

CHALEUR BAY



**LEGEND**

Concentration of antimony, 9 to 4 ppm in stream sediments ..... 1  
 Concentration of antimony, 1 to 9 ppm in stream sediments ..... 2  
 Concentration of antimony, 10 ppm or greater in stream sediments ..... 3  
 Location of known mineral occurrence (Symbol indicates principal metals) ..... 20  
 Mining properties (see index below) ..... 10

**Index to Mining Properties and Prospects**

1. Anacosta Co. (Canada), Ltd.
2. Great Northern Development Corp., Ltd.
3. Tetagouche Exploration Co., Ltd. (Orvan Brook)
4. Anacosta Co. (Canada), Ltd. (Rocky Turn Creek)
5. Anacosta Co. (Canada), Ltd. (Armstrong 'A' deposit)
6. Anacosta Co. (Canada), Ltd. (Armstrong 'B' deposit)
7. Quebec Surgeon River Mines, Ltd. (Hatchey and Shaft deposits)
8. Millstream iron deposit
9. Bedford copper deposit
10. Nigado River Mines, Ltd.
11. Keppel mine
12. East Ventures, Ltd.

**Field work by:** W. M. Tupper, M. Szadlowski, G. Friedrich, M. Carter, K. Bygrave, M. Stuppiak, R. Bourassa, D. Pickett, L. W. Lacey, P. Martel, W. Warren, W. Taylor, H. Cormier, and E. T. Lever

**Analyses by:** L. Smith and D. Church

**Geological cartography by:** Geological Survey of Canada, 1965

**Geological**

South of a line following the Millstream River and westward through Tetagouche Lakes, the area is underlain mainly by the Ordovician Tetagouche Group comprising a series of complexly folded and sheared metasediments, metavolcanics, and mafic intrusives. These are intruded south of Bathurst by a granitic mass.

North of the Millstream River the rocks are mainly of Ordovician, Silurian, and Devonian age. The Elmore Group, of probable Ordovician age, is composed of folded and contorted metasediments and some metavolcanics which are intruded by a granitic stock in the vicinity of Antioch Lake. The Silurian and Devonian rocks comprise both sedimentary and volcanic rocks which are folded, quartzified, and on the whole are less metamorphosed than the older rocks in the district. In the Nicholas Range near the Silurian rocks are intruded by a granitic stock that has an associated metamorphic aureole in which the rocks are mainly hornfels and slates. Another granitic stock intrudes Silurian volcanic rocks along South Benjamin River.

East of the Millstream River the area is underlain by the Pennsylvanian Bathurst Formation. These rocks are mainly siltstones, sandstones, grites, and conglomerates that dip gently eastward.

Fluvial conglomerates and sandstones (Bouvet-Verre Formation, possibly of Triassic age, underlie Heron Island and fringe the coast in the Jacquet River area. Glacial till, sand, and gravel mantle the whole district, and Recent post-glacial sands and clays cover much of the area around Bathurst Harbour and occur in the shore section at Jacquet River.

The principal mineral deposits in the area are massive, vein, and disseminated deposits containing essentially iron, zinc, lead, and copper sulphides. Tetrahedrite, bornite, and jasperite are the principal antimony-bearing minerals in these deposits. Molybdenite occurs associated with the Bathurst, Nicholas Days, and Antioch Lake granitic bodies.

The text of the paper accompanying this map should be consulted for further details on the geology and economic geology of the district.

**Geochemical**

The analyses recorded on this map were done on samples of sediment collected from the channels of rivers and streams and from creeks and brooks. Where possible the active channels were sampled, but in a few cases the residual sediment of dried-up streams or of beaver dams and in streams where beaver workings are present the sediment contained abundant decomposed organic matter.

The sediment was dried, sieved to -60 mesh, ground to -150 mesh, and analyzed for antimony according to the procedure outlined by Stanton and McDonald (1957). The values are expressed in parts per million. The subdivisions used on the map are arbitrary and based on experience in the district. The lowest subdivision can be taken to represent the background.

All streams and rivers were traversed on foot, and the stream sediments were collected, where possible, at intervals of 1.0 km.

The antimony content of the stream and spring sediments ranges from less than 1 to 79 ppm. The background for the whole district is about 1 ppm, but in some areas the background may be less than 1 ppm. This indicates that the values obtained for each stream or group of streams should be treated individually.

Only a few of the known sulphide deposits in the district are marked by higher than normal contents of antimony in the neighboring stream sediments. Examples are Orvan Brook (Orvan Brook deposit) and Elmore River (Keppel mine).

Numerous examples of streams with sediment containing higher than average amounts of antimony occur in virgin areas and are associated to known deposits or containing agencies. Some of these may indicate the presence of sulphide deposits containing antimony minerals. A few of the more important streams that should receive further investigation are Millstream River and one of its tributaries above its junction with Rocky Brook, one of the south-draining tributaries of Middle River, one of the creeks draining north into Forry Brook, some of the tributaries of the South Tetagouche River, stretches of the South Middle River, stretches of the Bathhouse River, and Falls Gully Brook. Many of the anomalous dispersion trains of antimony are short, and a number of isolated anomalies occur throughout the district.

Some of the antimony anomalies in the stream sediments are coincident with heavy metal anomalies in the water. There is also a general correlation of the antimony contents of the sediments with those for zinc, lead, copper, arsenic, and manganese in some streams.

The presence of abundant manganese hydroxides and oxides (Mg 44-1965) may be a factor in the localization of antimony in some of the anomalous streams. Manganese hydroxides (and oxides) adsorb and/or coprecipitate antimony and may give false anomalies. This factor should be carefully considered when evaluating all anomalies on this sheet.

The antimony content of the stream and spring sediments shown on this map should be compared with the heavy metal content of stream and spring waters shown on Map 22-1965, and also with the content of individual elements in the sediments recorded on Maps 34-1965 to 44-1965 inclusive.

Stanton, R. E., and McDonald, Allan D.: Field determination of antimony in soil and sediment samples. Trans. Inst. Min. Met. London, vol. 71, No. 667, pp. 517-521 (1962).

**Other symbols:**

- Boards, all weather
- Other roads
- Cart track
- Trail or portage
- Railway
- Station and stop
- Post Office
- Lighthouse
- Horizontal control point
- Survey monument
- County or district boundary
- Township or parish boundary
- Indian Reserve boundary
- International stream
- Stream (position approximate)
- Rapids, Falls
- Foreshore, tidal flats
- Reef, rock or small island
- Marsh
- Wharf or pier
- Sand or gravel
- Height in feet above mean sea-level

**Base-map compiled and drawn by:** the Survey and Mapping Branch, 1964, 1965

**Approximate magnetic declination, 54° 03' West, decreasing 1.7' annually**



MAP 39-1965  
PAPER 65-42  
ANTIMONY CONTENT OF STREAM AND SPRING SEDIMENTS  
BATHURST-JACQUET RIVER DISTRICT  
NEW BRUNSWICK  
Scale 1:63,360  
1 inch to 1 mile  
Kilometres 1 2 3 4 5 Kilometres

ESIC CIST  
OCT 8 1996  
Earth Sciences Sector  
Secteur des sciences de la Terre

MAY 19 1967  
BRANCH  
MAP LIBRARY

21704	21703	21704
21703	21702	21703
21702	21701	21702
21701	21700	21701

38-1965