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CANADA

DEPARTMENT OF MINES AND TECHNICAL SURVEYS

MINES BRANCH

NOTES ON  
**ANTIMONY DEPOSITS AND OCCURRENCES**  
IN CANADA

*Compiled by*

**W. R. McCLELLAND**

Mineral Resources Division

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*Price 25 cents*

Memorandum Series No. 108

1950

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## NOTES ON

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#### INTRODUCTION

The principal source of antimony is the mineral stibnite ( $\text{Sb}_2\text{S}_3$ ), which when pure is composed of 71.4 per cent antimony and 28.6 per cent sulphur. In some localities in Canada native antimony is found associated with stibnite, but such occurrences are comparatively rare. Tetrahedrite ( $\text{Cu}_8\text{Sb}_2\text{S}_7$ ), kermesite ( $2 \text{Sb}_2\text{S}_3, \text{Sb}_2\text{O}_3$ ), and senarmontite ( $\text{Sb}_2\text{O}_3$ ) are also minerals of antimony and are sometimes found with stibnite but in very minor amounts.

Antimony minerals are not widely distributed in Canada and the known occurrences are principally in the eastern and extreme western parts of the country. Several deposits were developed many years ago and a small production is recorded from properties in eastern Canada that have been idle for many years.

The following notes provide a condensed account of the principal antimony occurrences in Newfoundland, Nova Scotia, Quebec, British Columbia, Yukon, and the Northwest Territories. A list of references is also given.

#### NEWFOUNDLAND

Two occurrences of antimony are reported, one of which was opened prior to 1890 and is credited with a small production.

Mortons Harbour <sup>(1)</sup> is on the west side of Mortons Harbour, New World Island, Notre Dame Bay, Twillingate district. Stibnite associated with other base metal sulphides occurs in a vein along the sheared contact of a rhyolite dyke which intrudes chloritized andesitic lavas. The average width of the vein is 4 inches, but in places it attains a maximum of one foot. It extends intermittently for half a mile. The deposit was first worked about 1889, and in 1890, antimony ore worth \$1,200 was shipped. Operations were continued for several years. Mining was resumed in 1906 and 100 tons

of picked ore was shipped. The mine was again re-opened during World War I. It is developed by a 230-foot tunnel at a level 10 feet above tidewater, at the end of which a shaft extends to the surface. There is a shorter tunnel 55 feet above sea level. The workings are in a fair state of preservation according to the latest information.

Pond Island<sup>(2)</sup> is on Pond Island, four miles south of Exploits Island in the Bay of Exploits, Notre Dame Bay. Tetrahdrite occurs in three mineralized veins which are close together, the largest being six inches wide. The deposit has been opened by a few small test pits. A selected sample ran 13.92 per cent antimony, 5 ounces of silver per ton, 1.5 per cent bismuth, and 3.65 per cent copper. The deposit is of doubtful economic value.

### NOVA SCOTIA

Mining of the West Gore<sup>(3)</sup> deposit, the only antimony deposit in the province, was carried out intermittently between 1884 and 1917.

Formerly the Rawdon Mine, it is in Hants county about 25 miles by road east of Windsor and 3 miles from Clarksville, a station on the Windsor-Truro branch of the Dominion Atlantic Railway. The deposit was discovered in 1880 and the property is now held by Antimony-Gold Mining and Smelting Corporation Limited. Auriferous stibnite and some native antimony occur in fissure veins in slates and quartzites. Six veins have been located. Mining was started in 1884 and was continued until 1891. The mine was re-opened in 1903 and continued in operation for the next five years. A 100-ton capacity mill was erected in 1907. The last active period of operation was between 1915 and 1917, since when there have been intermittent operations consisting of exploratory work and some underground development. The main vein is developed by three shafts, No. 1 being over 800 feet in depth, No. 2 and 3 being about 200 feet. Trenching has been done on some of the other veins. Available records which are incomplete show that 7,761 tons of high grade ore and concentrates with a gold content of 6,861 ounces was produced. The 34,000 tons of waste and tailings on the property contain about 1.35 per cent antimony and 0.04 to 0.08 ounces per ton of gold.

### NEW BRUNSWICK

Notes on the two known deposits of antimony in New Brunswick appear below. All the production has been from the Lake George<sup>(4)</sup> property in Prince William parish, York county about 25 miles by road from Fredericton and 6 miles from Rosborough station on the Saint John Valley branch of the C.N.R. The deposit was discovered in 1863 and mining operations began in 1876. From then until 1930 the property was worked intermittently. There are at least three antimony-bearing veins, the two principal veins being roughly parallel and dipping 40 degrees. Each of the two veins extends for at least 4,400 feet along

the strike. The third vein strikes roughly at right angles to the other two, and has been traced along the surface for about 1,000 feet. In addition to stibnite which occurs in all the veins, native antimony has been found in some of the deeper workings, and occasionally coatings of kermesite, or senarmontite were encountered in the upper workings.

There are seven shafts on the Hibbard vein, the deepest of which is 375 feet, and five on the Prout vein, No. 1 having a depth of 260 feet on an incline of 25 degrees. In 1947, eleven diamond drill holes, totalling 3,017 feet were put down along the Prout-Hibbard zone. The last development was on the Lawrence vein, in which three shafts were sunk, the main shaft having an inclined depth of 166 feet. Drifting on the bottom level extends southerly 480 feet and northerly 460 feet.

Smelting plants on the property were operated during three periods, namely, 1880-84, 1907-09, and 1916-17, but no records are available of the amount of metal produced. It is known however that 5,830 tons of ore was mined between 1907 and 1931.

The Mosher Claims, on which stibnite was discovered in 1949, are near the village of Petersville, Petersville parish, Queens county, and about 8 miles north of Welsford. Insufficient work has been done to determine the extent and economic possibilities of the deposit.

#### QUEBEC

Two deposits of antimony are reported in Quebec and some ore was mined many years ago.

The South Ham<sup>(5)</sup> deposit is on lot 56, range 1, South Ham township, Wolfe county. Numerous veins and lenses of quartz are found in chloritic schist, and vary in width from a few inches to about 2 feet. The ore consists of metallic antimony and stibnite, with smaller amounts of kermesite and senarmontite. Work was begun on the property in 1863 and was continued at irregular intervals until 1886. The deposit was developed by two shafts, 60 and 100 feet deep and by 250 feet of drifting. In 1886 an adit was driven for a length of 304 feet. The ore uncovered in the shafts and drift is reported to have carried from 5 to 7 per cent antimony. About 180 tons of ore is reported to have been shipped.

The Fallow deposit is on the west quarter of the east half of lot 9, range VI, New Richmond township, Bonaventure county. Stibnite occurs in narrow lenticular veins cutting hard quartzite. A 24-foot shaft was sunk, many years ago, but there is no record of any further work.

## ONTARIO

Antimony minerals are found associated with some of the silver-cobalt ores of the Cobalt area, but not in sufficient amount to be of economic interest.

About 1942 stibnite in lenticular stringers was found on Lower Lake Manitou, Kenora District, about 45 miles from Wabigoon, a station on the C.P.R. Some surface trenching and diamond drilling was done but there is little information on the extent of the deposit.

## BRITISH COLUMBIA

The distribution of antimony minerals is more widespread in British Columbia than in any other province. Several deposits have been opened at one time or another but production has been confined almost entirely to the Sullivan mine of The Consolidated Mining and Smelting Company of Canada, Limited, where antimony occurs in very small amounts associated with the lead-zinc-silver ore. It is recovered as a by-product in the refining of lead bullion at the company's Trail plant. During 1938-1943 this company produced 5,654 tons of electrolytically refined antimony. In 1944 the refinery was dismantled and subsequent production has been in the form of an antimonial lead alloy of which the antimony content is 25 per cent and, for some purposes, 12.5 per cent.

A number of the known occurrences are as follows:

### Bridge River Area

Gray Rocks property (Bellore mine)<sup>(6)</sup> is at the headwaters of Truax Creek, 11 miles by road from Minto which is 25 miles from Shalalth on the Pacific Great Eastern Railway. The deposit was worked around 1949 by Bellore Mines Limited and about 10 tons of 50 per cent antimony ore was reported to have been produced. Elevation of the property is from 6,000 to 8,000 feet. Stibnite and in some places tetrahedrite, sphalerite, and galena, occur in quartz fissure veins cutting across all formations. The veins are from 1 to 5 feet wide and average about 2 feet. They have been traced over a length of 5,000 feet. Mineralization is confined to rather short, widely spaced shoots.

The Commerce Group is on Truax Creek about 9 miles by trail from Minto. Stibnite occurs in nodules or lenses of fairly massive size in a strong shear zone. Few of the lenses are more than two feet long and much of the shear zone is barren. Development consists of a short adit and four open-cuts.

B and M Prospect is on Truax Creek about 7 miles from Minto. Stibnite occurs in quartz veins which are narrow lenses rather than continuous veins and the ore shoots are very small and low grade. The country rock is grey argillaceous quartzite cut by andesite dykes.

Congress Mine<sup>(7)</sup> is  $\frac{3}{4}$  of a mile from Minto. It was operated by Congress Gold Mines Limited as a gold mine but was closed in February, 1947. Stibnite occurs in massive or banded form and is fine-grained to coarsely columnar in structure. It is found in certain parts of the mineralized veins. The mine is developed by an adit and three levels. Tests by the Mines Branch, Ottawa, in 1936 on a low grade sample of ore failed to give an antimony concentrate of economic grade.

The Birthday Group is above McDonald (Fish) Lake, 3 miles by trail from Gold Bridge which is 30 miles by road from Shalalth. The deposit occurs in a narrow, lency, quartz fissure vein containing two small narrow lenses of fairly massive stibnite. A carefully sorted sample of ore ran 45.88 per cent antimony and 0.20 per cent zinc. Some stripping has been done.

The Stibnite Group is on Hurley river about a mile from Gold Bridge. The deposit comprises two or more quartz veins from one to twelve inches wide and much of it is well mineralized with stibnite across an average width of from two to three inches. The grade is too low for direct shipping. The veins have been uncovered by several long trenches.

The Dauntless Group<sup>(8)</sup> is about a mile north of Minto. The principal showing is in silicious sediments which include small irregular patches of altered greenstone. It is associated with a well-defined shear zone. Stibnite, associated with pyrite and arsenopyrite, is not abundant. The deposit was opened by a drift-adit and some surface trenching by Reward Mining Company, Limited, in 1936 as a gold prospect, but is now inactive.

The Federal Group<sup>(9)</sup> (also known as the Golden or Dominion) is north of Bridge river and east of Gun Creek not far from Minto. Stibnite occurs mostly in coarsely crystalline masses in the body of greenstone out-cropping. The deposit has been opened by a cross-cut adit and has been actively explored underground and at the surface. Federal Gold Mines Limited worked on the property between 1934 and 1937. A test shipment of 13 tons of cobbed ore was made in 1941.

The Stewart Group<sup>(10)</sup> is on Ferguson Creek. Little work has been done. In 1941, seventeen tons of hand cobbed stibnite ore was mined.

The North Star and University<sup>(11)</sup> claims are just above the mouth of Gun Creek. Stibnite occurs in quartz lenses. Some open cuts across the veins disclose lenses of stibnite, 3 to 4 inches wide.

The Reliance Group<sup>(12)</sup> is on the south side of Bridge river near Minto. The property was worked by Reliance Gold Mines Limited for several years subsequent to 1930. Stibnite-bearing veins occur in zones of fractured and sheared greenstone and sediments which form alternating, northerly-striking belts of varying widths. The deposit was developed by four or five adits and several open cuts and trenches. In 1915 four tons of hand-sorted ore was mined. The largest stibnite showing is 81 feet long and varies in width from a few to 6 inches. A selected sample assayed 58.8 per cent antimony and a trace of gold and silver.

#### Watson Bar Creek Area

The Trimble Claims<sup>(13)</sup> are 10 miles west of the Big Bar ferry crossing on the Fraser river. There is considerable high-grade stibnite float in the area and some tunnelling has been done to discover its source. Tests by the Bureau of Mines (now Mines Branch), Ottawa, in 1937, indicated that the antimony and arsenic sulphides did not respond to selective flotation.

#### Ashcroft Mining Division

Watkinson's Deposit<sup>(14)</sup> is on the Fraser river, 23 miles above Lytton. A quartz-carbonate vein about 14 inches wide carries stibnite. G.M. Dawson reported the occurrence in the Annual Report of the Geological Survey of Canada, Vol. 3, 1887-1888. There is no recent information on this occurrence.

#### Fort St. James Area, Omineca Mining Division

Stuart Lake Antimony Mine (Snowbird Claim)<sup>(15)</sup> is on the south shore of Stuart Lake and 12 miles from Fort St. James. Fissure veins carrying stibnite, pyrite, and a little tetrahedrite cut dolomitized volcanic rocks and argillite. There are two types of deposit, one comprising a small vein or lense of massive, comparatively clean stibnite, and the other composed of several quartz veins carrying lower-grade stibnite with other sulphides and about 0.25 oz. per ton gold. The deposit has been opened by a 140-foot adit, 17 open cuts, and a shaft sunk 130 feet at an angle of 45 degrees. Some lateral development has been done at the foot of the shaft. In 1938, fifty tons of ore running 55 to 57.5 per cent antimony was shipped to the British Columbia Government sampling plant. The supply of high-grade shipping ore appears to be limited and the possibilities of the deposit seem to depend upon the extent of the lower-grade ore in the gold-bearing quartz veins and its amenability to concentration.

The Snowshoe Group<sup>(16)</sup> in the Fort St. James area was prospected in 1938. No recent information is available.



### Atlin Mining Division

The Banker Group<sup>(17)</sup> is on the left bank of the Tulsequah river. The mineralization is a complex mixture of stibnite, sphalerite, galena, arsenopyrite, pyrite, and pyrrotite occurring in a silicified zone. Several open cuts have been made. It is doubtful if a commercial concentrate of antimony can be obtained.

The Lake Front Claim<sup>(18)</sup> is on Taku Arm of Tagish Lake, 10 miles north of Golden Gate. A quartz vein 3 to 4 feet wide carrying stibnite and a little galena cuts black, finely textured shales. There is a short drift on the showing. No information is available on the grade of the occurrence.

The Polaris Taku Mine<sup>(19)</sup> is six miles northwest of Tulsequah. This mine produces an arsenopyrite-gold concentrate for shipment. Stibnite occurs as a minor constituent but no attempt has been made to recover the antimony nor does it appear that such an attempt would be commercially profitable.

The Surveyor Group<sup>(20)</sup> is on the west slope of Sittakanay Mountain in the Taku River district, 2 miles from Tulsequah. The occurrence consists of a well-defined shear zone about 11 feet wide. The zinc is banded and reticulated in structure and well mineralized with streaks, bunches, and veinlets of massive and disseminated stibnite. A sample assayed 37 per cent antimony. The ore is reported to be remarkably free from refractory adulterants.

### Nanaimo Mining Division

The Silver Bell Prospect<sup>(21)</sup> is on the south shore of Horne Lake about 35 miles from Nanaimo. Two quartz fissure veins 1 to 4 feet wide have been disclosed with small lenses of fairly massive stibnite. There are also one or more stockworks of quartz with some stibnite. The ore is free of undesirable impurities, but the massive ore does not run much over 25 per cent. The deposit has been opened by a 130-foot adit and five open cuts.

### Slocan Mining Division

The Caroline Group<sup>(22)</sup> is 6 miles west of Slocan City on the south side of Gwillim Creek. Small lenses of stibnite occur in a quartz vein which is exposed for a vertical height of 1,500 feet. A private company was organized in 1948 to develop the deposit and some work has been reported.

The Alps Alturas<sup>(23)</sup> property is on Carpenter Creek about 10 miles from Three Forks in the Sandon area. It has an elevation of between 7,000 and 8,000 feet. Stibnite occurs in streaks and small lenses and also as disseminations in the quartz. The deposit was first opened about 1898 and has been worked during several periods since then. There are two tunnels, one 240 feet and the other 100 feet in length. Some ore was shipped in 1919 and 105 tons was mined in 1928. A sample of the ore tested at the Mines Branch, Ottawa, ran 46.20 per cent antimony, 0.10 per cent arsenic, and 0.12 per cent lead. The prospect is considered to have possibilities, but more exploratory work is required.

#### Golden Mining Division

The Ruth Vermont Claim<sup>(24)</sup> is about 20 miles west of Spillimacheen. The antimony mineral of this deposit is jamesonite ( $Pb_4FeSb_6S_{14}$ ), a lead-antimony sulphide and occurs in veins cutting shales, slates, and limestone. The property is difficult of access with poor transportation facilities. Very limited exploration has been done.

The Sullivan mine (see first paragraph under British Columbia).

#### YUKON

No antimony has been produced in Yukon, but there are several deposits and occurrences which have been known for a number of years.

The Becker-Cochrane Group<sup>(25)</sup> is  $1\frac{1}{4}$  miles up the southwest branch of Becker Creek in the Wheaton River District. Stibnite associated with other metallic sulphides occurs in a vein in a much sheared zone which has a width of 8 or more feet. The vein has been exposed by trenches for about 250 feet. An adit has been driven into the hill for 100 feet. Across 4 feet in the face of the adit are three vertical seams of vein matter. A channel sample across this face gave 5.72 per cent of antimony. Transportation to the property is by truck from Robinson on the White Pass and Yukon Railway to Wheaton River a distance of 16 miles and a farther 12 miles of old wagon road after fording the river, which in spring and early summer is often impassable.

The Porter-Empire-Fleming Groups<sup>(26)</sup> on the west face of Carbon Hill are not far from the Becker-Cochrane group. Stibnite occurs in veins of quartz and barite along with small amounts of other sulphides. Trenches expose one 8-inch vein of fairly solid stibnite. On the Porter claim an adit has been driven an 1,100 feet of underground development has been done, but only a small amount of vein material was disclosed. Access to the property is by the same route as that followed to the Becker-Cochrane workings.

Highet Creek<sup>(27)</sup> showing is in the Harvey Gulch basin on the north side at the head of Highet Creek, Mayo district. The stibnite is in small veins and bunches impregnated through quartz mica schist. A cut 4 feet wide has been made for 12 feet into the mountain. The occurrence is reported to be favourably located for prospecting and working.

The Goddell property<sup>(28)</sup> is on the northwest side of Carbon Hill facing Wheaton River. Quartz veins occur in a shear zone, the vein material consisting of quartz gangue with abundant stibnite and other sulphides. Samples of vein matter carried from 5.49 to 7.74% antimony. Practically all the old workings are now filled in.

Six mining claims are reported on Antimony Mountain 50 miles northeast of Dawson at an elevation of 8,000 feet. The stibnite is said to occur in a 6-inch vein. There is no record of any work having been done.

#### THE NORTHWEST TERRITORIES

Very few occurrences of antimony have been reported.

On the Victoria claims on the northeast corner of Clan Lake, 30 miles north of Yellowknife, a sample carrying 48.20 per cent antimony is reported. There is no record of any recent work.

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