

## OTHER

**Okanagan Geology South: Geologic Highlights of the South Okanagan Valley, British Columbia**

By Murray A. Roed and Robert J. Fulton, (editors). 2011. Okanagan Geology Committee, Kelowna, British Columbia. 237 pages. 24.95 USD. Paper.

The Okanagan area is a popular tourist and retirement destination, not least because of its pleasant climate, attractive scenery and abundant wineries. This colourful and informative geology guidebook will be useful to the many visitors who travel along the valley as well as residents who are more familiar with the landscape and want to know more about the place where they live. It covers the area from Osoyoos to Summerland. With the assistance of ten other contributors, Roed and Fulton have compiled an account of the basic geology of the region and geologic highlights at specific places, accompanied by more detailed discussion of mining, geologic hazards, surface and groundwater resources, and the relationship between geology and wine.

The heart of the book, and probably the section that will be of most interest to travellers, is Chapter 4 (Highlights of Residential Centres) compiled by Roed (pages 68–135). The Okanagan Valley is not particularly urbanized, but there are several small communities and service centres strung out along the valley, and this account takes the form of a journey from south to north, visiting each in turn. The discussion covers Osoyoos, Oliver, Okanagan Falls, Kaleden, Penticton, and Summerland, with side trips to Naramata, east of Okanagan Lake, and the White Lake area, southwest of Okanagan Falls. Specific locations of interest, usually about six or so, are shown on geologic maps for each of the eight areas of focus. These are usually places that the reader can visit and, book in hand, relate the description to what they can see in the landscape. However, the inclusion of co-ordinates (decimal lat/long) for these places would have been helpful.

The floor of the Okanagan Valley is largely mantled in recent surficial deposits (glacial, fluvio-glacial, aeolian, fluvial, and lacustrine materials), whereas the steep mountain slopes constraining the valley are mostly bedrock. The accompanying maps show both surficial (in colour) and bedrock (in black and white) geology, as well as major structural features, such as faults. They are based in part on recent (2011) bedrock geology maps by Andrew Okulitch. The bedrock units are amalgamated into six main categories, five based on temporal groupings (e.g., Jurassic to Cretaceous), whereas the sixth is based on lithology and comprises mostly plutonic and intrusive metamorphic rocks spanning ages from probable Devonian to Cretaceous. These broad categories probably mask some geological complexity, but they do make the maps clear and understandable.

This region offers abundant opportunities for the hard-rock enthusiast as well as the geomorphologist and

landscape specialist. There is plenty of variety in features to be visited and explored. I especially liked the mix of late Quaternary and older geologic features highlighted in this section. Roed has spent much of his career in surficial mapping and clearly knows this area well. The focus on the modern landscape is welcome and refreshing and distinguishes this volume from most traditional roadside geology guides.

Other sections of the book are equally interesting. I enjoyed Roed's discussion of Geologic Pioneers (Chapter 1), including G. M. Dawson from the nineteenth century, Hugh Bostock and Hugh Nasmith from the mid-20th century, and more recent workers, especially a notable contingent from the Geological Survey of Canada, including Fulton. This section illustrates how recent work and new interpretations have built on the solid groundwork of earlier survey and mapping efforts. The historical theme is taken up again in Chapter 6 on Mining and Exploration by Brian Hughes, Roed and Jennifer Clarke, which concentrates mainly on gold production. Chapter 9 on Geology and Wine by Fulton zooms out the spatial focus and places the area in a wider regional context by inclusion of a soil landscape map that extends to the northern Okanagan Valley. He discusses the terroir of several specific vineyards and notes the geological and climate factors that may influence wine characteristics.

Mountain valleys are especially prone to abrupt geologic dangers, and the Okanagan Valley is often in the news because of rock-falls, landslides or debris flows. In Chapter 5 (Geologic Hazards), Roed, with Norman Williams, Jennifer Clarke, and Nigel Skermer, provides a survey of some particularly well-known events, including the debris flow at Testalinden Creek in 2010. This flow received widespread media coverage and raised awareness of the suddenness and destructiveness of such events. Intense and heavy rainfall is often implicated in these episodes, and yet the Okanagan Valley is characterized as a dryland area. Hence surface water (Chapter 8 by Don Dobson) and groundwater (Chapter 7 by Laurie A. Neilsen-Welch, Diana M. Allen, and Roed) resources are very important and good water management is essential to support the burgeoning human population of the region. A chapter dealing explicitly with climate and related factors, such as storms, avalanches, and forest fires, would be a worthwhile enhancement to a future edition.

The book is abundantly illustrated, with many colour photographs and some black-and-white historic photographs. Sidebars amplify selected topics and provide historical and cultural insights; these include contri-

butions by Ken Murray and David Gregory. Several cross-sections and block diagrams help to explain concepts and relate structures and landscape elements to each other. A particularly attractive and unusual feature is the inclusion of six acrylic paintings by Murray Road, five showing scenes in the Okanagan area and one of Mount St Helens. His painting of McIntyre Bluff and Vaseux Lake forms the cover image. Roed joins the small but eminent group of Canadian geologists, such as A. P. Coleman, who have also been talented and perceptive artists.

The book is well designed, with a two-column format that makes it easy to read, despite various typos. It is printed on glossy heavy stock paper which unfortunately over-strains the binding; my copy was starting to split after a couple of readings. I have some doubts of its physical durability. However, I have no doubts about the book's educational durability as a travel and geology guide. Any visitor or resident of the south Okanagan area will find it a valuable resource and a stimulus to exploration of their surroundings.

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