

GEOLOGICAL  
SURVEY  
OF  
CANADA

DEPARTMENT OF ENERGY,  
MINES AND RESOURCES

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PAPER 73-22

A CATALOGUE OF CANADIAN MINERALS  
SUPPLEMENT I

R. J. Traill



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A CATALOGUE OF CANADIAN MINERALS\*  
SUPPLEMENT I

INTRODUCTION

PREVIOUS WORK

Over a century has elapsed since T. Sterry Hunt in *Geology of Canada*, 1863, presented the first descriptive list of Canadian minerals. Hunt's descriptions, which comprised 76 pages and included some 70 to 80 species were introduced as follows: "It is now proposed to notice in succession the various minerals, which have, up to the present time, been observed in the province. Under each species will be given the most interesting facts in its history, as far as regards its occurrence in Canada, its associations, and its chemical composition. Without attempting to follow a rigidly scientific classification we shall first notice the carbonates, sulphates, phosphates, and fluorides, and then proceed to the silicates; reserving for the last, the metallic ores and combustible minerals".

In 1889, G.C. Hoffmann's "Annotated List of the Minerals Occurring in Canada" appeared in *Transactions of the Royal Society of Canada*, vol. VII, Sec. III, and was subsequently reprinted in *Annual Report of the Geological Survey of Canada* for 1889. The latter list, which included some 180 mineral species and an additional 95 varieties, was said to embrace "all such as have, up to date (July 31, 1890), been identified with any degree of certainty, as occurring in Canada". In addition to being an authoritative index as to the knowledge of Canadian mineralogy up to the date of its publication, the list served to indicate the progress that had been made in mineralogical investigations since the earlier report by Hunt. Hoffmann listed the minerals alphabetically, and made no attempt to list all occurrences of each mineral.

A quarter of a century later, in 1915, R. A. A. Johnston attempted to bring together in *Geological Survey of Canada Memoir 74* as complete a list as possible of all notable occurrences of minerals so far recorded in Canada. This memoir contained about 360 mineral names in alphabetical order. Under each name a list of localities of occurrence was given for each province and territory. Literature references and the results of chemical analyses were noted where applicable, but descriptions of the occurrences were largely omitted.

During the half century that has elapsed since publication of Johnston's Memoir much has been learned about Canadian minerals and mineral localities and a large part of that knowledge lies buried in the host of publications that now constitute the scientific record. The need to undertake a new revision of the Geological Survey of Canada list of Canadian mineral occurrences became evident by the increasing difficulty encountered in supplying adequate answers to the many enquiries that are received for such information. This need was further emphasized by the National Advisory Committee on Research in the Geological Sciences and the Mineralogical Association of Canada, and accordingly, the Geological Survey of Canada in 1958 instituted a project to update the Canadian mineral record. Paper 69-45, *A Catalogue of Canadian Minerals*, was published in 1970. It contains information on several thousand occurrences of 450 different mineral species that

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\*This is a supplement to *Geol. Surv. Can. Paper 69-45*.

This report is the first supplement to the catalogue and records hundreds of new occurrences and adds 112 minerals to the growing list of mineral species found in Canada.

#### PRESENTATION OF THE DATA

In the preparation of A Catalogue of Canadian Minerals, a search of all literature dealing with Canadian minerals was made, and it became apparent as the compilation progressed that for many common minerals it would be impractical to attempt to record all reported localities of occurrence. An arbitrary list of common minerals was drawn up and occurrences of these were not recorded unless the reference contained either analytical data or some feature likely to be of particular interest, such as distinctive physical properties, unusual associated minerals or mode of occurrence, economic value, or use as a gemstone or decorative stone. Occurrences of hydrocarbons, rocks, coal, petroleum and natural gas were not compiled.

The minerals are listed in alphabetical order and, for each mineral, the localities of occurrence are subdivided according to province or territory in alphabetical order and in increasing numerical order of the NTS index system. Each entry consists of the NTS number, normally equivalent to a 1:50,000 map sheet reference; a more detailed description of the location; a brief account of the information pertinent to the mineral found at that locality; and a reference to the source of information. Physical and optical properties and detailed mineral descriptions are not given as these are readily obtainable from standard mineralogy textbooks. Chemical analyses, however, have been reported and related to geographic location where possible. X-ray powder diffraction data are listed for each mineral species. Unless otherwise noted, the characteristic lattice spacings are given in angstrom units, and the relative intensities refer to patterns made using copper radiation.

#### ERRATA - PAPER 69-45

- Page 75. The last entry is listed incorrectly under Manitoba, 63 K/3. The correct listing is Saskatchewan 63 L/15.
- Page 89. 10 lines from bottom. Change 52 C/10 to 52 E/10.
- Page 106. Line 2. Change formula to  $(\text{Na}, \text{Ca}, \text{Ce}, \text{Y})_5(\text{P}, \text{Si})_3\text{O}_{12}(\text{OH}, \text{F})$ .
- Page 131. Line 11. Change SnO to SrO.
- Page 226. Line 7. Change formula to  $\text{Pb Bi}_2\text{S}_4$ .
- Page 403. Line 10 from bottom. Delete 31 F/8.

DESCRIPTIONS OF MINERALS AND THEIR OCCURRENCES

ACANTHITE



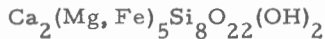
Northwest Territories

- 86 K/4 Acanthite, native silver and argentian galena are the main sources of silver at the Echo Bay Mines property located one mile northeast of Port Radium. (E. A. Schiller, 1965: Geol. Surv. Can., Paper 65-11, p. 42.)

Yukon

- 105 D/2 Acanthite occurs with native silver, pyrargyrite, galena, pyrite, arsenopyrite and tetrahedrite in quartz veins at the Montana Mine property of Arctic Gold and Silver Mines Limited at Montana Mountain, near Carcross. (D.C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 59.)
- 115 I/3 Acanthite was identified in specimens collected from the surface at the Webber showing of Mount Nansen Mines Limited on the ridge between Nansen and Victoria Creeks, at 62° 03'30"N., 137° 10'30"W. (L.H. Green, 1965: Geol. Surv. Can., Paper 65-19, p. 32.)

ACTINOLITE



Quebec

- 31 G/5 Dark green bladed aggregates of actinolite are found in the area north of Aylmer and Hull, notably in roadcuts along the Gatineau Parkway; at the Laurentide, Headley, Cliff and Wallingford mines; and at the Payne property. Bluish grey amphibole asbestos is abundant at the Wallingford mine. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 5, 7, 8, 9, 10, 13.)
- 31 G/12 Bluish grey compact fibrous masses of actinolite asbestos occur at the Lake Girard Mine near St-Pierre-de-Wakefield. Dark green crystals of actinolite are also plentiful. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 25.)

In the area between Hull and St-Pierre-de-Wakefield, actinolite crystals are abundant at the Nellie and Blanche, Blackburn, Dacey, Breckin and Deziel mines and at the Templeton quarry. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 17, 18, 21, 27, 28, 30.)

- 31 G/12 Dark green actinolite is associated with black tourmaline crystals, brown sphene, pink calcite, pyrite and mica in quartz-feldspar dykes that traverse pyroxenite at the Jackson Rae Mine near Perkins Mills. Actinolite also occurs at the Little Rapids (Watts) Mine near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 13, 30.)
- 31 H/8 At the Orford Marble Company quarry, green masses of acicular actinolite are associated with deep red calcite cut by green and white calcite veins. The quarry is about 2.4 miles from the St-Elie-Bonsecours road. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-15, p. 17.)
- 31 H/11W Green radiating actinolite is associated with patches of massive pyrrhotite on hornfels, at the Dulude Quarry north of St-Bruno. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 55).
- 31 H/11E At the Mont St-Hilaire Quarry, also known as the Desourdy Quarry, on the north side of Mont St-Hilaire, actinolite is present as light to dark green, colourless to light brown, acicular and elongated prismatic crystals and in massive form. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 57).
- 31 J/12E Roadcuts on both sides of Highway 35 north of St-Aimé show dark green bladed actinolite occurring with striated prismatic aggregates of colourless to light green scapolite. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 55).

## AEGIRINE

Quebec

- 31 H/11 Aegirine is one of the principal minerals in veins that transect nepheline syenite at the Desourdy quarry on the north-east slope of Mont St-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## AEGIRINE - AUGITE



This soda pyroxene mineral forms a solid solution series with the aegirine end member having the formula  $\text{NaFe}^{+++}\text{Si}_2\text{O}_6$ , largely by substitution of ferrous for ferric iron.

Newfoundland

- I N K/5 Aegirine - augite is found with arfvedsonite in paragneiss at beryllium deposits in the vicinity of Ten Mile Lake, in the Seal Lake area of Labrador. The minerals occur predominantly in layers up to several millimeters thick but also as individual grains in feldspar.

The spacings and intensities of the four strongest lines in the X-ray powder pattern are: 6.38 (10), 4.41 (2), 2.984 (3) and 2.907 (6). Chemical analysis by Miss E. Mark: SiO<sub>2</sub> 50.96, BeO 0.20, Al<sub>2</sub>O<sub>3</sub> 2.52, TiO<sub>2</sub> 2.70, Nb<sub>2</sub>O<sub>5</sub> 1.04, Fe<sub>2</sub>O<sub>3</sub> 18.53, FeO 7.56, MgO 0.31, MnO 1.01, Na<sub>2</sub>O 10.34, CaO 3.46, K<sub>2</sub>O 0.51, H<sub>2</sub>O(+110°) 0.36, H<sub>2</sub>(-110°) 0.04, F 0.51, Total 100.05 less 0 for F 0.21, 99.84. S.G. 3.517. (E.H. Nickel and E. Mark, 1965: Can. Mineralogist, 8, p. 185-197).

## AIKINITE

British Columbia

- 103 P/6 Aikinite occurs with cosalite, nuffieldite, molybdenite and pyrite in vugs in narrow quartz veins in the Lime Creek quartz diorite stock on the property of B.C. Molybdenum Corporation, 6 miles southeast of the town of Alice Arm. (P.W. Kingston, 1968: Can. Mineralogist, 9, p. 439-452).

New Brunswick

- 21 O/8 A few grains of aikinite were observed in polished sections of ore from the Wedge mine. The identification was made by X-ray diffraction pattern. The mine is on the north side of the Nepisiguit River. (X-ray Laboratory, Geol. Surv. Can.)

## AKERMANITE

Quebec

- 31 G/9E Tan coloured akermanite occurs as grains and patches in calcite rock at the Oka Rare Metals Mine. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 61).



## ALBITE

Quebec

- 22 D/12E Cleavelandite is associated with quartz and muscovite at the Lac à la Mère Mica mine near St-Nazaire, north of the Saguenay River. A hydrocarbon occupies spaces between cleavelandite plates. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 110).
- 31 G/11W Peristerite with a blue schiller occurs at the Burnt Lake Mine near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 24).
- 31 G/11W A small quantity of peristerite is present at the Smith Lake Mine near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 26).
- 31 G/12E White massive feldspar that fluoresces pink under ultraviolet rays has been found at the Haycock Mine near Perkins Mills. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 8).
- 31 G/13E Some of the white feldspar at the Lapointe Mine near Notre-Dame-de-la-Salette displays a faint blue play of colour. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 34).
- 31 H/11E At the Mont St-Hilaire Quarry, also known as the Desourdy Quarry, on the north side of Mont St-Hilaire, albite is present as colourless to white platy aggregates. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 57).
- 31 J/16E White peristerite, exhibiting the characteristic blue iridescence, occurs at the Maisonneuve Mine near St-Michel-des-Saints. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 78).

## ALLANITE



The following chemical and X-ray diffraction data are given for Canadian allanites by Judith W. Frondel, 1964: Am. Mineralogist, 49, p. 1159-1177.

Ontario

- 31 D/16 Lescombe property, Monmouth Township, Haliburton County. Harvard specimen number 102412. Partial XRF analysis: CaO 7.0, Y<sub>2</sub>O<sub>3</sub> 3.1, Nd<sub>2</sub>O<sub>3</sub> 6.2, Ce<sub>2</sub>O<sub>3</sub> 12.9, La<sub>2</sub>O<sub>3</sub> 3.5.
- 31 E/1 Cardiff Township. Harvard specimen number 102534. Partial XRF analysis: CaO 11.3, Y<sub>2</sub>O<sub>3</sub> 0.15, Nd<sub>2</sub>O<sub>3</sub> 1.0, Ce<sub>2</sub>O<sub>3</sub> 10.4, La<sub>2</sub>O<sub>3</sub> 5.4.
- Cardiff Township, Haliburton County, concession XX, lot 7. Partial XRF analysis: CaO 10.5, Y<sub>2</sub>O<sub>3</sub> 0.2, Nd<sub>2</sub>O<sub>3</sub> 2.3, Ce<sub>2</sub>O<sub>3</sub> 14.7, La<sub>2</sub>O<sub>3</sub> 7.1.
- 31 E/9 Gale mine, concession IV, lot 14, Murchison Township, Nipissing district.
- Harvard specimen number 102499. Wet chemical analysis. Jun Ito: SiO<sub>2</sub> 33.16, TiO<sub>2</sub> 0.24, Al<sub>2</sub>O<sub>3</sub> 18.69, Fe<sub>2</sub>O<sub>3</sub> 4.36, FeO 9.30, MgO 0.46, CaO + SrO 12.46, ThO<sub>2</sub> 0.33, Ce and La oxides 7.60, Y and Nd oxides 7.89, MnO 2.68, P<sub>2</sub>O<sub>5</sub> 0.13, H<sub>2</sub>O + 2.47, Na<sub>2</sub>O 0.02, K<sub>2</sub>O nil, SO<sub>3</sub> nil, total 99.79. Partial XRF analysis: CaO 12.46, Y<sub>2</sub>O<sub>3</sub> 7.7, Nd<sub>2</sub>O<sub>3</sub> 2.1, Ce<sub>2</sub>O<sub>3</sub> 4.5, La<sub>2</sub>O<sub>3</sub> 1.1.
- Harvard specimen number 102661. Partial XRF analysis: CaO 12.7, Y<sub>2</sub>O<sub>3</sub> 7.5, Nd<sub>2</sub>O<sub>3</sub> 2.0, Ce<sub>2</sub>O<sub>3</sub> 4.4, La<sub>2</sub>O<sub>3</sub> 1.3.
- 31 F/4 Hybla, Ontario. Harvard specimen number 96020. Partial XRF analysis: CaO 14.3, Y<sub>2</sub>O<sub>3</sub> 0.15, Nd<sub>2</sub>O<sub>3</sub> 2.3, Ce<sub>2</sub>O<sub>3</sub> 9.7, La<sub>2</sub>O<sub>3</sub> 3.9.
- Macdonald mine, Hybla. Harvard specimen number 102522. Wet chemical analysis by Jun Ito: SiO<sub>2</sub> 32.29, TiO<sub>2</sub> 0.06, Al<sub>2</sub>O<sub>3</sub> 18.19, Fe<sub>2</sub>O<sub>3</sub> 6.53, FeO 7.98, MgO 0.78 CaO+SrO 14.70, ThO<sub>2</sub> 0.41, Ce and La oxides 15.00, Y and Nd oxides 1.49, MnO 0.30, P<sub>2</sub>O<sub>5</sub> 0.21, H<sub>2</sub>O<sup>+</sup> 1.97, total 99.91. Partial XRF analysis: CaO 14.7, Y<sub>2</sub>O<sub>3</sub> 0.2, Nd<sub>2</sub>O<sub>3</sub> 3.3, La<sub>2</sub>O<sub>3</sub> 3.1. X-ray powder pattern of heated mineral: 3.49 (4), 2.89 (10), 2.84 (5), 2.67 (7), 2.60 (3), 2.54 (1), 2.40 (2), 2.17 (3), 2.08 (1).
- Macdonald mine, Hybla. Harvard specimen number 102599. Partial XRF analysis: CaO 13.7, Y<sub>2</sub>O<sub>3</sub> 0.15, Nd<sub>2</sub>O<sub>3</sub> 2.8, Ce<sub>2</sub>O<sub>3</sub> 10.4, La<sub>2</sub>O<sub>3</sub> 3.9.
- 31 F/5 Dickens Township, Nipissing district, Harvard specimen number 102506. Partial XRF analysis: CaO 10.5, Y<sub>2</sub>O<sub>3</sub> 0.1, Nd<sub>2</sub>O<sub>3</sub> 3.3, Ce<sub>2</sub>O<sub>3</sub> 14.5, La<sub>2</sub>O<sub>3</sub> 5.8.
- 31 F/6 Lyndoch Township, Renfrew County. Harvard specimen number 102517. Partial XRF analysis: CaO 10.5, Y<sub>2</sub>O<sub>3</sub> 0.15, Nd<sub>2</sub>O<sub>3</sub> 3.6, Ce<sub>2</sub>O<sub>3</sub> 14.7, La<sub>2</sub>O<sub>3</sub> 5.8.

- 31 F/6 Lyndoch Township, concession V, lot 23, Renfrew County. Harvard specimen number 102512. Partial XRF analysis: CaO 11.8, Y<sub>2</sub>O<sub>3</sub> 0.35, Nd<sub>2</sub>O<sub>3</sub> 1.4, Ce<sub>2</sub>O<sub>3</sub> 12.9, La<sub>2</sub>O<sub>3</sub> 6.7.
- 31 L/2 Near Eau Claire, Nipissing district, Harvard specimen number 98905. Partial XRF analysis: CaO 10.7, Y<sub>2</sub>O<sub>3</sub> 2.7, Nd<sub>2</sub>O<sub>3</sub> 4.2, Ce<sub>2</sub>O<sub>3</sub> 9.0, La<sub>2</sub>O<sub>3</sub> 2.6.

Quebec

- 31 F/16 Twin Valley mine, Huddersfield Township, Pontiac County, Harvard specimen number 102529. Partial XRF analysis: CaO 12.1, Y<sub>2</sub>O<sub>3</sub> tr., Nd<sub>2</sub>O<sub>3</sub> 2.1, Ce<sub>2</sub>O<sub>3</sub> 15.8, La<sub>2</sub>O<sub>3</sub> 7.9. X-ray powder pattern of heated mineral: 3.52 (6), 3.22 (7), 2.91 (10), 2.85 (6), 2.81 (3), 2.69 (9), 2.61 (4), 2.54 (6), 2.41 (1), 2.31 (1), 2.17 (5), 2.13 (4), 2.06 (3).  
Huddersfield Township. Harvard specimen number 102585. Partial XRF analysis: CaO 14.3, Y<sub>2</sub>O<sub>3</sub> 0.15, Nd<sub>2</sub>O<sub>3</sub> 2.1, Ce<sub>2</sub>O<sub>3</sub> 12.9, La<sub>2</sub>O<sub>3</sub> 6.5.
- 31 F/16 Huddersfield Township, Pontiac County, range V, lot 22, Harvard specimen number 102449. Partial XRF analysis: CaO 11.3, Y<sub>2</sub>O<sub>3</sub> tr., Nd<sub>2</sub>O<sub>3</sub> 2.1, Ce<sub>2</sub>O<sub>3</sub> 15.6, La<sub>2</sub>O<sub>3</sub> 7.3.  
Clapham Township, Pontiac County, range IV, lot 28, Harvard specimen number 102573. Partial XRF analysis: CaO 14.7, Y<sub>2</sub>O<sub>3</sub> 0.15, Nd<sub>2</sub>O<sub>3</sub> 1.7, Ce<sub>2</sub>O<sub>3</sub> 7.5, La<sub>2</sub>O<sub>3</sub> 4.3.  
X-ray powder pattern of heated mineral: 3.49 (3), 3.28 (1), 3.21 (2), 2.90 (10), 2.84 (3), 2.81 (2), 2.68 (5), 2.61 (4), 2.54 (3), 2.40 (3), 2.31 (2), 2.17 (3), 2.12 (3), 2.09 (2), 2.06 (2).
- 31 J/5 La Marche Mine, Kensington Township, Gatineau County, range IV, lot 45, Harvard specimen number 102508. Partial XRF analysis: CaO 11.3, Y<sub>2</sub>O<sub>3</sub> 0.05, Nd<sub>2</sub>O<sub>3</sub> 0.9, Ce<sub>2</sub>O<sub>3</sub> 9.7, La<sub>2</sub>O<sub>3</sub> 6.5.  
La Marche Mine, No. 2, Harvard specimen number 102516. Partial XRF analysis: CaO 10.5, Y<sub>2</sub>O<sub>3</sub> -, Nd<sub>2</sub>O<sub>3</sub> 1.3, Ce<sub>2</sub>O<sub>3</sub> 9.7, La<sub>2</sub>O<sub>3</sub> 3.9. X-ray powder pattern, unheated mineral: 3.53 (3), 3.33 (10), 2.93 (8), 2.89 (4), 2.72 (7), 2.63 (3), 2.57 (4), 2.50 (2), 2.42 (1), 2.34 (1) 2.19 (3).
- 31 P/3 Lac á Baude, Normand Township, Laviolette County, Harvard specimen number 102385. Partial XRF analysis: CaO 9.7, Y<sub>2</sub>O<sub>3</sub> 0.5, Nd<sub>2</sub>O<sub>3</sub> 4.0, Ce<sub>2</sub>O<sub>3</sub> 16.0, La<sub>2</sub>O<sub>3</sub> 6.8.

Ontario

- 31 M/3 Allanite is the most abundant of the rare-earth minerals in the  
31 M/5 Cobalt-Gowganda area. It occurs in veins in acicular grains  
31 M/12 up to 0.25 mm long and as spheroid aggregates of radiating  
41 P/9 grains. Partial electron probe microanalysis: CaO 13.9,  
41 P/10 Al<sub>2</sub>O<sub>3</sub> 13.6, SiO<sub>2</sub> 31.2, total Fe as FeO 15.7, remainder  
41 P/15 rare-earth elements of which Ce and La are the most abund-  
41 P/16 ant. (J.L. Jambor, 1971: Can. Mineralogist, 11, p. 248.)

Quebec

- 31 G/11 Greyish black allanite occurs at the Back (Wallingford) Mine,  
and greenish black vitreous allanite occurs in feldspar at the  
Smith Lake Mine, near Glen Almond, (Ann P. Sabina, 1969:  
Geol. Surv. Can., Paper 68-51, p. 24, 26).
- 31 G/12 Allanite is found in feldspar at the Wakefield quarry and is  
abundant at the Evans-Lou Mine near St-Pierre-de-Wakefield,  
(Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50,  
p. 26, 35).
- Dark brown resinous masses and orange grains of allanite are  
present at the Little Rapids (Watts) Mine near Glen Almond.  
(Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51,  
p. 30.)
- 31 G/14 At the Cole Lake Mine near Glen Almond allanite occurs mas-  
sive with a dull brownish black colour, and as shiny black  
elongated aggregates with woody structure. (Ann P. Sabina,  
1969: Geol. Surv. Can., Paper 68-51, p. 28).
- 31 J/12 Small masses of brown allanite are exposed with actinolite  
crystals in roadcuts on both sides of Highway 35 north of  
St-Aimé. (Ann P. Sabina, 1969: Geol. Surv. Can.,  
Paper 68-51, p. 55).

ALLARGENTUM



Ontario

- 31 M/3 Allargentum has been defined as the naturally-occurring epsi-  
31 M/5 lon-phase of the Ag-Sb system. It is abundant in the high-  
31 M/12 grade silver ores of the Cobalt camp. The spacings and  
41 P/9 intensities of the five strongest lines on the X-ray diffraction  
41 P/10 powder pattern are: 2.55 (4), 2.37 (10), 2.25 (6), 1.756 (3),  
41 P/15 1.353 (4). (W. Petruk, L.J. Cabri, D.C. Harris,  
41 P/16 J.M. Stewart and L.A. Clark, 1970: Can. Mineralogist, 10,  
p. 163-172).

- 52 L/16 A few grains of allargentum associated with antimonial silver were found in a polished section of ore from a deposit in Mulcahy Township about 20 miles west of Red Lake and 4,000 feet south-southwest of the south end of Trout Bay. Electron microprobe analysis gave Ag 83.3, Sb 16.7. (L.J. Cabri, D.C. Harris and J.M. Stewart, 1970: Can. Mineralogist, 10, p. 234).

## ALLOCLASITE

Ontario

- 31 M/3 Alloclasite occurs in the Cobalt-Gowganda ores as euhedral  
31 M/5 crystals around iron-rich safflorite, as alternating layers  
31 M/12 with glaucodot, as separate euhedral crystals embedded in  
41 P/9 calcite at the cores of rosettes, and in masses. It has ortho-  
41 P/10 rhombic symmetry, space group P222<sub>1</sub>, and is crystallo-  
41 P/15 graphically different from glaucodot and arsenopyrite. The  
41 P/16 X-ray powder pattern has five strongest lines at 3.58 (5),  
2.74 (10), 2.46 (10), 2.41 (9), 1.818 (8).

Electron microprobe analyses gave:

	<u>Co</u>	<u>Fe</u>	<u>Ni</u>	<u>As</u>	<u>S</u>	<u>Total</u>
1	26.5	6.0	tr.	49.0	17.0	98.5
2	28.5	1.9	2.9	47.0	19.3	99.6
3	23.9	4.9	7.4	47.5	19.5	103.2
4	32.3	0.5	2.8	47.4	19.4	102.4
5	29.7	4.0	0.5	48.2	18.9	101.3
6	29.1	4.1	0.9	-	-	-
7	28.4	5.1	0.6	46.3	19.4	99.8
8	27.0	3.4	4.1	46.5	19.5	101.0
9	31.3	2.5	0.6	46.4	19.5	100.3
10	31.1	1.7	1.3	46.3	19.5	99.9

(W. Petruk, D.C. Harris and J.M. Stewart, 1971: Can. Mineralogist, 11, p. 180-2).

## ALMANDINE

Ontario

- 31 C/9 Flattened and elongated almandine garnets occur on the sur-  
faces of foliation of Grenville gneisses in the Gananoque area.  
One such specimen was collected on Brier Hill Road, 1.6  
miles east of the village of Morton, South Crosby Township,  
(W.H. Blackburn and W.H. Dennen, 1968: Am. Mineralogist,  
53, p. 1386).

- 52 F/11 Large crystals of garnet have been found in chloritic schist  
52 F/15 along the shore of Garnet Bay at the northwest end of Eagle Lake. Garnet crystals up to 1/2 inch in diameter occur in biotite schist that outcrops along the northwest, west and south shores of Thunder Lake; along the Canadian Pacific railway 1 1/4 miles west of the railway bridge over the Wabigoon River; and along Highway 17 at the eastern limits of Dryden. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 41-43).

Quebec

- 22 C/5E Attractive specimens consisting of sheets of clear mica enclosing crystals of deep red garnet and sea green apatite are found at the McGie Mine on the northeast shore of Charlotte Lake. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 100).

AMAZONITE

(See potassium feldspar)

AMBLYGONITE

(Li, Na)AlPO<sub>4</sub>(F, OH)

Manitoba

- 53 N/2 Amblygonite occurs with rubidium-rich lithian mica in a swarm of dykes at the northeastern end of Red Cross Lake, approximately 1-3/4 miles northwest of the Red Sucker River. (J. L. Jambor and R. R. Potter, 1967: Geol. Surv. Can., Paper 67-15, p. 2).

ANALCIME

NaAlSi<sub>2</sub>O<sub>6</sub>.H<sub>2</sub>O

British Columbia

- 92 B/5 Veins and amygdules in the Metchosin basalt east of the Sooke River contain epidote, pumpellyite, prehnite, laumontite, chabazite, stilbite, analcime, quartz and calcite. (W. G. Libby and Jerry Kopel, 1971: Can. Mineralogist, 10, p. 915).

New Brunswick

- 21 B/10 On Grand Manan Island, analcime is associated with scolecite,  
 21 B/15 heulandite, laumontite, natrolite, epistilbite, thomsonite,  
 stilbite, quartz crystals, copper, hematite and chlorite in  
 amygdaloidal cavities and seams in basalt. (Ann P. Sabina,  
 1964: Geol. Surv. Can., Paper 64-10, p. 10).

Nova Scotia

Analcime has been found at numerous localities in the Minas Basin - Bay of Fundy area. The following list of localities and associated minerals was compiled from the detailed account by Ann P. Sabina, 1964: Rocks and Minerals for the Collector, Bay of Fundy Area; Geol. Surv. Can., Paper 64-10

	<u>Locality</u>	<u>Associated Minerals</u>
21 B/8	East Sandy Cove (St. Mary's Bay), Digby County	scolecite, stilbite, chalcedony, jasper
21 H/1	Woodworth Bay, Kings County	chalcedony, jasper, thomsonite, heulandite, mordenite, stilbite
21 H/2	Baxter Harbour, Long Beach, Kings County	chalcedony, jasper, heulandite, laumontite, stilbite
	Morden, Kings County	stilbite, laumontite, mordenite, apophyllite, heulandite, mesolite
21 H/3	Margaretsville, Annapolis County	heulandite, laumontite, apophyllite, gyrolite, mesolite, stilbite, scolecite, natrolite
	Port George, Annapolis County	chalcedony, stilbite, heulandite, mesolite, apophyllite, laumontite, gyrolite, thomsonite
21 H/7	Horseshoe Cove, Cape d'Or, Cumberland County	stilbite, laumontite, apophyllite, chabazite, thomsonite, mesolite, natrolite, heulandite, jasper, copper, calcite
21 H/8	McKay (McCoy) Head, Cumberland County	heulandite, calcite, quartz crystals
	Partridge Island, Cumberland County	stilbite, laumontite, natrolite, heulandite, chabazite, apophyllite, quartz crystal, calcite, chalcedony, jasper

- 21 H/8 Pinnacle Island;  
Cumberland County chabazite, natrolite, stilbite, heulandite, thomsonite, gmelinite, calcite
- Swan's Creek (Swan Brook);  
Cumberland County gmelinite, chabazite, apophyllite, natrolite, heulandite, calcite, stilbite.
- Wasson Bluff,  
Cumberland County chabazite, heulandite, stilbite, gmelinite, natrolite, calcite, copper
- Two Islands,  
Guysborough County gmelinite, chabazite, heulandite, natrolite, calcite, agate
- Cape Blomidon -  
Cape Split, Kings County apophyllite, heulandite, natrolite, stilbite, chabazite, gmelinite, laumontite, mesolite, thomsonite, amethyst, jasper, agate, calcite, celadonite

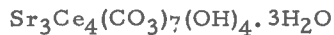
21 H/8 Chemical analysis of analcime from Cape Blomidon: SiO<sub>2</sub> 54.84, TiO<sub>2</sub> 0.12, Al<sub>2</sub>O<sub>3</sub> 23.32, Fe<sub>2</sub>O<sub>3</sub> 0.04, MnO 0.06, CaO 0.06, K<sub>2</sub>O 0.35, Na<sub>2</sub>O 13.20, P<sub>2</sub>O<sub>5</sub> 0.13, H<sub>2</sub>O<sup>+</sup> 8.40, total 100.52. (F. Aumento and C. Friedlaender, 1966: Min. Soc. India, I. M. A. Volume, p. 149-154).

Quebec

- 31 G/9E Analcime occurs at the Oka Rare Metals Mine (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 61).
- 31 H/11 Analcime is a locally abundant constituent of veins and vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. Most of the rare minerals found at this quarry occur in or closely associated with analcime. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).
- 31 H/11W At the Goyer Quarry north of St. Bruno, igneous dykes and sills contain phenocrysts (up to 1 inch long) of colourless to white analcime, greenish yellow olivine, dolomite, chlorite and talc. (Ann P. Sabina 1968: Geol. Surv. Can., Paper 67-51, p. 54).
- 31 H/11W Colourless to white radiating dawsonite associated with quartz, analcime and pyrite has been reported to occur in fractures in black limestone at the Dulude Quarry north of St. Bruno. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 55).



## ANCYLITE

Quebec

- 31 G/8 Anclite is reported to be one of the carbonate minerals present in the Oka carbonatite. (Gaston Pouliot, 1970: Can. Mineralogist, 10, p. 512).
- 31 G/9
- 31 H/11 Anclite has been identified in veins and vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mount St-Hilaire. The strongest lines in the X-ray powder pattern are: 5.49 (5), 4.34 (10), 3.71 (10), 3.36 (4), 2.96 (10), and 2.35 (8). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## ANDORITE

Yukon

- 115 I/3 Andorite was identified in specimens collected from the surface at Mount Nansen Mines Limited, Nansen Creek, at 62° 03'30"N, 137° 10'30"W. (L. H. Green, 1965: Geol. Surv. Can., Paper 65-19, p. 32).

## ANDRADITE

British Columbia

- 104 O/7 Tin-bearing skarn occurs at 59° 17'30"N, 130° 31'00"W, and elsewhere in the vicinity of Ash Mountain. It contains a deep green, tin-bearing andradite garnet having a refractive index of 1.88 and a unit cell edge of 12.064. Chemical analysis by J. L. Bouvier: SiO<sub>2</sub> 33.6, Al<sub>2</sub>O<sub>3</sub> 2.5, Fe<sub>2</sub>O<sub>3</sub> 30.2, FeO 1.8, MnO 0.1, MgO 0.2, CaO 31.2, H<sub>2</sub>O 0.2, SnO<sub>2</sub> 0.9, total 100.7. (R. Mulligan and J. L. Jambor, 1968: Can. Mineralogist, 9, p. 358-370).

Quebec

- 31 G/12 Yttrian andradite is a common accessory mineral in granite pegmatites in the southern Gatineau Park. Chemical analysis

- 31 G/12 of a specimen taken from a small concordant pegmatite outcropping along the road leading from the Gatineau Parkway to the Camp Fortune Ski Property; E. L. P. Mercy, analyst: Na<sub>2</sub>O 0.16, K<sub>2</sub>O 0.02, CaO 24.79, MnO 5.86, FeO 3.32, Y<sub>2</sub>O<sub>3</sub> 3.36, MgO 0.05, TiO<sub>2</sub> 0.10, Fe<sub>2</sub>O<sub>3</sub> 20.69, Al<sub>2</sub>O<sub>3</sub> 8.43, SiO<sub>2</sub> 33.40, H<sub>2</sub>O+ 0.05, total 100.23. (M. A. Kasowski and D. D. Hogarth, 1968: Can. Mineralogist, 9, p. 552-558).

## ANGLESITE



### British Columbia

- 82 N/5 Oxidized lead-zinc ores containing silver and gold occur on the Waverley group claims located just north of Tangier Pass and accessible from Albert Canyon. The ores consist of anglesite, cerussite, malachite and azurite with minor smithsonite and rare residual nodules of galena and argentian tetrahedrite. (J. O. Wheeler, 1963: Geol. Surv. Can., Paper 62-32, p. 28).

### Quebec

- 22 G/1 Cream-white anglesite forms irregular encrustations on pyrite and galena at the Gandego mine. The deposit, on the west side of the Marsoui River, is in a protected forest area and may be reached by road, 12.1 miles south of the hotel at Marsoui. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 75).
- 31 I/16W Anglesite forms dull bluish white coatings on galena at the Montauban Mine near Montauban-les-Mines. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 89).

### Yukon

- 115 I/3 Silver and gold bearing veins and pods of anglesite, cerussite and limonite, containing remnants of galena, arsenopyrite and pyrite occur on the May Group claims (62° 07'00"N, 137° 15'00"W) on the northeast shoulder of Mount Nansen, northwest of the headwater of Nansen Creek and south of the Klaza River. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 90).

## ANHYDRITE

Ontario

- 31 C/7 Anhydrite is found as colourless to white platy aggregates in close association with very coarse-grained calcite and finely granular gypsum in cavities in Ordovician limestone. The cavities are located at a road-cut on Highway 38, about 1/2 mile north of Highway 401. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 7).

## ANKERITE

British Columbia

- 93 A/13 Pyroblasts, disseminated grains, streaks and narrow veinlets of ankerite with varying manganese content are found in silty quartzites and in schists and limestones of the Cariboo group. Manganese-bearing ankerite, gold and some sulphides occur in the quartz veins. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37).

ANTHOPHYLLITEQuebec

- 21 E/11 Brownish fibrous aggregates of anthophyllite occur in the host rock at the Weedon Mine, located 1.3 miles from Fontainebleau. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 65-51, p. 38).
- 21 E/14 Colourless to greyish-white flaky and fibrous anthophyllite occurs with serpentine at the Continental Mine, 1.6 miles west of Coleraine. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 46).
- 31 I/16W Anthophyllite, as greyish to silvery brown radiating fibrous or platy aggregates, occurs abundantly and is commonly associated with cordierite and phlogopite at the Montauban Mine near Montauban-les-Mines (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 89).

## ANTLERITE

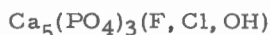


Antlerite is a secondary mineral found in the oxidized zone of copper deposits in arid regions. It is the principal ore mineral of copper in the oxidized zone of the large deposit at Chuquicamata, Chile. The spacings and intensities of the four strongest lines in the X-ray powder pattern are: 4.86 (10), 3.60 (8), 2.683 (8) and 2.566 (9) (ASTM pattern 7-407).

New Brunswick

- 21 P/5      Transparent, emerald-green, granular and botryoidal antlerite occurs as coatings and encrustations on sulphides and host rock at the Key Anacon Mine. The mine is located 3.7 miles east of Highway 331, at a point 11.7 miles south of Bathurst, Gloucester County. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 117).

## APATITE

New Brunswick

- 21 J/10      Masses of crystals of apatite that fluoresces deep yellow under "short" ultraviolet rays occur at the Burnt Hill tungsten mine, in York county. This mine is accessible by gravel road from Maple Grove Station, a distance of about 16 miles. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 128).

Ontario

- 31 C/7      Blue to greenish blue apatite up to 10 inches across occurs in veins consisting of very large crystals of mica (9 feet in diameter), pyroxene (6 inches across and 18 inches long), sphene (4 inches across) and zircon (1/2 inch across and 1 1/2 inches long). These veins were properties of the Lacey Mica Mine which was operated for about 25 years by the General Electric Company. The mine is located at about 17 miles north of Kingston and 5 miles west of the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 25).
- 31 C/9      Apatite occurs as light greenish-blue crystals, measuring up to an inch across, and as granular masses, in roadcuts on Highway 15 about 28.1 to 28.3 miles north of Kingston. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 45).

APA

Ontario

- 31 C/10      Apatite-bearing crystalline limestone is exposed at a road-cut on the Westport Road about 7 miles from Godfrey which is located on Highway 38, 26 miles north of Kingston. The apatite has been found as sea-green transparent to translucent crystals (measuring up to 7 inches by 1 1/2 inches) and as crystal masses. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 16).
- 31 C/16      Apatite occurs in greyish white feldspar at the Byrnes Mine at a contact of gneiss and pyroxenite. It occurs also as a massive red variety with dark brown mica in the northernmost phosphate pits. The phosphate mine is located about 1/4 mile east of the Kingston-Westport-Perth Road and about 47 1/2 miles along the road to the north of Kingston. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 32).
- 31 C/16      Red and green granular apatite occurs with amber to dark brown mica and altered scapolite crystals at a deposit consisting of several pits and dumps about 400 yards west of the Silver Queen Mine, located about 45 1/2 miles (road log) north of Kingston about 3 miles off and to the west of the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 31).
- 31 C/16      Apatite has been mined from a deposit which includes a mica-apatite mine in marble and a feldspar mine in pegmatite. The mines were operated by Silver Queen Mines. The apatite occurs as blue, light green, fine- to coarse- granular masses and as crystals measuring up to 8 inches long. Also found in the mica-apatite mine are small clusters of mica, tremolite-asbestos, calcite, scapolite and tourmaline. Another apatite occurrence is exposed along the road about 1 mile before reaching Silver Queen Mines. The mine is located about 45 1/2 miles (road log) north of Kingston along the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 29).
- 31 C/16      Blue-green granular and crystalline apatite is associated with dark brown mica, green pyroxene and minor amounts of pink to orange calcite and pyrite in a quartz-feldspar matrix. Jet black massive tourmaline crystals and reddish-brown transparent titanite crystals and masses occur sparingly in quartz. The deposit was known as the McLaren mine and is located on the property of Mrs. W. L. McLaren, west of Otty Lake and approximately 4 1/2 miles south of Perth. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 35).

Ontario

- 31 E/1 Apatite from the Basin property, lot 31, concession XV, Faraday township is a well-known reference fluorapatite and has been examined in detail. Chemical analysis of clear green crystals by USGS: CaO 54.7, MnO 0.15, SrO 0.18, Na<sub>2</sub>O 0.18, RE oxides 0.76, P<sub>2</sub>O<sub>5</sub> 40.9, CO<sub>2</sub> 0.57, F 4.0, total 101.44 less O=F 1.68, total 99.76; SG 3.220. (A. Gulbrandsen, J.R. Kramer, L.B. Beatty and R.E. Mays; 1966: Am. Mineralogist, 51, p. 819-823.)

Quebec

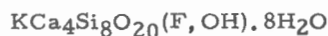
- 22 C/5E Constituents of a pegmatite dyke at the McGie Mine on the northeast shore of Charlotte Lake include good crystals of tourmaline, garnet, beryl and small amounts of apatite. Attractive specimens consisting of sheets of clear mica enclosing crystals of deep red garnet and of sea green apatite are also found. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 100.)
- 22 D/11W Variable amounts of light green to colourless apatite occur in the ore at the St-Charles Titanium Deposit on the north shore of the Saguenay River. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 109.)
- 31 G/5 Many occurrences of apatite are known in the Gatineau area  
31 G/11 north of Ottawa, and are described in detail with directions  
31 G/12 to reach them in Geol. Surv. Can., Papers 68-51 and 69-50,  
31 G/13 by Ann P. Sabina.
- 31 G/15E Small grains and prisms of transparent blue apatite are common in the limestone at the Rockway Valley Marble Quarry, west of Arundel. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 68.)
- 31 G/16W Blue apatite is found at the Laurel diopside occurrence, south of Sixteen Island Lake. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 71.)
- 31 J/11W Cobalt-blue massive apatite occurs at the Val-Barrette quarries. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 57.)

## APLOWITE

Nova Scotia

- 21 H/1 Aplowite is a new mineral species found at the Magnet Cove Barium Corporation mine located about 2 1/2 miles southwest of Walton. It is closely associated with the hexahydrate, moorhouseite, also a new mineral. The spacings and intensities of the five strongest lines in the X-ray powder pattern are: 5.44 (9), 4.46 (10), 3.95 (8), 3.39 (6) and 2.95 (7). X-ray fluorescence analysis showed the mineral to be a manganese-nickeliferous variety having the following cation atomic ratios Co:Mn:Ni:Cu:Fe:Zn:=100:50:45:3:2:2. The name is for A. P. Low (1861-1942), Canadian geologist and one-time Director of the Geological Survey of Canada. (J. L. Jambor and R. W. Boyle, 1965: Can. Mineralogist, 8, p. 166-171).

## APOPHYLLITE

Nova Scotia

Apophyllite has been found at numerous localities in the Minas Basin-Bay of Fundy area. The following list of localities and associated minerals was compiled from the detailed account by Ann P. Sabina, 1964: Rocks and Minerals for the Collector, Bay of Fundy Area; Geol. Surv. Can., Paper 64-10.

	<u>Locality</u>	<u>Associated Minerals</u>
21 A/14	Hampton (Chute Cove), Annapolis county	chalcedony, natrolite, epidote
	Port Lorne, Annapolis county	jasper, chalcedony, stilbite, mesolite, thomsonite, laumontite
21 H/2	Canada Creek, Black Rock, Kings county	stilbite, mordenite, heulandite, mesolite, laumontite, prehnite, gyrolite
21 H/2	Halls Harbour, Kings county	stilbite, heulandite, laumontite, thomsonite, amethyst
	Morden, Kings county	stilbite, laumontite, mordenite, analcime, heulandite, mesolite
21 H/3	Margaretsville, Annapolis county	heulandite, laumontite, analcime, gyrolite, mesolite, stilbite, scolecite, natrolite

- 21 H/3 Port George,  
Annapolis county chalcedony, stilbite, heulandite,  
analcime, mesolite, laumontite,  
gyrolite, thomsonite
- 21 H/7 Horseshoe Cove,  
Cape d'Or  
Cumberland county analcime, stilbite, laumontite,  
chabazite, thomsonite, meso-  
lite, natrolite, heulandite,  
jasper, copper, calcite
- 21 H/8 Partridge Island,  
Cumberland county stilbite, laumontite, natrolite,  
heulandite, chabazite, analcime,  
quartz crystal, calcite, chal-  
cedony, jasper
- 21 H/8 Swan's Creek (Brook),  
Cumberland county gmelinite, chabazite, analcime,  
natrolite, heulandite, calcite,  
stilbite
- Cape Blomidon -  
Cape Split, Kings  
county heulandite, natrolite, stilbite,  
chabazite, analcime, gmelinite,  
laumontite, mesolite, thomson-  
ite, amethyst, jasper, agate,  
celadonite
- 21 H/8 Chemical analysis of apophyllite from Cape Blomidon: SiO<sub>2</sub>  
50.52, TiO<sub>2</sub> 0.06, Al<sub>2</sub>O<sub>3</sub> 1.03, MnO 0.03, CaO 24.69, MgO  
0.69, K<sub>2</sub>O 5.60, Na<sub>2</sub>O 0.38, P<sub>2</sub>O<sub>5</sub> 0.07, F 1.17, H<sub>2</sub>O<sup>+</sup> 16.40,  
less O for F 0.49, total 100.15. (F. Aumento and  
C. Friedlaender, 1966: Min. Soc. India, I.M.A. Volume,  
p. 149-154.

### Quebec

- 31 H/11 Apophyllite has been identified in vugs in nepheline syenite at  
the Desourdy quarry on the northeast slope of Mont St-Hilaire.  
(G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino  
and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

### ARAGONITE



### Quebec

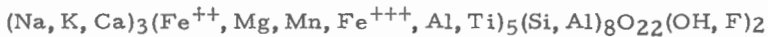
- 21 E/14 Small aggregates of transparent, platy aragonite are associ-  
ated with pyroaurite at the Belmina mine, located northwest  
of Disraeli about 2.5 miles north of St-Jacques (Stenson).
- Transparent, radiating bladed aggregates of aragonite have  
also been noted at the Montreal Chrome Pit, east of Little  
Lake St Francis. (Ann P. Sabina, 1967: Geol. Surv. Can.,  
Paper, 66-51, p. 45, 48).



Quebec

- 21 L/3 Tiny white aragonite crystals occur with garnet, vesuvianite, diopside, zoisite, chlorite, hydrocalcite, artinite, magnetite and serpentine at the Union mine, near Crabtree village in the Black Lake area. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 51).
- 31 H/8 Patches of white, fibrous aragonite have been noted on schist at the Huntingdon mine on the east side of the road between Eastman and Bolton Centre, Brome county. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper, 66-51, p. 9).

## ARFVEDSONITE

Newfoundland

- 13 K/5 There is no firm agreement as to definition of the species arfvedsonite and riebeckite. The latter mineral is generally considered to have two alkali atoms instead of three and a higher ferrous: ferric ratio than arfvedsonite. The soda amphibole, found with soda pyroxene in the paragneiss at beryllium deposits in the vicinity of Ten Mile Lake in the Seal Lake area, approaches the formula given above for arfvedsonite. The two minerals occur predominantly in layers up to several millimeters thick but also as individual grains in feldspar. The five strongest lines in the X-ray powder pattern have the following spacings and intensities: 8.57 (10), 3.299 (1), 3.179 (4), 2.843 (2) and 2.718 (1). Chemical analysis by Miss E. Mark: SiO<sub>2</sub> 50.16, BeO 0.18, Al<sub>2</sub>O<sub>3</sub> 1.10, TiO<sub>2</sub> 1.64, Nb<sub>2</sub>O<sub>5</sub> 0.14, Fe<sub>2</sub>O<sub>3</sub> 9.12, FeO 20.60, MnO 2.27, MgO 0.92, CaO 1.32, Na<sub>2</sub>O 6.85, K<sub>2</sub>O 3.61, H<sub>2</sub>O (+110°) 1.64, H<sub>2</sub>O (-110°) 0.04, F 0.39, total 99.98 less O for F 0.16, 99.82. (E.H. Nickel and E. Mark, 1965: Can. Mineralogist, 8, p. 185-197).

## ARSENIC

As

Newfoundland

- 12 H/9 Native arsenic has been found in the Whalesback and Little Bay copper mines on the Springdale peninsula, Notre Dame Bay. The largest mass, 3 feet long and 2 inches thick, fills a fracture in an altered basic dyke on the 1500 foot level of the Little Bay Mine. (V.S. Papezik, 1967: Can. Mineralogist, 9, p. 101-108).

## ARSENOPYRITE

New Brunswick

- 21 J/10 Arsenopyrite, pyrite, pyrrhotite and molybdenite are the most abundant sulphides occurring with wolframite at the Burnt Hill Mine in York County. The mine is about 16 miles north of Maple Grove Station. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 128).
- 21 P/5 Arsenopyrite is a minor constituent of the lead-zinc-copper  
21 P/12 deposits of the Bathurst camp, at the Nigadoo River, Key Anacon and Brunswick No. 6 mines. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 114, 117, 118).

Nova Scotia

- 11 D/12 Pyrite and arsenopyrite occur as crystals and irregular masses, generally in quartz, at the Montague gold mine, located about 5 miles to the north of Dartmouth. Masses of arsenopyrite over 50 pounds in weight were encountered in the early days, and the mine was worked for arsenic in the 1920's. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 5).
- 11 D/15 At Moose River Gold Mines, a settlement north of Lake Charlotte, arsenopyrite occurs as prismatic crystals about 1/2" long and 1/2" across, associated with pyrite, galena, scheelite, chalcopyrite, calcite and gold, in quartz veins cutting slate. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 10).
- 11 D/16 Specimens of large individual and twinned arsenopyrite crystals 2 or more inches long are common in quartzite in the dumps at the Harrigan Cove gold mine, located about 1/2 mile from the Harrigan Cove post office. Some fine crystals of gold were also recovered from this mine. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 12).
- 11 E/1 Crystals of arsenopyrite up to 3" by 1" are common in the slate and quartzite at the Goldenville (Sherbrooke) gold mine near the settlement of Goldenville in Guysborough County. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 12).

Ontario

- 31 M/3 Electron probe microanalyses of arsenopyrite from the Cobalt-  
31 M/5 Gowganda ores: (1) Fe 33.8, As 46.2, S 20.1, total 100.1;  
31 M/12 (2) Fe 32.74, As 48.64, S 19.78, total 101.16; (3) Fe 32.37,

- 41 P/9 As 45.15, S 21.28, total 98.80. (W. Petruk, D.C. Harris  
 41 P/10 and J.M. Stewart, 1971: Can. Mineralogist, 11, p. 179).  
 41 P/15  
 41 P/16

Yukon

- 115 I/3 The silver-gold ores of Mount Nansen Mines Limited (Webber and Huestis properties) and Brown-McDade Mines Limited in the Nansen Creek-Webber Creek area at 62°03'N, 137°07' to 137°10'W, contain considerable arsenopyrite. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 34).

ARTINITE



A low temperature hydrothermal mineral found originally in serpentinized ultrabasic rocks in Italy and subsequently in Serbia, and at several places in the United States. Not previously reported from Canada. The spacings and intensities of the five strongest lines in the X-ray powder pattern are: 8.18 (3), 5.34 (6), 3.69 (5), 2.736 (10) and 2.210 (4) (ASTM pattern 6-0484).

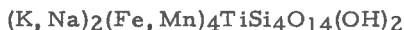
Quebec

- 21 L/3 Artinite occurs as transparent, colourless to white, slightly greenish tinted, radiating fibrous aggregates (fibres up to 1/2 inch long) with satin lustre, with small magnetite octahedra on dark greenish black, massive serpentine in pit No. 9 at the Union Mine, near Crabtree village in the Black Lake area. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 51).

ASBESTOS

(See serpentine, actinolite, anthophyllite, tremolite)

ASTROPHYLLITE



Quebec

- 31 H/11 The rare titanium silicate, astrophyllite, has been identified as a constituent of veins and vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire.

The six strongest lines on the X-ray powder pattern are: 10.62 (10), 3.53 (5), 2.78 (2), 2.66 (2), 2.58 (2) and 1.766 (2). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## ATHABASCAITE

Saskatchewan

74 N/10

Athabascaite is a new copper selenide from the Martin Lake Mine located at the northeast corner of Martin Lake, in the neck of land between Beaverlodge Lake and Martin Lake. The mineral occurs as lath-shaped inclusions in umangite and as stringers and veinlets in hematite-stained carbonate veins in basalt. The strongest lines in the X-ray powder pattern are: 3.235 (10), 3.015 (6), 1.997 (8), 1.893 (5), 1.817 (3), 1.664 (4). Electron microprobe analyses: Cu 51.1, Se 49.7, total 100.8; Cu 52.0, Se 44.0, S 2.7, total 99.7. (D. C. Harris, L. J. Cabri and S. Kaiman, 1970: Can. Mineralogist, 10, p. 207-215).

## AUGITE

Quebec

31 G/8

31 G/9

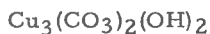
Sodian augite is the common pyroxene of the carbonate and ijolitic rock types, and titanite occurs in jacupirangite and alnoite rock types of the Oka Complex. The Complex is located 20 miles west of Montreal on the north shore of the Lake of Two Mountains. Chemical analyses by H. Ulk (X, XI) and W. H. Herdsman (XII) are as follows: X, titanite from nepheline jacupirangite, SiO<sub>2</sub> 39.89, Al<sub>2</sub>O<sub>3</sub> 14.94, TiO<sub>2</sub> 2.30, Fe<sub>2</sub>O<sub>3</sub> 5.62, FeO 2.01, MnO 0.21, MgO 10.14, CaO 24.33, Na<sub>2</sub>O 0.10, K<sub>2</sub>O 0.03, P<sub>2</sub>O<sub>5</sub> 0.16, H<sub>2</sub>O<sup>+</sup> 0.13, H<sub>2</sub>O<sup>-</sup> 0.07, total 99.87, S. G. 3.399; XI, sodian augite from calcite rock, SiO<sub>2</sub> 48.75, Al<sub>2</sub>O<sub>3</sub> 2.04, TiO<sub>2</sub> 0.66, Fe<sub>2</sub>O<sub>3</sub> 5.32, FeO 5.30, MnO 1.83, MgO 11.73, CaO 22.12, Na<sub>2</sub>O 1.58, K<sub>2</sub>O 0.04, P<sub>2</sub>O<sub>5</sub> 0.05, H<sub>2</sub>O<sup>+</sup> 0.08, H<sub>2</sub>O<sup>-</sup> 0.01, total 99.51, S. G. 3.570; XII, sodian augite from melteigite, DDHG15, 330 feet, SiO<sub>2</sub> 47.16, Al<sub>2</sub>O<sub>3</sub> 1.49, TiO<sub>2</sub> 0.24, Fe<sub>2</sub>O<sub>3</sub> 5.33, FeO 6.61, MnO 1.36, MgO 10.92, CaO 23.70, Na<sub>2</sub>O 1.07, K<sub>2</sub>O 0.04, P<sub>2</sub>O<sub>5</sub> 0.59, H<sub>2</sub>O<sup>+</sup> 1.14, total 99.65, S. G. 3.518. (D. P. Gold, 1966: Min. Soc. India, I. M. A. Volume, p. 102-126.)

## AXINITE

Ontario

- 41 P/10 Well-formed, clear crystals of axinite have been found in veins in diabase (Nipissing) at the Morrison property, Gowganda area. Crystal faces are usually visible and crystal aggregates 2 to 3 cm in diameter have been noted. (J.L. Jambor, 1971: Can. Mineralogist, 11, p. 249)

## AZURITE

British Columbia

- 82 N/5 Azurite and malachite occur with anglesite, cerussite and minor smithsonite in oxidized lead-zinc ores on the Waverley property located just north of Tangier Pass and accessible from Albert Canyon. (J.O. Wheeler, 1963: Geol. Surv. Can., Paper 62-32, p. 28).

New Brunswick

- 21 H/10 At the copper deposit on the Copp farm near Germantown, and at the Horton (Vernon) Mine, rare azurite is associated with chalcocite, malachite, chalcopyrite and covellite in grey sandstone. The copper minerals occur as veins and as intergrowths with fibres of fossil plants. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 24).

Nova Scotia

- 11 E/6 At the Smithfield lead mine, about 5 miles from Middle Stewiacke, azurite is associated with galena, pyrite, arsenopyrite, chalcopyrite, sphalerite, calcite, quartz, barite, malachite, in limestone and limestone conglomerate. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 44).

Quebec

- 22 A/13 Minor amounts of azurite and malachite occur in the Copper Mountain and Needle Mountain orebodies of Gaspé Copper Mines Limited at Murdochville. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 81).

- 31 H/10 Azurite, brochantite, posnjakite and malachite are secondary minerals formed from chalcopyrite and bornite at the Acton Mine at Acton Vale, Bagot county. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 25).

Yukon

The following occurrences of azurite are recorded by D. B. Craig and P. Laporte, 1972, in Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development.

- 105 B/1 The Fiddler-West or Wolframite showing of the Luck Group (60°07'N, 130°26'W) located along Boulder Creek north of 5 miles from its junction with the Rancheria River. The showing consists of quartz veins containing wolframite, cassiterite, chalcopyrite, galena, malachite, azurite, limonite, fluorite and minor beryl.
- 115 A/3 Abundant azurite and malachite staining is present at the property of Jack Pot Copper Mines Limited, 6 miles southwest of Dalton Post and 3 miles north of the Yukon — British Columbia border (60°03'N, 137°07'W).
- 115 I/6 Azurite and malachite are associated with massive and disseminated chalcopyrite at the Yukon Revenue property (62°21'N, 137°12'W) on Revenue Creek on the south side of the valley of Big Creek, 35 miles northwest of Carmacks.

BARITE



New Brunswick

- 21 I/2 White barite and green and purple fluorite are the most abundant minerals at the East Memramcook barite deposit in Westmorland County. They are associated with galena, chalcocite, malachite, azurite and quartz, cutting red shale. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 27).
- 21 J/4 White to greyish-white massive barite containing small amounts of galena occurs on the Russell Saunders farm, about 4 miles from Woodstock on the road to Mortonville. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 133).
- 21 P/5 Crystals of barite occur in the gossan above the orebody at Brunswick No. 6 Mine, and as clusters up to 1 inch across on magnetite-hematite-pyrite specimens at the Austin Brook iron mine. The mines are located a few miles from Highway 331,

on the road to Grand Falls, about 16 miles from Bathurst. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 118, 120).

- 21 P/11 White calcite containing patches of pink platy barite and fine-granular galena occurs in fractures in sandstone cliffs near the wharf at Stonehaven. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 122).

#### Nova Scotia

- 11 E/6 Coarsely crystalline white barite and chocolate brown siderite are intergrown and exhibit well developed cleavages at the Brookfield barite mine, located about 3 miles from Brookfield. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 42).

#### Ontario

- 31 C/7 Tiny clusters of cream-white platy barite occur on coarsely-crystalline, white, pink or lilac coloured calcite. These minerals are associated with galena, sphalerite and chalcopyrite at the Frontenac (Frontenac Draper Lake) lead mine. The mine is located about 17 miles north of Kingston along the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 24).
- 31 C/8 Barite occurs as white tabular aggregates within calcite lined cavities in limestone at the Frontenac Quarries. The cavities are fairly large and the calcite varies from colourless to pink. The quarry is located near Highway 2 approximately 150 yards east of Division Street in Kingston. (Ann P. Sabina, 1968: Geol. Surv. Can., 67-51, p. 24).
- 31 C/10 Massive and coarsely-crystalline white barite is closely associated with white to pale mauve calcite at the Hickey-Murphy lead mine. Two old shafts and several pits are present on the Hickey and Murphy farms located along the Westport road, 9.5 miles from Godfrey. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 17).
- 31 G/5 Massive buff-coloured barite occurs at the Frazer Duntile quarry near Ottawa. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 85).
- 42 D/13 Salmon-pink platy crystals of barite occur with amethyst, colourless quartz and purple fluorite at rock cuts along the Trans-Canada Highway, 6.8 to 8.3 miles west of the western turn-off to Rosspport. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 23).

- 52 A/5 Barite occurs with amethyst, smoky and rose quartz, fluorite, and fluorescent calcite at a number of old silver deposits that are accessible from the Silver Mountain highway (588) southwest of Stanley village at the following mileages: Victoria Mine - 100 feet north of the highway at mile 1.7; Beaver Junior Mine - about 400 yards southwest of the highway at mile 4.9; West Beaver Mine - 150 feet south of the highway at mile 5.7; Climax Mine - 1/2 mile by road south from the highway at mile 6.3; Badger Mine - 3/4 mile by road west from the highway at mile 6.7. (Ann P. Sabina, 1963; Geol. Surv. Can., Paper 63-18, p. 33).
- 52 A/10 Orange-red, radiating platy crystals of barite occur with amethyst, smoky and colourless quartz crystals, galena, and fluorescent calcite at the Enterprise Mine located about 0.7 miles east of Highway 17, along Road 69-13, from a point 1.5 miles north of Pearl. (Ann P. Sabina, 1963; Geol. Surv. Can., Paper 63-18, p. 23).

#### Quebec

- 21 E/5 At the Aldermac Moulton Hill Mine, quartz, barite and magnetite are the gangue minerals for the copper-lead-zinc ore. The mine is located 3 miles south of Highway 1 at a point 5.2 miles east along Highway 1 from 10th Street in Sherbrooke. (Ann P. Sabina, 1967; Geol. Surv. Can., Paper 66-51, p. 29).
- 22 C/7 White, coarsely-crystalline barite containing cubes of galena up to 1/2 inch to the edge, is found at the Roy and Ross Mine, about 1 mile south of Highway 10, 0.7 miles west of St-Fabien. (Ann P. Sabina, 1967; Geol. Surv. Can., Paper 66-51, p. 68).
- 31 G/11W Tabular aggregates of barite are associated with galena and sphalerite at a deposit on the Dan Gorman farm about 4 miles west of Buckingham. Barite also occurs at the Pedneaud quarry near Glen Almond. (Ann P. Sabina, 1969; Geol. Surv. Can., Paper 68-51, p. 6, 21).
- 31 G/12W Massive white barite occurs in a vein with fluorite, calcite and dolomite at the Foley Mine north of Hull. Veinlets of barite have also been noted at the Scott Mine near Old Chelsea. (Ann P. Sabina, 1970; Geol. Surv. Can., Paper 69-50, p. 17, 38).
- 31 H/12E Barite occurs as white, platy, and pale-yellow to peach-pink crystal aggregates in cavities at the Francon Quarry, Montreal Island. (Ann P. Sabina, 1968; Geol. Surv. Can., Paper 67-51, p. 67).



- 31 I/9E At the St-Marc-des-Carrières Quarries, white barite, in massive form and as bladed aggregates, is associated with crystalline calcite. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 87).

Yukon

- 105 F/14 Barite veins ranging from 1 foot to 10 feet in width occur on Barite mountain, mainly above 4,800 ft. elevation (61°50'N, 133°00'W), near mile 118 on the Canol Road. (E.D. Kindle, 1946: Geol. Surv. Can., Paper 45-21, 2nd Edition, and, L.H. Green and C.I. Godwin, 1964: Geol. Surv. Can., Paper 64-36, p. 40).
- 115 J/10 Barite-quartz veins containing native silver, galena, sphalerite and minor chalcopyrite and pyrite occur at the Bomber showing of Casino Silver Mines Limited, located on a tributary of Casino Creek at 62°43'N, 138°49'W. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 39).

BARYLITE



Newfoundland

- 13 K/5 Barylite is associated with lenticular bodies of alkali syenite intruding Precambrian rocks at Seal Lake, Labrador. Chemical analysis of a nearly pure concentrate of light pink barylite, by D.J. Charette: BeO 15.00, BaO 46.12, SiO<sub>2</sub> 38.52, Fe<sub>2</sub>O<sub>3</sub> 0.08, Al<sub>2</sub>O<sub>3</sub> 0.04, CaO 0.15, H<sub>2</sub>O 0.11, total 100.02, D (meas) = 3.96. (E.H. Nickel and D.J. Charette, 1962: Am. Mineralogist, 47, p. 764).

BASTNAESITE



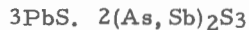
British Columbia

- 82 M/12 Bastnaesite was identified by X-ray diffraction in a thin section cut from drill core from hole 207, Rexpar fluorite property, near Birch Island, North Thompson River. It occurs with fluorite, celestite and phlogopite in massive tuffs. (X-ray Laboratory, Geol. Surv. Can., specimen submitted by W.D. McCartney).

Quebec

- 31 H/11 Bastnaesite is a rare constituent of siderite vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

BAUMHAUERITE



Ontario

- 31 C/6 Small amounts of antimonian baumhauerite were found in polished sections of specimens from a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed. Taylor of Madoc. Electron probe microanalyses by G. R. Lachance: Pb 48, 47.5; Sb 19, 19.5; As 12.5, 12; S 21.5, 21; totals 101.0, 100.0. The spacings and intensities of the strongest lines on the X-ray powder pattern are: 4.10 (6), 3.41 (7), 3.29 (7), 3.18 (10), 2.96 (8), 2.76 (6), 2.371 (9), 2.090 (8). (J. L. Jambor, 1967: Can. Mineralogist, 9, p. 209-210).

BERTHIERITE



Quebec

- 21 E/13 Berthierite occurs with stibnite, native antimony and gudmundite at the Lac Nicolet (South Ham) antimony mine, located 8.5 miles west of Highway 1 on Highway 34. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 44).

BERYL



Ontario

- 52 B/6 Beryl crystals up to 6 inches long are reported in granite pegmatite in Quetico Park at latitude 48°24'N, longitude 91°48'W. (D. F. Hewitt, 1967: Ont. Dept. Mines, Ind. Mineral Rept., 21, p. 38).

Quebec

- 22 C/5E Good crystals of tourmaline, garnet, beryl and small amounts of apatite have been reported from the deposit at the McGie Mine on the northeast shore of Charlotte Lake. The beryl crystals measured 3 inches in diameter. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 100).
- 22 D/12E Greenish coloured beryl occurs as rough crystals and in massive form at the Lac à la Mère Mica Mine near St. Nasaire north of the Saguenay River. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 110).

Saskatchewan

- 63 L/15 Yellow and green beryl found in pegmatite at Birch Portage have been studied in detail. Yellow beryl has unit cell dimensions  $a = 9.201$ ,  $c = 9.187$ ; chemical analysis,  $\text{SiO}_2$  63.66,  $\text{Al}_2\text{O}_3$  20.89,  $\text{Fe}_2\text{O}_3$  0.83,  $\text{MnO}$  0.01,  $\text{CaO}$  0.01,  $\text{Na}_2\text{O}$  0.24,  $\text{K}_2\text{O}$  0.05,  $\text{BeO}$  12.49,  $\text{H}_2\text{O}^+$  0.74,  $\text{H}_2\text{O}^-$  0.38, total 99.30. Green beryl has unit cell dimensions  $a = 9.254$ ,  $c = 9.189$ ; chemical analysis -  $\text{SiO}_2$  63.94,  $\text{TiO}_2$  0.01,  $\text{Al}_2\text{O}_3$  20.98,  $\text{Fe}_2\text{O}_3$  2.04,  $\text{MnO}$  0.02,  $\text{Na}_2\text{O}$  0.32,  $\text{K}_2\text{O}$  0.09,  $\text{BeO}$  10.08,  $\text{H}_2\text{O}^+$  1.15,  $\text{H}_2\text{O}^-$  0.47, other 0.01, total 99.11. (Dennis Radcliffe and Finley A. Campbell, 1966: Can. Mineralogist, 8, p. 493-505). (See also M.W. Pyke, 1966: Sask. Dept. Min. Res., Rept. 93, p. 42-54).

## BEUDANTITE

Quebec

- 22 G/1 Beudantite has been identified as a yellow, opaque, powdery coating on quartz and metallic minerals at the Candego Mine on the west side of the Marsoui River, 12 miles by road south of Marsoui. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 75).

## BINDHEIMITE

New Brunswick

- 21 G/14 Canary yellow to yellowish orange, hair-like or fine fibrous patches and encrustations on quartz and quartzite from the Lake George antimony mine, have been identified as bindheimite. The mine may be reached via Highway 2, west of

Fredericton for 18.5 miles, and then south on the road to Lake George for 3 miles. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 130.)

Yukon

106 D/4

Bindheimite is of widespread occurrence in surface cuts on the Rex vein of Peso Silver Mines Limited in the Haggart and Secret Creeks area. The claims, at lat. 64° 00'N., long. 135° 58'W., are 26 miles by road from Proctor's sawmill on the Mayo-Elsa road, and are reached by a branch road, 5 miles in length, which leaves the Haggart Creek road and follows the valley of Secret Creek. The Rex vein is about 2 1/2 miles east-southeast of the main camp. (L.H. Green, 1965: Geol. Surv. Can., Paper 65-19, p. 22.)

BIOTITE



British Columbia

82 F/12

Chemical analysis of biotite from hornblende-biotite porphyroblastic gneiss of the Valhalla complex at 49° 42'N., 117° 36'W., by G. Bender and S. Courville: SiO<sub>2</sub> 36.40, Al<sub>2</sub>O<sub>3</sub> 14.6, TiO<sub>2</sub> 4.0, Fe<sub>2</sub>O<sub>3</sub> 3.06, FeO 16.50, MgO 12.28, MnO 0.25, K<sub>2</sub>O 9.33, Na<sub>2</sub>O 0.07, CaO 0.04, BaO 0.30, H<sub>2</sub>O<sup>+</sup> 2.47, H<sub>2</sub>O<sup>-</sup> 0.06, F 0.42, P<sub>2</sub>O<sub>5</sub> 0.06, total 99.84, less O for F 0.18, total 99.66. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10.)

82 F/16

Chemical analyses of biotites from the White Creek batholith by G. Bender and S. Courville.

(1) biotite rich inclusion in hornblende-biotite granodiorite:

SiO<sub>2</sub> 37.78, Al<sub>2</sub>O<sub>3</sub> 15.39, TiO<sub>2</sub> 1.66, Fe<sub>2</sub>O<sub>3</sub> 3.28, FeO 15.22, MgO 12.55, MnO 0.32, K<sub>2</sub>O 8.96, Na<sub>2</sub>O 0.25, CaO 0.85, BaO 0.16, H<sub>2</sub>O<sup>+</sup> 3.32, H<sub>2</sub>O<sup>-</sup> 0.08, F 0.44, P<sub>2</sub>O<sub>5</sub> 0.10, total 100.28, less O for F 0.18, total 100.10.

(2) from biotite granodiorite, 1 mile south of Sawtooth peak, 8,000 ft. elevation, at 49° 48'N., 116° 13'W.: SiO<sub>2</sub> 36.20, Al<sub>2</sub>O<sub>3</sub> 17.04, TiO<sub>2</sub> 1.93, Fe<sub>2</sub>O<sub>3</sub> 3.13, FeO 15.80, MgO 12.14, MnO 0.45, K<sub>2</sub>O 9.30, Na<sub>2</sub>O 0.06, CaO 0.38, BaO 0.19, H<sub>2</sub>O<sup>+</sup> 3.02, H<sub>2</sub>O<sup>-</sup> 0.08, F 0.47, P<sub>2</sub>O<sub>5</sub> 0.07, total 100.26, less O for F 0.20, total 100.06.

(3) from hornblende-biotite granodiorite: SiO<sub>2</sub> 36.66, Al<sub>2</sub>O<sub>3</sub> 15.12, TiO<sub>2</sub> 1.81, Fe<sub>2</sub>O<sub>3</sub> 3.62, FeO 15.70, MgO 11.96, MnO 0.34, K<sub>2</sub>O 9.35, Na<sub>2</sub>O 0.10, CaO 0.58, BaO 0.14, H<sub>2</sub>O<sup>+</sup> 4.07, H<sub>2</sub>O<sup>-</sup> 0.10, F 0.50, P<sub>2</sub>O<sub>5</sub> 0.10, total 100.15, less O for F 0.21, total 99.94.

(4) from porphyritic biotite quartz monzonite, cirque west of Skookumchuck Mountains at 8,000 ft. elevation, at 49° 51'N., 116° 14'W.: SiO<sub>2</sub> 35.70, Al<sub>2</sub>O<sub>3</sub> 16.0, TiO<sub>2</sub> 2.38, Fe<sub>2</sub>O<sub>3</sub> 3.54,

FeO 17.05, MgO 11.04, MnO 0.40, K<sub>2</sub>O 8.58, Na<sub>2</sub>O 0.04, CaO 0.11, BaO 0.09, H<sub>2</sub>O<sup>+</sup> 3.90, H<sub>2</sub>O<sup>-</sup> 0.10, F 1.18, P<sub>2</sub>O<sub>5</sub> 0.19, total 99.67, less O for F 0.50, total 99.17. (5) from porphyritic biotite quartz monzonite at 49°50'N, 116°17'W at 4,500 ft. elevation: SiO<sub>2</sub> 36.20, Al<sub>2</sub>O<sub>3</sub> 15.97, TiO<sub>2</sub> 2.52, Fe<sub>2</sub>O<sub>3</sub> 3.72, FeO 17.08, MgO 10.32, MnO 0.38, K<sub>2</sub>O 9.32, Na<sub>2</sub>O 0.10, CaO 0.23, BaO 0.09, H<sub>2</sub>O<sup>+</sup> 2.69, H<sub>2</sub>O<sup>-</sup> 0.04, F 0.73, P<sub>2</sub>O<sub>5</sub> 0.29, total 99.69, less O for F 0.31, total 99.38.

(6) from quartz monzonite at 49°53'N, 116°22'W: SiO<sub>2</sub> 34.70, Al<sub>2</sub>O<sub>3</sub> 16.38, TiO<sub>2</sub> 2.93, Fe<sub>2</sub>O<sub>3</sub> 3.67, FeO 18.99, MgO 8.87, MnO 0.47, K<sub>2</sub>O 8.61, Na<sub>2</sub>O 0.04, CaO 0.34, BaO 0.23, H<sub>2</sub>O<sup>+</sup> 3.73, H<sub>2</sub>O<sup>-</sup> 0.04, F 0.99, P<sub>2</sub>O<sub>5</sub> 0.21, total 100.20, less O for F 0.42, total 99.78. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).

82 K/2

Chemical analyses by G. Bender and S. Courville, biotite from quartz monzonite at 50°05'N, 116°51'W, 3 miles up Fry Creek from footbridge: SiO<sub>2</sub> 35.5, Al<sub>2</sub>O<sub>3</sub> 18.1, TiO<sub>2</sub> 2.5, Fe<sub>2</sub>O<sub>3</sub> 2.1, FeO 21.67, MgO 6.0, K<sub>2</sub>O 9.20, Na<sub>2</sub>O <0.2, CaO 0.12, H<sub>2</sub>O<sup>+</sup> 3.50, F 0.83, total 99.72, less O for F 0.35, total 99.37. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).

#### Northwest Territories

65 C/14

Chemical analysis of biotite from quartz monzonite stock, 6 miles southeast of Ennadai Lake at 60°45'30", 101°10'00", by G. Bender and S. Courville: SiO<sub>2</sub> 34.9, Al<sub>2</sub>O<sub>3</sub> 14.7, TiO<sub>2</sub> 3.3, Fe<sub>2</sub>O<sub>3</sub> 3.5, FeO 28.79, MgO 3.2, K<sub>2</sub>O 8.2, Na<sub>2</sub>O <0.2, CaO 0.05, H<sub>2</sub>O<sup>+</sup> 3.30, F 0.63, total 100.77 less O for F 0.27, total 100.5. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).

75 B/13

Chemical analysis by G. Bender and S. Courville of biotite from gneissic biotite-hornblende monzonite, on the south shore of Spitfire Lake at 60°53'N, 107°40'W: SiO<sub>2</sub> 36.11, Al<sub>2</sub>O<sub>3</sub> 14.41, TiO<sub>2</sub> 4.29, Fe<sub>2</sub>O<sub>3</sub> 2.37, FeO 23.18, MgO 6.78, MnO 0.20, K<sub>2</sub>O 8.21, Na<sub>2</sub>O 0.14, CaO 0.46, BaO 0.91, Rb<sub>2</sub>O 0.05, H<sub>2</sub>O<sup>+</sup> 2.80, H<sub>2</sub>O<sup>-</sup> 0.10, F 0.59, P<sub>2</sub>O<sub>5</sub> 0.03, total 100.58, less O for F 0.25, total 100.33. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10.)

75 D/8

Chemical analysis by G. Bender and S. Courville of biotite from paragneiss from island in Bedareh Lake at 60°18'40"N, 110°02'00"W: SiO<sub>2</sub> 37.00, Al<sub>2</sub>O<sub>3</sub> 17.2, TiO<sub>2</sub> 3.4, Fe<sub>2</sub>O<sub>3</sub> 0.98, FeO 18.44, MgO 9.9, K<sub>2</sub>O 9.1, Na<sub>2</sub>O <0.2, CaO 0.65, H<sub>2</sub>O<sup>+</sup> 3.30, F 0.23, total 100.40, less O for F 0.10, total 100.3. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).

- 85 N/7 Chemical analysis by G. Bender and S. Courville of biotite from porphyroblastic quartz monzonite from island in Maryleer Lake, at 63°28'10"N, 116°32'02"W: SiO<sub>2</sub> 35.3, Al<sub>2</sub>O<sub>3</sub> 14.9, TiO<sub>2</sub> 2.71, Fe<sub>2</sub>O<sub>3</sub> 3.67; FeO 22.63, MgO 7.56, MnO 0.43, K<sub>2</sub>O 9.09, Na<sub>2</sub>O 0.10, CaO 0.02, BaO 0.05, H<sub>2</sub>O<sup>+</sup> 2.93, H<sub>2</sub>O<sup>-</sup> 0.04, F 0.49, P<sub>2</sub>O<sub>5</sub> 0.12, total 99.83. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).
- 86 B/13 Chemical analysis by G. Bender and S. Courville of biotite from biotite-cordierite schist at 64°46'25"N, 115°39'40"W: SiO<sub>2</sub> 35.2, Al<sub>2</sub>O<sub>3</sub> 19.8, TiO<sub>2</sub> 3.1, Fe<sub>2</sub>O<sub>3</sub> 1.9, FeO 20.82, MgO 6.40, K<sub>2</sub>O 9.30, Na<sub>2</sub>O <0.2, CaO 0.27, H<sub>2</sub>O<sup>+</sup> 3.70, F 0.51, total 101.2, less O for F 0.21, total 100.99. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).

### Ontario

- 31 C/12 Chemical analyses of biotites from the Blue Mountain area by S. Abbey, J.L. Bouvier and J.A. Maxwell:
- (1) Fresh brown biotite from xenolith: SiO<sub>2</sub> 33.80, Al<sub>2</sub>O<sub>3</sub> 19.22, TiO<sub>2</sub> 2.05, Fe<sub>2</sub>O<sub>3</sub> 3.64, FeO 16.63, MgO 8.81, MnO 0.61, Cr<sub>2</sub>O<sub>3</sub> 0.02, NiO 0.02, V<sub>2</sub>O<sub>5</sub> 0.04, Li<sub>2</sub>O 0.13, K<sub>2</sub>O 9.69, Na<sub>2</sub>O 0.22, CaO 0.05, BaO 0.05, Rb<sub>2</sub>O 0.04, H<sub>2</sub>O<sup>+</sup> 2.92, H<sub>2</sub>O<sup>-</sup> 0.60, F 0.45, Cl 0.68, P<sub>2</sub>O<sub>5</sub> 0.01, S 0.03, CO<sub>2</sub> 0.20, total 99.90, less O for F, Cl 0.34, total 99.56.
- (2) Green pegmatitic biotite partly altered to orange-yellow along fractures: SiO<sub>2</sub> 33.58, Al<sub>2</sub>O<sub>3</sub> 17.69, TiO<sub>2</sub> 1.27, Fe<sub>2</sub>O<sub>3</sub> 8.49, FeO 19.40, MgO 4.58, MnO 0.65, Cr<sub>2</sub>O<sub>3</sub> 0.04, NiO 0.01, V<sub>2</sub>O<sub>5</sub> 0.01, Li<sub>2</sub>O 0.14, K<sub>2</sub>O 9.59, Na<sub>2</sub>O 0.27, CaO 0.04, BaO 0.02, Rb<sub>2</sub>O 0.01, H<sub>2</sub>O<sup>+</sup> 2.32, H<sub>2</sub>O<sup>-</sup> 0.68, F 0.65, Cl 0.20, P<sub>2</sub>O<sub>5</sub> 0.07, CO<sub>2</sub> 0.12, total 99.83, less O for F, Cl 0.31, total 99.52.
- (3) Orange-yellow alteration of biotite (2) above: SiO<sub>2</sub> 32.19, Al<sub>2</sub>O<sub>3</sub> 17.97, TiO<sub>2</sub> 1.12, Fe<sub>2</sub>O<sub>3</sub> 24.92, FeO 2.87, MgO 5.14, MnO 0.58, Cr<sub>2</sub>O<sub>3</sub> 0.04, NiO 0.02, V<sub>2</sub>O<sub>5</sub> 0.02, Li<sub>2</sub>O 0.01, K<sub>2</sub>O 6.73, Na<sub>2</sub>O 0.26, CaO 0.46, BaO 0.12, Rb<sub>2</sub>O 0.01, H<sub>2</sub>O<sup>+</sup> 4.77, H<sub>2</sub>O<sup>-</sup> 1.68, F 0.60, P<sub>2</sub>O<sub>5</sub> 0.06, CO<sub>2</sub> 0.00, total 99.55, less O for F 0.25, total 99.30. (J.H.Y. Rimsaite, 1967: Clays and Clay Minerals, Fifteenth Conference, Pergamon Press, p. 378).
- 31 E/1 Chemical analyses by G. Bender and S. Courville of biotites:
- (1) from gneiss at 45°01'N, 78°02'W, Cardiff Township: SiO<sub>2</sub> 40.8, Al<sub>2</sub>O<sub>3</sub> 10.0, TiO<sub>2</sub> 0.50, Fe<sub>2</sub>O<sub>3</sub> 2.1, FeO 13.85, MgO 16.3, MnO 0.40, K<sub>2</sub>O 9.7, Na<sub>2</sub>O 0.3, CaO 0.0, H<sub>2</sub>O<sup>+</sup> 1.92, H<sub>2</sub>O<sup>-</sup> 0.88, F 3.73, total 100.5, less O for F 1.6, total 98.9.
- (2) from coarse pegmatite segregation in skarn underground at 45°03'N, 78°01'W, Cardiff Township: SiO<sub>2</sub> 39.6, Al<sub>2</sub>O<sub>3</sub> 10.6, TiO<sub>2</sub> 1.9, Fe<sub>2</sub>O<sub>3</sub> 3.8, FeO 15.22, MgO 14.6, MnO 0.5,

K<sub>2</sub>O 9.5, Na<sub>2</sub>O 0.3, CaO 0.2, H<sub>2</sub>O<sup>+</sup> 1.5, H<sub>2</sub>O<sup>-</sup> 0.35, F 3.63, total 101.7, less O for F 1.5, total 100.2.  
(J.H. Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).

- 31 F/4 Chemical analyses by G. Bender and S. Courville:  
(1) biotite from radioactive orebody at 45°01'N, 77°53'W, Faraday Township: SiO<sub>2</sub> 41.96, Al<sub>2</sub>O<sub>3</sub> 9.81, TiO<sub>2</sub> 1.04, Fe<sub>2</sub>O<sub>3</sub> 6.95, FeO 10.87, MgO 14.48, MnO 0.51, Li<sub>2</sub>O 0.65, K<sub>2</sub>O 9.36, Na<sub>2</sub>O 0.11, Rb<sub>2</sub>O 0.73, Cs<sub>2</sub>O 0.1, H<sub>2</sub>O<sup>+</sup> 1.66, H<sub>2</sub>O<sup>-</sup> 0.26, F 3.64, P<sub>2</sub>O<sub>5</sub> 0.03, total 102.06, less O for F 1.53, total 100.53.  
(2) biotite, same locality as above: SiO<sub>2</sub> 41.92, Al<sub>2</sub>O<sub>3</sub> 10.4, TiO<sub>2</sub> 0.90, Fe<sub>2</sub>O<sub>3</sub> 6.31, FeO 10.50, MgO 14.3, MnO 0.50, Li<sub>2</sub>O 0.71, K<sub>2</sub>O 9.9, Na<sub>2</sub>O 0.12, CaO 0.22, BaO 0.05, Rb<sub>2</sub>O 0.74, Cs<sub>2</sub>O 0.1, H<sub>2</sub>O<sup>+</sup> 1.32, H<sub>2</sub>O<sup>-</sup> 0.19, F 3.67, P<sub>2</sub>O<sub>5</sub> 0.02, total 101.72, less O for F 1.54, total 100.18.  
(3) biotite from radioactive pegmatite, Mentor property, at 45°10'N, 77°44'W: SiO<sub>2</sub> 32.8, Al<sub>2</sub>O<sub>3</sub> 16.8, TiO<sub>2</sub> 1.5, Fe<sub>2</sub>O<sub>3</sub> 7.2, FeO 22.36, MgO 5.8, MnO 0.9, K<sub>2</sub>O 9.3, Na<sub>2</sub>O 0.3, CaO 0.2, H<sub>2</sub>O<sup>+</sup> 3.02, H<sub>2</sub>O<sup>-</sup> 0.63, F 0.55, total 101.4, less O for F 0.2, total 101.2. (J.H. Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).

- 42 M/12 Chemical analysis by G. Bender and S. Courville of biotite from paragneiss north of Fort Hope on the west shore of Eabamet Lake (51°34'30"N, 87°59'00"W): SiO<sub>2</sub> 36.11, Al<sub>2</sub>O<sub>3</sub> 18.5, TiO<sub>2</sub> 2.63, Fe<sub>2</sub>O<sub>3</sub> 1.46, FeO 16.62, MgO 10.5, MnO 0.33, K<sub>2</sub>O 9.54, Na<sub>2</sub>O 0.1, BaO 0.11, H<sub>2</sub>O<sup>+</sup> 3.05, H<sub>2</sub>O<sup>-</sup> 0.05, F 0.55, P<sub>2</sub>O<sub>5</sub> 0.08, total 99.63, less O for F 0.23, total 99.40, (J.H. Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10.)

#### Quebec

- 12 O/2 Chemical analysis by G. Bender and S. Courville of biotite from gneiss at St-Augustin, east of the protestant parish hall (51°14'N, 58°39'W): SiO<sub>2</sub> 39.12, Al<sub>2</sub>O<sub>3</sub> 12.49, TiO<sub>2</sub> 3.57, Fe<sub>2</sub>O<sub>3</sub> 1.28, FeO 14.61, MgO 15.14, MnO 0.21, Cr<sub>2</sub>O<sub>3</sub> 0.02, NiO 0.02, K<sub>2</sub>O 9.52, Na<sub>2</sub>O 0.23, CaO 0.18, BaO 0.11, Rb<sub>2</sub>O 0.1, H<sub>2</sub>O<sup>+</sup> 1.32, H<sub>2</sub>O<sup>-</sup> 0.04, F 2.80, P<sub>2</sub>O<sub>5</sub> 0.03, total 100.69, less O for F 1.18, total 99.51. (J.H. Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).
- 21 E/6 Chemical analyses of biotites by G. Bender and S. Courville:  
(1) from anorthositic gabbro rim of Mount Megantic intrusive at 45°28'N, 71°12'W: SiO<sub>2</sub> 36.27, Al<sub>2</sub>O<sub>3</sub> 13.88, TiO<sub>2</sub> 4.05, Fe<sub>2</sub>O<sub>3</sub> 2.95, FeO 18.98, MgO 10.29, MnO 0.14, Cr<sub>2</sub>O<sub>3</sub> 0.02, NiO 0.02, K<sub>2</sub>O 8.39, Na<sub>2</sub>O 0.27, CaO 0.48, BaO 0.38, Rb<sub>2</sub>O 0.02, H<sub>2</sub>O<sup>+</sup> 2.92, H<sub>2</sub>O<sup>-</sup> 0.20, F 0.18, P<sub>2</sub>O<sub>5</sub> 0.05, total 99.47, less O for F 0.08, total 99.39.  
(2) from granitic core of Mount Megantic intrusive: SiO<sub>2</sub> 36.43, Al<sub>2</sub>O<sub>3</sub> 12.55, TiO<sub>2</sub> 3.5, Fe<sub>2</sub>O<sub>3</sub> 5.56, FeO 22.49,

- 21 E/6 (2) MgO 6.01, MnO 0.44, K<sub>2</sub>O 8.25, Na<sub>2</sub>O 0.11, CaO 0.06, BaO 0.32, Rb<sub>2</sub>O 0.11, H<sub>2</sub>O<sup>+</sup> 2.79, H<sub>2</sub>O<sup>-</sup> 0.26, F 1.22, P<sub>2</sub>O<sub>5</sub> 0.04, total 100.03, less O for F 0.51, total 99.52. (J.H. Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).
- 23 O/16 Chemical analysis by G. Bender and S. Courville of biotite from gneiss at 55°55'N., 66°03'W: SiO<sub>2</sub> 36.50, Al<sub>2</sub>O<sub>3</sub> 15.80, TiO<sub>2</sub> 2.05, Fe<sub>2</sub>O<sub>3</sub> 3.95, FeO 16.70, MgO 11.34, MnO 0.34, K<sub>2</sub>O 9.39, Na<sub>2</sub>O 0.05, CaO 0.04, BaO 0.11, H<sub>2</sub>O<sup>+</sup> 3.23, H<sub>2</sub>O<sup>-</sup> 0.07, F 0.37, P<sub>2</sub>O<sub>5</sub> 0.07, total 100.01, less O for F 0.16, total 99.85. (J.H. Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).
- 31 G/8 Chemical analyses of biotites, I, from alnoite rock and II,  
31 G/9 from pyroxene-calcite-rock, Oka Complex, 20 miles west of Montreal on the north shore of the Lake of Two Mountains, by H. Ulk: I, SiO<sub>2</sub> 37.65, Al<sub>2</sub>O<sub>3</sub> 18.25, TiO<sub>2</sub> 3.73, Fe<sub>2</sub>O<sub>3</sub> 1.43, FeO 5.28, MnO 0.10, MgO 20.96, CaO 0.57, Na<sub>2</sub>O 0.61, K<sub>2</sub>O 9.30, P<sub>2</sub>O<sub>5</sub> 0.08, H<sub>2</sub>O<sup>+</sup> 1.10, F 0.18, less O for F 0.07, total 99.17; II, SiO<sub>2</sub> 36.60, Al<sub>2</sub>O<sub>3</sub> 18.25, TiO<sub>2</sub> 1.41, Fe<sub>2</sub>O<sub>3</sub> 3.21, FeO 10.34, MnO 1.60, MgO 17.27, CaO 0.28, Na<sub>2</sub>O 0.73, K<sub>2</sub>O 9.32, P<sub>2</sub>O<sub>5</sub> 0.21, H<sub>2</sub>O<sup>+</sup> 0.81, F 0.03, less O for F 0.01, total 100.05. (D.P. Gold, 1966: Min. Soc. India, I. M. A. Volume, p. 102-126).
- 35 A/8 Chemical analysis of biotite from granodiorite at 60°22'N., 72°27'W., by G. Bender and S. Courville: SiO<sub>2</sub> 36.70, Al<sub>2</sub>O<sub>3</sub> 15.10, TiO<sub>2</sub> 4.10, Fe<sub>2</sub>O<sub>3</sub> 2.83, FeO 15.90, MgO 11.82, MnO 0.21, K<sub>2</sub>O 9.42, Na<sub>2</sub>O 0.13, CaO 0.03, BaO 0.28, H<sub>2</sub>O<sup>+</sup> 2.64, H<sub>2</sub>O<sup>-</sup> 0.06, F 0.59, P<sub>2</sub>O<sub>5</sub> 0.05, total 99.86, less O for F 0.25, total 99.61. (J.H. Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).
- 35 J/4 Chemical analysis by G. Bender and S. Courville of biotite from veined gneiss at 62°07'N., 75°39'W: SiO<sub>2</sub> 36.70, Al<sub>2</sub>O<sub>3</sub> 16.10, TiO<sub>2</sub> 2.83, Fe<sub>2</sub>O<sub>3</sub> 3.37, FeO 18.68, MgO 9.16, MnO 0.23, K<sub>2</sub>O 9.39, Na<sub>2</sub>O 0.05, BaO 0.18, H<sub>2</sub>O<sup>+</sup> 2.90, H<sub>2</sub>O<sup>-</sup> 0.10, F 0.31, P<sub>2</sub>O<sub>5</sub> 0.04, total 100.04, less O for F 0.13, total 99.91. (J.H. Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).

## BIRNESSITE

delta-MnO<sub>2</sub>Quebec

- 31 H/11 A mineral giving a characteristic X-ray powder pattern of delta-MnO<sub>2</sub> has been identified in vein material from the Desourdy quarry on the northeast slope of Mont St-Hilaire.



- 31 H/11 The pattern has three strong lines at 7.11 (10), 2.45 (7), and 1.422 (4). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## BISMUTH

Bi

New Brunswick

- 21 J/10 Native bismuth is a minor constituent of the ore at the Burnt Hill tungsten deposit in York county, about 16 miles from Maple Grove Station. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 127).

Northwest Territories

- 86 E/9 Native bismuth occurs with native silver, matildite, safflorite, skutterudite, rammelsbergite, pararammelsbergite, gersdorffite, cobaltite and niccolite, at a deposit on the Camsell River, 4 miles south of its mouth at Conjuror Bay on Great Bear Lake, at latitude 65°36'14"N., longitude 118°06'45"W. (D. C. Harris and R. I. Thorpe, 1969: Can. Mineralogist, 9, p. 655-662).
- 86 F/13 Native bismuth occurs as disseminated crystals in quartz and calcite stringers and in veins and cracks in cobaltite and pitchblende, in the silver deposits at the B. E. A. R. showings on the north shore of Contact Lake, about 9 miles southeast of the Eldorado Mine. (G. M. Furnival, 1939: Econ. Geol., 34, p. 761).

Quebec

- 22 A/13 Bismuth occurs in microscopic amounts in chalcopyrite from the Needle Mountain orebody of Gaspé Copper Mines Limited at Murdochville. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 81).
- 31 G/12W Native bismuth occurs sparingly as grey metallic small masses at the Evans-Lou Mine near St-Pierre-de-Wakefield. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 35).
- 31 G/12W A small vein of massive bismuth intergrown with bismuthinite was uncovered during feldspar mining at the Lachaine quarry west of St-Pierre-de-Wakefield. Specimens are in the National Mineral Collection.

BISMUTHINITE



Northwest Territories

- 86 F/13 Bismuthinite is a minor constituent of the silver-uranium deposit at the B. E. A. R. property on the north shore of Contact Lake, 9 miles southeast of the Eldorado Mine. It is closely associated with famatinite, arsenopyrite and native bismuth. (G. M. Furnival, 1939: Econ. Geol., 34, p. 761).

Nova Scotia

- 11 F/16 At the Eagle Head Mine, located about 2 miles east of Deep Cove on the north shore of Gabarouse Bay, Cape Breton Island, bismuthinite occurs as acicular crystals and as flaky, platy or fine grained masses in quartz, generally occupying vugs with quartz crystals (up to 1/2 inch long). It is associated with chalcopyrite, pyrite, brochantite, malachite, langite, devilline, quartz and calcite. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 35).

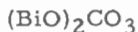
Ontario

- 31 M/3 Small quantities of bismuthinite are present at many places  
31 M/5 in the ores of the Cobalt-Gowganda area. It occurs inter-  
31 M/12 grown with bismuth, arsenopyrite, galena, pavonite and chal-  
41 P/9 copyrite. (W. Petruk et. al., 1971: Can. Mineralogist, 11,  
41 P/10 p. 218).  
41 P/15  
41 P/16

Quebec

- 31 G/12W A small vein of massive bismuth intergrown with bismuthinite was uncovered during feldspar mining at the Lachaine quarry west of St-Pierre-de-Wakefield. Specimens are in the National Mineral Collection.

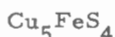
BISMUTITE



Quebec

- 31 G/13E Bismutite, an alteration product of bismuth, is common at the Evans-Lou Mine near St-Pierre-de-Wakefield; it occurs as cream white, yellow, grey and light green soft masses and as coatings on feldspar and quartz. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 35).

## BORNITE

Northwest Territories

- 75 L/8 Mineralized showings consisting of bornite, and minor chalcopyrite, chalcocite and domeykite, have been reported on the HAR group claims located just north of Wilson Lake and just south of Stark Lake. Bornite, chalcopyrite and galena have also been reported in barite-bearing veins on the south shore of Regina Bay of Stark Lake. (R.I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 24-25).
- 86 F/13 Bornite is abundant and is associated with chalcopyrite and chalcocite at the B. E. A. R. silver deposit on the north shore of Contact Lake, about 9 miles southeast of the Eldorado Mine. (G.M. Furnival, 1939: Econ. Geol. 34, p. 752).
- 86 N/10 Spectacular showings of fairly massive bornite, over widths up to 12 feet, have been exposed on the Copper Lamb claims just north of Bornite Lake. (R.I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 36).

Yukon

- 105 C/14 Quartz veins containing considerable bornite and chalcopyrite are exposed on the Cone and Luck claims at 60°43'N., 133°22'W., on the south slope of a saddle cutting through Big Salmon Range about 2 1/2 miles north northeast of Cone Mountain. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 63).
- 105 G/5 Nine small copper showings have been discovered on the Bell claims in the McNeil Lake area (61°28'N., 131°46'W.). Bornite, chalcopyrite, chalcocite and covellite are the main copper minerals. (D.B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 131).
- 115 G/6 Several showings of disseminated bornite, chalcocite and minor native copper in malachite-stained basalt have been found near the headwaters of Quill Creek. (D. C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 53).
- 115 I/7 Quartz lenses containing bornite and chalcopyrite have been explored at the Bonanza King property on the east side of Nancy Lee Creek about 1,000 feet from the mouth, at 62°23'N., 136°38'W. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 42).

## BOULANGERITE

New Brunswick

- 21 O/8 Inclusions of boulangerite have been found in the galena of the Heath Steele deposit in Northumberland County, in the Bathurst-Newcastle area.
- 21 P/5 A similar occurrence of boulangerite has been noted in galena from the Brunswick orebodies, Gloucester County. (R. S. Boorman, 1968: New Brunswick Res. Prod. Council, Res. Note 11.)

Northwest Territories

- 77 A/3 Boulangerite has been identified by X-ray powder pattern (X-ray Laboratory, Geol. Surv. Can., for R. Thorpe) in a specimen from the CAR group of claims owned by the Roberts Mining Company on the east side of Hope Bay, at lat. 68° 05'58"N., long. 106° 43'19"W. It occurs as needle or blade-like disseminations in white quartz veins cutting dacitic greenstone, just west of an auriferous - argentiferous shear zone of quartz veins carrying pyrite, chalcopyrite, arsenopyrite, galena, sphalerite and pyrrhotite.

Ontario

- 31 C/6 Boulangerite is the most abundant sulphosalt in a suite of 18 found in a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Ed. Taylor of Madoc. The boulangerite contains up to 2 per cent arsenic. (J. L. Jambor, 1967: Can. Mineralogist, 9, p. 7-24 and 191-213.)

Yukon

- 105 B/4 Boulangerite has been identified with galena, arsenopyrite, pyrite and sphalerite in quartz lenses in diorite at the Logjam Creek property at 60° 01'N., 131° 35'W., about 13 miles by tote road from the Alaska Highway near Mile 753 (L. H. Green and C. I. Godwin, 1964: Geol. Surv. Can., Paper 64-36, p.47).
- 105 K/16 Narrow fractures containing galena, boulangerite and sphalerite are found on the Solo claims located 8 miles east of Mount Selous at 62° 58'N., 132° 10'W. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 97.)

Yukon

- 106 D/4 Boulangerite has been identified as a constituent of veins on the Rex property of Peso Silver Mines Limited at 64° 00'N., 135° 54'W. It is associated with siderite, quartz, jamesonite, tetrahedrite, galena, pyrite and arsenopyrite. (L. H. Green, 1965: Geol. Surv. Can., Paper 65-19, p. 20-21,)

## BOURNONITE

Manitoba

- 63 K/13 Bournonite has been identified in a specimen from Flin Flon. The bournonite is massive and a major constituent in the specimen, and is associated with minor sphalerite and chalcopryrite. (Private Communication, R. Thorpe, 1969: identification by D. Harris.)

New Brunswick

- 21 O/8 Inclusions of bournonite occur in galena at the Heath Steele and Texas Gulf Sulphur deposits in Northumberland County, Bathurst-Newcastle area.
- 21 P/5 Bournonite inclusions have also been found in galena from the Brunswick orebodies, Gloucester County. (R. S. Boorman, 1968: New Brunswick Res. Prod. Council, Res. Note 11.)

Northwest Territories

- 77 A/3 Bournonite has been identified by X-ray powder pattern (X-ray Laboratory, Geol. Surv. Can., for R. Thorpe) in a specimen from the CAR group of claims owned by the Roberts Mining Company on the east side of Hope Bay, at lat. 68° 05'58"N., long. 106° 43'19"W. It occurs with pyrite as a massive fracture-filling in dacitic greenstone, exposed on a low cliff face. The fracture trends nearly perpendicular to the shear zone mineralized with pyrite, chalcopryrite, arsenopyrite, galena, sphalerite and pyrrhotite.

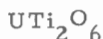
Quebec

- 22 G/1 Small amounts of bournonite, gold and pyrrhotite are reported to occur with more abundant galena, sphalerite, pyrite, arsenopyrite, chalcopryrite and tetrahedrite at the Candego Mine on the west side of the Marsoui River, 12.1 miles south of Marsoui. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 75.)

Yukon

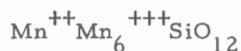
- 105 G/3 Bournonite is a minor constituent of ore specimens from Tintina Silver Mines at 61° 09'N., 131° 09'W., seven miles northwest of the confluence of the Ings and Upper Liard Rivers. Other minerals present are: jamesonite, argentian tetrahydrate, galena, sphalerite, pyrite, arsenopyrite, marcasite, owyheite, tintinaite, pyrrhotite and chalcopyrite. (D. C. Harris, J. L. Jambor, G. R. Lachance and R. I. Thorpe, 1968: Can. Mineralogist, 9, p. 371-382.)

## BRANNERITE

Saskatchewan

- 74 N/9 Brannerite veinlets up to 2 mm wide occur in altered wall rock, and brannerite-hematite intergrowths occur as nests and bands in carbonate at the Ace Mine, Beaverlodge area. (V. Koeppl, 1968: Geol. Surv. Can., Paper 67-31, p. 93-4.)

## BRAUNITE

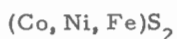
Northwest Territories

- 86 K/12 At a deposit located about 12 1/2 miles northeast of the head of Hornby Bay, a seam of manganese bearing material from a few inches to more than 3 feet thick occurs in a silicified and brecciated zone lying along the unconformable contact between Hornby Bay sedimentary rocks of Proterozoic age. This zone has a known length of about 500 feet and a maximum width of about 25 feet. It is associated with a quartz stockwork that intersects the Fault River fault. A specimen of massive material from the seam was identified as braunite. (A. G. Johnston and W. D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 10.)

Ontario

- 52 A/10 A vein six inches in average width, consisting of an intimate mixture of braunite and psilomelane, has been noted in a shatter zone in chert rock near Pearl in McTavish Township. (A. G. Johnston and W. D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 28.)

## BRAVOITE



The pyrite group forms an isostructural series with pyrite  $\text{FeS}_2$ , vaesite  $\text{NiS}_2$  and cattierite  $\text{CoS}_2$  as end members. The name bravoite is applied to intermediate members of the series; the boundary between bravoite and the end member in each case is placed at 80 per cent.

Ontario

- 31 M/5 Bravoite has been found as cores of pyrite grains in the inter-  
 31 M/12 mediate layer of a cross vein at the Silverfields Mine in the Cobalt area. An electron microprobe analyses gave: Co 27.9, Ni 8.4, Fe 8.5, S 44.9, As 8.5, total 98.2. Bravoite has also been found at the Langis Mine as coatings on and veinlets in pyrite-marcasite and arsenide grains. Electron microprobe analyses: Co 37.3, Ni 10.7, Fe 1.0, S 49.8, total 98.0; Co 37.3, Ni 6.4, Fe 5.4, S 48.6, total 97.7. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 223.)

## BREITHAUPTITE

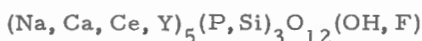
Northwest Territories

- 86 F/13 At the B. E. A. R. deposit located on the north shore of Contact Lake about 9 miles southeast of the Eldorado Mine, breithauptite is of widespread occurrence as small grains in cobaltite, niccolite and rammelsbergite. (G. M. Furnival, 1939: Econ. Geol., 34, p. 759.)

Ontario

- 31 M/3 In the Cobalt-Gowganda ores, breithauptite is intimately inter-  
 31 M/5 grown with nickeline in all occurrences, and the intergrowth  
 31 M/12 is also associated with silver so consistently that local oper-  
 41 P/9 ators consider it an indicator of high-grade ore. Electron  
 41 P/10 probe microanalyses of breithauptite: Ni 32.9, Co 0.1, As  
 41 P/15 2.0, Sb 65.0, total 100.0 (W. Petruk, D. C. Harris and  
 41 P/16 J. M. Stewart, 1971: Can. Mineralogist, 11, p. 182.)
- 52 L/16 A minor amount of breithauptite is reported in a massive base-metal sulphide deposit located in Mulcahy Township, Red Lake area, about 20 miles west of Red Lake and 4,000 feet south-southwest of the south end of Trout Bay. (L. J. Cabri, D. C. Harris and J. M. Stewart, 1970: Can. Mineralogist, 10, p. 234.)

## BRITHOLITE-ABUKUMALITE

Quebec

- 31 G/9E Finely granular, massive and reddish brown britholite with resinous lustre occurs in a mixture of calcite, magnetite, biotite, apatite, feldspar and quartz at the Defresne Property of Quebec Columbian Limited near Oka. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 64.)
- 31 H/11E At the Mont St-Hilaire Quarry, also known as the Desourdy Quarry, on the north side of Mont St-Hilaire, britholite is present as light tan-coloured platy aggregates. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 57.)

## BROCHANTITE

Nova Scotia

- 11 E/8 At the College copper mine, about 3 miles west of South Lochaber, Antigonish County, bright green, crystalline brochantite coats quartz, hematite and chalcopyrite. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 17.)
- 11 K/1 Bright green aggregates of acicular crystals of brochantite, accompanied by blue masses of posnjakite, coat quartz and host rocks at the Coxheath copper mine, located about 2 miles east of Frenchvale, Cape Breton County. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 29.)

Quebec

The following occurrences of brochantite in copper deposits of the Eastern Townships are reported by Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 5, 8, 9, 19, 21, 25, 29, 57.

- 21 E/5 With posnjakite and devilline at the Capelton and Albert mines, and with posnjakite at the Eustis Mine. The mines may be reached by travelling 3 miles west from Lennoxville along Belvedere Street and then 2.6 miles south.
- 21 E/5 At the Aldermac Moulton Hill Mine, with devilline, on quartz and sulphides. The mine is 3 miles south of Highway 1, by gravel road, from a point 5.2 miles east of Sherbrooke (junction of Highway 1 and 10th Street).



Quebec

- 21 L/6 Specimens of chalcopyrite and bornite coated with brochantite may be found at the site of the Harvey Hill copper mine, 2.5 miles from West Broughton (St-Pierre).
- 31 H/2 With malachite and posnjakite at Sweet's Mine, 3 miles north of Sutton along the road to West Brome.
- 31 H/8 With langite and posnjakite at the Ives Mine, located on the west side of the road between Eastman and Bolton Centre.
- With malachite and langite at the Huntingdon Mine on the east side of the road between Eastman and Bolton Centre.
- 31 H/10 With azurite, malachite and posnjakite at the Acton Mine, near Acton Vale.
- 31 I/16W Emerald green brochantite was noted on the surfaces of tremolite rock at the Tetreault Mine near Montauban-les-Mines. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 88).

## BROOKITE

Quebec

- 31 H/11 Brookite, the orthorhombic polymorph of rutile and anatase, has been identified in specimens from the Desourdy quarry on the northeast slope of Mont St-Hilaire. The spacings and intensities of the five strongest lines on the X-ray powder pattern are: 3.50 (10), 2.90 (9), 2.48 (1), 1.952 (1) and 1.662 (1). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## BRUCITE

Ontario

- 31 C/10 Brucite in crystalline limestone is exposed in a few pits and trenches at an occurrence that can be reached by road westward for 10 miles from Piccadilly on the Oak Flats road. The pits are on the Dwyer farm. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 12).

Quebec

- 31 G/12W Brucite occurs at the Cross Quarry near Meach Lake as colourless, white to grey, pearly to waxy nodules (1 to 5 mm in diameter) and as colourless to pale green foliated, platy or flakey aggregates and as fibrous veinlets in limestone. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 41.)
- 31 G/15E Silky brucite occurs in veins up to 1/2 inch wide at the Rockway Valley marble quarry west of Arundel; in narrow veins in magnesite and serpentine at Kilmar; and in dolomite at the Dobbie Mine. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 68, 72, 73.)

## BURBANKITE

Quebec

- 31 H/11 Burbankite has been identified as a constituent of vugs in nepheline syenite at the Desourdy Quarry on the northeast slope of Mont St-Hilaire. Its X-ray powder pattern has six strongest lines at: 5.28 (5), 3.73 (4), 3.04 (6), 2.75 (3), 2.64 (10), 2.15 (5). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)
- 31 H/12E Burbankite occurs as colourless and reddish pink fine, hair-like aggregates on calcite at the Miron Quarry, Montreal Island. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 68.)

## BÜTSCHLIITE

Ontario

- 31 F/11 Bütschliite and fairchildite have been identified from the trunk of a burned birch tree near Eganville, Graton Township, by the Royal Ontario Museum. (J. A. Mandarino and D. C. Harris, 1965: Can. Mineralogist, 8, p. 380.)

## CALAVERITE

Quebec

- 32 D/6 Calaverite has been found in intimate association with montbrayite in specimens from the Robb Montbray deposit. The two minerals are almost indistinguishable optically. Electron probe microanalysis: Au 43.2, Ag 1.5, Sb 0.1, Pb 0.0, Bi 0.0, Te 56.0, total 100.8. (J. Rucklidge, 1969: Can. Mineralogist, 9, p. 709-716.)

## CALCITE

New Brunswick

Some specimens of calcite fluoresce with a bright pink colour when placed under ultraviolet radiation. The following occurrences are noted by Ann P. Sabina, 1967, in Geol. Surv. Can., Paper 66-51.

- 21 J/3 In a limestone quarry at Waterville.
- 21 O/16 In veins cutting sedimentary rocks exposed at Razor and Dickie Coves on the west side of Black Point.
- 21 P/11 Fracture fillings in sandstone cliffs along the shoreline between Clifton and Stonehaven.
- 21 P/12 Associated with the silver-lead-zinc orebody at the Sturgeon River Mine in the Bathurst area.
- 21 P/13 In veins cutting limestone exposed along Chaleur Bay on both sides of the mouth of Hendry Brook, and from Limestone Point to the mouth of the Elmtree River.
- 21 B/1 In cavities and fractures in volcanic rocks exposed along the Inch Arran - Cape Bon Ami shoreline, at Dalhousie.

Ontario

The following occurrences of calcite, with directions as to how to reach them, are noted by Ann P. Sabina, in Geol. Surv. Can., Paper 67-51, 1968, and Paper 68-51, 1969.

Ontario

- 31 B/12W White to brownish pink coarsely crystalline calcite occupies cavities about an inch across in dolomite in a quarry about 6 miles north of Brockville on Highway 2. The calcite fluoresces pink under short ultra violet rays. (Paper 67-51, p. 48).
- 31 B/14W White to pink crystalline calcite, which fluoresces pink under short ultra violet rays, is associated with pyrite in cavities and veins at Fetterly's Quarry which is situated north of Highway 2 at approximately 75 miles from Kingston. (Paper 67-51, p. 49).
- 31 C/7 Aggregates of calcite crystals are common at the Kingston Township Quarry. The calcite crystals vary from colourless to greyish white transparent. The quarry is located nearby and to the southeast of the junction of Highway 401 and 38. (Paper 67-51, p. 6).
- 31 C/7 Pinkish to white calcite lined cavities are found on the road-cut along Highway 38 about 1/2 mile north of the junction of Highway 401 and 38. The calcite crystals are very coarse grained and are closely associated with anhydrite and gypsum. (Paper 67-51, p. 7).
- 31 C/7 Pink calcite occurs with light-amber mica, dark green pyroxene crystals, and green and red apatite. These minerals are found in four large mica pits at the Freebern Mine about 16 miles north of Kingston and 3 miles east of Hartington. (Paper 67-51, p. 9).
- 31 C/8W Colourless calcite crystals (dogtooth spar) commonly fill cavities in the limestone at the McGinnis and O'Connor Quarry on Highway 15 north of Kingston. (Paper 67-51, p. 41).
- 31 C/10 Salmon pink calcite together with massive pyrite and pyrrotite is found in crystalline limestone at the Enterprise Mine about 26 miles north of Kingston and 10 miles west of Godfrey. Other minerals present are molybdenite, apatite, hornblende, scapolite, hexahydrite, jarosite, copiapite, rozenite and fibroferrite. (Paper 67-51, p. 10).
- 31 C/10 Pink and white crystalline calcite is common at the Kingston (Bedford) mica mine located about 2 miles east of Highway 38 and 1/2 mile southeast of the Godfrey - Westport road. (Paper 67-51, p. 14).
- 31 C/10 Coarsely crystalline white to sky blue, greenish blue and salmon pink calcite is exposed along a cliff opposite Long Lake. The outcrop is about 3 miles northwest of Parham on the Long Lake road. (Paper 67-51, p. 18).

Ontario

- 31 C/16 A blue calcite has been reported from the Hanlon Mine. Other calcites present in the mica mine are predominantly white and salmon pink. The mine is located about 1/2 mile east of the Kingston-Westport-Perth Road and about 47.6 miles (road log) north of Kingston. (Paper 67-51, p. 32.)
- 31 C/16 Coarse, salmon to reddish pink calcite occurs at the Byrnes Mine. Also present in the mine is finely granular white calcite that fluoresces bright pink under 'short' ultraviolet rays. The mine was originally opened for phosphate. It is located at a contact of gneiss and pyroxenite on the east side of the Kingston-Westport-Perth Road about 47 miles (road log) north of Kingston. (Paper 67-51, p. 32.)
- 31 G/5E Coquina limestone occurs at the Dibblee Construction Bowesville Quarry south of Ottawa. (Paper 68-51, p. 83.)
- 31 G/5E At the Frazer Duntile Quarry near Ottawa, calcite occurs as colourless, transparent crystals (dogtooth spar) and as white to pink granular and cleavable masses; some of the massive variety fluoresces pink when exposed to ultraviolet rays. (Paper 68-51, p. 85.)
- 31 G/5E Colourless to white crystal aggregates of calcite are common in fractures and cavities in limestone at the Francon Quarry east of Ottawa. The calcite fluoresces pale yellow when exposed to ultraviolet rays. (Paper 68-51, p. 82.)
- 31 G/10W White crystals of calcite occupy cavities about 1 inch across in the limestone at the Bertrand and Frere Quarry near Hawkesbury. (Paper 68-51, p. 79.)

Quebec

The following occurrences of fluorescent calcite in the Eastern Townships and along the south shore of the St. Lawrence River are noted by Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51.

- 21 E/14 In veins cutting chloritic schist at road-cuts on the north side of Highway 34 at points 6.8 and 7.3 miles east of its junction with Highway 1; and at the Cupra Mine, 1.6 miles south of Highway 34 at mile 7.7 (p. 40, 41.)
- 22 A/2 As veins cutting limestone and shale at several rock-cuts along Highway 6 at Port Daniel. (p. 92.)
- 22 A/4 As veins in limestone along the Black Cape shoreline, near New Richmond. (p. 97.)

Quebec

- 22 A/7 In quartz-calcite lenses cutting quartzite and slate along the shoreline at Chandler. (p. 89).
- 22 A/9 In marble pebbles along the beach from Corner of the Beach to Nouvelle. (p. 84).
- 22 A/16 As veins cutting limestone at the Little Gaspé lead mine and at road cuts along Highway 6 between Little Gaspé and Cape Gaspé lighthouse, and along the shoreline at Cap-des-Rosiers lighthouse. (p. 78, 79).
- 22 B/2 In fractures and cavities in volcanic rocks at a quarry adjacent to Highway 6 at a point 0.7 miles west of the junction road to Cross Point. (p. 100).
- 22 B/16 With epidote in blocks of amphibolite along the side of the Trans-Gaspésien highway about 28 miles from Ste-Anne-des-Monts. (p. 72).
- 22 C/3 On the south side of Highway 10 at a point 1 1/2 miles west of Trois-Pistoles, as veins in limestone. (p. 68).
- 22 G/2 As veins in grey limestone blocks along the shoreline adjacent to Highway 6 at Capucins. (p. 71).
- 31 H/10 In limestone at the Acton Mine, at Acton Vale, 24 miles from Richmond. (p. 25).
- The following occurrences of calcite are reported by Ann P. Sabina, 1968, in Geol. Surv. Can., Paper 67-51.
- 21 M/7E White, coarsely crystalline calcite that fluoresces yellow when exposed to "long" ultraviolet rays occurs at the Baie St-Paul lead occurrence. (p. 94).
- 21 M/10E Vugs in the ore at the St. Urbain Titanium Mines are partly filled with pyrite, limonite, hematite and with pale green chlorite, pinkish white zeolites and calcite crystals. White crystalline calcite fluoresces bright pink when exposed to ultraviolet rays. (p. 96).
- 22 D/5W Colourless, crystalline calcite, which fluoresces pale yellow under "long" ultraviolet rays, occurs in cavities and veins at the Desbiens Quarry, south of Lake St. John. (p. 116).
- 22 D/6E Calcite, forming unusual spherulitic growths with radial concentric interiors and measuring about 2 inches in diameter, occurs at the Plourde et Plourde Ste-Anne Quarry near Chicoutimi Nord. The spherulites are composed of a light brown calcite (massive) interior rimmed by blackish brown

22 D/6E Calcite crystals forming the exterior. Some spherulites have a nucleus of colourless quartz as well as crystals of quartz on the exterior. The spherulites form aggregates several inches across. The brown calcite fluoresces pale yellow under ultraviolet rays. (p. 106).

Calcite occurs as colourless to white crystalline masses and as smoky brown crystal aggregates at the Pic Quarry near Chicoutimi Nord. (p. 107).

31 G/5E At the Canada Cement Quarry located north of Hull, calcite occurs as colourless to white crystal aggregates (tabular, scalenohedral, and rhombohedral) lining fractures in the limestone. It fluoresces deep yellow when exposed to ultraviolet rays. (p. 11).

31 G/9E Greenish white crystalline calcite found at the St. Lawrence Columbian and Metals Corporation Mine, near Oka, fluoresces very bright pink under the "short" ultraviolet rays and reddish pink under the "long" rays. (p. 62),

31 G/12W Colourless platy calcite occurs at the Sweeney Mine near Meach Lake. (p. 40).

31 H/11W Cavities in grey limestone are commonly lined with white calcite rhombs (about 3/4 inch across) and colourless dogtooth spar. The occurrence is in the Goyer Quarry, north of St-Bruno, west of St-Bruno Mountain. (p. 54).

31 H/11W White massive calcite containing cavities lined with dogtooth spar occurs with crystalline pyrite in veins up to 2 inches wide at the Dulude Quarry north of St-Bruno. (p. 55).

31 H/12E Calcite occurs as colourless to transparent yellow crystals in cavities at the Miron Quarry, Montreal Island. (p. 68).

31 I/9E At the St-Marc-des-Carrières Quarries colourless to white or grey coarsely crystalline calcite that fluoresces pale yellow when exposed to ultraviolet rays is associated with massive and bladed barite. (p. 87).

31 I/10E White calcite veins measuring about 3/4 inch wide cut the gneiss at the Grand'Mère Quarry. The calcite fluoresces bright pink when exposed to ultraviolet rays. (p. 83).

31 I/15E An attractive marble composed of bright salmon-pink calcite with blotches, bands and/or streaks of yellow-green to dark green serpentine is found in the Ste-Thécle Marble Quarry. Another variety is composed of white calcite with patches of pink calcite. (p. 85).

- 31 J/4E Cavities in calcite at the Parker Mine near Notre-Dame-du-Laus are lined with clear quartz crystals (about 1/4 inch across) and with tiny calcite crystals (dogtooth spar). The cavities are 1 inch to 2 inches in diameter. (p. 48.)
- 32 A/8E Colourless to white crystals and crystalline aggregates of calcite occur in veins and cavities in limestone in road-cuts on Highway 55 on the southern shore of Lake St. John. (p. 115.)
- 32 A/9E Colourless to white calcite crystals (dogtooth spar) occur in veins and small cavities in limestone at the Roberval Quarries. They fluoresce pale yellow when exposed to ultraviolet rays. (p. 113).
- 32 A/16E The deposit at the Les Calcites du Nord Quarry north of Dolbeau consists of coarsely crystalline calcite, predominantly white but banded locally in shades of pink, yellow, green or grey. An attractive pink to rose-coloured variety is also present in small amounts. (p. 111.)

## CANCRINITE

Quebec

- 31 H/11 Cancrinite is a constituent of the nepheline syenite at the Desourdy Quarry on the northeast slope of Mont St-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

## CANFIELDITE

British Columbia

- 82 N/4 Tellurium-bearing canfieldite occurs as small inclusions in galena in a specimen of lead-zinc-silver ore from a prospect located 19 miles northeast of Revelstoke. Electron microprobe analysis (average of four): Ag 65.12, Sn 10.57, Te 8.69, S 13.95, total 98.33. The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 6.24 (6), 3.28 (5), 3.14 (10), 2.21 (5), 1.912 (5), 1.841 (5). (D. C. Harris and D. R. Owens, 1971: Can. Mineralogist, 10, p. 895.)



New Brunswick

- 21 P/12 Canfieldite is reported to occur as inclusions in galena specimens from the Nigadoo property in Gloucester County. Neither X-ray powder data nor chemical analysis are cited to confirm the identification. (R.S. Boorman, 1968: New Brunswick Res. Prod. Council, Res. Note 11.)

## CASSITERITE

British Columbia

- 82 K/13 Cassiterite and scheelite were found in the Incomappleux River, at the mouth of McDougall Creek and at the junction of the third creek flowing into McDougall Creek from the west. (J.S. Stevenson, 1943: British Columbia Dept. Mines, Bull. 10, p. 131).
- 82 G/12 Cassiterite is a minor constituent of the lead-zinc sulphide ores at the Sullivan Mine, Kimberley (G/12), and the snowflake-Regal Silver Mine, near the headwaters of Clabon Creek, Revelstoke (N/4). (R. Mulligan, 1966: Geol. Surv. Can., Paper 64-54, p. 16.)
- 82 N/4
- 104 P/5 Cassiterite has been won from a placer deposit on the Wing property, Quartz Creek, at 59° 16'N., 129° 41'W. (R. Mulligan, 1966: Geol. Surv. Can., Paper 64-54, p. 15.)

Manitoba

- 52 L/6 The Annie claim, located 1,250 feet north northwest of the Huron deposit and 2,000 feet northeast of the Silverleaf deposit, about one mile south of the Winnipeg River at a point 4 3/4 miles east of Lamprey Falls, was formerly worked for cassiterite. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 53.)
- 52 L/6 Albitite dykes carrying cassiterite have been investigated north of Rush Lake, about 2 miles northeast of Bernic Lake. (J.D. Bateman, 1943: Can. Mining Jour., 64, p. 273-278.)
- 53 K/4 Cassiterite occurs with minor topaz in albitite dykes on the Tin Bar group of claims on the north shore of Red Sucker Lake in the Island Lake Mining District. (J.D. Bateman, 1943: Can. Mining Jour., 64, p. 273-278.)

New Brunswick

- 21 G/8 A quartz-greisen deposit containing minor cassiterite with wolframite, molybdenite and fluorite occurs at Square Lake in Queens County. (R. Mulligan, 1966: Geol. Surv. Can., Paper 64-54, p. 18.)
- 21 P/5 Inclusions of cassiterite within silicate gangue minerals have been found in specimens from the Captain deposit on the headwaters of Tozer Brook and the west branch of Portage River in Gloucester and Northumberland Counties, about 9 miles east of Heath Steele. (W.M. Tupper, D.J. Bachinski and R.W. Boyle, 1968: Geol. Surv. Can., Paper 66-18, p. 12.)

Ontario

- 52 I/10 The first discovery of major amounts of tin in Ontario was the finding of cassiterite in felsite dykes near the east end of Linklater Lake in 1948. Beryl occurs in the same area. (E.O. Chisholm, 1948: Ont. Dept. Mines, PR 1948-11.)
- 52 L/16 Cassiterite has been identified as a minor constituent of a massive base-metal sulphide ore from a deposit in Mulcahy Township about 20 miles west of Red Lake and 4,000 feet south-southwest of the south end of Trout Bay. (L.J. Cabri, D.C. Harris and J.M. Stewart, 1970: Can. Mineralogist, 10, p. 234.)

Yukon

- 105 B/1 Cassiterite is a constituent of vuggy quartz veins containing wolframite, scheelite, galena and fluorite at the Fiddler (Yukon Tungsten) property at 60° 08'N., 130° 26'W., located on a ridge north of Boulder Creek, at an elevation of 5,100 feet, that may be reached by a secondary road about 5 1/2 miles long that leaves the Alaska Highway just west of the Boulder Creek bridge at mile 701.6. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 80.)
- 105 M/10 Cassiterite has been found in placers on Ledge Creek at the  
105 M/14 southeast arm of Mayo Lake, and Thunder Gulch, Keno Hill.
- 115 G/6 Cassiterite also occurs in placers on Burwash Creek. (R. Mulligan, 1966: Geol. Surv. Can., Paper 64-54, p. 14.)

## CATAPLEIITE

Quebec

- 31 H/11 This rare hydrous sodium-zirconium silicate has been found in pegmatitic veins and vugs in the nepheline syenite of the Desourdry Quarry on the north-northeast slope of Mont St-Hilaire (G. B. Pendlebury, 1964: Can. Mineral., 8, p. 120). The spacings and intensities of the six strongest lines in the X-ray powder pattern of catapleiite from Mont St-Hilaire are: 6.41 (8), 5.41 (9), 3.96 (10), 3.06 (7), 2.98 (7) and 2.71 (6). (G. Y. Chao et al., 1967: Can. Mineral., 9, p. 122.)

## CELADONITE

Nova Scotia

- 21 H/8 Zeolite specimens, some measuring several inches across and usually coated with green celadonite can be found in cavities in the rock or as loose fragments along the beaches from Cape Blomidon to Cape Split, Kings County. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 38.)

## CELESTITE

British Columbia

- 82 M/12 The Rexspar property is 3 miles south of Birch Island station, on the main line of Canadian National Railways about 80 miles north of Kamloops. In 1942, more than one million tons of material reported to contain 20 per cent fluorite and 15 per cent celestite were outlined by diamond-drilling and bulk sampling. (A. H. Lang, J. W. Griffith and H. R. Steacy, 1962: Geol. Surv. Can., Econ. Geol. Ser., 16, 2nd Ed., p. 205-6.)

Nova Scotia

- 11 E/13 Coarsely-crystalline, translucent, pale blue celestite occurs with minor fine-grained patches of galena in red sandstone and shale on the north side of Dickson Brook, on the C. Tower farm. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 56.)

Nova Scotia

- 21 H/1 Blue-grey, transparent, fibrous bundles of celestite protrude through the weathered surfaces of fibrous gypsum. It is associated with gypsum, anhydrite, calcite, fluorite and danburite along limestone cliffs northeast of the wharf at Cheverie. (Ann P. Sabina, 1964; Geol. Surv. Can., Paper 64-10, p. 54.)

Ontario

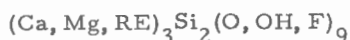
The following occurrences of celestite, with directions as to how to reach them, are noted by Ann P. Sabina, 1968, in Geol. Surv. Can., Paper 67-51.

- 31 B/14E McFarland's Williamsburg Quarry, located about 1 1/2 miles east of Williamsburg on Highway 31, contains celestite as bluish white radiating fibrous aggregates (up to 2 inches across), associated with calcite. (p. 51).
- 31 C/7 Celestite occurs as colourless to white radiating fibres on calcite crystals in cavities at the Kingston Township Quarry located nearby and to the southeast of the junction of Highway 401 and 38. (p. 6).
- 31 C/7 Radiating tabular or acicular aggregates of celestite are found in a limestone quarry about 13 miles north of Kingston on the west side of Highway 38 near Murvale. The celestite is colourless, snow-white or transparent, and occurs commonly as patches on calcite veins about an inch wide or as masses in limestone about 6 inches across. (p. 8).
- 31 C/7 Sky-blue celestite crystals (up to 2 inches long) together with marcasite have been reported to line cavities in calcite at the Frontenac (Frontenac Draper Lake) lead mine. The mine is located about 17 miles north of Kingston along the Kingston-Westport-Perth Road. (p. 24).
- 31 C/8W Colourless to white, elongated tabular aggregates of celestite occur on calcite crystals (dogtooth spar) filling cavities in limestone at the McGinnis and O'Connor Quarry north of Kingston on Highway 15. (p. 41).
- 31 C/16 Celestite is reported in an apatite-mica deposit at the Rogers Mine. It occurs as platy aggregates at the contact of gneiss and pyroxenite. The deposit is located near Noble Bay of Rideau Lake about 11 miles south of Perth. (p. 31).
- 31 G/5E At the Frazer Duntile Quarry near Ottawa, celestite forms silky white to buff coloured radiating fibrous aggregates that become friable on weathered surfaces. (Ann P. Sabina, 1969; Geol. Surv. Can., Paper 68-51, p. 85.)

## CENOSITE

(see kainosite)

## CERITE

Ontario

- 41 P/10 Cerite has been identified with abundant native silver in a single specimen from the Siscoe Mine, Miller Lake, Gowganda. The X-ray powder pattern shows five strongest lines at 3.47 (4), 2.95 (10), 2.83 (4), 2.69 (4), 1.95 (5). (J. L. Jambor, 1971: Can. Mineralogist, 11, p. 247.)

## CERUSSITE

British Columbia

- 82 N/5 Oxidized lead-zinc ores, containing silver and gold, on the Waverley group located just north of Tangier Pass and accessible from Albert Canyon, consist of cerussite, anglesite, malachite and azurite with minor smithsonite and rare residual nodules of galena and argentian tetrahedrite. (J. O. Wheeler, 1963: Geol. Surv. Can., Paper 62-32, p. 28.)

Ontario

- 31 C/7 Cerussite and hydrocerussite form greyish white coatings on sulphide ore at the Frontenac (Frontenac Draper Lake) lead mine. The sulphide ore consists essentially of galena and sphalerite. Chalcopyrite occurs in small amounts. The mine is located about 17 miles north of Kingston along the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 24.)

Quebec

- 22 A/16 Cerussite and hydrocerussite form a soft cream-white encrustation on galena at the Little Gaspé lead mine located 4.3 miles east of Highway 6 on the road to Cape Gaspé. The crust fluoresces yellow under ultraviolet rays. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 78.)

Yukon

- 115 I/3 Silver and gold bearing veins and pods of anglesite, cerussite and limonite, containing remnants of galena, arsenopyrite and pyrite occur on the May Group claims (62° 07'N., 137° 15'W.) on the northeast shoulder of Mount Nansen, northwest of the headwater of Nansen Creek and south of the Klaza River. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Volume 1, Dept. Indian Affairs and Northern Development, p. 90.)
- 115 J/10 Cerussite is a common alteration product of galena in oxidized surface trenches at the Bomber showing of Casino Silver Mines Limited at 62° 43'N., 138° 49'W., on a tributary of Casino Creek. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 39.)

CHABAZITE



British Columbia

- 92 B/5 Veins and amygdules in the Metchosin basalt east of the Sooke River contain epidote, pumpellyite, prehnite, laumontite, chabazite, stilbite, analcime, quartz and calcite. (W.G. Libby and Jerry Kopel, 1971: Can. Mineralogist, 10, p. 915.)

Nova Scotia

Chabazite is found in trap rocks with other zeolites at several localities in the Minas Basin - Bay of Fundy region. The following localities and associated minerals were noted by Ann P. Sabina in Geol. Surv. Can., Paper 64-10 - Rocks and Minerals for the Collector, Bay of Fundy Area.

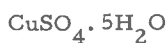
	<u>Locality</u>	<u>Associated Minerals</u>
21 H/7	Horseshoe Cove, Cape d'Or, Cumberland County	stilbite, laumontite, apophyllite, analcime, thomsonite, mesolite, natrolite, heulandite, jasper, copper, calcite
21 H/8	Cape Blomidon-Cape Split, Kings County	apophyllite, heulandite, natrolite, stilbite, analcime, gmelinite, laumontite, mesolite, thomsonite, amethyst, jasper, agate, calcite, celadonite

- Partridge Island,  
Cumberland County                      stilbite, laumontite, natrolite, heulandite, analcime, apophyllite, quartz, crystal, calcite, chalcedony, jasper
- Pinnacle Island,  
Cumberland County                      analcime, natrolite, stilbite, heulandite, thomsonite, gmelinite, calcite
- 21 H/8      Swan's Creek (Swan Brook),  
Cumberland County                      gmelinite, analcime, apophyllite, natrolite, heulandite, calcite, stilbite
- Two Islands,  
Guysborough County                      gmelinite, analcime, heulandite, natrolite, calcite
- Wasson Bluff,  
Cumberland County                      heulandite, stilbite, gmelinite, natrolite, analcime, calcite, copper
- 21 H/7      Chemical analyses of chabazites from Wasson's Bluff (I) and Cape d'Or (II) by E. W. Todd: I, salmon colour, SiO<sub>2</sub> 49.46, Al<sub>2</sub>O<sub>3</sub> 17.91, Fe<sub>2</sub>O<sub>3</sub> 0.11, CaO 8.24, MgO 0.10, SrO 0.46, Na<sub>2</sub>O 1.14, K<sub>2</sub>O 1.12, H<sub>2</sub>O 21.89, total 100.43; II, nearly colourless, SiO<sub>2</sub> 50.20, Al<sub>2</sub>O<sub>3</sub> 17.79, Fe<sub>2</sub>O<sub>3</sub> 0.03, CaO 8.08, Na<sub>2</sub>O 1.54, K<sub>2</sub>O 0.78, H<sub>2</sub>O 21.55, total 99.97. (T. L. Walker and A. L. Parsons, 1922: Univ. Toronto Stud., Geol. Ser. 14, p. 44.)

#### Quebec

- 31 G/11W      Chabazite has been found at the Pedneaud Quarry near Glen Almond (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 21.)

#### CHALCANTHITE



#### New Brunswick

- 21 P/5      At the Key Anacon mine, located 3.7 miles east of Highway 331 from a point 11.7 miles south of Bathurst, the primary sulphides are commonly coated with chalcantinite and rozenite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 117.)

CHALCOCITE



New Brunswick

- 21 H/10 The Copp copper deposit is located on the Copp farm near Germantown. The copper minerals occur as veins and as intergrowths with fibres of fossil plants. The most abundant mineral is chalcocite. Associated minerals are malachite, chalcopyrite, covellite, azurite in grey sandstone. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 24.)
- 21 H/10 At the New Horton copper mine, chalcocite is associated with malachite, chalcopyrite, pyrite, covellite and azurite. The mine, also known as the Vernon Mine, is on the west side of the New Horton road, 5.4 miles south of its junction with Highway 14 south of Albert. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 25.)
- 21 H/16 At the Dorchester copper mine, near Dorchester in Westmorland County, chalcocite with pyrite, quartz and covellite forms nodules up to 2" across. It commonly replaces pyrite and fossil plants which retain the original structure. Some of the chalcocite is disseminated in the sandstone. Fine grained malachite coats the nodules and copper-bearing plant remains. The deposit was first investigated as a copper prospect in 1881 and was worked at intervals until 1917. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 28.)
- 21 I/2 Chalcocite is associated with barite, fluorite, galena, malachite, azurite and quartz in veins cutting red shale at the East Memramcook barite deposit, about 2 miles east of Memramcook. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 27.)
- 21 O/8 Chalcocite is reported to be a minor constituent of the ore-  
21 P/5 bodies at the Heath Steele, Brunswick and Key Anacon mines in the Bathurst-Newcastle area. The main sulphides are pyrite, galena, sphalerite and chalcopyrite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51.)

Northwest Territories

- 75 L/8 A vein containing bornite and minor chalcopyrite and chalcocite has been investigated on the HAR claims located just north of Wilson Lake and just south of Stark Lake R. I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 24-25.)
- 86 F/13 Chalcocite is abundant and is associated with bornite and chalcopyrite at the B. E. A. R. silver deposit on the north shore of Contact Lake, about 9 miles southeast of the Eldorado Mine. (G. M. Furnival, 1939: Econ. Geol. 34, p. 752.)



Nova Scotia

- 11 E/12 Chalcocite occurs at two properties near Wentworth Centre, Cumberland County. At a property on the Tratt farm, chalcocite occurs in sandstone and conglomerate, where it replaces fossil plant fragments that have been converted to coal, less commonly it is associated with pyrite nodules. At the Palmer Mine located on the north bank of the west branch of the Wallace River, chalcocite with minor amounts of malachite, pyrite and bornite, occurs in coal-bearing fossil plant fragments and as solid fragments in shale. Specimens are available at a dump on the south bank of the river on the property of Mr. George Tuttle. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 54.)

Ontario

- 41 P/10 Chalcocite has been observed as veinlets in chalcopyrite and as intergrowths with bornite in a carbonate vein sample from the Siscoe Mine at Gowganda. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 204.)

Quebec

Chalcocite has been reported to occur at the following localities in the Eastern Townships and along the south shore of the St. Lawrence River. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51.)

- 21 E/5 At the Aldermac Moulton Hill Mine, about 6 miles east of Sherbrooke, pyrite is the most abundant metallic mineral, closely associated with a fine-grained mixture of chalcopyrite, sphalerite, galena, tennantite and chalcocite.
- 21 L/8 Bornite, chalcopyrite, and chalcocite are the ore minerals found at the Harvey Hill copper mine, which operated continuously from 1858 to 1864. The mine is about 2.6 miles from St-Pierre (West Broughton).
- 21 L/9 Chalcocite is a minor constituent of the ore at the Eastern Metals Mine. Chalcopyrite, the most conspicuous mineral present, is associated with millerite, pyrite, sphalerite and marcasite. The mine is 3 miles from St-Fabien.
- 22 A/7 Small patches of chalcocite occur with grains of pyrite along a contact between volcanic rocks and quartzite in a cliff about 20 feet above the beach on the north side of Anse-a-Blondel.
- 22 A/13 Chalcocite is one of the less abundant sulphides that together with major chalcopyrite and pyrrhotite, constitute the ore-bodies of Gaspé Copper Mines Limited at Murdochville.

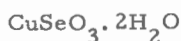
Quebec

- 31 H/2 Fine-grained, massive chalcopyrite, bornite, chalcocite and pyrite are the primary sulphide minerals at Sweet's Mine, located 3 miles north of Sutton.
- 31 H/9 Bornite and chalcocite are the principal ore minerals at the old St. Francis Mine, on the H. B. Lanchard farm, 4.6 miles northwest from Richmond.
- 31 H/10 At the Acton Mine, at Acton Vale, bornite is closely associated with chalcopyrite and chalcocite. The deposit yielded a rich copper ore from 1858 and 1864.

Yukon

- 105 D/11 Chalcopyrite, bornite, chalcocite and valleriite, with minor native copper are ore minerals in the Little Chief and Arctic Chief areas of the Whitehorse copper belt. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Dept. Indian Affairs and Northern Development, p. 111.)
- 105 G/5 Nine copper showings have been discovered on the Bell claims in the McNeil Lake area (61° 28'N., 131° 46'W.). The main copper minerals are bornite, chalcopyrite, chalcocite and covellite. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 131.)
- 115 F/15 The old Discovery Copper grant, discovered in 1905 on the east side of upper White River about 18 miles south of mile 1168 on the Alaska Highway, yielded several large slabs of native copper, one of which weighed 3,000 pounds and is now displayed outside the Yukon Historical Society McBride Museum in Whitehorse. Exploration by Silver City Mines Limited in 1967 revealed a new fracture zone in basalt containing veinlets, stringers and lenses of chalcocite with subordinate native copper and minor bornite. (D. C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 68.)
- 115 G/6 Several showings of disseminated chalcocite, bornite and minor native copper in malachite-stained basalt have been found near the headwaters of Quill Creek. (D. C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 53.)

## CHALCOMENITE

Ontario

- 41 N/2 Chalcomenite is associated with klockmannite, pitchblende and secondary uranium minerals on the property of Ranwick Uranium Mines Limited, range XV, Township 2, about 2 miles southeast of the mouth of the Montreal River, at the eastern end of Lake Superior. (M. H. Froberg: private communication).

## CHALCOPYRITE

British Columbia

- 82 M/8 Two chalcopyrite deposits, with pyrrhotite, pyrite and a little sphalerite, have been worked in the Big Bend map-area. The Standard group is at the head of Standard Creek at 6,600 to 7,200 feet elevation (82 M/8). The Montgomery group lies on the southwest ridge of Downie Peak, principally on slopes southeast of the ridge (82 M/9). (J. O. Wheeler, 1965: Geol. Surv. Can., Paper 64-32, p. 32-33.)

Manitoba

- 52 L/6 Stringers and solid masses of pyrrhotite, chalcopyrite, pyrite, cubanite, magnetite, pentlandite and violarite are exposed on the Martin-Devlin, Chance and Wento claims on the north side of the Bird River, about 2 3/4 miles north of the Bernic Lake Mine. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 58.)

New Brunswick

- 21 G/7 Electron probe microanalyses of chalcopyrite from the Mount Pleasant tin deposit, by J. Rucklidge: Cu 34.2, 34.2; Sn 0.13, 0.15; Fe 29.4, 31.5; Zn 0.16, 0.48; S 34.2, 34.6; In 0.05, 0.15; Ag 0.0, 0.0; total 98.14, 101.08. (R. S. Boorman and D. Abbott, 1967: Can. Mineralogist, 9, p. 166-179.)
- 21 P/5 Chalcopyrite, the principal ore mineral at the Captain deposit occurs as masses and stringers in both the host rocks and pyrite body. Gold tellurides and galenobismutite occur as minute inclusions in some of the chalcopyrite. The deposit is situated on the headwaters of Tozer Brook and the west branch of Portage River in Gloucester and Northumberland Counties,

New Brunswick

- 21 P/5 about 9 miles east of Heath Steele. (W. M. Tupper, D. J. Bachinski and R. W. Boyle, 1968: Geol. Surv. Can., Paper 66-18, p. 11.)

Newfoundland

- 12 H/9 Schistose rocks and shear zones containing chalcopyrite and pyrite have been explored at the southeastern tip of Whales Back Pond and at Lady Pond about 1 mile south of the north tip of Davis Pond. (E. R. W. Neale and W. A. Nash, 1963: Geol. Surv. Can., Paper 62-28, p. 34.)

Northwest Territories

- 75 K/11 Disseminated chalcopyrite is widespread in narrow veins, breccia bodies and silicified dolomite on the GEM claims located on Maufelly Point of Great Slave Lake just west of Reliance. Occurrences of disseminated chalcopyrite and minor bornite in silicified dolomite have been reported on the north-central shore of Meridian Lake. (R. I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 27.)
- 75 K/12 Quartz-carbonate stringers in fracture and breccia zones in dolomite contain disseminated chalcopyrite and minor bornite at the MARK group of claims north of McAteer Lake and south of Kinsey Lake about 17 miles southwest of Reliance. (R. I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 27.)
- 75 L/11 Disseminated chalcopyrite is present in a stockwork of quartz-carbonate veins in quartzite and sandstone that extends along the northwest shore of a small island about six miles north-east of Taltheilei Narrows at latitude 62° 40'N., longitude 111° 24'W. (R. I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 23.)
- 86 F/13 Chalcopyrite is abundant and is associated with bornite and chalcocite at the B. E. A. R. silver deposit on the north shore of Contact Lake, about 9 miles southeast of the Eldorado Mine. (G. M. Furnival, 1939: Econ. Geol., 34, p. 752.)

Ontario

- 31 M/3 Chalcopyrite is the most common sulphide mineral in the  
31 M/5 Cobalt-Gowganda deposits. It occurs in veins, and in the wall  
31 M/12 and country rock. Electron microprobe analyses are as  
41 P/9 follows:  
41 P/10  
41 P/15  
41 P/16

Ontario

<u>Mine</u>	<u>Cu</u>	<u>Fe</u>	<u>S</u>	<u>Total</u>
Hi-Ho	34.8	29.9	35.2	99.9
Silverfields	34.9	30.5	35.2	100.6
Langis	34.7	30.1	35.1	99.9
Silverfields	35.4	30.4	35.3	101.1
Deer Horn	35.1	30.5	35.4	101.0
Silverfields	35.1	30.4	34.5	100.0

(W. Petruk et al., 1971: Can. Mineralogist, 11, p. 198.)

- 52 B/10 The Tip Top Mine on the east side of Burchell Lake was worked for gold and copper. Chalcopyrite, pyrite, pyrrhotite, bornite and malachite were reported to be present. Access is by a 6 1/2 mile road leading south from Highway 11 at a point 2 1/2 miles west of Kashabowie. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 36.)
- 52 L/16 A small high grade base-metal deposit has been found in Mulcahy Township about 20 miles west of Red Lake and 4,000 feet south-southwest of the south end of Trout Bay. The principal minerals consist of coarse grains of pyrrhotite, sphalerite and chalcopyrite. There are lesser amounts of galena, marcasite, arsenopyrite, cobaltite, pyrargyrite, paracostibite, gudmundite, stannite, argentian tetrahedrite, antimonial silver, allargentum, ilmentite breithauptite, cassiterite and nisbite. (L.J. Gabri, D.C. Harris and J.M. Stewart, 1970: Can. Mineralogist, 10, p. 232.)

Yukon

- 105 C/14 Quartz veins containing considerable bornite and chalcopyrite are exposed on the Cone and Luck claims at 60° 43'N., 133° 22'W., on the south slope of a saddle cutting through Big Salmon Range about 2 1/2 miles north-northeast of Cone Mountain. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 63.)
- 105 D/10 The deposits of the Whitehorse copper belt consist of irregular  
105 D/11 lenses and patches occurring in skarn zones spread over a length of about 16 miles immediately west of Whitehorse. In the Little Chief and Arctic Chief areas the ore minerals are chalcopyrite, bornite, chalcocite and valleriite with minor native copper. Bornite and chalcopyrite are the main ore minerals at War Eagle. (D.B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 110.)

Yukon

- 115 F/15 The nickel-copper sulphides pyrrhotite - pentlandite - chalcopyrite occur with sphalerite, pyrite and marcasite mainly as disseminations, less commonly as massive lenses, in very fine-grained volcanic rocks on the Canalask Nickel Mines property on the east and west banks of the White River. The property is reached by a 2.8 mile access road that leaves the Alaska Highway at mile 1,167. (D. C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 50.)
- 115 G/5 Massive sulphides, mainly pyrrhotite, chalcopyrite and pentlandite with minor sphalerite, have been discovered on the Wellgreen property on Nickel Creek, a small tributary of Quill Creek, about 10 miles west of Burwash Flats. The property may be reached by a 7 mile access road from the Alaska Highway near mile 1,111. (D. C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 52.)
- 115 H/13 A porphyritic quartz diorite plug at the head of the south fork  
115 I/4 of Maloney Creek, 18 miles from the confluence of Maloney Creek and the Nisling River (62° 01'N., 137° 54'W.) has a central zone containing pyrite, chalcopyrite, molybdenite, jarosite, azurite, malachite, magnetite and hematite, and a southern zone in which pyrite with minor chalcopyrite and molybdenite is widespread. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. of Indian Affairs and Northern Development, p. 77.)
- 115 I/6 An irregular belt of altered breccia within and adjacent to quartz monzonite contains a pod of massive chalcopyrite and pyrite, and disseminated chalcopyrite is found in the monzonite and breccia, on the Yukon Revenue property located on Revenue Creek on the south side of the valley of Big Creek at 62° 21'N., 137° 12'W., about 35 miles northwest of Carmacks. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. of Indian Affairs and Northern Development, p. 79.)
- 115 I/7 Quartz lenses containing chalcopyrite and bornite have been explored at the Bonanza King property on the east side of Nancy Lee Creek about 1,000 feet from the mouth, at 62° 23'N., 136° 38'W. (L. H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 42.)
- 115 J/10 Diamond drilling has outlined a large, low-grade, copper-  
115 J/15 molybdenum deposit on the Casino property (62° 43'N., 138° 49'W.) located 190 miles northwest of Whitehorse in the Dawson Range. The property covers a watershed between Canadian Creek, a tributary of Britannia Creek which is a north-flowing tributary of the Yukon River, and Casino Creek, a southwest-flowing tributary of the Donjek River. Chalcopyrite, chalcocite and molybdenite are the ore minerals.

(D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. of Indian Affairs and Northern Development, p. 57.)

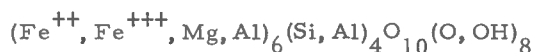
### CHALCOSTIBITE



#### Northwest Territories

- 86 F/13 Chalcostibite was found veining native bismuth in a single specimen from the B. E. A. R. deposit on the north shore of Contact Lake about 9 miles southeast of the Eldorado Mine on Labine Point. (G. M. Furnival, 1939: Econ. Geol., 34, p. 754.)

### CHAMOSITE



#### Quebec

- 31 G/11W Earthy green chamosite has been found in pegmatite at the Pedneaud Quarry near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 21.)

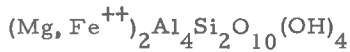
### CHLORAPATITE



#### Ontario

- 31 C/10 Apatite from a small skarn deposit on the northern end of Bob's Lake, Oso Township, Frontenac County has been found to be monoclinic chlorapatite, space group  $P2_11a$ , with the highest Cl content yet reported for an apatite. It occurs as pinkish-white crystals in a thin vein 6-8 inches wide and traceable for 15 feet. Chemical analysis: CaO 53.4,  $\text{P}_2\text{O}_5$  41.2,  $\text{Cl}_2$  6.2,  $\text{F}_2$  0.13,  $\text{H}_2\text{O}$  0.09, total 101.02, less O for Cl, F 1.45, total 99.57. The six strongest lines on the X-ray powder pattern are: 3.39 (4), 2.85 (10), 2.77 (10), 2.31 (4), 1.960 (5), 1.838 (5). (A. W. Hounslow and G. Y. Chao, 1970: Can. Mineralogist, 10, p. 252.)

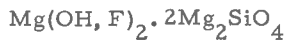
CHLORITOID



Nova Scotia

- 20 O/16 Chloritoid is associated with garnet, actinolite, staurolite, sillimanite and pyrite and occurs as small crystals in light grey schist which outcrops along the shore from Foote Cove south to Chegoggin Point, Yarmouth County. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 78.)

CHONDRODITE



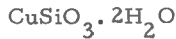
Ontario

- 31 C/10 Chondrodite has been reported in crystalline limestone at road-cuts along the Westport Road about 7 miles from Godfrey east of Highway 38. It forms transparent, orange, granular masses up to 1/2 inch across in white calcite. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 16.)

Quebec

- 31 J/7W Cinnamon-brown chondrodite has been reported from the deposit at the Canada Marble and Lime Quarry near L'Annonciation. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 60.)

CHRYSOCOLLA



Nova Scotia

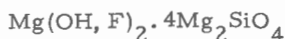
- 11 D/14 Colourful specimens composed of chrysocolla with colourless quartz and white chalcedony have been found in the dumps of the Dunbrack Mine, 2.8 miles from Musquodoboit Harbour along the road to Meaghers Grant, Halifax County. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 7.)

Quebec

- 22 A/13 At the Copper Mountain deposit of Gaspé Copper Mines Limited, Murdochville, compact fine-grained, turquoise-coloured chrysocolla is found with malachite, azurite and tenorite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 81.)



## CLINOHUMITE

Quebec

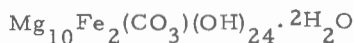
- 31 J/4E Clinohumite occurs as bright orange aggregates, commonly 1/4 inch across, in limestone on a hill on the west side of the du Lièvre River near Notre-Dame-du-Laus. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 45).
- 31 J/11W At the Val-Barrette Quarries clinohumite occurs as orange granular patches averaging 1/4 inch across. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 57).
- 31 J/12E Orange clinohumite forms granular aggregates about 1/2 inch across in crystalline limestone roadcuts on Highway 35 north of St-Aimé. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 55).

## CLINOSAFFLORITE

Ontario

- 31 M/5 Clinosafflorite, the monoclinic polymorph of safflorite, has been identified for the first time in natural occurrence in three specimens from Cobalt, intimately intergrown with skutterudite. The composition range, determined by electron microprobe is found to be  $\text{Co}_{0.70-0.76} \text{Fe}_{0.14-0.26} \text{Ni}_{0.01-0.10} \text{As}_2$ . The X-ray powder pattern shows five strongest lines at 2.671 (4), 2.657 (4), 2.531 (10), 2.427 (8), 2.422 (8). (Dennis Radcliffe and L.G. Berry, 1971: Can. Mineralogist, 10, p. 877).

## COALINGITE

Northwest Territories

- 86 O/3 Coalingite, discovered in 1965 in the New Idria serpentinite, California, occurs as fracture fillings in drill cores from the Muskox Intrusion. It is believed to have formed in situ at room temperature during storage of the drill cores. Chemical analysis by J. L. Bouvier: MgO 42.9, MnO 1.0, FeO 0.7,  $\text{Fe}_2\text{O}_3$  20.9,  $\text{CO}_2$  1.6,  $\text{H}_2\text{O}$  27.6, loss on ignition 4.2, total

Northwest Territories

98.9. The spacings and intensities (Fe rad.) of the four strongest lines on the X-ray powder pattern are: 6.0 (4), 4.24 (8), 2.34 (10) and 1.559 (4). (J.L. Jambor, 1969: Am. Mineralogist, 54, p. 437-447).

COBALTITE



Northwest Territories

- 86 E/9 Minor amounts of cobaltite, niccolite, gersdorffite and parammelsbergite occur with matildite, native silver and bismuth, safflorite, skutterudite and rammelsbergite at a deposit on the Camsell River, 4 miles south of its mouth at Conjuror Bay, at latitude 65° 36'14"N., longitude 118° 06'45"W. (D. C. Harris and R. I. Thorpe, 1969: Can. Mineralogist, 9, p. 655-662).
- 86 F/13 An assemblage of cobalt-nickel minerals, namely: cobaltite, safflorite-löllingite, glaucodot, niccolite, gersdorffite, rammelsbergite and breithauptite, occurs at the B. E. A. R. silver deposit on the north shore of Contact Lake, about 9 miles southeast of the Eldorado Mine. (G.M. Furnival, 1939: Econ. Geol., 34, p. 759).

Ontario

- 31 M/3 Electron probe microanalyses of cobaltites from the Cobalt-Gowganda ores:

	<u>Co</u>	<u>Ni</u>	<u>Fe</u>	<u>As</u>	<u>S</u>	<u>Total</u>
41 P/9						
41 P/10	31.2	0.2	1.5	47.5	18.8	99.2
41 P/15	30.0	2.0	1.0	49.0	17.5	99.5
41 P/16	28.2	3.1	3.7	47.1	19.0	101.0
	26.9	6.5	1.5	50.5	15.3	100.7
	25.9	5.1	2.9	51.3	16.5	101.7
	25.0	7.5	4.2	50.8	16.2	100.7
	20.7	8.5	4.8	46.0	19.6	99.6
	20.5	11.4	3.7	47.9	17.2	100.7
	19.2	10.5	3.3	50.5	15.5	99.0
	18.2	16.5	0.0	47.0	17.5	99.2
	18.0	14.0	2.0	52.0	15.5	101.5
	17.7	7.0	7.5	48.0	18.6	98.8
	17.3	14.0	2.8	50.0	16.3	100.4

(W. Petruk, D. C. Harris and J. M. Stewart, 1971: Can. Mineralogist, 11, p. 174).

Ontario

- 52 A/7 Cobaltite is reported to be a constituent of the rich silver ore mined at the Silver Islet Mine located on the southwest end of Silver Islet. (T.L. Tanton, 1931: Geol. Surv. Can., Memoir 167).
- 52 L/16 Cobaltite is a lesser constituent of a massive base-metal sulphide deposit in Mulcahy Township about 20 miles west of Red Lake and 4,000 feet south-southwest of the south end of Trout Bay. Electron microprobe analysis gave: Co 29.9, Fe 1.7, Ni 0.5, As 45.6, S 20.6, total 98.3. The principal minerals in the deposit are pyrrhotite, sphalerite and chalcopyrite; other minerals present include galena, marcasite, arsenopyrite, pyrargyrite, paracostibite, gudmundite, stannite, argentian tetrahedrite, antimonial silver, allargentum, ilmenite, breithauptite, cassiterite and nisbite. (L.J. Cabri, D.C. Harris and J.M. Stewart, 1970: Can. Mineralogist, 10, p. 232).

Yukon

- 106 C/14 Lenses and stringers of quartz-siderite material carrying chalcopyrite and cobaltite-chalcopyrite mineral assemblages have been found on the Mammoth group claims located at 64°56.5'N., 133°18'W., about 15 miles east of Fairchild Lake in the Bonnet Plume Range. (D.C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 31).

## COBALT PENTLANDITE



Cobalt pentlandite is the cobalt analogue and is isostructural with pentlandite. It has previously been reported only from several localities in Finland. The X-ray powder pattern of cobalt pentlandite containing 9.8% Ni and 13.2% Fe has the following strongest lines: 5.75 (m), 3.008 (vs), 2.878 (m), 1.918 (s), 1.763 (vs), 1.018 (m). (O. Kouvo, M. Huhma and Y. Vuorelainen, 1959: Am. Mineralogist, 44, p. 897).

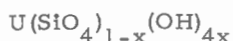
Ontario

- 31 M/12 Cobalt pentlandite has been identified in an arsenide-sulphide assemblage at the Langis Mine, Casey Township, Cobalt-Gowganda area. Other rare minerals present are: langisite, siegenite, parkerite and bravoite. Electron probe microanalysis by D.C. Harris: Co 54.1, Ni 10.4, S 34.2, total 98.7. (W. Petruk, D.C. Harris and J.M. Stewart, 1969: Can. Mineralogist, 9, p. 597-616).

Quebec

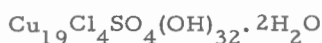
- 32 D/6 Oriented lamellae of cobalt pentlandite have been identified in linnaeite in chalcopyrite-rich portions of the orebodies at the Vauze Mine, located about 15 miles north of Noranda. Electron probe microanalysis gave: Co 66.6, Ni 0.1, Fe 1.3, Cu 0.3, S 31.7, total 100.0. (E. F. Stumpfl and A. M. Clark, 1964: Neues. Jahr. Min., 8, p. 240-245.)

## COFFINITE

Saskatchewan

- 74 N/9 Coffinite transects and coats pitchblende at the Ace Mine, Beaverlodge area. (V. Koeppel, 1968: Geol. Surv. Can., Paper 67-31, p. 91.)

## CONNELLITE

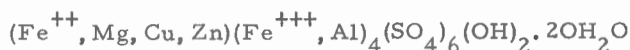


Connellite, a rare secondary copper mineral is isomorphous with buttgenbachite, through replacement of  $SO_4$  by  $(NO_3)_2$ . The two minerals are identical in appearance and give identical X-ray powder patterns, showing the following eight strongest lines: 13.70 (10), 8.00 (10), 3.27 (9), 2.75 (10), 2.51 (8), 2.29 (10), 1.613 (9), 1.488 (8). (F. A. Bannister, Max H. Hey and G. F. Claringbull, 1950: Mineral Mag., 29, p. 280.)

New Brunswick

- 21 P/15 Copper-bearing fossil plant beds are exposed in low sandstone cliffs along the shore at Pigeon Hill. Tiny aggregates of blue microscopic flakes of connellite occur with more abundant malachite as coatings on the plant remains. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 123.)

## COPIAPITE

New Brunswick

- 21 P/5 Copiapite occurs in the gossan of the Brunswick No. 6 Mine as pale yellow to canary-yellow, vitreous, finely granular to powdery coatings on sulphides. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 118.)

Ontario

- 31 C/10 Sulphur-yellow to orange-yellow copiapite forms very fine granular to cauliflower-like encrustations on pyrite at the Enterprise Mine. It is commonly found on the north wall of the pit. The mine is located about 26 miles north of Kingston and 10 miles west of Godfrey. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 10.)

Quebec

- 31 G/12W Copiapite (bright yellow, botryoidal) occurs as encrustations on pegmatite and gneiss in roadcuts along the Gatineau Parkway. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 39.)

## COPPER

Cu

New Brunswick

- 21 P/5 Native copper has been reported to be a very minor constituent of the orebody at the Brunswick No. 6 Mine. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 118)

Ontario

- 52 A/7 Tiny nuggets of native copper are found in amygdules in basic lava on Edward and Porphyry Islands. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 27.)
- 52 E/9 Small pellets and octahedrons of native copper up to about 1/4 inch in diameter are present in decomposed chlorite-serpentine rock at an old mine on the south side of Allie Island in Lake of the Woods, about 12 miles directly south of Kenora. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 49.)

Quebec

- 21 L/9 Thin scales of native copper have been noted on slip surfaces of serpentinite at the Eastern Metals Mine, 3 miles from St-Fabien. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 66.)
- 31 H/9 Native copper has been reported from the St-Francis Mine on the H. B. Lanchard farm, 4.6 miles northwest of Richmond. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 24.)

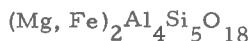
Saskatchewan

- 74 N/10 Minor amounts of native copper have been observed in specimens from the Aurora Yellowknife deposit, south of Jean Lake at about 59°34'N., 108°39'W., and the Martin Lake Mine at 59°32.7'N., 108°32.9'W. (V. Koepfel, 1968: Geol. Surv. Can., Paper 67-31, p. 96-7).

Yukon

- 105 D/10 A minor amount of native copper is found in the ore deposits  
105 D/11 of the Little Chief and Arctic Chief areas of the Whitehorse copper belt immediately to the west of Whitehorse. Chalcopyrite and bornite are the principal ore minerals. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. of Indian Affairs and Northern Development, p. 110).
- 115 F/15 The old Discovery Copper grant, discovered in 1905 and located on the east side of upper White River about 18 miles south of mile 1,168 on the Alaska Highway, yielded several large slabs of native copper, one of which weighed 3,000 pounds and is now displayed outside the Yukon Historical Society McBride Museum in Whitehorse. Exploration by Silver City Mines Limited in 1967 revealed a new fracture zone in basalt containing veinlets, stringers and lenses of chalcocite with subordinate native copper and minor bornite. (D. C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 68).
- 115 G/6 A minor amount of native copper occurs with disseminated bornite and chalcocite in malachite-stained basalt at several showings near the headwaters of Quill Creek. (D. C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 53).
- 115 H/9 Native copper was observed on fracture surfaces on andesite at Mack's copper showing, located at 61°38'N., 136°09'W., on a plateau between Nordenskiold River and Kirkland Creek. (L. H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 44).

## CORDIERITE

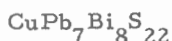
Manitoba

- 52 L/6 Cordierite-bearing rock is exposed along the south shore of Bird River near Bird Lake, and along the south shore of Bird Lake. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 58).

Ontario

- 31 C/9E Road-cuts on Highway 15 approximately 27. 25 and 27.9 miles north of Kingston show dark blue pods of cordierite (about an inch long) generally altered to a green mica or chlorite along the edges. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 45.)

## COSALITE

British Columbia

- 103 P/6 Cosalite occurs with aikinite, nuffieldite, pyrite and molybdenite in vugs in narrow quartz veins in the Lime Creek quartz diorite stock on the property of B. C. Molybdenum Corporation, 6 miles southeast of the town of Alice Arm. (P. W. Kingston, 1968: Can. Mineralogist, 9, p. 439-452.)

New Brunswick

- 21 G/7 Inclusions of cosalite have been observed in galena in polished sections of ore specimens from Mount Pleasant, Charlotte County. (R. S. Boorman, 1968: New Brunswick Res. Prod. Council, Res. Note 11.)

## COVELLITE

New Brunswick

- 21 H/10 Covellite is found with chalcocite, malachite, chalcopyrite and azurite in grey sandstone at the Copp copper deposit on the Copp farm near Germantown. The covellite is rare. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 24.)
- 21 H/10 At the New Horton Copper Mine, also known as the Vernon Mine, on the west side of the New Horton road, 5.4 miles south of its junction with Highway 14 south of Albert, rare covellite is associated with chalcocite, malachite, chalcopyrite, pyrite and azurite. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 25.)
- 21 H/16 At the Dorchester copper mine, near Dorchester in Westmorland County, covellite is associated with chalcocite, pyrite and malachite, in grey sandstone and conglomerate. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 28.)

Ontario

- 31 M/5 Covellite was identified by ore microscopy in a specimen from a fault zone in the Christopher Mine, Cobalt. It occurs as a coating on chalcopyrite and tetrahedrite. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 207.)

Yukon

- 105 G/5 Bornite, chalcopyrite, chalcocite and covellite are the main copper minerals found on the Bell claims at 61° 28'N., 131° 46'W., in the McNeil Lake area. (D.B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. of Indian Affairs and Northern Development, p. 131.)

CUBANITE



Manitoba

- 52 L/6 Solid masses and stringers consisting of pyrrhotite, chalcopyrite, pyrite, cubanite, magnetite, pentlandite and violarite are exposed on the Martin-Devlin. Chance and Wento claims on the north side of the Bird River, about 2 3/4 miles north of the Bernic Lake Mine. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 58.)

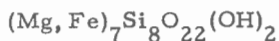
New Brunswick

- 21 P/5 Cubanite is reported to be a minor constituent of the ore at the Brunswick No. 6 Mine. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 118.)

Quebec

- 22 A/13 Small amounts of cubanite occur in the Needle Mountain ore-body of Gaspé Copper Mines Limited at Murdochville. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 81.)

CUMMINGTONITE





Newfoundland

23 B/15 Chemical analyses of manganooan cummingtonites from Wabush iron-formation, Labrador City area, by Jun Ito.

SiO <sub>2</sub>	55.27	55.74	55.10
TiO <sub>2</sub>	0.00	0.00	0.00
Al <sub>2</sub> O <sub>3</sub>	0.34	0.23	0.10
FeO	4.52	7.09	11.08
MnO	16.62	14.73	13.17
MgO	19.18	18.55	17.00
CaO	1.19	1.04	1.22
Na <sub>2</sub> O	0.26	0.08	0.13
K <sub>2</sub> O	0.00	0.02	0.02
H <sub>2</sub> O <sup>+</sup>	2.16	2.26	2.05
H <sub>2</sub> O <sup>-</sup>	0.30	0.43	0.43
F <sub>2</sub>	0.40	0.28	0.23
P <sub>2</sub> O <sub>5</sub>	0.09		
Total	100.33	100.45	100.53
F <sub>2</sub> =O	0.17	0.11	0.10
Total	100.16	100.34	100.43

(C. Klein, 1964: Am. Mineralogist, 49, p. 963-982.)

## CYANOTRICHITE

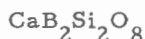


Cyanotrichite is a sky-blue secondary mineral found sparingly in copper deposits. The spacings and intensities of the five strongest lines in the X-ray powder pattern are: 10.20 (10), 5.47 (5) 5.26 (8), 3.88 (9) and 3.04 (4) (ASTM pattern 11-131.)

Quebec

21 L/9 Cyanotrichite, allophane and hisingerite are reported to occur as secondary minerals with the copper-nickel-zinc ore at the Eastern Metals Mine, 3 miles from St-Fabien. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 66.)

## DANBURITE



The spacings and intensities of the six strongest lines in the X-ray powder pattern of danburite are: 3.57 (10), 3.44 (7), 3.23 (6), 2.96 (10), 2.74 (8) and 2.65 (6). (ASTM pattern 13-308.)

Nova Scotia

- 11 F/15 Gypsum-anhydrite cliffs containing howlite and danburite occur along the shore about 2 miles southwest of the ferry landing at Iona, Cape Breton Island. The danburite forms white nodules resembling unglazed porcelain and botryoidal masses in anhydrite. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 22).
- 21 H/1 White nodular aggregates of danburite have been found in association with anhydrite in gypsum cliffs northeast of the wharf at Cheverie, Hants County. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 54).

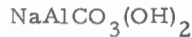
DATOLITE



Quebec

- 31 H/11 Datolite is reported to occur in inclusions in nepheline syenite with coarse-grained pectolite and calcite and abundant soda amphibole at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

DAWSONITE



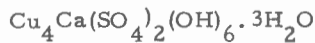
Quebec

- 31 H/11 Dawsonite has been identified at the Royal Ontario Museum in specimens from a quarry operated by the Richelieu Paving Company (later known as the Dulude quarry) at St-Bruno on the north side of the mountain. The dawsonite occurs in fractures in black limestone and is associated with quartz, pyrite and analcime. (J. A. Mandarino and D. C. Harris, 1965: Can. Mineralogist, 8, p. 378).
- 31 H/11 Dawsonite has been identified in specimens from the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

Quebec

- 31 H/12E Numerous cavities in a grey, dense igneous sill at the Francon Quarry, Montreal Island, are lined with dawsonite as colourless, transparent, striated, tiny square prisms, and as white finely granular patches with satin lustre. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 67).
- 31 H/12E Small cavities in igneous dykes at the Miron Quarry, Montreal Island, contain colourless striated crystals of dawsonite generally associated with calcite crystals. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 68).

## DEVILLINE



Devilline is found sparingly as a secondary mineral of copper deposits. The spacings and intensities of the four strongest lines in the X-ray powder pattern are: 10.20 (10), 5.06 (8), 3.38 (7) and 2.65 (6) (ASTM pattern 13-285).

Quebec

- 21 E/5 Devilline has been identified at three copper deposits in the Sherbrooke area: the Suffield Mine on the Jardine farm, 3.2 miles east of Rock Forest; the Capelton and Albert Mine, 2 miles north of Eustis; and the Aldermac Moulton Hill Mine, south of Highway 1, about 3 miles east of Sherbrooke (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 29).

## DIASPORE



Diaspore is isostructural with goethite and dimorphous with boehmite. Minor amounts of Fe and Mn may substitute for Al. The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 3.99 (10), 2.56 (3), 2.32 (5), 2.13 (5), 2.08 (4) and 1.63 (4) (ASTM card 5-355).

Ontario

- 41 J/5 Diaspore and kaolinite are associated with pyrophyllite and  
41 J/10 quartz in quartzites of the Lorrain Formation in the Bruce Mines and Flack Lake areas (F. W. Chandler, G. M. Young and J. Wood, 1969: Can. Jour. Earth Sci., 6, p. 337-340).

DIOPSIDE



Ontario

- 31 C/7 At the Lacey mica mine, very large crystals of light to dark green pyroxene up to 6 inches across and 18 inches long have been found in veins within pyroxenite. Other minerals that are also very coarsely-crystalline include mica, apatite, titanite and zircon. The mine is located at about 17 miles north of Kingston and 5 miles west of the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 25).
- 31 C/10 Light to dark green crystals and masses of diopside are common in crystalline limestone exposed in a rock-cut about 7 miles east of Godfrey along the Westport road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 16).
- 31 C/16 Diopside crystals measuring up to 5 inches long and 2 inches across has been found in a feldspar pegmatite at the Silver Queen Mine. Other closely associated minerals include feldspar, quartz, titanite and apatite. The mine is located about 45 1/2 miles (road log) north of Kingston along the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 29).
- 31 C/16 Pyroxene occurs as rosettes of silvery acicular crystals in an apatite and mica deposit (Rogers Mine) at a contact of gneiss and pyroxenite. The mine is located at Noble Bay about 11 miles south of Perth and 4 miles east of the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 31).

Quebec

- 21 E/13 Grass green diopside, white to greenish white prehnite, white fibrous wollastonite, pink garnet and vesuvianite occur at the Jeffrey Mine, Asbestos, at the contact of peridotite with granitic rock. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 26).
- 21 L/3 Diopside occurs with uvarovite at the Normandie Mine (Asbestos Corporation Limited), 3 miles southwest of Black Lake village. Euhedral bright green uvarovite crystals and acicular green diopside crystals are found in vugs in white to colourless massive diopside. Chemical analysis of white diopside by T.H. Donnelly gave: SiO<sub>2</sub> 52.70, Al<sub>2</sub>O<sub>3</sub> 1.87, Fe<sub>2</sub>O<sub>3</sub> 0.43, FeO 2.97, MgO 15.75, CaO 24.57, Na<sub>2</sub>O 0.42, K<sub>2</sub>O 0.18, Li<sub>2</sub>O 0.12, H<sub>2</sub>O 0.08, Cr<sub>2</sub>O<sub>3</sub> nil, TiO<sub>2</sub> 0.12, P<sub>2</sub>O<sub>5</sub> nil, MnO 0.10, total 99.31: the strongest

Quebec

lines on the X-ray powder pattern are: 4.45 (3), 3.22 (5), 2.99 (6), 2.94 (5), 2.556 (3), 1.750 (10). Chemical analysis of green diopside: SiO<sub>2</sub> 51.7, Al<sub>2</sub>O<sub>3</sub> 4.3, Fe<sub>2</sub>O<sub>3</sub> 0.4, FeO 3.04, MgO 14.40, CaO 24.90, Na<sub>2</sub>O 0.40, K<sub>2</sub>O nil, Li<sub>2</sub>O nil, H<sub>2</sub>O nd., Cr<sub>2</sub>O<sub>3</sub> 0.92, TiO<sub>2</sub> 0.05, P<sub>2</sub>O<sub>5</sub> nd., MnO nd., total 100.1: the strongest lines on the X-ray diffraction pattern are: 3.22 (5), 2.98 (3), 2.94 (10), 1.557 (3), 1.418 (6). (P.L.C. Grubb, 1965: Can. Mineralogist, 8, p. 241-248).

- 31 G/8 Chemical analysis by O. Ingamells of diopside from the Oka  
31 G/9 Complex, located 20 miles west of Montreal on the north shore of the Lake of Two Mountains: SiO<sub>2</sub> 53.60, TiO<sub>2</sub> 0.07, Fe<sub>2</sub>O<sub>3</sub> 1.12, FeO 1.33, MnO 1.33, MgO 16.38, CaO 25.24, Na<sub>2</sub>O 0.04, K<sub>2</sub>O 0.01, P<sub>2</sub>O<sub>5</sub> 0.38, H<sub>2</sub>O<sup>+</sup> 0.07, F 0.06, SrO<sub>2</sub> 0.07, BaO 0.02, less O for F 0.02, total 99.70, S.G. 3.29. (D.P. Gold, 1966: Min. Soc. India, I.M.A. Volume, p. 102-126).
- 31 G/5 Greyish-green diopside occurs with apatite, phlogopite and  
31 G/11 white to salmon-pink calcite in pyroxenite and pegmatite  
31 G/12 deposits throughout the Gatineau region north of Ottawa-Hull.  
31 G/13 Many of the deposits were formerly mined on a small scale  
31 G/14 for mica and phosphate. Descriptions of about 40 of these  
31 J/4 deposits and precise details of how to reach them are given by Ann P. Sabina in Geol. Surv. Can., Papers 68-51 (1969) and 69-50 (1970).

## DOLOMITE

Ontario

- 31 M/3 Calcite, dolomite, quartz and chlorite make up more than  
31 M/5 95 percent of the gangue in the ore veins of the Gowganda  
31 M/12 area. The dolomite is pink or light grey and weathers to various  
41 P/9 shades of brown. Electron microprobe analyses indicate  
41 P/10 considerable variation in composition: CaO 29.6, 30.3, 31.0;  
41 P/15 MgO 14.9, 16.6, 19.4; MnO 3.1, 2.1, 0.8. (J.L. Jambor,  
41 P/16 1971: Can. Mineralogist, 11, p. 239).

## DOMEYKITE

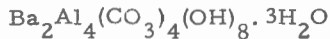
New Brunswick

- 21 P/5 Domeykite is reported to occur sparingly in the orebody at the Brunswick No. 6 Mine. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 118).

Northwest Territories

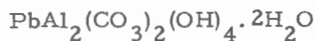
- 75 L/8 The minerals domeykite and meta-domeykite (hexagonal phase) have been identified as fine veinlets in a specimen of silicified dolomite from the HAR group of claims (Nahanni Mines Limited) at about 62°29'07"N., 110°03'25"W. (X-ray Laboratory, Geol. Surv. Can., specimen from R. Thorpe).

## DRESSERITE

Quebec

- 31 H/12 The new mineral dresserite was discovered in an alkalic sill which intrudes Trenton limestone in a large quarry operated by Francon (1966) Limitée at St-Michel, Montreal Island. It is associated with weloganite and dawsonite and is named in honour of J. A. Dresser (1866-1954) in recognition of his contributions to the geology of the Monteregian Hills. Dresserite is the barium analogue of the lead mineral, dundasite. The spacings and intensities of the seven strongest lines on the X-ray powder pattern are: 8.09 (10), 6.23 (6), 4.68 (3) 3.66 (5), 3.17 (3), 2.73 (4), 2.667 (3). (J. L. Jambor, D. G. Fong and Ann P. Sabina, 1970: Can. Mineralogist, 10, p. 84-89).

## DUNDASITE



The spacings and intensities of the six strongest lines in the X-ray powder pattern of dundasite are: 7.95 (10), 3.60 (8), 3.23 (6), 2.68 (6), 2.65 (6) and 2.40 (6) (ASTM pattern 13-239).

Yukon

- 105 M/14 Dundasite is present in small amounts as white to faintly yellowish felted crusts and small radiating crystal aggregates in several deposits on Keno and Galena Hills. Good specimens were also found in the Bellekeno veins on Sourdough Hill. It is associated with cerussite, kaolinite and serpentine, generally on highly oxidized siderite. (R.W. Boyle, 1965: Geol. Surv. Can., Bull. 111, p. 153).

## DZHALINDITE

New Brunswick

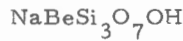
- 21 G/7 Dzhallindite was first described from a tin deposit in Russia. A mineral believed to be a stannian dzhallindite has been reported at the Mount Pleasant tin deposit, where it is associated with calcite, galena and quartz in fractures in sphalerite containing exsolved chalcopyrite and stannite. An electron microprobe analysis gave Zn 1.65, In 61.59, Sn 7.36, Fe 1.74. The identification was not verified by X-ray diffraction. (J.K. Sutherland, 1971: Can. Mineralogist, 10, p. 781).

## ELPIDITE

Quebec

- 31 H/11 Elpidite occurs in veins and vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. It was identified by its X-ray powder pattern which has six strongest lines at 6.58 (4), 5.19 (4), 3.28 (10), 3.14 (3), 2.60 (2) and 1.958 (2). (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123). Partial chemical analysis: SiO<sub>2</sub> 58.88, TiO<sub>2</sub> 0.05, MnO 0.03, Na<sub>2</sub>O 10.38, K<sub>2</sub>O 0.1, ZrO<sub>2</sub> 20.77, total Fe 0.01. (G.Y. Chao, 1967: Can. Mineralogist, 9, p. 286). Complete chemical analysis by T.A. Capitonova: SiO<sub>2</sub> 56.46, ZrO<sub>2</sub> 21.51, TiO<sub>2</sub> 0.17, Nb<sub>2</sub>O<sub>5</sub> 0.60, Ta<sub>2</sub>O<sub>5</sub> 0.07, Fe<sub>2</sub>O<sub>3</sub> 0.30, CaO 0.29, Na<sub>2</sub>O 9.65, K<sub>2</sub>O 0.80, H<sub>2</sub>O 9.68, total 99.53. (Guy Perrault, E.I. Semenov, A.V. Bikova and T.A. Capitonova, 1969: Can. Mineralogist, 9, p. 585-596).

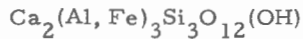
EPIDIDYMITÉ



Quebec

- 31 H/11 The rare mineral epididymite has been identified by X-ray diffraction in specimens from the Desourdy quarry on the northeast slope of Mont St-Hilaire. The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 6.39 (6), 3.41 (10), 3.01 (10), 2.50 (6), 1.805 (6), 1.647 (6). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 121).

EPIDOTE



British Columbia

- 104 O/7 Tin-bearing skarn occurs at latitude 59°17'30"N., longitude 130°31'00"W., and elsewhere in the vicinity of Ash Mountain. It includes a tin-bearing epidote. Chemical analysis by J. L. Bouvier: SiO<sub>2</sub> 38.2, Al<sub>2</sub>O<sub>3</sub> 24.9, Fe<sub>2</sub>O<sub>3</sub> 10.1, FeO 1.5, SnO<sub>2</sub> 0.8, MnO 0.1, MgO 0.3, CaO 23.2, H<sub>2</sub>O 1.9, total 101.0. (R. Mulligan and J. L. Jambor, 1968: Can. Mineralogist, 9, p. 358-370).

Ontario

- 52 E/9 Elongated crystals of epidote in sugary dolomite are found at the Cameron-Earney deposit, 225 yards from the southeast end of Bigstone Bay. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 48).

Quebec

- 21 L/3 Pink, fine-grained zoisite occurs with feldspar at the Union Mine and Bennett-Martin and Bell pits in the Thetford area. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 51, 53).
- 31 G/5W Yellowish green epidote occurs at the Pinks Lake Mica Mine. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 8).
- 31 G/12W Epidote occurs in gneiss at the Gemmill Mine near St-Pierre-de-Wakefield. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 29).



Quebec

- 31 G/12E Yellow-green epidote associated with pyroxene and pyrite is present at the Jackson Rae Mine near Perkins Mills, and greyish epidote is exposed in roadcuts along Highway 35 near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 13, 31).
- 31 G/14W Transparent, yellowish-green massive epidote is associated with pyroxene and calcite at the Cole Lake Mine near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 28).

## EPISTILBITE

New Brunswick

- 21 B/10 Epistilbite is associated with scolecite, heulandite, laumontite, analcime, natrolite, thomsonite, stilbite, quartz crystals, copper, hematite and chlorite in seams and amygdaloidal cavities in basalt cliffs along the coastline of Grand Manan Island. The coast at Seven Days Work is one of the best collecting sites. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 10).

Nova Scotia

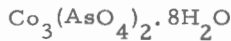
- 21 A/12 Stilbite, epistilbite and heulandite occur in thin veins cutting basalt and reddish quartz seams at Deep Cove, Digby County. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 73).

## EPSOMITE

Ontario

- 30 M/5 Epsomite is found as earthy white encrustations on specimens from the Dundas quarry, Dundas. Identification was made at the Royal Ontario Museum. (J.A. Mandarino and D.C. Harris, 1965: Can. Mineralogist, 8, p. 378).

ERYTHRITE



Yukon

- 106 C/14 Cobalt-bloom staining has been noted on the Mammoth group claims located at 64°56.5'N., 133°18'W., about 15 miles east of Fairchild Lake in the Bonnet Plume Range. (D.C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 31).

ESKEBORNITE



Saskatchewan

- 74 N/10 The rare selenide mineral, eskebornite, has been identified in polished sections from two localities in the Lake Athabaska area: the Martin Lake Mine located at the northeast corner of Martin Lake on the neck of land between Beaverlodge Lake and Martin Lake; and from the Eagle group claims, north of Hal Lake, about 1500 feet west of the Eagle shaft. Eskebornite occurs as island remnants in umangite and is associated with hematite, klockmannite, clausthalite and tyrellite. Electron microprobe analyses: Martin Lake, Cu 23.62, Fe 19.75, Se 55.96, total 99.32; Eagle group, Cu 23.0, Fe 19.7, Se 57.5, total 100.2. The X-ray powder pattern taken with Co radiation shows five strongest lines at 5.53 (8), 3.17 (10), 2.46 (8), 1.945 (9), 1.662 (8). (D.C. Harris and E. A. J. Burke, 1971: Can. Mineralogist, 10, p. 787).

EUCAIRITE



Saskatchewan

- 74 N/10 Eucairite has been identified in specimens from the Martin Lake Mine, located at the northeast corner of Martin Lake in the neck of land between Martin Lake and Beaverlodge Lake. (D.C. Harris, L. J. Cabri and S. Kaiman, 1970: Can. Mineralogist, 10, p. 207-215). The five strongest lines on the X-ray powder pattern of eucairite are: 2.88 (5), 2.62 (7), 2.49 (4), 2.13 (10), 2.03 (2). (ASTM card no. 10-451).

## EUCOLITE

(See eudialyte)

## EUCRYPTITE

Ontario

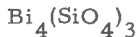
- 42 L/2 Eucryptite has been identified by X-ray powder pattern in several specimens submitted to the Royal Ontario Museum for identification by Mr. J. McDermott of Port Credit. The specimens were from a pegmatite "near Nakina". (J. A. Mandarino and D. C. Harris, 1965: Can. Mineralogist, 8, p. 377). The strongest lines on the X-ray powder pattern of eucryptite are: 3.965 (9), 3.362 (10), 2.733 (7), 2.545 (6), 2.373 (5) and 1.797 (5). (C. S. Hurlbut Jr., 1962: Am. Mineralogist, 47, p. 560).

## EUDIALYTE

Quebec

- 31 H/11 Eudialyte (eucolite) occurs in pegmatites within the Monteregian alkaline intrusive of Mont St-Hilaire. (Jean Boissonnault and Guy Perrault, 1965: Can. Mineralogist, 8, p. 393). Chemical analysis by T. A. Capitonova: SiO<sub>2</sub> 47.55, ZrO<sub>2</sub> 12.50, TiO<sub>2</sub> 0.14, Nb<sub>2</sub>O<sub>5</sub> 1.20, Ta<sub>2</sub>O<sub>5</sub> 0.04, RE oxides 6.30, Fe<sub>2</sub>O<sub>3</sub> 1.11, FeO 3.50, MnO 5.44, CaO 6.15, Na<sub>2</sub>O 11.39, K<sub>2</sub>O 2.70, H<sub>2</sub>O 1.56, Cl 0.68, total 100.26 - less O for Cl 0.15 - 100.11. (Guy Perrault, E. I. Semenov, A. V. Bikova and T. A. Capitonova, 1969: Can. Mineralogist, 9, p. 593).

## EULYTITE

Quebec

- 31 G/12W The rare mineral eulytite is associated with bismuth minerals at the Evans-Lou Mine near St-Pierre-de-Wakefield; it forms yellow transparent sugary aggregates and white to light green translucent botryoidal encrustations on quartz. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 35).

Quebec

The spacings and intensities of the six strongest lines of the X-ray powder pattern are: 4.14 (10), 3.22 (10), 2.73 (10), 2.09 (8), 2.01 (8), 1.667 (7)(X-ray laboratory, Geol. Surv. Can.).

EUXENITE



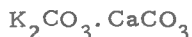
Ontario

- 31 F/6 Euxenite has been found with beryl, columbite and fergusonite in a second pegmatite occurrence near Quadeville. The pegmatite outcrops on lot 30, concession XV, Lyndoch Township, about 1.3 miles by mine road north of Eneas Lake on Highway 515 west of Quadeville. (E. R. Rose, 1960: Geol. Surv. Can., Paper 59-10, p. 25).

Quebec

- 31 G/11W Black euxenite grains up to 1/2 inch in diameter with a yellowish halo surrounding the grains, occur at the Glen Almond Mine located north of Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 27).
- 31 G/13E Dark brown resinous euxenite occurs as small patches in quartz at the Evans-Lou Mine near Notre-Dame-de-la-Salette. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 37).
- 31 J/16E At the Maisonneuve Mine, near St-Michel-des-Saints, euxenite occurs at nodules or grains. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 78).

FAIRCHILDITE



Ontario

- 31 F/11 Fairchildite and bütschliite have been identified at the Royal Ontario Museum from the trunk of a burned birch tree near Eganville, Grattan Township. (J. A. Mandarino and D. C. Harris, 1965: Can. Mineralogist, 8, p. 380).

## FAMATINITE

Northwest Territories

- 86 F/13 Small amounts of famatinite are reported to occur with arsenopyrite and bismuthinite at the B. E. A. R. silver deposit on the north shore of Contact Lake, about 9 miles southeast of the Eldorado Mine. (G. M. Furnival, 1939: Econ. Geol., 34, p. 754). The spacings and intensities of the five strongest lines on the X-ray powder pattern of famatinite from the Famatina Mine, Argentina, are: 3.08 (10), 1.888 (7), 1.610 (5), 1.226 (4), 1.090 (4). (L. G. Berry and R. M. Thompson, 1962: Geol. Soc. Amer., Memoir 85, p. 58).

## FAYALITE

(See olivine)

## FERGUSONITE

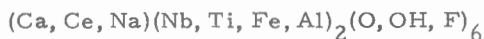
Ontario

- 31 C/7 Brownish-black massive fergusonite with resinous lustre occurs in feldspar in a pegmatite dyke on the north side of Sand Road about 2 miles west of Verona. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 11).
- 31 F/6 Fergusonite has been found with euxenite, beryl and columbite in a pegmatite that outcrops on lot 30, concession XV, Lyndoch Township, about 1.3 miles by mine road north of Eneas Lake on Highway 515 west of Quadeville. (E. R. Rose, 1960: Geol. Surv. Can., Paper 59-10, p. 25).

Quebec

- 31 G/13 Fergusonite is one of a complex assemblage of yttrium bearing minerals found at the Evans-Lou pegmatite near St-Pierre-de-Wakefield in Portland-West Township. (D. D. Hogarth, 1971: Can. Mineralogist, 10, p. 914).

## FERSMITE

Manitoba

- 52 L/6 The rare mineral fersmite has been found in the Huron Claim pegmatite, located about 1/2 mile inland from a point on the southeast shore of the Winnipeg River, 9 or 10 miles above Pointe du Bois. (P. Cerny and A. C. Turnock, 1971: Can. Mineralogist, 10, p. 765). The spacings and intensities of the five strongest lines on the X-ray powder pattern of fersmite are 3.76 (2), 3.05 (10), 2.49 (2), 1.53 (2), 1.18 (1). (H. D. Hess and H. J. Trumppour, 1959: Am. Mineralogist, 44, p. 5).

## FIBROFERRITE

Ontario

- 31 C/10 At the Enterprise Mine, fibroferrite occurs as silky white, fine fibrous and radiating fibrous aggregates on rozenite and copiapite which in turn form encrustations on pyrite. The mine is located about 26 miles north of Kingston and 10 miles west of Godfrey. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 10).

## FLUORITE

Ontario

- 41 K/16 Closely-spaced stringers of manganite, psilomelane, manganese carbonates, quartz, calcite and fluorite occur in a reddish volcanic rock at a manganese deposit in Ley Township, Batchawana Bay. (A. G. Johnston and W. D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 29).
- 42 D/13 Crystals of purple fluorite, amethyst, colourless quartz and salmon-pink barite are found in fractures in pink granite at rock cuts along the Trans-Canada Highway 6.8 to 8.3 miles west of the western turn-off to Rosspoint. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 23).

- 52 A/5 Purple and green fluorite occurs with amethyst, smoky and rose quartz, barite and fluorescent calcite at a number of old silver deposits that are accessible from the Silver Mountain Highway (588) southwest of Stanley village at the following mileages: Victoria Mine - 100 feet north of the highway at mile 1.7; Beaver Junior Mine - about 400 yards southwest of the highway at mile 4.9; West Beaver Mine - 150 feet south of the highway at mile 5.7; Climax Mine - 1/2 mile by road south from the highway at mile 6.3; Badger Mine - 3/4 mile by road west from the highway at mile 6.7. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 33).
- 52 A/10 Deep purple fluorite is exposed in a vein on the north shore of the west end of Silver Lake. Galena, specularite and amethyst are also found in pits around the west end and south shore of the lake. The road to Silver Lake leaves Highway 17 at a point 3.8 miles south of Pearl. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 24).

Quebec

- 21 M/7E Apple-green massive fluorite is the most common mineral present in a lead and zinc bearing calcite vein that is exposed between the upper and lower falls of du Moulin River near Baie-St-Paul. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 94).
- 31 G/5W Fluorite occurs as colourless, light green, and purple crystals generally associated with pyrite at the Laurentide Mine, north of Aylmer. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 9).
- 31 G/11W Fluorite has been reported with pyroxene and apatite at the Pedneaud quarry and Daisy Mine, near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 21).
- 31 G/12E Deep green fluorite is found in massive yellowish apatite at the Rainville (Dugas) Mine, near Perkins Mills. Purple fluorite is associated with orange allanite at the Little Rapids (Watts) Mine near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 11, 30).
- 31 G/12W Fluorite is associated with jasper in gneiss at the Scott Mine near Old Chelsea. Purple fluorite occurs in red pegmatite at the Sweeney Mine, near Meach Lake and at the Coté quarry, north of Hull. White massive barite forms a vein with light green fluorite, calcite and dolomite at the Foley Mine, north of Hull. Near St-Pierre-de-Wakefield, fluorite has been reported in pyroxenite at the Breckin Mine, and purple fluorite is common in pegmatite at the Leduc Mine. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 17, 27, 32, 38, 40).

- 31 G/13E Purple fluorite occurs at the Villeneuve Mine near Notre-Dame-de-la-Salette. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 40)
- 31 H/11 Fluorite occurs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).
- 31 H/12E Fluorite occurs as colourless tiny cubes and as small black masses in cavities at the Francon quarry on Montreal Island. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 67).
- 31 J/4E Colourless to light green octahedrons of fluorite occur in limestone on the south bank of the Lièvre River downstream from des Cèdres dam. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 47).

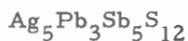
Yukon

- 105 B/1 Pale green and pale purple fluorite occurs in quartz veins with wolframite, scheelite, cassiterite, and galena at the Fiddler (Yukon Tungsten) property at 60°08'N., 130°26'W. The property lies on a ridge north of Boulder Creek at an elevation of 5,100 feet, and may be reached by a secondary road about 5 1/2 miles long that leaves the Alaska Highway just west of the Boulder Creek bridge at mile 701.6. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 80).

FREIBERGITE

(See tetrahedrite)

FREIESLEBENITE



Ontario

- 31 M/5 A tiny veinlet of freieslebenite was found in a large skutterudite grain in a sample from the Cobalt camp (ROM, M-21270). Identification was by X-ray diffraction. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 209).

Yukon

- 115 I/3 This rare sulphosalt mineral has been identified (Mineral Sciences Division, Mines Branch) with other silver-bearing minerals, acanthite, native silver, andorite and argentian



tetrahedrite at the Webber property of Mount Nansen Mines Limited at 62°03.5'N., 137°10'W. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 36). The five strongest lines on the X-ray powder pattern of freieslebenite are: 3.48 (8), 2.98 (7), 2.83 (10), 2.08 (4), 1.784 (5). (L.G. Berry and R.M. Thompson, 1962: Geol. Soc. Amer., Memoir 85, p. 137).

### FROHBERGITE



#### British Columbia

- 93 F/6 Frohbergite has been found with sylvanite and stützite in a specimen from Lindquist Lake. Electron probe microanalysis gave: Fe 17.1, Te 80.4, total 97.5. (J. Rucklidge, 1969: Can. Mineralogist, 9, p. 709-715).

#### Quebec

- 32 D/6 Electron probe microanalysis of frohbergite from the Robb Montbray deposit gave Fe 18.1, Te 82.7, total 100.8; very close to the theoretical formula composition. A thin band of melonite is frequently present between the frohbergite and chalcopyrite. (J. Rucklidge, 1969: Can. Mineralogist, 9, p. 709-716).
- 32 D/6 Frohbergite has been found in a specimen from Noranda. It forms a rim around petzite. Electron probe microanalysis: Fe 18.3, Te 82.5, total 100.8. (J. Rucklidge, 1969: Can. Mineralogist, 9, p. 709-716).

### FUCHSITE

(See muscovite)

### GAHNITE



#### Ontario

- 31 D/16 Gahnite is present as small green grains in grey blue scapolite associated with biotite, zircon, calcite, muscovite, nepheline and albite at the Fraser quarry (Madill property), south of Gooderham, near Trooper Lake, in Glamorgan Township, Haliburton County. (J. Rimsaite: private communication).

GALENA

PbS

British Columbia

82 M/1    Lead-zinc deposits, generally low in silver, are the predominant type in the Big Bend map-area, and are commonly associated with limestones of the Badshot Formation and lower part of the Lardeau Group, and with impure marbles surrounding the core of the gneiss dome that features the Shuswap Complex. The following deposits are known:

83 M/1 - River Jordan property, 12 miles northwest of Revelstoke between elevations of 5,800 feet and 7,900 feet on the northern slopes of Mount Copeland. Mastodon Mine at an elevation of 5,000 feet on the ridge between La Forme and Carnes Creeks. Lead King showings about 2 miles east of the Mastodon mill. Little Slide showings, northeast of the east fork of La Forme Creek about 3 miles east of the Mastodon mill.

82 M/7 - The Cottonbelt property lies between elevations of 5,000 and 6,000 feet on the hills south of Blais Creek. It is accessible by road and trail, 18 miles from the head of Seymour Arm.

82 M/8 - J and L group, on the shoulder between the east and south forks of Carnes Creek about 8 miles by trail from the Big Bend highway. A and E showings on the northeastern slopes of the hill south of Burke Creek between 6,000 and 7,200 feet elevation. The Keystone claim at the head of Keystone Creek is accessible by logging road and trail from the Big Bend highway.

82 M/15 - The Ruddock Creek property extends from the head of Ruddock Creek at an elevation of 7,500 feet northwesterly around the summit mass of the peak, 6 miles west of Gordon Horne peak, and westerly into Oliver Creek Valley.

82 M/16 - The Kinbasket property lies 300 to 400 feet above the southwestern shore of Kinbasket Lake between Trident and Windy Creeks. (J.O. Wheeler, 1965: Geol. Surv. Can., Paper 64-32, p. 27-32.)

Northwest Territories

68 H/8    Galena, sphalerite and smithsonite are the principal minerals on the properties of Bankeno Mines Limited on Little Cornwallis Island. The main showing is in the southwest corner of the island at about 75° 22'N., 96° 55'W. The East (Eclipse) showing is 16 miles northeast of the Main showing. Some barite and pyrite are also present. (E.A. Schiller, 1965: Geol. Surv. Can., Paper 65-11, p. 58.)

- 75 M/2 A large number of claims have been staked in the Indian Mountain Lake - Benjamin Lake area in the search for lead-zinc-silver ore. A deposit of about one million tons has been outlined just south of BB Lake on the property of Indian Mountain Metal Mines Ltd. (R.I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 21).
- 85 B/16 Galena, sphalerite, and marcasite occur as disseminated grains, masses and veinlets replacing dolomite or calcite in the Pine Point area, south of Great Slave Lake. (Western Miner and Oil Review, 1963: Vol. 36, No. 8, p. 26).

#### Ontario

- 31 C/10 Cubes of galena up to 1/2 inch across occur in pink to white calcite at the Hickey-Murphy lead mine. Two old shafts and several pits are present on the Hickey and Murphy farms located along the Westport road 9.5 miles from Godfrey. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 17).
- 52 A/10 Cubes of galena up to 1/2 inch across occur with amethyst, colourless and smoky quartz crystals, barite and fluorescent calcite at the Enterprise Mine located about 0.7 miles east of Highway 17, along Road 69-13, from a point 1.5 miles north of Pearl. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 23).
- 52 A/10 Galena cubes measuring up to 2 inches across have been found in a vein on the west side of the peninsula on the south side of Silver Lake. Amethyst, specularite, fluorite, pyrite and sphalerite are associated minerals found in a number of pits around the western end of the lake. The road to Silver Lake leaves Highway 17 at a point 3.8 miles south of Pearl. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 24).

#### Yukon

- 95 D/5 Considerable exploration work has been carried out on a lead-zinc showing at 60°30'N., 127°57'W., about 2 miles southwest of Quartz Lake in the valley of a creek locally known as Mine Creek and tributary to Hyland River, at an elevation of 3,200 feet. The deposit, at the base of a limestone conglomerate, contains sphalerite, galena and pyrite in an ankeritic matrix. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 73).
- 105 B/1 Massive galena and disseminated sphalerite and pyrite are found in shear zones on the Luck Group claims (60°07'N., 130°26'W.) located along Boulder Creek, 5 miles from its junction with the Rancheria River and extending north to the headwaters of two small streams flowing north into Spencer Creek. (D.B. Craig and P. Laporte, 1972: Mineral Industry

Report 1969 and 1970, Vol. 1, Dept. of Indian Affairs and Northern Development, p. 134.)

- 105 B/4 Argentinian galena, boulangerite, arsenopyrite, pyrite and sphalerite occur in quartz lenses in diorite at the Logjam Creek property at 60° 01'N., 131° 35'W., about 13 miles by tote road from the Alaska Highway near Mile 753. (L.H. Green and C.I. Godwin, 1964: Geol. Surv. Can., Paper 64-36, p. 47.)
- 105 F/6 Large massive pyrite-pyrrhotite-galena-sphalerite deposits occur on the Faro property of Anvil Mining Corporation Limited at 61° 21.5'N., 133° 02'W., in the Rose Creek area of Anvil Range, about 30 miles northwest of Ross River. (D. C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 43.)
- 105 F/9 Argentinian galena has been exposed at several showings held by Silver Key Mines Limited in the Ketza River area. The main showings are: Silver Ridge at an elevation of 5,600 feet in a steep draw on the west side of the Ketza River valley at 61° 34.5'N., 132° 13'W.; Galena Vein at an elevation of 5,000 feet on the south side of Cache Creek at 61° 33'N., 132° 10'W.; and South Fault Zone at 4,200 foot elevation in the valley of the upper Ketza River at 61° 32.5'N., 132° 08'W. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 64.)
- 105 H/6 Quartz-carbonate veins carrying heavily disseminated to massive argentinian galena, sphalerite and pyrite have been explored on the Matt Berry Mines property at 61° 27'N., 129° 25'W., near the mouth of Thompson Creek on the east side of East Arm, Frances Lake. (D. C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 63.)
- 105 K/6 Two base metal deposits were discovered by drilling on the Faro property at 62° 21.5'N., 133° 22'W. The No. 1 zone contains much pyrrhotite with pyrite, sphalerite, galena and minor chalcopyrite. The No. 2 zone lacks pyrrhotite. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 50.)
- 105 K/6 A large base metal deposit containing sphalerite, pyrite, pyrrhotite, galena and chalcopyrite has been outlined by drilling on the Vangorda Creek property at 62° 15'N., 133° 12'W., extending southward from the southwestern base of Mt. Mye to Shrimp Lake. (L.H. Green and C.I. Godwin, 1964: Geol. Surv. Can., Paper 64-36, p. 31.)
- 105 O/8 Fine-grained galena and sphalerite are present in barite rich limestone on the Tom property (63° 10'N., 130° 09'W.) 6 miles southwest of the Northwest Territory and Yukon boundary at an elevation of about 5,000 feet in a cirque valley southeast of the South MacMillan River. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 129.)

- 106 D/2 Pipe-like replacement bodies of sulphides, largely galena with lesser amounts of sphalerite and minor pyrite and chalcopyrite occur in limestone on the Clark claims at 64°08'N., 134°57'W., 18 miles northeast of Keno, immediately south of Clark Lakes on the gentle north slope of the Davidson Range. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. of Indian Affairs and Northern Development, p. 20).
- 106 D/3 Foley Silver Mines Limited have explored a silver-lead prospect on Stand To Hill in Davidson Range, about 7 miles north of Keno Hill. A quartz-siderite vein system carrying disseminated to massive galena, sphalerite and minor chalcopyrite has been found. (D. C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 27).
- 115 I/3 Galena is a constituent of the silver-gold ores at the Webber and Huestis properties of Mount Nansen Mines Limited and the property of Brown-McDade Mines Limited in the Nansen Creek - Webber Creek area at latitude 62°03'N., longitude 137°07' to 137°10'W. (L. H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 34).
- 115 J/10 Lenses of massive galena and sphalerite occur in quartz-barite veins at the Bomber showing of Casino Silver Mines Limited, located on a tributary of Casino Creek at an elevation of about 4,000 feet, at 62°43'N., 138°49'W. (L. H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 39).
- 115 N/15 A vein, up to 32 inches wide, containing argentian galena is exposed at the Per group claims on the right limit of Sixty-mile River about 0.3 mile upstream from Miller Creek, at 64°00'N., 140°47'W. It is reached by a secondary road about 10.5 miles long that leaves the main Sixtymile road to the International boundary at mile 48. (L. H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 27).
- 115 N/15 A showing near the head of the west fork of Mosquito Creek, a tributary of Sixtymile River, at an elevation of about 4,200 feet is reported to contain massive galena. (L. H. Green, 1965: Geol. Surv. Can., Paper 66-31, p. 28).

## GALENOBISMUTITE

New Brunswick

- 21 G/7 Galenobismutite has been identified as inclusions in polished sections of galena from Mount Pleasant, Charlotte County. (R. S. Boorman, 1968: New Brunswick Res. Prod. Council, Res. Note 11).

- 21 P/5 Minute inclusions of galenobismutite are reported to occur in chalcopyrite at the Captain deposit located on the headwaters of Tozer Brook and the west branch of Portage River in Gloucester and Northumberland Counties, about 9 miles east of Heath Steele. (W.M. Tupper, D.J. Bachinski and R.W. Boyle, 1968: Geol. Surv. Can., Paper 66-18, p. 11).

Ontario

- 41 P/10 Galenobismutite was found in vein 93, 650 level of the Siscoe Mine, Gowganda. It occurs as a veinlet and as crystals up to 1 cm size. Electron microprobe analysis: Pb 26.4, Bi 55.5, S 17.0, total 98.4. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 218).

GASPEITE



Quebec

- 22 B/16 This new nickel carbonate mineral was found in a vein enclosed in siliceous dolomite on the New Jersey Zinc Exploration Company property in the NW corner of Lemieux Township, Gaspé Nord County, at about 48°51'N., 66°18'W. The name is given to the nickel carbonate end-member and nickel dominant members of possible series with magnesium and iron carbonates. The particular new mineral is a magnesian gaspeite. It occurs as light green rhombohedral crystals up to 1/2 mm in length. Chemical analysis of a concentrate believed to contain a small amount of serpentine: NiO 35.0, MgO 17.3, FeO 5.7, CO<sub>2</sub> 42.0, SiO<sub>2</sub> 0.9; insol. 1.8, total 102.7. The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 3.54 (4), 2.74 (10), 2.32 (2), 2.10 (4), 1.932 (3) and 1.692 (5). (D.W. Kohls and J.L. Rodda, 1966: Am. Mineralogist, 51, p. 677-683).

GEIKIELITE

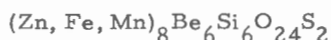


Quebec

- 31 G/13 Black grains of geikielite have been found in marble in a small area in the western part of the Maxwell quarry, near a syenite contact. The quarry, near Wakefield, has been mined for brucite. Chemical analysis by Hounslow: TiO<sub>2</sub> 60.7, MgO 24.4, FeO 8.4, Fe<sub>2</sub>O<sub>3</sub> 6.2, MnO 0.91, total 100.6; S.G. 4.05. The spacings and intensities (Fe rad.) of the six

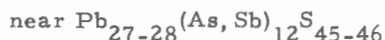
strongest lines on the X-ray powder pattern are: 3.705 (4), 2.725 (10), 2.528 (4), 2.218 (4), 1.853 (3), 1.709 (6).  
(A. W. Hounslow and G. Y. Chao, 1967: Can. Mineralogist, 9, p. 95-100).

## GENTHELVITE

Quebec

- 31 H/11 This rare mineral has been identified by X-ray diffraction in specimens taken from feldspar-aegirine veins cutting nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 3.32 (10), 2.57 (3), 2.18 (3), 1.918 (4), 1.661 (2), 1.485 (2).  
(G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## GEOCRONITE

Northwest Territories

- 95 G/3 Small blebs in a quartz vein found on the southwest slope of Nahanni Butte at about 61°04'20"N., 123°24'00"W., have been identified as geocronite. (X-ray Laboratory, Geol. Surv. Can., specimen from R. Thorpe).

Ontario

- 31 C/6 Geocronite has been identified in specimens collected from a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed. Taylor of Madoc.  
(J. L. Jambor, 1967: Can. Mineralogist, 9, p. 212).

## GERSDORFFITE

Northwest Territories

- 86 E/9 Minor amounts of gersdorffite, parammelsbergite, cobaltite and niccolite occur with matildite, native silver and bismuth, safflorite, skutterudite and rammelsbergite at a deposit on the Camsell River, 4 miles south of its mouth at

Conjurer Bay, at latitude 65°36'14"N., longitude 118°06'45"W.  
(D. C. Harris and R. I. Thorpe, 1969: Can. Mineralogist, 9,  
p. 655-662).

- 86 F/13 Gersdorffite occurs with cobaltite, safflorite-löllingite, glaucodot, niccolite, rammelsbergite and breithauptite at the B. E. A. R. deposit on the north shore of Contact Lake about 9 miles southeast of the Eldorado Mine. (G. M. Furnival, 1939: Econ. Geol., 34, p. 759).
- 86 K/4 Gersdorffite associated with polydymite and glaucodot is reported to be a minor constituent of the complex uranium-silver-cobalt-nickel deposit at the Eldorado Mine, Labine Point. (D. F. Kidd, 1936: Geol. Surv. Can., Memoir 187, p. 36).

#### Ontario

- 31 M/3 Electron probe microanalyses of gersdorffite in the Cobalt-  
31 M/5 Gowganda ores: (1) Ni 33.0, Co 2.7, Fe 0.0, As 47.0, S 17.5,  
31 M/12 total 100.2; (2) Ni 16.7, Co 14.0, Fe 5.6, As 47.9, S 17.2,  
41 P/9 total 101.4. (W. Petruk, D. C. Harris and J. M. Stewart,  
41 P/10 1971: Can. Mineralogist, 11, p. 175).  
41 P/15  
41 P/16

#### Quebec

- 21 L/9 A small amount of gersdorffite is associated with millerite and fine-grained masses of pyrite, sphalerite and marcasite at the Eastern Metals Mine, 3 miles from St-Fabien. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 66).

### GLAUCODOT



#### Northwest Territories

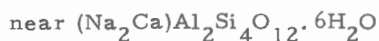
- 86 F/13 Glaucodot is one of an assemblage of cobalt-nickel minerals that is found at the B. E. A. R. silver deposit on the north shore of Contact Lake, about 9 miles southeast of the Eldorado Mine. The assemblage includes cobaltite, safflorite-löllingite, niccolite, gersdorffite, rammelsbergite and breithauptite. (G. M. Furnival, 1939: Econ. Geol., 34, p. 759).
- 86 K/4 Glaucodot is reported as a minor constituent of the complex uranium-silver-nickel-cobalt deposit at the Eldorado Mine, Labine Point. (D. F. Kidd, 1936: Geol. Surv. Can., Memoir 187, p. 36).



Ontario

- 31 M/3 Glaucodot in the Cobalt-Gowganda ores was found alternating  
 31 M/5 with alloclasite in one sample and as outerlayers on arseno-  
 31 M/12 pyrite in a number of samples. The composition was found  
 41 P/9 by electron microprobe analyses to vary within the  
 41 P/10 following ranges: Co 14.7-24.7, Fe 8.8-18.8, Ni 0-2.3. The  
 41 P/15 spacings and intensities of the six strongest lines on the X-ray  
 41 P/16 powder pattern are: 3.28 (5), 2.74 (8), 2.46 (7), 2.43 (6),  
 2.40 (6), 1.82 (10). (W. Petruk, D.C. Harris and  
 J.M. Stewart, 1971: Can. Mineralogist, 11, p. 179).

## GMELINITE

Nova Scotia

- 21 H/8 Gmelinite has been found in amygdaloidal basalts in the Minas  
 Basin - Bay of Fundy area at the following localities: Cape  
 Blomidon to Cape Split, with apophyllite, heulandite, natrolite,  
 stilbite, chabazite, analcime, laumontite, mesolite, thom-  
 sonite, amethyst, jasper, agate, calcite and celadonite;  
 Pinnacle Island, with analcime, chabazite, natrolite, stilbite,  
 heulandite, thomsonite and calcite; Two Islands (The Brothers),  
 with analcime, chabazite, heulandite, natrolite, calcite and  
 agate; Swan's Creek (Swan Brook), with chabazite, analcime,  
 apophyllite, natrolite, heulandite, calcite, stilbite; Wasson's  
 Bluff, with chabazite, stilbite, heulandite, natrolite, analcime,  
 calcite and copper. (Ann P. Sabina, 1964: Geol. Surv. Can.,  
 Paper 64-10).

## GOLD

## Au

British Columbia

- 82 M/9 Native gold and auriferous pyrite occur in quartz veins in the  
 area of the headwaters of Old Camp, McCulloch and Graham  
 Creeks. (J.O. Wheeler, 1965: Geol. Surv. Can.,  
 Paper 64-32, p. 33).

Northwest Territories

- 65 D/16 Visible gold is associated with galena, sphalerite, chalcop-  
 yrite and fluorite in quartz veins on the COP claims, 7 miles  
 east of the north end of Snowbird Lake. (E.A. Schiller, 1965:  
Geol. Surv. Can., Paper 65-11, p. 14).

- 65 G/6 A showing of visible gold and associated massive sulphides has been examined just northeast of Watterson Lake at 61°21'N., 99°06'W. (R.I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 62).
- 76 B/13 Coarse visible gold with associated tellurbismuth has been found at the number 2 claim of the Ruby group located at 64°55'12"N., 107°39'27"W. (D.C. Harris, private communication).
- 76 D/3 Tundra Gold Mines is located a few miles south of Matthews Lake at 64°02'N., 111°11'W., 150 miles northeast of Yellowknife. The main vein contains free gold in lenses up to 1 mm wide in white and black banded glassy quartz. Metallic minerals, present in amounts up to 5 per cent are: arsenopyrite, galena, pyrite, pyrrhotite, scheelite and traces of sphalerite and chalcopyrite. (E.A. Schiller, 1965: Geol. Surv. Can., Paper 65-11, p. 51).
- 76 E/11 Mineralized amphibolites in the Contwoyto Lake area contain gold, commonly associated with arsenopyrite, pyrrhotite, and pyrite, löllingite and traces of chalcopyrite. The main showings are on the northwest side of the lake at about 65°45'N., 111°15'W. (E.A. Schiller, 1965: Geol. Surv. Can., Paper 65-11, p. 12).
- 76 M/11 A gold discovery in 1963 in the Coronation Gulf area along the Arctic coast led to the staking of more than 1000 claims by the end of 1964. The claims lie south of a bay locally referred to as Caribou Bay about 12 miles southwest of Hepburn Island. The centre of the claim block is at 67°38'N., 111°35'W. Gold values are most commonly associated with pyrite; visible gold is rare. (E.A. Schiller, 1965: Geol. Surv. Can., Paper 65-11, p. 16).
- 76 N/2 Gold showings have been investigated at Turner Lake (67°12'N., 108°45'W.) and on the Hood River near Pistol Lake (67°03'N., 108°47'W.) in the Bathurst Inlet area. (R.I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 43).
- 85 I/11 At the Garskie Gold Mine property on the south shore of Little Sproule Lake, free gold is mined from open pits where it occurs in spectacular amounts in quartz veins. (E.A. Schiller and E.H. Hornbrook, 1964: Geol. Surv. Can., Paper 64-22, p. 19).
- 85 J/16 Trenches and drill core containing visible gold are reported from the NOSE Group claims located one mile east of the southeast arm of Clan Lake. (R.I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 14).

- 85 N/8 Visible gold was observed in drill core on the IO and CJ groups claims located on the Snare River about 7 miles south-west of the lower powerhouse, at 63° 21'N., 116° 18'W. (R.I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 6.)
- 86 B/5 Gold has been found in several quartz veins on the MON group of claims staked on behalf of Consolidated Mining and Smelting Company Limited at Discovery Lake 30 miles north of Yellowknife. Metallic minerals make up less than 5 per cent of the vein material and include pyrrhotite, arsenopyrite, pyrite, chalcopyrite, galena, sphalerite and a small amount of copper. (E. A. Schiller and E. H. Hornbrook, 1964: Geol. Surv. Can., Paper 64-22, p. 29.)
- 86 B/5 Gold-bearing veins have been staked by the HID and MW Groups on a point of ground at the north end of Norris Lake. Sphalerite, galena and silver values are associated. (R.I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 9.)

#### Ontario

- 42 D/14 Visible gold has been found in coarse pyrite cubes in quartz-carbonate veins at old gold mines near Schreiber. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 21.)
- 52 B/10 Native gold was mined in 1882 at the Huronian (Ardeen) Mine in Moss Township. It occurred in quartz veins with chalcopyrite, galena, sphalerite and pyrite. The mine may be reached by road, 17 1/2 miles south from Highway 11, at a point 2 1/2 miles west of Kashabowie. This was the first gold mine in western Ontario. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 36.)
- 52 E/9 The following deposits in the Bigstone Bay area at the northeast end of Lake of the Woods were worked for native gold at intervals from 1880 to 1930: Sultana Mine and Ophir Mine on Sultana Island in Bald Indian Bay; Pine Portage Mine about 1/2 mile east of the north end of Pine Portage Bay; Keewatin Mine on the south shore of a bay at the north end of Hay Island about 1/2 mile south of Needle Point; Gold Hill Mine about 220 yards north of the northeast end of Islet Lake; Black Jack Mine about 400 yards northwest of the Gold Hill Mine; Stella Mine, 650 yards southwest of Stella Lake; Wendigo Mine between Lac La Belle and the north shore of Witch Bay. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 48.)
- 52 F/9 Native gold was mined at the turn of the century at the Tabor and Sakoose Mines. The properties may be reached by road south of the junction of Highways 17 and 603. There is a fork in the road 2.5 miles from the junction: follow the west fork 3 miles to the Tabor Mine; follow the east fork 2 miles to the Sakoose (Van Houten) Mine. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 36.)

- 52 F/10 Native gold occurs with sphalerite, pyrite and galena in quartz veins cutting Keewatin volcanic rocks at the Bonanza, Redeemer and League mines in the vicinity of Twingrass Lakes just west of the west end of Wabigoon Lake and about 5 miles south of Dryden. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 43.)
- 52 F/11 Some spectacular specimens of native gold in quartz were obtained from the Baden-Powell, Grace, Eldorado, Golden Eagle and Fournieri Mines, along the southwest shore of Eagle Lake. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 45.)
- 52 F/16 Coarse native gold has been found with pyrite, chalcopyrite, ilmenite, sphalerite, galena, altaite, scheelite and tourmaline at the Newlund Mines property, located 2 miles by road west of Highway 72 from a point 17 1/2 miles north of Dinorwic. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 38.)
- 52 G/13 Patches of coarse gold were encountered in quartz stringers at the Central Manitoba Mine on Neepawa Island in the north-eastern part of Minnitaki Lake. The deposit is about 1/2 mile east of the west end of the island. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 39.)
- 52 N/2 Native gold occurs in several deposits in the Uchi Lake - Birch Lake area, east of the Red Lake camp. Most of the deposits are in acid to intermediate composition volcanic rocks. Associated minerals are pyrite, pyrrhotite, chalcopyrite, galena and sphalerite. The minerals occur in quartz veins. Mines include: Hudson-Patricia, Uchi, J-M Consolidated, Sol d'Or, and Argosy. (A.M. Goodwin, 1965: Can. Inst. Mining Met., Bull. 635, p. 304.)

#### Quebec

- 32 D/3 Visible gold is reported to occur with pyrite in quartz-carbonate shear zones at Wasamac Mines Limited, about 9 miles west of Rouyn. (R. Cullen, 1965: Can. Mining Jour., 86, No. 6, p. 65.)

#### Yukon

The following occurrences of placer gold have been reported in a series of Geol. Surv. Can., annual Paper series reports entitled The Mineral Industry of Yukon Territory and Southwestern District of Mackenzie, by

- R. Skinner, 1961: Paper 61-23,  
R. Skinner, 1962: Paper 62-27,  
L. H. Green and C. I. Goodwin, 1963: Paper 63-38,  
L. H. Green and C. I. Goodwin, 1964: Paper 64-36,

L.H. Green, 1965: Paper 65-19,  
L.H. Green, 1966: Paper 66-31,  
D.C. Findlay, 1967: Paper 67-40,  
D.C. Findlay, 1969: Paper 68-68

- 105 M/11 Davidson Creek , at 63°43'N., 135°24'W., by E. Friesen and S. Mosich. Other heavy minerals include: pyrite, magnetite, hematite, ilmenite, barite, garnet, scheelite and zircon. Claim owned by A. Pelland (Discovery claim).
- Davidson Creek at 63°42'N., 135°23'W., by J. Waugh, about one mile above the Discovery claim.
- 105 M/14 Thunder Gulch, a tributary of Lightning Creek, in turn a tributary of Duncan Creek, at 63°54'N., 135°16'W., by S. Mosich and B. Kelly. Heavy minerals include: abundant specularite, jasper, magnetite, pyrite, garnet, galena, cerussite and a trace of scheelite.
- Upper Duncan Creek, at 63°53'N., 135°19'W., by D. Heinz.
- 106 D/4 Haggart Creek between Dublin Gulch and Fifteen Pup at 64°01'N., 135°51'W., by Spruce Creek Placers Limited.
- Dublin Gulch at 64°02'N., 135°50'W., by F. Taylor. Associated heavy minerals include: hematite, scheelite, ferberite, arsenopyrite, jamesonite, garnet and cassiterite.
- Dublin Gulch at 64°02'N., 135° 49'W., by Double S Placers Limited.
- 115 G/6 Burwash Creek at 61°23'N., 139°15'W., by Burwash Mining Company Limited. The sluicing plant is 5.8 miles from the Alaska Highway along the Burwash Creek road.
- 115 I/3 East fork of Nansen Creek at 62°06'N., 137°12'W., in the Carmacks area. Operated by T. Wheeler.
- 115 I/6 Revenue and Mechanic Creeks, tributaries of Big Creek about 4 and 5 miles upstream from the mouth of Seymour Creek at 62°20'N., 137°16'W., by Seymour Placers.
- 115 O/3 Kirkman Creek at 63°00'N., 139°15'W., by L.M. Ross, and Thistle Creek at 63°04'30"N., 139°18'00"W., by W.E. Edwards. Both creeks are westerly flowing tributaries of the Yukon River. Brewer Creek, a left limit tributary of Stewart River, about 3 miles downstream from Barker Creek at 63°11'N., 139°00'W., by K. Djukastein.
- 115 O/10 The Yukon Consolidated Gold Corporation Limited holds most of the placer claims in the Dawson district and is working Dominion and Sulphur creeks, near Granville. Claims leased

from Yukon Consolidated on Gold Run Creek at  $63^{\circ}43'N.$ ,  $138^{\circ}39'W.$ , have been worked (1963) by J. Lamontagne and E. Schink.

Eureka Placers Yukon Limited holds claims on Eureka Creek at  $63^{\circ}34'N.$ ,  $138^{\circ}51'W.$ , about 12 miles from Granville along a good access road. Northern Yukon Services Limited also operates on Eureka Creek at  $63^{\circ}35'N.$ ,  $138^{\circ}51'W.$

115 O/14 Eldorado Creek at  $63^{\circ}53'N.$ ,  $139^{\circ}16'W.$ , Ballarat Mines Limited.

Bonanza Creek (King Solomon Hill, Boulder Creek and Monte Cristo Creek) at  $63^{\circ}57'N.$ ,  $139^{\circ}22'W.$ , by A.T. Fry.

Bonanza Creek (Adams Creek and Adams Hill) at  $63^{\circ}56'N.$ ,  $139^{\circ}21'W.$ , by H.C. and D.F. Boutillier.

Bonanza Creek (Victoria Gulch) at  $63^{\circ}55'N.$ ,  $139^{\circ}12'W.$ , by E. Lesaux and F. Perret, and at  $63^{\circ}54'N.$ ,  $130^{\circ}12'30''W.$ , by W. Christianson.

Lower Last Chance Creek, main tributary of lower Hunker Creek at  $64^{\circ}00'N.$ ,  $139^{\circ}07'W.$ , by J. and I.C. Bremner.

Hunker Creek (Paradise Hill) at  $63^{\circ}59'N.$ ,  $139^{\circ}04'W.$ , by F. and G. Caley. Quartz Creek: at  $63^{\circ}50'N.$ ,  $139^{\circ}02'W.$ , by A. Sundt; at  $63^{\circ}49'N.$ ,  $139^{\circ}04'W.$ , by L.M. Fuhr; at  $63^{\circ}47'N.$ ,  $139^{\circ}06'W.$ , by Ballarat Mines Limited and by A. Sailer.

Bonanza Creek at  $63^{\circ}59'N.$ ,  $139^{\circ}21'30''W.$ , by F. Chudy.

Nugget Hill at  $63^{\circ}59'N.$ ,  $139^{\circ}02'W.$ , by J.A. Gould.

115 O/15 Dominion Creek has been worked extensively by Yukon Consolidated Gold Corporation within a few miles of the mouth of Jensen Creek ( $63^{\circ}46'N.$ ,  $138^{\circ}32'W.$ ); by Ballarat Mines Limited at  $63^{\circ}49'N.$ ,  $138^{\circ}40'W.$ ; by J.R. Colbourne at  $63^{\circ}48'30''N.$ ,  $138^{\circ}36'30''W.$ ; and by I. Norbeck near the mouth of Nevada Creek, at  $63^{\circ}47.8'N.$ ,  $138^{\circ}36.2'W.$

Hunker Creek at  $63^{\circ}58'N.$ ,  $138^{\circ}58'30''W.$ , about  $3/4$  mile below Gold Bottom Creek, and at Temperance Hill, by I. Norbeck.

Hunker Creek near the mouth of Gold Bottom Creek, Whiskey Hill, and Mint Gulch, a tributary of Hunker Creek ( $63^{\circ}56'N.$ ,  $138^{\circ}53'30''W.$ ) by P. Brady.

Gold Bottom Creek at  $63^{\circ}55'N.$ ,  $138^{\circ}59'W.$ , by O. Lunde and at  $63^{\circ}54'N.$ ,  $138^{\circ}59'W.$ , by B. Bratsburg.

Caribou Creek, one of the larger right limit tributaries of Upper Dominion Creek, at 63°49'N., 138°49'W., by A. Burgelman.

All Gold Creek about 1/2 mile upstream from the settlement of Flat Creek on the Dawson-Mayo road, at 63°56'00"N., 138°37'30"W., by K. and S. Placers Limited.

D.M. Strachan holds claims along the south side of the Klondike River Valley just west of the settlement of Flat Creek at 63°56'30"N., 138°37'30"W.

115 P/9 Bear Creek at 63°39'30"N., 136°22'00"W., by J. J. Van Bibber.

McLagan Creek, a small creek flowing into Minto Lake at 63°42'N., 136°14'W., by C. J. and H. Klippert.

115 P/14 Clear Creek, below the main fork, at 63°47'N., 137°17'W., by C. Heitman and C. Janus.

Left Clear Creek, about 3 1/2 miles upstream from the junction with Clear Creek, at 63°51'N., 137°18'W., by F. and G. Galey.

115 P/16 Hight Creek at 63°46'N., 136°11'W., by E. C. Bleiler.

Hight Creek at 63°46'N., 136°12'W., a short distance upstream from the mouth of Rudolph Gulch, by F. Erl.

Hight Creek about two miles above the junction of Hight and Bennett Creeks at 63°44'N., 136°07'30"W., by W. and J. Gordon.

Johnson Creek about 1/4 mile below Sabbath Creek at 63°47'N., 136°22'W., by Barduson Placers Limited.

116 B/2 Germaine Creek at 64°03'N., 138°55'W., by A.R. Lindsay and J. Werbiski.

116 B/3 Yukon Consolidated Gold Corporation is working down Hunker Creek, near Last Chance Creek.

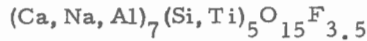
Cripple Creek Mining Company is operating on Bonanza Creek, Trail Gulch and Cripple Hill, at 64°00'30"N., 139°21'00"W.

116 C/2 Sixtymile River at 64°00'N., 140°47'W., near the Miller Creek fork, by O. and D. Medby and W. Kaufman.

Miller Creek, at 64°00'N., 140°49'W., about 1/2 mile from the mouth, by D. Murphy and J. Simcox.

Clacier Creek at 64°02'N., 140°53'W., by J. Lynch, and at 64°02.2'N., 140°49'W., by M.G. Grenier, E. Foucher and L. Guimard.

GÖTZENITE



Quebec

- 31 H/11 Götzénite has been identified in specimens from the Desourdy quarry on the northeast slope of Mont St-Hilaire. Its X-ray powder pattern shows six strongest lines at: 7.00 (4), 5.66 (4), 5.43 (4), 3.30 (4), 3.09 (10), 2.99 (3). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

GRAPHITE

C

Ontario

- 31 C/9 Silicated crystalline limestone at the Timmins mine contains graphite as disseminated flakes in association with small amounts of tourmaline, titanite and pyroxene. The mine is located about 42.5 miles north of Kingston and about 300 yards west of the Kingston-Westport-Perth road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 29.)
- 31 C/10 Tabular grains and foliated patches of graphite are common in crystalline limestone in road-cuts along the Westport Road at about 10 1/2 miles east of Highway 38. Also present in the crystalline limestone are serpentine, pyrite and minor amounts of titanite. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 17.)
- 31 C/16E The mineral occurs as disseminations in white crystalline limestone at the Globe Graphite Mine which was the first graphite mine in Ontario. Also found here are dark brown wedge-shaped crystals of titanite in a quartz-feldspar matrix, along with brownish-orange tourmaline grains in limestone. The deposit is on the property of Mr. James Goutts, north of Rideau Lake about 4 miles southeast of Perth. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 38.)

Quebec

- 31 G/10E Massive graphite is associated with coarsely-crystalline wolastonite, green diopside, feldspar, quartz and calcite at the Miller (Keystone) Mine, about 3 miles north of Grenville Bay. This deposit, first worked in about 1845 was the first graphite mine opened in Canada. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 75.)



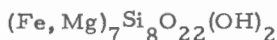
- 31 G/11W Flakes and foliated aggregates of graphite occur in gabbro and in crystalline limestone at the Dominion Mine near Buckingham (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 7).
- 31 G/11W Flake graphite with pyrite, granular masses of garnet, titanite, black amphibole, and pyrhotite occurs in feldspar gneiss at the Peerless (Diamond) Mine near Buckingham. Crystalline limestone encloses foliated, flaky and nodular graphite and the flaky aggregates form layers about 1/2 inch thick. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 17).
- 31 J/4E Graphite occurs as columnar and flaky masses in gneiss and limestone at the Canastota Mine near Notre-Dame-du Laus. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 50).
- 31 J/7E At the Castor Lake (Clot) Mine, graphite occurs as columnar, foliated and nodular masses measuring several inches across. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 63).

## GROUTITE

Nova Scotia

- 21 H/1 Groutite has been identified in specimens from the Walton deposit, Hants County. The X-ray powder pattern has the following strongest lines: 4.200 (10), 2.799 (7), 2.670 (7), 2.370 (6), 2.298 (5), 1.694 (5). (H.H. Majmundar, 1969: Can. Mineralogist, 9, p. 718).

## GRUNERITE

Newfoundland

- 23 B/15 Chemical analyses of grunerites from Wabush iron formation, Labrador City area: Jun Ito, analyst.

SiO <sub>2</sub>	49.01	49.33	51.58	51.95	51.79	52.28
TiO <sub>2</sub>	0.05	0.02	0.00	0.02	0.02	0.00
Al <sub>2</sub> O <sub>3</sub>	0.00	0.39	0.10	0.15	0.33	0.07
FeO	44.99	40.94	34.40	33.70	34.38	31.90
MnO	0.37	0.54	0.70	0.99	0.23	0.57
MgO	3.17	6.65	10.33	10.44	10.72	12.35

CaO	0.31	0.18	0.97	0.10	0.14	0.79
Na <sub>2</sub> O	0.04	0.12	0.02	0.08	0.09	0.12
K <sub>2</sub> O	0.00	0.20	0.05	0.05	0.18	0.08
H <sub>2</sub> O+	1.28	1.54	1.99	2.54	1.97	1.62
H <sub>2</sub> O-	0.31	--	--	0.22	0.35	--
F <sub>2</sub>	1.00					
P <sub>2</sub> O <sub>5</sub>	0.1					
Total	100.63	99.91	100.14	100.24	100.20	99.78
F <sub>2</sub> for O	0.42					
Total	100.21					

(C. Klein, 1964: Am. Mineralogist, 49, p. 963-982.)

#### GUDMUNDITE



#### Ontario

- 52 L/16 A massive pyrrhotite-sphalerite-chalcopyrite ore deposit in Mulcahy Township, about 20 miles west of Red Lake and about 4,000 feet south-southwest of the south end of Trout Bay, contains lesser amounts of galena, marcasite, arsenopyrite, cobaltite, pyrargyrite, paracostibite, gudmundite, stannite, argentian tetrahedrite, antimonial silver, allargentum, ilmenite, breithauptite, cassiterite and nisbite. Electron microprobe analyses of the gudmundite: Fe 29.0, Sb 58.5, S 15.4, total 102.9. (L.J. Cabri, D.C. Harris and J.M. Stewart, 1970: Can. Mineralogist, 10, p. 232.)

#### GUETTARDITE



#### Ontario

- 31 C/6 The new mineral, guettardite, was discovered as isolated grains in polished sections of specimens collected from a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed. Taylor of Madoc. Electron probe microanalysis, average of two grains, by G.R. Lachance: Pb 44.0, Sb 22.0, As 12.55, S 21.0, total 99.25. The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 4.19 (5), 3.90 (5), 3.52 (10), 2.795 (9), 2.670 (5), 2.653 (5). (J.L. Jambor, 1967: Can. Mineralogist, 9, p. 191-213.)

## GYPSUM

Alberta

83 E/7 Good quality gypsum outcrops in the Whitehorse Formation at several localities near the north end of De Smet Range and in Starlight Range. (J. A. Allan, 1933: Trans., C.I.M.M., 36, p. 619-635). It has also been observed at 53°20'00"N., 118°47'00"W., on a ridge-crest 6 miles west of the junction of Blue Creek and Snake Indian River, in Jasper National Park. (E. W. Mountjoy, 1962: Geol. Surv. Can., Paper 61-31, p. 65).

83 E/8 Gypsum was observed in the Whitehorse Formation at the following localities within Jasper National Park.

- (1) 3 miles northeast of Mount Stornoway in a saddle between two ridges (53°19'N., 118°26'W).
- (2) 1 mile east of Mount Stornoway (53°17'N., 118°25'30"W).
- (3) 3/4 mile up northeast tributary creek of Snake Indian River at Shale Banks (53°15'N., 118°11'W).

(E. W. Mountjoy, 1962: Geol. Surv. Can., Paper 61-31, p. 65).

Northwest Territories

- 120 F/11 Thick beds of Permo-Carboniferous anhydrite and gypsum are widely exposed at the head of Clements Markham Inlet.
- 340 E/14 A large gypsum body outcrops with andesitic volcanic rocks on the east shore of McClintock Inlet, northeastern Ellsmere Island. (R. L. Christie, 1962: Geol. Surv. Can., Paper 62-10, p. 15).

Ontario

- 31 C/7 Snow-white, finely granular gypsum occurs with very coarse-grained calcite and platy anhydrite in cavities in limestone. This occurrence is located at a road-cut along Highway 38 about 1/2 mile north of Highway 401. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 7).
- 31 C/8W Gypsum (selenite) as transparent tabular plates about an inch long is associated with calcite in cavities at Griffin Brothers Quarry north of Kingston about a mile off Highway 15. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 41).

## HAUSMANNITE

Nova Scotia

- 11 E/6 Hausmannite occurs with pyrolusite, manganite, limonite, and calcite in veins up to 7 inches wide in dark grey limestone at the Black Rock manganese deposit exposed along the shore of Minas Basin at mid-tide level. Access to the shoreline is through the Edgar Nelson farm located about 10 miles southwest of Truro, along the Clifton-Black Rock road. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 40).
- 11 F/15 Intimate mixtures of hematite, goethite, hausmannite and braunite form dense masses exposed by pits on the John MacKeigan farm (formerly known as the McVicar property) located 8.5 miles south of Big Pond along the road to Loch Lomond, Cape Breton Island. (Ann P. Sabina, 1965: Geol. Surv. Can., p. 37).

## HEAZLEWOODITE

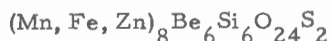
Ontario

- 42 A/11 Heazlewoodite has been identified in 6 samples from the serpentinized peridotite hanging wall of the old Alexo nickel mine in Dundonald Township, 25 miles northeast of Timmins. (A.J. Naldrett, 1966: Can. Mineralogist, 8, p. 383).

Quebec

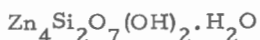
- 21 L/3 Specks of bronze-coloured heazlewoodite and black chromite occur in diopside associated with vesuvianite at the Maple Leaf mine of Asbestos Corporation Limited. Access to the property is by a road 0.8 miles long, leading east from the Black Lake road at 2.6 miles from Highway 1. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 52).
- 21 E/13 Heazlewoodite of 30 microns average grain size is a widely distributed minor accessory mineral, closely associated with magnetite, in the serpentines of the Eastern Townships. It has been found in many specimens from the Jeffrey Mine at Asbestos, the Continental and Normandie Mines in the Coleraine-Vimy Ridge area, and the Beaver and National Asbestos deposits in the Thetford Mines area. (J.A. Chamberlain, 1966: Can. Mineralogist, 8, p. 519-522).

## HELVINE

Quebec

- 31 H/11 Helvine has been identified and found occurring in vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. The six strongest lines on the X-ray powder pattern are: 3.71 (2), 3.38 (10), 2.62 (3), 2.21 (3), 1.953 (5), 1.692 (2). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## HEMIMORPHITE

Quebec

- 22 B/16 Hemimorphite forms dull, cream-white crusts on quartz at the Federal zinc-lead mine. The mine is located about 1 mile west of the Trans Gaspésien Highway from a junction 4.0 miles south of the south gate to Parc-de-la-Gaspésie. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 72).

## HERCYNITE

Quebec

- 31 H/7 The spinel mineral, hercynite, occurs locally as small irregular grains in gabbro and yamaskite rocks of the Mount Yamaska igneous complex. (S. S. Gandhi, 1970: Can. Mineralogist, 10, p. 465-6)

## HESSITE

Manitoba

- 52 L/13 Electron probe microanalysis of hessite from the San Antonio Mine, Bissett: Au 0.2, Ag 62.6, Te 37.6, total 100.4. (E. F. Stumpfl and J. Rucklidge, 1968: Am. Mineralogist, 53, p. 1516).

Northwest Territories

- 86 K/4 Hessite is reported to be a minor constituent of the complex uranium-silver deposit at the Eldorado Mine, Labine Point. (D. F. Kidd, 1936: Geol. Surv. Can., Memoir 187, p. 36).

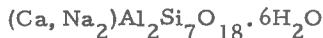
Ontario

- 42 A/1 Electron probe microanalysis of hessite from Tough Oakes Mine, Kirkland Lake: Au 0.0, Ag 61.7, Te 37.2, total 98.9.
- 42 A/6 Electron probe microanalysis of hessite from Hollinger Mine: Au 0.0, Ag 63.5, Te 36.8, total 100.3.
- 52 E/9 Electron probe microanalysis of hessite from Lake of the Woods: Au 0.0, Ag 61.6, Te 36.3, total 98.2.  
(E. F. Stumpfl and J. Rucklidge, 1968: Am. Mineralogist, 53, p. 1516).

Yukon

- 115 G/6 Electron probe microanalysis of hessite from Burwash Creek: Au 0.0, Ag 62.6, Te 37.6, total 100.6.  
(E. F. Stumpfl and J. Rucklidge, 1968: Am. Mineralogist, 53, p. 1516).

## HEULANDITE

New Brunswick

- 21 B/10 On Grand Manan Island, heulandite occurs with scolecite,  
21 B/15 laumontite, analcime, natrolite, epistilbite, thomsonite and stilbite as crystal aggregates and radiating fibres in cavities and seams in basalts and as pebbles along the shoreline. The zeolite amygdules are larger and more numerous along the coastline known as Seven Days Work (west side of Whale Cove to Ashburton Head) than at any other part of the Island. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 10).
- 22 B/1 Cavities and fractures in volcanic flows and tuffs exposed along the shoreline from Inch Arran to Bon Ami are filled with one or more of stilbite, laumontite, thomsonite, heulandite, chlorite, prehnite, and phillipsite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 104).

Nova Scotia

Heulandite is one of the more common zeolites found in the basalts of the Minas Basin - Bay of Fundy area. The following occurrences are reported by Ann P. Sabina, 1964: Rocks and Minerals for the Collector, Bay of Fundy Area; Geol. Surv. Can., Paper 64-10.

- 21 A/12 Deep Cove, 6.4 miles from Digby, Digby County: with stilbite and epistilbite in thin veins.
- Gulliver Cove, 2.3 miles north of Highway 17 at the Rossway turn-off: as colourless platy crystals in irregular veinlets cutting stilbite, or in seams about one inch wide in basalt.
- 21 B/9 Trout Cove, 1.1 miles west of the turn-off from Highway 17 at Centerville, Digby County: sparingly, with stilbite.
- 21 H/1 Woodworth (Bennett) Bay, 3 miles east of Baxter's Harbour, Kings County: with thomsonite, analcime, stilbite and rare mordenite in small cavities.
- 21 H/2 Baxter's Harbour and Long Beach, Kings County: as tiny crystals lining walls of cavities sometimes several inches across, with lesser amounts of analcime, laumontite and stilbite.
- 21 H/2 Hall's Harbour, Kings County: with stilbite, laumontite, apophyllite, and thomsonite. The zeolites, especially stilbite and heulandite, are more plentiful and occur in larger cavities along the shoreline from here to Black Rock than on any other part of the coast.
- Chipman Brook, Canada Creek and Black Rock, Kings County. Heulandite and stilbite are the most common zeolites and are associated with laumontite and mordenite. Spike amygdules, 2 or 3 inches in diameter and several feet long are numerous.
- Harbourville and Ogilvie, Kings County. Stilbite and heulandite are the predominant zeolites, some heulandite occurs as chalk-white dense nodules up to 2 inches across, associated with laumontite and mesolite.
- Morden, Kings County: with stilbite, laumontite, mordenite, apophyllite, analcime and mesolite.
- 21 H/3 Margaretsville, Annapolis County: with laumontite, analcime, apophyllite, gyrolite, mesolite, stilbite, scolecite, and natrolite. Laumontite occurs in large openings up to a foot across; the other zeolites occupy small cavities averaging about 1/2 inch across.
- Port George, Annapolis County: with stilbite, analcime, mesolite, apophyllite, laumontite, gyrolite, and thomsonite, all sparingly and in small cavities.

- 21 H/7 Horseshoe Cove - Cape d'Or, Cumberland County: in crystal groups of analcime, stilbite, laumontite, apophyllite, chabazite, thomsonite, mesolite and natrolite in cavities in basalt cliffs along the shore.
- 21 H/8 Partridge Island, Cumberland County: with stilbite, laumontite, natrolite, chabazite, analcime and apophyllite.
- Swan's Creek, Cumberland County: with gmelinite, chabazite, analcime, apophyllite and natrolite.
- Wasson's Bluff, Cumberland County: with chabazite, stilbite, gmelinite, natrolite and analcime.
- Two Islands (The Brothers), Cumberland County: with gmelinite, analcime, chabazite and natrolite.
- McKay (McCoy) Head, Cumberland County: with analcime.
- Cape Blomidon to Cape Split, Kings County: with apophyllite, natrolite, stilbite, chabazite, analcime, gmelinite, laumontite, mesolite and thomsonite, in cavities in the basalt cliffs and as fragments along the beach.
- Pinnacle Island, Cumberland County: with analcime, chabazite, natrolite, stilbite, thomsonite and gmelinite.
- Scots Bay, Small Cove and Big Cove, Kings County: sparingly with stilbite, mesolite and natrolite.
- 21 A/12 Chemical analysis of heulandite from Digby Gut by E. W. Todd: SiO<sub>2</sub> 57.18, Al<sub>2</sub>O<sub>3</sub> 17.26, Fe<sub>2</sub>O<sub>3</sub> 0.22, CaO 7.72, SrO 0.48, Na<sub>2</sub>O 1.49, K<sub>2</sub>O 0.54, H<sub>2</sub>O 15.45, total 100.34, S.G. 2.242. (T.L. Walker and A.L. Parsons, 1922: Univ. Toronto Stud., Geol. Ser. 14, p. 54).

## HEXAHYDRITE

Ontario

- 31 C/10 Snow-white hexahydrate occurs in crystalline limestone at the Enterprise Mine about 26 miles north of Kingston and 10 miles west of Godfrey. It is closely associated with gypsum and forms globular aggregates on pyrite and pyrrhotite. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 10).

Quebec

- 31 I/16W The secondary sulphate hexahydrate occurs as a snow white coating or encrustation on the ore-bearing gneiss at the Montauban Mine near Montauban-les-Mines. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 89).



## HISINGERITE

Quebec

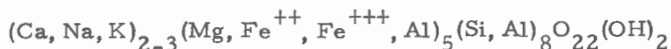
- 21 L/9 Hisingerite, allophane and cyanotrichite are reported to occur with nickel minerals at the Eastern Metals Mine, 3 miles from St-Fabien. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 66).
- 31 G/5W Minerals associated with the deposit at the Forsyth Mine north of Aylmer include hisingerite. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 12).

## HOLLINGWORTHITE

Ontario

- 52 L/7 The rare platinoid sulpharsenides, hollingworthite and irarsite, have been found in a specimen of drill core from Werner Lake. Electron probe microanalysis: Ir 0.22, Pt 0.61, Os 0.0, Rh 41.3, Pd 0.85, Ru 2.8, Ni 1.3, Co 2.5, As 33.3, S 16.4, total 99.2. (J. Rucklidge, 1969: Can. Mineralogist, 9, p. 617-627).

## HORNBLLENDE

Ontario

- 31 C/7 Hornblende occurs as black crystals and in massive form in pegmatite in a quarry located on the north side of Sand Road. Sand Road branches out westward from Highway 38, 1/2 mile south of Verona. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 11).
- 31 C/10 Hornblende occurs as crystals and in massive form in crystalline limestone at the Enterprise Mine. This mine is located at about 26 miles north of Kingston and 10 miles west of Godfrey. Other minerals found in the mine are pyrite, pyrrhotite, molybdenite, apatite, scapolite, hexahydrite, jarosite and copiapite. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 10).

- 31 C/10 Black hornblende crystals in association with flesh-red to pink feldspar are found in pegmatite at the Richardson Feldspar Mine. The mine, now a large pit filled with water, is located about 2 miles east of Highway 38 and about 1 mile southeast of the Godfrey-Westport road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 14).

#### Quebec

- 31 G/5W Hornblende is the most common gangue mineral at the Forsyth Mine north of Aylmer. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 12).
- 31 G/8 Hornblende is found in the border zone between ijolite and  
31 G/9 carbonate rocks in the Oka Complex, located 20 miles west of Montreal on the north shore of the Lake of Two Mountains. Chemical analysis: SiO<sub>2</sub> 36.94, Al<sub>2</sub>O<sub>3</sub> 17.93, Fe<sub>2</sub>O<sub>3</sub> 6.70, FeO 4.96, MgO 12.59, CaO 14.08, Na<sub>2</sub>O 2.34, K<sub>2</sub>O 2.11, H<sub>2</sub>O<sup>+</sup> 2.35, total 100.00. The six strongest lines on the X-ray powder pattern (Co radiation, Fe filter) of this hornblende are: 3.38 (9), 3.29 (7), 3.09 (9), 2.70 (10), 2.59 (7), 2.568 (7). Data reported by G. Perrault on ASTM card 9-434.
- 31 G/8 A mineral identified as lamprobolite (basaltic hornblende)  
31 G/9 occurs as phenocrysts and in the groundmass of alnoite and alnoite breccia at the Oka Complex, located 20 miles west of Montreal on the north shore of the Lake of Two Mountains. Chemical analysis by W. H. Herdsman: SiO<sub>2</sub> 38.70, Al<sub>2</sub>O<sub>3</sub> 14.52, TiO<sub>2</sub> 1.33, Fe<sub>2</sub>O<sub>3</sub> 5.99, FeO 5.46, MnO 0.10, MgO 15.51, CaO 13.08, Na<sub>2</sub>O 1.14, K<sub>2</sub>O 2.42, P<sub>2</sub>O<sub>5</sub> 0.33, H<sub>2</sub>O<sup>+</sup> 1.22, H<sub>2</sub>O<sup>-</sup> 0.02, total 99.82, S.G. 3.135 (D.P. Gold, 1966: Min. Soc. India, I. M. A. Volume, p. 102-126).
- 31 G/11W Greenish black hornblende is a common accessory mineral in pegmatite at the Pedneaud quarry near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 21).

#### HOWLITE



#### Nova Scotia

- 11 F/15 Gypsum-anhydrite cliffs containing howlite and danburite occur along the shore about 2 miles southwest of the ferry landing at Iona, Cape Breton Island. The howlite occurs as transparent, colourless to grey, slender crystals forming radial clusters in massive gypsum or in cavities in gypsum. Finely-granular, snow-white howlite is found with transparent gypsum in the centers of the cavities. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 22).

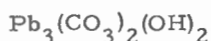
- 11 K/16 Howlite is reported to occur as white nodules with yellowish brown calcite in anhydrite at the northwest end of a gypsum quarry at Dingwall, Victoria County. Ulexite is closely associated. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 26.)

## HYDROCARBONS

Quebec

- 22 C/5E A small amount of anthraxolite is present at the McGie Mine on the northeast shore of Charlotte Lake. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 100.)

## HYDROCERUSSITE



Hydrocerussite is a secondary mineral formed by alteration of primary lead minerals. The spacings and intensities of the six strongest lines in the X-ray powder pattern are: 4.47 (6), 4.25 (6), 3.61 (9), 3.29 (9), 2.62 (10) and 2.23 (5). (ASTM pattern 13-131.)

Ontario

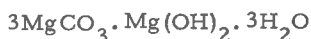
- 31 C/7 Hydrocerussite as well as cerussite forms white coatings on galena and sphalerite in veins at the Frontenac (Frontenac Draper Lake) lead mine. The mine is located about 17 miles north of Kingston along the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 24.)
- 31 C/10 Hydrocerussite and hydrozincite form white, finely granular, irregular encrustations on zinc ore at the Long Lake Zinc Mine about 1/2 mile from Long Lake village and 5 1/2 miles northwest of Parham. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 19.)

Quebec

- 22 A/16 At the Little Gaspé lead mine galena occurs as cubes up to 1 inch across in calcite. The secondary minerals, cerussite and hydrocerussite, form a soft cream-white crust on galena. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 78.)
- 31 G/11W Creamy white hydrocerussite which fluoresces yellow under ultraviolet radiation occurs as finely granular coatings on galena and calcite in veins cutting crystalline limestone on the

Dan Gorman farm, located about 4 miles west of Buckingham.  
(Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 6).

## HYDROMAGNESITE

Quebec

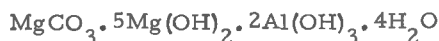
- 21 E/14 Botryoidal patches of hydromagnesite occur on sjogrenite in fracture planes in massive serpentine at the Belmina Mine, located about 2 miles north of St-Jacques (Stenson). (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 45).
- 31 G/12W Colourless fine platy hydromagnesite occurs on crystalline limestone at the Cross Quarry near Meach Lake. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 41).

## HYDROROMARCHITE

Ontario

- 52 L/3 Tin pannikins lost from the overturned canoe of a voyageur between 1801 and 1821 were recovered 15 feet below the surface of the water at Boundary Falls, Winnipeg River. Some of the surfaces of the pannikins have a thin crust consisting of white crystals and black crystals. The white crystals have an X-ray powder pattern that matches that of the compound  $5\text{SnO} \cdot 2\text{H}_2\text{O}$ , i.e. strongest lines at 3.50 (10), 2.961 (8), 2.773 (9), 1.924 (7), 1.906 (7). This is the first reported occurrence of this compound in nature and the mineral is named hydroromarchite. (R. M. Organ and J. A. Mandarino, 1971: Can. Mineralogist, 10, p. 916).

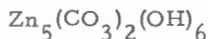
## HYDROTALCITE

Quebec

- 21 L/3 Hydrotalcite occurs with colerainite (a variety of chlorite) as crusts on pegmatitic rock at the Union Mine, about 0.5 miles from Crabtree village in the Black Lake area. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 51).

- 31 G/12W Roadcuts on the road to St-Pierre-de-Wakefield, 3.7 and 4.0 miles northeast of Wilson's Corners expose white hydrotalcite as nodular aggregates with satin to greasy lustre. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 16.)
- 31 G/12W Grey waxy hydrotalcite occurs as nodules on serpentine at the Cross Quarry near Meach Lake. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 41.)

## HYDROZINCITE

Ontario

- 31 C/10 Hydrozincite and hydrocerussite form white, finely granular, irregular encrustations on zinc ore at the Long Lake Zinc Mine, about 1/2 mile from Long Lake village and 5 1/2 miles northwest of Parham. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 19.)

Quebec

- 22 B/16 Soft, white, fine-grained irregular patches of hydrozincite occur on quartz and sphalerite at the Federal lead-zinc deposit, located about 1 mile west of the Trans Gaspésien Highway from a point 4 miles south of the south gate to Parc-de-la-Gaspésie. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 73.)
- 31 G/11W Cream-white hydrozincite (fluoresces bluish-white under "short" ultraviolet rays) occurs as finely granular coatings on galena and calcite in veins cutting crystalline limestone on the Dan Gorman farm located about 4 miles west of Buckingham. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 6.)
- 31 G/11W Cream-white hydrozincite forms a powdery coating on sphalerite at the Emerald Mine near Glen Almond, it fluoresces bluish-white under ultraviolet rays. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 20.)

HYPERSTHENE



Quebec

- 22 D/6E Crystals and cleavable masses of bronze-brown hypersthene are common in coarse-grained anorthosite in a roadcut on both sides of the Pont Arvida Road at a point 0.7 mile north of Highway 16. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 104).

IRARSITE



Ontario

- 52 L/7 The rare platinoid sulpharsenides, irarsite and hollingworthite, have been found in a specimen of drill core from Werner Lake. Electron probe microanalysis: Ir 44.8, Pt 7.8, Os 2.2, Rh 3.8, Pd 1.2, Ru 0.0, Ni 0.19, Co 1.4, As 24.7, S 12.3, total 98.4. (J. Rucklidge, 1969: Can. Mineralogist, 9, pp. 617-627).

JAMESONITE



British Columbia

- 82 N/5 Jamesonite is found with galena, sphalerite and pyrite on the Tangier claim located in the valley of Sorcerer Creek. (J.O. Wheeler, 1963: Geol. Surv. Can., Paper 62-32, p. 28).

New Brunswick

- 21 P/5 Inclusions of jamesonite in galena have been found in polished specimens of ore from the Brunswick No. 12 deposit in Gloucester County, Bathurst-Newcastle area. (R.S. Boorman, 1968: New Brunswick Res. Prod. Council, Res. Note 11).

Ontario

- 31 C/6 Jamesonite is the most abundant of the sulphosalt minerals occurring at the small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed. Taylor of Madoc, which yielded nine new mineral species. (J.L. Jambor, 1967: Can. Mineralogist, 9, p. 211).

Yukon

- 105 G/3 Jamesonite is the principal sulphosalt mineral at the property of Tintina Silver Mines at 61° 09'N., 131° 09'W., 7 miles northwest of the confluence of the Ings and Upper Liard Rivers. Associated minerals are argentian tetrahedrite, galena, sphalerite, pyrite, arsenopyrite, marcasite, bournonite, owyheeite, pyrrhotite, chalcopyrite and tintinaite. (D. C. Harris, J. L. Jambor, G. R. Lachance and R. I. Thorpe, 1968: Can. Mineralogist, 9, p. 371-382.)
- 105 M/14 Pods of jamesonite and lesser amounts of arsenopyrite, sphalerite and galena have been reported in a quartz vein at the Homestake group on Bunker Hill, at 63° 54'30"N., 135° 12'30"W. (L. H. Green, 1965: Geol. Surv. Can., Paper 65-19, p. 14.)

## JAROSITE

New Brunswick

The following occurrences of jarosite have been reported by Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51.

- 21 J/4 As yellow, powdery crusts on quartz and pyrite at the Dominion No. 1 Mine on the Carl Robinson farm, 2.5 miles from Woodstock.
- 21 J/10 As yellow, powdery crusts on sulphides and on the host rock at the Brunt Hill tungsten deposit, which may be reached by road (16 miles) from Maple Grove Station.
- 21 O/8 In the gossan at the Heath Steele Mine, 33 miles from Newcastle, via Highway 331.
- 21 P/5 In the gossan at Brunswick No. 6 Mine, which may be reached from Highway 331 via the road to Grand Falls.

Ontario

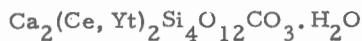
- 31 C/10 Jarosite forms irregular coatings on pyrite and pyrrhotite at the Enterprise Mine (Foley prospect). The property is located about 26 miles north of Kingston and 10 miles west of Godfrey. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 10.)

Quebec

The following occurrences of jarosite have been reported by Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51.

- 21 E/10 As pale yellow powdery coatings on quartz and ore minerals at a molybdenite deposit on the Joseph Gregoire farm, Ste.-Cecile Station.
- 21 E/11 With gypsum and rozenite as crusts on massive sulphides at the Weedon Mine, 1.3 miles from Fontainebleau and 10 miles east from Weedon.
- 21 E/13 As pale yellow acicular aggregates in quartz cavities and as a yellowish-orange powder on the metallic minerals at the South Ham antimony mine, located 8.5 miles west of Highway 1 on Highway 34.
- 22 A/16 With tiny pyrite grains, as spherical concretions in sandstone cliffs at Cap-aux-Os.
- 31 G/12W Jarosite occurs as dull yellow powdery encrustations on pegmatite and gneiss in roadcuts along the Gatineau Parkway. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 39.)
- 31 G/13E Roadcuts along Highway 35 north of Notre-Dame-de-la-Salette contain biotite gneiss which, in places, is coated with yellow, powdery jarosite. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 40.)
- 31 H/11W Earthy, yellowish to reddish brown jarosite forms coatings on the rock at the Goyer Quarry north of St-Bruno. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 54.)
- 31 I/16W Coatings and encrustations of yellow jarosite were noted on the surfaces of the tremolite rock at the Tetreault Mine near Montauban-les-Mines. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 88.)
- 31 J/7W Roadcuts on Highway 11 north of L'Annonciation expose biotite gneiss coated with powdery yellow jarosite and with white to greyish and yellowish cauliflower-like encrustations of gypsum. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 60.)
- 31 J/11E

KAINOSITE

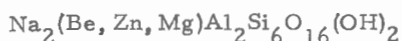


Quebec

- 31 G/12 Kainosite occurs at the Evans-Lou Mine near St-Pierre-de-Wakefield. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 69-50, p. 35.)



## KARPINSKYITE

Quebec

- 31 H/11 This very rare mineral is of crystallochemical interest because of the isomorphous substitution of Zn for Be. It has been identified in specimens from the Desourdy quarry on the northeast slope of Mont St-Hilaire. The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 4.70 (10), 4.15 (6), 3.38 (5), 3.16 (8), 3.11 (5), 2.40 (7). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, pp. 109-123).

## KLOCKMANNITE

Saskatchewan

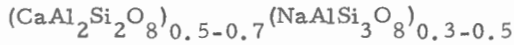
- 74 N/10 A suite of selenide minerals occur in pitchblende ore and hematite-stained carbonate veins in the Martin Lake Mine located at the northeast corner of Martin Lake in the neck of land between Beaverlodge Lake and Martin Lake. The selenides include klockmannite, umangite, clausenthalite, athabascaite, eucairite, berzelianite, eskebornite and tyrrellite. Native copper and silver are also present. (D. C. Harris, L. J. Cabri and S. Kaiman, 1970: Can. Mineralogist, 10, p. 207).

## KRENNERITE

New Brunswick

- 21 P/5 Krennerite and petzite are associated with chalcopyrite and occur as inclusions within pyrite and silicates at the Captain deposit situated on the headwaters of Tozer Brook and the west branch of Portage River in Gloucester and Northumberland Counties, nine miles from Heath Steele. (W. M. Tupper, D. J. Bachinski and R. W. Boyle, 1968: Geol. Surv. Can., Paper 66-18, p. 12).

## LABRADORITE

Quebec

- 22 D/6E Labradorite, exhibiting a characteristic blue play of colours, occurs in coarse-grained anorthosite in a roadcut on the Pont Arvida road at 0.7 miles north of Highway 16. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 104).

## LAMPROBOLITE

(See hornblende)

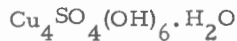
## LANGISITE

(Co, Ni)As

Ontario

- 31 M/12 Langisite, the cobalt rich analogue of niccolite (nickeline), has been discovered in a fault vein in the Langis Mine, Casey Township, Cobalt-Gowganda area. Its composition corresponds to  $\text{Co}_{0.84}\text{Ni}_{0.16}\text{As}_{1.04}$ . Langisite was found only as irregular grains and lamellae in safflorite. Electron probe microanalysis by D.C. Harris: Co 35.5, Ni 7.0, As 56.0, total 98.5. The strongest lines on the X-ray powder pattern are: 2.631 (10), 1.966 (9), 1.770 (8), 1.493 (4). (W. Petruk, D.C. Harris and J.M. Stewart, 1969: Can. Mineralogist, 9, pp. 597-616).

## LANGITE

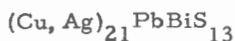


Langite is a secondary mineral resulting from the oxidation of copper sulphide minerals. The spacings and intensities of the four strongest lines in the X-ray powder pattern are: 7.12 (10), 3.56 (8), 2.49 (6) and 2.13 (5) (ASTM pattern 12-783).

Quebec

- 31 H/8 Langite has been identified among the secondary copper minerals at the Ives and Huntingdon Mines, located between Eastman and Bolton Centre, 0.8 and 3.1 miles, respectively, from Eastman. Associated minerals include: brochantite, malachite and posnjakite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 8, 9).

## LAROSITE

Ontario

- 31 M/5 A new mineral, larosite, was discovered in a sample from the Foster Mine. The mineral is rare and occurs as small acicular crystals in a chalcocite-stromeyerite assemblage. Chemical analyses by electron probe: Cu 49.7, 48.3; Ag 15.6, 15.6; Pb 9.0, 8.5; Bi 8.9, 9.6; S 18.5, 19.8; totals 101.7, 101.8. The spacings and intensities of the five strongest lines on the X-ray powder pattern are: 3.206 (5), 2.917 (9), 2.846 (6), 2.471 (6), 1.982 (10). (W. Petruk, 1972: Can. Mineralogist, 11, p. 886).

## LATRAPPITE

Quebec

- 31 G/8 Latrappite was found near the small community of La Trappe,  
31 G/9 Quebec, in the Oka district about 20 miles west of Montreal. It is defined as "a mineral with the perovskite structure and a composition corresponding to the general formula  $\text{ABO}_3$ , in which the A and B cation sites are occupied predominantly by calcium and niobium respectively". The latrappite occurs as small black cubic crystals with diopside, biotite and apatite in white calcite. Accessory minerals include pyrochlore, magnetite, pyrrhotite, dolomite, nepheline and monticellite. Chemical analysis by R. C. McAdam: CaO 25.95, Na<sub>2</sub>O 4.03, RE oxides 2.03, K<sub>2</sub>O 0.03, Nb<sub>2</sub>O<sub>5</sub> 43.90, TiO<sub>2</sub> 10.05, Fe calc. as Fe<sub>2</sub>O<sub>3</sub> 8.74, MgO 2.20, MnO 0.77, SiO<sub>2</sub> 0.45, S 0.90, loss on ignition 0.65. total 99.70, S.G. 4.40. Latrappite is orthorhombic with a = 5.448, b = 7.777 and c = 5.553. The spacings and intensities of the five strongest lines on the X-ray powder pattern are: 3.887 (8), 2.773 (3), 2.744 (10), 1.942 (6) and 1.579 (2). (E.H. Nickel and R. C. McAdam, 1963: Can. Mineralogist, 7, pp 683-697. E.H. Nickel, 1964: Can. Mineralogist, 8, pp. 121-2).

## LAUMONTITE



British Columbia

- 92 B/5 Veins and amygdules containing epidote, prehnite, pumpellyite, laumontite, chabazite, stilbite, analcime, quartz and calcite occur in the Metchosin basalt, east of the Sooke River. (W.G. Libby and Jerry Kopel, 1971: Can. Mineralogist, 10, p. 915).

New Brunswick

- 22 B/1 Cavities up to 4 inches in diameter and fractures up to 2 inches wide in volcanic flows along the shoreline between Inch Arran and Bon Ami Point are filled with one or more of laumontite, stilbite, thomsonite, heulandite and prehnite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 103).

Nova Scotia

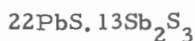
Laumontite is of widespread occurrence in the basalts of the Minas Basin - Bay of Fundy area. The following occurrences were noted by Ann P. Sabina, (1964) in *Rocks and Minerals for the Collector, Bay of Fundy Area*; Geol. Surv. Can., Paper 64-10.

- 21 A/14 Port Lorne, Annapolis County; with stilbite, mesolite, thomsonite and apophyllite.
- 21 H/2 Baxter's Harbour, Long Beach, Kings County; with heulandite, analcime and stilbite.
- Hall's Harbour, Kings County; with stilbite, heulandite, apophyllite and thomsonite.
- Chipman Brook, Kings County; with heulandite, stilbite and mordenite.
- Canada Creek, Black Rock, Kings County; with stilbite, mordenite, heulandite, mesolite, apophyllite, prehnite and gyrolite.
- Harbourville, Ogilvie; Kings County; with stilbite, heulandite and mesolite.
- Morden, Kings County; with stilbite, mordenite, apophyllite, analcime, heulandite and mesolite.
- 21 H/3 Margaretsville, Annapolis County; laumontite is the most prominent zeolite, and is associated with heulandite, analcime, apophyllite, gyrolite, mesolite, stilbite, scolecite and natrolite.
- Port George, Annapolis County; with stilbite, heulandite, analcime, mesolite, apophyllite, gyrolite and thomsonite.
- 21 H/8 Cape Blomidon to Cape Split, Kings County; with apophyllite, heulandite, natrolite, stilbite, chabazite, analcime, gmelinite, mesolite and thomsonite.

Quebec

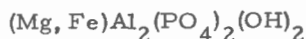
- 21 M/10E Vugs in the ore at the St. Urbain Titanium Mines deposit are partly filled with pyrite, limonite, hematite and with pale green chlorite, pinkish white zeolites and calcite crystals. The zeolites - pale pink, radiating, platy mesolite and greenish white massive laumontite - are associated with calcite and dark mica, and occur on the host rock and on the ore. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 96).

## LAUNAYITE

Ontario

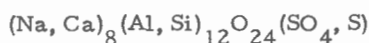
- 31 C/6 The new mineral, launayite, was found in polished sections of specimens collected from a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed. Taylor of Madoc. It occurs sparingly in association with veenite and boulangerite. Electron probe microanalysis (average of two grains) by G.R. Lachance: Pb 48.5, Sb 29.5, As 1.5, S 21.25, total 100.75. The spacings and intensities of the seven strongest lines on the X-ray powder pattern are: 4.17 (8), 3.45 (10), 3.40 (6), 2.92 (8), 2.836 (5), 2.752 (5), 2.010 (7). (J.L. Jambor, 1967: Can. Mineralogist, 9, pp. 191-213).

## LAZULITE

Yukon

- 117 A/10 Lazulite was collected along the Blow River near Fitton Mountain. It occurs as open space fillings and veinlets in quartzitic Jurassic sediments. Clusters of deep blue terminated crystals have developed on light blue massive lazulite. Chemical analysis by A. Stelmach: MgO 11.10, FeO 4.74, Al<sub>2</sub>O<sub>3</sub> 32.05, MnO 0.06, CaO tr., P<sub>2</sub>O<sub>5</sub> 45.61, TiO<sub>2</sub> 0.06, H<sub>2</sub>O<sup>+</sup> 6.38, total 100.00 (after removal of 0.42% SiO<sub>2</sub>). The five strongest lines on the X-ray powder pattern are: 6.146 (7), 3.234 (7), 3.197 (6), 3.136 (9) and 3.072 (10). (F.A. Campbell, 1962: Am. Mineralogist, 47, p. 157).

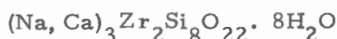
## LAZURITE

Northwest Territories

- 25 K/13 Lazurite (lapis lazuli) is intimately associated with white diopside in crystalline limestone at a locality 9 miles north-northeast of the settlement of Lake Harbour on Baffin Island. The lazurite-bearing limestone is exposed on the west side of the Soper River about 5 miles from its entrance into Soper Lake. The exposure is about 400 yards from the shore of the river. (W. L. Davison, 1958: Geol. Surv. Can., Prelim. Map 29-1958. Ann P. Sabina, 1964: Geol. Surv. Can., Misc. Report 8, Rock and Mineral Collecting in Canada, Vol. 1, p. 26).

The spacings and intensities of the seven strongest lines on the X-ray powder pattern of lazurite from Lake Harbour, Baffin Island, are: 6.35 (4), 4.12 (4), 3.70 (10), 2.87 (4), 2.62 (7), 2.14 (4) and 1.366 (4). (Ann P. Sabina and R. J. Traill, 1960: Geol. Surv. Can., Paper 60-4, p. 59).

## LEMOYNITE

Quebec

- 31 H/11 The new mineral, lemoynite, was discovered in specimens of nepheline-sodalite syenite from the Desourdy quarry on the northeast slope of Mont St-Hilaire. Chemical analysis by A. V. Bikova: SiO<sub>2</sub> 47.32, ZrO<sub>2</sub> 23.23, TiO<sub>2</sub> 0.43, Nb<sub>2</sub>O<sub>5</sub> 2.18, RE oxides 1.18, Fe<sub>2</sub>O<sub>3</sub> 1.61, MnO 0.10, CaO 5.06, Na<sub>2</sub>O 4.75, H<sub>2</sub>O 13.33, total 99.19. The strongest lines on the X-ray powder pattern are: 9.0 (4), 8.01 (10), 4.39 (3), 3.56 (5), 3.48 (3), 3.03 (3), 2.81 (5). (Guy Perrault, E. I. Semenov, A. V. Bikova, and T. A. Capitonova, 1969: Can. Mineralogist, 9, pp. 585-596).

## LEPIDOCROCITE

New Brunswick

- 21 P/5 Lepidocrocite in the form of dull black, tiny, mammillary and botryoidal masses is associated with pale yellow, fine-grained sphalerite at the Bathurst iron mine at Austin Brook. The deposit may be reached via the road to Grand Falls from

Highway 331, 16 miles from Bathurst. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 115).

Nova Scotia

- 11 K/3 Iron-stained concretions measuring 2 or 3 inches in diameter occur in shale in cliffs just north of the wharf at Finlay Point, Cape Breton Island. The interior of the concretions is composed of a mixture of iron minerals, including goethite, lepidocrocite and glauconite, with quartz. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 20).

LEPIDOLITE



Quebec

- 31 H/11 The polyolithionite variety of lepidolite is reported to occur in vugs in nepheline syenite at the Desourdy quarry on the north-east slope of Mont St-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, pp. 109-123).

Chemical analysis (partial) of polyolithionite from St-Hilaire: SiO<sub>2</sub> 60.7, TiO<sub>2</sub> 2.5, Al<sub>2</sub>O<sub>3</sub> 10.4, MgO 0.0, CaO 10.3, K<sub>2</sub>O 11.9, Li<sub>2</sub>O 7.5, total 93.3. (G. Perrault, 1966: Can. Mineralogist, 8, p. 671).

LEUCOPHANE



Quebec

- 31 H/11 At the Desourdy quarry on the northeast slope of Mont St-Hilaire, leucophane occurs as short prismatic to tabular crystals in silicate vugs in nepheline syenite. It is usually associated with analcime and serandite. Chemical analysis: SiO<sub>2</sub> 49.72, Al<sub>2</sub>O<sub>3</sub> 0.80, BeO 8.91, Na<sub>2</sub>O 11.78, CaO 18.69, F<sub>2</sub> 7.35, H<sub>2</sub>O<sup>+</sup> 0.84, (total 98.09). (G. Y. Chao, 1967: Can. Mineralogist, 9, p. 286).

The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 3.60 (6), 2.97 (8), 2.75 (10), 2.18 (4), 1.986 (4) and 1.702 (5). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, pp. 109-123).

## LEUCOSPHEENITE

Quebec

- 31 H/11 The rare minerals leucosphenite and narsarsukite are found in inclusions of greyish green hornfels in nepheline syenite at the Desourdy Quarry on the northeast slope of Mont St-Hilaire. The X-ray powder pattern of leucosphenite has the following strongest lines: 8.46 (5), 4.23 (10), 3.38 (4), 2.89 (3), 2.82 (3) and 2.28 (2). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

## LINNAEITE

New Brunswick

- 21 P/5 Linnaeite is closely associated with pyrite and chalcopyrite at the Captain deposit situated on the headwaters of Tozer Brook and the west branch of Portage River in Gloucester and Northumberland Counties, about 9 miles east of Heath Steele. (W. M. Tupper, D. J. Bachinski and R. W. Boyle, 1968: Geol. Surv. Can., Paper 66-18, p. 11.)

Ontario

- 31 M/12 The siegenite variety of linnaeite,  $\text{Co}_{1.6}\text{Ni}_{1.2}\text{S}_4$ , occurs intimately associated with cobalt pentlandite at the Langis Mine, Casey Township, Cobalt-Gowganda area. Electron probe microanalysis by D. C. Harris: Co 33.0, Ni 23.5, S 44.0, total 100.5. (W. Petruk, D. C. Harris and J. M. Stewart, 1969: Can. Mineralogist, 9, p. 597-616.)

Quebec

- 32 D/6 Cuprian linnaeite has been identified in specimens from the Vauze Mine, located about 15 miles north of Noranda. It contains oriented lamellae of cobalt pentlandite. Electron probe microanalysis gave: Co 44.9, Cu 12.1, Fe 1.5, Ni 0.4, S. 39.2, total 98.1. (E. F. Stumpfl and A. M. Clark, 1964: Neues. Jahr. Min., 8, p. 240-245.)



## MACKINAWITE



The mineral mackinawite was described in detail and named after the locality where it was found (Mackinaw Mine, Washington) by Evans *et al.*, (1964). It corresponds to synthetic tetragonal FeS and gives an X-ray powder pattern (Fe radiation) having the following five strongest lines: 5.03 (10), 2.96 (7), 2.31 (9), 1.838 (5) and 1.809 (8). (H.J. Evans, Jr., *et al.*, 1964: U.S. Geol. Surv., Prof. Paper 475-D, pp. 64-69).

Northwest Territories

- 86 J Mackinawite occurs as a replacement in pentlandite and is invariably associated with that mineral in serpentine-bearing dunites and pyroxenites of the central layered series of the Muskox intrusion in the Coppermine River area. (J.A. Chamberlain and R.N. Delabio, 1965: Am. Mineral., 50, p. 682).

## MADOCITE

Ontario

- 31 C/6 Madocite is named for the town of Madoc, the locality from which the mineral was first identified. It occurs with 7 other new minerals in a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed. Taylor of Madoc. Average of 3 electron probe microanalyses by G.R. Lachance: Pb 55, Sb 22.8, As 3.1, S 19.9, total 100.8. The spacings and intensities of the seven strongest line on the X-ray powder pattern are: 3.87 (5), 3.67 (7), 3.396 (10), 3.355 (9), 2.925 (6), 2.720 (8), 1.741 (5). (J.L. Jambor, 1967: Can. Mineralogist, 9, pp. 7-24).

## MAGNESITE

Quebec

- 21 E/5 Quartz, barite and magnesite are gangue minerals at the Aldermac Moulton Hill Mine, located south of Highway 1, about 3 miles east of Sherbrooke. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 29).

- 21 L/3 Nodules of magnesite about 1/4 inch in diameter occur in talc at the Broughton soapstone quarry about 1 1/2 miles from St-Pierre (West Broughton). Magnesite occurs as cleavable and fibrous masses with fibres several inches long at the East Broughton (Fraser) mine, 1 1/2 miles from East Broughton along 13th Street West. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 56, 58.)
- 31 G/15E White to grey granular magnesite is intimately associated with dolomite at Kilmar Mines near Kilmar. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 72.)
- 31 H/1 Orange-yellow streaks and translucent light brown nodules of magnesite occur in massive talc at the Van Reet Mine of Baker Talc Limited, located 0.4 mile south of the road from Eastman to Bolton Centre to Knowlton, 12.4 miles from Eastman. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 10.)

## MAGNETITE

Manitoba

- 63 I/12 Vanadian magnetite occurs as massive lenses and as disseminations in a sequence of rocks between gabbro-lava and intrusive anorthosite along the southwest shore of Pipestone Lake in the Cross Lake area. (C.K. Bell, 1962: Geol. Surv. Can., Paper 61-22, p. 21.)

Quebec

Specimens of magnetite pseudomorphous after fibrous picro-lite have been found at the following asbestos deposits:

- 21 E/13 Jeffrey Mine at Asbestos
- 21 L/3 Bennett-Martin and Bell pits at Thetford Mines
- 21 L/7 Golden Age Mine on the east side of Highway 23, just south of the bridge over the des Plantes River. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 26, 53, 62.)
- 31 G/8 Chemical analyses of magnetites from the Oka Complex, located 20 miles west of Montreal on the north shore of the Lake of Two Mountains. Analyst, H. Soutar. I, from monticellite-calcite rock, 3,000 feet southeast of mine: SiO<sub>2</sub> 7.45, TiO<sub>2</sub> 3.18, Al<sub>2</sub>O<sub>3</sub> 5.17, Fe<sub>2</sub>O<sub>3</sub> 54.30, FeO 17.23, MnO 5.36, MgO 5.42, CaO 1.83, P<sub>2</sub>O<sub>5</sub> 0.47, total 100.41. II, from okaite, Dufresne Hill: SiO<sub>2</sub> 2.21, TiO<sub>2</sub> 3.85, Al<sub>2</sub>O<sub>3</sub> 7.25, Fe<sub>2</sub>O<sub>3</sub> 56.98, FeO 21.60, MnO 1.49, MgO 3.91, CaO 1.54, P<sub>2</sub>O<sub>5</sub> 0.39, total 99.22. III, from pyroxene-pyrochlore-calcite rock, St. Lawrence Columbian and Metals Corp. :

SiO<sub>2</sub> 0.83, TiO<sub>2</sub> 3.71, Al<sub>2</sub>O<sub>3</sub> 0.15, Fe<sub>2</sub>O<sub>3</sub> 64.20, FeO 24.52, MnO 3.71, MgO 0.60, CaO 1.58, P<sub>2</sub>O<sub>5</sub> 0.31, total 99.69.  
(D.P. Gold, 1966: Min. Soc. India, I. M. A. Volume, p. 102-126.)

## MALACHITE

British Columbia

- 82 N/5 Malachite and azurite occur with anglesite, cerussite and minor smithsonite in oxidized lead-zinc ores on the Waverley property located just north of Tangier Pass and accessible from Albert-Canyon. (J.O. Wheeler, 1963: Geol. Surv. Can., Paper 62-32, p. 28.)

New Brunswick

- 21 P/15 Copper-bearing fossil plant beds are exposed at low tide in the sandstone cliffs at Pigeon Hill. Malachite is common as crusts and coatings on the plant remains. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 123.)

Nova Scotia

- 11 D/14 Massive malachite lenses, about 3/4 inch by 2 inches have been found in the dumps of the Dunbrack Mine, 2.8 miles from Musquodoboit Harbour along the road to Meaghers Grant, Halifax County. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 7.)

Quebec

Specimens of copper sulphides coated with malachite and other secondary minerals have been found at the following localities:

- 22 A/7 A pit in cliffs above the beach on the north side of Anse-à-Blondel,  
22 A/13 Needle Mountain and Copper Mountain deposits of Gaspé Copper Mines Limited, Murdochville,  
31 H/2 Sweet's Mine, 3 miles north of Sutton,  
31 H/8 Les Marbres Waterloo quarry at South Stukely; and Bolton (Canfield Mine, 2.4 miles from Eastman on the road to Bolton Centre,  
31 H/9 St-Francis Mine on the H. B. Lanchard farm, about 4 1/2 miles northwest of Richmond,

- 31 H/10 Acton Mine, at Acton Vale. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51.)

Yukon

- 105 B/1 The Fiddler-West or Wolframite showing of the Luck group (60° 07'N., 130° 26'W.), located along Boulder Creek north of 5 miles from its junction with the Rancheria River, consists of quartz veins containing wolframite, cassiterite, chalcopyrite, galena, malachite, azurite, limonite, fluorite and minor beryl. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 134.)
- 115 A/3 Abundant malachite and azurite staining is present on the property of Jack Pat Copper Mines Limited at 60° 03'N., 137° 07'W., 6 miles southwest of Dalton Post and 3 miles north of the Yukon - British Columbia border. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 108.)
- 115 G/6 Malachite-stained basalts containing disseminated bornite, chalcocite and native copper have been found at several localities near the headwaters of Quill Creek. (D. C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 53)
- 115 G/6 Malachite is common and is associated with pyrite, chalcopyrite, molybdenite and minor magnetite and hematite along a contact zone between feldspar porphyry and Triassic volcanics on the Cork claims situated at the head of Johnson Creek, a southeast flowing tributary of Tetamagouche Creek, 15 miles west of Burwash Landing. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 101.)
- 115 I/6 Malachite and azurite are associated with massive and disseminated chalcopyrite at the Yukon Revenue property (62° 21'N., 137° 12'W.) on Revenue Creek on the south side of the valley of Big Creek, 35 miles northwest of Carmacks. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 79.)
- 115 I/7 Mineralized outcrops in which malachite is the most common mineral are found on the Williams Creek property (62° 22'N., 136° 43'W.) situated one mile southwest of the Yukon River, 7 miles west of Yukon Crossing, on the northeast flank of the Dawson Range. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 92.)

## MANGANITE

British Columbia

- 92 P/4 The Clinton manganese deposit is located about 10 miles north-west of Clinton on one of the foothills of Marble mountains, about 2 miles north of Clinton creek. Psilomelane, manganite and pyrolusite occur as nodules, narrow stringers and irregular masses in quartzites and chloritic schists of the Cache Creek group. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 18).

Nova Scotia

- 11 E/5 Pyrolusite, manganite and psilomelane occur as nodules and pockets in conglomerate at an old mine (operated 1880 to 1900) near Tenecape, and in cliffs exposed along the west side of the mouth of the Tennycape River, Hants County. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10).
- 11 E/6 Manganite occurs with pyrolusite, limonite and hausmannite in veins up to 7 inches wide in dark grey limestone at the Black Rock deposit, exposed along the shore of Minas Basin at mid-tide level. Access to the shoreline is through the Edgar Nelson farm, located about 10 miles southwest of Truro, along the Clifton - Black Rock road. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10).
- 11 E/6 Nodules of pyrolusite and manganite up to 4 inches across occur in limestone and conglomerate at the East Mountain manganese mine on the property of Mrs. Daniel McMasters located about 6.7 miles northeast of Truro. Veins containing pyrolusite, manganite and calcite cut sandstone at an old mine on the farm of Mrs. H. Coulter, about 7.7 miles from Truro. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10).
- 11 F/15 Manganese minerals, mainly pyrolusite and some manganite, occur in Horton-Windsor rocks of Mississippian age as nodular masses in limestone and as fracture fillings in shale, in the Loch Lomond area. Associated minerals are calcite, hausmannite, rhodochrosite, barite and selenite. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 52).
- 21 A/9 At New Ross, Lunenburg County, pyrolusite, manganite and psilomelane, with calcite, barite, manganiferous carbonate, iron oxides and country rock occur as lenticular veins in faults or crushed zones in Devonian granite. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 48).

- 21 H/1 At Bishop's Brook, two miles south of Kentville, an intergrowth of pyrolusite, manganite and psilomelane with hematite forms beds, lenses and concretions interstratified with bands of grey phyllite. (A. G. Johnston and W. D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 47.)

Manganite and pyrolusite occur in pockets and joint planes in limestone at the Stephens Mine, about 1/2 mile southwest of Walton.

Minor amounts of manganite are found in the Magnet Cove Barium Corporation Quarry, about 3 miles southwest of Walton.

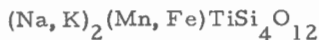
Pyrolusite, manganite and psilomelane occur as nodular masses and crystal aggregates with white to brown calcite at the Macumber mine on the shoreline southwest of the wharf at Cheverie. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10).

- 21 H/8 Manganite, pyrolusite and psilomelane occur as seams, veinlets and small pockets in volcanic rocks, sandstone and shale near Parrsboro, Cumberland County (A. G. Johnston and W. D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 43.)

#### Ontario

- 41 K/16 Manganite, psilomelane and manganese carbonates, along with quartz, calcite and fluorite occur in closely spaced stringers in a reddish lava flow at a deposit in Ley Township, Batchawana Bay. (A. G. Johnston and W. D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 29.)

#### MANGAN-NEPTUNITE



#### Quebec

- 31 H/11 Mangan-neptunite, the rare manganese analogue of neptunite, has been identified by X-ray diffraction in specimens from the Desourdy Quarry on the northeast slope of Mont St-Hilaire. It varies in colour and composition from dark reddish brown ( $\text{Mn}_{.87}\text{Fe}_{.10}\text{Zn}_{.03}$ ) to yellow ( $\text{Mn}_{.84}\text{Zn}_{.15}\text{Fe}_{.01}$ ). (J. A. Mandarino, D. C. Harris and J. Bradley, 1965: Can. Mineralogist, 8, p. 398,) The six strongest lines on the X-ray powder pattern are: 9.56 (10), 3.51 (8), 3.18 (10), 2.94 (5), 2.89 (5), 2.48 (5) (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 121.)

## MARCASITE

New Brunswick

- 21 I/14 Small elongated concretions of marcasite and of pyrite occur  
 21 J/1 in sandstone beds of the Minto coalfield. The Minto coal area  
 is about 34 miles from Fredericton via Highway 10. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 129.)
- 21 O/8 Heath Steele Mine.
- 21 P/5 Key Anacon and Brunswick No. 6 Mines.
- 21 P/12 Nigadoo River Mines.

Marcasite is reported to be a minor constituent of the ore-  
 bodies at the mines noted above. (Ann P. Sabina, 1967:  
Geol. Surv. Can., Paper 66-51).

Nova Scotia

- 11 F/11 Aggregates of marcasite and dogtooth spar have been found  
 at the abandoned Lennox limestone quarry located near the  
 lighthouse about one mile from Martinique, Richmond County.  
 (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 40.)

Ontario

- 31 B/12W Dark brown-stained marcasite nodules averaging 3/4 inch  
 across are common in a quarry about 6 miles north of  
 Brockville, off Highway 29. (Ann P. Sabina, 1968: Geol.  
 Surv. Can., Paper 67-51, p. 49.)
- 31 G/5E Marcasite, as radiating, platy, and granular patches, is  
 associated with calcite, barite, celestite and strontianite at  
 the Fraser Duntile Quarry on Clyde Avenue in Ottawa. (Ann  
 P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 85.)
- 31 M/3 Marcasite is a common mineral in the Cobalt-Gowganda ores.  
 31 M/5 It occurs in faults, in late calcite veins, in the ore veins, and  
 31 M/12 in Keewatin interflow rocks. Electron microprobe analyses  
 41 P/9 are as follows:
- |         | <u>Occurrence</u>      | <u>Fe</u> | <u>Co</u> | <u>S</u> | <u>Total</u> |
|---------|------------------------|-----------|-----------|----------|--------------|
| 41 P/10 | intergrown with pyrite | 46.50     | nd        | 53.52    | 100.04       |
| 41 P/15 | in veinlets            | 46.51     | 0-0.3     | 53.57    | 100.08       |
|         | in veinlets            | 45.97     | nd        | 52.57    | 98.54        |
|         | in veinlets            | 46.98     | 0-0.07    | 53.92    | 100.90       |
| 41 P/16 | inclusions in galena   | 47.08     | 0-0.03    | 54.56    | 101.64       |
- (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 222.)

- 52 L/16 A base-metal sulphide deposit in Mulcahy Township about 20 miles west of Red Lake and 4,000 feet south-southwest of the south end of Trout Bay consists mainly of pyrrhotite, sphalerite and chalcopyrite, with lesser amounts of galena, marcasite, arsenopyrite, cobaltite, pyrargyrite, paracostibite, gudmundite, stannite, argentian tetrahedrite, antimonial silver, allargentum, ilmenite, breithauptite, cassiterite, and nisbite. (L. J. Cabri, D. C. Harris and J. M. Stewart, 1970: Can. Mineralogist, 10, p. 232).

Yukon

- 105 M/14 In the Keno Hill - Galena Hill area, small amounts of mar-  
106 D/4 casite occur in the country rocks and lodes. Good specimens of radiating marcasite were obtained from some of the pyrite-jamesonite veins in the Dublin Gulch area, and from the Silver King Mine. (R. W. Boyle, 1965: Geol. Surv. Can., Bull. 111, p. 160).

MATILDITE



Northwest Territories

- 86 E/9 Large irregular grains of matildite occur with an assemblage of Co-Ni arsenides, native bismuth and silver at a deposit on the Camsell River, 4 miles south of its mouth at Conjuror Bay on Great Bear Lake, and 4 miles downstream from the earlier known Camsell River Silver Mines property. Electron probe microanalysis by D. C. Harris: Ag 27.3, Bi 56.0, S 16.9, total 100.2. The four strongest lines on the X-ray powder pattern are: 3.302 (8), 2.827 (10), 2.029 (5), 1.966 (6). (D. C. Harris and R. I. Thorpe, 1969: Can. Mineralogist, 9, pp. 655-662).

Ontario

- 31 M/3 Matildite was identified in samples from the Silverfields and  
31 M/5 Canadian Keeley Mines. It occurs as lamellae and grains within galena, and as an intergrowth with pavonite. Electron probe microanalysis of matildite co-existing with pavonite: Ag 26.4, Bi 55.7, S 16.7, total 98.8. (W. Petruk, et al., 1971: Can. Mineralogist, 11, p. 216).

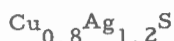


## MAUCHERITE

Ontario

- 31 M/12 Small irregular grains of maucherite were found in calcite at the Langis Mine, Casey Township, Cobalt-Gowganda area. The maucherite contains inclusions of siegenite and is associated with an assemblage of arsenides and sulphides that includes the new mineral langisite and the rare minerals cobalt pentlandite, parkerite and bravoite. Electron probe micro-analysis of maucherite from the Seneca Superior Mine: Ni 46.9, Co 3.9, As 49.0, Sb 0.3, total 100.1. (W. Petruk, D.C. Harris and J.M. Stewart, 1969: Can. Mineralogist, 9, pp. 597-616).

## MCKINSTRYITE

Ontario

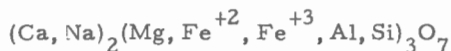
- 31 M/5 The new mineral, mckinstryite, was found in 1966 on a specimen collected in 1907 at the Foster Mine, lot 4, concession IV, Coleman Township, and donated to the mineral collection of the Geological Survey of Canada. X-ray fluorescence analysis by H.J. Rose and F. Cuttitta: Cu 24.9, Ag 60.0, S 15.1, total 100.0. The spacings and intensities of the five strongest lines on the X-ray powder pattern are: 3.508 (6), 3.062 (6), 2.862 (6), 2.606 (10), 2.070 (7). (Brian J. Skinner, John L. Jambor and Malcolm Ross, 1966: Econ. Geol. 61, p. 1383).

## MELANTERITE

Quebec

- 22 G/1 Melanterite occurs as a soft, white, powdery coating on pyrite at the Candego Mine located in a protected forest area about 12 miles south of Marsoui. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 75).

## MELILITE



The name melilite is used as a group name for a solid solution series extending between akermanite ( $\text{Ca}_2\text{MgSi}_2\text{O}_7$ ) and gehlenite ( $\text{Ca}_2\text{Al}_2\text{SiO}_7$ ), and as a mineral name for intermediate composition members of the series, most of which also contain appreciable amounts of iron and sodium. The melilites are tetragonal: akermanite-rich varieties are optically positive and gehlenite-rich members of the series are optically negative. X-ray powder pattern data for synthetic end members are: akermanite, ASTM 10-391, 309 (3), 2.87 (10), 2.49 (2), 2.04 (2), 1.76 (3); gehlenite, ASTM 20-199, 3.71 (2), 3.07 (3), 2.85 (10), 2.40 (3) and 1.75 (4).

Quebec

- 31 G/8 Melilite-bearing rocks of the okaite and jacupirangite series  
 31 G/9 and melilite-carbonate rocks form part of the Oka Complex located about 20 miles west of Montreal on the north shore of the Lake of Two Mountains. Chemical analyses by W. H. Herdsman (III, V, VI) and H. Ulk (IV): III, melilite from okaite, Dufresne Hill,  $\text{SiO}_2$  39.78,  $\text{Al}_2\text{O}_3$  10.33,  $\text{Fe}_2\text{O}_3$  2.02,  $\text{FeO}$  1.44,  $\text{MnO}$  0.38,  $\text{MgO}$  7.06,  $\text{CaO}$  33.02,  $\text{Na}_2\text{O}$  3.69,  $\text{K}_2\text{O}$  0.24,  $\text{P}_2\text{O}_5$  0.69,  $\text{H}_2\text{O}^+$  0.38,  $\text{H}_2\text{O}^-$  0.06,  $\text{CO}_2$  nil,  $\text{SrO}$  0.88,  $\text{BaO}$  0.09,  $\text{ZrO}_2$  0.18, total 100.24, S. G. 2.990; IV, melilite from nepheline okaite, Husereau Hill,  $\text{SiO}_2$  38.68,  $\text{Al}_2\text{O}_3$  10.60,  $\text{Fe}_2\text{O}_3$  0.45,  $\text{FeO}$  1.81,  $\text{MnO}$  0.35,  $\text{MgO}$  7.66,  $\text{CaO}$  34.28,  $\text{Na}_2\text{O}$  3.92,  $\text{K}_2\text{O}$  nil,  $\text{P}_2\text{O}_5$  0.11,  $\text{H}_2\text{O}^+$  0.36,  $\text{H}_2\text{O}^-$  0.01,  $\text{CO}_2$  1.14,  $\text{SrO}$  0.44, total 99.81, S. G. 2.988; V, melilite from calcite-melilite rock, Bond zone,  $\text{SiO}_2$  39.64,  $\text{Al}_2\text{O}_3$  6.62,  $\text{Fe}_2\text{O}_3$  1.47,  $\text{FeO}$  2.01,  $\text{MnO}$  0.91,  $\text{MgO}$  7.72,  $\text{CaO}$  34.32,  $\text{Na}_2\text{O}$  3.35,  $\text{K}_2\text{O}$  0.24,  $\text{P}_2\text{O}_5$  1.21,  $\text{H}_2\text{O}^+$  0.88,  $\text{H}_2\text{O}^-$  0.24,  $\text{CO}_2$  nil,  $\text{SrO}$  1.00,  $\text{BaO}$  0.44,  $\text{ZrO}_2$  0.21, total 100.26, S. G. 3.127; VI, melilite from niocalite-calcite rock, Bond zone,  $\text{SiO}_2$  39.98,  $\text{Al}_2\text{O}_3$  4.47,  $\text{Fe}_2\text{O}_3$  1.89,  $\text{FeO}$  2.59,  $\text{MnO}$  1.21,  $\text{MgO}$  7.29,  $\text{CaO}$  34.86,  $\text{Na}_2\text{O}$  3.08,  $\text{K}_2\text{O}$  0.12,  $\text{P}_2\text{O}_5$  2.14,  $\text{H}_2\text{O}^+$  0.86,  $\text{H}_2\text{O}^-$  nil,  $\text{CO}_2$  nil,  $\text{SrO}$  1.59,  $\text{BaO}$  0.01,  $\text{ZrO}_2$  0.30, total 100.39, S. G. 3.041. (D. P. Gold, 1966: Min. Soc. India, I. M. A. Volume, pp. 102-126).

## MELONITE

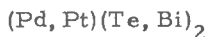
Ontario

- 41 I/10 Palladian and bismuthian melonites have been identified at the  
41 I/11 Strathcona and Falconbridge Mines. Electron probe micro-  
analyses: Strathcona - Ni 11.3, Pd 7.4, Pt 3.7, Te 65.2,  
Bi 14.4, total 102.0; Falconbridge - Ni 17.1, Pd 2.1, Pt  
1.5, Te 72.5, Bi 9.1, total 102.3. (J. Rucklidge, 1969:  
Can. Mineralogist, 9, pp. 617-627).

Quebec

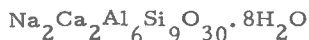
- 32 D/6 Melonite has been found as thin bands between frohbergite and  
chalcopyrite, and as separate grains, in specimens from the  
Robb Montbray deposit. (J. Rucklidge, 1969: Can.  
Mineralogist, 9, pp. 709-716).

## MERENSKYITE

Ontario

- 52 L/7 Nickelovan merenskyite has been found in a specimen of drill  
core through massive sulphides, from Werner Lake. Electron  
probe microanalysis: Ni 5.9, Pd 18.3, Pt 0.37, Te 65.6,  
Bi 10.8, total 101.0. (J. Rucklidge, 1969: Can.  
Mineralogist, 9, pp. 617-627).

## MESOLITE

Nova Scotia

- Mesolite has been found at numerous localities in the basalts  
of the Minas Basin - Bay of Fundy area. The following list  
of localities and associated zeolites is taken from Geol. Surv.  
Can., Paper 64-10, Rocks and Minerals for the Collector,  
Bay of Fundy Area, by Ann P. Sabina.
- 21 A/14 Port Lorne, Annapolis County; with stilbite, thomsonite,  
apophyllite and laumontite.

- 21 H/2 Canada Creek, Black Rock, Kings County; with stilbite, mordenite, heulandite, apophyllite, laumontite, prehnite and gyrolite.  
Harbourville and Ogilvie, Kings County; with stilbite, heulandite and laumontite.  
Morden, Kings County; with stilbite, laumontite, mordenite, apophyllite, analcime and heulandite.
- 21 H/3 Margaretsville, Annapolis County; with heulandite, laumontite, analcime, apophyllite, gyrolite, stilbite, scolecite and natrolite.  
Port George, Annapolis County; with stilbite, heulandite, analcime, apophyllite, laumontite, gyrolite and thomsonite.
- 21 H/7 Horseshoe Cove, Cape D'Or, Cumberland County; with analcime, stilbite, laumontite, apophyllite, chabazite, thomsonite, natrolite and heulandite,
- 21 H/8 Cape Blomidon to Cape Split, Kings County; with apophyllite, heulandite, natrolite, stilbite, chabazite, analcime, gmelinite, laumontite and thomsonite.  
Scots Bay, Small Cove and Big Cove, Kings County; with stilbite, natrolite and heulandite.

Quebec

- 21 M/10E Vugs in the ore at the St. Urbain Titanium Mines deposit are partly filled with pyrite, limonite, hematite and with pale green chlorite, pinkish white zeolites and calcite crystals. The zeolites - pale pink, radiating, platy mesolite and greenish white massive laumontite - are associated with calcite and dark mica and occur on the host rock and on the ore. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 96).

MICROCLINE

(See potassium feldspar)

MINNESOTAITE



British Columbia

- 82 F/10 Chemical analysis of minnesotaite from the Bluebell Mine at Riodel: SiO<sub>2</sub> 51.47, FeO 30.50, Fe<sub>2</sub>O<sub>3</sub> 3.23, Al<sub>2</sub>O<sub>3</sub> 1.57, CaO 0.00, MgO 5.10, H<sub>2</sub>O<sup>+</sup> 5.88, H<sub>2</sub>O<sup>-</sup> -.16, MnO 1.83, total 99.74. (Guy Perrault and Paul Hébert, 1968: Can. Mineralogist, 9, p. 579).

## MOLYBDENITE

British Columbia

- 82 M/8 Replacement bodies of molybdenite, pyrrhotite and pyrite disseminated in siliceous rock occur in schist on the Sterling property a few miles north of Mars Creek. The same three minerals occur in a quartz vein on the Hard Pan occurrence a short distance north of the Sterling showings. (J.O. Wheeler, 1965: Geol. Surv. Can., Paper 64-32, p. 34).

Nova Scotia

- 20 P/14 Molybdenite is associated with pale green beryl, colourless, pale pink and smoky quartz, black tourmaline and pale green apatite crystals in a quartz vein cutting biotite quartzite exposed in trenches on top of a hill about 3.6 miles north of Jordan Falls, Shelbourne County, along the Lake John road. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 83).

Ontario

- 52 A/10 Crystals of molybdenite up to 5 inches in diameter occur in quartz stringers and in pegmatite at Loon Lake. Access to the property is by a 2 3/4 mile road leading north from the East Loon road just east of the point where Anderson Creek enters Loon Lake. The East Loon road leaves Highway 17 at 4 1/4 miles southwest of Pearl. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 25).
- 52 F/16 Well-formed crystals of molybdenite occur in pegmatite on the Pidgeon property near the east end of Lateral Lake. Access is by a road, 6.3 miles long, leading west from Highway 72 at a point 19.9 miles north of Dinorwic. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 39).

Quebec

- 21 E/10 Fine flaky masses of molybdenite are associated with massive galena, sphalerite, chalcopyrite, pyrite and dull black marcasite in quartz and feldspar on the farm of Joseph Grégoire, about half a mile from Ste-Cécile Station. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 43).
- 21 E/15 At the Copperstream-Frontenac mine, Mount St-Sébastien, molybdenite occurs as fine, flaky masses in quartz,

associated with chalcopyrite, pyrite and pyrrhotite. Pockets of coarse molybdenite have been found in the quartz. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 41.)

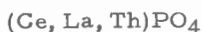
- 21 L/7 Molybdenite flakes and small flaky masses occur in quartz on the farm of François Jacques, located just north of the bridge over the des Plantes River on the east side of Highway 23. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 62.)
- 22 A/13 Molybdenite is a minor constituent of the Needle Mountain and Copper Mountain deposits of Gaspé Copper Mines Limited at Murdochville. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 81.)
- 31 H/11 Both the 3R and 6H polymorphs of molybdenite have been identified in inclusions of greyish green hornfels in nepheline syenite at the Desourdy Quarry on the northeast slope of Mont St-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

Yukon

- 105 C/13 Molybdenite is associated with porphyritic intrusions on the  
105 F/4 Fox and Star claims of Boswell River Mines Limited, at 61° 00'N., 133° 45'W. The property is 50 miles east-northeast of Whitehorse, on Slate Mountain, at the headwaters of Slate and Red Mountain creeks, two tributaries of Boswell River. Geochemical surveys have indicated molybdenum highs elsewhere in this area. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Volume 1, Dept. Indian Affairs and Northern Development, p. 121.)
- 105 F/1 Molybdenite occurs in diopside-garnet and wollastonite-garnet skarns on the Molly group of claims (Conwest Exploration Company Limited) at 61° 10'N., 132° 25'W., in the Quiet Lake area. The main showings are at an altitude of about 5,500 feet on the south side of a small valley tributary to McNeil River. Specimens containing considerable powellite were collected from a second showing located about 3,400 feet northwest of the main showing. (L. H. Green and C. I. Godwin, 1964: Geol. Surv. Can., Paper 64-36, p. 45.)
- 115 G/6 Pyrite, chalcopyrite and molybdenite with minor magnetite and specularite are associated with feldspar porphyry intrusive into sediments on the Cork claims situated at the head of Johnson Creek, a southeast flowing tributary of Tetamagouche Creek (61° 23'N., 139° 25'W). (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Volume 1, Dept. Indian Affairs and Northern Development, p. 101.)

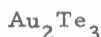
- 115 G/8 Three areas of intense jointing, faulting and shearing with disseminated molybdenite, chalcopyrite, pyrrhotite and pyrite occur on property staked for the Phelps Dodge Corporation of Canada at  $61^{\circ}28'N$ ,  $138^{\circ}10'W$  near the headwaters of Rockslide Creek, Alaskite Creek and an unnamed creek flowing south into the northern Gladstone Lakes, about 29 miles east-north-east of Burwash Landing. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Volume 1, Dept. of Indian Affairs and Northern Development, p. 105).
- 115 G/15 The 217 Max claims staked between the headwaters of Onion  
115 G/16 Creek and Rhyolite Creek ( $61^{\circ}51'N$ ,  $138^{\circ}34'W$ ) about 50 miles northeast of Burwash Landing cover a copper-molybdenum prospect in which molybdenite occurs in quartz veins and disseminations in a quartz monzonite plug, and as rosettes in quartz veins cutting quartzite. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Volume 1, Dept. Indian Affairs and Northern Development, p. 106).
- 115 H/13 A porphyritic quartz diorite plug at the head of the south fork  
115 I/4 of Maloney Creek, 18 miles from the confluence of Maloney Creek and the Nisling River ( $62^{\circ}01'N$ ,  $137^{\circ}54'W$ ) has a central zone containing pyrite, chalcopyrite, molybdenite, jarosite, azurite, malachite, magnetite and hematite, and a southern zone in which pyrite with minor chalcopyrite and molybdenite is widespread. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Volume 1, Dept. Indian Affairs and Northern Development, p. 77).
- 115 J/10 Diamond drilling has outlined a large, low-grade, copper-  
115 J/15 molybdenum deposit on the Casino property ( $62^{\circ}43'N$ ,  $138^{\circ}49'W$ ) located 190 miles northwest of Whitehorse in the Dawson Range. The property covers a watershed between Canadian Creek, a tributary of Britannia Creek which is a north-flowing tributary of the Yukon River, and Casino Creek, a southwest-flowing tributary of the Donjek River. Chalcopyrite, chalcocite and molybdenite are the ore minerals. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Volume 1, Dept. Indian Affairs and Northern Development, p. 57).
- 115 J/14 The Toni Tiger claim group lies in the Dawson Range on the Crest of a northeast trending ridge at the headwaters of the west fork of Coffee Creek ( $62^{\circ}49'N$ ,  $139^{\circ}28'W$ ). Scheelite, molybdenite and chalcopyrite occur in quartz veins, in small streaks and blebs and as disseminations in a skarn zone in metasediments within the Klotassin batholith. (D. B. Craig, and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Volume 1, Dept. Indian Affairs and Northern Development, p. 40).

## MONAZITE

Quebec

- 21 M/16W At the Lac du Pied-des-Monts Mine, small amber-coloured monazite crystals occur sparingly in a pegmatite dyke cutting hornblende gneiss. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 97.)
- 31 G/11W Monazite occurs sparingly at the Pedneaud Quarry near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 21.)
- 31 J/7E Monazite grains have been identified in garnetiferous pegmatite at the McLean-McNicoll property on the west bank of the Rouge River about 1/2 mile southeast of Labelle. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 61.)

## MONTBRAYITE

Quebec

- 32 D/6 An electron probe microanalysis of montbrayite from the Robb Montbray property confirmed the presence of small amounts of Bi, Pb and Sb, previously ascribed to impurities: Au 47.7, Ag 0.6, Sb 0.3, Pb 1.3, Bi 2.9, Te 47.0, total 99.8. (J. Rucklidge, 1969: Can. Mineralogist, 9, p. 709-716.)

## MONTICELLITE



Monticellite, an orthorhombic mineral structurally similar to olivine develops during progressive metamorphism of siliceous dolomites, in skarn zones, and as a rare constituent in ultrabasic rocks. The five strongest lines on the X-ray powder pattern are: 4.19 (3), 3.64 (4), 2.94 (3), 2.67 (10) and 2.59 (4) (ASTM 11-353).

Quebec

- 31 G/8 Medium- to coarse-grained monticellite-calcite rock forms  
31 G/9 core of the northern ring of the Oka Complex, located 20 miles west of Montreal on the north shore of the Lake of Two Mountains. The monticellite occurs as euhedral tabular



prisms 0.1 mm to 5 cm long and may be altered to a blue serpentine-like mineral. Chemical analysis by H. Ulk: SiO<sub>2</sub> 33.32, Al<sub>2</sub>O<sub>3</sub> 2.55, Fe<sub>2</sub>O<sub>3</sub> 0.92, FeO 6.25, MnO 2.87, MgO 21.50, CaO 32.14, Na<sub>2</sub>O 0.16, P<sub>2</sub>O<sub>5</sub> 0.04, H<sub>2</sub>O<sup>+</sup> 0.09, H<sub>2</sub>O<sup>-</sup> 0.01, CO<sub>2</sub> 0.20, SrO 0.02, total 100.07, S.G. 3.173. D. P. Gold, 1966: Min. Soc. India, I. M. A. Volume, p. 102-126.)

## MOORHOUSEITE

Nova Scotia

- 21 H/1 Moorhouseite is a new mineral species found at the Magnet Cove Barium Corporation Mine located about 2 1/2 miles southwest of Walton. It is closely associated with the tetrahydrate, aplowite, also a new mineral. The spacings and intensities of the four strongest lines in the X-ray powder pattern are: 4.39 (10), 4.13 (4), 4.01 (6), and 2.91 (5). X-ray fluorescence analysis showed the mineral to be a nickeliferous-manganiferous variety having the following cation atomic ratios Co:Ni:Mn:Cu:Fe:Zn = 100:45:21:9:6:1. The name is for W. W. Moorhouse, former Professor of Geology, University of Toronto. (J. L. Jambor and R. W. Boyle, 1965: Can. Mineral., 8, p. 166-171.)

## MORDENITE

Nova Scotia

- 21 H/1 Mordenite is of rare occurrence at Woodworth (Bennett) Bay, about 3 miles east of Baxter's Harbour, Kings County. Other minerals present include: chalcedony, jasper, thomsonite, heulandite, analcime and stilbite. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 64.)
- 21 H/2 Mordenite nodules up to 1 1/2 inches across, generally coated with a soft green mica mineral occur at Chipman Brook, Canada Creek and Black Rock in Kings County. Other zeolites include: stilbite, heulandite, laumontite, mesolite, apophyllite, prehnite and gyrolite. Large nodules of mordenite and abundant stilbite, heulandite and analcime are found at Morden, Kings County. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 66-9.)

Quebec

- 22 B/2 Mordenite, as greyish white, fine, fibrous aggregates, occupies cavities in volcanic rock in a quarry on the south side of a low ridge facing Highway 6 about 1/2 mile west of the junction road to Cross Point. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 100.)

## MUSCOVITE

British Columbia

- 82 K/2 Chemical analysis of muscovite from quartz monzonite near Fry Creek at 50° 05'N., 116° 51'W., by G. Bender and S. Courville: SiO<sub>2</sub> 47.8, Al<sub>2</sub>O<sub>3</sub> 32.4, Fe<sub>2</sub>O<sub>3</sub> 2.2, FeO 0.96, MgO 0.73, K<sub>2</sub>O 10.1, Na<sub>2</sub>O 0.76, CaO 0.05, H<sub>2</sub>O<sup>+</sup> 4.40, F 0.28, total 99.68, less O for F 0.12, total 99.56. (J. H. Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10.)

Manitoba

- 52 L/6 A rock composed of lenses of bright emerald green fuchsite in a siliceous matrix has been quarried 1 1/2 miles southeast of Lamprey Falls in the Winnipeg River and midway between the river and a small lake to the southeast. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 52.)
- 53 N/2 A swarm of rubidium-rich dykes occurs at the northeastern end of Red Cross Lake, approximately 1 3/4 miles northwest of the Red Sucker River. Much of the rubidium is contained in a mixture of lithian muscovite and lepidolite. Chemical analysis of this mixed mica by Courville and Abbey gave: SiO<sub>2</sub> 49.7, TiO<sub>2</sub> 0.04, Al<sub>2</sub>O<sub>3</sub> 26.87, Fe<sub>2</sub>O<sub>3</sub> 0.52, MnO 0.65, MgO 0.23, Li<sub>2</sub>O 3.08, Na<sub>2</sub>O 0.18, K<sub>2</sub>O 7.37, Rb<sub>2</sub>O 4.53, Cs<sub>2</sub>O 1.00, F 4.35, H<sub>2</sub>O 2.80, total 101.32 less O for F 1.83, total 99.49. (J. L. Jambor and R. R. Potter, 1967: Geol. Surv. Can., Paper 67-15).

Northwest Territories

- 75 L/4 Chemical analysis by G. Bender and S. Courville of muscovite from quartz monzonite from the south shore of Great Slave Lake at 62° 01'20"N., 111° 31'50"W: SiO<sub>2</sub> 47.6, Al<sub>2</sub>O<sub>3</sub> 31.8, Fe<sub>2</sub>O<sub>3</sub> 2.8, FeO 0.87, MgO 0.87, K<sub>2</sub>O 10.1, Na<sub>2</sub>O 0.76, CaO 0.35, H<sub>2</sub>O<sup>+</sup> 4.10, F 0.19, total 99.54, less O for F 0.08, total 99.46. (J. H. Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10.)

Ontario

- 52 G/13 Fuchsite is found with native gold at the Central Manitoba Mine on Neepawa Island in the northeastern part of Minnitaki Lake. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 39).

## MUSKOXITE

hydrous Mg-Fe<sup>+++</sup> oxide

Northwest Territories

- 86 O/3 Muskoxite is a hydrous oxide of magnesium and ferric iron of uncertain formula which occurs with serpentine in small fractures in drill cores from the Muskox intrusion. Chemical analysis by J. A. Maxwell: Fe<sub>2</sub>O<sub>3</sub> 41.1, FeO 0.0, MgO 35.4, H<sub>2</sub>O 23.8, total 100.3. Muskoxite is dark reddish brown with perfect basal cleavage and it occurs typically as aggregates of intergrown minute crystals. The X-ray powder pattern has strongest lines at 4.6 (s), 4.4 (m to w), 2.31 (vs), 1.74 (m), 1.46 (w). (J. L. Jambor, 1969: Am. Mineralogist, 54, pp. 684-696).

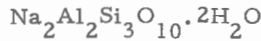
## NARSARSUKITE

Na<sub>2</sub>(Ti, Fe)Si<sub>4</sub>O<sub>11</sub>

Quebec

- 31 H/11 Yellowish white to greyish white narsarsukite crystals are found in a hornfels collar on the east side of Mont St-Hilaire at three localities within 100 feet of each other. Chemical analysis recalculated to 100 per cent after elimination of impurity albite: SiO<sub>2</sub> 57.26, TiO<sub>2</sub> 14.04, Al<sub>2</sub>O<sub>3</sub> 1.13, Fe<sub>2</sub>O<sub>3</sub> 5.67, FeO 0.73, MnO 1.10, MgO 1.19, CaO 1.76, Na<sub>2</sub>O 13.50, K<sub>2</sub>O 1.53, P<sub>2</sub>O<sub>5</sub> 0.50, H<sub>2</sub>O<sup>+</sup> 1.57, H<sub>2</sub>O<sup>-</sup> 0.02. The strongest lines on the X-ray powder pattern are: 5.30 (10) 3.99 (5), 3.75 (6), 3.36 (9), 3.23 (8), 2.569 (4) 2.506 (4). (K. C. Rajasekaran, 1966: Can. Mineralogist, 8, pp. 506-514). Narsarsukite occurs as tabular crystals in inclusions in nepheline syenite. It is usually found associated with quartz and sometimes with leucosphenite. Chemical analysis: SiO<sub>2</sub> 62.11, TiO<sub>2</sub> 16.99, Al<sub>2</sub>O<sub>3</sub> 0.2, MnO 0.02, CaO 0.46, Na<sub>2</sub>O 15.20, K<sub>2</sub>O 0.1, P<sub>2</sub>O<sub>5</sub> 0.20, H<sub>2</sub>O<sup>+</sup> 0.17, F<sub>2</sub> 0.76, Fe 2.25, total 98.46. (G. Y. Chao, 1967: Can. Mineralogist, 9, pp. 286-7).

NATROLITE



New Brunswick

- 21 B/10 On Grand Manan Island, natrolite is found with scolecite,  
 21 B/15 heulandite, laumontite, analcime, epistilbite, thomsonite,  
 stilbite, quartz crystals, copper, hematite and chlorite.  
 The zeolites occur as crystal aggregates and as radiating  
 fibres in cavities and seams in amygdaloidal basalt. They  
 are most abundant along the coastline known as Seven Days  
 Work. (Ann P. Sabina, 1964: Geol. Surv. Can.,  
 Paper 64-10, p. 10).

Nova Scotia

Natrolite has been found at numerous localities in the Mines  
 Basin - Bay of Fundy area. The following list of localities  
 and associated minerals was compiled from the detailed  
 account by Ann P. Sabina, 1964; Rocks and Minerals for the  
 Collector, Bay of Fundy Area; Geol. Surv. Can., Paper 64-10,

	<u>Locality</u>	<u>Associated Minerals</u>
21 A/14	Hampton (Chute Cove), Annapolis County	chalcedony, apophyllite, epi- dote
21 H/3	Margaretsville, Annapolis County	heulandite, laumontite, anal- cime, apophyllite, gyrolite, mesolite, stilbite, scole- cite
21 H/7	Horseshoe Cove, Cape D'Or, Cumberland County	analcime, stilbite, laumontite, apophyllite, chabazite, thom- sonite, mesolite, heulandite, jasper, copper
21 H/8	Partridge Island, Cumberland County	stilbite, laumontite, heuland- ite, chabazite, analcime, apophyllite, quartz crystals, calcite, chalcedony, jasper
	Swan's Creek (Swan Brook), Cumberland County	gmelinite, chabazite, anal- cime, apophyllite, heuland- ite, calcite, stilbite
	Wasson Bluff, Cumberland County	chabazite, heulandite, stil- bite, gmelinite, analcime, calcite, copper
	Two Islands (The Brothers), Guysborough County	gmelinite, analcime, chab- azite, heulandite, calcite, agate

- Cape Blomidon to Cape Split, Kings County apophyllite, heulandite, stilbite, chabazite, analcime, gmelinite, laumontite, mesolite, thomsonite, amethyst, jasper, agate, calcite, celadonite
- 21 H/8 Pinnacle Island, Cumberland County analcime, chabazite, stilbite, heulandite, thomsonite, gmelinite, calcite
- Scots Bay, Small Cove, Big Cove, Kings County chalcedony, jasper, amethyst, stilbite, mesolite, heulandite
- 21 H/8 Chemical analysis by E. W. Todd of natrolite from amethyst Cove: SiO<sub>2</sub> 47.34, Al<sub>2</sub>O<sub>3</sub> 27.17, Fe<sub>2</sub>O<sub>3</sub> 0.01, CaO 0.48, Na<sub>2</sub>O 15.42, K<sub>2</sub>O 0.28, H<sub>2</sub>O 9.47, total 100.17. (T. L. Walker and A. L. Parsons, 1922: Univ. Toronto Stud., Geol. Ser. 14, p. 64).

Quebec

- 31 H/11 Natrolite is a constituent of veins and vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, pp. 109-123).
- 31 H/12E Colourless, white and orange-red crystal aggregates of natrolite occur in small cavities in a sill cutting limestone at the Miron Quarry, Montreal Island. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 68).

NEPHELINE

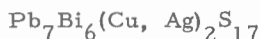


Quebec

- 31 G/8 Nepheline is an abundant mineral constituent of the silicate rocks of the Oka Complex, located about 20 miles west of Montreal on the north shore of the Lake of Two Mountains. Chemical analyses of I, nepheline from okaite, and II, nepheline from wollastonite-garnet-urtite, by H. Ulk, and III, nepheline from wollastonite-garnet-melteigite, by W. H. Herdsman: I, SiO<sub>2</sub> 37.88, Al<sub>2</sub>O<sub>3</sub> 31.57, Fe<sub>2</sub>O<sub>3</sub> 0.13, FeO 0.29, MnO 0.01, MgO 0.39, CaO 5.60, Na<sub>2</sub>O 15.85, K<sub>2</sub>O 7.47, P<sub>2</sub>O<sub>5</sub> 0.22, H<sub>2</sub>O<sup>+</sup> 0.10, H<sub>2</sub>O<sup>-</sup> 0.01, CO<sub>2</sub> nil, SrO 0.21, total 99.73, S. G. 2.637; II, SiO<sub>2</sub> 41.60, Al<sub>2</sub>O<sub>3</sub> 34.11, Fe<sub>2</sub>O<sub>3</sub> 0.54, FeO 0.20, MnO 0.03, MgO 0.05, CaO 1.59, Na<sub>2</sub>O 17.96, K<sub>2</sub>O 1.61, P<sub>2</sub>O<sub>5</sub> 0.52, H<sub>2</sub>O<sup>+</sup> 0.45, H<sub>2</sub>O<sup>-</sup> 0.14, CO<sub>2</sub> 0.65, SrO 0.08, total 99.53, S. G. 2.620; III, SiO<sub>2</sub> 40.86, Al<sub>2</sub>O<sub>3</sub> 33.64, Fe<sub>2</sub>O<sub>3</sub> 1.21, FeO 0.14, MnO 0.02,

- 31 G/8 MgO 0.07, CaO 0.89, Na<sub>2</sub>O 14.74, K<sub>2</sub>O 6.78, P<sub>2</sub>O<sub>5</sub> 0.53, H<sub>2</sub>O<sup>+</sup>  
 31 G/9 0.39, CO<sub>2</sub> 0.56, total 99.83, 5.6, 2.596. (D.P. Gold, 1966:  
Min. Soc. India, I.M.A. Volume, p. 102-126).
- 31 H/11 E At the Mont St. Hilaire Quarry, also known as the Desourdy  
 Quarry, on the north side of Mont St-Hilaire, nepheline is pres-  
 ent as greyish green to pink masses. (Ann P. Sabina, 1968:  
Geol. Surv. Can., Paper 67-51, p. 57).

## NEYITE

British Columbia

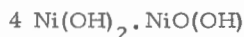
- 103 P/6 Neyite is a new mineral which occurs as acicular aggregates in  
 muggy quartz veins at the Lime Creek molybdenum deposit loca-  
 ted near the old community of Alice Arm. It is named for  
 C.S. Ney, geologist in charge of early exploration of the deposit.  
 The new mineral is closely associated with pyrite, galena, sphal-  
 erite and minor chalcopryrite, aikinite, cosalite, tetrahedrite,  
 molybdenite and nuffieldite. The spacings and intensities of the  
 six strongest lines on the X-ray powder pattern are: 3.72 (10),  
 3.51 (10), 2.92 (10), 2.27 (5), 2.08 (4), 2.04 (6).  
 (A.D. Drummond, J. Trotter, R.M. Thompson and J.A. Gower,  
 1970: Can. Mineralogist, 10, p. 90-96.

## NICCOLITE

(See nickeline)

## NICKEL HYDROXIDE MINERAL

(UNNAMED)

British Columbia

- 82 E/2 The nickel hydroxide mineral was found in a large dolomite-  
 quartz-serpentine boulder in Rock Creek about 600 feet west of  
 the point where the main highway crosses Rock Creek. Rock  
 Creek is about 15 miles southwest of Greenwood. The yellow  
 mineral is a non-stoichiometric compound approaching the com-  
 position noted above. It appears to form by alteration of garni-  
 erite. The spacings and intensities of the five strongest lines in  
 the X-ray powder pattern are: 7.59 (10), 3.79 (6), 2.585 (6),  
 2.296 (5) and 1.946 (4) (J.L. Jambor and R.W. Boyle, 1964:  
Can. Mineral., 8, p. 116).

## NICKELINE

## NiAs

Northwest Territories

- 86 E/9 Minor amounts of niccolite (nickeline), cobaltite, gersdorffite and pararammelsbergite occur with matildite, native silver and bismuth, safflorite, skutterudite and rammelsbergite at a deposit on the Camsell River, 4 miles south of its mouth at Conjuror Bay, at 65°36'14"N, 118°06'45"W. (D.C. Harris and R.I. Thorpe, 1969: Can. Mineralogist, 9, p. 655-662).
- 86 F/13 Niccolite occurs with cobaltite, safflorite-löllingite, glaucodot, gersdorffite, rammelsbergite and breithauptite at the B. E. A. R. deposit on the north shore of Contact Lake, about 9 miles south-east of the Eldorado Mine. (G.M. Furnival, 1939: Econ. Geol., 34, p. 759).
- 86 K/4 Niccolite is a constituent of the complex silver-uranium deposits of the Eldorado Mine on Labine Point, and the Echo Bay Mine located one mile northeast of Port Radium. (D.F. Kidd, 1936: Geol. Surv. Can., Memoir 187, p. 36).

Ontario

- 31 M/3 Nickeline is a common mineral in Ni-As and Ni-Co-As assemblages in the areas of the Cobalt-Gowganda camp. Electron probe microanalyses by D.C. Harris are as follows:

	<u>Ni</u>	<u>Co</u>	<u>Fe</u>	<u>As</u>	<u>Sb</u>	<u>Total</u>
41 P/9	45.5	0.7	nd	55.8	0.3	102.3
41 P/10	44.6	0.6	-	54.4	-	
41 P/15	42.3	0.6	nd	54.4	2.0	99.3
41 P/16	43.0	0.4	0.7	52.0	5.3	101.4
	43.8	0.6	nd	55.9	nd	100.3
	44.0	0.4	-	56.0	nd	100.4
	43.5	nd	-	53.5	-	
	44.0	0.6	-	55.5	-	
	45.1	0.2	0.1	57.1	nd	102.5
	44.7	nd	-	55.4	nd	
	44.0	nd	-	56.0	-	
	43.5	nd	-	55.4	1.4	100.3
	43.1	nd	0.1	55.1	1.5	99.8
	41.1	0.9	-	50.6	6.5	99.1
	40.6	3.2	-	54.1	4.3	102.2
	39.2	3.9	-	53.3	3.2	99.6

nd = not detected; - not analyzed

(W. Petruk, D.C. Harris and J.M. Stewart, 1971: Can. Mineralogist, 11, p. 151).

## NIOBOPHYLLITE

Newfoundland

13 K/5

Niobophyllite, the niobium analogue of astrophyllite, was discovered during a study of samples from a beryllium-bearing alkaline syenite in the vicinity of Ten Mile Lake in the Seal Lake area of Labrador. It occurs in a band of paragneiss consisting chiefly of albite and arfvedsonite, as sub-parallel, fine-grained, polycrystalline aggregates, either intergrown with other dark minerals or as thin seams in feldspar.

Chemical analysis of 600 mg. hand-picked concentrate, by D.J. Charette: Na<sub>2</sub>O 2.49, K<sub>2</sub>O 5.51, CaO 0.72, R.E. oxides 1.50, FeO + Fe<sub>2</sub>O<sub>3</sub> 23.74, MgO 0.16, MnO 9.83, TiO<sub>2</sub> 2.94, Nb<sub>2</sub>O<sub>5</sub> 14.76, Ta<sub>2</sub>O<sub>5</sub> 0.52, Al<sub>2</sub>O<sub>3</sub> 0.89, SiO<sub>2</sub> 33.40, H<sub>2</sub>O<sup>+</sup> 3.64, H<sub>2</sub>O<sup>-</sup> 0.08, F 0.46; total 100.64 less O for F 0.19, 100.45, S.G. 3.42. The spacings and intensities (Cobalt radiation) of the six strongest lines in the X-ray powder pattern are: 10.52 (9), 3.506 (10), 3.258 (5), 3.019 (6), 2.778 (8) and 2.574 (7). (E.H. Nickel, J.F. Rowland and D.J. Charette, 1964: Can. Mineral., 8, p. 40).

## NISBITE

Ontario

52 L/16

The new mineral nisbite was found as a minor constituent of drill core from claims held by Cochenour Willans Gold Mines Limited in Mulcahy Township about 20 miles west of Red Lake, and about 4,000 feet south-southwest of the south end of Trout Bay. Electron probe microanalyses of four grains gave (average): Ni 19.15, Sb 80.43, total 99.58. The spacings and intensities of the four strongest lines on the X-ray powder pattern (Cobalt radiation) are: 2.76 (7), 2.70 (6), 2.027 (6), 1.844 (7). (L.J. Cabri, D.C. Harris and J.M. Stewart, 1970: Can. Mineralogist, 10, p. 232).

## NUFFIELDITE

British Columbia

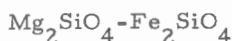
103 P/6

Nuffieldite, named for Professor E. W. Nuffield of the University of Toronto, occurs as prismatic to acicular crystals up to 3 mm



- 103 P/6 in length, in vugs in narrow quartz veins in the Lime Creek quartz diorite stock on the property of B. C. Molybdenum Corp., 6 miles southeast of the town of Alice Arm. Chemical analysis: Pb 40.42, Bi 37.67, Cu 5.90, S 16.35, total 100.36. The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 4.00 (9), 3.66 (10), 3.54 (10), 3.16 (8), 2.54 (7), 1.871 (6). Associated minerals are: molybdenite, aikinite and cosalite. (P. W. Kingston, 1968: Can. Mineralogist, 9, p. 439-452).

## OLIVINE

Newfoundland

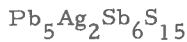
- 14 E/2 A rock containing about 50 per cent fayalitic olivine outcrops west of Tallifer Lake at 57°06.1'N, 62°49.2'W. Chemical analysis of the olivine by S. Courville and G. Bender: SiO<sub>2</sub> 29.82, Al<sub>2</sub>O<sub>3</sub> 0.00, Fe<sub>2</sub>O<sub>3</sub> 2.16, FeO 64.21, CaO 0.24, MgO 2.34, Na<sub>2</sub>O n.d., K<sub>2</sub>O n.d., H<sub>2</sub>O<sup>+</sup> 0.04, H<sub>2</sub>O<sup>-</sup> n.d., TiO<sub>2</sub> 0.01, P<sub>2</sub>O<sub>5</sub> n.d., MnO 0.92, total 99.74, corresponding to Fa<sub>94</sub>. (E. P. Wheeler, 2nd, 1965: Can. Mineralogist, 8, p. 339-346).

Quebec

- 22 B/16 Rocks composed almost entirely of fine-grained, sugary, pale green olivine occur alongside the Trans-Gaspésien highway at about 28 miles from Ste-Anne-des-Monts. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 72).
- 22 D/11W Brownish green olivine crystals, about 1/2 inch across, occur at the St-Charles titanium deposit on the north shore of the Saguenay River. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 109).
- 31 G/8 Olivine occurs sparingly in bands in the carbonate rocks and also  
31 G/9 in alnoite rock in the Oka Complex, located 20 miles west of Montreal on the north shore of the Lake of Two Mountains. Chemical analysis by H. Ulk: SiO<sub>2</sub> 39.36, TiO<sub>2</sub> 0.28, Fe<sub>2</sub>O<sub>3</sub> 0.81, FeO 2.84, MnO 4.78, MgO 49.15, CaO 1.49, Na<sub>2</sub>O 0.07, K<sub>2</sub>O 0.01, P<sub>2</sub>O<sub>5</sub> 0.87, H<sub>2</sub>O<sup>+</sup> 0.47, SrO 0.03, total 100.16, S.G. 3.290. (D.P. Gold, 1966: Min. Soc. India, I.M.A. Volume, p. 102-126).
- 31 G/12W Black olivine (forsterite) crystals partly altered to serpentine, occur at the Cross Quarry near Meach Lake. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 41).

- 31 H/11W Found at the Goyer Quarry north of St-Bruno are igneous dykes and sills cutting the sedimentary rocks, and containing phenocrysts (up to 1 inch long) of colourless to white analcime, greenish yellow olivine, dolomite, chlorite and talc. (Ann. P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 54).
- 31 J/4E Crystals of olivine are found at the Parker Mine near Notre Dame du Laus. The olivine occurs as olive-green to almost black, flattened crystals commonly 2 inches long, embedded in calcite-mica aggregates.
- Olivine, as pale yellow, colourless, grey and light green granular aggregates is abundant in crystalline limestone exposures on the north bank of the du Lièvre River immediately downstream from the des Cèdres dam. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 48, 51).
- 31 J/11W Olivine occurs at the Val-Barrette Quarries as yellowish white granular masses. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 57).

OWYHEEITE



Yukon

- 105 G/3 Owyheeite has been identified in specimens from Tintina Silver Mines Limited located at 61°09'N, 131°09'W, some 7 miles northwest of the confluence of the Ings and Upper Laird Rivers. Jamesonite, argentian tetrahedrite, galena, sphalerite, pyrite, arsenopyrite, marcasite, bournonite, tintinaite, pyrrotite and chalcopyrite were also identified. (D.C. Harris, J.L. Jambor, G.R. Lachance and R.I. Thorpe, 1968: Can. Mineralogist, 9, p. 371-382).

PARACOSTIBITE



Ontario

- 52 L/16 Paracostibite is a new mineral found in small amount in drill-core from claims held by Cochenour Willans Gold Mines Limited in Mulcahy Township about 20 miles west of Red Lake, and about 4,000 feet south-southwest of the south end of Trout Bay. Average electron probe microanalysis of five grains gave: Co 26.4, Fe 0.4, Ni 0.8, Sb 56.8, S 14.9, total 99.3. The spacings and intensities (Co radiation, Fe filter) of the six strongest lines

- 52 L/16 on the X-ray powder pattern are: 5.81 (8), 2.83 (7), 2.65 (7), 2.555 (10), 2.409 (7), 2.035 (8). (L.J. Cabri, D.C. Harris and J.M. Stewart, 1970: Can. Mineralogist, 10, p. 232).

## PARARAMMELSBERGITE

Northwest Territories

- 86 E/9 Minor amounts of pararammelsbergite, gersdorffite, cobaltite, and niccolite occur with matildite, native silver and bismuth, safflorite, skutterudite and rammelsbergite at a deposit on the Camsell River, 4 miles south of its mouth at Conjuror Bay, at 65°36'14"N, 118°06'45"W. (D.C. Harris and R.I. Thorpe, 1969: Can. Mineralogist, 9, p. 655-662).

Ontario

- 31 M/3 Electron probe microanalyses of pararammelsbergites in the  
31 M/5 Cobalt-Gowganda ores:

	Ni	Co	Fe	As	Sb	S	Total
31 M/12							
41 P/9							
41 P/10	28.5	2.7	0.2	68.0	0.0	1.3	100.7
41 P/15	28.7	0.0	0.0	70.5	0.8	0.3	100.3
41 P/16	27.4	1.8	0.0	69.6	0.0	1.2	100.0
	29.0	0.7	0.0	70.0	0.4	1.1	101.2
	26.0	5.5	0.0	69.0	0.0	1.5	102.0
	28.0	1.7	0.7	71.0	0.0	0.6	102.0
	29.1	2.2	0.0	69.0	0.0	0.5	100.8

(W. Petruk, D.C. Harris and J.M. Stewart, 1971: Can. Mineralogist, 11, p. 166).

## PARATACAMITE



A secondary mineral formed by the alteration of other copper minerals. Dimorphous with atacamite. The spacings and intensities of the seven strongest lines in the X-ray powder pattern are: 5.46 (10), 2.74 (10), 2.26 (10), 1.89 (6), 1.83 (8), 1.71 (8) and 1.43 (6) (ASTM card 15-694).

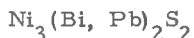
Nova Scotia

- 11 E/9 Paratacamite forms a bright green coating on copper-bearing fossil plant fragments and on sandstone at Knoydart Point. The rock is exposed along the shore of Northumberland Strait just west of the mouth of the first brook on the west side of the Antigonish/Pictou county line. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 51).

Prince Edward Island

- 11 L/5 Paratacamite occurs as blue-green to bright green finely-granular patches up to an inch across in red breccia exposed at low tide at the south shore of Malpeque Bay, about a mile and a half from Sherbrooke. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 61).

## PARKERITE

Ontario

- 31 M/12 At the Langis Mine, Casey Township, Cobalt-Gowganda area, lead-free parkerite occurs as a component of sulphide grains within arsenides. It generally surrounds bismuth and is intergrown with or adjacent to bismuthinite, and is also closely associated with cobalt pentlandite and linnaeite. Electron probe microanalysis by D.C. Harris: Ni 30.3, Bi 60.1, S 9.1, total 99.5. (W. Petruk, D.C. Harris and J.M. Stewart, 1969: Can. Mineralogist, 9, p. 597-616).

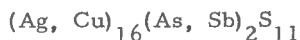
## PAVONITE

Ontario

- 31 M/3 Pavonite was identified in a sample from the Canadian Keeley Mine in South Lorrain Township. It occurs as veinlets in calcite and is intergrown with bismuthinite, matildite and native bismuth. Electron microprobe analysis gave: Cu 3.1, Ag 10.4, Bi 65.7, S 17.9, total 97.1. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 217).

The X-ray powder pattern of pavonite has five strongest lines at: 3.58 (6), 3.44 (6), 3.33 (6), 2.84 (10), 2.01 (7) (L.G. Berry and R.M. Thompson, 1962: Geol. Soc. Amer., Memoir 85, p. 169).

## PEARCEITE

Northwest Territories

- 86 F/13 Pearceite is reported to be a constituent of the silver-uranium deposit on the B. E. A. R. property on the north shore of Contact Lake about 9 miles southeast of the Eldorado Mine. (G.M. Furnival, 1939: Econ. Geol., 34, p. 761).

Ontario

- 41 P/10 Pearceite has been found intergrown with stromeyerite in a sample from the Morrison Mine. Electron probe microanalysis by D.C. Harris: Ag 58.1, Cu 11.9, As 4.4, Sb 2.0, Bi 7.0, S 15.7, total 99.1. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 208).

## PECTOLITE

Quebec

- 31 H/11 Inclusions of coarse-grained pectolite and calcite with abundant dark green soda-amphibole occur in nepheline syenite at the Desourdy Quarry on the northeast slope of Mont St-Hilaire. (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## PENTLANDITE

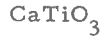
Manitoba

- 52 L/6 Solid masses and stringers of pyrrhotite, chalcopyrite, pyrite, cubanite, magnetite, pentlandite and violarite are exposed on the Martin-Devlin, Chance and Wento claims on the north side of the Bird River, about 2-3/4 miles north of the Bernic Lake Mine. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 58).

Yukon

- 115 F/15 The nickel-copper sulphides pyrrhotite-pentlandite-chalcopyrite occur with sphalerite, pyrite and marcasite mainly as disseminations, less commonly as massive lenses, in very fine-grained volcanic rocks on the Canalask Nickel Mines property on the east and west banks of the White River. The property is reached by a 2.8 mile access road that leaves the Alaska Highway at mile 1167. (D.C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 50).
- 115 G/5 Massive sulphides, mainly pyrrhotite, chalcopyrite, and pentlandite with minor sphalerite, have been discovered on the Wellgreen property on Nickel Creek, a small tributary of Quill Creek, about 10 miles west of Burwash Flats. The property may be reached by a 7 mile access road from the Alaska Highway near mile 1111. (D.C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 52).

## PEROVSKITE

Quebec

- 31 G/8 Minerals of the perovskite - latrappite series occur in the rocks  
 31 G/9 of the Oka Complex, located about 20 miles west of Montreal on the north shore of the Lake of Two Mountains. The composition varies from niobium - poor perovskite in the silicate rocks to niobian perovskite and latrappite in the carbonate rocks. Chemical analyses of perovskites are as follows: I, brown perovskite from an alkaline dyke on the Oka Rare Metals property,  $\text{TiO}_2$  51.20,  $\text{CaO}$  38.20,  $\text{Nb}_2\text{O}_5$  0.69,  $\text{Ta}_2\text{O}_5$  0.07,  $\text{Na}_2\text{O}$  0.31,  $\text{K}_2\text{O}$  0.23,  $\text{CeO}_2$  1.60,  $\text{Nd}_2\text{O}_5$  0.23,  $\text{La}_2\text{O}_3$  0.80,  $\text{ZrO}_2$  0.13,  $\text{SrO}$  0.35,  $\text{MgO}$  0.12,  $\text{Fe}_2\text{O}_3$  2.84,  $\text{ThO}_2$  0.17,  $\text{H}_2\text{O}^+$  1.44, total 98.22. II, black niobian perovskite from okaite, Dufresne Hill,  $\text{TiO}_2$  51.79,  $\text{CaO}$  33.88,  $\text{Nb}_2\text{O}_5$  4.86,  $\text{Ta}_2\text{O}_5$  0.39,  $\text{Na}_2\text{O}$  0.67,  $\text{Ce}_2\text{O}_3$  0.19,  $\text{Fe}_2\text{O}_3$  5.85,  $\text{FeO}$  0.86,  $\text{SiO}_2$  0.48,  $\text{H}_2\text{O}^+$  0.40,  $\text{Al}_2\text{O}_3$  0.44, total 99.81. III, black niobian perovskite from monticellite calcite rock,  $\text{TiO}_2$  38.63,  $\text{CaO}$  33.16,  $\text{Nb}_2\text{O}_5$  15.80,  $\text{Ta}_2\text{O}_5$  1.32,  $\text{Na}_2\text{O}$  1.22,  $\text{Ce}_2\text{O}_3$  0.26,  $\text{Fe}_2\text{O}_3$  7.45,  $\text{FeO}$  0.86,  $\text{SiO}_2$  0.48,  $\text{H}_2\text{O}^+$  0.32,  $\text{Al}_2\text{O}_3$  0.36, total 99.86. IV, black niobian perovskite from monticellite calcite rock, Bond Zone,  $\text{TiO}_2$  25.00,  $\text{CaO}$  28.70,  $\text{Nb}_2\text{O}_5$  27.60,  $\text{Ta}_2\text{O}_5$  2.79,  $\text{Na}_2\text{O}$  3.75,  $\text{K}_2\text{O}$  0.22,  $\text{CeO}_2$  2.04,  $\text{Nd}_2\text{O}_3$  0.30,  $\text{La}_2\text{O}_3$  0.94,  $\text{ZrO}_2$  0.95,  $\text{SrO}$  0.65,  $\text{Fe}_2\text{O}_3$  6.38,  $\text{MnO}$  0.10,  $\text{ThO}_2$  0.04,  $\text{H}_2\text{O}^+$  0.90, total 100.36. (D.P. Gold, 1966: Min Soc. India, I. M. A. Volume, p. 102-126).

## PETZITE

New Brunswick

- 21 P/5 Petzite and krennerite are associated with chalcopyrite and occur as inclusions within pyrite and silicates at the Captain deposit on the headwaters of Tozer Brook and the west branch of Portage River in Gloucester and Northumberland Counties, about 9 miles from Heath Steele. (W.M. Tupper, D.J. Bachinski and R.W. Boyle, 1968: Geol. Surv. Can., Paper 66-18, p. 12).

Quebec

- 32 D/6 Petzite, rimmed by frobergite, has been identified in specimens from Noranda. (J. Rucklidge, 1969: Can. Mineralogist, 9, p. 709-716).

## PHLOGOPITE

Northwest Territories

- 65 N/7 Chemical analysis by G. Bender and S. Courville of phlogopite from lamprophyre dyke on an island in Outlet Bay, Dubawnt Lake (63°27'20"N, 100°51'W): SiO<sub>2</sub> 41.34, Al<sub>2</sub>O<sub>3</sub> 14.94, TiO<sub>2</sub> 1.43, Fe<sub>2</sub>O<sub>3</sub> 1.82, FeO 6.15, MgO 18.11, MnO 0.07, Cr<sub>2</sub>O<sub>3</sub> 0.93, NiO 0.03, K<sub>2</sub>O 9.12, Na<sub>2</sub>O 0.55, CaO 0.68, BaO 0.54, SrO 0.02, H<sub>2</sub>O<sup>+</sup> 2.94, H<sub>2</sub>O<sup>-</sup> 0.08, F 0.74, P<sub>2</sub>O<sub>5</sub> 0.05, total 99.54, less O for F 0.31, total 99.23. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).

Ontario

- 31 C/16 Mica occurs in pyroxenite at the Pike Lake Mine as large sheets and as large aggregates (about 1 foot across) of cleavage plates. Its colour varies from silvery-amber to dark brown. The deposit is located about 7 miles south of Perth, near the north end of Pike Lake. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 34).
- 31 D/16 Chemical analysis by G. Bender and S. Courville of phlogopite from a calcite-pyroxenite vein in Monmouth Township at 44°55'N, 78°20'W: SiO<sub>2</sub> 42.3, Al<sub>2</sub>O<sub>3</sub> 10.0, TiO<sub>2</sub> 0.40, Fe<sub>2</sub>O<sub>3</sub> 0.0, FeO 2.59, MgO 26.8, MnO 0.0, K<sub>2</sub>O 9.9, Na<sub>2</sub>O 0.9, CaO 1.0, BaO 0.2, H<sub>2</sub>O<sup>+</sup> 2.10, H<sub>2</sub>O<sup>-</sup> 0.5, F 4.3, P<sub>2</sub>O<sub>5</sub> 0.0, total 101.00, less O for F 1.8, total 99.2. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).
- 31 E/1 Chemical analyses by G. Bender and S. Courville:
- (1) phlogopite from pyroxenite (45°02'N, 78°09'W): SiO<sub>2</sub> 41.4, Al<sub>2</sub>O<sub>3</sub> 10.2, TiO<sub>2</sub> 0.40, Fe<sub>2</sub>O<sub>3</sub> 3.7, FeO 4.22, MgO 23.2, MnO 0.2, K<sub>2</sub>O 10.0, Na<sub>2</sub>O 0.3, CaO 0.9, BaO 0.3, H<sub>2</sub>O<sup>+</sup> 1.85, H<sub>2</sub>O<sup>-</sup> 0.35, F 4.2, total 100.9, less O for F 1.8, total 99.1.
  - (2) phlogopite from calcite-fluorite dyke (45°01'N, 78°12'W): SiO<sub>2</sub> 43.4, Al<sub>2</sub>O<sub>3</sub> 9.4, TiO<sub>2</sub> 0.70, Fe<sub>2</sub>O<sub>3</sub> 0.6, FeO 5.55, MgO 21.8, MnO 0.1, K<sub>2</sub>O 10.0, Na<sub>2</sub>O 0.3, CaO 0.9, BaO 0.3, H<sub>2</sub>O<sup>+</sup> 1.35, H<sub>2</sub>O<sup>-</sup> 0.25, F 5.7, total 100.4, less O for F 2.4, total 98.0. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).
- 31 F/4 Chemical analysis of phlogopite from pyroxenite at 45°08'N, 77°50'W, by G. Bender and S. Courville: SiO<sub>2</sub> 42.8, Al<sub>2</sub>O<sub>3</sub> 10.1, TiO<sub>2</sub> 0.30, Fe<sub>2</sub>O<sub>3</sub> 1.3, FeO 0.79, MgO 26.4, K<sub>2</sub>O 9.7, Na<sub>2</sub>O 0.5, CaO 1.3, BaO 0.3, H<sub>2</sub>O<sup>+</sup> 2.15, H<sub>2</sub>O<sup>-</sup> 0.35, F 4.21, total 100.2, less O for F 1.8, total 98.4. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).

Quebec

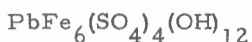
- 23 I/10 Chemical analysis of phlogopite from gneiss at 54°45'N, 65°00'W, by G. Bender and S. Courville: SiO<sub>2</sub> 41.5, Al<sub>2</sub>O<sub>3</sub> 12.07, TiO<sub>2</sub> 1.25, Fe<sub>2</sub>O<sub>3</sub> 1.92, FeO 6.90, MgO 21.3, MnO 0.06, Cr<sub>2</sub>O<sub>3</sub> 0.23, NiO 0.06, K<sub>2</sub>O 9.55, Na<sub>2</sub>O 0.39, CaO 0.40, BaO 0.27, H<sub>2</sub>O<sup>+</sup> 1.40, H<sub>2</sub>O<sup>-</sup> 0.04, F 3.33, P<sub>2</sub>O<sub>5</sub> 0.05, total 100.72, less O for F 1.4, total 99.32. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).
- 31 G/5 Chemical analysis by G. Bender and S. Courville of phlogopite from old mica mine near Old Chelsea (45°30'N, 75°48'W): SiO<sub>2</sub> 39.12, Al<sub>2</sub>O<sub>3</sub> 18.24, TiO<sub>2</sub> 0.54, Fe<sub>2</sub>O<sub>3</sub> 0.96, FeO 1.27, MgO 24.47, MnO 0.03, Cr<sub>2</sub>O<sub>3</sub> 0.02, K<sub>2</sub>O 9.46, Na<sub>2</sub>O 0.34, CaO 0.26, BaO 0.25, H<sub>2</sub>O<sup>+</sup> 2.88, H<sub>2</sub>O<sup>-</sup> 0.32, F 2.28, P<sub>2</sub>O<sub>5</sub> 0.06, total 100.5, less O for F 0.96, total 99.54. (J.H.Y. Rimsaite, 1967: Geol. Surv. Can., Bull. 149, p. 10).
- 31 G/8 Chemical analysis of phlogopite from pyroxene-pyrochlore-calcite rock, Oka Complex, 20 miles west of Montreal on the north shore of the Lake of Two Mountains: SiO<sub>2</sub> 39.44, Al<sub>2</sub>O<sub>3</sub> 8.56, TiO<sub>2</sub> 0.15, Fe<sub>2</sub>O<sub>3</sub> 3.81, FeO 5.17, MnO 1.63, MgO 25.86, CaO 0.32, Na<sub>2</sub>O 0.17, K<sub>2</sub>O 11.94, P<sub>2</sub>O<sub>5</sub> 0.17, H<sub>2</sub>O<sup>+</sup> 1.36, H<sub>2</sub>O<sup>-</sup> 0.04, CO<sub>2</sub> nil, F 1.83, less O for F 0.75, total 99.70. Analyst: W.H. Herdsman. (D.P. Gold, 1966: Min. Soc. India, I.M.A. Volume, p. 102-126).

## PLAYFAIRITE

Ontario

- 31 C/6 The new mineral, playfairite, was found in polished sections of specimens collected from a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed. Taylor of Madoc. It occurs in very small amounts at the peripheries of other sulphosalt grains commonly as microscopic veinlets. Electron probe microanalysis (average of three grains) by G.R. Lachance: Pb 51.0, Sb 28.0, As 2.4, S 18.8, total 100.2. The eight strongest lines on the X-ray powder pattern are: 3.98 (4), 3.49 (4), 3.39 (10), 3.32 (10), 2.97 (4), 2.785 (7), 2.086 (6), 1.768 (4). (J.L. Jambor, 1967: Can. Mineralogist, 9, p. 191-213).

## PLUMBOJAROSITE



The spacings and intensities of the five strongest lines in the X-ray powder pattern of plumbojarosite are: 5.93 (9), 3.11 (5),



3.07 (10), 1.98 (5) and 1.83 (7). (W.G. Mumme and T.R. Scott, 1966: Am. Mineral., 51, p. 445).

#### New Brunswick

21 P/5 Plumbojarosite has been identified by X-ray pattern and qualitative XRF analysis in specimens from the Brunswick No. 6 deposit in the Bathurst area, Gloucester county. The XRF analyses showed major Pb, Fe and no As. (X-ray Laboratory, Geol. Surv. Can.).

#### Yukon

105 M/14 Lead- and silver-bearing jarosites occur in small amounts in some of the oxidized zones of the lead-zinc-silver deposits, Keno Hill - Galena Hill area as small crusts and earthy coatings on galena. J.L. Jambor (U.B.C. Thesis, 1957) investigated an oxidized zone from the Hector-Calumet system (Calumet Mine) and concluded that the jarositic material is essentially plumbojarosite. A partial chemical analysis gave: PbO 20.74, Fe<sub>2</sub>O<sub>3</sub> 39.03, Ag 0.63. (R.W. Boyle, 1965: Geol. Surv. Can., Bull. 111, p. 155).

#### POITEVINITE



#### British Columbia

92 I/14 Naturally-occurring copper sulphate monohydrate was discovered for the first time in a specimen from the Avoca claim, Hat Creek, Bonaparte River. It was named poitevinite in honour of Dr. E. Poitevin former mineralogist with the Geological Survey of Canada. Chemical analysis by G.R. Lachance and S. Courville: CuO 21.6, FeO 18.0, ZnO 3.7, SO<sub>3</sub> 43.85, H<sub>2</sub>O 11.94, insol. 1.09, total 100.18, corresponding to the formula (Cu<sub>.50</sub>Fe<sub>.46</sub>Zn<sub>.08</sub>)SO<sub>4</sub>·(H<sub>2</sub>O)<sub>1.2</sub>.

The spacings and intensities of the five strongest lines in the X-ray powder pattern are: 4.85 (4), 4.72 (5), 3.46 (10), 3.08 (5) and 2.51 (4). (J.L. Jambor, G.R. Lachance and S. Courville, 1964: Can. Mineral., 8, p. 109. Also Jambor, 1962: Can. Mineral., 7, p. 245).

## POLLUCITE

Ontario

- 32 D/13 An occurrence of pollucite with spodumene has been reported in Steele Township, north shore of Abitibi Lake, on a property held by Johns Manville Company. (Private communication: S.C. Robinson).
- 52 F/16 Pollucite occurring as large masses (up to 20 cm), associated with large spodumene crystals, has been found by Alex Kozowy and Alex Ledichowski about 3 miles northeast of Gullwing Lake in Webb Township. The identification was confirmed at the Royal Ontario Museum. (J.A. Mandarino and D.C. Harris, 1965: Can. Mineralogist, 8, p. 377-8).

## POLYBASITE

Ontario

- 31 M/3 Chemical analysis of polybasite from the Keeley mine, South Lorrain Township, by R.N. Williams: Ag 70.97, Cu 2.50, Sb 9.46, As 2.37, S 14.69, total 99.99; S.G. 6.27. (M.A. Peacock and L.G. Berry, 1947: Mineral. Mag., 28, p. 1-13).
- 31 M/5 Polybasite occurs as irregular grains associated with chalcocite, stromeyerite and tetrahedrite in a sample from the Foster Mine. Electron probe microanalysis by D.C. Harris: Ag 54.6, Cu 17.6, As 2.5, Sb 7.8, Bi 1.8, S 18.3, total 102.6. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 208).

## POLYDYMITE

Northwest Territories

- 86 K/4 Polydymite is reported to occur with glaucodot and gersdorffite in the complex uranium-silver ores at the Eldorado Mine, Labine Point. (D.F. Kidd, 1936: Geol. Surv. Can., Memoir 187, p. 36).

## POLYLITHIONITE

(See lepidolite)

## POSNJAKITE



This secondary copper mineral was first described in 1967 by two Russians, A. I. Komkov and E. I. Nefedov and two Americans, M. E. Mrose and L. E. Reichen, and the data submitted to the I. M. A. Commission on New Minerals and Mineral Names on the same day. The spacings and intensities of the strongest lines in the X-ray powder pattern are: 7.0 (10), 3.46 (8), 2.70 (7), 2.61 (7), 2.41 (7), 2.015 (7) and 1.538 (7). (M. Fleischer, 1967: Am. Mineral., 52, p. 1582).

Nova Scotia

- 11 K/1 Blue fine flaky masses of posnjakite are found as coatings on quartz and host rocks at the Coxheath copper mine, located about 2 miles east of Frenchvale, Cape Breton County. Bright green aggregates of acicular crystals of brochantite are associated. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 29).

Quebec

The following occurrences of posnjakite in copper deposits of the Eastern Townships region are reported by Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 5, 8, 19, 21, 25.

- 21 E/5 With brochantite and devilline at the Capelton and Albert Mines and with brochantite at the Eustis Mine. The mines may be reached by travelling 3 miles west of Lennoxville along Belvedere Street and then 2.6 miles south.
- 31 H/2 With malachite and brochantite at Sweet's Mine, located 3 miles north of Sutton along the road to West Brome.
- 31 H/8 With langite and brochantite at the Ives Mine, located on the west side of the road between Eastman and Bolton Centre.
- 31 H/10 With azurite, malachite and brochantite at the Acton Mine near Acton Vale.

## POTASSIUM FELDSPAR

Quebec

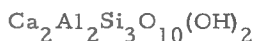
- 22 D/12E Green amazonite is reported to have been found at the Lac à la Mère mica mine near St. Nazaire, north of the Saguenay River. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 110).
- 31 G/12W Apple green amazonite occurs at the Leduc Mine on the east half of lot 25, range VII, Wakefield Township, near St-Pierre-de-Wakefield. The amazonite contains scattered dark brown inclusions. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 32).
- 31 H/11E Sanidine is present as colourless crystalline aggregates at the Mont St-Hilaire (Desourdy) Quarry on the northeast slope of Mont St-Hilaire. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 57).
- 31 P/3W Microcline crystals up to 3 inches across have been reported in a pegmatite dyke cutting gneiss at the face of a cliff on the east side of Lac à Baude. Large crystal clots of allanite are a conspicuous feature of the dyke. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 86).

## POWELLITE

Yukon

- 105 F/1 Specimens containing considerable cream-coloured powellite were collected from the north showing, on a ridge about 3,400 feet northwest of the main showing of the Molly group of Conwest Exploration Company Limited at about 61°10'N, 132°25'W in the Quiet Lake area. (L.H. Green and C.I. Godwin, 1964: Geol. Surv. Can., Paper 64-36, p. 46).

## PREHNITE

British Columbia

- 92 B/5 Veins and amygdules in the Metchosin basalt, east of the Sooke River, contain prehnite, epidote, pumpellyite, laumontite, chabazite, stilbite, analcime, quartz and calcite. (W.G. Libby and Jerry Kopel, 1971: Can. Mineralogist, 10, p. 915).

- 92 F/12 Prehnite and pumpellyite are abundant minerals in the metavolcanic rocks of the Karmutsen group in the Buttle Lake area. An electron probe study of the prehnite has shown an appreciable amount of solid solution between the end members  $(Ca_2Al_2Si_3O_{10}(OH)_2)$  and  $(Ca_2Fe_2Si_3O_{10}(OH)_2)$ , with up to 30 per cent of the latter molecule being present in some samples. (Ronald S. Surdam, 1969: Am. Mineralogist, 54, p. 256-266).

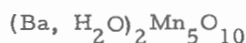
#### New Brunswick

- 22 B/1 Cavities filled with prehnite, (also stilbite, laumontite, thomsonite, heulandite and phillipsite) have been found in the volcanic rocks along the Inch Arran - Bon Ami shoreline, east of Dalhousie. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 103).

#### Quebec

- 21 E/13 White to greenish white columnar or prismatic masses of prehnite, white fibrous wollastonite, pink garnet, transparent vesuvianite and grass-green diopside occur at the Jeffrey Mine, Asbestos, at the contact of peridotite with granitic rock. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 26).
- 31 G/12W Prehnite is reported to have been found at the Breckin deposit, a former phosphate mine, on the farm of Mr. Maurice Last located about 5 miles from St-Pierre-de-Wakefield along the road to McGregor Lake. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 27).

#### PSILOMELANE



#### British Columbia

- 92 P/4 The Clinton manganese deposit is located about 10 miles northwest of Clinton on one of the foothills of Marble mountains, about 2 miles north of Clinton Creek. Psilomelane, manganite and pyrolusite occur as nodules, narrow stringers and irregular masses in quartzites and chloritic schists of the Cache Creek group. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 18).
- 93 B/15 On Baker Creek and the Lower West River, psilomelane fills fractures in chert of the Cache Creek group. (A.G. Johnston and W.D. McCartney, 1964: Geol. Surv. Can., Paper 64-37, p. 16).

- 93 K/1 Psilomelane and pyrolusite fill fractures in cherty quartzites of the Cache Creek group on the Tead property located 1 1/4 miles north of the second canyon on Nechako River below Fraser Lake, or 5 1/2 miles northeast of Fort Fraser. There is a similar occurrence on the Godwin property located about one mile northeast of the Tead showing. (J.E. Armstrong, 1949: Geol. Surv. Can., Memoir 252, p. 195).
- 93 N/6 At Indata Lake in the Fort St. James map-area, a vein of braunite and psilomelane occurs in limestone of the Cache Creek group, and has been traced for 60 feet. (A.G. Johnston and W.D. McCartney, 1964: Geol. Surv. Can., Paper 64-37, p. 13).

Manitoba

- 62 G/8 Hydrous oxides, probably manganite and psilomelane occur in swampy land at the base of an escarpment at the Roseisle deposit. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 26).

New Brunswick

- 21 J/4 Psilomelane, manganous manganite and rhodochrosite occur with hematite, magnetite and pyrite in slate at the Plymouth mine, near Plymouth, and the Moody Hill, Iron Ore Hill and Palmer's Mines in the Jacksonville area, to the east and north of Woodstock. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 132, 135).

Nova Scotia

- 11 E/5 A manganese-bearing conglomerate containing psilomelane, pyrolusite and manganite is exposed in cliffs along the west side of the mouth of the Tennycape River at a point 2,300 feet northwest of the bridge over the river. The Tennycape Mine, located about a mile south of highway 15 from a point 0.6 miles west of Tennycape, was the largest producer of manganese ore in the province in the years 1880 and 1900. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 50).
- 21 A/9 At New Ross, Lunenburg County, pyrolusite, manganite and psilomelane, with calcite, barite, manganiferous carbonate, iron oxides and country rock occur as lenticular veins in faults or crushed zones in Devonian granite. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 48).
- 21 A/15 Lenses and stringers containing psilomelane, pyrolusite, iron oxides, calcite and siderite follow the general strike of quartzites, phyllites and slates at Nicholsville, Kings County. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 47).

- 21 H/1 Dull black fine-grained psilomelane occurs with shiny black platy ramsdellite on banded calcite in red sandstone along cliffs exposed at low tide at Whale Cove, north of Whale Creek, Hants County. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 51).
- Psilomelane, pyrolusite and manganite occur as nodular masses and crystal aggregates with calcite in conglomerate on the shoreline southwest of the wharf at Cheverie, Hants County. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 55).
- 21 H/1 At Bishop's Brook, two miles south of Kentville, an intergrowth of pyrolusite, manganite and psilomelane with hematite forms beds, lenses and concretions interstratified with bands of grey phyllite.
- Pyrolusite and psilomelane form crusts over grey quartzite at the Ford farm prospect, two miles southwest of Wolfville. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 47).
- 21 H/8 Psilomelane, pyrolusite and manganite occur as seams, veinlets and small pockets in volcanic rocks, sandstone and shale near Parrsboro, Cumberland County, and Lower Five Islands, Colchester County. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 43).

#### Ontario

- 41 K/16 Manganite, psilomelane and manganese carbonates, along with quartz, calcite and fluorite occur in closely spaced stringers in a reddish lava flow at a deposit in Ley Township, Batchawana Bay. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 29).
- 52 A/10 A vein six inches in average width, consisting of an intimate mixture of braunite and psilomelane with local barite and quartz, has been noted in a shatter zone in chert rock near Pearl in McTavish Township. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 28).

#### Yukon

- 115 K/2 A vein consisting largely of psilomelane in rhyolitic tuff has been exposed at mile 1212, Alaska Highway. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 12).

PUMPELLYITE



British Columbia

- 92 B/5 Veins and amygdules in the Metchosin basalt, east of the Sooke River, contain pumpellyite, prehnite, epidote, laumontite, chabazite, stilbite, analcime, quartz and calcite. (W. G. Libby and Jerry Kopel, 1971: Can. Mineralogist, 10, p. 915).
- 92 F/12 Pumpellyite and prehnite are abundant minerals in metavolcanic rocks of the Karmutsen group in the Buttle Lake area. The pumpellyite occurs as radiating needles in amygdules and as an alteration product of calcic plagioclase. (Ronald C. Surdam, 1969: Am. Mineralogist, 54, p. 256-266).

Ontario

- 42 D/11 Pumpellyite, locally known as Rosspport or Nipigon Bay "greenstone", occurs as nodules and in geodes in lavas and along the beaches of Wilson, Copper, Salter, Harry, Simpson, Bowman and Agate Islands. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 22).

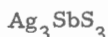
Quebec

The following occurrences of pumpellyite have been described by Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51.

- 31 G/11W Light greenish blue, translucent grains of pumpellyite up to 1/4 inch diameter are fairly common at the Bell Graphite Mine (p. 15).
- 31 G/12E At the Little Rapids (Watts) Mine near Glen Almond, pumpellyite is found as silky white rosettes on pyroxene crystals and as creamy white acicular aggregates in small cavities in pyroxenite (p. 30).
- 31 G/12E Light bluish grey striated pumpellyite occurs in roadcuts on Highway 35 near Glen Almond (p. 31).
- 31 G/13E Roadcuts on Highway 35 north of Notre Dame-de-la-Salette, contain nodules averaging 1/8 inch in diameter of light blue to bluish grey pumpellyite (p. 41).



## PYRRARGYRITE

New Brunswick

- 21 G/9 Inclusions of pyrargyrite in galena have been noted in polished sections of specimens from Reserve Brook, Queen's County. (R.S. Boorman, 1968: New Brunswick Res. Prod. Council, Res. Note 11).

Ontario

- 31 M/3 Pyrargyrite is a common silver sulphantimonide in the Cobalt-  
 31 M/5 Gowganda ores. Electron probe microanalyses: (1) Ag 59.6,  
 31 M/12 Sb 24.2, S 18.1, total 101.9; (2) Ag 60.6, Sb 24.2, S 18.3, total  
 41 P/9 103.1; (3) Ag 58.4, Sb 22.3, S 17.5, total 98.2; (4) Ag 59.2,  
 41 P/10 Sb 20.0, As 1.4, S 16.7, total 97.3. (W. Petruk et al., 1971:  
 41 P/15 Can. Mineralogist, 11, p. 210).  
 41 P/16
- 52 L/16 Small amounts of pyrargyrite are found in a massive base metal sulphide ore located about 4,000 feet south-southwest of the south end of Trout Bay in Mulcahy Township about 20 miles west of Red Lake. (L.J. Cabri, D.C. Harris and J.M. Stewart, 1970: Can. Mineralogist, 10, p. 232).

Yukon

- 105 D/2 Pyrargyrite occurs with native silver, acanthite, galena, pyrite, arsenopyrite and tetrahedrite at the Montana Mine property of Arctic Gold and Silver Mines Limited at Montana Mountain near Carcross, at 60°05'N, 134°42'W. (D.C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 59).

Ruby silver is present in significant amounts in some parts of the Venus vein on the property of Venus Mines Limited, on the west side of Windy Arm, Tagish Lake, 10 miles southeast of Carcross at 60°01'N, 134°38.2'W. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 115).

PYRITE



New Brunswick

A selection of pyrites from 18 sulphide occurrences in New Brunswick was analyzed for major and minor elements. The chemical analyses, Fe:S ratios, and unit cell dimensions measured against silicon standard are given in the following tables. (J.K. Sutherland, 1967: Can. Mineralogist, 9, p. 71-83).

	1 Keymet	2 Nigadoo	3 Murray Brook	4 Devils Elbow	5 Brunswick 12A	5 Brunswick 12B	5 Brunswick 12D
Fe	45.78	47.01	43.59	45.91	45.86	45.53	44.95
Co	0.05	0.02	0.05	0.1-0.2	0.10	0.05	0.05
Ni	0.01	0.01	0.008	0.006	0.005	0.005	0.005
S	53.18	46.86	47.06	52.39	51.84	52.72	51.20
Se	nd	0.0005	0.0005	0.003	0.0005	nd	0.0005
As	0.11	0.01	4.52	0.01	0.60	0.02	0.25
Cu	0.02	0.02	0.38	0.22	0.18	0.19	0.23
Pb	0.65	0.60	1.21	0.04	0.08	0.09	0.98
Zn	0.53	0.08	1.78	0.07	0.08	0.29	1.10
Sb	-	-	0.05	-	0.02	-	-
Ba	-	-	-	-	-	-	0.01
Bi	0.002	-	0.008	0.005	0.01	0.01	0.01
Cd	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cr	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Ga	0.001	0.001	0.001	0.001	0.001	0.001	0.001
In	0.001	0.007	0.01	0.001	0.001	0.002	0.003
Mn	0.01	0.03	0.05	0.01	0.01	0.01	0.02
Mo	0.002	0.005	0.005	0.01	0.003	0.002	0.005
Si	0.17	0.12	0.18	0.08	0.05	0.09	0.28
Ag	0.015	0.003	0.003	0.001	0.001	0.002	0.006
Sn	0.003	0.004	0.02	0.003	0.02	0.05	0.05
Ti	0.01	0.02	0.03	0.03	0.02	0.01	0.02
V	0.005	0.01	0.005	0.005	0.005	0.005	0.005
Zr	0.02	0.02	0.02	0.02	0.01	0.01	0.02
Total	100.60	100.46†	99.01	98.95	98.93	99.12	99.23
Fe:S*	1:2.01	1:2.04	1:1.91	1:1.98	1:1.97	1:2.01	1:1.96
a <sub>0</sub> †	5.4174	5.4163	5.4176	5.4173	5.4175	5.4174	5.4176

	6	7	8	8	9	10	11
	Wedge	Half Mile Lake	Heath Steele A	Heath Steele B	Dominion	Cobbler Sexton	Petitcodiac
Fe	44.63	45.53	43.98	45.53	45.02	46.16	45.14
Co	0.05	0.04	0.1-0.2	0.04	0.02	0.05	0.01
Ni	0.007	0.003	0.001	0.001	0.008	0.005	0.01
S	53.19	51.99	50.85	52.47	51.94	52.78	51.65
Se	nd	0.0005	nd	0.0005	nd	nd	0.0005
As	0.15	0.21	0.15	0.15	0.01	0.01	0.01
Cu	1.52	0.06	0.86	0.14	0.04	0.04	0.01
Pb	0.13	0.37	0.90	0.56	1.24	0.06	0.04
Zn	0.47	0.32	1.00	0.58	0.62	0.03	0.01
Sb	-	-	-	-	-	-	-
Ba	0.01	-	0.02	0.01	-	-	-
Bi	0.01	0.01	0.02	0.01	0.002	0.002	-
Cd	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cr	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Ga	0.001	0.001	0.001	0.001	0.001	0.001	0.001
In	0.002	0.001	0.01	0.001	0.001	0.001	0.002
Mn	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Mo	0.003	0.002	0.002	0.002	0.005	0.003	0.01
Si	0.18	0.15	0.53	0.14	0.10	0.05	1.19
Ag	0.001	0.006	0.006	0.001	0.001	0.001	0.001
Sn	0.01	0.01	0.02	0.005	0.005	0.005	0.003
Ti	0.02	0.05	0.03	0.01	0.02	0.01	0.05
V	0.01	0.005	0.005	0.005	0.005	0.005	0.01
Zr	0.01	0.02	0.02	0.01	0.02	0.02	0.02
Total	100.45	98.82	98.64	99.71	99.10	99.28	98.21
Fe:S*	1:2.07	1:1.99	1:1.99	1:2.00	1:1.99	1:1.99	1:2.00
a <sub>0</sub> <sup>+</sup>	5.4178	5.4174		5.4173	5.4173	5.4173	5.4158

	12	13	14	15	16	17	18
	Annidale	Lumsden	Teahan	Reserve Brook	Mount Pleasant	Nerepis	Back Bay
Fe	45.02	46.16	45.78	46.94	43.60	45.27	44.51
Co	0.30	0.03	0.02	0.05	0.01	0.02	1.0
Ni	0.01	0.005	0.005	0.02	nd	0.01	0.2
S	52.58	52.94	53.36	49.97	45.51	51.47	51.90
Se	nd	nd	nd	nd	nd	nd	nd
As	0.01	0.05	0.01	0.37	8.50	0.22	0.01
Cu	1.16	0.04	0.29	0.04	0.88	0.09	0.48
Pb	0.08	0.02	0.05	0.75	0.08	0.89	0.06
Zn	0.09	0.01	0.30	0.15	0.88	0.27	0.05
Sb	-	-	-	0.01	nd	-	-
Ba	-	-	0.01	-	nd	-	-
Bi	0.01	0.005	-	-	nd	-	0.002
Cd	0.005	0.005	0.005	0.005	nd	0.005	0.005
Cr	0.03	0.03	0.03	0.03	0.005	0.03	0.03
Ga	0.001	0.001	0.001	0.001	nd	0.001	0.001
In	0.002	0.001	0.001	0.005	0.01	0.005	0.001
Mn	0.01	0.01	0.01	0.02	0.005	0.03	0.01
Mo	0.005	0.005	0.01	0.01	0.01	0.005	0.005
Si	0.10	0.19	0.15	0.23	-	0.32	0.08
Ag	0.003	0.001	0.001	0.006	0.003	0.003	0.001
Sn	0.005	0.005	0.002	0.002	nd	0.005	0.003
Ti	0.02	0.01	0.03	0.005	0.10	0.02	0.04
V	0.005	0.005	0.005	0.005	0.01	0.005	0.005
Zr	0.02	0.02	0.02	0.02	nd	0.03	0.02
Total	99.47	99.54	100.09	98.64	99.60	98.70	98.41
Fe:S*	1:2.02	1:2.00	1:1.99	1:1.85	1:1.94	1:1.98	1:1.98
a <sub>0</sub> †	5.4173	5.4172	5.4172	5.4177	5.4173	5.4175	5.4203

\*This ratio includes Co and Ni with the iron and is obtained after the removal of some iron and sulphur into arsenopyrite, chalcopyrite, galena and sphalerite.

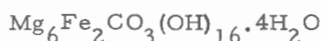
†Includes 5.60 per cent CO<sub>2</sub> present mainly as siderite but with some calcite. All of the CO<sub>2</sub> however was allocated to siderite. The Fe of this siderite was deducted from the total iron present, resulting in a higher Fe:S ratio than would actually occur.

‡All cell size determinations  $\pm 0.0001 \text{ \AA}$ .

Ontario

- 41 I/16 Porous nodules of cellular pyrite up to 8 inches in diameter are found within massive chalcopyrite in the open pit of Temagami Mining Company Limited on Timagami Island, near the south-west end of the long Northeast Arm of Lake Timagami. (E. R. Rose, 1965: Can. Mineralogist, 8, p. 317-324).
- 52 F/16 Specimens of pyrite occurring as cubes up to one inch across and as aggregates of coarse crystals are found at the Pidgeon molybdenum deposit near the east end of Lateral Lake. Access to the property is by a road, 6.3 miles long, leading west from Highway 72 at a point 19.9 miles north of Dinorwic. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 39).

## PYROAURITE

Quebec

- 21 E/14 Tiny flakes of bottle-green pyroaurite and colourless to pale green sjogrenite have been identified on fracture planes in massive serpentine from the Belmina Mine, near St-Jacques (Stenson), about 11 miles from Disraeli. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 45).
- 31 G/12W White fibrous pyroaurite occurs at the Cross Quarry near Meach Lake. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 41).
- 31 G/13E Roadcuts north of Val-des-Bois on Highway 35 contain pyroaurite as tiny white waxy nodules and as white satiny fibres surrounding serpentine. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 44).
- 31 G/15E Pyroaurite, as waxy white nodules, occurs in the dolomite at the Dobbie Mine. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 73).
- 31 H/8 Translucent, multi-coloured, massive serpentine occurs in pits on the shore of Webster Lake, about 4 miles from the St-Elie-Bonsecours road. Yellowish to orange patches of pyroaurite are present on the serpentine. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 14).
- 31 J/4E Pyroaurite occurs as tiny white waxy nodules in crystalline limestone exposed along the south bank of the du Lièvre River downstream from des Cèdres dam. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 47).

## PYROCHLORE GROUP

Quebec

31 G/8

A detailed study has been made of 5 varieties of pyrochlore from the Oka Complex, located about 20 miles west of Montreal on the north shore of the Lake of Two Mountains. Chemical analyses are given below; detailed X-ray data may be obtained by reference to the original paper.

- I - Fine-grained. Reddish colour in thin section. From biotite ijolite, Quebec Columbian Mines Limited, Bond Zone.  $\text{Nb}_2\text{O}_5$  48.8,  $\text{Ta}_2\text{O}_5$  2.10,  $\text{TiO}_2$  7.20,  $\text{ZrO}_2$  0.95,  $\text{Fe}_2\text{O}_3$  1.90,  $\text{SnO}_2$  0.00,  $\text{Na}_2\text{O}$  2.30,  $\text{K}_2\text{O}$  0.00,  $\text{CaO}$  19.8,  $\text{SrO}$  0.47,  $\text{MnO}$  0.08,  $\text{MgO}$  0.42,  $\text{Ce}_2\text{O}_3$  7.06,  $\text{La}_2\text{O}_3$  1.39,  $\text{Nd}_2\text{O}_3$  1.82,  $\text{Y}_2\text{O}_3$  0.07,  $\text{U}_3\text{O}_8$  0.69,  $\text{ThO}_2$  1.10,  $\text{TlO}_2$  0.12, F 3.80,  $\text{H}_2\text{O}^+$  0.12,  $\text{Al}_2\text{O}_3$  0.00,  $\text{P}_2\text{O}_5$  0.02, S 0.01,  $\text{SiO}_2$  0.83; total 101.05 less O for F 1.60, total 99.45.
- II - Coarse-grained. Chocolate colour to naked eye - reddish brown in thin section. From soda-pyroxene carbonatite. St-Lawrence Columbian and Metals Company.  $\text{Nb}_2\text{O}_5$  54.8,  $\text{Ta}_2\text{O}_5$  0.75,  $\text{TiO}_2$  5.80,  $\text{ZrO}_2$  0.66,  $\text{Fe}_2\text{O}_3$  1.66,  $\text{SnO}_2$  0.20,  $\text{Na}_2\text{O}$  5.10,  $\text{K}_2\text{O}$  0.00,  $\text{CaO}$  17.2,  $\text{SrO}$  0.32,  $\text{MnO}$  0.06,  $\text{MgO}$  - ,  $\text{Ce}_2\text{O}_3$  7.34,  $\text{La}_2\text{O}_3$  1.09,  $\text{Nd}_2\text{O}_3$  1.06,  $\text{Y}_2\text{O}_3$  0.12,  $\text{U}_3\text{O}_8$  0.02,  $\text{ThO}_2$  0.02,  $\text{TlO}_2$  0.03, F 3.92,  $\text{H}_2\text{O}^+$  0.18,  $\text{Al}_2\text{O}_3$  0.00,  $\text{P}_2\text{O}_5$  0.08, S 0.11,  $\text{SiO}_2$  0.10; total 100.62, less O for F 1.65, total 98.97.
- III - Medium grain size. Amber colour in thin section. From apatite and magnetite rich carbonatite. St-Lawrence Columbian and Metals Company.  $\text{Nb}_2\text{O}_5$  56.3,  $\text{Ta}_2\text{O}_5$  0.25,  $\text{TiO}_2$  5.20,  $\text{ZrO}_2$  2.03,  $\text{Fe}_2\text{O}_3$  1.14,  $\text{SnO}_2$  0.00,  $\text{Na}_2\text{O}$  5.10,  $\text{K}_2\text{O}$  0.00,  $\text{CaO}$  17.9,  $\text{SrO}$  0.76,  $\text{MnO}$  0.05,  $\text{MgO}$  0.68,  $\text{Ce}_2\text{O}_3$  3.78,  $\text{La}_2\text{O}_3$  0.68,  $\text{Nd}_2\text{O}_3$  1.83,  $\text{Y}_2\text{O}_3$  0.08,  $\text{U}_3\text{O}_8$  0.08,  $\text{ThO}_2$  1.47,  $\text{TlO}_2$  0.03, F 2.13,  $\text{H}_2\text{O}^+$  0.35,  $\text{Al}_2\text{O}_3$  0.00,  $\text{P}_2\text{O}_5$  0.24, S 0.04,  $\text{SiO}_2$  0.42; total 100.54, less O for F 1.00, total 99.54.
- IV - Medium grain size. Dark brown to black colour. St-Lawrence Columbian and Metals Company.  $\text{Nb}_2\text{O}_5$  47.4,  $\text{Ta}_2\text{O}_5$  3.54,  $\text{TiO}_2$  6.38,  $\text{ZrO}_2$  4.10,  $\text{Fe}_2\text{O}_3$  1.89,  $\text{SnO}_2$  0.00,  $\text{Na}_2\text{O}$  2.05,  $\text{K}_2\text{O}$  0.00,  $\text{CaO}$  19.8,  $\text{SrO}$  0.26,  $\text{MnO}$  0.28,  $\text{MgO}$  0.00,  $\text{Ce}_2\text{O}_3$  8.66,  $\text{La}_2\text{O}_3$  1.22,  $\text{Nd}_2\text{O}_3$  1.22,  $\text{Y}_2\text{O}_3$  0.21,  $\text{U}_3\text{O}_8$  0.56,  $\text{ThO}_2$  0.03,  $\text{TiO}_2$  0.00, F 2.15,  $\text{H}_2\text{O}^+$  0.36,  $\text{Al}_2\text{O}_3$  0.00,  $\text{P}_2\text{O}_5$  0.04, S 0.05,  $\text{SiO}_2$  0.15; total 100.35, less O for F 0.91, total 99.44.
- V - Fine grained. Beige colour. From carbonatite containing important amounts of monticellite and/or diopside. St-Lawrence Columbian and Metals Company.  $\text{Nb}_2\text{O}_5$  65.8,  $\text{Ta}_2\text{O}_5$  0.04,  $\text{TiO}_2$  2.59,  $\text{ZrO}_2$  0.60,  $\text{Fe}_2\text{O}_3$  0.56,  $\text{SnO}_2$  0.00,  $\text{Na}_2\text{O}$  6.20,  $\text{K}_2\text{O}$  0.00,  $\text{CaO}$  15.8,  $\text{SrO}$  0.93,  $\text{MnO}$  0.00,  $\text{MgO}$  0.00,  $\text{Ce}_2\text{O}_3$  1.63,  $\text{La}_2\text{O}_3$  0.37,  $\text{Nd}_2\text{O}_3$  0.39,  $\text{Y}_2\text{O}_3$  0.17,  $\text{U}_3\text{O}_8$  0.03,  $\text{ThO}_2$  0.20,  $\text{TlO}_2$  0.00, F 4.61,  $\text{H}_2\text{O}^+$  0.59,  $\text{Al}_2\text{O}_3$  0.00,  $\text{P}_2\text{O}_5$  0.07, S 0.04,  $\text{SiO}_2$  0.17; total 100.79, less O for F 1.94, total 98.85. (Guy Perrault, 1968: Can. Mineralogist, 9, p. 383-402).

- 31 G/9 Chemical analyses of pyrochlores from the St. Lawrence Columbian and Metals Corporation property in the Oka district, located about 20 miles west of Montreal on the north shore of the Lake of Two Mountains.
- I - Deep red (type 1), Nb<sub>2</sub>O<sub>5</sub> 46.97, Ta<sub>2</sub>O<sub>5</sub> 2.18, TiO<sub>2</sub> 7.49, Fe<sub>2</sub>O<sub>3</sub> 1.98, ZrO<sub>2</sub> 0.99, Na<sub>2</sub>O 2.39, CaO 18.68, SrO 0.49, MgO 0.15, MnO 0.08, Ce<sub>2</sub>O<sub>3</sub> 7.70, La<sub>2</sub>O<sub>3</sub> 1.45, Nd<sub>2</sub>O<sub>3</sub> 1.89, Y<sub>2</sub>O<sub>3</sub> 0.07, U<sub>3</sub>O<sub>8</sub> 0.72, ThO<sub>2</sub> 1.15, F 3.93, loss on ignition 1.54, less O for F 1.65, total 97.17.
- II - Red (type 3), Nb<sub>2</sub>O<sub>5</sub> 55.80, Ta<sub>2</sub>O<sub>5</sub> 0.50, TiO<sub>2</sub> 6.52, Fe<sub>2</sub>O<sub>3</sub> 2.70, ZrO<sub>2</sub> 1.00, Na<sub>2</sub>O 4.50, CaO 15.08, SrO 1.09, MnO 0.07, Ce<sub>2</sub>O<sub>3</sub> 3.00, La<sub>2</sub>O<sub>3</sub> 0.70, Y<sub>2</sub>O<sub>3</sub> 0.12, U<sub>3</sub>O<sub>8</sub> 0.45, ThO<sub>2</sub> 0.63, Gd<sub>2</sub>O<sub>3</sub> 0.20, F 3.69, H<sub>2</sub>O<sup>+</sup> 1.24, SiO<sub>2</sub> 0.08, less O for F 1.55, total 95.82.
- III - Red (type 3), Nb<sub>2</sub>O<sub>5</sub> 57.97, Ta<sub>2</sub>O<sub>5</sub> 0.26, TiO<sub>2</sub> 5.36, Fe<sub>2</sub>O<sub>3</sub> 1.08, ZrO<sub>2</sub> 2.09, Na<sub>2</sub>O 5.25, CaO 15.11, SrO 0.78, MgO 0.56, MnO 0.06, Ce<sub>2</sub>O<sub>3</sub> 4.09, La<sub>2</sub>O<sub>3</sub> 0.70, Nd<sub>2</sub>O<sub>3</sub> 1.89, Y<sub>2</sub>O<sub>3</sub> 0.08, U<sub>3</sub>O<sub>8</sub> 0.08, ThO<sub>2</sub> 1.51, F 2.19, loss on ignition 0.91, less O for F 0.92, total 99.05.
- IV - Red (type 3), average chemical composition of mill concentrate, Nb<sub>2</sub>O<sub>5</sub> 60.00, Ta<sub>2</sub>O<sub>5</sub> 0.50, TiO<sub>2</sub> 4.50, Fe<sub>2</sub>O<sub>3</sub> 2.70, ZrO<sub>2</sub> 1.00, Na<sub>2</sub>O 3.50, K<sub>2</sub>O 0.60, CaO 15.08, SrO 0.60, MgO 1.00, MnO 0.37, Ce<sub>2</sub>O<sub>3</sub> 3.00, La<sub>2</sub>O<sub>3</sub> 0.70, Y<sub>2</sub>O<sub>3</sub> 0.12, U<sub>3</sub>O<sub>8</sub> 0.10, ThO<sub>2</sub> 0.23, Gd<sub>2</sub>O<sub>3</sub> 0.20, F 3.69, H<sub>2</sub>O<sup>+</sup> 1.24, PbO 0.08, less O for F 1.55, total 97.66. (D.P. Gold, 1966: Min. Soc. India, I, M.A. Volume, p. 102-126).
- 31 H/11 Pyrochlore has been identified in veins and vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).
- 31 J/16E Yellowish brown grains of pyrochlore occur at the Maisonneuve Mine near St-Michel-des-Saints. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 78).

## PYROLUSITE

British Columbia

- 82 F/11 A vein containing pyrolusite occurs at the Bearpaw claims which cover the top of the southern slope of the hill between Violet and Gold Creeks in the Chapleau Creek - Lemon Creek area. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 23).

- 92 P/4 The Clinton manganese deposit is located about 10 miles northwest of Clinton on one of the foothills of Marble Mountains, about 2 miles north of Clinton Creek. Psilomelane, manganite and pyrolusite occur as nodules, narrow stringers and irregular masses in quartzites and chloritic schists of the Cache Creek group. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 18).
- 93 K/1 Pyrolusite and psilomelane fill fractures in cherty quartzites of the Cache Creek group, on the Tead property located 1 1/4 miles north of the second canyon on Nechako River below Fraser Lake, or 5 1/2 miles northeast of Fort Fraser. There is a similar occurrence on the Godwin property located about one mile northeast of the Tead showing. (J.E. Armstrong, 1949: Geol. Surv. Can., Memoir 252, p. 195).

Manitoba

- 62 J/12 Most of the manganese in bogs in the Riding Mountain area occurs as pyrolusite. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 26).

Nova Scotia

- 11 E/5 A manganese-bearing conglomerate containing psilomelane, pyrolusite and manganite is exposed in cliffs along the west side of the mouth of the Tennycape River at a point 2,300 feet northwest of the bridge over the river. The Tennycape Mine, located about a mile south of highway 15 from a point 0.6 miles west of Tennycape, was the largest producer of manganese ore in the province in the years 1880 to 1900. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 50).
- 11 E/6 Pyrolusite occurs with manganite, limonite and hausmannite in veins up to 7 inches wide in dark grey limestone exposed along the shore of Minas Basin at mid-tide level. Access is through the Edgar Nelson farm located about 10 miles southwest of Truro along the Clifton-Black Rock road.
- Nodules of pyrolusite and manganite up to 4 inches across occur in limestone and conglomerate at the East Mountain Mine on the property of Mrs. Daniel McMasters, located about 6.7 miles northeast of Truro. Veins containing pyrolusite and manganite cut sandstone at an old mine on the farm of Mrs. H. Coulter, about 7.7 miles from Truro. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 40-42).
- 11 F/5 Veinlets and segregations of pyrolusite have been noted in shales and breccia near Roachvale, Guysborough County. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 52).



- 11 F/15 Manganese minerals, mainly pyrolusite and some manganite occur in Horton-Windsor rocks of Mississippian age, as nodular masses in limestone and as fracture fillings in shale, in the Loch Lomond area. Associated minerals are hausmannite, calcite, rhodochrosite, barite and selenite. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 52).
- 11 F/16 Pyrolusite is found in sand and clay at Catalone, Cape Breton County. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 53).
- 21 A/9 At New Ross, Lunenburg County, pyrolusite, manganite and psilomelane, with calcite, barite, manganiferous carbonate, iron oxides and country rock occur as lenticular veins in faults or crushed zones in Devonian granite. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 48).
- 21 A/15 Lenses and stringers containing pyrolusite, psilomelane, iron oxides, calcite and siderite follow the general strike of quartzites, phyllites and slates at Nicholville, Kings County. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 47).
- 21 H/1 Pyrolusite and manganite occur in pockets and joint planes in limestone at the Stephens Mine, about 1/2 mile southwest of Walton.
- Pyrolusite, manganite and psilomelane occur as nodular masses and crystal aggregates with white to brown calcite at the Macumber Mine, on the shoreline southwest of the wharf at Cheverie. (Ann. P. Sabina, 1964: Geol. Surv. Can., Paper 64-10).
- 21 H/1 At Bishop's Brook, two miles south of Kentville, an intergrowth of pyrolusite, manganite and psilomelane with hematite forms beds, lenses and concretions interstratified with bands of grey phyllite.
- At Deep Hollow Road and Pine Brook, about three miles southwest of Wolfville, pyrolusite fills cracks and cements shattered areas in quartzite, and forms irregularly distributed pockets.
- Pyrolusite and psilomelane form crusts over grey quartzite at the Ford farm prospect, two miles southwest of Wolfville. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 47).
- 21 H/8 Pyrolusite, psilomelane and manganite occur as seams, veinlets and small pockets in volcanic rocks, sandstone and shale near Parrsboro, Cumberland County and Lower Five Islands, Colchester County. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 43).

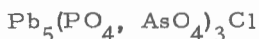
Ontario

- 52 E/9 Pyrolusite is associated with silver, gold, galena, sphalerite and copper sulphides at the Golden Gate Mine, Bigstone Bay, Lake of the Woods. (A. G. Johnston and W. D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 27).

Quebec

- 11 N/5 Residual masses, mostly pyrolusite in clay, are found at various localities on the Magdalen Islands. Manganese oxides occur as veins and replacement masses in altered rock of high carbonate content at the Storer claims on Grindstone Island. (A. G. Johnston and W. D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 34).

## PYROMORPHITE

New Brunswick

- 21 P/5 A thick gossan at the Brunswick No. 6 Mine contains a variety of secondary minerals, notably: pyromorphite, anglesite, cerussite, beudantite, rozenite, szomolnokite, roemerite, copiapite, scorodite, jarosite and woodhouseite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 119).

## PYROPHANITE



The spacings and intensities of the six strongest lines in the X-ray powder pattern of pyrophanite are 2.77 (10), 2.56 (9), 1.885 (7), 1.740 (8), 1.521 (7) and 1.484 (7). The mineral is a member of the ilmenite series, isostructural with ilmenite and geikielite. (E. Welin, 1969: Arkiv Mineral., Geol. 4, p. 531).

Nova Scotia

- 11 E/1 Small grains of pyrophanite have been identified in spessartite-rich rock from Rocky Lake, three miles northwest of Liscomb. The rock also contains rhodonite, quartz, rhodochrosite, mica, hornblende, magnetite and pyrrhotite. (A. G. Johnston and W. D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 51).

Quebec

- 31 H/11 Pyrophanite is found in vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## PYRRHOTITE

New Brunswick

- 21 J/10 Pyrrhotite, molybdenite, arsenopyrite, and pyrite are the most abundant sulphides at the Burnt Hill Mine in York County. The mine may be reached by road, 16 miles north of Maple Grove Station. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 127).

Quebec

- 22 A/13 The most abundant sulphides in the Needle Mountain orebody of Gaspé Copper Mines Limited, at Murdochville, are chalcopyrite and pyrrhotite. They are intimately mixed and form fine-grained aggregates. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 81).
- 31 H/1 About one mile west of Knowlton Landing, an old low grade copper deposit known variously as the Lake Memphremagog, Smith's and Patton Mine contains massive pyrrhotite associated with pyrite, chalcopyrite and sphalerite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 11).
- 31 H/8 At the Ives, Bolton and Huntingdon Mines, located along the road between Eastman and Bolton Centre, crystalline to massive pyrite occurs with lesser amounts of massive chalcopyrite and pyrrhotite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 8, 9, 11).

Yukon

- 115 F/15 The nickel-copper sulphides pyrrhotite - pentlandite - chalcopyrite occur with sphalerite, pyrite and marcasite mainly as disseminations, less commonly as massive lenses, in very fine-grained volcanic rocks on the Canalask Nickel Mines property on the east and west banks of the White River. The property is reached by a 2.8 mile access road that leaves the Alaska Highway at mile 1167. (D.C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 50).

- 115 G/5 Massive sulphides, mainly pyrrhotite, chalcopyrite and pentlandite with minor sphalerite, have been discovered on the Wellgreen property on Nickel Creek, a small tributary of Quill Creek, about 10 miles west of Burwash Flats. The property may be reached by a 7 mile access road from the Alaska Highway near mile 1111. (D.C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 52).

## QUARTZ

Manitoba

- 52 L/6 Rose quartz of an attractive colour and somewhat opalescent has been found in a pegmatite about 700 yards north of the north shore of Birse Lake at a point 500 yards west of the outlet of the creek at the east end of the lake. Birse Lake is 2 miles east of Bernic Lake. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 57).

New Brunswick

- 21 P/13 Jasper and chalcedony pebbles, derived from conglomerate, occur along the shoreline of Chaleur Bay from Belledune to Green Point and at Pointe Rochette, Gloucester County.
- 22 B/1 Colourful pebbles of agate, chalcedony and jasper may be collected along the shore of the St. Lawrence River between Peuplier Point and Pin Sec Point. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 103, 110).

Ontario

- 31 C/7 Transparent to translucent quartz crystals as large as 1/2 inch across are found in pegmatite in a feldspar quarry on the north side of Sand Road, 2 miles west of Verona, Highway 38. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 11).
- 31 C/10 At the Kingston (Bedford) mica mine, quartz occurs both in massive form and in crystals (up to 1/2 inch across) in quartz-feldspar veins. The mine is located about 2 miles east of Highway 38 and about 1/2 mile southeast of the Godfrey-Westport road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 14).
- 31 C/16 Smoky quartz is one constituent of a feldspar deposit at the Silver Queen Mine. The mine is located about 45 1/2 miles (road log) north of Kingston along Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 29).

- 31 G/4 Doubly-terminated quartz crystals occur in the soil and in limestone exposures on the A. C. Blair property in Greely. The crystals are colourless and transparent with a brilliant lustre, and average about 1/2 inch long. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 83).
- 42 D/13 Crystals of amethyst, colourless quartz, purple fluorite and salmon-pink barite are found in fractures in pink granite at rock cuts along the Trans-Canada Highway 6.8 to 8.3 miles west of the western turn-off to Rosspport. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 23).
- 52 A/5 Pale to medium - deep purple amethyst occurs with a variety of minerals, notably smoky and rose quartz, fluorite, barite and fluorescent calcite, at a number of old silver deposits that are accessible from the Silver Mountain highway (588) southwest of Stanley village at the following mileages: Victoria Mine - 100 feet north of the highway at mile 1.7; Beaver Junior Mine - about 400 yards southwest of the highway at mile 4.9; West Beaver Mine - 150 feet south of the highway at mile 5.7; Climax Mine - 1/2 mile by road south from the highway at mile 6.3; Badger Mine - 3/4 mile by road west from the highway at mile 6.7. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 33).
- 52 A/10 Amethyst, smoky and colourless quartz crystals up to 1/2 inch across are associated with barite, galena and fluorescent calcite at the Enterprise Mine located about 0.7 miles east of Highway 17, along Road No. 69-13, from a point 1.5 miles north of Pearl. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 23).

#### Quebec

- 21 E/14 A very attractive jasper breccia composed of orange-red jasper fragments in a maroon-red matrix traversed by tiny calcite veinlets occurs at the Cupra Mine. The mine is located 1.6 miles south of Highway 34 at a distance of 7.7 miles east of the junction of 34 with Highway 1. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 41).
- 22 A/3 Red and reddish brown jasper and chalcedony and a few agate  
22 A/4 pebbles are found along the shore of Chaleur Bay at New Carlisle,  
22 A/7 Black Cape, Maria and Carleton in Bonaventure County; and at  
22 A/8 Chandler, Anse-à-Beaufils, and Cap d'Espoir, Mont-Joli, Cap  
22 A/9 Barré, North Beach, Corner of the Beach, Nouvelle, Pointe  
22 A/16 St-Pierre, Anse-à-Brillant, Tar Point, Seal Cove, Haldimand,  
Sandy Beach, and Cap-aux-Os, Gaspé East County. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 79-97).

- 22 B/12 Chalcedony (flint) nodules up to 4 inches in diameter and in a  
22 B/13 variety of colours and patterns are found along the St. Lawrence  
22 C/9 River shoreline at many bays between Métis and L'Echouerie.  
22 H/1 They are most abundant near Matane, Cloridorme and L'Echouerie.  
22 H/2 (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 69).
- 22 B/16 Pale to lilac coloured amethystine quartz occupies veins about  
an inch wide and cavities in quartz at the Federal lead-zinc  
Mine. The mine is located about 1 mile west of the Trans-  
Gaspésien highway, 40.3 miles south of Ste-Anne-des-Monts.  
(Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 73).
- 22 D/6E Chalcedony, occurring in veins up to an inch wide at the Plourde  
et Plourde Ste - Anne Quarry near Chicoutimi Nord, is generally  
light to dark grey, bluish or pinkish grey and commonly banded.  
It also occurs in cavities (about 2 inches across) and is com-  
monly chalk white grading to translucent grey. Colourless  
quartz crystals line vugs. (Ann P. Sabina, 1968: Geol. Surv.  
Can., Paper 67-51, p. 106).
- 22 D/6E At the Pic Quarry near Chicoutimi Nord, small vugs in lime-  
stone are lined with colourless quartz crystals. (Ann P. Sabina,  
1968: Geol. Surv. Can., Paper 67-51, p. 107).
- 31 G/12 White massive quartz containing cavities up to 1 inch across  
lined with quartz crystals occurs at the Rainville (Dugas) Mine  
near Perkins Mills. Amethyst crystals in yellow massive  
apatite were also found here. (Ann P. Sabina, 1969: Geol.  
Surv. Can., Paper 68-51, p. 11).
- 31 G/13 Terminated quartz crystals measuring up to 2 inches across  
occupy cavities in massive quartz and feldspar at the Hart Mine  
near Notre-Dame-de-la-Salette. The small crystals are clear  
but the larger ones tend to be somewhat milky. (Ann P. Sabina,  
1969: Geol. Surv. Can., Paper 68-51, p. 32).
- 31 G/13 Shallow cavities in quartz at the Lapointe Mine near Notre-Dame-  
de-la-Salette are lined with quartz crystals about 1/4 inch across,  
coated with flaky specularite. (Ann P. Sabina, 1969: Geol.  
Surv. Can., Paper 68-51, p. 34).
- 31 G/13 Massive blue quartz containing inclusions of dark brown mica is  
found at the High Rock Mine near Notre-Dame-de-la-Salette.  
(Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 35).
- 31 G/13 Colourless to smoky quartz crystals measuring up to 3/4 inch  
across occur in cavities in massive quartz at the Evans-Lou  
Mine near Notre-Dame-de-la-Salette. (Ann P. Sabina, 1969:  
Geol. Surv. Can., Paper 68-51, p. 37).
- 31 H/12 Clear, terminated crystals of quartz (up to 2 inches long) are  
associated with dolomite in some cavities at the St-Eustache  
Quarry, west of Montreal. (Ann P. Sabina, 1968: Geol. Surv.  
Can., Paper 67-51, p. 65).

- 31 H/12 Colourless quartz crystals occur in cavities in the rock at the Francon Quarry, Montreal Island. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 67).
- 31 J/4 At the Parker Mine near Notre-Dame-du-Laus cavities in calcite are lined with clear quartz crystals about 1/4 inch across and tiny crystals of dogtooth spar. The cavities are from 1 to 2 inches in diameter. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 48).
- 31 J/8 Small irregular cavities in quartzite rock at the St. Donat Quarry contain colourless quartz crystals averaging 1/4 inch across. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 68).
- 32 A/8 Most of the quartz at the Lac Bouchette Quartz Mine is massive and milky white but some has a pink tinge. Cavities, commonly less than 2 inches across, are lined with clear to milky-white quartz crystals, with individual crystals measuring up to 1 inch long. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 115).

## RAMMELSBERGITE

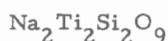
Northwest Territories

- 86 E/9 Rammelsbergite occurs with native silver and bismuth, matildite, safflorite, skutterudite, pararammelsbergite, gersdorffite, cobaltite and niccolite at a deposit on the Camsell River, 4 miles south of its mouth at Conjuror Bay, at 65°36'14"N, 118°06'45"W. (D.C. Harris and R.I. Thorpe, 1969: Can. Mineralogist, 9, p. 655-662).
- 86 F/13 An assemblage of cobalt-nickel minerals including rammelsbergite, cobaltite, safflorite-löllingite, glaucodot, niccolite and breithauptite occurs at the B. E. A. R. deposit on the north shore of Contact Lake, about 9 miles southeast of the Eldorado Mine. (G.M. Furnival, 1939: Econ. Geol., 34, p. 759).

Ontario

- 13 M/3 Electron probe microanalyses of rammelsbergites in the Cobalt-Gowganda ores: Siscoe Mine, Ni 25.8, Co 3.1, Fe 0.1, As 69.8, Sb 0.0, S 0.6, total 99.4; Siscoe Mine, Ni 20.8, Co 7.6, Fe 0.2, As 66.9, Sb 0.0, S 2.8, total 98.3; Silverfields Mine, Ni 20.9, Co 6.6, Fe 0.8, As 68.6, Sb 1.2, S 0.7, total 98.8; Langis Mine, Ni 29.5, Co 2.6, Fe 0.0, As 69.0, S 1.0, total 102.1; Hi-Ho Mine, Ni 29.0, Co 2.0, Fe 0.0, As 69.0, S 2.0, total 102.0. (W. Petruk, D.C. Harris and J.M. Stewart, 1971: Can. Mineralogist, 11, p. 165).

## RAMSAYITE

Quebec

- 31 H/11 Ramsayite has been found in vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. Its X-ray powder pattern has six strongest lines at: 5.46 (9), 3.34 (9), 3.03 (6), 2.75 (10), 2.45 (3), 1.602 (3). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## RAMSDELLITE

Nova Scotia

- 21 H/1 Ramsdellite occurs as shiny black platy aggregates with dull brown to black fine-grained psilomelane on white and brown banded crystalline calcite, in a red sandstone exposed at low tide along the cliffs at Whale Cove, north of Whale Creek. From the turn-off from highway 15 to Whale Cove, proceed west 0.2 miles along a rough road to the shore; bear right and walk 150 yards to the occurrence. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 51).
- 21 H/8 Ramsdellite has been found at Cape Split, Kings County. (H. H. Majmundar, 1969: Can. Mineralogist, 9, p. 718).

## RETGERSITE



The spacings and intensities of the five strongest lines in the X-ray powder pattern of synthetic retgersite are: 4.64 (2), 4.57 (4), 4.25 (10), 2.96 (2) and 2.72 (2). (ASTM pattern 8-470).

Quebec

- 21 L/9 Pale green to apple-green retgersite forms soft, thin crusts on millerite and quartz at the Eastern Metals Mine near St-Fabien. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 66).



## RHODOCHROSITE

British Columbia

- 82 F/10 Lead-zinc-silver ore minerals with a gangue of rhodochrosite and quartz occur at the Shepherd Mining Company deposit at Riondel, Kootenay Lake area. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 24).

New Brunswick

- 21 J/4 Rhodochrosite, psilomelane and manganous manganite occur with hematite, magnetite and pyrite in slate at the Plymouth Mine, near Plymouth, and the Moody Hill, Iron Ore Hill and Palmer's Mines in the Jacksonville area, to the east and north of Woodstock. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 132-135).

Nova Scotia

- 11 E/1 At Rocky Lake, 3 miles northwest of Liscomb, a spessartite-bearing rock consists mainly of spessartite, rhodonite and quartz. Other minerals include rhodochrosite, pyrophanite, mica, hornblende, magnetite and pyrrhotite. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 51).

Quebec

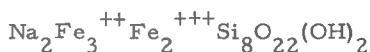
- 31 H/11 Rhodochrosite occurs in vuggy and veined nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## RHODONITE

Nova Scotia

- 11 E/1 The principal minerals in a sample of spessartite-bearing rock from Rocky Lake, 3 miles northwest of Liscomb, are spessartite, rhodonite and quartz. Other minerals present include rhodochrosite, pyrophanite, mica, hornblende, magnetite and pyrrhotite. (A.G. Johnston and W.D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 51).

## RIEBECKITE

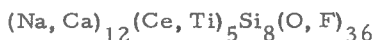
Northwest Territories

- 44 A/1 A blue amphibole, believed to be riebeckite, occurs along slickensided surfaces in iron-formation at the southwest end of Kugong Island. One or two tiny veinlets contain cross-fibres of a blue mineral, possibly crocidolite. (G.D. Jackson, 1960: Geol. Surv. Can., Paper 60-20, p. 13).

Quebec

- 31 H/11 Crocidolite, the fibrous variety of riebeckite, is reported to have been found at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## RINKITE

Quebec

- 31 H/11 A mineral believed to be a member of the rinkite (or mosandrite) group occurs in vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. The six strongest lines on its X-ray powder pattern are: 3.06 (10), 2.94 (3), 2.70 (4), 2.02 (2), 2.01 (2), 1.851 (4). (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## ROBINSONITE

British Columbia

- 82 F/3 Robinsonite is a rare sulphosalt previously reported only from the type locality (Red Bird mine, Nevada) and at Madoc, Ontario. Examination of a specimen from the Dodger Tungsten Mine, Salmo, led to the identification of bismuthian robinsonite associated with kobellite. Electron probe microanalysis gave: Pb 41.5, Bi 22, Sb 20, S 18, total 101.5. As in the analysis of the Madoc robinsonite, the lead value is considerably higher than the theoretical formula value. The spacings and intensities of

- 82 F/3 the five strongest lines on the X-ray powder pattern are: 3.94 (6), 3.74 (7), 3.41 (9), 3.04 (8), 2.781 (10). (J.L. Jambor and G.R. Lachance, 1968: Can. Mineralogist, 9, p. 426).

Ontario

- 31 C/6 A single grain of robinsonite was identified in specimens from a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed Taylor of Madoc. Electron probe analysis showed considerably higher lead and lower antimony than the theoretical composition. (J.L. Jambor, 1967: Can. Mineralogist, 9, p. 211.) The X-ray powder pattern of type robinsonite has the following strongest lines: 4.04 (8), 3.92 (8), 3.39 (10), 3.03 (8), 2.75 (8), 2.67 (8). (L.G. Berry and R.M. Thompson, 1962: Geol. Soc. Amer., Memoir 85, p. 168).

ROMARCHITE

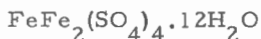
SnO

Ontario

- 52 L/3 Tin pannikins lost from the overturned canoe of a voyageur between 1801 and 1821 were recovered 15 feet below the surface of the water at Boundary Falls, Winnipeg River. Some of the surfaces of the pannikins have a thin crust consisting of white crystals and black crystals. The black crystals give an X-ray powder pattern identical to that of SnO, i.e., the strongest lines are 2.98 (10), 2.679 (6), 1.799 (7), 1.601 (9), 1.491 (6). The mineral, previously unreported in nature, is named romarchite, after Royal Ontario Museum Archaeology. (R.M. Organ and J.A. Mandarino, 1971: Can. Mineralogist, 10, p. 916).

RÖMERITE

(Roemerite)



The X-ray powder pattern of römerite has four strongest lines with the following spacings and intensities: 5.05 (5), 4.79 (10), 4.03 (9) and 2.38 (3). (ASTM pattern 13-530).

New Brunswick

- 21 P/5 The gossan at the Brunswick No. 6 Mine, located 2 miles from highway 331 on the road to Grand Falls, contains a variety of secondary minerals including soft pink powdery römerite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 118).

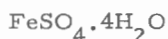
ROQUESITE



New Brunswick

- 21 G/7 This rare mineral is reported to occur as rounded grains up to 10 microns in size on chalcopyrite and sphalerite grain boundaries in specimens from the Mount Pleasant tin deposit. The identification was not confirmed by X-ray diffraction and is based solely on the results of electron probe analyses which gave the following average values: Cu 24.80, Fe 1.44, Zn 0.65, In 47.98, S 26.55, total 101.42. (J.K. Sutherland and R.S. Boorman, 1969: Am. Mineralogist, 54, p. 1202).

ROZENITE



The spacings and intensities of the seven strongest lines on the X-ray powder pattern of rozenite taken using Fe radiation are: 6.85 (5), 5.46 (9), 4.47 (10), 3.97 (7), 3.40 (6), 3.22 (5) and 2.953 (5). (J.L. Jambor and R.J. Traill, 1963: Can. Mineral., 7, p. 751).

New Brunswick

- 21 J/10 White powdery patches and coatings of rozenite on pyrrhotite have been identified on specimens from the Burnt Hill Mine. The deposit is accessible by road, 16 miles north of Maple Grove Station. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 127).
- 21 P/12 Rozenite has been identified as powdery white coatings on sulphides and host rocks from the Sturgeon River, Key Anacon and  
21 P/15 Brunswick No. 6 Mines in the Bathurst-Newcastle area. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 114).

Ontario

- 30 M/5 White to yellowish, irregular encrustations of rozenite have been identified at the Royal Ontario Museum on limestone specimens from the Dundas quarry, Dundas. (J.A. Mandarino and D.C. Harris, 1965: Can. Mineralogist, 8, p. 378).
- 31 C/10 Rozenite is abundantly exposed on the north wall of a pit at the Enterprise Mine about 26 miles north of Kingston and 10 miles west of Godfrey. It occurs as white, yellowish white and occasionally colourless loose granular to globular masses on pyrite. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 10).

- 41 I/4 A pale green encrustation on nickel ore at the Worthington Mine, lot 2, concession II, Drury Township, originally described as morenosite by G.C. Hoffmann (1892-93), has been re-examined and found to be nickelian rozenite. Partial X-ray fluorescence analysis by G.R. Lachance: FeO 17.3, NiO 13.0, CoO 0.4. (X-ray Laboratory, Geol. Surv. Can., 1965).

Quebec

- 21 E/10 Snow-white encrustations of rozenite on marcasite have been identified at a molybdenite deposit on the Joseph Grégoire farm, Ste-Cécile Station.
- 21 E/11 Rozenite occurs as white coatings on massive sulphides at the Weedon Mine near Fontainebleau. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 38, 43).
- 31 G/11 Rozenite forms white encrustations on gabbro at the Dominion Mine near Buckingham; on pyrite and rusty feldspar at the Jack Lake and Burnt Lake mines near Glen Almond; and on pyrite at the Smith Lake Mine near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 7, 23, 24, 26).
- 31 G/12 A white coating of rozenite occurs on rusty pyroxenite at the Rainville (Dugas) Mine near Perkins Mills. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 11).
- 31 G/13 Roadcuts on Highway 35 north of Notre-Dame-de-la-Salette contain biotite gneiss which in places is coated with white to yellow, finely-crystalline rozenite. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 44).
- 31 G/14 At the Cole Lake Mine near Glen Almond, white powdery rozenite occurs on rusty pyrite and feldspar. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 28).
- 31 I/16 White rozenite has been noted on the surfaces of tremolite rock at the Tetreault Mine near Montauban-les-Mines. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 88).
- 31 I/16 The secondary sulphate rozenite occurs as a snow white coating or encrustation on ore-bearing gneiss at the Montauban Mine near Montauban-les-Mines. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 89).
- 31 J/4 Coatings of white rozenite occur on rusty-weathered gneiss at the Canastata Mine near Notre-Dame-du-Laus. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 50).

- 31 J/7 Coatings of white rozenite occur on rusty-weathered gneiss at the Labelle and McLean-McNicholl properties near Labelle. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 61).

Yukon

- 105 M/14 Rozenite has been identified in several of the oxidized zones at Keno Hill. It is formed principally by the weathering of pyrite. (R.W. Boyle, 1965: Geol. Surv. Can., Bull. 111, p. 155).

RUTILE



Nova Scotia

- 11 D/15 Crystals of rutile in quartz were found at the Mooseland gold mine, located at Sluice Brook, northeast of Lake Charlotte, Halifax County. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 9).

Ontario

- 31 F/6 Tantalum-niobium rutile is reported from the Quadeville pegmatite on lot 23, concession XV, Lyndoch Township. (E.R. Rose, 1960: Geol. Surv. Can., Paper 59-10, p. 25).

Quebec

- 21 L/3 Patches of transparent, granular, reddish brown rutile, occur in soapstone at the Broughton soapstone quarry near St-Pierre (West Broughton). (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 56).
- 21 M/10 Veinlets of brownish red rutile are locally abundant in the General Electric pit. Rutile is also found in the Bignell, Coulombe and Furnace deposits in the St-Urbain area, Charlevoix County. (E.R. Rose, 1961: Geol. Surv. Can., Paper 61-7).
- 31 G/11 Reddish brown prisms of rutile occur in pegmatite at the Pedneaud Quarry near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 21).
- 31 H/11 Rutile is reported to occur in altered veins in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123).

## SAFFLORITE-LÖLLINGITE

Northwest Territories

- 86 E/9 Safflorite occurs with native silver and bismuth, matildite, skutterudite, rammelsbergite, pararammelsbergite, gersdorffite, cobaltite and niccolite, at a deposit on the Camsell River, 4 miles south of its mouth at Conjuror Bay on Great Bear Lake, at 65°36'14"N, 118°06'45"W. (D.C. Harris and R.I. Thorpe, 1969: Can. Mineralogist, 9, p. 655-662).
- 86 F/13 An assemblage of cobalt-nickel minerals, namely: safflorite-löllingite, cobaltite, glaucodot, niccolite, gersdorffite, rammelsbergite and breithauptite, occurs at the B. E. A. R. silver deposit on the north shore of Contact Lake, about 9 miles southeast of the Eldorado Mine. (G.M. Furnival, 1939: Econ. Geol. 34, p. 759.)

Ontario

- 31 M/3 Safflorite-löllingite is the most common arsenide in the Cobalt-Gowganda ores. The variable composition is shown by the following electron probe microanalyses:

	<u>Fe</u>	<u>Co</u>	<u>Ni</u>	<u>As</u>	<u>S</u>	<u>Total</u>
41 P/9						
41 P/10	28.0	0.0	0.8	72.0	0.0	100.8
41 P/15	20.7	7.9	0.8	68.5	1.8	99.7
41 P/16	15.7	3.2	10.8	70.1	0.4	100.2
	11.0	17.5	1.5	68.0	1.3	99.3
	10.8	7.3	10.8	70.1	0.4	99.4
	6.7	22.5	1.0	68.8	2.0	101.0
	5.5	15.3	8.7	69.6	1.2	100.3
	5.5	21.5	2.9	69.6	1.2	100.7
	5.0	23.1	3.6	66.0	3.0	100.7
	3.9	23.6	1.5	66.5	1.4	96.9

(W. Petruk, D.C. Harris and J.M. Stewart, 1971: Can. Mineralogist, 11, p. 154).

## SANIDINE

(See potassium feldspar)

## SCAPOLITE

Ontario

- 1 C/10 Light green to brownish green scapolite crystals about an inch across are found in crystalline limestone at the Enterprise Mine. The mine is situated about 26 miles north of Kingston and 10 miles west of Godfrey. Other minerals in association with scapolite are pyrite, pyrrhotite, calcite, apatite, hornblende and pyroxene. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 10.)
- 1 C/10 Scapolite has been found in crystalline limestone at a roadcut on the Westport Road, about 7 miles east of Godfrey. It occurs as light yellowish green transparent crystalline aggregates, about an inch across, with vitreous to greasy lustre. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 16.)
- 1 C/10 Scapolite occurs as greenish yellow transparent crystals (about 1/2 inch long) and turbid crystalline aggregates in veins cutting gabbro at the Eagle Lake (Blessington) Mine. The mine is located on the west side of Highway 38 about 39 miles north of Kingston, near Tichborne. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 21.)
- 1 C/15 Greyish green scapolite is rather abundant in white, coarse-grained crystalline limestone that outcrops along Highway 38 about 1 mile north of the causeway of the narrows of Sharbot Lake. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 22.)
- 1 C/16 Massive, granular, greenish to yellowish grey scapolite which fluoresces rose red under "short" ultraviolet rays occurs on the W. Fournier farm located 15 miles from Perth along the Christie Lake road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 39.)
- 1 E/1 Chemical analysis of white, coarsely crystalline scapolite from calcareous gneiss, lot 32, concession XVII, Monmouth Township, by E. Martinec: SiO<sub>2</sub> 54.84, CO<sub>2</sub> 1.50, SO<sub>3</sub> 0.05, Al<sub>2</sub>O<sub>3</sub> 22.81, Fe<sub>2</sub>O<sub>3</sub> 0.10, TiO<sub>2</sub> 0.02, MgO 0.08, MnO 0.00, CaO 8.33, Na<sub>2</sub>O 8.83, K<sub>2</sub>O 1.06, H<sub>2</sub>O<sup>+</sup> 0.26, Cl 2.48; total 100.46, less O for Cl 0.56, total 99.80. (C.O. Ingamells and J. Gittins, 1967: Can. Mineralogist, 9, p. 229).

Quebec

- 1 G/5 Grey to green scapolite occurs at the Fortin and Gravelle Mine, and at the Payne property, north of Alymer. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 10.)



- 31 G/10 Lemon-yellow to light green scapolite suitable for gem purposes occurs on the property of Lawrence McGill near Pointe-au-Chêne. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 78.)
- 31 G/11 Scapolite occurs at the Emerald apatite mine on the T. Lauzon farm near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 20.)
- 31 G/12 Scapolite is fairly abundant in the St-Pierre-de-Wakefield area at the Breckin, Seybold, Gemmill and McGlashan Mines. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 27, 29, 31.)
- 31 G/16 Scapolite occurs in pyroxenite on the farm of Albert Morrow located about 4 miles from Lost River. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 71.)
- 31 I/15 Grey translucent massive scapolite occurs in the marble at the Ste-Thècle marble quarry. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 85.)
- 31 J/12E Dark green bladed actinolite occurs with striated prismatic aggregates of colourless to light green scapolite in roadcuts on both sides of Highway 35 north of St-Aimé. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 55.)

## SCHEELITE

British Columbia

- 82 N/4 Scheelite is common in the veins at the Columbia Lead and Zinc Mine (formerly Stannite Mines and Regal Silver). It occurs with galena, sphalerite, stannite, pyrite and some cassiterite. The mine is located on Clabon Creek about 4 miles north of Albert Canyon. (J.O. Wheeler, 1963: Geol. Surv. Can., Paper 62-32, p. 28.)

Northwest Territories

- 95 E/13 At the M.B. prospect, situated 18 miles southeast of the Canada Tungsten Mine, scheelite is finely disseminated in pyroxene-garnet-vesuvianite skarn. (S.L. Blusson, 1968: Geol. Surv. Can., Paper 67-22, p. 35.)
- 105 H/16 The Canada Tungsten ore deposit, one of the highest grade tungsten orebodies in the world, is exposed on a cirque on the southwest side of the Flat River valley at 61°58'N, 128°15'W.

- 105 H/16 The deposit consists of pyroxene-garnet-calcite skarn partly replaced by scheelite, pyrrhotite, and chalcopyrite, and cut by scheelite-bearing quartz veins. The Baker prospect, 3 miles southeast of the Canada Tungsten Mine has a more varied mineralogy which includes major vesuvianite and accessory fluorite. (S.L. Blusson, 1968: Geol. Surv. Can., Paper 67-22, p. 28-34.)

Nova Scotia

- 11 D/15 A deposit on the west side of Lake Charlotte was worked for scheelite in the 1930's and since 1963 has been mined for gold by Lake Charlotte Mines Limited.
- At the Moose River Tungsten Mine, located 2 miles by road west of Moose River Mines village, scheelite was found as pale to orange-yellow grains and masses and less commonly as crystals about 1/2 inch across. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 8, 10.)
- 21 A/8 Pale buff coloured scheelite occurs as small masses in white quartz at the Indian Path Mine. The mine is located about 4 miles south from highway 3 along highway 32. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 85.)

Ontario

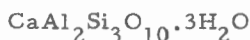
- 52 F/16 Scheelite is reported from the property of Newlund Mines Limited, with native gold, altaite, pyrite, chalcopyrite, sphalerite, galena, ilmenite and tourmaline. Access to the property is by road, 2 miles west from Highway 72 at a point 17 1/2 miles north of Dinorwic. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 38.)

Yukon

- 105 B/1 Scheelite occurs with wolframite, cassiterite, galena and fluorite at the Fiddler (Yukon Tungsten) property at 60°08'N, 130°26'W, located on a ridge north of Boulder Creek at an elevation of 5,100 feet. The property may be reached by a secondary road about 5 1/2 miles long that leaves the Alaska Highway just west of the Boulder Creek bridge at mile 701.6. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 80.)
- 105 D/11 Small amounts of scheelite occur at the Anaconda, Copper King and Carlisle copper deposits, about 2 miles northwest of Whitehorse. Larger amounts are found at the Scheelite group and Pueblo Tungsten deposits located about 3 miles west of Whitehorse and 1.3 to 2 miles southwest of the Alaska Highway. (E.D. Kindle, 1964: Geol. Surv. Can., Paper 63-41, p. 14-27.)

- 106 D/3 Quartz veins containing some scheelite grains are associated  
106 D/4 with a granitic stock in the northwestern part of the Erin group  
claims at 64°02'N, 135°35'W, north and west of the South  
McQuesten River and east of Lynx Creek, 12 miles northwest of  
Elsa. (D. B. Craig and P. Laporte, 1972: Mineral Industry  
Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern  
Development, p. 16.)
- 115 J/14 The Toni Tiger claim group lies in the Dawson Range on the  
crest of a northeast trending ridge at the headwaters of the west  
fork of Coffee Creek (62°49'N, 139°28'W). Scheelite, molybde-  
nite and chalcopyrite occur in quartz veins, in small streaks and  
blebs and as disseminations in a skarn zone in metasediments  
within the Klotassin batholith. (D. B. Craig and P. Laporte,  
1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept.  
Indian Affairs and Northern Development, p. 40.)

## SCOLECITE

New Brunswick

- 21 B/10 Scolecite occurs with heulandite, laumontite, analcime, natro-  
21 B/15 lite, epistilbite, thomsonite and stilbite as crystal aggregates  
and radiating fibres in cavities and seams in basalt on Grand  
Manan Island. The zeolite-filled amygdules are largest and  
most numerous along the coastline known as Seven Days Work.  
(Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 10.)

Nova Scotia

- 21 B/8 White radiating scolecite is common in small cavities in the  
basalt at East Sandy Cove (St. Mary's Bay). Access to St.  
Mary's Bay wharf is by a road 0.6 miles long leading east from  
highway 17 opposite the turn-off to the Champlain camp. Anal-  
cime, stilbite, chalcedony and jasper are also present.  
(Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 75.)
- 21 H/3 Scolecite is one of several zeolites, laumontite being the most  
common, that occur in the cliffs at Margaretsville, Annapolis  
County. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10,  
p. 71.)

## SCORODITE

New Brunswick

- 21 P/5 Scorodite is reported to occur in the gossan at the Brunswick No. 6 Mine south of Bathurst. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 118.)

Yukon

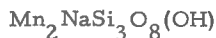
- 115 I/3 Scorodite is a constituent of the vein material at Mount Nansen Mines Limited (62°03'30"N, 137°10'30"W). Often sufficient scorodite is present to colour the vein material pale green. (L.H. Green, 1965: Geol. Surv. Can., Paper 65-19, p. 33.)

## SEMSEYITE

Ontario

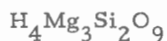
- 31 C/6 Semseyite is a fairly abundant constituent of the suite of sulpho-salt minerals discovered in a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed Taylor of Madoc. (J.L. Jambor, 1967: Can. Mineralogist, 9, p. 212.) The six strongest lines on the X-ray powder pattern of semseyite are: 3.85 (5), 3.38 (8), 3.27 (10), 2.98 (9), 2.87 (4), and 2.71 (4). (L.G. Berry and R.M. Thompson, 1962: Geol. Soc. Amer., Memoir 85, p. 159.)

## SERANDITE

Quebec

- 31 H/11 Serandite, the manganese analogue of pectolite, commonly forms the core of veins cutting nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 7.52 (6), 6.74 (6), 3.17 (9), 2.99 (10), 2.84 (9), 2.20 (7). (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

## SERPENTINE

Quebec

- 31 G/12 Crystalline limestone containing abundant white to grey fibrous tremolite and greenish blue massive serpentine is exposed in roadcuts about 1/2 mile south of Perkins Mills. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 8.)
- 31 G/12 Massive serpentine, in a variety of colours (yellow, green, blue, red, brown, black and white), is abundant at the Cross and Maxwell brucite quarries of the Aluminum Company of Canada, Limited, along the Farm Point road near Wakefield. Veinlets of fibrous serpentine are present but rare. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 41-44.)
- 31 G/13 Silky-white chrysotile asbestos with fibres up to 1/2 inch long occurs with massive yellowish green to olive-green and black serpentine at the Poltimore Asbestos property. The property is located 1.65 miles south of Holland Mills, which is 3.35 miles west of Notre-Dame-de-la-Salette on the road to Poltimore. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 36.)
- 31 J/4 Yellow-green to dark green and cream-white serpentine is a conspicuous constituent of crystalline limestone exposed along both banks of the du Lièvre River on the downstream side of the des Cèdres dam. Spinel and olivine are also present. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 47, 51.)
- 31 J/7 Yellow-green, olive-green and smoky amber translucent masses and blotches of serpentine occur in white dolomite limestone at the Canada Marble and Lime quarry near l'Annonciation. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 60.)
- 31 J/15 Translucent, yellow-green to olive-green and amber, massive serpentine is a common constituent of the marble at the Rockway Valley Marble quarry located 5.8 miles west of Arundel. It occurs as masses, blotches and bands in gleaming white marble. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 68.)
- 32 A/16 Massive yellow-green to dark green serpentine is found in pegmatite cutting calcite at the Les Calcites du Nord Quarry north of Dolbeau. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 111.)

Yukon

- 115 G/11 Short fibre chrysotile asbestos has been found in an ultrabasic sill on the Cam Claims at 61°40'N, 139°20'W, one mile east of Kluane River and 8 miles north of Mile 1118 on the Alaska Highway. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 104.)
- 116 C/7 The Clinton open-pit asbestos mine of Cassair Asbestos Corp. Limited began production in 1967. The mine is located at an elevation of about 1,600 feet on Porcupine Hill, immediately south of Clinton Creek. It is reached by a 26-mile access road that leaves the Sixty mile-Boundary road near mile 33 and crosses Fortymile River via a bridge near the mouth of Clinton Creek. (D. C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 32.)

SIDERITE



British Columbia

- 82 F/11 Manganiferous siderite is the most common of the gangue  
82 F/14 minerals in the veins, lodes and replacement deposits of the Slocan silver-lead-zinc camp. A sample of siderite from the Black Prince claim contained 20.98 per cent  $\text{MnCO}_3$ . (A. G. Johnston and W. D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 23.)
- 93 H/4 Manganiferous siderite occurs in the gold-bearing quartz veins of the Barkerville area. (W. A. Johnston and W. L. Uglow, 1933: Geol. Surv. Can., Summ. Rept., 1932, pt. AI.)

New Brunswick

- 21 P/5 Ore at the Austin Brook iron mine, south of Bathurst, consists of fine to coarsely banded magnetite with hematite, chlorite, chert and siderite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 120.)

Quebec

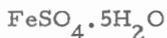
- 21 L/9 Specimens of quartz with coarsely foliated specularite and pale yellow granular aggregates of siderite have been found on the dumps at the Eastern Metals Mine, near St-Fabien. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 66.)

- 22 G/1 At the Candego Mine, located about 12 miles south of Marsoui, the sulphide ore minerals occur in a gangue of quartz and siderite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 75.)
- 31 H/11 Siderite is found in veins and as large crystals in vugs in nepheline syenite at the Desourdy Quarry on the northeast slope of Mont St-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

### Yukon

- 105 M/14 Siderite is the principal gangue mineral in the lead-zinc-silver deposits of the Keno Hill-Galena Hill area, where it cements breccia in the vein faults and fills fractures and cavities in the lodes. Most of the siderite occurs as drusy masses or coarse-grained and massive. Rhombohedral crystals with curved faces are found lining vugs. Stalactitic, globular and botryoidal masses have been observed but are rare. Siderite is often intimately intergrown with galena, pyrite, sphalerite and freibergite. Chemical analyses of two fresh and one slightly oxidized siderite samples by S. Courville are:
- I - fresh, Sadie Friendship lode, SiO<sub>2</sub> 0.10, Al<sub>2</sub>O<sub>3</sub> 0.01, Fe<sub>2</sub>O<sub>3</sub> 0.06, FeO 37.98, CaO 0.80, MgO 4.98, Na<sub>2</sub>O 0.05, K<sub>2</sub>O 0.01, H<sub>2</sub>O<sup>+</sup> 0.02, H<sub>2</sub>O<sup>-</sup> 0.11, TiO<sub>2</sub> 0.00, P<sub>2</sub>O<sub>5</sub> 0.05, MnO 16.12, CO<sub>2</sub> 39.30, S 0.00, total 99.59, S.G. 3.82;
- II - fresh, Onek lode, SiO<sub>2</sub> 0.50, Al<sub>2</sub>O<sub>3</sub> 0.00, Fe<sub>2</sub>O<sub>3</sub> 0.09, FeO 44.23, CaO 0.31, MgO 1.20, Na<sub>2</sub>O 0.03, K<sub>2</sub>O 0.02, H<sub>2</sub>O<sup>+</sup> 0.15, H<sub>2</sub>O<sup>-</sup> 0.03, TiO<sub>2</sub> trace, P<sub>2</sub>O<sub>5</sub> 0.77, MnO 13.71, CO<sub>2</sub> 37.75, S 0.02, total 99.81, S.G. 3.74;
- III - Bellekeno lode, SiO<sub>2</sub> 0.00, Al<sub>2</sub>O<sub>3</sub> 0.00, Fe<sub>2</sub>O<sub>3</sub> 1.23, FeO 40.41, CaO 0.90, MgO 1.35, Na<sub>2</sub>O 0.06, K<sub>2</sub>O 0.02, H<sub>2</sub>O<sup>+</sup> 0.03, H<sub>2</sub>O<sup>-</sup> 0.05, TiO<sub>2</sub> 0.00, P<sub>2</sub>O<sub>5</sub> 0.06, MnO 17.12, CO<sub>2</sub> 38.10, S 0.00, total 99.33, S.G. 3.80.
- (R. W. Boyle, 1965: Geol. Surv. Can., Bull. 111, p. 118, 263.)
- 106 D/6 A vein of siderite, freibergite and pyrite, 30 inches wide, occurs on a property at 64°24'N, 135°17'W on the northwest slope of Grey Copper Hill, southeast of Carpenter Creek, a tributary of the Beaver River. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 22.)

### SIDEROTIL



The pentahydrate salts of Fe, Cu, and Mg are isostructural, and the mineral names based on dominant cation present are siderotil, chalcantite and pentahydrite, respectively. Spacings and

intensities (Fe/Mn radiation) of the four strongest lines in the X-ray powder pattern of a cuprian siderotil are: 5.73 (5), 5.57 (6), 4.88 (10) and 3.73 (8). (J.L. Jambor and R.J. Traill, 1963: Can. Mineral., 7, p. 751-63.)

New Brunswick

- 21 P/5 The secondary copper and iron sulphates, chalcantite, siderotil and rozenite, occur as coatings, encrustations and irregular patches on sulphides and host rock at the Key Anacon Mine. The deposit is near the bridge over the Nepisiquit River, 3 miles east of Highway 331 at a point 11.7 miles south of Bathurst. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 117.)

Quebec

- 21 E/14 At the Solbec Mine, siderotil has been identified as a greyish white, soft crust on specimens consisting of fine-grained sulphides and magnetite. The mine is 1 mile north of Highway 34 at a point 7.7 miles east of Highway 1. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 40.)

SILLIMANITE



Nova Scotia

- 20 O/16 Small crystals of sillimanite, staurolite, chloritoid, actinolite and garnet occur in light grey schist which outcrops along the shore from Foote Cove south to Chegoggin Point. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 78.)

Ontario

- 31 C/9 Sillimanite is found as white sheaf-like aggregates about an inch long, and as bluish fibrous aggregates, in roadcuts on Highway 15, approximately 27.25 and 27.9 miles north of Kingston. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 45.)

Quebec

- 31 I/4 Roadcuts on both sides of Highway 42 opposite Lac-des-Francais about 50 miles north of Montreal, contain sillimanite as sheaf-like aggregates measuring up to 4 inches long and as small colourless blades with a pearly lustre. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 74.)



- 31 J/2 Sillimanite-bearing gneiss is exposed in roadcuts on Highway 11,  
31 J/11 4.2 miles north of St-Jovite and 15.5 miles east of Mont Laurier.  
(Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 60, 65.)

## SILVER

Ag

Northwest Territories

- 86 E/9 Native silver occurs with native bismuth, matildite, safflorite, skutterudite, rammelsbergite, pararammelsbergite, gersdorffite, cobaltite and niccolite, at a deposit on the Camsell River, 4 miles south of its mouth at Conjuror Bay on Great Bear Lake, at 65°36'14"N, 118°06'45"W. (D.C. Harris and R.I. Thorpe, 1969: Can. Mineralogist, 9, p. 655-662.)
- 86 K/4 Native silver, argentiferous galena and acanthite are the principal ore minerals mined at Echo Bay Mines Limited located one mile northeast of Port Radium. Copper, nickel, zinc and cobalt sulphides are also found in the carbonate and quartz-filled veins. (E.A. Schiller, 1965: Geol. Surv. Can., Paper 65-11, p. 42.)
- The same three minerals occur in the uranium-silver deposit at the Eldorado Mine. (D.F. Kidd, 1936: Geol. Surv. Can., Memoir 187, p. 36.)

Ontario

- 52 A/7 Native silver was found in the form of wires, leaves, nuggets and veinlets, with acanthite and a suite of cobalt-nickel minerals, at the Silver Islet Mine at the southwest end of Silver Islet. (T.L. Tanton, 1931: Geol. Surv. Can., Memoir 167.)
- 52 L/16 Antimonial silver is associated with allargentum in a base-metal sulphide deposit in Mulcahy Township about 20 miles west of Red Lake and 4,000 feet south-southwest of the south end of Trout Bay. Electron microprobe analysis: Ag 97.3, Sb 2.6, Hg 0.1. (L.J. Cabri, D.C. Harris and J.M. Stewart, 1970: Can. Mineralogist, 10, p. 234.)

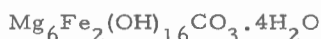
Saskatchewan

- 74 N/10 Native silver and copper have been identified with several rare selenide minerals in pitchblende ore from the Martin Lake Mine located at the northeast corner of Martin Lake in the neck of land between Beaverlodge Lake and Martin Lake. (D.C. Harris, L.J. Cabri and S. Kaiman, 1970: Can. Mineralogist, 10, p. 207.)

Yukon

- 105 D/2 Gold-silver ores have been mined from the Arctic Caribou (Big Thing) and Montana Mine properties at Montana Mountain near the village of Carcross. Galena, native silver, pyrargyrite and acanthite have been found in quartz veins with pyrite, tetrahedrite, arsenopyrite and sphalerite. (D.C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 59.)
- 115 I/3 Native silver occurs with freieslebenite, acanthite, andorite and argentian tetrahedrite at the Webber property of Mount Nansen Mines Limited at 62°03.5'N, 137°10'W. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 36.)
- 115 J/10 Native silver has been found at the Bomber showing of Casino Silver Mines Limited located on a tributary of Casino Creek at 62°43'N, 138°49'W, at an elevation of about 4,000 feet. It occurs in quartz-barite veins with galena, sphalerite, chalcopyrite and pyrite. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 39.)

## SJOGRENITE



Sjogrenite is a hexagonal mineral isostructural with barbertonite (Cr for Fe) and manasseite (Al for Fe). Pyroaurite is a rhombohedral polymorph. The four strongest lines in the X-ray powder pattern of sjogrenite are: 7.79 (10), 3.89 (8), 2.20 (3) and 1.86 (4). (C. Frondel, 1941: Am. Mineral., 26, p. 295-315. ASTM Pattern 14-281.)

Quebec

- 21 E/14 Colourless to pale green, tiny flakes of sjogrenite and bottle green shiny flakes of pyroaurite have been identified on fracture planes in massive serpentine from the Belmina Mine near St-Jacques (Stenson). (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 45.)

## SKUTTERUDITE

Northwest Territories

- 86 E/9 Skutterudite occurs with native silver and bismuth, matildite, safflorite, rammelsbergite, pararammelsbergite, gersdorffite, cobaltite and niccolite at a deposit on the Camsell River, 4 miles

86 E/9 south of its mouth at Conjuror Bay at 65°36'14"N, 118°06'45"W.  
(D.C. Harris and R.I. Thorpe, 1969: Can. Mineralogist, 9,  
p. 655-662.)

Ontario

31 M/3 Electron probe microanalyses of skutterudites from the Cobalt-  
31 M/5 Gowganda ores.

	<u>Co</u>	<u>Ni</u>	<u>Fe</u>	<u>As</u>	<u>Total</u>
41 P/9					
41 P/10	17.7	3.0	2.6	79.0	102.3
41 P/15	18.3	1.5	1.0	78.5	99.3
41 P/16	19.1	2.0	1.5	79.0	101.6
	18.6	2.3	1.6	79.0	101.5
	17.3	2.2	2.9	79.3	101.7
	17.6	3.1	1.7	79.2	101.6
	17.3	2.1	1.8	77.6	98.8
	17.7	2.0	2.0	81.0	102.7
	18.2	1.5	1.0	78.5	99.2
	17.9	1.5	1.3	77.4	98.1

(W. Petruk, D.C. Harris and J.M. Stewart, 1971: Can. Mineralogist, 11, p. 168.)

SMALTITE



Ontario

52 A/7 Smaltite is reported to be a constituent of the rich silver ore  
mined at the Silver Islet Mine located on the southwest end of  
Silver Islet. (T.L. Tanton, 1931: Geol. Surv. Can.,  
Memoir 167.)

SMITHSONITE



British Columbia

82 N/5 Minor smithsonite is found with anglesite, cerussite, malachite  
and azurite in oxidized lead-zinc-silver-gold ore on the  
Waverley property located just north of Tangier Pass and acces-  
sible from Albert Canyon. (J.O. Wheeler, 1963: Geol. Surv.  
Can., Paper 62-32, p. 28.)

Northwest Territories

- 68 H/8  
68 H/9
- Smithsonite, sphalerite and galena are the principal minerals and ore associated with pyrite and barite at the Main and East (Eclipse) showings of Bankeno Mines Limited on Little Cornwallis Island. The Main showing is on the southwest corner of the Island and the East showing lies 16 miles to the northeast. (E. A. Schiller, 1965: Geol. Surv. Can., Paper 65-11, p. 58.)

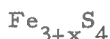
Quebec

- 22 B/16
- Smithsonite is found as aggregates of tiny grey crystals and as fine-grained massive white patches on quartz at the Federal Mine; it fluoresces orange-pink in ultraviolet light. Hydrozincite and hemimorphite are associated. The mine is located about 1 mile west of the Trans Gaspésien Highway from a junction 4.0 miles south of the south gate to Parc de la Gaspésie. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 71.)

Yukon

- 105 M/14
- Small amounts of smithsonite are present in most of the oxidized lodes and in some zones of reduction in the Keno Hill - Galena Hill area. It occurs as encrustations, earthy and porous masses and as small botryoidal masses. Gypsum, limonite, calcite and anglesite are common associates. (R.W. Boyle, 1965: Geol. Surv. Can., Bull. 111, p. 149.)

SMYTHITE

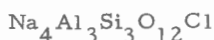


Ontario

- 31 M/5
- Smythite was discovered with calcite and sulphides in a vein at the Silverfields Mine, Coleman Township. Electron probe analyses gave: Fe 58.5, Ni 0.4, S 40.9, total 99.8, for smythite associated with pyrrhotite; Fe 58.1, Ni 0.5, S 41.5, total 100.1, for symthite associated with pyrite. (L.A. Taylor, 1970: Carnegie Inst. Year Book 68 for 1968-69.)

The spacings and intensities (Fe radiation) of the strongest lines on the X-ray powder pattern of smythite from Indiana are: 11.5 (6), 3.00 (6), 2.56 (6), 2.26 (6), 1.979 (7), 1.897 (8), 1.732 (10), 1.427 (6). (R.C. Erd, H.T. Evans and D.H. Richter, 1967: Am. Mineral., 42, p. 309-333.)

## SODALITE

Quebec

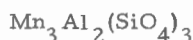
- 31 H/11 Nepheline syenite grading into nepheline-sodalite syenite forms the eastern half of Mont St-Hilaire. At the Desourdy quarry on the northeast slope of Mont St-Hilaire, sodalite occurs as a constituent of veins and vugs in nepheline syenite. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

## SORBYITE

Ontario

- 31 C/6 The new mineral, sorbyite, was discovered in specimens collected from a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed Taylor of Madoc. Electron probe microanalysis (average of two grains) by G. R. Lachance: Pb 46.5, Sb 25.25, As 5.5, S 21.25, total 98.50. The strongest lines on the X-ray powder pattern are: 4.13 (6), 4.02 (4), 3.44 (10), 3.38 (9), 3.04 (4), 2.96 (6), 2.099 (5), 1.775 (4). (J. L. Jambor, 1967: Can. Mineralogist, 9, p. 191-213.)

## SPESSARTINE

Nova Scotia

- 11 E/1 A spessartite-bearing rock occurs at Rocky Lake, 3 miles northwest of Liscomb. The principal minerals are spessartite, rhodonite and quartz. Other minerals include rhodochrosite, pyrophanite, mica, hornblende, magnetite and pyrrhotite. (A. G. Johnston and W. D. McCartney, 1965: Geol. Surv. Can., Paper 64-37, p. 51.)
- 20 O/16 Lenses and nodules composed chiefly of spessartine and quartz occur in the Halifax formation and are exposed near Sandford in Yarmouth County. The spessartine is pale yellowish pink to colourless; it has an index of refraction of  $1.805 \pm 0.005$  and a unit cell edge of  $11.613 \text{ \AA}$ . Chemical analysis by J. A. Maxwell: SiO<sub>2</sub> 39.74, TiO<sub>2</sub> 0.34, Al<sub>2</sub>O<sub>3</sub> 18.79, Fe<sub>2</sub>O<sub>3</sub> 1.52, FeO 8.79, MnO 26.60, MgO 1.09, CaO 2.66, Na<sub>2</sub>O 0.02, P<sub>2</sub>O<sub>5</sub> 0.07, H<sub>2</sub>O<sup>+</sup> 0.26, H<sub>2</sub>O<sup>-</sup> 0.08, total 99.96. (E. A. Schiller and F. C. Taylor, 1965: Am. Mineralogist, 50, p. 1477.)

SPHALERITE



British Columbia

82 M/1      Lead-zinc deposits, generally low in silver, are the predomi-  
82 M/7      nant type in the Big Bend map area, and are commonly associa-  
82 M/8      ted with limestones of the Badshot Formation and Lower part of  
82 M/15     the Lardeau Group, and with impure marbles surrounding the  
82 M/16     core of the gneiss dome that features the Shuswap Complex. The  
following deposits are known:

- 82 M/1 - River Jordon property, 12 miles northwest of Revelstoke between elevations of 5,800 feet and 7,900 feet on the northern slopes of Mount Copeland. Mastodon Mine at an elevation of 5,000 feet on the ridge between La Forme and Carnes Creeks. Lead King showings about 2 miles east of the Mastodon mill. Little Slide showings, northeast of the east fork of La Forme Creek about 3 miles east of the Mastodon mill.
- 82 M/7 - The Cottonbelt property lies between elevations of 5,000 and 6,000 feet on the hills south of Blais Creek. It is accessible by road and trail, 18 miles from the head of Seymour Arm.
- 82 M/8 - J and L group on the shoulder between the east and south forks of Carnes Creek about 8 miles by trail from the Big Bend highway. A and E showings on the northeastern slopes of the hill south of Burke Creek between 6,000 and 7,200 feet elevation. The Keystone claim at the head of Keystone Creek is accessible by logging road and trail from the Big Bend highway.
- 82 M/15 - The Ruddock Creek property extends from the head of Ruddock Creek at an elevation of 7,500 feet, northwesterly around the summit mass of the peak, 6 miles west of Gordon Horne peak, and westerly into Oliver Creek valley.
- 82 M/16 - The Kinbasket property lies 300 to 400 feet above the southwestern shore of Kinbasket Lake between Trident and Windy Creeks.

(J. O. Wheeler, 1965: Geol. Surv. Can., Paper 64-32, p. 27-32.)

New Brunswick

21 G/7      Electron probe microanalysis of sphalerite from the Mount Pleasant tin deposit, by J. Rucklidge: Cu 5.7, Sn 0.0, Fe 5.5, Zn 56.4, S 32.8, In 1.1, Ag 0.0, total 101.5. Sphalerite and stannite are the main carriers of indium in the ores. (R. S. Boorman and D. Abbott, 1967: Can. Mineralogist, 9, p. 166-179.)

- 21 P/5 Sphalerite is closely associated with chalcopyrite at the Captain deposit on the headwaters of Tozer Brook and the west branch of Portage River in Gloucester and Northumberland counties about 9 miles east of Heath Steele. (W.M. Tupper, D.J. Bachinski and R.W. Boyle, 1968: Geol. Surv. Can., Paper 66-18, p. 11.)

#### Northwest Territories

- 68 H/8 Galena, sphalerite and smithsonite are the principal minerals on the properties of Bankeno Mines Limited on Little  
68 H/9 Cornwallis Island. The Main showing is in the southwest corner of the Island at about 75°22'N, 96°55'W. The East (or Eclipse) showing is 16 miles northeast of the Main showing. Some barite and pyrite are also present. (E. A. Schiller, 1965: Geol. Surv. Can., Paper 65-11, p. 58.)
- 75 M/2 A large number of claims have been staked in the Indian Mountain Lake - Benjamin Lake area in the search for zinc-lead-silver ore. A deposit of about one million tons has been outlined just south of BB Lake on the property of Indian Mountain Metal Mines Ltd. (R.I. Thorpe, 1966: Geol. Surv. Can., Paper 66-52, p. 21.)

#### Ontario

- 31 C/7 Dark brown sphalerite has been found in close association with galena at the Frontenac (Frontenac Draper Lake) lead mine. The sulphide-bearing veins occur within marble and gneiss about 17 miles north of Kingston along the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 24.)
- 31 C/10 Dark brown sphalerite occurs as granular masses and disseminated grains in crystalline limestone at the Long Lake Zinc Mine, about 1/2 mile from Long Lake village and 5 1/2 miles northwest of Parham. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 19.)
- 31 M/3 Sphalerite is common in the Cobalt-Gowganda ores. It occurs  
31 M/5 in the ore veins, in late calcite veins, in fault veins and in the  
31 M/12 wall and country rock. Electron microprobe analyses are as  
41 P/9 follows: massive, end of ore vein, Zn 65.54, Fe 1.61, Cd 0.08,  
41 P/10 S 33.53, total 100.76; massive, in ore vein, Zn 58.42-67.46,  
41 P/15 Fe 7.18-0.32, Cd 0.03-0.19, S 35.08-35.03, totals 100.71-  
41 P/16 103.00; fault vein, Zn 65.61, Fe 1.45, Cd 0.41, S 32.56, total  
100.03; interflow, Zn 60.06, Fe 6.25, Mn 0.04, Cd 0.13, S  
33.53, total 100.01; interflow, Zn 61.87, Fe 5.52, Mn 0.07,  
Cd 0.14, S 33.40, total 101.00; interflow, Zn 62.99, Fe 5.64,  
Mn 0.04, Cd 0.14, S 33.11, total 101.92; parallel veinlet, Zn  
58.18-66.48, Fe 7.79-1.38, Cd 0.18, S 33.74-32.62, totals  
99.89-100.66; in carbonate vein, Zn 61.59-63.44, Fe 3.04-0.67,

Cd 0.17, S 31.07-32.09, total 96.87. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 219.)

- 52 L/16 A small high grade base-metal deposit has been found in Mulcahy Township about 20 miles west of Red Lake and 4,000 feet south-southwest of the south end of Trout Bay. The principal minerals consist of coarse grains of pyrrhotite, sphalerite and chalcopyrite. There are lesser amounts of galena, marcasite, arsenopyrite, cobaltite, pyrrargyrite, paracostibite, gudmundite, stannite, argentian tetrahedrite, antimonial silver, allargentum, ilmenite, breithauptite, cassiterite and nisbite. (L.J. Cabri, D.C. Harris and J.M. Stewart, 1970: Can. Mineralogist, 10, p. 232.)

### Yukon

- 95 D/5 Considerable exploration work has been carried out on a lead-zinc showing at 60°30'N, 127°57'W, about 2 miles southwest of Quartz Lake in the valley of a creek locally known as Mine Creek and tributary to Hyland River, at an elevation of 3,200 feet. The deposit, at the base of a limestone conglomerate, contains sphalerite, galena and pyrite in an ankeritic matrix. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 73.)
- 105 F/6 Large massive pyrite-pyrrhotite-galena-sphalerite deposits occur on the Faro property of Anvil Mining Corporation Limited at 61°21.5'N, 133°02'W, in the Rose Creek area of Anvil Range, about 30 miles northwest of Ross River. (D.C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 43.)
- 105 H/6 Sphalerite occurs with argentian galena and pyrite on the Matt Berry property at 61°27'N, 129°25'W, near the mouth of Thompson Creek on the east side of East Arm, Frances Lake. (D.C. Findlay, 1967: Geol. Surv. Can., Paper 67-40, p. 63.)
- 105 H/8 Sphalerite-galena mineralization is widespread in the mountainous area between Tyers and Hyland Rivers. Showings that have been explored include: Fir Tree and Black Jack at 61°22'N, 128°23'W; Ron Group at 61°26.5'N, 128°31'W; Lake Group at 61°16.5'N, 128°19'W. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 68.)
- 105 K/6 Two base metal deposits were discovered by drilling on the Faro property at 62°21.5'N, 133°22'W. The No. 1 zone contains much pyrrhotite with pyrite, sphalerite, galena, and minor chalcopyrite. The No. 2 zone lacks pyrrhotite. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 50.)



105 K/6 A large base metal deposit containing sphalerite, pyrite, pyrrhotite, galena and chalcopyrite has been outlined by drilling on the Vangorda Creek property at 62°15'N, 133°12'W, extending southward from the southwestern base of Mt. Mye to Shrimp Lake. (L.H. Green and C.I. Godwin, 1964: Geol. Surv. Can., Paper 64-36, p. 31.)

105 M/14 Chemical analyses of sphalerite from Keno Hill-Galena Hill area by Mines Branch, Ottawa.

	<u>A-472</u>	<u>A-473</u>	<u>A-535</u>	<u>A-568</u>	<u>A-708</u>	<u>A-710</u>	<u>A-709</u>	<u>A-711</u>	<u>A-718</u>	<u>A-719</u>
Zn	57.83	59.03	61.85	57.83	53.81	61.44	59.44	58.83	64.06	63.65
Cd	0.94	0.71	0.95	1.16	0.82	0.83	0.88	0.79	0.73	0.73
Fe	7.08	6.58	2.53	7.39	11.54	4.45	6.58	5.67	0.63	2.63
Mn	0.09	0.05	0.03	0.08	0.20	0.14	0.07	0.82	0.01	0.01
S	<u>32.87</u>	<u>32.76</u>	<u>32.43</u>	<u>32.65</u>	<u>33.33</u>	<u>32.78</u>	<u>33.22</u>	<u>31.60</u>	<u>32.54</u>	<u>33.06</u>
Total	98.81	99.13	97.79	99.11	99.70	99.64	100.19	97.71	97.97	100.08
S.G.	4.068	4.030	4.077	4.039	4.004	4.072	4.054	4.047	4.134	4.080

A-472 Massive black sphalerite, Sadie-Friendship Mine.

A-473 Massive black sphalerite, Onek Mine.

A-535 Massive dark brown sphalerite, Lucky Queen Mine.

A-568 Massive black sphalerite, Klondyke-Keno vein.

A-708 Massive black sphalerite, Galkeno Mine.

A-710 Black sphalerite crystals, Hector-Calumet Mine, 650 foot level.

A-709 Massive black sphalerite, Hector-Calumet Mine, 775 foot level.

A-711 Massive dark brown sphalerite, Hector-Calumet Mine, 1,165 foot level.

A-718 Crystalline reddish brown resinous sphalerite, Gambler vein.

A-719 Massive dark brown sphalerite, Gambler vein.

(R. W. Boyle, 1965: Geol. Surv. Can., Bull. 111, p. 268.)

105 O/8 Fine-grained sphalerite and galena are present in barite rich limestone on the Tom property (63°10'N, 130°09'W) 6 miles southwest of the Northwest Territory and Yukon boundary at an elevation of about 5,000 feet in a cirque valley southeast of the South MacMillan Riner. (D.B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 129.)

115 I/3 Sphalerite is a constituent of silver-gold ores at the Webber and Heustis showings of Mount Nansen Mines Limited and the property of Brown - McDade Mines Limited, in the Nansen Creek - Webber Creek area at 62°03'N, 137°07' to 137°10'W. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 34.)

- 115 J/10 Lenses of massive sphalerite and galena occur in quartz-barite veins at the Bomber showing of Casino Silver Mines Limited, located on a tributary of Casino Creek at an elevation of about 4,000 feet. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 39.)

## SPHENE

Ontario

- 31 B/12 Reddish brown sphene up to 1/4 inch long and grains of pyrrhotite are scattered throughout arkosic sandstone that outcrops in roadcuts on both sides of Highway 2 about 9 miles west of Brockville. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 48.)
- 31 C/7 Sphene is reported to occur as large crystals in veins which cross-cut pyroxenite at the Lacey mica mine. Other minerals present in the mine are mica, pyroxene, apatite and zircon. The mine is located about 17 miles north of Kingston and 5 miles west of the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 25.)
- 31 C/9 Brownish yellow sphene has been found in association with graphite in silicated crystalline limestone at the Timmins Mine. The mine is located about 300 yards west of the Kingston-Westport-Perth Road and about 42 miles north of Kingston. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 29.)
- 31 C/9E Dark brown crystals of sphene, up to 1/2 inch thick and one inch long, occur in crystalline limestone exposed in roadcuts on Highway 15 at 27.0 and 27.1 miles north of Kingston. Smaller crystals may be found in roadcuts at 28.1 and 28.3 miles. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 45.)
- 31 C/10 Crystals of sphene up to one inch long are present in crystalline limestone exposed in roadcuts on the Westport road about 7 miles east of Godfrey. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 16.)
- 31 C/16 The following occurrences of sphene have been reported in the area south of Perth: (a) crystals averaging 1/2 inch long, with tourmaline and pyroxene in a quartz-calcite matrix, at the Rogers Mine, north of Noble Bay; (b) brown crystals up to 1/2 inch across, with apatite, in feldspar, at the Byrnes Mine, west of Long Lake; (c) dark brown crystals averaging 1 inch long, in a feldspar-quartz matrix, at the Globe Graphite Mine on the property of Mr. James Coutts, about 5 miles from Perth along the road to Rideau Ferry. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 31, 32, 38.)

Quebec

- 21 E/10 Transparent reddish brown sphene is a constituent of the granite mined as a building stone at the Silver Granite quarry, two miles from Ste-Cécile Station. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 42.)
- 31 G/5W Roadcuts along the Gatineau Parkway expose crystalline limestone, pyroxenite and pegmatite containing aggregates of sphene and crystals up to one inch long. Similar dark brown crystals of sphene occur at the Pinks Lake Mine, and the Wallingford and Payne deposits north of Aylmer. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 7-9.)
- 31 G/11W In the Buckingham area, crystals and masses of sphene have been found in pegmatite and crystalline limestone at the Walker Mine, in crystalline limestone at the Bell Graphite Mine and in feldspar gneiss at the Peerless (Diamond) Mine. Sphene crystals have also been reported near Glen Almond at the Emerald and Davis Mines. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 5, 15, 17, 20, 27.)
- 31 G/12W Sphene is present as nut brown masses about one inch in diameter at the Blackburn Mine north of Hull. It occurs with smoky blue apatite and salmon-pink calcite at the Seybold (Moore) Mine and forms crystals up to one inch diameter at the Deziel and McGlashan Mines near St-Pierre-de-Wakefield. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 18, 24, 30, 31.)
- 31 G/12E Brown sphene crystals up to 1/2 inch long occur in grey feldspar at the Sabourin, Rainville (Dugas) and Jackson Rae deposits, near Perkins Mills; also at the Little Rapids (Watts) Mine 12.3 miles north of Buckingham, and at roadcuts 12.45 and 16.4 miles north of Buckingham along Highway 35. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 10, 11, 13, 30, 31.)
- 31 G/13E Pink feldspar at the Hart Mine near Notre-Dame-de-la-Salette contains massive chocolate brown sphene associated with black hornblende. Sphene has also been identified in roadcuts on Highway 35 north of Notre-Dame-de-la-Salette at distances of 3.2, 7.1 to 7.4, 8.1, 8.7 and 9.1 miles. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 32, 38, 40, 42.)
- 31 G/14W Dark brown wedge-shaped crystals and crystal aggregates of sphene are present at the Cole Lake Mine near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 28.)
- 31 G/15E Sphene occurs at the Miller (Keystone) Mine. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 75.)

- 31 G/16W Brown sphene occurs with lilac-coloured diopside and pale yellow vesuvianite at a deposit on the property of Albert Morrow about four miles from Lost River. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 71.)
- 31 H/11 Sphene is one of the many minerals found in vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)
- 31 H/13W In a roadcut about 16 miles north of Montreal on Highway 65, past St-Calixte, small crystals of pink titanite occur in crystalline limestone. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 71.)
- 31 I/15E Dark brown titanite grains occur at the Ste-Thècle Marble Quarry. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 85.)
- 31 J/4E Dark brown crystals of sphene, about 3/4 inch across, occur at the Canastata Mine near Notre-Dame-du-Laus. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 50.)
- 31 J/11W Dark brown sphene crystals about 1/2 inch long occur at the Val-Barrette Quarries. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 57.)
- 32 A/16E At the Les Calcites du Nord Quarry, north of Dolbèau, crystals of sphene occur in calcite where it is intruded by pegmatite dykes. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 111.)

## SPINEL

Quebec

- 22 D/11 Dark green spinel is associated with the ore at the St-Charles titanium deposit on the north shore of the Saguenay River near St-Nazaire. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 109.)
- 31 G/13 Minor amounts of bluish-green to mauve spinels occur in crystalline limestone exposed in roadcuts along Highway 35 between Val-des-Bois and Notre-Dame-du-Laus. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 44-5.)

- 31 J/4 Smoky mauve to purplish blue spinel is found in crystalline limestone in the Notre-Dame-du-Laus area: (1) with abundant clinohumite, exposed on a hill on the west side of the du Lièvre River about 7 miles south of Notre-Dame-du-Laus; (2) on both banks of the du Lièvre River on the downstream side of the des Cèdres Dam. Black spinel crystals up to 3/4 inch across occur at the Parker Mine, 3 miles west of Notre-Dame-du-Laus. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 45, 47, 48, 51.)

### SPODUMENE



#### Ontario

- 32 D/13 Spodumene is reported to occur with pollucite on property held by the Johns Manville Company in Steele Township, north shore of Abitibi Lake. (S.C. Robinson: private communication.)
- 42 L/2 Specimens submitted to the Royal Ontario Museum for identification, by Mr. McDermott of Port Credit, were found to contain spodumene and the rare mineral eucryptite. The locality is said to be a pegmatite "near Nakina". (J.A. Mandarino and D.C. Harris, 1965: Can. Mineralogist, 8, p. 377.)
- 52 F/16 Large crystals of spodumene are reported to occur with pollucite about 3 miles northeast of Gullwing Lake in Webb Township. Identification was made at the Royal Ontario Museum. (J.A. Mandarino and D.C. Harris, 1965: Can. Mineralogist, 8, p. 377-8.)

### STANNITE



#### British Columbia

- 82 N/4 Stannite is found with galena, sphalerite and pyrite at the Snowflake Mine, located north of Clabon Creek and 4 miles north of Albert Canyon; and at the Columbia Lead and Zinc Mine southeast of the Snowflake Mine. (J.O. Wheeler, 1963: Geol. Surv. Can., Paper 62-32, p. 28.)

#### New Brunswick

- 21 G/7 Stannite occurs with sphalerite, pyrite, galena, pyrrotite, chalcopyrite and quartz in siltstone at Kedron Brook. Directions to reach the deposit from the junction of highways 1 and 41 are

as follows: proceed north along highway 41; mile 7.0 - turn right at junction Rollingdam road; mile 9.2 - Rollingdam cross-roads, continue straight ahead; mile 13.2 - turn right at junction Pleasant Ridge road; mile 16.5 - fork, bear right; mile 18.3 - turn right at junction Pomeroy Ridge road; mile 21.4 - turn off left to Kedron Brook; the deposit occurs along Kedron Brook about 600 feet above the road crossing. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 9.)

- 21 G/7 Electron probe microanalysis of zincian stannite from the Mount Pleasant tin deposit, by J. Rucklidge: Cu 27.5, Sn 26.1, Fe 11.0, Zn 5.1, S 27.9, In 1.95, Ag 0.19, total 99.74. Analyses of other minerals show that stannite and sphalerite are the main carriers of indium in the ores. (R.S. Boorman and D. Abbott, 1967: Can. Mineralogist, 9, p. 166-179.)
- 21 P/5 Stannite is closely associated with chalcopyrite and sphalerite, forming rims or inclusions in both of the minerals, at the Captain deposit located on the headwaters of Tozer Brook and the west branch of Portage River in Gloucester and Northumberland Counties about 9 miles east of Heath Steele. (W.M. Tupper, D.J. Bachinski and R.W. Boyle, 1968: Geol. Surv. Can., Paper 66-18, p. 11.)

#### Ontario

- 52 L/16 A massive base-metal sulphide ore deposit located about 4,000 feet south-southwest of the south end of Trout Bay in Mulcahy Township, about 20 miles west of Red Lake, contains lesser amounts of stannite, galena, marcasite, arsenopyrite, cobaltite, pyrargyrite, paracostibite, gudmundite, tetrahedrite, silver, allargentum, ilmenite, breithauptite, cassiterite and nisbite. (L.J. Cabri, D.C. Harris and J.M. Stewart, 1970: Can. Mineralogist, 10, p. 232.)

#### STAUROLITE



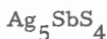
#### New Brunswick

- 21 G/6 Dark brown prisms of staurolite about 1/2 inch long and small pink garnets are found in mica schist in roadcuts along the Oak Bay road about 8 miles from its junction with Highway 1. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 8.)

Nova Scotia

- 11 E/1 Dark brown, partly transparent staurolite prisms about an inch long are associated with transparent pink garnet crystals in mica schist at the Cochrane Hill gold mine. The mine may be reached by a 1/4 mile single lane road leading east from highway 7 from a point 1.4 miles south of the Glenelg - Cross Roads County Harbour road intersection. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 15.)
- 20 O/16 Staurolite is a constituent of light grey schist which outcrops along the shore from Foote Cove south to Chegoggin Point. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 78.)
- 20 P/6 Staurolite-garnet schists containing crystals up to 1 1/4 inches long are exposed along the Port La Tour shoreline in the vicinity of the wharf at Crow Neck Point. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 79.)
- 20 P/11 Staurolite-garnet schist is exposed along the shoreline of Negro Harbour. Brown staurolite, pink to mauve andalusite and pink garnet crystals are scattered throughout schist that is exposed along the west shore of Shelburne Harbour from Roseway to East Point, and south of Sandy Point. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 80-82.)
- 20 P/14 Schist containing staurolite, andalusite and garnet is exposed in several roadcuts between Shelburne and Jordan Falls, and along the Jordan River. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 82.)

## STEPHANITE

Ontario

- 31 M/3 Stephanite is the most common silver sulphantimonide in the Cobalt-Gowganda ores, where it appears late in the paragenesis.
- 31 M/5 Electron probe microanalyses by D.C. Harris: (1) Ag 68.2, Sb 14.6, S 16.0, total 98.8; (2) Ag 69.4, Sb 15.1, S 15.9, total 100.4; (3) Ag 68.1, Sb 13.8, As 1.5, S 15.4, total 98.8; (4) Ag 68.3, Sb 15.4, S 16.3, total 100.0. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 211.)
- 41 P/9
- 41 P/10
- 41 P/15
- 41 P/16

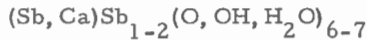
STERRYITE



Ontario

- 31 C/6 Sterryite, named in honour of T. Sterry Hunt first mineralogist with the Geological Survey of Canada, was found in specimens collected from a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed Taylor of Madoc. In polished sections it was observed as needle-like laths and anhedral grains in veenite. Electron probe microanalysis by G. R. Lachance: Pb 45.74, Sb 22, As 5.75, S 21, total 94.50. The spacings and intensities of the seven strongest lines on the X-ray powder pattern are: 3.68 (9), 3.54 (6), 3.26 (10), 2.965 (6), 2.836 (7), 2.353 (6), 2.049 (6). (J. L. Jambor, 1967: Can. Mineralogist, 9, p. 191-213.)

STIBICONITE



The higher oxides of antimony occur in nature as a single phase with a structure of the pyrochlore type. The name stibiconite has priority. Synonyms which should be dropped are: cervanite, volgerite, stibianite and hydroromeite; arsenostibite is arsenian stibiconite. The spacings and intensities of the five strongest lines in the X-ray powder pattern are: 5.93 (9), 3.09 (7), 2.96 (10), 1.81 (8) and 1.55 (6). (C. J. Vitaliano and Brian Mason, 1952: Am. Mineral., 37, p. 982-999.)

Quebec

- 21 E/13 Stibiconite occurs as pale to canary yellow, vitreous granular masses, and earthy, radiating, fibrous aggregates, associated with other secondary minerals, kermesite, senarmontite, valentinite and jarosite on antimony, stibnite and gudmundite, at the Lac Nicolet (South Ham) antimony mine. The mine dumps are located about 8.5 miles west of Highway 1 along Highway 34. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 44.)

STIBNITE



Yukon

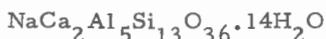
- 115 I/3 Visible stibnite occurs with arsenopyrite, pyrite, galena and sphalerite in quartz veins at the Heustis property of Mount



Nansen Mines Limited at 62°03'N, 137°09'W, in the Nansen Creek-Webber Creek area. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 37.)

- 115 I/6 The American Yukon prospect at 62°17'N, 137°02.5'W, 1,000 feet north of Emmons Hill on the southeast flank of Freegold Mountain between Stoddart Creek and Seymour Creek, consists of a coarse stibnite, barite, quartz and carbonate vein in banded gneisses. (D.B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 78.)
- 115 P/16 The main Hawthorne showing at 63°46'N, 136°15'W, straddles the ridge south of Scheelite Dome, just west of the head of Swede Gulch at an elevation of about 5,100 feet. It consists of a quartz vein with stibnite that has been traced for 400 feet. Stibnite has also been found at another showing about 3/4 mile south-southeast of the main showing on a small tributary of Harvey Gulch. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 20.)

#### STILBITE



#### British Columbia

- 92 B/5 Veins and amygdules in the Metchosin basalt east of the Sooke River contain stilbite, epidote, pumpellyite, prehnite, laumontite, chabazite, analcime, quartz and calcite. (W.G. Libby and Jerry Kopel, 1971: Can. Mineralogist, 10, p. 915.)

#### New Brunswick

- 21 B/10 Zeolites occur as crystal aggregates and as radiating fibres in  
21 B/15 cavities and seams in basalt exposed along the shoreline of Grand Manan Island. They are most abundant along the coastline known as Seven Days Work. Stilbite, scolecite, heulandite, laumontite, analcime, natrolite, epistilbite and thomsonite have been reported. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 10.)
- 22 B/1 Cavities up to 4 inches in diameter and fractures up to 2 inches wide in volcanic flows along the shoreline between Inch Arran and Bon Ami Point are filled with one or more of stilbite, laumontite, thomsonite, heulandite and prehnite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 103.)

Nova Scotia

Stilbite is probably the most abundant member of the zeolite group of minerals which are found in basalts of the Minas Basin - Bay of Fundy area. The following list of localities and associated minerals has been compiled from Geol. Surv. Can., Paper 64-10, Rocks and Minerals for the Collector, Bay of Fundy Area, by Ann P. Sabina, (1964).

	<u>Locality</u>	<u>Associated Minerals</u>
21 A/12	Deep Cove	jasper, chalcedony, heulandite, epistilbite
	Gulliver Cove	heulandite, chalcedony, jasper, quartz
21 B/8	Little River Cove	chalcedony, jasper
	Petite Passage at East Ferry	chalcedony, jasper
	East Sandy Cove (St. Mary's Bay)	analcime, scolecite, chalcedony, jasper
21 B/9	Trout Cove	heulandite, jasper chalcedony
21 H/1	Woodworth Bay (Bennett Bay)	chalcedony, jasper, thomsonite, heulandite, analcime, mordenite
21 H/2	Baxter Harbour, Long Beach	chalcedony, jasper, heulandite, analcime, laumontite
	Halls Harbour	heulandite, laumontite, apophyllite, thomsonite, amethyst
	Chipman Brook	heulandite, laumontite, mordenite
	Canada Creek, Black Rock	mordenite, heulandite, mesolite, apophyllite, laumontite, prehnite, gyrolite
	Harbourville, Ogilvie	heulandite, laumontite, mesolite, chalcedony
	Morden	laumontite, mordenite, analcime, apophyllite, heulandite, mesolite
21 H/3	Margaretsville	heulandite, laumontite, analcime, apophyllite, gyrolite, mesolite, scolecite, natrolite
	Port George	chalcedony, heulandite, analcime, mesolite, apophyllite, laumontite, gyrolite, thomsonite

	<u>Locality</u>	<u>Associated Minerals</u>
21 H/7	Horseshoe Cove-Cape D'Or	analcime, laumontite, apophyllite, chabazite, thomsonite, mesolite, natrolite, heulandite, jasper, obsidian, copper, calcite
21 H/8	Partridge Island	laumontite, natrolite, heulandite, chabazite, analcime, apophyllite, quartz crystals, calcite, chalcedony
	West Bay	chalcedony, quartz crystals
	Swan's Creek	gmelinite, chabazite, analcime, apophyllite, natrolite, heulandite
	Cape Blomidon-Cape Split	apophyllite, heulandite, natrolite, chabazite, analcime, gmelinite, laumontite, mesolite, thomsonite, amethyst, jasper, agate, calcite, celadonite
	Pinnacle Island	analcime, chabazite, natrolite, heulandite, thomsonite, gmelinite, calcite
	Scots Bay, Small Cove, Big Cove	chalcedony, jasper, amethyst, rutilated quartz, mesolite, natrolite, heulandite
21 H/8	Chemical analysis by F. Aumento of stilbite from Cape Blomidon: SiO <sub>2</sub> 55.08, Al <sub>2</sub> O <sub>3</sub> 16.54, FeO 0.10, CaO 7.63, MgO 0.20, K <sub>2</sub> O 0.53, Na <sub>2</sub> O 0.93, H <sub>2</sub> O <sup>+</sup> 14.65, H <sub>2</sub> O <sup>-</sup> 4.22, total 99.88. (F. Aumento and C. Friedlaender, 1966: <u>Min. Soc. India, I. M. A. Volume</u> , p. 149-154.)	

#### Quebec

- 22 B/2 Reddish white to orange-red stilbite occurs with mordenite in fractures and as patches in volcanic rock in a quarry on the south side of a low ridge facing Highway 6 about 1/2 mile west of the junction with the road to Cross Point and the bridge to New Brunswick. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 100.)

### STROMEYERITE



#### Northwest Territories

- 86 F/13 Stromeayerite, closely associated with chalcocite and native silver, is reported to be widespread at the B.E.A.R. silver-

- 86 F/13 uranium deposit on the north shore of Contact Lake, about 9 miles southeast of the Eldorado Mine. (G.M. Furnival, 1939: Econ. Geol., 34, p. 761.)
- 86 K/4 Stromeayerite has been reported as a constituent of the complex uranium-silver and silver deposits of Eldorado Mining and Refining Limited at Labine Point, and Echo Bay Mines one mile northeast of Port Radium. (D.F. Kidd, 1936: Geol. Surv. Can., Memoir 187, p. 35-37.)

Ontario

- 31 M/5 Electron probe microanalyses of stromeayerite: Morrison Mine, Cu 31.2, Ag 52.3, S 15.8, total 99.3; Foster Mine, Cu 31.5, Ag 52.5, S 15.4, total 99.4; Bi, Sb, Pb, Fe, Co, Ni were looked for, but not detected. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 207.)

STRONTIANITE



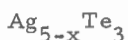
Ontario

- 31 B/14 Grey fibrous strontianite is found as small masses on crystalline calcite that lines cavities in limestone at the McFarland Construction Company quarry located about 1 1/2 miles east of Williamsburg. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 51.)
- 31 G/5 Strontianite occurs as clusters of colourless acicular crystals and as fibrous aggregates in calcite at the Frazer Duntile quarry on Clyde Avenue in Ottawa. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 85.)

Quebec

- 31 H/11 Colourless to white radiating fibrous strontianite (about 1/2 inch across) is associated with calcite in the Gayer Quarry north of St-Bruno. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 54.)
- 31 H/12 Strontianite occurs as white acicular and fibrous tufts, as colourless spheres and as colourless crystals at the Francon Quarry, Montreal Island. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 67.)

## STÜTZITE

British Columbia

- 93 E/6 Stützite has been identified with sylvanite and frobergite in a specimen from Lindquist Lake. (J. Rucklidge, 1969: Can. Mineralogist, 9, p. 709-715.)

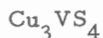
The spacings and intensities of the strongest lines on the X-ray powder pattern of stützite are: 3.56 (6), 3.52 (6), 3.03 (7), 2.62 (7), 2.55 (8), 2.16 (10), 2.11 (6). (R.M. Honea, 1964: Am. Mineralogist, 49, p. 325-338.)

## SULPHUR

Northwest Territories

- 85 B/16 Minor amounts of native sulphur and marcasite are present with the main ore minerals, sphalerite and galena, in the Pine Point deposits south of Great Slave Lake. (E. A. Schiller and E.H. Hornbrook, 1964: Geol. Surv. Can., Paper 64-22, p. 30.)

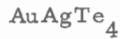
## SULVANITE

British Columbia

- 94 K/2 Specimens of this rare sulphide were reported to be found by J.J. McDougall of Falconbridge Nickel Mines Limited in a gossan that partly covers a steep mountainside near the headwaters of Gataga River. (E.R. Rose, 1967: Geol. Surv. Can., Paper 66-57, p. 9.)

The spacings and intensities of the eight strongest lines on the X-ray powder pattern of sylvanite are: 5.44 (10), 3.12 (5), 2.40 (4), 1.910 (8), 1.804 (3), 1.634 (4), 1.349 (3), 1.101 (4). (L.G. Berry and R.M. Thompson, 1962: Geol. Soc. Amer., Memoir 85, p. 57.)

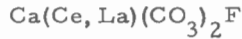
SYLVANITE



British Columbia

- 93 E/6 Sylvanite has been found with frohbergite and stützite in a specimen from Lindquist Lake. (J. Rucklidge, 1969: Can. Mineralogist, 9, p. 709-715.)

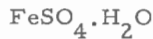
SYNCHYSITE



Quebec

- 31 H/11 Synchysite has been found with bastnaesite in siderite-albite vugs in nepheline syenite at the Desourdy quarry on the north-east slope of Mont St-Hilaire. The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 9.16 (8), 4.55 (7), 3.56 (10), 2.81 (10), 2.05 (7), 1.920 (6). (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

SZOMOLNOKITE



New Brunswick

- 21 P/5 The gossan at the Brunswick No. 6 Mine, located 2 miles from highway 331, on the road to Grand Falls, contains a variety of secondary minerals including white to yellowish white to pale orange-yellow szomolnokite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 118.)

Quebec

- 31 J/7 A small amount of pyrite is associated with graphite at the Castor Lake (Clot) Mine, and the pyrite is coated in places with white szomolnokite. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 63.)

## TALC

Ontario

- 31 C/10 Light green, massive talc occurs with massive pyrite, pyrrhotite and calcite at the Enterprise Mine. The mine is located at about 26 miles north of Kingston and 10 miles west of Godfrey. Other minerals present in the mine include gypsum, molybdenite, apatite, scapolite, hornblende and pyroxene. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 10.)
- 52 F/10 Dark greenish grey soapstone outcrops on the peninsula forming the western boundary of Barritt Bay in Wabigoon Lake, just west of Wabigoon village; also along the southeast and northwest shores of Mile Lake, south of the southwest end of Wabigoon Lake; and on two islands at the outlet of Trap Lake, south of Mile Lake. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 41.)

Quebec

- 21 L/3 Translucent, apple-green to greyish green, and rarely mauve, talc has been mined at the Kitchener soapstone quarry near Rumpelville and the Broughton quarries near St-Pierre-de-Broughton (West Broughton). (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 55-6.)
- 31 G/15 Light greenish-grey massive talc is present at the Canadian Refractories Limited Mines at Kilmar. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 72.)
- 31 H/1 At the Van Reet Mine, talc occurs as translucent apple-green foliated aggregates, as silky-white to pale green fibres about 1/2 inch long, and as white, green or grey, fine-grained masses. The mine, operated by Baker Talc Limited has developed an open pit, adit and shaft. It is located 0.4 miles south of the road from Bolton Centre to Knowlton, 4.5 miles from Bolton Centre. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 10.)

## TELLURBISMUTH

Northwest Territories

- 76 B/13 Tellurbismuth has been found in association with coarse visible gold at the Number 2 claim of the Ruby group at 64°55'12"N, 107°39'27"W. (D.C. Harris, private communication.)

TENNANTITE



New Brunswick

- 21 O/8 Tennantite is a minor constituent of the Wedge orebody and is associated with pyrite, sphalerite, chalcopyrite, galena and pyrrhotite. The Wedge Mine is on the north side of the Nepisiguit River, 10 miles from the Heath Steele Mine which may be reached via Highway 331 from Newcastle. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 125.)

Quebec

- 21 E/5 Tennantite occurs with a fine-grained mixture of chalcocite, galena, sphalerite, chalcopyrite and abundant pyrite at the Aldermac Moulton Hill Mine, located 3 miles south of Highway 1 from a point 5.2 miles east of 10th Street, Sherbrooke. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 29.)
- 22 A/13 Tennantite is reported to be one of the lesser abundant sulphides in the Needle Mountain orebody of Gaspé Copper Mines Limited at Murdochville. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 81.)

TENORITE



Quebec

- 22 A/13 Minor amounts of tenorite are present in the Copper Mountain deposit of Gaspé Copper Mines Limited at Murdochville. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 81.)

TETRAHEDRITE



British Columbia

- 82 N/5 Remnants of argentian tetrahedrite and galena are found in oxidized lead-zinc ore consisting of anglesite, cerussite, malachite and azurite with minor smithsonite at the Waverley group located just north of Tangier Pass, and accessible from Albert Canyon. (J.O. Wheeler, 1963: Geol. Surv. Can., Paper 62-32, p. 28.)



New Brunswick

- 21 O/8 Tetrahedrite is a component of several of the orebodies in the Newcastle and Bathurst areas, notably Heath Steele, Brunswick  
 21 P/5  
 21 P/12 No. 6, Key Anacon and Nigadoo River Mines. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 114, 117, 118, 125.)

Northwest Territories

- 86 F/13 Tetrahedrite is widespread in small amounts as veinlets in late carbonate veins at the B. E. A. R. silver deposit on the north shore of Contact Lake, about 9 miles southeast of the Eldorado Mine. (G.M. Furnival, 1939: Econ. Geol., 34, p. 753.)
- 86 K/4 Argentinian tetrahedrite is reported to be a constituent of the uranium-silver deposits of the Eldorado Mine on Labine Point and the Echo Bay Mine located one mile northeast of Port Radium. (D.F. Kidd, 1936: Geol. Surv. Can., Memoir 187, p. 36.)

Ontario

- 31 M/3 Tetrahedrite is a common mineral in the Cobalt-Gowganda ores,  
 31 M/5 and in carbonate veins and adjacent wallrock. Electron micro-  
 31 M/12 probe analyses and unit cell edge measurements are as follows:

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	
41 P/9										
41 P/10										
41 P/15	Cu	40.6	35.2	32.3	26.8	26.4	25.9	16.0	15.2	13.4
41 P/16	Ag	0.5	5.1	7.4	18.2	18.7	17.3	30.4	32.9	35.6
	Fe	2.5	6.6	2.9	3.5	3.7	3.9	4.7	5.5	6.5
	Zn	2.6	1.0	4.8	3.3	2.7	3.0	1.3	1.4	0.1
	Sb	24.5	24.5	25.0	26.4	24.7	26.8	26.0	25.4	23.1
	As	3.8	0.8	3.2	tr	1.3	0.1	0.1	0.1	0.2
	Bi	tr	3.1	-	-	tr	-	-	-	-
	S	<u>24.2</u>	<u>25.6</u>	<u>24.1</u>	<u>23.2</u>	<u>22.1</u>	<u>22.4</u>	<u>21.1</u>	<u>20.4</u>	<u>20.1</u>
Total		98.7	101.9	99.7	101.4	99.6	99.4	99.6	100.9	99.0

a<sub>0</sub> 10.33 10.43 - 10.49 - 10.48 10.50 10.48 -

- (a) Foster Mine - in sulphides  
 (b) Hi-Ho Mine - in arsenides in ore zone  
 (c) Silverfields Mine - in arsenides at edge of ore zone  
 (d) Christopher Mine - at edge of ore zone  
 (e) Agnico 407 Mine - in wall rock  
 (f) Christopher Mine - coating on plate silver  
 (g) Deer Horn Mine - in carbonate vein  
 (h) Deer Horn Mine - in ore zone  
 (i) Hi-Ho Mine - in massive pyrargyrite

(W. Petruk et al., 1971: Can. Mineralogist, 11, p. 200.)

Quebec

- 21 E/5 The orebody at the Eustis (Crown, Hartford, Lower Canada) Mine contains some tetrahedrite-tennantite with galena, sphalerite, chalcopyrite and pyrite. The property is located near Eustis, about 4 miles south of Lennoxville. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 21.)
- 21 E/14 The ore at the Solbec Mine consists of fine-grained massive sulphides, including some tetrahedrite-tennantite, and magnetite. The mine is one mile north of Highway 34, 7.7 miles from the junction with Highway 1. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 40.)
- 22 G/1 Tetrahedrite, chalcopyrite, and arsenopyrite occur with more abundant galena, pyrite and sphalerite at the Candego Mine, about 12 miles south of Marsoui. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 75.)

Yukon

- 105 D/2 Tetrahedrite occurs with galena, native silver, acanthite, pyrrargyrite, pyrite and arsenopyrite at the Montana Mine property of Arctic Gold and Silver Mines Limited at Montana Mountain, near Carcross. (D.C. Findlay, 1969: Geol. Surv. Can., Paper 68-68, p. 59.)
- 105 G/3 Argentinian tetrahedrite has been identified in specimens from Tintina Silver Mines Limited at 61°09'N, 131°09'W, seven miles northwest of the confluence of the Ings and Upper Liard Rivers. Jamesonite, galena, sphalerite, pyrite, arsenopyrite, marcasite, bournonite, owyheeite, tintinaite, pyrrhotite and chalcopyrite are associated. (D.C. Harris, J.L. Jambor, G.R. Lachance and R.I. Thorpe, 1968: Can. Mineralogist, 9, p. 371-382.)
- 105 M/14 Freibergite occurs in the lodes of both longitudinal and transverse vein faults on Mount Haldane, Galena Hill, Keno Hill and Sourdough Hill. It is a hypogene mineral and generally occurs disseminated through the galena-sphalerite lodes, closely associated with galena, sphalerite, chalcopyrite and pyrrargyrite. In the oxidized parts of the lodes freibergite is altered to limonite, malachite, azurite and bindheimite. Freibergite may carry up to 18 per cent silver, and is the most important silver mineral in the lodes. (R.W. Boyle, 1965: Geol. Surv. Can., Bull. 111, p. 136.)
- 106 D/4 At the Rex property of Peso Silver Mines Limited, 64°00'N, 135°54'W, tetrahedrite occurs in the veins as irregular grains up to about 5 mm in diameter. Associated minerals are: siderite, quartz, jamesonite, boulangerite, galena, pyrite and arsenopyrite. (L.H. Green, 1965: Geol. Surv. Can., Paper 65-19, p. 20-21.)

- 106 D/6 A 30-inch-wide vein of siderite, freibergite and pyrite has been described at a property at 64°24'N, 135°17'W on the northwest slope of Grey Copper Hill, southeast of Carpenter Creek, a tributary of the Beaver River. (D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 22.)
- 115 I/3 Argentinian tetrahedrite has been identified in the underground workings of Mount Nansen Mines Limited (62°03'30"N, 137°10'30"W) between Nansen and Victoria Creeks. (L.H. Green, 1965: Geol. Surv. Can., Paper 64-19, p. 34.)
- 116 B/5 A quartz-carbonate rock containing small amounts of argentinian tetrahedrite and galena occurs on the Silver City property at 64°18.5'N, 139°52'W. The showing, on the north bank of Fifteenmile River, is about 2 1/2 miles from the River mouth. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 24.)

## THOMSONITE

New Brunswick

- 21 B/10 Zeolite-filled amygdules are plentiful along the shoreline of  
21 B/15 Grand Manan Island and are most numerous along the coastline known as Seven Days Work. Scolecite, heulandite, laumontite, analcime, natrolite, epistilbite, thomsonite and stilbite have been identified. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 10.)
- 22 B/1 Cavities and fractures in volcanic rocks along the shoreline between Inch Arran and Bon Ami Point are filled with one or more of the following: thomsonite, stilbite, laumontite, heulandite, chlorite, chalcedony, quartz, calcite, prehnite and hematite. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 103.)

Nova Scotia

Thomsonite is one of the less common zeolites found in the amygdaloidal basalts of the Minas Basin - Bay of Fundy area. The following list of localities and associated minerals has been compiled from Geol. Surv. Can., Paper 64-10, Rocks and Minerals for the Collector, Bay of Fundy Area, by Ann P. Sabina, (1964).

- | <u>Locality</u>    | <u>Associated Minerals</u>                                      |
|--------------------|---|
| 21 A/14 Port Lorne | jasper, chalcedony, stilbite, mesolite, apophyllite, laumontite |

	<u>Locality</u>	<u>Associated Minerals</u>
21 H/1	Woodworth (Bennett) Bay	chalcedony, jasper, heulandite, analcime, mordenite, stilbite
21 H/2	Halls Harbour	stilbite, heulandite, laumontite, apophyllite, amethyst
21 H/3	Port George	chalcedony, stilbite, heulandite, analcime, mesolite, apophyllite, laumontite, gmelinite
21 H/7	Horseshoe Cove-Cape D'Or	analcime, stilbite, laumontite, apophyllite, chabazite, mesolite, natrolite, heulandite, jasper, copper, calcite
21 H/8	Cape Blomidon - Cape Split	apophyllite, heulandite, natrolite, stilbite, chabazite, analcime, gmelinite, laumontite, mesolite, amethyst, jasper, agate, calcite, celadonite
	Pinnacle Island	analcime, chabazite, natrolite, stilbite, heulandite, gmelinite, calcite

#### Quebec

- 31 G/9 Thomsonite has been identified in specimens from the mine dumps of the Oka Rare Metals Mine located about 20 miles west of Montreal on the north shore of the Lake of Two Mountains. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 61.)
- 31 H/11 Thomsonite is associated with pectolite and calcite inclusions in nepheline syenite at the Desourdy quarry on the northeast slope of Mont Ste-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

#### THORITE



#### Quebec

- 21 L/12 Uranothorite and uraninite have been reported to occur at a molybdenite deposit near Portneuf. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 90.)
- 31 G/11 Thorite has been reported at a feldspar quarry near Buckingham and at the Pedneaud Quarry near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 16, 21.)

- 31 G/13 Black thorite has been found near Notre-Dame-de-la-Salette at the Hart and Villeneuve mines. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 32, 40.)
- 32 A/16E Patches of shiny black thorite are found in calcite near where it is cut by pegmatite dykes at the Les-Calcites-du-Nord Quarry north of Dolbeau. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 111.)

## TINTINAITE



Tintinaite, the antimony analogue of kobellite, was discovered through re-examination of the type kobellite from Hvena, Sweden, and other new kobellites from Colorado; Rosslund, British Columbia; and Tintina, Yukon Territory. Electron probe analyses showed that a solid solution series extends from a high bismuth end-member to the pure antimony end-member. It was proposed that the name kobellite be retained for minerals in the series having Bi:Sb > 1.0 and that the name tintinaite be used for antimony dominant members.

British Columbia

- 82 F/4 A mineral from the Deer Park Mine, Rosslund camp, previously identified as kobellite has been found by electron probe analysis to be bismuthian tintinaite with a composition near the mid point of the tintinaite - kobellite series. Electron probe analysis by G.R. Lachance: Pb 42.3, Bi 23.0, Sb 17.6, S 20.0, total 102.9. (D.C. Harris, J.L. Jambor, G.R. Lachance and R.I. Thorpe, 1968: Can. Mineralogist, 9, p. 371-382.)

Yukon

- 105 G/3 The type specimen of tintinaite came from the property of Tintina Silver Mines Limited at 61°09'N, 131°09'W, some 7 miles northwest of the confluence of the Ings and Upper Liard Rivers. Associated minerals are jamesonite, argentian tetrahedrite, galena, sphalerite, pyrite, arsenopyrite, marcasite, bournonite, owyheeite, pyrrotite and chalcopyrite. Electron probe analysis by G.R. Lachance: Pb 42.3, Sb 34.5, S 21.3, total 98.1. The strongest lines on the X-ray powder pattern are: 3.51 (8), 3.40 (10), 2.87 (5), 2.71 (7), 2.002 (6). (D.C. Harris, J.L. Jambor, G.R. Lachance and R.I. Thorpe, 1968: Can. Mineralogist, 9, p. 371-382.)

TITANITE

(See sphene)

TOPAZ



Quebec

- 22 D/12E Greenish topaz occurs as rough crystals and in massive form at the Lac à la Mère Mica Mine north of the Saguenay River near St-Nazaire. Most of the topaz is massive and intergrown with muscovite and albite. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 110.)

TOURMALINE



Manitoba

- 53 N/2 Pink tourmaline crystals up to 6 mm long occur with purple rubidian mica in a swarm of dykes at the northeastern end of Red Cross Lake, approximately 1 3/4 miles northwest of Red Sucker River. (J. L. Jambor and R. R. Potter, 1967: Geol. Surv. Can., Paper 67-51, p. 2.)

Ontario

- 31 C/7 Tourmaline is found as coal-black masses as well as large crystal aggregates in a pegmatite dyke on the north side of Sand Road about 2 miles west of Highway 38. Sand Road branches out on the west side of Highway 38 about 1/2 mile south of Verona. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 11.)
- 31 C/8 Dark brown columnar aggregates of tourmaline up to 3 inches long are exposed in roadcuts on Highway 15, 23.5 miles north of Kingston. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 42.)
- 31 C/9 Black tourmaline crystals up to 5 inches long have been found in pegmatite at a feldspar quarry about 41 miles (road log) north of Kingston on the Kingston-Westport-Perth road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 29.)

- 31 C/9 Roadcuts on Highway 15, about 42.8 miles north of Kingston show tourmaline as orange to brown transparent striated crystals (up to 1 1/2 inches long, 1/2 inch across) which fluoresce deep yellow under "short" ultraviolet rays. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 46.)
- 31 C/10 Tourmaline occurs as yellowish orange, amber-coloured or dark reddish brown scattered grains, individual crystals (about 1/2 inch across) and crystalline aggregates (up to 5 inches across) in crystalline limestone in roadcuts about 3 miles from Godfrey on the Westport Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 13.)
- 31 C/10 Dark brown to reddish brown crystalline masses of tourmaline measuring 1 to 3 inches across are found in the dumps of the Kingston (Bedford) Mica Mine. The mine is located at about 1 mile southeast of the paved road running from Godfrey to Westport, and is about 3 miles east of Highway 38. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 14.)
- 31 C/10 Brownish-black tourmaline crystals averaging 1/2 inch across are conspicuous in pinkish white calcite at the Hickey-Murphy lead mine. Several pits and two old shafts are present on the Hickey and Murphy farms located along the Westport road, 9.5 miles from Godfrey. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 17.)
- 31 C/10 Massive jet-black tourmaline occurs with calcite in apatite-rich veins at the Eagle Lake (Blessington) Mine. Other minerals present in the abandoned phosphate mine are hornblende, pyroxene and scapolite. The mine is located on the West side of Highway 38 about 39 miles north of Kingston near Tichborne. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 21.)
- 31 C/15 Dark brown tourmaline occurring as crystals (measuring up to 3 inches long) and crystalline masses is common in crystalline limestone at roadcuts on Highway 38 just north of the causeway of the narrows of Sharbot Lake. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 22.)
- 31 C/16 Brownish green transparent, massive tourmaline is reported to occur at the Silver Queen mica-apatite Mine. The mine is located about 45 1/2 miles (road log) north of Kingston, along the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 29.)
- 31 C/16 Jet black massive tourmaline and reddish brown transparent sphene crystals occur in quartz at the old McLaren Mine west of Otty Lake and about 4 1/2 miles south of Perth. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 35.)

- 52 F/15 Well-developed black crystals of tourmaline occur in pegmatite exposed in Zealand Township on lots 15 to 19, concession VII, and on lot 17 at the boundary of concessions VII and VIII. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 42.)

Quebec

- 22 C/5 Good crystals of tourmaline, garnet, beryl and minor apatite have been reported at a deposit known as the McGee Mine on the northeast shore of Charlotte Lake. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 100.)
- 31 G/5 Black crystals and brown masses of tourmaline have been found in roadcuts along the Gatineau Parkway, and at the Headley Mine north of Aylmer. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 7, 13.)
- 31 G/11 Tourmaline occurs at a feldspar quarry near Buckingham, and at the Pedneaud quarry, Derry Mine, Jack Lake Mine, Burnt Lake Mine, Wallingford Mine, Smith Lake Mine and Glen Almond Mine, all near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 16, 21, 23, 24, 26, 27.)
- 31 G/12E Radiating aggregates of black tourmaline crystals are associated with silky dark green actinolite, brown sphene crystals and pink calcite at the Jackson Rae Mine near Perkins Mills. Black tourmaline crystals up to 3/4 inch across occur in greyish white feldspar in roadcuts on Highway 35 near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 13, 31.)
- 31 G/12W Tourmaline is exposed in roadcuts along the Gatineau Parkway; at the Chamberlain Quarry and Scott Mine near Old Chelsea; at the Nellie and Blanche Mine, Blackburn Mine, Coté Quarry and Dacey Mine north of Hull; and at the Lake Girard Mine, Templeton Quarry, Gemmill Mine and McGlashan Mine near St-Pierre-de-Wakefield. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 17, 18, 20, 21, 25, 28, 29, 31, 37, 38, 39.)
- 31 G/13 Black tourmaline crystals up to 8 inches long are common at the Lapointe Mine near Notre-Dame-de-la-Salette, and patches of massive amber tourmaline are exposed in roadcuts along Highway 35, north of Val-des-Bois. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 34, 45.)
- 31 G/14 Black tourmaline crystals up to several inches long and 3/4 inch across occur at the Cole Lake Mine near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 28.)
- 31 I/16 Dark amber masses of tourmaline occur in tremolite at the Tetreault Mine at Montauban-les-Mines. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 88.)



- 31 J/1 Crystalline aggregates of greenish brown tourmaline may be  
 31 J/2 seen in roadcuts along Highway 11 between St-Jovite and Ste-  
 Agathe-des-Monts. (Ann P. Sabina, 1969: Geol. Surv. Can.,  
 Paper 68-51, p. 65.)
- 31 J/16 Black tourmaline occurs at the Maisonneuve Mine near St-  
 Michel-des-Saints. (Ann P. Sabina, 1968: Geol. Surv. Can.,  
 Paper 67-51, p. 78.)

## TREMOLITE

Ontario

- 31 C/10 Greenish grey columnar or banded aggregates of tremolite are  
 found in association with dark amber mica in quartz-feldspar  
 veins at the Kingston (Bedford) mica mine. The mine is located  
 about 2 miles east of Highway 38 and about 1/2 mile southeast  
 of the Godfrey-Westport road. (Ann P. Sabina, 1968: Geol.  
Surv. Can., Paper 67-51, p. 14.)
- 31 C/16 Tremolite-asbestos ('mountain leather') occurs as white, fib-  
 rous sheets in a sugary apatite at the Silver Queen mica-apatite  
 mine. The mine is located about 45 1/2 miles north of Kingston,  
 along the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968:  
Geol. Surv. Can., Paper 67-51, p. 29.)

Quebec

- 31 G/5 Radiating crystal aggregates of green tremolite are exposed in  
 roadcuts along the Gatineau Parkway. (Ann P. Sabina, 1970:  
Geol. Surv. Can., Paper 69-50, p. 7.)
- 31 G/11 Tremolite is present at the Glen Almond Emerald Mine and the  
 Davis Mine, near Glen Almond. (Ann P. Sabina, 1969: Geol.  
Surv. Can., Paper 68-51, p. 20, 27.)
- 31 G/12E Abundant white to grey fibrous tremolite is exposed in roadcuts  
 along the road from Buckingham to Perkins Mills, about 1/2  
 mile south of the Perkins Mills intersection. Colourless to light  
 grey tremolite occurs in roadcuts on Highway 35 near Glen  
 Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51,  
 p. 8, 31.)
- 31 G/12W Colourless to pale green tremolite is present at the Nellie and  
 Blanche Mine north of Hull, at the McGlashan Mine near St-  
 Pierre-de-Wakefield, and at the McConnell Mine near Meach  
 Lake. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-70,  
 p. 17, 31, 31.)

- 31 H/8        Masses of fine, silky white fibres of tremolite are found on coarse prismatic crystals of diopside at the Orford Mine, one mile south of Rocaille. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 17.)
- 31 I/15        Light tan-coloured tremolite occurs at the Ste-Thècle Marble Quarry. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 85.)
- 31 I/16        The most abundant gangue mineral at the Tetreault Mine near Montauban-les-Mines, is tremolite which fluoresces pink under "short" ultraviolet rays and pinkish orange under "long" ultraviolet rays. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 88.)
- 31 J/4        Yellow green to dark green serpentine and colourless to grey tremolite form bands in the rock exposed on the north bank of the du Lièvre River immediately downstream from the des Cèdres dam. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 51.)
- 31 J/7        Brownish grey columnar tremolite occurs at the Canada Marble and Lime Quarry near L'Annonciation. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 60.)
- 31 J/11        Limestone marble at the Val-Barrette Quarries contains abundant tremolite occurring as white, grey and green (actinolite) bladed aggregates and as greenish white to apple-green dense fibrous masses. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 57.)

TRIDYMITE



Nova Scotia

- 11 D/14        Tridymite has been identified as a gangue mineral at the Dunbrack deposit, 3 1/2 miles NNW of Musquodoboit Harbour, Halifax County, at 44°49'10"N, 63°11'30"W. The ore minerals are galena, sphalerite, chalcopryrite, chalcocite and pyrite. (C.G.I. Friedlander, 1968: Can. Mineralogist, 9, p. 572.)

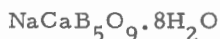
The spacings and intensities of the five strongest lines on the X-ray powder pattern of tridymite are: 4.27 (10), 4.08 (8), 3.80 (9), 2.95 (6) and 2.49 (5). (ASTM Card no. 14-260.)

## TWINNITE

Ontario

- 31 C/6 Twinnite, the antimony analogue of sartorite, was found in polished sections of specimens collected from a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed Taylor of Madoc. Electron probe microanalysis by G.R. Lachance: Pb 41, Sb 28, As 11, S 23, total 103. The strongest lines on the X-ray powder pattern are: 4.18 (5), 3.91 (5), 3.51 (10), 2.78 (7), 2.689 (5), 2.645 (5), 2.344 (8), 2.154 (5). (J.L. Jambor, 1967: Can. Mineralogist, 9, p. 191-213.)

## ULEXITE

Nova Scotia

- 11 K/16 Irregular white patches of ulexite have been observed along joint planes in anhydrite at the Dingwall gypsum quarry, near the northwest end. White nodules of howlite are associated. (Ann P. Sabina, 1965: Geol. Surv. Can., Paper 65-10, p. 26.)

## ULLMANNITE

Ontario

- 31 M/5 Ullmannite, identified by X-ray diffraction studies and ore microscopy has been found in calcite in the Deer Horn and Silverfields Mines. (W. Petruk, D.C. Harris and J.M. Stewart, 1971: Can. Mineralogist, 11, p. 185.)

## URANINITE

Quebec

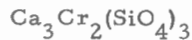
- 31 G/5 A small amount of uraninite has been found on the Payne property located along the slope below the east end of Champlain Lookout, 11.4 miles along the Gatineau Parkway from Gamelin boulevard. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 10.)

- 31 G/11 Uraninite has been found at the Pedneaud Quarry and the Back (Wallingford) Mine near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 21, 24.)
- 32 A/16E Specks of uraninite are contained in calcite near pegmatite dykes at the Les Calcites du Nord Quarry north of Dolbeau. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 111.)

URANOTHORITE

(See thorite)

UVAROVITE



Quebec

- 21 L/3 Tiny euhedral bright green uvarovite crystals occur with chromian diopside in vugs in massive white diopside at the Normandie Mine, 3 miles southwest of Black Lake village. Chemical analyses by T.H. Donnelly: SiO<sub>2</sub> 35.0, Al<sub>2</sub>O<sub>3</sub> 8.76, Fe<sub>2</sub>O<sub>3</sub> + FeO 5.26, MgO 0.77, CaO 37.50, Cr<sub>2</sub>O<sub>3</sub> 10.20, TiO<sub>2</sub> 0.09, total 97.58. S.G. 3.79; a<sub>0</sub> = 11.855 Å. (P.L.C. Grubb, 1965: Can. Mineralogist, 8, p. 241-8.)

VALENTINITE



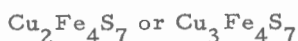
New Brunswick

- 21 G/14 The secondary minerals, valentinite, kermesite and bindheimite occur with primary antimony and stibnite at an old antimony mine at Lake George. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 130.)

Nova Scotia

- 11 E/4 A deposit near West Gore was worked for antimony beginning in 1883 and for gold about 20 years later. Valentinite and kermesite occur as coatings on and close to native antimony and stibnite. (Ann P. Sabina, 1964: Geol. Surv. Can., Paper 64-10, p. 59.)

## VALLERIITE

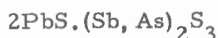
Northwest Territories

- 86 J Valleriite and mackinawite have been identified in parts of the central layered series of the Muskox intrusion, Coppermine River area. The valleriite occurs in serpentine, where it may replace secondary magnetite, and less commonly, in contact with mackinawite and pentlandite. (J. A. Chamberlain and R. N. Delabio, 1965: Am. Mineralogist, 50, p. 682.)

Yukon

- 105 D/11 In the Arctic Chief and Little Chief areas of the Whitehorse Copper Belt, the ore minerals are reported to be chalcopyrite, bornite, chalcocite and valleriite, with minor native copper. D. B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 110.)

## VEENITE

Ontario

- 31 C/6 Veenite, the antimony analogue of dufrenoyite, is the most abundant of the eight new minerals found in a small prospect pit on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed Taylor of Madoc. Electron probe microanalysis (average of 3 grains) by G. R. Lachance: Pb 52.5, Sb 19.7, As 6.8, S 21.2, total 100.2. Chemical analyses (Sb by difference) by S. Abbey: Pb 50.3, 50.4; Sb 21.2, 20.5; As 7.6, 8.4; S 20.0, 20.3; CaCO<sub>3</sub> 0.9, 0.4; total 100.0. The five strongest lines on the X-ray powder pattern are: 3.81 (10), 3.42 (8), 3.26 (8), 3.03 (9), 2.76 (7). (J. L. Jambor, 1967: Can. Mineralogist, 9, p. 7-24.)

## VERMICULITE

Quebec

- 31 G/13 A discovery of vermiculite-rich soil in the hills northwest of Rodgers Lake in Range A, Low Township, Gatineau County, has been explored by Venosta Minerals Limited. (Brochure issued by Venosta Minerals Limited.)

## VESUVIANITE

Northwest Territories

- 95 E/13  
105 H/16 Vesuvianite is a prominent constituent of the pyroxene-garnet skarn that hosts the M. B. prospect and Canada Tungsten Mine. The Canada Tungsten Mine is on the southwest side of the Flat River valley at 61°58'N, 128°15'W; the M. B. showing is 18 miles southeast of the Canada Tungsten Mine on the northeast side of the Flat River. (S. L. Blusson, 1968: Geol. Surv. Can., Paper 67-22, p. 28-35.)

Ontario

- 31 C/10 Dark brown vesuvianite is reported from the Kingston (Bedford) mica mine located about 2 miles east of Highway 38 and about 1/2 mile southeast of the Godfrey-Westport Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 14.)

Quebec

- 21 E/13 Transparent vesuvianite, pink garnet, grass-green diopside, white to greenish white prehnite and white wollastonite occur at the Jeffrey Mine, Asbestos, at the contact of peridotite with granitic rock. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 26.)
- 31 G/5W Vesuvianite occurs at the Headley Mine north of Aylmer. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 13.)
- 31 G/12W Vesuvianite has been reported from the deposit at the Breckin Mine near St-Pierre-de-Wakefield. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 27.)
- 31 G/15E Vesuvianite occurs at the Miller (Keystone) Mine. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 75.)
- 31 H/11E At the Mont St-Hilaire Quarry, also known as the Desourdy Quarry, on the north side of Mont St-Hilaire, vesuvianite is present as green, yellow or brown prismatic crystals (up to 1 cm long) and massive. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 57.)
- 31 J/1 Yellow to amber vesuvianite is exposed in roadcuts on Highway 11 at distances of 1.6, 2.7 and 3.0 miles east of St-Jovite. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 65.)

## VIOLARITE

Manitoba

- 52 L/6 Solid masses and stringers of pyrrhotite, chalcopyrite, pyrite, cubanite, magnetite, pentlandite and violarite are exposed on the Martin-Devlin, Chance and Wento claims on the north side of the Bird River, about 2-3/4 miles north of the Bernic Lake Mine. (Ann P. Sabina, 1963: Geol. Surv. Can., Paper 63-18, p. 58.)
- 62 P/1 At English Lake, 20 miles west-northwest of the town of Bissett, alteration of a pentlandite-chalcopyrite-pyrite assemblage has resulted in the formation of violarite. (S. Karup-Moller, 1969: Can. Mineralogist, 9, p. 629-643.)

Yukon

- 115 G/5 Massive to heavily disseminated lenses of pyrrhotite containing chalcopyrite, pentlandite and violarite occur within a gabbro zone on the Wellgreen property (61°28'N, 139°32'W) near the head of Nickel Creek, west of Burwash Flats. (D.B. Craig and P. Laporte, 1972: Mineral Industry Report 1969 and 1970, Vol. 1, Dept. Indian Affairs and Northern Development, p. 100.)

## WAIRAKITE

Quebec

- 31 G/8 This rare calcium analogue of analcite was identified by its  
31 G/9 X-ray diffractometer pattern from an aggregate of cream and pale coloured crystals in altered nepheline okaite from the Oka Complex, located about 20 miles west of Montreal on the north shore of the Lake of Two Mountains. (D.P. Gold, 1966: Min. Soc. India, I.M.A. Volume, p. 102-126.) The four strongest lines on the X-ray powder pattern of wairakite are: 5.57 (8), 3.42 (6), 3.39 (10) and 2.91 (5) (ASTM 7-326).

WAKEFIELDITE



Quebec

- 31 G/12W Wakefieldite was originally found at the Evans-Lou Mine near St-Pierre-de-Wakefield. It occurs as tan, amber, brown, pinkish, greenish, bluish and grey, fine-grained encrustations on pegmatite. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 35.)

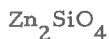
WELOGANITE



Quebec

- 31 H/12 The new mineral weloganite was discovered in an alkalic sill which intrudes Trenton limestone in a large quarry operated by Francon (1966) Limitée at St-Michel, Montreal, and named for Sir William E. Logan, first Director of the Geological Survey of Canada. The mineral is abundant and occurs well-crystallized in vugs. Chemical analysis: SrO 41.0, ZrO<sub>2</sub> 19.4, CO<sub>2</sub> 32.2, H<sub>2</sub>O 6.6, total 99.2. The strongest lines on the X-ray powder pattern are: 6.03 (6), 4.35 (9), 2.809 (10), 2.590 (7), 2.227 (7), 2.009 (7), 1.961 (6), 1.903 (6), 1.585 (6). (Ann P. Sabina, J.L. Jambor and A.G. Plant, 1968: Can. Mineralogist, 9, p. 468-477.)

WILLEMITE



Quebec

- 31 H/11 Willemite has been identified as a constituent of vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. The spacings and intensities of the six strongest lines on the X-ray powder pattern are: 3.44 (10), 2.84 (10), 2.64 (10), 2.32 (5), 1.863 (5), 1.423 (6). (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)



WILSONITE  
(altered scapolite)

Quebec

- 31 G/5W Mauve-coloured wilsonite occurs at the Headley Mine north of Aylmer. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 13.)
- 31 G/12W Wilsonite has been reported from some of the pits at the McGlashan Mine near St-Pierre-de-Wakefield. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 31.)
- 31 G/13E Wilsonite was found during mining operations at the High Rock Mine near Notre-Dame-de-la-Salette. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 35.)
- 31 G/13E Lilac-coloured wilsonite is found in roadcuts on Highway 35 near Notre-Dame-de-la-Salette. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 38.)
- 31 J/7W Blue to lilac-coloured wilsonite has been reported from the deposits at the Canada Marble and Lime Quarry near L'Annonciation. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 60.)
- 31 J/12E Patches up to 1/2 inch across of transparent mauve wilsonite occur sparingly in scapolite in roadcuts on both sides of Highway 35 north of St-Aimé. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 55.)

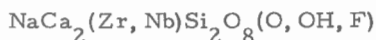
WITTICHENITE



Ontario

- 31 M/5 Wittichenite was identified by X-ray diffraction in a sample from the O'Brien Mine at Cobalt. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 207.)

## WÖHLERITE

Quebec

- 31 H/11 Wöhlerite has been identified in vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. The six strongest lines on the X-ray powder pattern are: 3.24 (5), 2.98 (4), 2.95 (4), 2.84 (10), 2.01 (3) 1.527 (3). (G.Y. Chao, D.C. Harris, A.W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

## WOLFRAMITE

Yukon

- 105 B/1 The Fiddler (Yukon Tungsten) property at 60°08'N, 130°26'W, is on a ridge north of Boulder Creek at an elevation of 5,100 feet and may be reached by a secondary road about 5 1/2 miles long that leaves the Alaska Highway just west of the Boulder Creek bridge at mile 701.6. Coarse crystals of wolframite, several inches in size, occur with galena and minor scheelite, fluorite and cassiterite in vuggy quartz. (L.H. Green, 1966: Geol. Surv. Can., Paper 66-31, p. 80.)

## WOLLASTONITE

British Columbia

- 82 F/3 At the Victory Tungsten property near Salmo, on the south side of Sheep Creek three miles east of its confluence with the Salmo River, the ore occupies a contact metamorphic zone which includes pyrrhotite, pyrite, molybdenite, sphalerite, scheelite, garnet, actinolite, calcite, quartz and wollastonite. (H.J. Greenwood, 1967: Am. Mineralogist, 52, p. 1669-1679.)

Ontario

- 31 C/16 A small amount of wollastonite is reported in limestone at the Silver Queen Mine located about 45 1/2 miles (road log) north of Kingston along the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 29.)

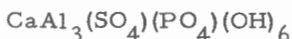
Quebec

- 21 E/13 White fibrous wollastonite, white to greenish white prehnite, pink garnet, transparent vesuvianite and grass-green diopside occur at the Jeffrey Mine, Asbestos, at the contact of peridotite with granitic rock. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 26.)
- 31 G/8 Silky green platy crystals of wollastonite up to 4 inches in length occur with nepheline, sodian augite and melanite garnet in ijolite  
31 G/9 rock within the Oka Complex, located 20 miles west of Montreal on the north shore of the Lake of Two Mountains. Chemical analysis by H. Ulk of wollastonite from DDH G15, 330 feet: SiO<sub>2</sub> 50.15, Al<sub>2</sub>O<sub>3</sub> 0.14, Fe<sub>2</sub>O<sub>3</sub> 0.04, FeO 0.60, MnO 0.96, CaO 46.97, Na<sub>2</sub>O 0.35, K<sub>2</sub>O 0.05, H<sub>2</sub>O<sup>+</sup> 0.38, CO<sub>2</sub> 0.45, total 100.09, S.G. 2.859. (D.P. Gold, 1966: Min. Soc. India, I.M.A. Volume, p. 102-126.)
- 31 G/10E Coarsely crystalline wollastonite is associated with massive graphite at the Miller (Keystone) Mine. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 75.)
- 31 G/13E Roadcuts on Highway 35 north of Notre-Dame-de-la-Salette contain wollastonite as white bladed aggregates. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 40.)

Yukon

- 105 D/11 Wollastonite-rich skarn occurs at the Anaconda, Rabbit-foot and War-Eagle copper deposits located 2 to 3 miles northwest of Whitehorse. (E.D. Kindle, 1964: Geol. Surv. Can., Paper 63-41, p. 14-18.)

## WOODHOUSEITE



The X-ray powder pattern of woodhouseite, a member of the alunite-beudantite group, has six strongest lines with the following spacings and intensities: 2.93 (10), 2.19 (4), 2.16 (8), 1.885 (9), 1.741 (8) and 1.432 (6). (A. Pabst, 1947: Am. Mineral., 32, p. 16-30.)

New Brunswick

- 21 P/5 Woodhouseite is one of the secondary minerals reported to have been found in the gossan at Brunswick No. 6 Mine, sixteen miles south of Bathurst. (Ann P. Sabina, 1967: Geol. Surv. Can., Paper 66-51, p. 118.)

WURTZITE



Quebec

- 31 H/11 Wurtzite has been found in veins in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G.Y. Chao, D.C. Harris, A.W. Hounslow, J.A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

XANTHOCONITE



Ontario

- 31 M/5 Xanthoconite has been found in two samples from the Christopher Mine, near Cobalt. It is associated with sphalerite, arsenopyrite and cobaltite in one sample and with botryoidal siderite in the other. Proustite crystals extend outward from the xanthoconite into open spaces. Both samples were taken from a fault zone. (W. Petruk et al., 1971: Can. Mineralogist, 11, p. 213.)

XENOTIME



Quebec

- 31 G/12W Xenotime occurs at the Evans-Lou Mine near St-Pierre-de-Wakefield. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 35.)

ZINCKENITE



Ontario

- 31 C/6 Zinckenite is a rare constituent in the suite of sulphosalt minerals found on lot 12, concession XIV, Huntingdon Township, on the farm of Mr. Ed Taylor of Madoc. (J.L. Jambor, 1967: Can. Mineralogist, 9, p. 212.)

## ZIRCON

Ontario

- 31 C/7 Fairly large zircon crystals (1/2 inch across and 1 1/2 inches long) have been found at the Lacey mica mine. Two other closely associated minerals which were mined are mica and apatite. Mica is reported to have attained the size of 9 feet in diameter and apatite about 10 inches across. The mine is located about 17 miles north of Kingston and 4 1/2 miles west of the Kingston-Westport-Perth Road. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 25.)
- 31 C/10 Brownish pink, turbid grains and tiny crystals of zircon occur sparingly in calcite and feldspar in crystalline limestone at a roadcut along the Westport Road about 7 miles east of Godfrey. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 16.)

Quebec

- 21 M/16 At the Lac du Pied-des-Monts Mine, crystals of dark brown zircon about 1/4 inch long occur in a pegmatite dyke. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 97.)
- 31 G/11 Greyish mauve zircon occurs at the Back (Wallingford) Mine near Glen Almond. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 24.)
- 31 G/12 Small pink zircons have been noted at the Horseshoe and McGlashan mines near St-Pierre-de-Wakefield. Zircon has also been reported from the Breckin and Gemmill mines in the same area. (Ann P. Sabina, 1970: Geol. Surv. Can., Paper 69-50, p. 23, 27, 29, 31.)
- 31 G/13 Pale red crystals of zircon were found during mining operations at the High Rock Mine near Notre-Dame-de-la-Salette. Zircon has also been reported at the Villeneuve Mine. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 35, 40.)
- 31 H/11 Zircon occurs in veins and vugs in nepheline syenite at the Desourdy quarry on the northeast slope of Mont St-Hilaire. (G. Y. Chao, D. C. Harris, A. W. Hounslow, J. A. Mandarino and G. Perrault, 1967: Can. Mineralogist, 9, p. 109-123.)

- 31 H/12 Zircon occurs as tiny crystals and grains of amber yellow to light brown at the Francon quarry, Montreal Island. (Ann P. Sabina, 1968: Geol. Surv. Can., Paper 67-51, p. 67.)
- 31 J/4 Pinkish brown zircon crystals occur with biotite in hornblende-  
31 J/5 syenite that is exposed for a distance of 1/2 mile along the west shore of the southern tip of Lac du Cerf. The crystals average about 1/4 inch in size. (Ann P. Sabina, 1969: Geol. Surv. Can., Paper 68-51, p. 53.)

ZOISITE

(See epidote)

NTS INDEX TO MINERAL LOCALITIES

ALBERTA

83 E/7 gypsum  
E/8 gypsum

BRITISH COLUMBIA

82 E/2 nickel hydroxide mineral  
(unnamed)  
F/3 robinsonite, wollastonite  
F/4 tintinaite  
F/10 minnesotaite, rhodochro-  
site  
F/11 pyrolusite, siderite  
F/12 biotite  
F/14 siderite  
F/16 biotite  
G/12 cassiterite  
K/2 biotite, muscovite  
K/13 cassiterite  
M/1 galena, sphalerite  
M/7 galena, sphalerite  
M/8 chalcopryrite, galena,  
molybdenite, sphalerite  
M/9 chalcopryrite, gold  
M/12 bastnaesite, celestite  
M/15 galena, sphalerite  
M/16 galena, sphalerite  
N/4 canfieldite, cassiterite,  
scheelite, stannite  
N/5 anglesite, azurite, cerus-  
site, jamesonite, mala-  
chite, smithsonite, tetra-  
hedrite  
92 B/5 analcime, chabazite, lau-  
montite, prehnite, pumpel-  
lyite, stilbite  
F/12 prehnite, pumpellyite  
I/14 poitevinite  
P/4 manganite, psilomelane,  
pyrolusite  
93 A/13 ankerite  
B/15 psilomelane  
E/6 frobergite, stützite,  
sylvanite  
H/4 siderite  
K/1 psilomelane, pyrolusite  
N/6 psilomelane  
94 K/2 sulvanite

British Columbia (cont'd)

103 P/6 aikinite, cosalite, neyite,  
nuffieldite  
104 O/7 andradite, epidote  
P/5 cassiterite

MANITOBA

52 L/6 cassiterite, chalcopryrite,  
cordierite, cubanite, fers-  
mite, muscovite, pentland-  
ite, quartz, violarite  
L/13 hessite  
53 K/4 cassiterite  
N/2 amblygonite, muscovite,  
tourmaline  
62 G/8 psilomelane  
J/12 pyrolusite  
P/1 violarite  
63 I/12 magnetite  
K/13 bournonite

NEW BRUNSWICK

21 B/10 analcime, epistilbite, heu-  
landite, natrolite, scolecite,  
stilbite, thomsonite  
B/15 analcime, epistilbite, heu-  
landite, natrolite, scolecite,  
stilbite, thomsonite  
G/6 staurolite  
G/7 chalcopryrite, cosalite,  
dzhallindite, galenobismutite,  
roquesite, sphalerite,  
stannite  
G/8 cassiterite  
G/9 pyrrargyrite  
G/14 bindheimite, valentinite  
H/10 azurite, chalcocite, covel-  
lite  
H/16 chalcocite, covellite  
I/2 barite, chalcocite  
I/14 marcasite  
J/1 marcasite  
J/3 calcite  
J/4 barite, jarosite, psilome-  
lane, rhodochrosite

New Brunswick (cont'd)

- 21 J/10 apatite, arsenopyrite, bismuth, jarosite, pyrrhotite, rozenite  
 O/8 aikinite, boulangerite, bournonite, chalcocite, jarosite, marcasite, tennantite, tetrahedrite  
 O/16 calcite  
 P/5 antlerite, barite, boulangerite, bournonite, cassiterite, chalcantinite, chalcocite, chalcopyrite, copiapite, copper, cubanite, domeykite, galenobismutite, jamesonite, jarosite, krennerite, lepidocrocite, linnaeite, marcasite, petzite, plumbojarosite, pyromorphite, römérite, scorodite, siderite, siderotil, sphalerite, stannite, szomolnokite, woodhouseite  
 P/11 barite, calcite  
 P/12 arsenopyrite, calcite, canfieldite, marcasite, rozenite  
 P/13 calcite, quartz  
 P/15 connellite, malachite, rozenite  
 22 B/1 calcite, heulandite, laumontite, prehnite, quartz, stilbite, thomsonite

NEWFOUNDLAND

- 12 H/9 arsenic, chalcopyrite  
 13 K/5 aegirine-augite, arfvedsonite, barylite, niobophyllite  
 14 E/2 olivine  
 23 B/15 cummingtonite, grunerite

NORTHWEST TERRITORIES

- 25 K/13 lazurite  
 44 A/1 riebeckite  
 65 C/14 biotite  
 D/16 gold

Northwest Territories (cont'd)

- 65 G/6 gold  
 N/7 phlogopite  
 68 H/8 galena, smithsonite, sphalerite  
 H/9 galena, smithsonite, sphalerite  
 75 B/13 biotite  
 D/8 biotite  
 K/11 chalcopyrite  
 K/12 chalcopyrite  
 L/4 muscovite  
 L/8 bornite, chalcopyrite, domeykite  
 L/11 chalcopyrite  
 M/2 galena, sphalerite  
 76 B/13 gold, tellurbismuth  
 D/3 gold  
 E/11 gold  
 M/11 gold  
 M/12 gold  
 N/2 gold  
 77 A/3 boulangerite, bournonite  
 85 B/16 galena, sulphur  
 I/11 gold  
 J/16 gold  
 N/7 biotite  
 N/8 gold  
 86 B/5 gold  
 B/13 biotite  
 E/9 bismuth, cobaltite, gersdorffite, matildite, nickeline, pararammelsbergite, rammelsbergite, safflorite, silver, skutterudite  
 F/13 bismuth, bismuthinite, bornite, breithauptite, chalcocite, chalcopyrite, chalcostibite, cobaltite, famatinite, gersdorffite, glaucodot, nickeline, pearceite, rammelsbergite, safflorite, stromeyerite, tetrahedrite  
 J mackinawite, valleriite  
 K/4 acanthite, gersdorffite, glaucodot, hessite, nickeline, polydymite, silver, stromeyerite, tetrahedrite  
 K/12 braunite  
 N/10 bornite  
 O/3 coalingite, muskoxite



Northwest Territories (cont'd)

95 E/13 scheelite, vesuvianite  
 G/3 geocronite  
 105 H/16 scheelite, vesuvianite  
 120 F/11 gypsum  
 340 E/14 gypsum

NOVA SCOTIA

11 D/12 arsenopyrite  
 D/14 chrysocolla, malachite,  
 tridymite  
 D/15 arsenopyrite, rutile,  
 scheelite  
 D/16 arsenopyrite  
 E/1 arsenopyrite, pyrophanite,  
 rhodochrosite, rhodonite,  
 spessartine, staurolite  
 E/4 valentinite  
 E/5 manganite, psilomelane,  
 pyrolusite  
 E/6 azurite, barite, hausman-  
 nite, manganite, pyrolusite  
 E/8 brochantite  
 E/9 paratacamite  
 E/12 chalcocite  
 E/13 celestite  
 F/5 pyrolusite  
 F/11 marcasite  
 F/15 danburite, hausmannite,  
 howlite, manganite, pyro-  
 lusite  
 F/16 bismuthinite, pyrolusite  
 K/1 brochantite, posnjakite  
 K/3 lepidocrocite  
 K/16 howlite, ulexite  
 20 O/16 chloritoid, sillimanite,  
 spessartine, staurolite  
 P/6 staurolite  
 P/11 staurolite  
 P/14 molybdenite, staurolite  
 21 A/8 scheelite  
 A/9 manganite, psilomelane,  
 pyrolusite  
 A/12 epistilbite, heulandite,  
 stilbite  
 A/14 apophyllite, laumontite,  
 mesolite, natrolite, thom-  
 sonite  
 A/15 psilomelane, pyrolusite

Nova Scotia (cont'd)

21 B/8 analcime, scolecite, stilbite  
 B/9 heulandite, stilbite  
 H/1 analcime, aplowite, celes-  
 tite, danburite, groutite,  
 heulandite, manganite,  
 moorhouseite, mordenite,  
 psilomelane, pyrolusite,  
 ramsdellite, stilbite, thom-  
 sonite  
 H/2 analcime, apophyllite, heu-  
 landite, laumontite, meso-  
 lite, mordenite, stilbite,  
 thomsonite  
 H/3 analcime, apophyllite, heu-  
 landite, laumontite, meso-  
 lite, natrolite, scolecite,  
 stilbite, thomsonite  
 H/7 analcime, apophyllite, cha-  
 bazite, heulandite, laumon-  
 tite, mesolite, natrolite,  
 stilbite, thomsonite  
 H/8 analcime, apophyllite, cela-  
 donite, chabazite, gmelinite,  
 heulandite, laumontite,  
 manganite, mesolite, natro-  
 lite, psilomelane, pyrolus-  
 ite, ramsdellite, stilbite,  
 thomsonite

ONTARIO

30 M/5 epsomite, rozenite  
 31 B/12 calcite, marcasite, sphene  
 B/14 calcite, celestite, strontian-  
 ite  
 C/6 baumhauerite, boulangierite,  
 geocronite, guettardite,  
 jamesonite, launayite,  
 madocite, playfairite, rob-  
 insonite, semseyite, sorby-  
 ite, sterryite, twinnite,  
 veenite, zinckenite  
 C/7 anhydrite, apatite, barite,  
 calcite, celestite, cerussite,  
 diopside, fergusonite, gyp-  
 sum, hornblende, hydro-  
 cerussite, quartz, sphaler-  
 ite, sphene, tourmaline,  
 zircon



Ontario (cont'd)

Ontario (cont'd)

32 P/10 allanite, allargentum, allo-  
clasite, arsenopyrite,  
axinite, bismuthinite,  
breithauptite, cerite, chal-  
cocite, chalcopryrite,  
cobaltite, dolomite, galeno-  
bismutite, gersdorffite,  
glaucodot, marcasite,  
nickeline, pararammels-  
bergite, pearceite, pyr-  
argyrite, rammelsbergite,  
safflorite, skutterudite,  
sphalerite, stephanite,  
stromeyerite, tetrahedrite

P/15 allanite, allargentum, allo-  
clasite, arsenopyrite, bis-  
muthinite, breithauptite,  
chalcopryrite, cobaltite,  
dolomite, gersdorffite,  
glaucodot, marcasite,  
nickeline, pararammels-  
bergite, pyrargyrite, ram-  
melsbergite, safflorite,  
skutterudite, sphalerite,  
stephanite, tetrahedrite

P/16 allanite, allargentum, allo-  
clasite, arsenopyrite, bis-  
muthinite, breithauptite,  
chalcopryrite, cobaltite,  
dolomite, gersdorffite,  
glaucodot, marcasite,  
nickeline, pararammels-  
bergite, pyrargyrite, ram-  
melsbergite, safflorite,  
skutterudite, sphalerite,  
stephanite, tetrahedrite

42 A/1 hessite  
A/6 hessite  
A/11 heazlewoodite  
D/11 pumpellyite  
D/12 pumpellyite  
D/13 barite, fluorite, quartz  
D/14 gold  
L/2 eucryptite, spodumene  
M/12 biotite

52 A/5 barite, fluorite, quartz  
A/7 cobaltite, copper, silver,  
smaltite

A/10 barite, braunite, fluorite,  
galena, molybdenite,  
psilomelane, quartz

52 B/6 beryl  
B/10 chalcopryrite, gold  
E/9 copper, epidote, gold, hes-  
site, pyrolusite  
F/9 gold  
F/10 gold, talc  
F/11 almandine, gold  
F/15 almandine, tourmaline  
F/16 gold, molybdenite, pollucite,  
pyrite, scheelite, spodu-  
mene  
G/13 muscovite  
I/10 cassiterite  
L/3 hydroromarchite, romar-  
chite  
L/7 hollingsworthite, irarsite,  
merenskyite  
L/16 allargentum, breithauptite,  
cassiterite, chalcopryrite,  
cobaltite, gudmundite,  
marcasite, nisbite, para-  
costibite, pyrargyrite,  
silver, sphalerite, stannite  
N/2 gold

PRINCE EDWARD ISLAND

11 L/5 paratacamite

QUEBEC

11 N/5 pyrolusite  
12 O/2 biotite  
21 E/5 barite, brochantite, chalco-  
cite, devilline, magnesite,  
posnjakite, tennantite, tet-  
rahedrite  
E/6 biotite  
E/10 jarosite, molybdenite,  
rozenite, sphene  
E/11 anthophyllite, jarosite,  
rozenite  
E/13 berthierite, diopside, heazle-  
woodite, jarosite, magnetite,  
prehnite, stibiconite, vesu-  
vianite, wollastonite  
E/14 anthophyllite, aragonite,  
calcite, heazlewoodite,  
hydromagnesite, pyroaurite,  
quartz, siderotil, sjogrenite,  
tetrahedrite

Quebec (cont'd)

- 21 E/15 molybdenite
- L/3 aragonite, artinite, diopside, epidote, heazlewoodite, hydroxalcalite, magnetite, magnetite, rutile, talc, uvarovite
- L/6 brochantite
- L/7 magnetite, molybdenite
- L/8 chalcocite
- L/9 chalcocite, copper, cyanotrichite, gersdorffite, hisingerite, retgersite, siderite
- L/12 thorite
- M/7 calcite, fluorite
- M/10 calcite, laumontite, mesolite, rutile
- M/16 monazite, zircon
- 22 A/2 calcite
- A/3 quartz
- A/4 calcite, quartz
- A/7 calcite, chalcocite, malachite, quartz
- A/8 quartz
- A/9 calcite, quartz
- A/13 azurite, bismuth, chalcocite, chrysocolla, cubanite, malachite, molybdenite, pyrrhotite, tennantite, tenorite
- A/16 calcite, cerussite, hydrocerussite, jarosite, quartz
- B/2 calcite, mordenite, stilbite
- B/12 quartz
- B/13 quartz
- B/16 calcite, gaspeite, hemimorphite, hydrozincite, olivine, quartz, smithsonite
- C/3 calcite
- C/5 almandine, apatite, beryl, hydrocarbon, tourmaline
- C/7 barite
- C/9 quartz
- D/5 calcite
- D/6 calcite, hypersthene, labradorite, quartz
- D/11 apatite, olivine, spinel
- D/12 albite, beryl, potassium feldspar, topaz
- G/1 anglesite, beudantite, bournonite, melanterite, siderite, tetrahedrite

Quebec (cont'd)

- 22 G/2 calcite
- H/1 quartz
- H/2 quartz
- 23 I/10 phlogopite
- O/16 biotite
- 31 F/16 allanite
- G/5 actinolite, apatite, calcite, diopside, epidote, fluorite, hisingerite, hornblende, phlogopite, scapolite, sphene, tourmaline, tremolite, uraninite, vesuvianite, wilsonite
- G/8 ancylite, augite, biotite, diopside, hornblende, latrapite, magnetite, melilite, monticellite, nepheline, olivine, perovskite, phlogopite, pyrochlore, wairakite, wollastonite
- G/9 akermanite, analcime, ancylite, augite, biotite, britholite-abukumalite, calcite, diopside, hornblende, latrapite, magnetite, melilite, monticellite, nepheline, olivine, perovskite, phlogopite, pyrochlore, thomsonite, wairakite, wollastonite
- G/10 graphite, scapolite, wollastonite
- G/11 actinolite, albite, allanite, apatite, barite, chabazite, chamosite, diopside, euxenite, fluorite, graphite, hornblende, hydrocerussite, hydrozincite, monazite, pumpellyite, rozenite, rutile, scapolite, sphene, thorite, tourmaline, tremolite, uraninite, zircon
- G/12 actinolite, albite, allanite, andradite, apatite, barite, bismuth, bismuthinite, brucite, calcite, copiapite, diopside, epidote, eulytite, fluorite, hydromagnesite, hydroxalcalite, jarosite, kainosite, olivine, potassium feldspar, prehnite, pumpellyite, pyroaurite, quartz,

Quebec (cont'd)

Quebec (cont'd)

- |         |   |         |  |
|---------|---|---------|--|
| 31 G/12 | rozenite, scapolite, ser-<br>pentine, sphene, tourma-<br>line, tremolite, vesuvian-<br>ite, wakefieldite, wilsonite,<br>xenotime, zircon  | 31 H/11 | nepheline, olivine, pectolite,<br>potassium feldspar, pyro-<br>chlore, pyrophanite, ram-<br>sayite, rhodochrosite, rie-<br>beckite, rinkite, rutile,<br>serandite, siderite, soda-<br>lite, sphene, strontianite,<br>synchysite, thomsonite,<br>vesuvianite, willemite,<br>wöhlerite, wurtzite, zircon |
| G/13    | albite, apatite, bismutite,<br>diopside, euxenite, fluorite,<br>geikielite, jarosite, pum-<br>pellyite, pyroaurite, quartz,<br>rozenite, serpentine,<br>sphene, spinel, thorite,<br>tourmaline, vermiculite,<br>wilsonite, wollastonite,<br>zircon  | H/12    | barite, burbankite, calcite,<br>dawsonite, dresserite,<br>fluorite, natrolite, quartz,<br>strontianite, weloganite,<br>zircon  |
| G/14    | allanite, diopside, epidote,<br>rozenite, sphene, tourma-<br>line   | H/13    | sphene   |
| G/15    | apatite, brucite, magnesite,<br>pyroaurite, sphene, talc,<br>vesuvianite  | I/4     | sillimanite  |
| G/16    | apatite, scapolite, sphene  | I/9     | barite, calcite  |
| H/1     | magnesite, pyrrhotite, talc   | I/10    | calcite  |
| H/2     | brochantite, chalcocite,<br>malachite, posnjakite   | I/15    | calcite, scapolite, sphene,<br>tremolite   |
| H/7     | hercynite   | I/16    | anglesite, anthophyllite,<br>brochantite, hexahydrate,<br>jarosite, rozenite, tourma-<br>line, tremolite   |
| H/8     | actinolite, aragonite,<br>brochantite, langite, mala-<br>chite, posnjakite, pyro-<br>aurite, pyrrhotite, tremo-<br>lite   | J/1     | tourmaline, vesuvianite  |
| H/9     | chalcocite, copper, mala-<br>chite  | J/2     | sillimanite, tourmaline  |
| H/10    | azurite, brochantite, cal-<br>cite, chalcocite, malachite,<br>posnjakite  | J/4     | calcite, clinohumite, diop-<br>side, fluorite, graphite,<br>olivine, pyroaurite, quartz,<br>rozenite, serpentine, sphene,<br>spinel, tremolite, zircon   |
| H/11    | actinolite, aegirine, albite,<br>analcime, ancylite, apophyl-<br>lite, astrophyllite, bastnae-<br>site, birnessite, britholite-<br>abukumalite, brookite,<br>burbankite, calcite, can-<br>crinite, catapleiite, dato-<br>lite, dawsonite, elpidite,<br>epididymite, eudialyte,<br>fluorite, genthelvite, göt-<br>zenite, helvine, jarosite,<br>karpinskyite, lemoynite,<br>lepidolite, leucophane,<br>leucosphenite, mangan-<br>neptunite, molybdenite,<br>narsarsukite, natrolite, | J/5     | allanite, zircon   |
|         |   | J/7     | chondrodite, graphite, jaro-<br>site, monazite, rozenite,<br>serpentine, szomolnokite,<br>tremolite, wilsonite   |
|         |   | J/8     | quartz   |
|         |   | J/11    | apatite, clinohumite, jaro-<br>site, olivine, sillimanite,<br>sphene, tremolite  |
|         |   | J/12    | actinolite, allanite, clino-<br>humite, scapolite, wilsonite   |
|         |   | J/15    | serpentine   |
|         |   | J/16    | albite, euxenite, pyrochlore,<br>tourmaline  |
|         |   | P/3     | allanite, potassium feldspar   |
|         |   | 32 A/8  | calcite, quartz  |
|         |   | A/9     | calcite  |
|         |   | A/16    | calcite, serpentine, sphene,<br>thorite, uraninite   |

Quebec (cont'd)

- 32 D/3 gold  
 D/6 calaverite, cobalt pentlandite, frobergite, linnaeite, melonite, montbrayite, petzite  
 35 A/8 biotite  
 J/4 biotite

SASKATCHEWAN

- 63 L/15 beryl  
 74 N/9 brannerite, coffinite  
 N/10 athabascaite, copper, eskebornite, eucairite, klockmannite, silver

YUKON

- 95 D/5 galena, sphalerite  
 105 B/1 azurite, cassiterite, fluorite, galena, malachite, scheelite, wolframite  
 B/4 boulangerite, galena  
 C/13 molybdenite  
 C/14 bornite, chalcopyrite  
 D/2 acanthite, pyrargyrite, silver, tetrahedrite  
 D/10 chalcocite, chalcopyrite, copper  
 D/11 chalcocite, chalcopyrite, copper, scheelite, valleriite, wollastonite  
 F/1 molybdenite, powellite  
 F/4 molybdenite  
 F/6 galena, sphalerite  
 F/9 galena  
 F/14 barite  
 G/3 bournonite, jamesonite, owyheeite, tetrahedrite, tintinaite  
 G/5 bornite, chalcocite, covellite  
 H/6 galena, sphalerite  
 H/8 sphalerite  
 H/9 sphalerite  
 K/6 galena, sphalerite  
 K/16 boulangerite  
 M/10 cassiterite  
 M/11 gold

Yukon (cont'd)

- 105 M/14 cassiterite, dundasite, gold, jamesonite, marcasite, plumbojarosite, rozenite, siderite, smithsonite, sphalerite, tetrahedrite  
 O/8 galena, sphalerite  
 106 C/14 cobaltite, erythrite  
 D/2 galena  
 D/3 galena, scheelite  
 D/4 bindheimite, boulangerite, gold, marcasite, scheelite, tetrahedrite  
 D/6 siderite, tetrahedrite  
 115 A/3 azurite, malachite  
 F/15 chalcocite, chalcopyrite, copper, pentlandite, pyrrhotite  
 G/5 chalcopyrite, pentlandite, pyrrhotite, violarite  
 G/6 bornite, cassiterite, chalcocite, copper, gold, hesite, malachite, molybdenite  
 G/8 molybdenite  
 G/11 serpentine  
 G/15 molybdenite  
 G/16 molybdenite  
 H/3 molybdenite  
 H/9 copper  
 H/13 chalcopyrite  
 I/3 acanthite, andorite, anglesite, arsenopyrite, cerussite, freieslebenite, galena, gold, scorodite, silver, sphalerite, stibnite, tetrahedrite  
 I/4 chalcopyrite, molybdenite  
 I/6 azurite, chalcopyrite, gold, malachite, stibnite  
 I/7 bornite, chalcopyrite, malachite  
 J/10 barite, cerussite, chalcopyrite, galena, molybdenite, silver, sphalerite  
 J/14 molybdenite, scheelite  
 J/15 chalcopyrite, molybdenite  
 K/2 psilomelane  
 N/15 galena  
 O/3 gold  
 O/10 gold  
 O/14 gold  
 O/15 gold

Yukon (cont'd)

115 P/9 gold  
P/14 gold  
P/16 gold, stibnite  
116 B/2 gold  
B/3 gold

Yukon (cont'd)

116 B/5 tetrahedrite  
C/2 gold  
C/7 serpentine  
117 A/10 lazulite