

Vatnajökull was known, it was possible to measure the approximate distance to the artifact site and calculate the velocity of the glacier.

Part Three, “Conservation of Natural and Cultural Heritage,” provides details of the complex issues of conflicting land claims, planning and maneuvering that led first to the creation of Skaftafell National Park from what had been sheep farms, and then later to the proposal for the much larger Vatnajökull National Park. The map in Fig. 68 shows the area encompassed by Skaftafell National Park in 1967 and in 1984. Fig. 74 delimits the areas proposed in 1998 to be national parks around each of the four main ice caps in Iceland—Vatnajökull, Hofsjökull, Langjökull, and Mýrdalsjökull—as well as protected areas and nature reserves. Fig. 75 shows the boundary of Skaftafell National Park in 2004, as well as the proposed Vatnajökull National Park (2007), which includes all of the ice cap plus a vast area to the west and northwest, in addition to separate areas around Mývatn and Dettifoss in the far north of Iceland. A considerable tourist industry has developed in southeastern Iceland because of the national park. There is a Skaftafell Visitor Centre, and the Hotel Skaftafell at Freysnes is operated by Ragnar Stefánsson’s daughter, Anna María. This chapter concludes with Ives’ recommendations on operating the park more efficiently.

Several of the appendices have been cited earlier, but this review would not be complete without mentioning Appendix I, which deals with seal hunting at the coast far away from Skaftafell. The end paper maps show the sections of the coast apportioned to each farm—Skaftafell, Freysnes, Svínafell, Hof, etc. The whole concept of “ownership” of part of the seashore, far from any farm, is not what the casual observer might expect, yet the seals formed a vital source of oil and income (from the sale of skins) for the farmers.

There is little to criticize in this book. A number of place names used in the text do not appear on any map. Also, a list of illustrations in the Table of Contents would have been helpful. A detailed map, or a low-level aerial photograph, with scale, of the sheep farms at Sel, Bölti, and Hæðir (Ragnar’s farm) would have aided the reader (cf. Fig. 73, an aerial photograph showing the location of Hotel Skaftafell amongst the end moraines of Svínafellsjökull). To cite a few minor points, the elevation of Hvannadalshnúkur, Iceland’s highest mountain, is given as 2110 m on pages 18, 34, 128, and 205, but 2111 m on p. 244 and 2119 m in Fig. 1, p. 32—perhaps these differences simply reflect changing snow/ice thicknesses? Bolton, p. 205 and 248, should be Boulton (G.S.); Nielson, p. 70, should be Nielsen; and, on p. 182, Professor Hans W:son Ahlmann’s expeditions to Svalbard (2), Iceland, and Northeast Greenland were all initiated in the 1930s, not the 1920s.

Few Arctic books that I’ve encountered combine fascinating history, stunning illustrations, and a personal story to the degree that this volume does. It is well worth its price, and it should be noted (p. 21) “that all proceeds from sales of this book are to be used to establish a research fund

for administration by the Friends of Skaftafell.” The book is printed and bound by WS Bookwell, Finland, on MultiArt Silk paper. I recommend this book to anyone interested in the North, to anyone planning to visit Iceland, and to anyone interested in Icelandic history or the unique Icelandic landscape. Be sure to read the three forewords. I myself had a wonderful tour of Iceland in 1960, under Sigurður Þórarinnsson’s expert guidance, but it is clearly time to return, perhaps this time to Skaftafell!

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**CANADA ROCKS: THE GEOLOGIC JOURNEY.** By NICK EYLES and ANDREW MIALL. Markham, Ontario: Fitzhenry & Whiteside, 2007. ISBN 978-1-55041-860-6. xvi + 512 p., colour maps, photos, and charts, glossary, bib., index. Softbound. Cdn\$60.00.

Telling the story of the four-billion-year history of Canada is a daunting task, especially when it has to be boiled down into a single book for the reading public. Fortunately, two professors from the Earth Sciences department at the University of Toronto have given it a try. Nick Eyles and Andrew Miall are superbly qualified to write a book like this—they have extensive experience in many areas of Canada, and in rocks of many ages. They crossed the country visiting and photographing key geological sites. And then they distilled their knowledge into a readable 500 pages, or, if you prefer, eight million years a page.

The book is organized in a conventional manner. It starts at the beginning, neatly summarizing what little is known about the earliest Earth. Then the authors move on to the key concept in geology: plate tectonics. Geology cannot be fully understood except in the context of plate movements, just as biology cannot be fully understood without evolution, or chemistry without the periodic table. The chapter on plate tectonics covers the now classic approach—rifting, drifting, subduction, and collision—but the authors also cover some ground that will be new to nonspecialists, including Large Igneous Provinces, or LIPS (times in earth history characterized by massive outpourings of lava), and dynamic topography (the idea that convection deep in the centre of the earth can warp the continents).

The chapters then move forward through time, covering the plate history and amalgamation of North America, the formation of the Canadian Shield, and the intermittent covering of the Canadian Shield by oceans during the last 500 million years. The mountainous areas of the Rockies, Appalachians, and the North each get a chapter covering their development. This book is notable for its treatment of the Arctic. Andrew Miall has a productive research career

in the Arctic and has made a number of important contributions to the understanding of its geology. He has clearly kept in touch with the literature and presents a very up-to-date view of the geology, something difficult to find elsewhere.

The Arctic provides a great example of how geology should be done. Its remoteness prevented any significant geological studies before about 1950. Then, a small number of extremely talented geologists and paleontologists working for the Geological Survey of Canada established a consistent geological framework for the entire region. This means that the Arctic was spared the proliferation of stratigraphic names that curses more southern areas. Eyles and Miall tell the story well, starting from the 600 to 370 million-year-old rocks that formed the ancient margin of North America. Their collision with another continent that formed the Ellesmerian mountains around 370 million years ago, and the subsequent protracted separation from that continent formed the Sverdrup Basin and the modern continental margin of the Arctic Ocean. The final phase of Arctic tectonics, called the Eurekan Orogeny, was caused by the rotation of Greenland and its collision with northern Ellesmere Island. The timing and impact of this little-known collision are well explained. This chapter should go a long way to plugging the enormous gap in knowledge that most Canadians have about the geological development of the Far North.

The rest of the book looks at geological issues that are more closely related to human society, including the last ice age, resource development, water issues, and challenges for the future. Some of Canada's key resources, past and present, are discussed, and the oil sands and diamond mines, source of western Canada's current economic boom, are given prominence.

Despite being billed for an educated but non-geological audience—the back cover calls it a reference for naturalists, rockhounds, students, and engineers—this book almost requires the reader to have some level of geological background. The authors, like most geologists, forget that not everyone speaks Geology. Most of the technical words used are defined in the text and there is a helpful glossary at the back, but if the words, “eustatic,” “detrital” or “clastic” do not conjure an image in your mind, you may find yourself flipping pages for definitions.

This book introduces new paradigms, but leaves some outdated ideas intact. The most interesting new slant this book takes is on the development of Canadian geological thought. Giants of science are brought to the public eye. For instance, Tuzo Wilson and A.P. Coleman get short biographies, and Yves Fortier, Tim Tozer, Ray Thorsteinsson, and Hans Trettin are given credit for the impact that their work had on the current understanding of Arctic geology. Other great Canadian stories, such as the history of the late Precambrian between 750 and 550 million years ago (Snowball Earth, the Ediacaran fauna at Mistaken Point, Newfoundland) and the Burgess Shale are told piecemeal, and fail to bring out the force of new research.

The book is lavishly illustrated, and the publisher did not waste any space. Photographs often have a smaller photograph inserted to cover a boring area of sky or sea. This practice introduces several problems: the book appears busy, lacking white space; there is often a wide separation between the text and pertinent figures; and the reader often has to jump several pages of figures to find the continuation of a sentence. Given that some of the figures are duplicated or recycled (you can still find the USSR on a map), I would have preferred fewer illustrations more strategically placed. I suspect that the non-technical reader could use more prompts in some figures as well, for instance labeling of key features or contacts in the photos, or an arrow showing the original way up in overturned rocks.

I really enjoyed this book. I caught up on topics that I have not thought about since my undergraduate degree, and I learned new things about climate and recent earthquakes. I enjoyed the sections on how geology and humans interact. Historical snapshots help bring the science alive. Almost everyone could find something to enjoy in this book, and it will give students and amateur geologists an important entry point into the fascinating story of Canada's past.

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THE NORTHERN HORIZONS OF GUY BLANCHET: INTREPID SURVEYOR, 1884–1966. By GWYNETH HOYLE. Toronto, Ontario: Natural Heritage Books, The Dundurn Group, 2007. ISBN 978-1-55002-759-4. 240 p., maps, b&w illus., notes, bib., index. Softbound. Cdn\$24.99; £13.99.

“Make up your mind. Don't stand on one foot; do whatever you think is best, but do it” (p. 131). Guy Houghton Blanchet's philosophy stood him in good stead for 50 years as a surveyor, though it was not easy work. The complications often came from supervising others and his interactions with institutions.

Born in 1884, Blanchet was the ninth of 11 children of a Quebec family that traces its roots back to an original French family in the new world (Finnie, 1985). Gwyneth Hoyle's biography of Blanchet places the man firmly in his times, usually in context, and always on the snowshoes, in the canoe, and along the survey line that were his life for five decades. Meticulously crafted, this detailed review of the life of a little-known northern legend illuminates the individual as well as the type.

By his early twenties, Blanchet was a mining engineer in the Canadian West, where he was to work for most of his life. He inhabited that slice of Canadian history between the explorers and the settlers, helping to draw the invisible lines across the land that forever changed the landscape