

MONT SAINT-HILAIRE: HISTORY, GEOLOGY, MINERALOGY¹

About 40 km east of Montreal in Quebec (Canada), the modest hill named Mont Saint-Hilaire (MSH) reaches only 415 meters. But the quarry on its northeastern flank is one of the world's richest mineral localities, having yielded up 434 species and 66 type minerals. There are only two locations with more type minerals: Långban (Sweden) has 74 type minerals, and Tsumeb (Namibia) has 72. It was a pleasure receiving the new monograph on MSH: it is about 650 pages long, weighs in at ~2.3 kilograms, and is packed with thoroughly documented text and excellent photos.

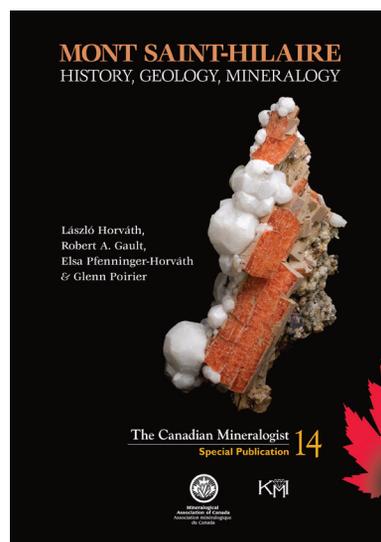
The authors are the couple László and Elsa Horváth, who have spent the last 20 years working on this monograph, along with mineralogist Robert Gault and geologist Glenn Poirier. The Horváths began collecting at MSH back in 1971 and since then have systematically assembled a huge collection of specimens. Their devoted interest alone has contributed to the discovery of 19 new mineral species at MSH.

After the "Preamble" by editor Robert F. Martin follows the "Introduction" with a brief outline of the book, and, finally, acknowledgements towards a large number of persons, either affiliated to scientific institutions or as private contributors.

The first major chapter, "History", starts with a subchapter entitled "Location, Description and Local History" which outlines the geography and early history of the MSH area. Then follows an overview of the investigation and naming of the igneous intrusive centers known as the Monteregian Hills. It was the opening of the Poudrette quarry in 1954 and Uni-mix quarry in 1961 that first gave access to freshly exposed rock, which over the next 60 years would become a mineralogical treasure chest. The history of investigations and mineral collecting at MSH from the 1960s till the present, and the many institutions and associated individual investigators together with their graduate students and colleagues, are generously documented. The many dedicated collectors are also treated in the "History" chapter.

The second main chapter, "Geology", starts with the description of the geology of the eleven members of the Monteregian Hills and three mineralogically interesting alkaline intrusive sills. Most of the chapter, however, is devoted to the geology of the Triassic Mont Saint-Hilaire pluton, which was emplaced in calcareous shale, siltstone, and limestone of Upper Ordovician age. The complex geology is conveyed by an explanatory text and accompanied by good quality illustrations, as well as lists of minerals found in the different rock-types. Several historical field photos show important mineral finds.

The main chapter, "Mineralogy", comprises 475 pages, or about 90% of the entire MSH book. After introductory remarks there follows the descriptions of the 430+ minerals. The headings for the MSH type minerals are highlighted in red for easy recognition. The mineral descriptions follow a semi-alphabetic system, which means that members of the major mineral groups are treated under their group name (for example **A**mphibole, **A**strophyllite, **E**udialyte, **L**abuntsovite, **M**ica, **Z**eolite). However, this is not the case with members of the garnet and the pyroxene groups, where the individual minerals are treated alphabetically under their separate names. Not a big deal, but it takes a while to get acquainted with the system.



The mineral descriptions vary in coverage from a single sentence for typically inconspicuous minerals to 6–7 pages for the world-class minerals. The descriptions of rare or notable minerals generally start with the history, along with notes on significant occurrences worldwide, if existing. Then follows an outline of their occurrences at MSH, including the mineral associations, appearance, morphology, and crystallographic data. The chemical composition on the rare minerals are well-documented by electron-microprobe analyses.

Modern stacking technique adds a new dimension, literally, to mineral photography. Many outstanding photographers have contributed to the book's 600+ photos, which are of excellent quality. In addition, pencil drawings and scanning electron microscopy images reveal the morphology of complex crystals and crystal groups which otherwise are difficult to fully appreciate. Many of the rare and unusual minerals are illustrated by characteristic crystal drawings.

The designation "UK" (UnKnown) has been used for partially studied or unnamed minerals from MSH, and a subchapter documents these unknowns which date back to the mid-1960s. Faceted gems of rare and unusual minerals have been produced from the locality and are shown by excellent photos and described over 12 pages. Mont Saint-Hilaire is known as a locality of interesting pseudomorphs, and there is a comprehensive list (and 23 photos) of these and their precursors toward the end of the book. The bibliography covers an astonishing 56 pages. The last part of the book includes an index and 10 useful appendices. The biographies of the four authors are given in the last two pages of the book.

The book is 30.3 × 21.7 cm and printed on heavy, glossy, and acid-free paper. The first three main chapters ("Introduction", "History", "Geology") have a two-column page lay-out, while the "Mineralogy" chapter has a single-column layout. The quality of printing and photographic reproductions is excellent. This is an indispensable reference for MSH mineral collectors and stands out as an excellent resource for anyone interested in alkaline mineralogy.

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¹ Horváth L, Gault GA, Pfenninger-Horváth E, Poirier G (2019) *Mont Saint-Hilaire: History, Geology, Mineralogy*. The Canadian Mineralogist, Special Publication 14, 2019. IX + 634 pages. ISBN 978-0-921294-61-0. CDN \$125; US \$125