

CROWN PROPERTIES MINERAL EVALUATION SURVEY

J.G. McArthur and A.F. Howse

INTRODUCTION

An evaluation of the Crown-controlled mineral properties was initiated during the 1976 field season. This project is to be known as the Crown Properties Mineral Evaluation Survey and its objective is to review and evaluate the mineral potential or value of approximately seventy-five mineral properties that are under the control of the Government of Newfoundland and Labrador. These properties consist of Fee Simple Mining Grants that have reverted to the Crown for various reasons including forfeited mortgages and dissolution of companies, and Crown Reservation areas that were formerly held under development licences or mining leases before they were relinquished to the Crown.

After a brief literature review of many of the properties, it was decided to re-examine a group of six Fee Simple Mining Grants and surrounding Crown Reserved areas in the Lewis Hills, western Newfoundland (Fig. 1 and 2). This area contains known deposits and numerous showings of asbestos and chromite in a flat-lying transported sequence termed the Bay of Islands Igneous Complex, which consists of serpentized dunite and peridotite overlain by gabbro (Fig. 1 and Smith, 1958; Riley, 1962; Rodgers and Neale, 1963).

Parts of the following grants were examined:

Vol. 1, Fol. 42

Vol. 1, Fol. 43

Vol. 1, Fol. 46

Vol. 1, Fol. 58

Vol. 1, Fol. 59.

A Crown Reserved area that adjoins the eastern boundaries of Fee Simple Grants Vol. 1, For. 42, 43 and 46 was also examined (Fig. 2).

PREVIOUS WORK

Chromite was discovered in the late 1800's near Bluff Head. Between 1895 and 1899 approximately 5000 tons was mined from eight or more trenches and six tunnels over an area of about 0.6 hectares (one and a half acres). This ore was exported to the United States, with shipments to Philadelphia for analysis and to Pittsburg, where it was used in the manufacture of chrome brick for basic furnaces. An analysis of a selected sample of cobbled ore was Cr_2O_3 49.2 percent, FeO 17.2 percent, Al_2O_3 7.5 percent, SiO_2 6.5 percent, and MgO 18.6 percent (Snelgrove, 1934).

In 1963 the Mineral Resources Division of the Provincial Department of Mines, Agriculture, and Resources investigated the area as part of an island-wide survey of chromite occurrences (Berger, 1962; Fogwell, 1963).

In 1946-47 the Asbestos Corporation extensively investigated a number of asbestos occurrences in the area. Work included driving two adits and diamond drilling the Lewis Brook

FIGURE 1 GEOLOGICAL SKETCH MAP SHOWING LOCATION OF CROWN PROPERTIES - MINERAL EVALUATION SURVEY

asbestos prospect. Shaft sinking and diamond drilling were done on the Mine Cove asbestos showings (Rainboth and Jenkins, 1947).

From 1952-55 Newfoundland Asbestos Ltd. attempted to mine the Lewis Brook asbestos deposit. Work ended in August 1955 (Rukeyser, 1952; Williamson, 1954; Petruk, 1957).

During the summer of 1957, Canadian Johns-Manville Co. Ltd., in a joint venture with British Newfoundland Exploration Co., Ltd. , carried out detailed mapping and prospecting of the area with the emphasis again on asbestos (Petruk, 1957).

The asbestos reserves at Lewis Brook have been estimated at 112,500 tons, including all classes of ore (Rukeyser, 1952). A review of this estimate suggests that an ore reserve of approximately one-half of this tonnage is warranted by the available information.

NEW FIELD WORK

The upland plateau area north of Mine Pond, which lies between the Lewis Brook asbestos workings and the Bluff Head chromite workings, was selected for detailed investigation in 1976. A total of 20.6 line km(12.8 mi) of grid was laid out for control purposes using the compass and chain method. This grid consists of a baseline 2.1 km (7000 ft) in length, running approximately north-south, and crosslines at intervals of 150 m (500 ft).

The grid was surveyed with a Scintrex MFD-3 Digital Fluxgate magnetometer using 60 m (200 ft) station intervals. Corrections were made for diurnal magnetic variation and the corrected data plotted graphically in the form of profiles and also as a contour map of isoanomalies.

An EM survey was also conducted using a Geonics EM-16. The in-phase and quadrature components of the vertical magnetic field were plotted directly on a survey line map.

Stream sediment samples were collected at 300 m (1000 ft) intervals from several streams which traverse the area and will be chemically analysed.

Geological data was recorded in conjunction with the above surveys and some of the known prospects were re-examined.

An open file report will be prepared including summaries of previous work, results of the new field work, and recommendations for further activity on these properties.

ACKNOWLEDGEMENTS

The writers were ably assisted in the field by Byron Sparkes and Lewis Wheaton. Special thanks are due to Denis Power, Ignatius MacIssac, and their friends who assisted us crossing the Fox Island River, and repaired many of the bridges in the area. Ignatius also generously provided us with the use of his hunting camp.

REFERENCES

Berger, A.

- 1962: Chromite exploration, 1962-Table Mountain, North Arm Mountain and Lewis Hills; Unpubl. Report, Nfld. Min. Res. Div., Dept. Mines, Agric. Res.

Fogwill, W.D.

- 1963: Chromite exploration (Blow-Me-Down, Bluff Head, and Lewis Hills); Unpubl. report, Nfld. Min. Res. Div., Dept. Mines, Agric., Res.

Petruk, W.

- 1957: Geological report on the Nfld. Asbestos Limited property, Lewis Brook; Private report, Canadian Johns-Manville Co. Ltd.

Riley, G.C.

- 1962: Stephenville map area, Nfld.; Geol. Surv. Can., Mem. 326.

Rukeyser, W.A.

- 1952: Report on Lewis Brook gulch area; Private report Nfld. Asbestos Ltd.

Rainboth, E.L., and Jenkins, G.F.

- 1947: Report on trip to Lewis Hills asbestos prospect, Newfoundland, Sept. 30-Oct. 3, 1974; Private report, Asbestos Corporation Ltd.

Rodgers, J., and Neale, E.R.W.

- 1963: Possible "taconic" klippen in western Newfoundland; Amer. J. Sci., v. 261, p. 713-730.

Smith, C.H.

- 1958: Bay of Islands Igneous Complex, western Newfoundland; Geol. Surv. Can., Mem. 290.

Snelgrove, A.K.

- 1934: Chromite deposits of Newfoundland; Dept. Nat. Res., Bull. 1.

Williamson, D.H.

- 1954: Preliminary report on the asbestos bearing rocks of Lewis Brook, Newfoundland; Nfld. Dept. Mines, Agric., Res.