

BRITISH COLUMBIA DEPARTMENT OF MINES

HON. W. K. KIERNAN, *Minister*

JOHN F. WALKER, *Deputy Minister*

PRELIMINARY MAP  
GRANDUC AREA

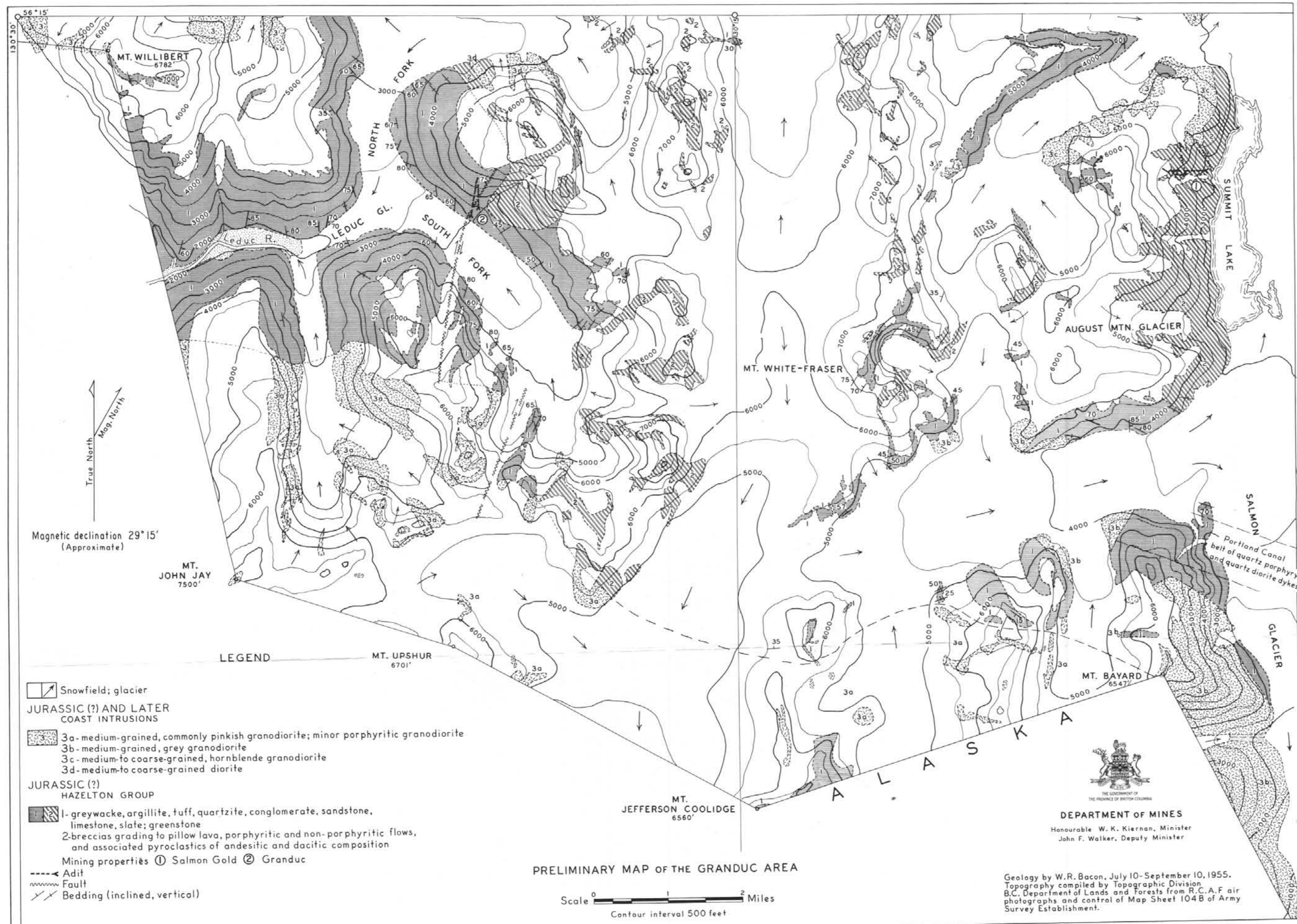
Skeena Mining Division of British Columbia

By W. R. Bacon



VICTORIA, B.C.

1956



**DESCRIPTIVE NOTES**

The 148-square mile Granduc area is more or less typical of the northern Coast Mountains. An already imposing terrain is rendered more so by the presence of numerous valley glaciers extending in all directions from a central area of ice accumulation. One hundred and fourteen square miles, or 77 per cent, of the area is covered by ice and minor snowfields. The retreating valley glaciers contribute substantially to the flow of the Nass, Salmon, Chickamin, Leduc, and Unuk Rivers. The only vegetation is in the Leduc River valley. It consists of buckbrush, tag alder, alpine fir, heather, and various other alpine plants.

The Hazelton group (1, 2) consists of a variety of sedimentary and volcanic rocks. In general the mountains composed of sedimentary rocks are more rounded than the volcanic peaks which are characteristically jagged and angular.

The sedimentary rocks are a heterogeneous assemblage of materials that have been derived, in the main, from a volcanic terrain. In places these rocks are so wholly volcanic in appearance that, were it not for the presence of bedding and the intercalation of layers of undoubted sedimentary origin, they might be considered to be volcanic. Bands of greenstone occur in the sedimentary rocks northwest and southeast of the Granduc deposit. Some are tuffs and exhibit bedding; other bands are unbedded and may represent altered flows. Greywacke, tuff, impure quartzite, and their sheared equivalents are most common in the Leduc Glacier area, whereas argillite predominates on the eastern slope of the central icefield. Limestone is not common except in the hangingwall of the Granduc ore zone, where it occurs in narrow bands separated by bands of argillaceous and quartzitic rock. Conglomeratic beds are uncommon, but one such band, estimated to be several hundred feet thick, is exposed in the headwall of the cirque of Mount White-Fraser. This conglomerate consists of rounded fragments of fragmental rock in a fine dark-grey tuffaceous matrix.

The volcanic rocks are dark green to grey or less commonly purplish, and are andesitic or dacitic in composition. They consist of breccias which grade into pillow lava, porphyritic and non-porphyritic flows, and fragmental rocks.

The layered rocks as a rule dip steeply. From east to west along the upper Salmon Glacier there is a gradual change in trend from north of west to north of east. The sedimentary rocks on Mount White-Fraser strike northeastward and dip northward. From south to north in the Leduc Glacier area there is a marked change from northeastward to northward trends.

The Coast intrusions (3) are composed largely of a variety of granodiorites. The predominant rock along the Alaska boundary is a medium-grained leucocratic granodiorite (3a), commonly of pinkish hue. Biotite is conspicuous, but hornblende is also present in varying amounts. In general much of this rock is similar to the Boundary granodiorite mapped by Buddington (U.S.G.S., Bull. 807) south of Mount Bayard. The average composition of six specimens is 45 per cent plagioclase (oligoclase-andesine), 18 per cent potassic feldspar, 26 per cent quartz, and 9 per cent biotite plus hornblende. In the Mount Bayard area this rock is flanked on the north and east by a grey medium-grained granodiorite (3b) that is noticeably altered. Two small areas of similar rock occur on the north side of the upper Salmon Glacier. Hornblende predominates over biotite in this rock type, and both ferromagnesian minerals are extensively altered, the biotite to chlorite and the hornblende to chlorite and epidote. This rock type outcrops over a large area immediately south of the boundary, where it has been called the Texas Creek granodiorite (Buddington, U.S.G.S., Bull. 807). A relatively small mass of medium- to coarse-grained hornblende granodiorite (3c) occurs west of Summit Lake. Biotite is present in very minor amounts and potassic feldspar is less abundant than in 3a or 3b, averaging 12 per cent in the few specimens examined under the microscope. Foliated medium- to coarse-grained diorite (3d) outcrops on the south side of the north fork of Leduc Glacier. A few small areas of granitic rock have not been examined sufficiently to classify the rock type, and these are simply designated as 3.

The Portland Canal belt of quartz porphyry and quartz diorite dykes (Geol. Surv., Canada, Mem. 175, p. 27) terminates in the southeastern corner of the area.

Two faults occur on the Salmon Gold property (Minister of Mines, B.C., Ann. Rept., 1946, p. 64). A right-hand bedded fault occurs in the hangingwall of the Granduc ore zone. Segments of what are almost certainly the same granitic dyke on either side of this fault indicate a horizontal separation of about 740 feet. This fault has been projected southward, and its assumed prolongation in this direction coincides with a pronounced valley occupied by a hanging glacier. South of the Granduc fault another right-hand fault is assumed to account for the sharp offset in the eastern margin of the Coast intrusions.

The Salmon Gold and Granduc deposits are of potential economic importance. The showings on the Salmon Gold property are in steeply dipping, westward-striking shear zones in volcanic rocks. The shear zones contain lenses of massive sulphides, chiefly pyrrhotite, some pyrite, and minor amounts of arsenopyrite, chalcocyanite, sphalerite, and galena. Gold, the only mineral of economic importance, occurs erratically. A considerable amount of drilling and underground work have been done. The Granduc deposits occur in siliceous sediments that strike slightly east of north and dip steeply, generally westward. The mineralized zones are essentially conformable with the sediments and consist of chalcocyanite, pyrrhotite, pyrite, some magnetite, and a minor amount of sphalerite. Galena and arsenopyrite are rare. The main zone is made up of several bands of mineralized material. It is reported that 25,600,000 tons of ore averaging 1.62 per cent copper has been indicated by surface diamond drilling and underground drilling from two adits. The ore zones have not been fully outlined, particularly in depth and to the south, beneath the south fork of Leduc Glacier. Extensive development work is proceeding.

Geology by W.R. Bacon, July 10-September 10, 1955.  
 Topography compiled by Topographic Division  
 B.C. Department of Lands and Forests from R.C.A.F. air  
 photographs and control of Map Sheet 104B of Army  
 Survey Establishment.

1956 ①