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March 1940 36
J.S.S. 924/2W
921-28

F.L. IRON
PROPERTY

This property consists of six mineral claims, the F.L. and F.L. Numbers 2 to 6, inclusive. These were staked in June, 1939 and are owned by A.W. Ford and associates of Zeballos, B.C.

The claims are on the north-west side of the Zeballos River, and extend across the headwaters of Black Sand Creek, a tributary of Granite Creek. The showings extend between elevations of 2,400 feet and 2,850 feet.

The property may be reached by following the Zeballos River road from the beach for 4 miles to a suspension foot-bridge across the Zeballos River. From here, at an elevation of approximately 175 feet, a foot-trail extends for 1 1/2 miles past the Maguinna property to the Torres Zeballos property, at an elevation of 1,300 feet. From the Torres the showings are reached by ^{an} indefinite route that leads for approximately 3/4 of a mile north-eastward up the steep mountain side to the claim-posts on the lowermost showing, at an elevation of 2,400 feet.

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The showings consist of bluffs of magnetite on the steep mountain side sloping at an average angle of 45 degrees into the bottom of Black Sand Creek. The hillside consists of heavy stands of hemlock and cedar on a 35-degree slope alternating with open areas of nearly vertical bluffs. The magnetite bluffs are cut transversely by one major canyon, that of Black Sand Creek, and by three minor ones, one north of and two south of Black Sand Creek.

The deposit consists of a lenticular body of relatively pure and continuous magnetite that has replaced part of limestone kidney enclosed in greenstone.

The rocks consist of crystalline limestone, andesitic greenstone, and feldspar porphyry dykes.

The limestone is definitely crystalline and free from observable impurities such as lime-silicates. It occurs as a kidney-shaped mass in greenstone and extends for approximately 1,000 feet northward along the lower or easterly side of the magnetite body, appears to die out on either end and to become surrounded by greenstone. In its thickest part this kidney of limestone is approximately 200 feet thick.

The andesitic greenstone occurs as both intrusive and extrusive phases. The intrusive phases are in part recognisable as dykes that cut the existing limestone and also that part of the limestone kidney now represented by magnetite; however, these dykes have been largely replaced by magnetite. The extrusive phase is sparingly amygdaloidal and consists of 1/4 of an inch elliptically-shaped amygdules of calcite widely scattered in the greenstone. Much of the greenstone in the vicinity of both ends of the magnetite lens has been largely replaced by the calcium silicates, epidote, cinnamon-coloured andradite, garnet and actinolite; in some places the replacement has been so intense that the rock consists completely of granular epidote and could more correctly be called epidosite.

The feldspar porphyry occurs as dykes that range from 6 feet to 25 feet wide. These dykes definitely cut the limestone, greenstone and magnetite. There has been no displacement of the rocks on either side of any of the porphyry dykes.

The mineralized body consists of a large lens of relatively pure magnetite; lime-silicates, either as disseminated grains or as large masses, are practically non-existent within the magnetite lens. In general, the magnetite is massive and very fine-grained, almost dense in places; however, some more crystalline phases do occur, in these the grain size ranges from

Tonnage Estimates

Relatively Well Assured Tonnage

For the tonnage estimate belonging to this category the writer basis his calculations on paced measurements made along the foot of the magnetite bluffs; taped measurements made across the magnetite body in the beds of No. 1 and No. 2 creeks, and aneroid readings on the three most southerly bluffs and on visual estimation of the width up unscalable bluffs.

(1) Portion south of Black Sand Creek:

Aggregate length of exposed magnetite - 1040 feet.

Thickness of lens (average of measurements in No. 1 and No. 2 creeks) 101 feet.

Depth as calculated from slope measurements in No. 1 and No. 2 creeks 55 feet.

Volume equals 1040 by 101 by 55 5,777,200 feet.

Assuming a specific volume factor of 7 cubic feet per ton (pure magnetite is 6.4 cubic feet per ton), the tonnage is 825,314

(2) Portion north of Black Sand Creek:

Beyond about 200 feet north of the creek, greenstone inclusions and calcium silicates become abundant in the magnetite, so that for purposes of estimating the amount of high-grade magnetite, a length of 200 feet will be assumed.

Using the same figures for thickness and depth, as for that portion south of Sand Creek,

the volume is 200 by 101 by 55, or 1,111,000 cubic feet, and the tonnage, 158,714.

Aggregate Tonnage North and South of Sand Creek:

North portion	825,314	
South portion	158,714	
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	984,028	tons
Tons per foot of depth -	17,891	

Possible Tonnage

For purposes of these calculations, the writer uses the same lengths and thickness, but uses a depth inferred from measurements at the south end of the magnetite lens. At this place a bluff of magnetite extends downward for 80 feet to greenstone that appears to floor this end of the magnetite lens. Therefore, assuming that the lens will be continuous for this depth, the total tonnage of possible ore (including well-indicated ore), becomes 1,425,840 tons.

Geological Ore

As inferred from the position and attitude of the postulated anticline, the following calculations concerning ore that may exist may be made:

Extent northward along strike of axial plane	1,000 feet.
Extent south-westward down the dip of westerly limb	200 feet.
Thickness of lens	100 feet.
Volume equals 1,000 by 200 by 100 - 20,000,000, or 2,857,142 tons.	

Grade of Ore

The grade of magnetite is indicated by the following analyses made by the Mines Branch, Ottawa, on a 200-pound sample taken at random along the magnetite bluffs by associates of Mr. Ford:

Fe	-	67.76
TiO ₂		0.09
S		0.10
P		0.001
SiO ₂		1.05

Four small samples taken by the writer assayed: Iron (Fe), 67.5 per cent.; 67.9; 67.7 and 68.7, respectively.

Property Examined March, 1940.

John S. Stevenson,
B.C. Dept. of Mines.

924/20
924-28

BRITISH COLUMBIA DEPARTMENT OF MINES

Hon. W.J. Asselstine
Minister

John F. Walker
Deputy

Preliminary Report
on the
F.L. IRON PROPERTY
ZEBALLOS
by

John S. Stevenson

April 1940.

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Zeballos

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The andesitic greenstone occurs as both intrusive and extrusive phases. The intrusive phases are in part recognizable as dykes that cut the existing limestone and also that part of the limestone kidney now represented by magnetite; however, these dykes have been largely replaced by magnetite. The extrusive phase is sparingly amygdaloidal and consists of 1/4 of an inch elliptically-shaped amygdules of calcite widely scattered in the greenstone. Much of the greenstone in the vicinity of both ends of the magnetite lens has been largely replaced by the calcium silicates, epidote, cinnamon-coloured andradite garnet, and actinolite; in some places the replacement has been so intense that the rock consists completely of granular epidote and could more correctly be called epidosite.

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The mineralized body consists of a large lens of relatively pure magnetite; lime-silicates, either as disseminated grains or as large masses, are practically nonexistent within the magnetite lens. In general, the magnetite is massive and very fine-grained, almost dense in places; however, some more crystalline phases do occur, in these the grain size ranges from 1/8 of an inch to 1/2 of an inch. No difference in tenor of iron, as between the fine or dense and the more coarsely crystalline phases, was noted.

The writer has interpreted the structure as a north-westerly striking anticline, overturned to the south-west and with no appreciable plunge. A small part of the core of the anticline is exposed on the easterly wall of the canyon of Black Sand Creek, and the trace of the easterly limb as marked by the contact between the magnetite and limestone extends northward up the hillside. The dip of this easterly overturned limb is approximately 30 degrees south-westward. The trace of the westerly limb similarly marked, extends southward along the hillside from Black Sand Creek; the dip of this limb ranges from vertical to steeply south-westward.

The magnetite body occurs along the crest of the anticline, with greenstone above and limestone below. It extends down the limbs on either side of the crest, but appears to die out away from the crest as shown by terminations of the exposed lens towards the north-east and south-west.

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TiO ₂		0.09
S		0.10
P		0.001
SiO ₂		1.05

The analyses of four small samples ^{typical magnetite ore} taken by the writer at four widely-spaced intervals along the length of the magnetite lens are given in the following table:

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Fe	67.5	67.9	67.7	68.7
TiO ₂	trace	trace	trace	trace
S	0.06	0.3	0.2	0.06
P	0.01	0.01	trace	trace
SiO ₂	3.0	2.1	2.3	1.85
Mn	0.2	0.15	0.2	0.3

Property Examined March, 1940.