
BULLETIN DE L'ASSOCIATION MINÉRALOGIQUE DU CANADA

THE CANADIAN MINERALOGIST

JOURNAL OF THE MINERALOGICAL ASSOCIATION OF CANADA

Volume 31

December 1993

Part 4

SPECIAL ISSUE

DEDICATED TO THE GEOLOGICAL SURVEY OF CANADA ON THE OCCASION OF ITS 150th ANNIVERSARY

PREFACE

This special issue of *The Canadian Mineralogist* is dedicated to the Geological Survey of Canada (GSC), which celebrated its 150th anniversary in 1992. The GSC is, of course, among the oldest scientific institutions in Canada, and has played an important role in the development of mineralogy and related sciences in this country.

The study of mineralogy has been a core activity of the Survey from the very beginning. Displays of minerals were considered to be one of the best ways of stimulating exploration and mining. Indeed, Sir William Logan's rise to international prominence began with displays of Canadian minerals prepared for exhibitions in London in 1851 and Paris in 1855. The geological museum was established at the GSC in 1857, and ultimately evolved into our current Canadian Museum of Nature. T. Sterry Hunt, who joined the Survey in 1848, made fundamental contributions to mineralogy, petrology and other fields of geology. In later years, mineralogists such as Eugène Poitevin and R.V. Ellsworth ensured that the Survey's mapping programs, which in those days included studies of mineral deposits, were supported by laboratory studies of the highest quality. This tradition has been maintained, and mineralogy and related sciences have become an integral part of many GSC studies, including several of those presented here.

This special issue comprises a collection of sixteen papers authored or coauthored by Survey scientists; the collection presents the results of original research in the five fields covered by *The Canadian Mineralogist*: crystallography, mineralogy, petrology, geochemistry and mineral deposits. These papers illustrate the diversity of research carried out at the GSC in these disciplines. A number of topics not represented here are adequately covered by contributions of colleagues to other recent special issues of *The Canadian Mineralogist*.

The first four papers focus on mineralogy and crystallography, and reflect the current importance of those disciplines at the GSC. Two of these papers introduce the new mineral *harrisonite*, named in honor of Dr. James M. Harrison, Director of the Geological Survey in the period 1956–1964, the early days of the Mineralogical Association of Canada.

Petrological studies at the Survey underwent significant expansion in the late 1950s to mid-1960s, coincident with the advent of the electron microprobe and more routine methods for the chemical analysis of whole rocks. As reflected by the next three papers, many such studies have placed special emphasis on Canada's uncommon magmatic suites, as exemplified by well-exposed alkaline rocks, anorthosites and related rocks, or differentiated mafic intrusions such as the Muskox. One of the papers deals with the anorthosite at Château-Richer, Quebec, where this enigmatic rock type was first studied and named by T. Sterry Hunt in 1862.

The contributions of the GSC to the development of geochemistry in Canada were reflected by the award of the MAC's Past Presidents' Medal for 1992 to Dr. R.W. Boyle. As is the case for the following two papers, geochemistry at the Survey has benefitted from the fact that GSC has remained at the cutting edge of analytical technology. Continued efforts in the development of new and improved analytical techniques and their application to problems in geology and ore deposits are particularly well illustrated by a paper on Re-Os isotopes in Ni ores.

Research on mineral deposits and related studies have always been a key component of the GSC's activities. In fact, assessment of the mineral potential of the country was one of the incentives for the creation of the Survey. Among the various commodities studied by Survey scientists, gold is one that has received almost continuous attention for more than 150 years, beginning with Logan's description of the Gilbert River placer in the Eastern Townships of Quebec in 1852. In response to rising prices of gold and renewed interest in this metal by the private sector, significant emphasis was placed on gold at the Survey in the mid-1980s. Two papers relating to gold illustrate the range of research, from site-specific studies to genetic modeling.

Volcanogenic massive sulfide deposits have also been the focus of significant efforts during the past 40 years. Recently, the traditional field-area for study of these deposits at the Survey has been expanded to include the offshore; in the last decade, major efforts were directed toward understanding hydrothermal processes on the modern seafloor and their implications for mineral deposits on land. Results of this research have supported, and refined, novel concepts and models put forth in the late 1950s to mid-1960s by a number of scientists, including Dr. S.M. Roscoe of the GSC. Four of five papers presented here focus on the northern Juan de Fuca Ridge, which was the object of the Seafloor Minerals Program initiated in 1984.

We would like to express our gratitude to all our colleagues who have submitted manuscripts to this special issue; we realize that our requests for contributions added a significant burden to their already heavy work load. We would also like to thank Robert F. Martin for his patience and editorial handling of the manuscripts. Finally, on behalf of the Mineralogical Association of Canada, thanks also are extended to the Geological Survey of Canada for a grant to assist with publication of this special issue.

François Robert and Murray Duke
Geological Survey of Canada