

Evidence of this includes the fact that since this book was published in 1987, five more nations have acceded to the treaty and one previous member was accorded consultative party status (Headland, 1988). Given the interest in this continent, there is a need for additional scholarship that addresses the political and developmental aspects of the Antarctic. This book, along with the companion volume mentioned above, answers this need. The book is highly recommended for anyone with an interest in the development or preservation of the frozen continent.

REFERENCES

- HEADLAND, R.K. 1988. Signatory governments of the Antarctic Treaty. *Polar Record* 24(148):64.
 TRIGGS, G., ed. 1987. *The Antarctic Treaty Regime: Law, Environment and Resources*. Cambridge: Cambridge University Press. 238 p.

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DETECTION AND CLASSIFICATION OF ICE. By EDWARD O. LEWIS, BRIAN W. CURRIE and SIMON HAYKIN. Letchworth, Hertfordshire, England: Research Studies Press Ltd.; New York: John Wiley & Sons Inc., 1987. 325 p., maps, figs., illus., index, bib. Hardbound. US\$77.95.

This is a very informative book reporting the results of four experiments aimed at evaluating ice detection and potential for classification of a number of surface-based marine radar systems. Offshore drilling platforms in the Beaufort Sea and off Canada's east coast make extensive use of marine radar as a tool for ice detection and tracking and use airborne radar systems for ice detection and classification; during such times as aircraft systems are not available (e.g., bad weather, cost considerations) surface-based marine radar is the only tool available for use in monitoring of the ice surrounding the drilling platform. The book demonstrates that marine radar systems exist that, when properly configured, can be used for both ice detection and ice classification. Ice classification is an item of major importance that would greatly enhance the utility of marine radars; this would expand the "[yes/no] [X° at Y kms]" response to the query "Is there ice?" to include that most vital piece of information — the type of ice! The threat posed to a drilling platform by a floe of one-metre-thick first-year ice is minuscule when compared with that from a multi-year ice floe or an iceberg. A marine radar that could allow for differentiation of these targets would be of great value to both drilling and navigation operations in the ice-congested waters.

The book is unique in that it offers technical information to people who may require it (e.g., design engineers or people responsible for system selection) as well as to operators who end up actually using the apparatus. The book should be required reading in offshore installations operating in ice-covered waters. The language and presentation are such that most people can easily grasp the fundamentals and the details as they impact their particular operation (e.g., drillship, or caisson or navigating vessel).

The chapters preceding the discussion of the ice/radar experiments present two very valuable sections: one on the nature and structure of sea ice and glacier ice (Chapter 3), and the other on the theory of radar (Chapter 4). The section on ice structure in Chapter 3 very efficiently concludes with an extended discussion of the variations in dielectric loss rates between different ice types (e.g., an iceberg and a multi-year ice floe) that result in their having different radar signatures. The depolarization of radar signals is identified as a key aspect of ice-type differentiation. Though both of these chapters contain some complex

physical and mathematical concepts, they are written with sufficient clarity (and apparent concern for readers from the "soft" sciences) that the fundamentals are easily grasped. We found it rather refreshing to read a scientific book that begins at the beginning, rather than somewhere in the middle.

The authors of *Detection and Classification of Ice* concentrate on radar performance in ice-covered waters, although there was one experiment in open waters with X-band radar. The sea state and weather were relatively stable during the open water experiment, and it would be interesting to see the results of similar experiments carried out in adverse conditions with moving targets (the targets in the ice-covered water experiments were stationary). Although the authors achieved their objectives by demonstrating an ability to detect multi-year ice floes, icebergs and "berg bits" (in ideal conditions), the problem of detecting growlers has not been resolved. The authors do suggest, however, that the use of a coherent system may aid in the detection of smaller targets in open water conditions.

The authors of the book recommend the use of an S-band radar for detection of large targets and a dual-polarized (HH and HV) X-band radar for detection of multi-year floes and glacier ice targets. They also provide configuration data that would enhance the detection capabilities of existing X-band radar systems.

This book is a valuable resource for people who may be defining or developing system requirements for operations in ice-infested waters. It offers practical and useful suggestions on alternatives and trade-offs for various options. The book is also of use to people who operate the equipment or are in responsible positions (e.g., a vessel master) to appreciate the limitations and usefulness of X-band vs. S-band, X-polarization, and antenna height configurations. The book would also be of interest to students in electrical engineering or remote sensing.

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NORTHWEST TERRITORIES POSTAL CANCELLATIONS 1907-1986. By KEVIN O'REILLY. Toronto: The Unitrade Press, 1987. viii + 230 p., maps, facsimiles, etc. No price indicated.

The first impression a philatelist will likely derive from this book is probably highly misleading. The collector of postage stamps, air companies' mail stickers, or first-day flight covers with their colourful cachets will search in vain for these desiderata. Rather, this book restricts itself to reproducing the postal markings with which postmasters franked regular and registered mail and parcels originating in the Territories. The main sources for these were the Post Office Department's proof books at the National Postal Museum and the department's records in the Public Archives, both in Ottawa, supplemented by many covers from mail posted in the N.W.T. The postmarks identified, depicted and described prove surprisingly varied. They represent the outputs of some 92 official Canadian post offices and 9 United States Army post offices whose A.P.O. numbers on cancellations indicate they were used during the course of U.S. Cold War and Second World War military operations in the N.W.T.

The author has carefully researched the history of each office — when it was opened, closed, reopened, when and where it was relocat-

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