

## Book Reviews

GLOSSARY OF MINERAL SYNONYMS. By Jeffrey de Fourestier. Canadian Mineralogist, Special Publication No. 2, Ottawa, Ontario, 1999, 448 p. Hardbound \$50 (\$40 for members of the Mineralogical Association of Canada).

Nomenclature is a necessary and dynamic part of mineralogy. Thousands of names have been given to minerals and related materials since antiquity. Within the past forty years, effort by the International Mineralogical Association's Commission on New Minerals and Mineral Names has greatly simplified and systematized mineral nomenclature and frequent editions of Fleischer's Glossary of Mineral Species make it easy to keep up-to-date with the names of valid mineral species. The really difficult aspect of mineral nomenclature is dealing with the superfluous, obsolete, and discarded names. To what are they equivalent? With more than 35,000 entries Fourestier's Glossary of Mineral Synonyms is by far the most comprehensive and most useful compendium of mineral synonyms ever compiled.

The volume consists primarily of a 392 page multi-lingual list of names arranged alphabetically with the equivalent currently accepted mineral name or names given in bold type. For example: "Bleiglanz = Galena," "Bronzite = (a) (of Karsten) ferroan Enstatite, (b) (of Finch) Clintonite," and "Fool's Gold = (a) Pyrite, (b) Chalcopyrite." The list of mineral names is exhaustive and even whimsical: "Mcgillicuddyite = (of McKinstry) hypothetical mineral name." It also includes names of rocks, meteorites, glasses, natural and synthetic gem materials, resins, and hydrocarbons. Ice is even listed as a slang term for diamond. A unique feature particularly valuable for researchers working on potential new species is the 39 page appendix listing incompletely characterized minerals described under provisional names such as, Pd-Bi-Te no. 5 = (of Cabri) inadequately described mineral MP60(1997)219 or Phase W = (of Ueno and Scott) inadequately described gallium iron sulfide CM32(1994)203.

The large format and clear typography make the book easy to use. Ink drawings by Gregory Ivanyuk of mineral specimens from unfamiliar, mostly Russian, occurrences nicely complement the text. The two-page bibliography lists only the books and journals consulted in compiling this glossary. Except for the provisional names of incompletely described minerals, primary references to the first use of specific names are not given even though they may be cited (e.g., Finch, Karsten, and McKinstry).

The great utility of Glossary of Mineral Synonyms arises from its inclusion of every term that might conceivably be read

as a mineral name. It is certainly a must purchase for libraries, where it can be available to anyone dealing with mineral nomenclature in the broadest sense. For curators, collection managers, mineral dealers, and collectors who deal with mineral nomenclature daily, it should be a tool that is never out of reach.

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LÅNGBAN: THE MINES, THEIR MINERALS, GEOLOGY, AND EXPLORERS. Edited by Dan Holtstam and Jürgen Langhof. Raster Förlag/Swedish Museum of Natural History, 1999, 215 p. (Distribution: Excalibur Mineral Company, 1000 North Division St., Peekskill, NY, 10566; \$75.00/\$6.00 shipping.)

This handsome book with the stunning dust-jacket featuring a lustrous iron black, stubby, hexagonal prismatic-bipyramidal långbanite crystal, is a fine addition to the library of any serious aficionado of minerals. Långban, with at least 270 documented mineral species, 67 of which are types and with 23 of these remaining unique to this day, has long been a byword among the mineralogic confraternity.

*Långban* is tersely and tightly organized and includes one to two enlightening pictures per page (most pictures of minerals are in color; find the picture of Prof. Charles Palache breaking Långban dump material in 1925). The book consists of six central chapters that follow a Foreword by this reviewer: General Geology of Berslagen, Geology of the Långban Deposit, Some Aspects of the Origin of the Deposit, Långban Mining History, Mineralogists and Collectors, and Långban Minerals.

The original discovery of the ores at Långban is unclear. The surface expressions near Lakes Långban and Hyttsjö, later mined as Storgruvan and Collegiegruvan (Gruva = mine), were first documented in 1667 by inspector Anders Malm (Malm = ore!). By 1711, Johannes Kiallman noted a reopened mine there. Activity continued without interruption until 1972, a period of at least 250 years. The ores were pods of varying dimensions and each working eventually got a moniker, such as Nya Zeeland, Amerika, Japan, Lukas, and Hindenburg. Some of the pictures in these earlier chapters are fascinating. On p. 59–60

are turn-of-the-century group pictures of the husky, square-jawed miners, the backbone of central Sweden.

Långban and Franklin, New Jersey, have long been recognized for their remarkable similarities of mineralogical exotica. An astonishing 130 species are found common to both occurrences, many of them at no third locality. Although differences in the apparent original geological settings existed, this does not by any means rule out similarities among final crystallized products, especially if later geochemical processes were similar in intensive and extensive parameters. Both deposits, however, suggest an exhalative, sedimentary origin, early formation of metavolcanics, later granite and pegmatite intrusions, and extensive rifting with the formation of late-stage crack assemblage minerals that make up the bulk of the species comprised of (Zn), Mn, As, Sb, B, Cl, OH, etc. Elements like Be were probably introduced by the granite intrusions.

The Långban ores, stratiform and podiform in appearance, having separate iron ores (hematite, magnetite) and manganese ores (braunite and hausmannite) in dolomite gangue, contrast with the mixed zinc, manganese, and iron ores (franklinite, willemite, zincite) at Franklin in principally calcite gangue. Interestingly, manganese ore at Långban was not realized as such until the mid-19th century. The New Jersey Zinc Company winnowed out cumulatively over six million tons of zinc metal from one hundred years of working the two deposits at Franklin and contiguous Ogdensburg. The smaller Långban (formerly Långbanshyttan or Långban's smelter) workings yielded cumulatively one million tons of iron ore and over one half million tons of manganese ore, the latter making the mine the main manganese producer in Sweden, later managed by Uddeholmsbolaget. [One wonders if Långban manganese went into the prized Orrefors cutlery.]

The persons involved in unveiling Långban's mineral riches were as colorful as the allactite, magnussonite, and rhodonite found there. As Sweden remained pre-eminent in the natural sciences, many premier mineralogists contributed to Långban mineralogy. J.J. Berzelius, C.W. Blomstrand, and the peculiar L.J. Igelström dominated the earlier 19th century, followed by A.E. Nordenskiöld, also famed explorer who first sailed the Northeast passage on the Vega expedition. During his absence owing to expeditions, G. Lindström, brilliant mineral analyst (the complex lead, barium, calcium borosilicate hyalotekite, for example) curated the ever-growing collections at Svenska Naturhistoriska Riksmuseet (the Swedish Natural History Museum, eventual repository for over 25,000 Långban specimens). The father-son pair Anton and Hjalmar Sjögren studied and named many of the basic manganese arsenates from the mines in Bergslagen. Hjalmar amassed the largest collection ever in Sweden, spending over 130,000 Swedish crowns (the average

Professor's annual salary was 7000 crowns). This was possible because of his independent wealth from marriage to the daughter of one of the Nobel brothers, inventors of dynamite. Axel Hamberg, a competitor for fine specimens with Sjögren, assembled an exquisite collection of choice miniatures.

Over one score personalities played a big role in evoking Långban's mineralogy. Perhaps the greatest practitioners were the early 20th century Gustav Flink and Gregori Aminoff. Flink, a former school teacher, devoted much of his long life to Långban, eventually amassing a suite of 506 unknown specimens, 282 of which were identified by 1971, of which 16% were either new species or species new to the deposit. Aminoff was a polymath. He early studied decorative art under Matisse, was an accomplished violinist (played in the Stockholm Philharmonic), later an intensely creative mineralogist. A brilliant goniometrician, he pioneered X-ray methods in mineralogy in Sweden. His structure studies led to the first reported layer structures, brucite and pyrochroite. Aminoff named the remarkable beryllium minerals bromellite,  $\text{BeO}$ ; and swedenborgite,  $\text{NaSb}[\text{Be}_4\text{O}_7]$ , a beryllate.

Aminoff named finnemanite,  $\text{Pb}_5(\text{AsO}_3)_3\text{Cl}$ , an arsenite related to the apatite structure type, after Karl Johann Finneman, worker at the Långban picking table, whose keen eye probably spotted at least 100 different species. Finneman was a remarkable man who played violin, and successfully sold minerals, leading a "cheese-paring life and gradually becoming quite wealthy from his mineral business." Finneman's counterparts at Franklin were H.H. Hodgkinson and J.J. McGovern, men who also had minerals named after them.

The Långban mines have been closed for nearly fifty years but still yield interesting specimens on the dumps, which are a national heritage. It will be recalled that Sweden is a constitutional monarchy, and formerly all natural objects were property of the king. In fact, some specimens in the figures originated from the collection of King Gustavus VI.

The core of the book is the presentation of the Långban minerals, alphabetically arranged. The arrangement for each entry is pleasing to the eye. Frequently appearing is a color print of the species and, in some cases, crystal drawings, many not formerly published, mostly the work of Flink or Aminoff. Name, formula, and crystal system are followed by physical descriptions and parageneses.

This handsome book with over 560 references is a fine contribution to our science. It is impeccably and tastefully organized, authoritative but eminently accessible. This jewel belongs in the book collection of anyone with a passion for minerals.

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