Review

MOLNIA, B. 2001. *Glaciers of Alaska* (*Alaska Geographic*, vol. 28, No. 2). Anchorage, AK, The Alaska Geographic Society. 128 pp. ISBN 1-56661-055-9, softbound. $US23.95.

The Alaska Geographic Society publishes a quarterly journal, the *Alaska Geographic*. Each issue essentially is a large-format paperback book, devoted to the physical, cultural and wildlife character of Alaska. This journal has long been noted for its rich and informative photographs, with text by local authorities. Now in its 28th year, it has turned to glaciers. The author, Dr Bruce Molnia, a glaciologist with the U.S. Geological Survey, brings 30 years of Alaskan experience to this project.

There is plenty to write about and illustrate. Alaska is home to most of the glacier ice in continental North America. Estimates put the number of glaciers around 100 000. They cover 5% of the State, or about 29 000 sq. miles (I follow the author here: this is a metric-free publication), enough ice to raise worldwide sea level almost 1 ft if it all melted. A few Alaskan glaciers are well known to visitors, mountaineers and scientists. Most are not. Dr Molnia has gathered together an overview that includes them all.

The first half of the book opens with the statistics mentioned above and many others. A composite satellite image of the entire state locates the glacierized areas at a single glance. An extensive tutorial on glaciology follows, aimed at the lay person. This begins with in-depth descriptions of glacier features, pertaining both to ice itself and to periglacial features of geomorphology. Terminology is explained and defined, and abundantly illustrated by color photographs. The text then moves on to discussions of glacier flow and glacier mass balance. Overall, the tutorial half of the book presents a handy reference on glaciers. The next time someone asks me for a short explanation of glaciers (requests for long explanations are rare), I will hand them this issue of *Alaska Geographic*. It is a very useful resource for the glaciological novice.

This issue continues *Alaska Geographic*'s long tradition of attractive photographic coverage. There is a color photo on almost every page, some small, others filling the whole page. Many glacier features are clearly illustrated, some several times. Crevasses are photographed in such overwhelming abundance that the caption might sometimes read "chaotic ice", or "sea of seracs". Glaciologically informed persons will enjoy identifying features in several photos where they are not mentioned. The best example of cirques, for instance, is found in the illustration for rock glaciers, better even than in the photo labelled "cirques". The uninitiated may miss some of this, but overall the visual aspects of glaciers receive more than adequate treatment. One technical error does appear. Photos on pages 14 and 51 are taken inside near-surface tunnels or caves and nicely exhibit blue light filtering through the ceilings. The text erroneously states that glaciers appear blue because the ice surface reflects blue light. These photos remind us that light penetrating ice finds the longer wavelengths absorbed, with only the blue part of the visible spectrum remaining to be backscattered or transmitted.

Throughout the text, terms appear in boldface and colored type, identifying items found in the extensive and annotated glossary. This is a constructive innovation. The annotation includes many small photos, some of which reproduce larger illustrations in the body of the text. This is an informative way to expand the scope of definitions, though it is largely a one-way aid. A reader who turns directly to the glossary finds no page reference to text or photos, and a number of the small photos shrink the illustrated feature to inscrutability.

Scattered throughout the book are several sidebars, up to four pages long, contributed by other authors. These explore topics ranging from safe glacier travel techniques to ice worms. Two of these on ice-age fossils and archaeology are especially informative (*Alaska Geographic*, vol. 21, No. 4, covers such topics in greater depth).

The second half of the book discusses and illustrates individual glacierized areas of Alaska, touching briefly on salient features and occasionally some historical background. This is where a glaciologist will find the most interest. A few Alaskan glaciers are well known to the profession. Malaspina Glacier, for instance, is the classic example of a piedmont glacier. Hubbard Glacier recently gained notoriety when it advanced across the mouth of Russell Fjord, blocked it from the sea and then retreated. The Bering Glacier surge commanded active scientific attention, and the Columbia Glacier retreat from its tidewater moraine has been extensively studied owing to iceberg threats to shipping channels. But most Alaskan glaciers are distant, obscure and often just plain unnamed and unknown. All the way from the coastal mountains of southeast Alaska to the arctic landscape of the Brooks Range to the volcanoes of the Aleutian chain, Alaskan glaciers stretch across 12° of latitude and 52° of longitude. Given these numerous and widely scattered locations, treatment of the individual areas in this publication is sometimes brief, but the accompaning maps, area by area, bring to widespread public attention a close-up picture of where all those 100 000 glaciers can be found.

At a reasonable price of $23.95, this pictorial atlas and clear text primer is a good acquisition for any glaciologist, particularly those partial to Alaskan glaciers.

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