SOUTHEAST BRITISH COLUMBIA

LEAD–ZINC DEPOSITS

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GEOLOGY OF THE RIONDEL AREA
(82F/15)

Reconnaissance mapping of the area between the Riondel map-area (Höy, 1974) and the Duncan Lake area (Fyles, 1964) was initiated in August 1975. This mapping indicates that:

(1) The 'Loki' and 'Powder Creek' stocks (Höy, 1974) are apophyses of the 'Fry Creek batholith.'

(2) The isoclinal 'Phase 2' folds described in the Riondel area continue northward to the southern limit of the Fry Creek batholith.

More detailed mapping, tentatively scheduled for the 1976 field season, will more closely outline structures in this area, and may allow correlation of these structures with those in the Duncan Lake area. This mapping will also outline the Badshot marble, the host rock for most of the lead-zinc mineralization in the Kootenay Arc.

REFERENCES

Fyles, James T. (1964): Geology of the Duncan Lake area, *B.C. Dept. of Mines & Pet. Res.*, Bull. 49, 87 pp.

Höy, T. (1974): Geology of the Riondel Area, *B.C. Dept. of Mines & Pet. Res.*, Preliminary Map 16.

BIG LEDGE (82L/8E)

INTRODUCTION

The Big Ledge is a stratabound zinc deposit contained in the Mantling gneisses of the Thor-Odin gneiss dome. It is located 60 kilometres south of Revelstoke and approxi-

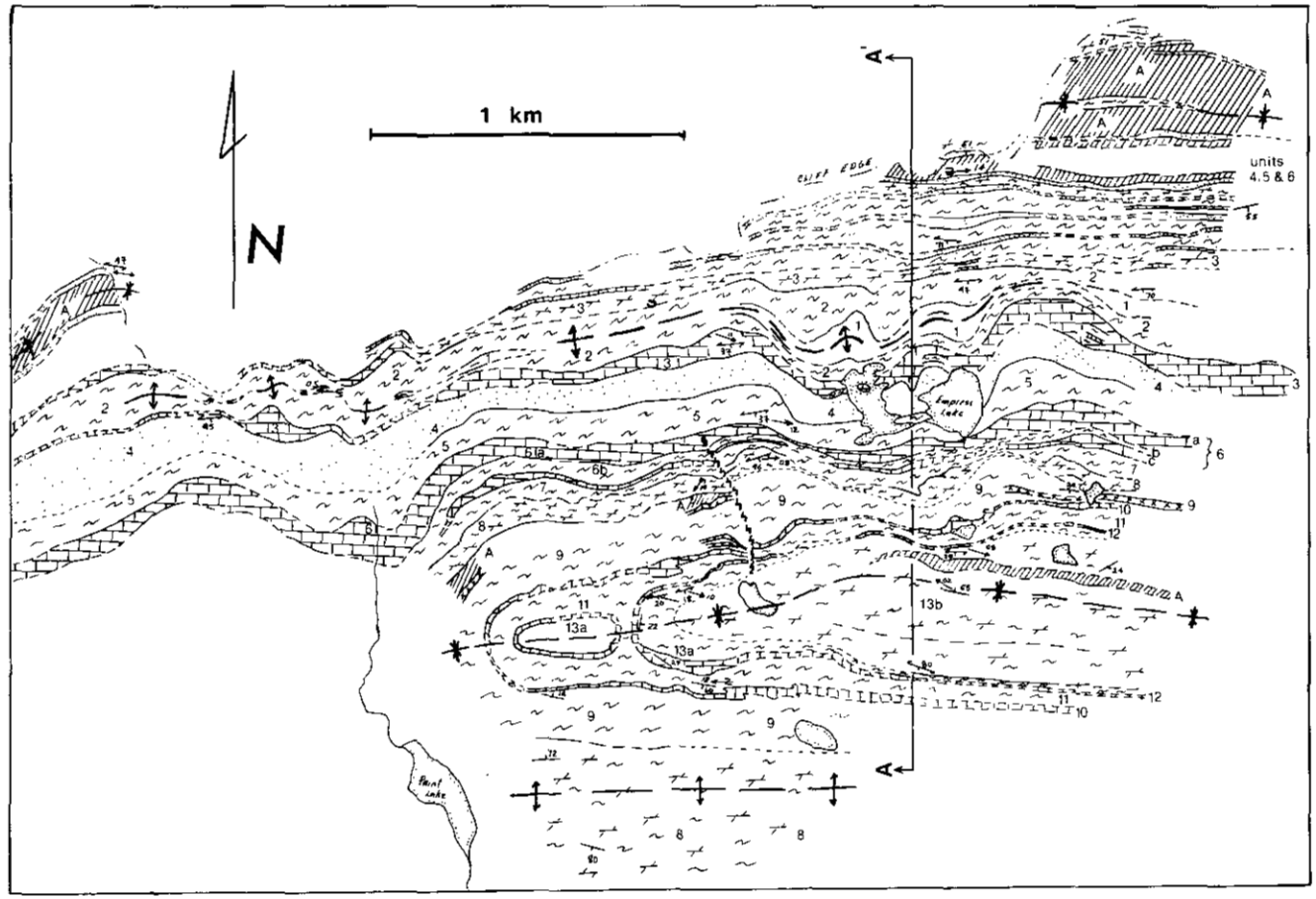
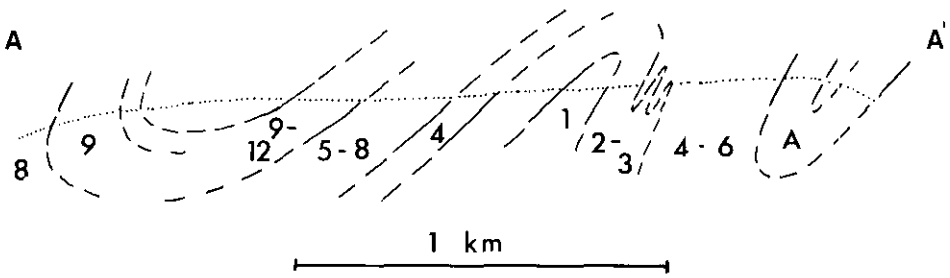


Figure 1. Geology of the Big Ledge deposit (for legend, *see* Fig. 2).



LEGEND

- XX ORTHOGNEISS, PEGMATITE
- AMPHIBOLITE, HORNBLENDE GNEISS; MINOR GARNET-BIOTITE GNEISS
- GARNET–BIOTITE±SILLIMANITE GNEISS; BIOTITE SCHIST
- QUARTZITE
- CALC–SILICATE GNEISS; SILICEOUS MARBLE
- MARBLE

SYMBOLS

- SCHISTOSITY, GNEISSOSITY ATTITUDE
- MINOR FOLD AXIS
- MINERAL LINEATION
- ANTIFORM
- LAYERING ATTITUDE
- SYNFORM

Figure 2. Vertical cross-section, Big Ledge area.

mately 8 kilometres west of Upper Arrow Lake, between North Forstall Creek and Ledge Creek.

The property has a history of exploration dating back to the late 1920's. Early work by The Consolidated Mining and Smelting Company of Canada, Limited consisted of trenching, some underground work, and about 1 035 metres of diamond drilling. Between 1947 and 1953, 6 100 metres of drilling was done on the property and from 1964 to 1966, approximately 3 960 metres of drilling as well as some geological mapping and geochemical and magnetometer surveying was carried out.

This report summarizes the results of five days on the western part of the property in July 1975. The assistance of Mr. James Milne while in the field is greatly appreciated.

REGIONAL GEOLOGY

The Thor-Odin gneiss dome is one of a series of gneiss domes spaced approximately 80 kilometres apart along the eastern edge of the Shuswap Complex. A central Core zone in the dome consists of gneissic and migmatitic rocks. This zone is surrounded by a heterogeneous assemblage of metasedimetary rocks of the Mantling zone and Fringe zone, the latter containing abundant pegmatite and lineated quartz monzonite (Reesor and Moore, 1971). The Big Ledge deposit is located south of the Core zone, in an east-west-trending succession of metasedimentary rocks.

LOCAL GEOLOGY

The detailed succession of metasedimentary rocks in the area of the Big Ledge deposit is apparent from the map (Fig. 1). In general the succession includes an extremely heterogeneous mixture of schist and gneiss, quartzite, calc-silicate gneiss, marble, and amphibolite. A rusty-weathering calcareous schist, mixed with calcareous quartzite and minor calc-silicate gneiss and marble, hosts the Big Ledge sulphide mineralization. It is overlain by medium to coarse-grained garnet schist and sillimanite gneiss (unit 2), a zone of interlayered marble and gneiss (unit 3), and a very prominent pure to feldspathic quartzite (unit 4).

Overlying the quartzite are interlayered biotite-garnet gneiss, marble, and calc-silicate gneiss (units 5 to 12), which in turn are overlain by calc-silicate gneiss of unit 13. A number of amphibolite layers occur throughout the stratigraphic succession, the most prominent being a massive to layered amphibolite in the core of a synform to the north of the Big Ledge horizon.

The structure of the map-area (Fig. 1) is dominated by a series of east-west-trending open to moderately tight folds. These are inclined to the south (Fig. 2) and plunge variably to the east and west. The Big Ledge 'horizon' is in the core of one of these folds, a moderately tight, southward inclined antiform.

Very pronounced north-northwest-trending air photo lineaments transect the map-area. There is little if any apparent offset associated with these structures, although layering attitudes are sometimes disrupted across them.

MINERALIZATION

Showings of pyrrhotite, pyrite, and sphalerite occur along a horizon (unit 1), known as the Ledge, for a distance of over 5 kilometres (Assessment Reports 12 and 66). The mapping of the most western part of the Ledge horizon (Fig. 1) indicates that it is in the core of an antiform. Here the Ledge is not a distinct layer, but rather a succession of rocks folded back on itself.

Sulphide mineralization in the Ledge horizon most commonly consists of massive coarse-grained pyrrhotite and sphalerite with minor pyrite, and less commonly, of finer grained disseminated sulphides.

SELECTED BIBLIOGRAPHY

Assessment Reports 12, 66.

Minister of Mines, B.C., Ann. Rept., 1964, p. 130; 1965, p. 196; 1966, p. 218.

Reesor, J. E. and Moore, J. M. (1971): Petrology and Structure of the Thor-Odin Gneiss Dome, Shuswap Metamorphic Complex, British Columbia, *Geol. Surv., Canada,* Bull. 195.

FX, FC, COLBY (82L/10)

INTRODUCTION

The Colby Mines Ltd.'s property is located 48 kilometres by road east of Enderby, 15 kilometres north of the Shuswap River and just east of Kingfisher Creek. The property straddles a low northeast-trending hill between Kingfisher Creek and a tributary of Kingfisher Creek to the southeast. Mineralization consists of sphalerite, pyrite, pyrrhotite, and minor galena in marble, quartzite, and calc-silicate gneiss units. These units have been traced 7 kilometres over the length of the property, with mineralization restricted to five zones: (1) the Mile 8 showing, (2) the Dakota zone, (3) the Central zone, (4) the Cominco showing, and (5) the Mile 12 showing (Fig. 3).

Since acquiring the property in 1973, Colby Mines Ltd. has carried out linecutting, trenching, and some stripping; magnetometer, electromagnetic, and geochemical surveys; geological mapping; and approximately 1 830 metres of diamond drilling.