

RECONNAISSANCE GEOCHEMICAL LAKE SEDIMENT SURVEY
LONG RANGE MOUNTAINS AREA, NORTHWEST NEWFOUNDLAND

by

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INTRODUCTION

The reconnaissance geochemical lake sediment survey program for insular Newfoundland was completed during the 1981 field season. The program began in 1972 with orientation studies in the Daniel's Harbour and New Bay Pond areas. In 1973, the first of several seasons of reconnaissance lake sediment surveys commenced with a survey of areas underlain by carbonate rocks of western Newfoundland. The field work for 1981 was conducted in the White Bay - Great Northern Peninsula area (Figure 1).

The eastern and southern limits of the survey area extend from the coast near Ming's Bight south along longitude 56°W to latitude 49°N; thence west to longitude 57°W, north to latitude 49°30'N; thence west to the Gulf of St. Lawrence. The area within Gros Morne National Park was not included in the survey, neither were samples collected from the west coast areas of the Great Northern Peninsula nor an area immediately east of Flatwater Pond as these areas were completed earlier (Davenport *et al.*, 1974; Davenport and Butler, 1975).

The total area of the survey is approximately 16,760 km² and 2,372 samples were collected including 131 replicate samples. A sampling density of one sample per 7.4 km² was realized. The sampling and analytical methods have been described elsewhere (Butler, 1980).

GEOLOGY

The central core of the Great Northern Peninsula consists of a Grenvillian Inlier of quartzofeldspathic

gneiss and schist with granite and granite related rocks to the west and north (Figure 2, after Williams, 1967). A profusion of northeast-southwest trending diabase dikes cut the northeast portion of this core. The coastal area to the west consists mainly of Cambrian sandstone, quartzite and shale of the Labrador Group immediately overlain by carbonate and dolomitic rocks of Ordovician age. In the north, the Hare Bay Allochthon of mafic-ultramafic and volcanic rocks rests on Cambrian and Ordovician shale, sandstone and slate.

The White Bay - Sandy Lake section of the area consists of Ordovician carbonates (similar to those on the west side of the Great Northern Peninsula), Silurian volcanic and sedimentary rocks and Carboniferous rocks surrounding a porphyritic biotite granite.

The western part of the Burlington Peninsula is also included in the survey area. This area contains mainly rocks of the Fleur de Lys Supergroup, some Silurian volcanic rocks and several granite bodies including the northern part of the Topsails Granite.

MINERAL POTENTIAL

Several major mining areas are included within the area. Producing mines are located at Daniel's Harbour, where zinc is produced from Ordovician carbonate rocks; and in the Baie Verte area near Rambler Pond, where copper ore is produced from Ordovician volcanic rocks. There is also a producing asbestos mine immediately north of Baie Verte. Past producing copper mines are located in the southeast section of the survey area at Gullbridge and in the

Davis Pond - Whales Back Pond area north of Springdale. Numerous showings and occurrences are recorded in the Springdale - Great Gull Pond area. Other occurrences are located on the west side of White Bay and in the carbonate rocks of the Great Northern Peninsula.

With increasing interest in granitoid rocks, areas of mineral potential would include the granites associated with the core of the Great Northern Peninsula and the northern portion of the Topsails Granite.

OPEN FILE RELEASE

The data collected this year will be released on three sets of element distribution maps for each of Cu, Pb, Zn, Co, Ni, Ag, Mn, Fe, F, Mo, U and L.O.I. (loss on ignition) plus a set of sample location maps on a scale of 1:250,000 with a geological base. Samples collected in 1973 on the Great Northern Peninsula (Davenport *et al.*, 1974) and in 1974 on part of the Burlington Peninsula (Davenport and Butler, 1975) have been reanalyzed and are to be included with the open file release of this season's work.

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LEGEND

- C** **Carboniferous:** Sandstone, conglomerate, shale.
- S** **Silurian:** Sandstone, conglomerate and acidic to mafic volcanic rocks, graywacke; Springdale Group and White Bay rocks.
- O-S** **Ordovician-Silurian:** Roberts Arm Group, slate, graywacke, acidic to mafic volcanic rocks.
- O** **Ordovician:** (1) Limestone, dolomite, quartzite, sandstone, shale, western Newfoundland; (2) intermediate to mafic volcanic rocks, slate, graywacke, siltstone, chert, conglomerate with minor limestone, central Newfoundland.
- C** **Cambrian:** (1) Limestone, quartzite, shale, dolomite, slate, arkose and conglomerate, western Newfoundland; (2) psammitic to pelitic gneiss and schist, marble, quartzite, chloritic greenschist, central Newfoundland.
- CO** **Cambrian-Ordovician:** Undivided, shale, sandstone, slate, graywacke, limestone, conglomerate, mafic volcanic rocks.
- H** **Helikian or earlier:** Quartzofeldspathic gneiss and schist, psammitic to pelitic gneiss and schist, Long Range Complex.

PLUTONIC ROCKS

DEVONIAN AND EARLIER

- 4 Granite and granitoid rocks
- 3 Gabbro, diorite and related rocks
- 2 Peridotite and alterations of mafic to ultramafic rocks.

HELIKIAN

- 1 Foliated granitic rocks with metamorphic rocks

