

## BOOK REVIEWS

Mandarino, J. A. and Anderson, V. *Monteregian Treasures: the Minerals of Mont Saint-Hilaire, Quebec*. Cambridge & New York (Cambridge Univ. Press), 1989. xiv + 281 pp. Price £60.00.

Mont Saint-Hilaire is about 40 km east of Montreal and is unique in the large number of mineralogical species found in a very small area. A suite of igneous rocks occur as a funnel-like mass of peralkaline syenites, nepheline syenites, sodalite syenites, phonolites and intrusive breccias that contain xenoliths of kaersutite-bearing gabbro and hornfelsed shales and siltstones. Some 221 mineral species have been recognized so far, including 126 species of silicates, 30 carbonates and 20 oxides. In this book there are 161 individual species descriptions and 20 group descriptions (including 60 species). Each description includes details on the physical properties, paragenesis, optical properties, chemical data and crystallography (unit cell data and morphology). The text is illustrated with 75 line-drawings or black-and-white photographs and by 90 colour photomicrographs. Numerous appendices provide X-ray diffraction powder data, a tabulation of the species and the environments in which they occur, and the results of numerous microprobe or chemical analyses.

The authors note that an important aspect was the decision of the quarry operators to allow collectors to visit the quarries and to obtain specimens. The discovery by an amateur collector of a pink mineral in large euhedral crystals, later identified by Perrault as serandite, and the description of this and several micromount species from Mt Saint-Hilaire at two scientific meetings, started a rush to the mountain by professionals and amateurs alike. The professional interest was spurred on by field trips e.g. during the International Mineralogical Association meeting in Montreal in 1972, but it is nevertheless true that it was the amateur mineralogists who did most to promote the locality.

Fifteen species have been found for the first time at Mont Saint-Hilaire and several other new species are currently being studied. This book thus represents an eclectic mix of high-quality scientific data on each of the 221 established mineral species, together with aesthetically

appealing colour photomicrographs of such items as a long, purple, prismatic crystal of cancrinite, an octahedron of pyrochlore implanted on an aegirine needle, a twinned sixling of epididymite and both cubic and octahedral crystals of villiaumite. There are a few places throughout the world where various processes have acted on local concentrations of different chemical elements to give large and diverse suites of minerals. The Franklin–Sterling Hill deposit in New Jersey and the Långban district in Sweden are two well known examples, but nepheline syenite complexes in the Kola Peninsula, Norway and Greenland are equally prolific. Mont Saint-Hilaire must now join the list of unique mineral localities where a large number of species are found in a very small area. This book is not only an artistically attractive ‘coffee-table’ volume, but also a definitive scientific record of this important assemblage.

R. A. HOWIE

Van Loon, J. C. and Barefoot, R. R. *Analytical methods for geochemical exploration*. San Diego and London (Academic Press), 1989. x + 344 pp. Price £34.40.

This timely book fulfils admirably its stated objective of providing the practicing analyst with proven methods for geochemical exploration. It does not purport to explain the detailed theory of the three main analytical techniques that it considers, namely atomic absorption, plasma source atomic emission and X-ray fluorescence. The emphasis is rather on providing the complete methodology required for the application of these techniques to the analysis of exploration samples, such as rocks, sediments, soils and herbage.

The strengths of this book lie primarily in the level of experimental detail that has been transferred from the original publications of the methods. Particularly important is the inclusion of the data quoted for the validation of the methods, both for precision and accuracy. Other strengths include the discussion of the potential errors that can arise in the often neglected operations of the physical preparation of the samples. A chapter devoted to field-based methods updates the