

W.A. No.

NAME SAPHO, CABIN

SUBJECT MINISTRY REFERENCE

001312
REFS 147-02
PROPERTY FILE

GEOLOGY AND MAGNETOMETER SURVEY OF THE SAPHHO
GOLD-SILVER-PLATINUM-COPPER PROSPECT
(82E/2)

1983-1

By B. N. Church and S. Robertson

INTRODUCTION

This report describes results of a geological and magnetometer survey of the Sappho Crown-granted claim located near the International Boundary, approximately 4 kilometres south of Boundary Falls and 5 kilometres east of the town of Midway. The claim is currently undergoing re-examination for copper and precious metal potential by Kettle River Resources Ltd.

HISTORY

According to Minister of Mines reports, 100 tonnes of ore grading approximately 53 ppm silver and 6 per cent copper were shipped to the smelter from the Sappho claim (MI 82E/SE-147) during the period 1916 to 1918. Workings on the property consist of several pits, a shaft, and an adit dating from 1927 and earlier. A grab sample of ore taken from one of the pits assayed 3.2 per cent copper and 0.9 ppm platinum.

Recent work includes trenching, drilling, rock sampling, and geological and geophysical surveys. In the period 1963 to 1964, Triform Mining Ltd. and Coast Exploration Ltd. reported results on their trenching and rock sampling program. Apparently one 15-metre section assayed 0.2 per cent copper, a second section of 6 metres averaged 0.44 per cent copper, and a third section of 6 metres averaged 0.8 per cent copper. The operators also reported a short high-grade sulphide drill hole intersection assaying 28 ppm gold.

Rock sampling performed by Silver Standard Mines, Limited in 1967 apparently yielded 0.7 per cent copper across 9.5 metres in a trench near a north showing and 0.15 per cent copper across 17 metres in a trench on the south part of the claim (see Fig. 10).

Additional work was performed in the period 1975 and 1978 by G.O.M. Stewart and McIntyre Mines Limited. They confirmed the presence of platinum, quoting values for this element in the range 0.6 to 1.8 ppm from spot sampling.

Kettle River Resources Ltd. acquired the Sappho claim and the surrounding area in 1981 and renewed exploration activities.

GEOLOGICAL SETTING

Bedrock exposure in the Sappho area is minimal, revealing only fragments of the geological picture from scattered outcrops in trenches, in pits, and on a few hilltops (Fig. 10).

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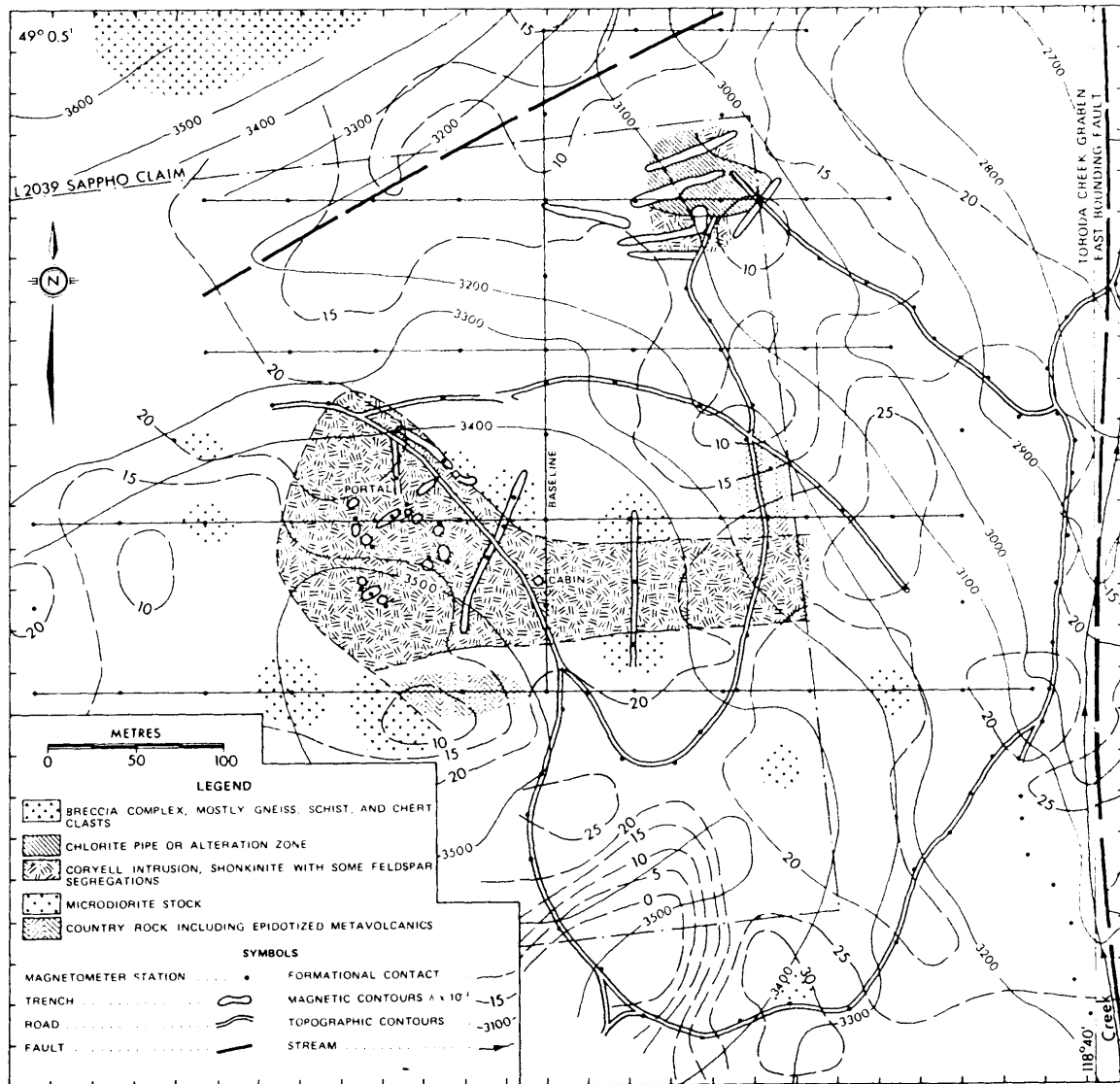


Figure 10. Geology and magnetometer survey of the Sappho prospect.

The principal rock types are a microdiorite, which forms a stock that is exposed in the central area and near the southeast corner of the claim, and younger (Eocene) Coryell-type bodies. Greenstones hosting both intrusions are exposed near the east boundary of the claim and in the south-central area. Scattered occurrences of serpentinite have been reported in the northern area where chloritized rocks with mineralization are also found.

The mineralized area is delineated on the east by the east-bounding fault of the Toroda Creek graben and on the north by a major northeast-trending fracture. Tertiary rocks are found to the north and include a hill of brecciated basement rocks of apparent landslide origin caused by major faulting (Monger, 1968, p. 27).

MINERALIZATION

The Sappho prospect is one of the few known occurrences in the province of lode-type copper-platinum mineralization associated with alkaline intrusions. Other examples are the Maple Leaf showing in the Franklin camp north of Grand Forks and the Copper Mountain deposit near Princeton.

Coryell alkaline intrusions at Sappho host the mineralization both at the central showings and near the northeast corner of the claim. The principal phases of the Coryell rock are pyroxenite (shonkinite) and pyroxene monzonite. Subsidiary phases include small pegmatoid amphibole-rich segregations and alkali feldspar-rich differentiates that commonly occur as dykes or apophyses.

Mineralization consists of pyrite-chalcopyrite disseminated in shear zones and forming irregularly shaped blebs and pods of sulphide in biotite shonkinite and sericitized feldspathic phases. Sulphides are also found locally in skarn-like assemblages of chlorite, epidote, garnet, and magnetite near what appear to be intrusive margins. Veinlets of calcite are common in the mineralized areas, however, quartz veins are few.

Relations between serpentinite and mineralization are uncertain. Serpentinite fragments, which are common in the dumps of some old collapsed excavations in the northeast area, are evidence of shearing and probably a major fault zone.

MAGNETOMETER SURVEY

A magnetometer survey was conducted on the Sappho property to complement the geology, which is poorly understood because of extensive glacial cover. Existing roads and the surveyed line system were utilized for access and geographical control. Standard field methods were employed using a McPhar 700 fluxgate magnetometer with vertical sensor configuration.

The results of a scattering of 146 stations across the area show a range of approximately 4 000 gammas (that is, 36 to -4 scale divisions). The magnetic contours shown on Figure 1 were generated according to the moving average procedure using a computer program described in Geological Fieldwork, 1980 (B.C. Ministry of Energy, Mines and Petroleum Resources, Paper 1981-1, pp. 25-32) using a 50-metre radial integration distance and a radial weighting factor calculated as follows:

the moving average = T/S
 $S = S + (1/R)$ the sum of weighted factors and
 $T = T + [A*(1/R)]$ the sum of weighted distances,
 R being the radius of integration and
 A the field readings within the area of integration

Two typographical errors in the original printing of the computer program (Table 1, p. 27) are as follows:

Line 160 statement IF SQR (A(1) - Ø)² + (2(2) - Q*1)² should read
 IF SQR (A(1) - Ø)² + (A(2) - Q)²
 Line 220 statement P = P + 0 should read P = P + 1.

The survey shows a magnetic low immediately east and south of the northern mineral showings and trenched area, a magnetic trough to the northwest coincident with a topographic lineament, and what appears to be a magnetic dipole in the area of microdiorite exposures near the south boundary of the map-area. The results appear to confirm the previously inferred position of a major fault on the north. They also suggest that the chloritized contact zone extends to the east and south of the northern trenches and may extend to zones of faulting or alteration related to the contacts of the microdiorite. The features offer some new interpretations of the geology and re-evaluation of exploration targets.

REFERENCES

- Minister of Mines, B.C., Ann. Repts.,* 1916, p. 518; 1917, p. 449; 1918, p. 211; 1927, pp. 234, 235; 1928, p. 250; 1964, p. 110; 1967, p. 226.
- B.C. Ministry of Energy, Mines & Pet. Res., Exploration in B.C.,* 1975, pp. E12, E13; *Geological Fieldwork, 1980, Paper 1981-1,* pp. 25-32.
- Church, B. N., Fahrni, K. C., and Preto, V. A. (1982): *Guidebook of Copper Mountain and Phoenix, Geol. Assoc. Can., Mineral Deposits Section,* 72 pp.
- Dobrin, M. B. (1960): *Introduction to Geophysical Prospecting, McGraw-Hill,* 446 pp.
- Gilmour, W. R. (1981): *The Sappho Property, Norwegian Creek, Greenwood Mining Division, B.C. Ministry of Energy, Mines & Pet. Res., Assessment Rept. 9364,* 18 pp.
- Jakosky, J. J. (1980): *Exploration Geophysics, Trija Pub. Co., California* 1195 pp.

- Lahee, F. H. (1941): *Field Geology, McGraw-Hill*, 853 pp.
- McPhar Geophysics Co. Ltd., *Manual to the M700 Magnetometer*, 12 pp.
- Monger, J.W.H. (1968): *Early Tertiary Stratified Rocks, Greenwood Map-Area, (82E/2), British Columbia, Geol. Surv., Canada, Paper 67-42*, 39 pp.
- O'Neill, J. J. (1918): *The Platinum Situation in Canada, Geol. Surv., Canada, Summ. Rept., 1918, Pt. G*, 19 pp.
- Paxton, J. (1971): *A Geochemical Report on a Geochemical Soil Survey on the KIS Claim Group for the Granby Mining Co. Ltd., B.C. Ministry of Energy, Mines & Pet. Res., Assessment Rept. 3335*, 6 pp.
- Seraphim, R. H. (1967): *Map of the Cabin Claims, Silver Standard Mines, Limited, private company rept. (unpublished map)*.

(82E/1W)

WORK DONE: 1974 — surface geological mapping, 1:4800; ground magnetometer survey, 1.6 line-kilometres; VLF EM survey, 6.4 line-kilometres; and geochemical survey, 109 samples covering all claims.

REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1925, p. 193; 1929, p. 255; 1942, p. 59; 1943, p. 63; Assessment Report 5396; MI 82E/SE-57.

GRAND (Fig. E-1, NTS 82, No. 1)

LOCATION: Lat. 49° 11' Long. 118° 26.5' (82E/1W)
GREENWOOD M.D. Sixteen and one-half kilometres north of Grand Forks, along the east bank of the Granby River, between 540 and 800 metres elevation.

CLAIM: GRAND 1.

OWNER: W. B. CHANG, 1063 Balfour Avenue, Vancouver.

DESCRIPTION: The claim area is predominantly underlain by andesitic greenstones of the Anarchist Group and granodiorite of the Nelson intrusive rocks. Mineralization (?) is found in shear zones or contacts between volcanic and intrusive rocks. Sulphides, mainly pyrite, carry low values in gold, cobalt, and copper.

WORK DONE: Surface geological mapping, 1:2400 and geochemical soil survey, 1.6 line-kilometres, 60-metre grid spacing covering Grand 1.

REFERENCE: Assessment Report 5701.

SAPPHO (CABIN) (Fig. E-1, NTS 82, No. 5)

LOCATION: Lat. 49° 00.5' Long. 118° 42' (82E/2E)
GREENWOOD M.D. Approximately 9 kilometres south of Greenwood, west of the headwaters of Norwegian Creek, 500 metres north of the International Boundary, at approximately 1 200 metres elevation.

CLAIM: PT 1 (units 1 and 2).

OWNERS: GEORGE O. M. STEWART, J. M. MacLEAN, and I. McCALLUM, 711, 475 Howe Street, Vancouver.

METALS: Copper, platinum, silver.

DESCRIPTION:

Proceeding west from the claim area, a Tertiary epiclastic breccia deposit lies in contact with Eocene Marron lavas. Underlying and to the east of the claims are black phyllites of possible Permian age containing some amphibolite phases.

Original interest centred on the southern part of the old Sappho claim (Lot 2039) where chalcopyrite disseminations and fracture fillings occur in amphibolites and in a Coryell (?) dyke containing large feldspar phenocrysts. Old assay returns of 0.02 to 0.06 ounce per ton platinum have been confirmed recently and interest has now extended to a serpentine outcrop on the northerly side of the claim.

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(82E/2E)

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WORK DONE: Trenching, 6 by 6 by 4 metres on PT 1.
REFERENCES: *Minister of Mines, B.C.*, Ann. Rept., 1927, p. 234; 1967, p. 226; MI 82E/SE-147.

LEXINGTON, CITY OF PARIS (Fig. E-1, NTS 82, No. 7)

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LOCATION: Lat. 49° 01' Long. 118° 37' (82E/2E)
GREENWOOD M.D. Nine kilometres south-southwest of Greenwood, extending from Rusty Mountain east to Goosmus Creek and north to McCarren Creek.

CLAIMS: CITY OF PARIS (Lot 622), LEXINGTON (Lot 645), CITY OF DENVER (Lot 1161) Crown-granted claims and approximately 26 other surveyed mineral claims, plus approximately 49 located claims including LEX, JIM, FIR, etc.

OWNERS: Lexington Mines Ltd. and Estey Agencies Ltd.

OPERATOR: AALENIAN RESOURCES LTD., 1620 Westover Road, North Vancouver.

METALS: Copper, gold, silver.

DESCRIPTION: The recent diamond drilling intersected both limonite-stained dacite porphyry carrying disseminated pyrite and some chalcopyrite as well as skarn zones with massive lenses of pyrite and chalcopyrite and serpentine.

WORK DONE: 1974 - four NQ diamond-drill holes totalling 328 metres and 12 percussion-drill holes totalling 905 metres on Lots 622, 645, and 1161 plus geochemical and geophysical surveys, a stadia survey, and road preparation (claims worked on not known).

REFERENCES: *B.C. Dept. of Mines & Pet. Res.*, GEM, 1970, pp. 413-425; 1971, pp. 376-379; 1972, p. 35; Assessment Report 5378; MI 82E/SE-41, 42, 149.

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BOUNDARY FALLS, TUNNEL (Fig. E-1, NTS 82, No. 8)

LOCATION: Lat. 49° 03' Long. 118° 42' (82E/2E)
GREENWOOD M.D. Four and one-half kilometres south-southwest of Greenwood, extending west from Boundary Creek at the Boundary Falls station, between 750 and 900 metres elevation.

CLAIMS: A 1 to 6 and the reverted Crown-granted claims TUNNEL (Lot 888), BOUNDARY FALLS (Lot 889), and Mineral Lease M-431 comprising DON'T KNOW (Lot 2374).

OWNERS: Estey Agencies Ltd. and W. M. Wheeler.

OPERATOR: AMIGO SILVER MINES LTD., 30, 448 Seymour Street, Vancouver.

METALS: Gold, silver, lead, (copper).

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GREENWOOD

Copper

(49° 118° S.W.) Company office, 3837 Angus Drive, Vancouver 9. J. V. San Severino, president; Gordon Hilchey, project manager. The property consists of 71 claims held by record, 3 mineral leases comprising 4 former Crown-granted mineral claims, and 4 Crown-granted claims. The ground lies south and west of Boundary Falls, on the Osoyoos-Greenwood highway, and extends southward to the international boundary. The working area, about 3 miles south of Boundary Falls, is reached by a passable dirt road.

The property includes the old Sappho workings, which are now full of water. In the period 1916-18, 112 tons of ore shipped contained 197 ounces of silver and 13,580 pounds of copper.

Present work consists of diamond drilling at the Sappho workings to test a geomagnetic anomaly thought to lie at a depth of about 200 feet, beneath that of the early work. At the time of the writer's visit the required depth had not been reached by the drill.

The rocks exposed in the open cuts are altered andesite porphyry, gabbro, and amphibolite, which form part of a body of such rock some 600 feet wide and 1,200 feet long trending northeastward. The relationships of the three rock types are not clear, though the andesite porphyry appears to be the oldest.

Mineralization consists of pyrite and chalcopyrite and appears to be confined almost entirely to the amphibolite.

Work done in 1964 was 2,300 feet of trenching and 1,580 feet of diamond drilling.

Silver-Lead-Zinc

(49° 118° S.W.) Company office, 405, 25 Adelaide Street West, Toronto, Ont.; mine office, Greenwood. T. J. Wilkinson, president; R. D. Bell, secretary; A. E. Edwards, mine manager; A. C. Howe, consultant. Early in 1964 this company acquired control of Skomac Mines Limited. The property is reached by 2½ miles of dirt road north from the Grand Forks-Osoyoos Highway on the west side of the bridge across Boundary Creek.

The mine area is underlain by black schistose Palaeozoic argillites (*Geol. Surv., Canada, Paper 65-1, p. 58*). In the workings a mylonitic rock composed of quartz grains and scapolite in a talc matrix forms the hangingwall of the vein in the face of No. 4 adit, and a rock composed of anhedral scapolite in a talc matrix is exposed in No. 5 adit. A post-mineral porphyritic diorite dyke is exposed in No. 5 adit.

The deposit is a pinching and swelling quartz vein occupying a shear striking about north 35 degrees west and dipping about 60 degrees northeast. Locally the strike may vary as much as 10 degrees, and dips as low as 35 degrees occur in the workings. The shear is about 10 feet wide and the quartz has a maximum width of about 6 feet. The quartz is mineralized with pyrite, galena, sphalerite, and argentite. A polished section showed some very small spots of polybasite in the galena. Scarce chalcopyrite is found both as separate grains and as blebs in coarse pyrite. The writer was told that native silver has been seen in the vein.

The mine is developed mainly by No. 4 and No. 5 levels, which are 45 feet apart. No. 4 level is a drift some 400 feet long and No. 5 level is a drift about 115 feet long; the three higher adits are very short. In 1964 most work was done on No. 5 level. Ore shipments to the Trail smelter amounted to 530 tons.

*By N. D. McKechnie and P. E. Olson.

Underground work was stopped early in the fall, and later efforts were limited to diamond drilling from surface.

Copper

**Iva Lenore
(Silver Dome Mines
Limited)*** (49° 118° S.W.) Company office, 821, 789 West Pender Street, Vancouver 1. Dennis Johnston, president; F. D. Stanley, secretary; R. E. Renshaw, engineer in charge of operations at Greenwood. The property consists of 41 recorded mineral claims and 3 mineral leases located south and west of Buckhorn Creek and about 1½ miles west of Greenwood. The mineral leases include the Iva Lenore and Tam O'Shanter (*see* Ann. Repts., 1921-22) former Crown-granted claims. The property is reached by the Haas Creek road, which leads southwestward from the Greenwood-Deadwood road at about 1 mile northwest of Greenwood.

In 1964 approximately 10 miles of road and 13,000 lineal feet of stripping were made by bulldozer and 6,118 feet of diamond-drill holes was drilled. Grid lines were cut and magnetometer and geological surveys were carried out. Stripping and drilling were chiefly at the Iva Lenore showings and northwestward toward the Tam O'Shanter.

The principal rock types are Knob Hill quartzose rocks, which are composed almost wholly of silica but which megascopically have the texture and appearance of recrystallized limestone; Knob Hill greenstones, which are epidotized and serpentinized basalts and andesites in which few of the original minerals are recognizable; and Nelson intrusives, which are grey medium-grained crystalline rocks that in thin-section are seen to be composed chiefly of secondary minerals, including talc, sericite, cordierite, calcite, chlorite, zoisite, and quartz.

The principal mineralization is in the Knob Hill greenstones. No sulphides were seen in the quartzose rocks. In the Nelson intrusive rocks, pyrite is occasionally prominent with or without quartz; chalcopyrite is very sparse; molybdenite, in quartz, is rare.

In the greenstones the mineralization is of two kinds—disseminated sulphides and quartz stringers containing sulphides. The disseminated sulphides are chalcopyrite, pyrrhotite, and pyrite. The quartz stringers contain molybdenite and sometimes also chalcopyrite. Occasional grains of molybdenite look like disseminations, but close examination shows them to be associated with threads of quartz. Native copper occurs in the greenstones. Hematite stringers are found in all of the rock types.

Where seen by the writer, on surface and in the cores from two drill-holes, mineralization is sparse, although the extensive rock alteration suggests that a more concentrated mineralization may be found.

PHOENIX

Copper-Gold-Silver

**Phoenix Copper
Company Limited†** (49° 118° S.W.) Company office, 1111 West Georgia Street, Vancouver 5; mine office, P.O. Box 490, Grand Forks. L. T. Postle, president; P. R. Matthew, manager; J. S. Kermeen, mine superintendent; G. Hingley, mill super-

* By N. D. McKechnie and P. E. Olson.

† By P. E. Olson.

CRANBERRY RIDGE SECTION.

This ridge and some of the ore-deposits found upon it were described in the Annual Report for 1926. To the outsider, Beaverdell embraces the whole of the mining country adjacent to the town and the name denotes high-grade silver ore. Although the formations are the same—i.e., quartz diorite on both sides of the Westkettle river—and some of the ore-minerals are similar, it has been found that the Cranberry Ridge shear-zones have not, up to the present, carried the high silver values obtainable on Wallace mountain. Very little work has been done at depth to prove the quality of the Cranberry Ridge deposits, and until this is accomplished nothing definite can be said, except a warning to those about to become interested not to confuse the Wallace Mountain area with the other. Railway transportation follows the east side of Cranberry ridge and offers favourable facilities to any operations adjacent to it. The persistency and size of some of the mineral-outcrops warrant development, with the idea in mind of finding a large enough medium-grade deposit that will pay to concentrate.

Laurion. This claim, owned by G. Bongalis, Beaverdell, and situated on Cranberry ridge about 3 miles south of Beaverdell, has been leased and bonded by Spokane interests and a company called the West Kettle River Mining Company, Limited, formed. The officers of the company are W. E. Johnston and Henry Britzen, of Beaverdell, B.C.; R. C. Draggio, of Yakima, and Howard Denis, of Spokane, Wash. At the time of examination two highly oxidized stringers had been exposed in an open-cut. Specks of galena, zinc-blende, and pyrite were noticed in these stringers. Higher up the ridge segregations of solid pyrite, carrying low values in gold, had been uncovered. Since this examination and according to the owners, these stringers have widened out into 2½ feet of ore carrying galena and pyrite. It is the intention of the lessees to drive a lower tunnel to tap this showing about 200 feet lower in elevation. This main working-tunnel will be about 500 feet from the railway.

Jo Dandy. This claim is situated about a mile west of the Kettle Valley Railway, near Rhone Station, and is owned by Arthur Mellor, of Westbridge. Development-work consists of an old shaft supposed to be 35 feet deep, a crosscut tunnel 75 feet in length with an open-cut approaching it 48 feet long, and another tunnel 20 feet lower in elevation and about 30 feet in length. The rock in which this work has been done is a highly metamorphosed schist of unknown age. An intrusive porphyry dyke cuts this formation on the west flank about 100 feet from the shaft. As far as can be seen, the schists continue for half a mile to the east and for a mile north and south. The strike of the schist is about north and south (mag.), with a dip of 20° to the west. The ore occurs in veins, stringers, and lenses conforming to the strike of the schist, and consists of galena, zinc-blende, and pyrite containing gold and silver in a gangue of quartz. Samples of this ore taken from different parts of the upper and lower tunnel assayed from a trace to 0.05 oz. in gold to the ton; from 1.4 to 19 oz. in silver to the ton; from 4 to 10 per cent. in lead; and from 2 to 11 per cent. in zinc. The size of the veins, etc., appear to vary from ½ to 24 inches. Owing to the highly metamorphosed and consequent serpentinization of the schist and ore-bodies, it is almost impossible to distinguish the difference between ore and waste. The whole area developed by the tunnels over a distance of about 200 feet is mineralized and until the ore is found in place nothing conclusive can be said about average values. There appears to be sufficient mineralization, although low grade, to justify further exploration at depth.

Rock Creek.

Imperial. This group of claims, situated near Rock Creek, was mentioned in the 1926 Annual Report. No further development-work has been done during the year. There is a low-grade ore-shoot varying from 4 to 10 feet in width and extending for about 170 feet in the lower tunnel. A shipment of this ore was made to the Trail smelter in 1926, the recovered contents of which were: Gold, 11 oz. to the ton; silver, 2.102 oz. to the ton; lead, 3,885 lb.; zinc, 1,339 lb. The width and persistency of this vein, located beside the Kettle Valley Railway, Kettle river, and within 4 miles of the high-power electric line, make it an attractive prospect.

GREENWOOD SECTION.

Sappho. This old Crown-granted claim, situated about 2½ miles east of Midway and 1 mile south of Norwegian creek, close to the International boundary-line, has been leased by Alex. Bravard and associates, of Boundary Falls. During 1916-17-18 a total of 112 tons of ore was shipped to the smelter, carrying 197 oz. in silver and

250 tons
shipped

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13,580 lb. of copper. Since that time no work was done until this year, when a crosscut tunnel was driven about 50 feet, having for its objective the bottom of the old workings, about 30 feet ahead of the face. The rock formations in this area, in which the mineralization occurs, are chiefly argillites, intruded by diorite, pyroxenite, and later by alkali-syenite-porphry dykes. A sample of the chalcopyrite-pyrite ore from one of the lower shallow pits near the pyroxenite assayed 3.2 per cent. copper and 0.03 oz. in platinum to the ton.

The old workings consist of open-cuts and shafts of unknown depth and are now full of water. The presence of the pyroxenite rocks and the usual platinum contents associated with the copper sulphides is an added attraction to this locality. Although, as a rule, the ordinary smelters do not pay for the platinum contents because they have no equipment to recover the metal, there are specialists in this line of work who will remunerate the shipper if sufficient tonnage is guaranteed. The present price of refined platinum is between \$60 and \$70 an ounce.

This claim, mentioned in the 1923 Annual Report, is owned by R. Pascoe and Vendella Bombini, of Greenwood. A lease and bond was taken by J. Wichser and associates on this claim and a small compressor and gasoline-driven engine

installed. A lower crosscut tunnel has been commenced about 100 feet below the outcrop, having the contact of the greenstones and sedimentaries, which are mineralized with chalcopyrite and pyrite, as its objective. Driving long crosscut tunnels without doing sufficient development-work above has proved to be a costly experiment in the Greenwood camp, and further surface development before continuing the crosscut is to be recommended.

WICHSE-8 Dynamo.

This claim, owned by Jerome McDonald, of Greenwood, is situated about three-quarters of a mile east of the town at an elevation of 3,400 feet (barometric). On the surface much shallow development has been done on two quartz veins varying from 2 to 12 inches in width and striking N. 25° W. and N. and S. (mag.). The north vein has been opened up by a 25-foot open-cut and a shaft 90 feet deep. At the collar of the shaft, and for 20 feet down, the vein averages about 6 inches in width, and from thence down it gradually pinches and faults near the bottom. A picked sample of this ore assayed: Gold, 5.60 oz. to the ton; silver, 15 oz. to the ton; lead, 19 per cent. The vein, which strikes N. 25° W., has been opened up by trenches and open-cuts for 60 feet. Samples from these workings also assay well in gold. On the south end of the property an 840-foot tunnel has been driven with the idea of crosscutting the veins mentioned. This tunnel cuts the volcanic tuffs and diorite and passes through a lamprophyre dyke containing very fine grains of pyrite and chalcopyrite. On the contact of the tuffs and diorite a quartz vein varying from 2 inches to 2 feet was developed. The strike of this vein varies from N. 35° W. (mag.) in the stope to N. 80° W. (mag.) in the drift, 100 feet ahead. Owing to the faulting and shearing of the tuffs this vein has been much displaced. A picked sample of this ore taken from the stope assayed: Gold, 0.62 oz. to the ton; silver, 7 oz. to the ton; copper, 1 per cent.; lead, 3 per cent.; zinc, 2 per cent. Owing to the high gold contents generally obtainable in these veins and the easy transportation facilities obtainable, further development seems to be justified. A survey of the 840-foot tunnel as well as the surface workings is to be recommended, so that their connection may be planned at depth. It seems probable that an extension of the tunnel for about 200 feet in a north-easterly direction should prove the value of these veins. The barometric elevation of the tunnel is 3,375 feet and the collar of the shaft is 3,540 feet.

This claim was mentioned in the 1925 and 1926 Annual Reports. During the year a syndicate called the J.R. Mines, headed by James Skilton, of Greenwood, was formed and some surface work done on the D.A. ground adjoining the *Gold Bug* claim.

In past years some good ore was mined and shipped from the *Gold Bug*. The vein from which this ore was taken was cut off by a narrow porphyry dyke at the boundary-line between the two claims and its extension never discovered until this year. Open-cuts and stripping showed the continuity of the vein for at least 100 feet beyond the dyke and into the D.A. ground. A plan of some of the *Gold Bug* and D.A. workings is incorporated in this report. During the year a pipe-line was connected between the new workings and the compressor at the mouth of the old crosscut tunnel, about a quarter of a mile distant, and the open-cut extended. According to reports, the tunnel on the *Gold Bug* shown on the map is being driven ahead at the present time to intersect the downward extension of the vein. A picked sample of the ore from the open-cut assayed: Gold, 0.30 oz. to the ton; silver, 64 oz. to the ton; lead, 12 per cent.; zinc, 6 per cent. The location of this claim close to transportation makes its development attractive.