Cassiar Resources Ltd.

For
H.C. FROMME
Yukon Revenue Mines Ltd

Geology

of the

BOULDER CREEK PROPERTY

Atlin Area, British Columbia

September, 1980

DOLMAGE CAMPBELL & ASSOCIATES (1975) LTD.
VANCOUVER, CANADA

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CONSULTING GEOLOGICAL & MINING ENGINEERS
1000-1055 WEST HASTINGS STREET
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G. Keyte

Vancouver, Canada

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DOLMAGE CAMPBELL & ASSOCIATES (1975) LTD.
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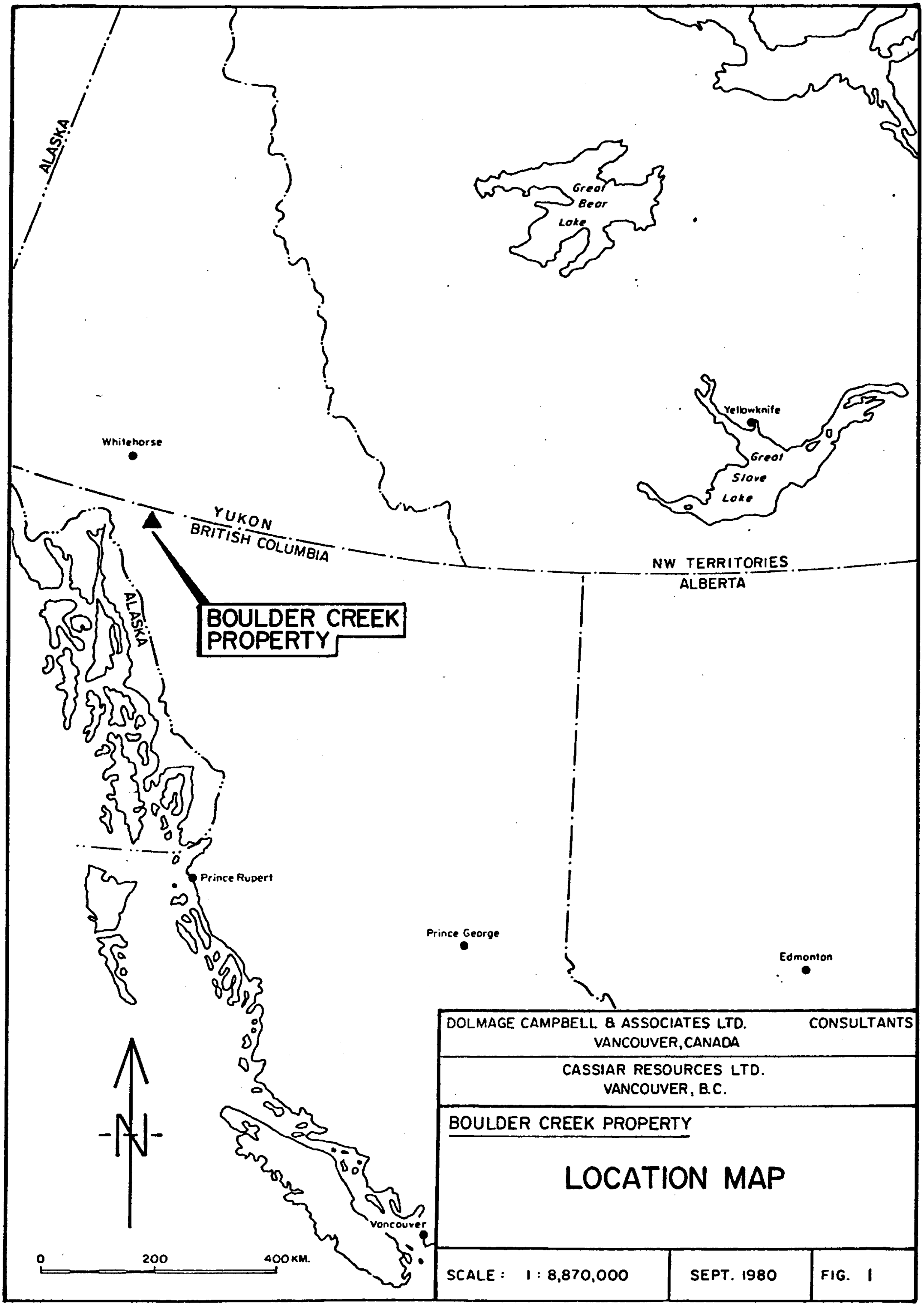
INTRODUCTION

In early August, 1980, Dolmage Campbell & Associates (1975) Ltd. were commissioned by Cassiar Resources Ltd. to geologically map the Boulder Creek property in the Atlin area of northwestern British Columbia, (Fig. 1). The property is held by Yukon Revenue Mines Ltd.; their personnel were quite cooperative and helpful in getting the fieldwork underway and in allowing their vacant camp to be used as a base of operations.

The geological fieldwork was done by G. Keyte under the direction of C.R. Saunders.

The scale of mapping, 1:5000, was not of sufficient detail to provide a clear picture or understanding of the mineralized areas on the property. Detailed grid mapping at a scale of 1:250 or 1:500 are required to resolve the nature and character of these occurrences.



DOLMAGE CAMPBELL & ASSOCIATES LTD. VANCOUVER, CANADA		CONSULTANTS
CASSIAR RESOURCES LTD. VANCOUVER, B.C.		
BOULDER CREEK PROPERTY LOCATION MAP		
SCALE : 1 : 8,870,000	SEPT. 1980	FIG. 1

Map 13

ROCK TYPES

The descriptions which follow are based on field observations only. There has been no subsequent thin-section study.

CACHE CREEK GROUP (1, 2, 3)

The sedimentary and volcanic rocks (excluding the olivine basalt) which occur on the property are part of the Pennsylvanian and Permian Cache Creek Group (Aitken, 1959). No local stratigraphy has been established due to disruption of bedding by peridotite and alaskite intrusions.

In many places where no true outcrop occurs, outcrop was inferred from abundant large blocky talus. In such areas it is not possible to separate the many detrital and siliceous sediments into separate map units.

Andesite (1)

Approximately half by volume of the mapped Cache Creek rocks are volcanic. These are medium green, heavily chloritized, fine grained andesites. Both tuffs and lavas appear to be present and in places a well layered sequence may be observed. The rocks assumed to be tuffs display a very fine (1-2 mm) fragmental texture and are softer and more heavily chloritized than the very hard, extremely fine grained, greenish grey rocks identified as lavas.

Around the contacts with peridotites, the andesites are invariably altered to medium grained amphibolite.

Chert (2)

A very few outcrops of unbedded, light coloured chert occur associated with quartzite.

Quartzite (2)

Several outcrops of quartzite are very light in colour and display a coarse texture suggestive of an origin as sandstone. However, the bulk of the quartzite is finer grained and banded grey and white, and is more likely to be altered chert.

Greywacke (2)

A very few outcrops of greywacke occur interbedded with the other detrital rocks of the Cache Creek Group.

Conglomerate (2)

A highly silicic chert pebble conglomerate also occurs interbedded with the cherts and quartzites.

Siltstone (2)

A considerable portion of the Cache Creek metasediments is considered to be siltstone. It is moderately soft, pale grey in color and contains wispy biotite. It could be a rhyolitic tuff, a distinction that could be determined with certainty only by thin-section study.

Limestone (3)

Several beds of very pale grey recrystalized limestone occur in the map area. They are very irregular, discontinuous and limited in extent. They contain dark carbonaceous layering which cannot be assumed to be relict bedding. Where the limestone is close to the alaskite contact it is altered to diopside skarn.

INTRUSIVES

Peridotite (4)

Many irregular bodies of very dark green, buff weathering peridotite intrude the rocks of the Cache Creek group and invariably form the peaks on the ridges.

The peridotite is weakly serpentinized, moderately magnetic and appears to contain a higher proportion of pyroxene and less olivine than normal. This could explain the fact that it forms peaks whereas peridotite commonly exhibits negative relief.

Several small bodies of the peridotite as well as the margins of the larger bodies exhibit extreme alteration to talc, radiating amphibole rosettes (probably actinolite), and buff carbonate rhombohedrens. A jointing system at 0°-30° strike and a very steep dip is exhibited in several outcrops.

Granodiorite (5)

Two outcrops of the large 'Fourth of July' biotite-hornblende granodiorite are present in the northwest corner of the property. This granodiorite is very fresh and uniformly medium grained.

Alaskite (6)

More than half of the property is occupied by the Cretaceous age alaskite intrusive which is host to the Adanac molybdenum deposit. The intrusion is complex, varying considerably in texture and (possibly) in degree of alteration. Perhaps a dozen different phases are present but, because very detailed mapping would be required in order to identify them, only a general description is given herein.

The alaskite presents a difficult challenge to geological mapping because good outcrop is rare. Commonly the presence of the alaskite can be inferred from the abundant large blocky talus or from broken outcrop. Except where there is solid outcrop it is difficult to obain fresh rock. Consequently, at the present mappihg scale, it is almost impossible to map alteration zones. The little alteration that was observed consists of infrequent kaolinization of feldspars and/or chlorite along joint planes.

About half of the alaskite body is coarse textured (5-10 mm grain size), often with large porphyritic quartz cystals. This 'main phase' usually contains a little hematite along joint planes. The other phases vary from a very fine grained white microalaskite to a grey, medium grained phase; there are a number of intermediate phases between these two extremes.

Quartz Porphyry Dike (7)

Only one small occurrence of this rock unit has been located on the property. It consists of a light coloured aphanitic matrix containing quartz phenocrysts about 3 mm in diameter.

OTHER UNITS

Contact Metamorphic Rocks (8)

In both the northeast corner of the property and around the Cinabar showing, limestone and andesitic rocks display alteration to a diopside skarn associated with massive sulphides. Other skarn minerals are fluorite, garnet and scheelite. The massive sulphides are pyrrhotite with minor chalcopyrite and sphalerite.

Skarn rocks occur in these areas up to 200 metres from the known alaskite outcrops. In other parts of the property Cache Creek rocks may be observed unaltered close to the alaskite.

Olivine Basalt (9)

An outcrop of Tertiary age olivine basalt occurs on Ruby mountain. This lava is scouriatious and fresh, forming a cap on top of the other formations.

Quartz Veins

Within the alaskite and close to its margins quartz veins 1-2 metres in width occur which are generally well mineralized with wolframite. At the South Zone a quartz vein contains native silver and argentite.

STRUCTURE

It is not possible to analyse folding on the property due to disruption of bedding resulting from emplacement of the intrusive units. However, several faults can be observed or assumed.

A major structure, the Adera fault, passes through the northwest corner of the property. This fault, which lies along the northwest flank of the Adanac molybdenum deposit, is defined by a fault scarp striking 57°; the dip is not apparent.

Another fault, of possible economic significance, is present in the northeast portion of the property. It is sub-parallel to the Adera fault at an inferred strike of 54°. Its dip is indicated from drill hole data to be steep to the southeast.

Evidence for this fault is as follows:

1. Mineralized showings of both the quartz - wolframite vein type and the diopside skarn - massive sulphide type occur along or close to the fault trace.

2. With one deviation, the alaskite contact is straight along this proposed fault-line.

3. The Cache Creek rocks immediately adjacent to this contact exhibit intense shearing.

4. A line of cliffs is present along the fault trace for 300 metres, (fault scarp?).

5. This proposed fault is essentially parallel in strike to the Adera fault.

Small faults can be inferred at several other locations on the property but, due to a paucity of outcrop, they cannot be readily defined as to (accurate) location, strike, dip, or relative magnitude. For example, at the 'South Zone', a fault is indicated by the intersection of fragmental alaskite in two drill holes.

MINERAL OCCURRENCES

Two basic types of mineralization occur on the property. Diopside skarn associated with massive sulphides is present in the northeast corner of the property and near the Cinbar showings. Quartz - wolframite veins and one quartz-silver vein occur at various locations either within or on the margins of the Alaskite body.

1. Diopside skarn, massive sulphides.

Skarn rocks occur up to 200 metres from the Alaskite body in the northeast corner of the property and near the Cinbar showing. Elsewhere along the Alaskite contact the Cache Creek rocks are fresh and unaltered. Both limestone and andesite show local alteration to a rock that may be 80-90% diopside, accesory minerals are garnet, scheelite fluorite, sphalerite, pyrrhotite and chalcopyrite. The last three miherals also occur as massive sulphide bodies associated with the skarn. The true distribution of the skarn rocks and massive sulphides cannot be confidently determined but it is probable that they are irregular.

2. Quartz-wolframite veins and quartz-silver vein

Several small 1-2 metre wide quartz veins occur on the property. Most are well mineralized with wolframite, but the south zone showing is a quartz - native silver - angentite vein. These veins seem to be somewhat irregularly distributed except for the north east corner of the preperty where they occur regularly along the Alaskite contact.