

least scientific part of the book. The final section, entitled "Rational use of frozen ground and environmental protection in the course of economic development of permafrost regions," provides a qualitative overview of Russian construction techniques, engineering philosophies, and remediation measures.

This book makes three contributions. First of all, it provides useful knowledge about basic geocryology. Secondly, it is one of the first texts published in English to offer insight into some of the uniquely Russian approaches to geocryology. Finally, it provides an interesting time line for the development of permafrost science in Russia.

Although more "readable" than most English translations of Russian permafrost material, *General Geocryology* suffers from a series of basic inherent problems. In particular, the scientific level is inconsistent: some sections are extremely technical while others are very general. Also, information and examples are inadequately referenced. There are only 21 references, and many studies cited in the text are not referenced. The references that are provided are incomplete and presented in a nonstandard format. On a general level, the book's narrow geographical focus and lack of references limit its usefulness to either a general reference or a supplementary course text. The dry and overly technical writing style typical of many Russian scientific translations makes reading quite challenging. The use of graphics is limited, and in most cases the figures are poorly linked to the text. Diagrams are small, plain, and complicated, often with either cumbersome or inadequate captions. The few photographs are mostly small-scale and in black and white. Despite a Russian geographical focus, there are few maps to provide spatial context. The book uses cumbersome and complicated terminology, which in some cases includes either new or unconventional words (e.g., "cryohydration" and "technogenic"). Equations contain nonstandard symbols, and the absence of a listing of these symbols is also problematic. As an active permafrost scientist, this reviewer was disappointed by the omission of details about the Russian approach to permafrost classification, ground ice and thermokarst, permafrost stratigraphy, gas hydrates, and permafrost hydrology.

In conclusion, despite some basic problems, *General Geocryology* makes a useful contribution to the permafrost literature with its wide-ranging review of Russian permafrost science and up-to-date perspective on some aspects of the Russian approach to frozen ground studies. In this reviewer's opinion, *General Geocryology* will be a worthwhile addition to the reference library of any researcher or upper-level university student specializing in permafrost geology and engineering.

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UNDER POLARIS: AN ARCTIC QUEST. By TAHOE TALBOT WASHBURN. Montreal & Kingston: McGill-Queen's University Press, 1999. xii + 247 p., b&w illus., maps, glossary, appendix, bib., indexes. Hardbound. US\$27.50.

Many times during the last 100 years or so explorers and adventurers adopted Inuit ways to learn how to survive in the Arctic. People like Amundsen, Stefansson, and Nansen, to mention a few, lived like Northerners, learning to hunt for food, convert hides into clothing, and eat what the Northerners ate. On a different scale, and somewhat later, the author and her husband did much the same. Link Washburn is a well-known geologist. They went to the Canadian Arctic in the late 1930s for the geological fieldwork that led to his Ph.D. degree at Yale University.

This book represents the author's journal writings from July 1938 to February 1941, a period the couple spent in that part of the Northwest Passage from King William Island in the east to the Beaufort Sea in the west. Her intent is to document the events involved in her husband's field studies and their daily activities of living and working with the Natives, Hudson's Bay Company employees, missionaries, and pilots of the aircraft that transported them to and from their field sites.

The 12 chapters are grouped into time periods and areas traversed during those years. Numerous black-and-white photographs help to tell the story of the conditions, not only in summer, but also in some of the winters. Six maps show the routes traveled by a combination of Norseman aircraft, RCMP vessels, Inuit schooners, and dog sledges. Because there were no constructed airfields in this area at that time, aircraft travel was by floatplane when there was

open water, or by ski-plane in winter. Air transport was not done for 4–6 weeks each spring and fall, when it was impossible to land.

While her husband was involved in fieldwork, the author was busy discovering the traditions of the Inuit, learning to make clothing from caribou hide and prepare local food, and making many new friends as a result. The couple lived in snow houses and skin tents, dealt with close calls aboard boats in ice-floe areas, and traveled by dog sledge in blizzards. Few people today, even Inuit, live some of the lifestyle that is described in this book because of the advances in technology and contact with the stream of people visiting northern settlements. For this reason, this book is especially valuable for its detailed descriptions of how the Inuit traveled and worked in the harsh and primitive Canadian Arctic that existed 60 years ago. The journals are also replete with the fun that Washburn and her husband had in doing what most people today envy, but cannot really duplicate. In his foreword, George D. Hobson, first Director of Canada's Polar Continental Shelf Project and a veteran of the Canadian Arctic from the same time period covered in this book, states: "They learned that to survive in those harsh conditions meant you had to share your food and possessions."

The book includes a glossary of 65 terms, a combination of Inuktitut words, geological terms, and a variety of others. An appendix lists itineraries and people met during each of the years traveled, and a bibliography of eight items provides some background citations for further reading. Three indexes (Geographic Names and Locations, Personal Names, and Ships/Schooners) complete the book.

The photograph on p. 21, which shows the wreck of the *Maud*, is especially meaningful for the history of Arctic exploration. Originally Roald Amundsen's vessel, the *Maud* traversed the Northeast Passage in 1918–20, but wound up at Cambridge Bay, Northwest Territories, far to the west, after the Hudson's Bay Company bought it for use in the Northwest Passage. The condition of the *Maud* today (summer 2000) is in further decline. A ship of this importance deserves a better home than rotting away in the shallows at Cambridge Bay.

For many years after the time of their fieldwork, the Washburns continued to live and conduct research in the Canadian Arctic, including summers at their small house just outside of Resolute. The year 2000 appears to have been their last, as they have now retired, if that is possible for this energetic couple, to their home in Bellevue, Washington. They will be missed at Resolute and elsewhere in the Arctic regions that became so much a part of their lives for more than half a century.

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THE SEARCH FOR THE NORTH WEST PASSAGE. By ANN SAVOURS. New York: St. Martin's Press, 1999. ISBN 0-312-22372-2. x + 342 p., maps, b&w illus., notes, appendices, index. Hardbound. Cdn\$43.50; US\$29.95.

The Northwest Passage is the name for the sea route linking the North Atlantic Ocean with the North Pacific Ocean, through the Canadian Arctic islands. The search for such a route, as a way to get around America to reach the riches of China and the Far East, began in the 16th and 17th centuries. By the beginning of the 19th century, a commercial route was no longer of great significance, and the search had become in part a geographical challenge—simply a need to map the unknown spaces of Arctic North America. I have paraphrased the authors introduction (p. vi), which provides a setting for the book. Savours emphasizes that the Northwest Passage took centuries to discover because of the presence of ice, as well as the intricate geography of the islands. The ice in the Northwest Passage, however, is normally one-year, or in some areas, two-year ice, unlike the multiyear ice formed in the central polar basin of the Arctic Ocean. Early views of Arctic Ocean ice held that the freshwater ice originated in rivers that drained into the Arctic Ocean. However, the combination of ice conditions, wooden ships, scurvy, and explorers' inability to adapt to the Inuit means of survival kept the Northwest Passage a secret until the 19th century.

The book consists of 17 chapters, which deal with the whole chronology of exploration in the Canadian Arctic for the coveted Northwest Passage. The author's objective is to provide details of the numerous expeditions that were involved in this search, and she has fulfilled that aim very well. More than 100 illustrations, some in color and some never previously published, are reprinted here from archival material and expedition books, as are numerous maps representing the areas of Arctic Canada known at the time. Nearly the whole last half of the book covers the better-known Franklin expedition of 1845–47, when Sir John Franklin took two ships, the *Erebus* and the *Terror*, into Lancaster Sound. After a brief sighting by two whaling ships west of Greenland at the end of July 1845, Franklin's ships and crew were never seen again by white men. The chapter on the Franklin expedition itself is well written, consisting of details that resulted from search expeditions that followed Franklin's disappearance. It was later determined that the expedition spent the first winter (1845–46) at Beechey Island, on the southwest corner of Devon Island. The exploration had proceeded north in Wellington Channel and circumnavigated Cornwallis Island before returning to Beechey. During that winter, the crew did target practice, amateur theatricals, scientific observations, and collection of specimens, but winter conditions soon took their toll. Crewmen John Torrington died on 1 January 1846, and John Hartnell died three days later. On 3 April William Braine died and was buried next to the other two at a gravesite on Beechey Island.