to an interesting field of collecting for which he has prepared a thorough, comprehensive first catalogue for readers to use and on which to base further studies. Today I sorely regret having destroyed N.W.T. postmarks for the stamps that came my way while I was growing up in Edmonton in the 1930s and strongly advise present-day collectors against repeating that error.

In sum, this book, that seemed at first glance so innocuous, must be seen as a valuable, extremely well-researched history source that will repay serious study by readers interested in the histories of particular communities, of evolving transportation and communications services and of the wider economic, military and administrative development of the Northwest Territories.

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WHALES, ICE, AND MEN: THE HISTORY OF WHALING IN THE WESTERN ARCTIC. By JOHN R. BOCKSTOCE. Seattle: University of Washington Press, 1986. 400 p., illus., appendixes, refs. Hardbound. US\$29.95.

John Bockstoce has set out to narrate the history of bowhead whaling in the Western Arctic. Readers with first-hand experience of the arctic coast of Alaska and western Canada should welcome *Whales, Ice, and Men* as a book that deepens our appreciation of the terrain and its people. The book is an authoritative, highly readable account of a colorful and formative era. Clearly, it will also be widely read as a contribution to the maritime history of the nineteenth century.

The western arctic fishery for bowhead whales began in 1848 with Captain Thomas Roys's discovery of an unexploited stock of whales in the Bering Strait. Prior to Roys's discovery, this species of whales was known from the Eastern Arctic as the Greenland right whale; the "right" whale to catch because of its buoyancy, docility, high oil yield, and its long valuable baleen. Discovery of these whales in the Western Arctic was a bonanza parallel to the recent petroleum development in the region. In the subsequent 60 years, more than 2700 whaling voyages would rapidly and permanently change life on the western arctic coast.

Bockstoce carefully sets his narrative in the economic context of earlier New England whaling, but essentially he begins with Captain Roys and follows the fishery to the last commercial kills in the first decades of this century. In 1849, during the season following Roys's discovery, 50 ships, about a third of the Pacific whaling fleet, passed into the poorly charted waters north of the Aleutian Islands and returned heavily laden with oil and baleen. The rush was on. Bockstoce devotes a chapter to the outfitting of ships in New England and another to the technology of capturing, butchering, and "trying out" whales.

More than 220 ships went north in 1851, but the easy whaling did not last long. As bowhead whales became scarce and wary in the Bering Sea, whalers had to follow the whales' northward migration. They took ever greater risks with the ice, working their ships farther and farther around Alaska, through the Chukchi Sea and into the Beaufort Sea. Eventually, steam-powered vessels and overwintering at Herschel Island were essential to hunt the remaining bowheads on their feeding grounds in the eastern Beaufort Sea.

As whaling declined, voyages engaged secondarily in both walrus hunting and fur trading. Bockstoce appropriately devotes a chapter to each of these important activities. Walrus hunting devastated both the walrus and the native communities that depended on walrus for food. Fur trading drew natives from their subsistence economy and increased their dependence on trade goods. The whalers often traded alcohol unscrupulously. Both activities extended the economic viability of whaling, to the continuing detriment of the whales.

Bockstoce describes that strange epilogue to the American Civil War, the cruise of the Confederate warship *Shenandoah*, which sank a score of Yankee whaleships in the Bering Strait well after hostilities had officially ended. But this havoc was almost trivial by comparison to the 57 vessels lost to the ice and weather in the 1870s.

Those seeking a better understanding of present subsistence whaling by Alaskan natives should benefit from Bockstoce's chapter on shore whaling. The fathers and grandfathers of many of today's Eskimo whalers figured prominently in the shore-based fishery, particularly at Barrow.

Petroleum products gradually replaced whale oil, driving the price of oil so low that, in the last years of the fishery, whalers took only baleen. By 1914, due to the development of substitute products and changing fashions, whalebone (baleen) corset stays were no longer essential to civilized society. The market for whale products had vanished — and none too soon for the bowhead.

Whales, Ice, and Men is the first comprehensive attempt to present this period to general readers. Bockstoce's earlier book, *Steam Whaling in the Western Arctic* (1977), covered only the last 30 years of the fishery. The few books written by participants in the whaling trade (e.g., Jim Allen's *A Whaler and Trader in the Arctic* and Charles

Brower's *Fifty Years Below Zero*) are still of local interest but lack the scholarly perspective of an historian's years of research. Bockstoce's book gives us the historical perspective that the commercial bowhead fishery richly deserves. He also explores the flavor of personalities and life before the mast. Would this heroic bit of history be more widely celebrated if it had not been eclipsed by the simultaneous settling of the American West?

The book is generously illustrated with photographs, drawings, and advertisements of the time, as well as with eight maps charting particular events. Editing and printing are virtually flawless. It seems a handsome volume for the price. As a landlubber, I found the profuse nautical vocabulary occasionally difficult but apparently precise. The glossary, and four other appendixes, are useful and relevant.

Though Sylvester Stallone may not purchase the movie rights to this book, *Whales, Ice, and Men* is no dry chronology. Fortunes were won and lost, 150 ships were lost; there are true tales of scandal, murder, incompetence, and heroism. There is also scholarship and objectivity. Bockstoce has crafted a superb book.

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PIPELINES AND PERMAFROST: SCIENCE IN A COLD CLIMATE. By PETER J. WILLIAMS. Ottawa: Carleton University Press, 1986. viii + 129 p., index, bib. Softbound. Cdn \$9.95.

At the end of World War II, it was obvious that Canada must start to use its polar lands or lose sovereignty over them. Although mineral deposits were known to be present in the Shield, they were too far from markets to be economically worth exploiting except in a few special cases. On the other hand, Alexander Mackenzie had reported oil seepages near Norman Wells in 1789, and the first oil well had been drilled there in 1924. Subsequently, the oil produced was sent to Whitehorse along the ill-fated Canol pipeline for a brief period in 1943, but a burst in that pipeline showed the risks involved in such ventures.

Exploration in various parts of the northern sedimentary basins around the margin of the Canadian Shield soon established the presence of substantial oil and gas reserves, and even larger reserves were found in the Soviet Union and Alaska. This raised the problem of how to get the products to market, spawning a considerable number of proposals for pipelines in arctic North America, especially in the boom period before the collapse of world oil prices in 1981-82. The Canadian Government had learned from experience that development could be difficult unless carried out properly, and it was coming under more and more pressure from environmentalists and the native peoples to ensure that the proposals were geotechnically sound and would minimize the risk to the environment.

Pipelines and Permafrost describes the resultant hearings and discusses the successes and failures of the few developments that have been allowed to proceed from the viewpoint of one of the environmental consultants. It is an updated edition of the book first published in 1979 by the Longman Group of London. Like its predecessor, it is a readable account of the debates over the pipelines, including a relatively simple description of some of the technical problems that have to be overcome. The two major recent pipeline projects that have gone ahead in North America (the Norman Wells Pipeline and the Trans-Alaska Pipeline) are discussed, together with the debate over the Alaska Highway Gas Pipeline that ended when falling energy prices and escalating construction costs made the project uneconomic. However, if energy prices rise significantly, the debate may be renewed, so it is extremely important to have on record a concise, readable account of the limitations to our knowledge concerning the construction of pipelines in permafrost areas.

Chapter 7 is new and describes the recent work on the problems that limit construction, lamenting the lack of information being gleaned

from the rather considerable pipeline experience obtained in Russia. It also points out that if research is left to industry, the research may be abruptly terminated and the results never written up if they are not of immediate use to the company supplying the necessary funds. This emphasizes the importance of continued funding of government and university research on these problems, so that when the inevitable rise in energy prices once again raises questions of pipeline construction, we shall be better prepared to deal with them.

The selected references and comments at the back of each chapter have been updated and improved, so it will be easier for the interested reader to find additional material. The additional chapters successfully update the book so that it continues to fulfill its original purpose.

Geographers, political scientists and others interested in the technical problems of pipeline construction over permafrost soils will find this book fascinating. Those who are more concerned about the effects of pipelines on the biota will continue to find that this book largely ignores that area. It is a well-illustrated and provocative book, and this paperback edition is good value for the price. The revised edition differs sufficiently from the original that many owners of the first edition will want to buy the new one.

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THE NORDIC SEAS. Edited by BURTON G. HURDLE. New York: Springer-Verlag, 1986. 777 p., 26 maps, 262 illus., 19 colour plates, index and bib. with each chapter. Hardbound. US\$69.50.

This handsomely produced volume aims to be "a reasonably comprehensive multidisciplinary scientific description of the Nordic Seas." This volume coins the name Nordic Seas as a collective name for the Norwegian, Greenland, Iceland and western Barents seas; I hope this comes into common usage. With chapters covering all aspects of the physical environment of the Nordic Seas from the atmosphere above them, the ice and water within them and the rocks and sediments below them, it truly is multidisciplinary. The foreword and the afterword also emphasize the importance of the Nordic Seas both as the birthplace of modern physical oceanography and as an ocean basin in early adolescence.

The initial chapter, "Climatology," by S.G. Gathman, is disappointing in that it states that the marine climate database is insufficient to provide a quantitative description of the climatology of the Nordic Seas. What climatology appears is based almost entirely on data collected in and near the Norwegian Sea. The chapter concludes with a discussion of the meteorological data collected during two month-long summer cruises in the region during the early 1970s, whose principal point seems to be that the strong sea surface temperature gradients found in the region are responsible for a high incidence of marine fog.

Happily, much more information is available from the rest of the book. P.D. Wadhams's chapter, "The Ice Cover," is a wealth of information on sea ice and icebergs in the Nordic Seas covering the full range of data sources from the historical descriptions given by early navigators and whalers to modern aircraft and satellite observing systems. The following chapter by W.F. Weeks, "The Physical Properties of the Sea Ice Cover," discusses the smaller scale physical properties of sea ice in general and points out that only a few such detailed studies have been carried out on sea ice in the Nordic Seas. An addendum by O.M. Johannessen and co-authors, "Preliminary Results of the Marginal Ice Zone Experiment (MIZEX) Summer Operations," previews the scientific results of this major multi-institutional investigation of the physical processes operating at the boundaries between ice pack and open ocean.

Physical oceanography is covered in five chapters. A "Brief Overview of the Physical Oceanography," by O.M. Johannessen, briefly reviews the current systems and oceanic frontal zones of this complex