

PART F.
WESTERN MINERAL SURVEY DISTRICT (No. 6).

BY

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GENERAL SUMMARY.

Prospecting for, development of, and the production from gold properties continued to hold first place in the mining activity of No. 6 District during 1934.

During 1934, as in 1933, more prospectors and prospecting parties were in the field than for many years past. On Vancouver island the areas around Zeballos river, Herbert arm, and Muchalat arm have received attention. Prospecting was continued at many other localities on Vancouver island, and on the Mainland section of the Coast in the vicinity of Phillips arm, Shoal bay, Knight and Jervis inlets. Several individuals and small syndicates were prospecting the area at the head of Harrison lake, in the vicinity of Fire mountain and Glacier lake, an area that is well worthy of more attention than it has received in the past. The area contiguous to the Fraser river, in the sections around Hope, Lytton, Ashcroft, and the area about the Vidette camp were carefully looked over during the season by prospectors and many new claims were staked. Several zones of mineralization were discovered in the Tatlayoko Lake country by prospecting parties, and further development-work will be undertaken, as soon as weather conditions permit, in 1935.

The main Bridge River camp was the scene of intense activity in 1934, and while much of the work accomplished is reported as development-work, it might be more properly classified as company and syndicate prospecting. Similar prospecting of claims staked in the 1933 rush to the ground contiguous to the Pacific Great Eastern Railway was carried out in 1934, particularly in the Brandywine, Birkenhead, D'Arcy, and Whitecap Creek areas.

The writer desires to acknowledge the help and many courtesies extended to him by the prospectors, mining operators, and the general public with whom he came in contact during the field season.

In the following report details of mining activity in the various Mining Divisions of No. 6 District are given.

VICTORIA MINING DIVISION.

Mining activities during 1934 were confined to intermittent placer-mining and prospecting on Leech river and Wolfe creek; testing of the Sombrio River placers by Victoria interests; prospecting by several groups of men on the headwaters of the San Juan, Jordan, and Nitinat rivers; further development-work on the *El Capitan* property on Cowichan lake; and the commencement of exploration-work at the old *Tyce* property near Duncan late in 1934.

References to Properties in past Reports.—*Alpha-Beta*, 1931; *Blue Grouse*, 1931; *El Capitan*, 1933; *Gabbro Copper Mines, Limited*, 1931; *Kitchener*, 1931; *Margaret*, 1931; *Paint Pot*, Bulletin No. 1, 1932; *Sombrio Placers* (Kootenay Central Mining and Development Company, Limited), 1930; *Southern Cross*, 1931; *Sunloch Mines, Limited*, 1931; *Tyce*, 1931; *Willow Grouse*, 1931.

**Butterworth
Placers.**

The property (MacKay leases) on which E. Butterworth and associates, of Victoria, established a small hydraulic placer plant in 1933 is located at Martin gulch, a small tributary of the Leech river, approximately 3½ miles from Leechtown. During the early part of 1934 sluicing with a small monitor opened up a pit 20 by 25 feet in area on the banks of Leech river just above Martin gulch. The pit disclosed the remnants of an old channel 15 to 18 feet above the river, containing 6½ to 7 feet of rusty bouldery pay-gravels, overlain with 20 feet or more of barren sand, gravel, and silt. It would appear that this channel remnant would extend up-stream for possibly 400 feet to a rock bluff and that the average width would be 60 to 100 feet, with a heavy cover of barren overburden. From bed-rock in the pit which existed at the time of the writer's visit approximately \$70 to \$80 in gold had been recovered, with several quite coarse slugs of gold included.

Later in the summer of 1934 it was reported that the operators changed the location of their water-supply flume to eliminate an unwieldy piping system and give a slightly increased head of water for hydraulicking. The recovery made is not known to the writer.

ALBERNI MINING DIVISION.

Port Alberni at the head of the canal is the main settlement within the area and is the distributing-point for supplies and labour. Boats are available on Sproat and Great Central lakes and at Port Alberni for points down the canal. The area is served by fair pack-trails up the main river-valleys, while access to properties up China creek is best made by way of the logging-railway of the Alberni Pacific Logging Company, Limited.

During 1934 mining activity and particularly prospecting and development within the area was greatly stimulated by the gold developments at the properties of the Vancouver Island Gold Mines, Limited; Taylor River Gold Mines, Limited; and Franklin River (British Columbia) Gold Mines, Limited. Many hundreds of claims were staked and interesting discoveries have been reported by the individual prospectors.

References.—Alberni Mines, Limited (*Three Jays*), 1928; *Copper King*, 1928; *Dauntless*, 1931; *Edith*, 1931; *Ferguson*, 1932; *Happy John* and *Monitor*, 1916; Island Copper Company, Limited, 1931; *Klanawa* and *Canyon*, 1931; *Morning* (Taylor River Gold Mines, Limited), Bulletin No. 1, 1932; *Rainy Day*, 1928; *Regina*, Bulletin No. 1, 1932; *Sunshine*, 1928; *Thistle*, 1927; W.W.W. (Franklin River Gold Mines, Limited), Bulletin No. 1, 1932; Vancouver Island Gold Mines, Limited, 1933.

This company was incorporated in September, 1933, with a capitalization of **Vancouver Island Gold Mines, Ltd.** \$2,250,000, divided into 4,500,000 shares of 50 cents par value, and 1,000,000 shares of the company stock were issued (in escrow) for the properties.

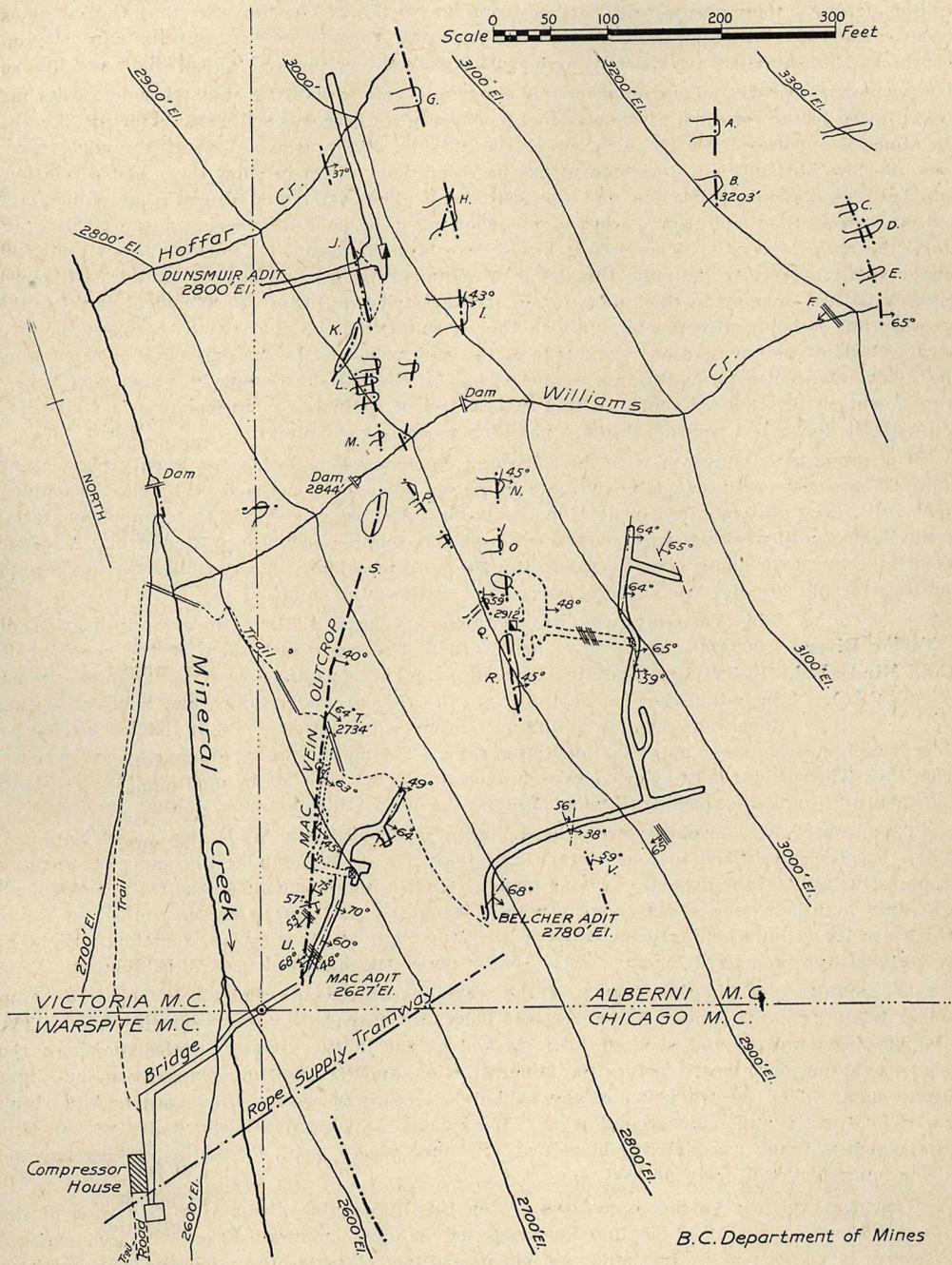
(N.P.L.). The property consists now of ten Crown-granted mineral claims—*Alberni*, *Victoria*, *Warspite*, *Chicago*, *Champion*, *Missing Link*, *Ophir*, *Union*, *Last Chance*, and *Last Dollar*—and twenty-seven claims held on location. The claims are situated at the headwaters of Mineral creek, a tributary of China creek, about 10 miles from tide-water up the logging-railway of the Alberni-Pacific Lumber Company from Port Alberni, and about 1½ miles by caterpillar-tractor road from the railway. At one time the road extended from Port Alberni to the property, but many parts of the road were destroyed by the construction of the railway-grade. The claims extend over the divide separating Mineral creek and Cameron river, the main workings being located approximately 2,600 feet in elevation above sea-level. The railway-grade below the camp is at 1,200 feet elevation above sea-level. The ground is precipitous, well timbered with fir, hemlock, and cedar, and there is a sufficient supply of water in Mineral creek for all domestic purposes.

The *Alberni*, *Warspite*, *Chicago*, and *Victoria* claims were staked in 1895 and worked for two years by the James Dunsmuir interests. In 1897 the ground was acquired by an English company, who erected an 8-stamp mill on the property in 1898 and then stopped operations after making a few clean-ups. In the spring of 1933, R. W. Williams, of Vancouver, leased the reverted Crown grants from the Government, later turning the property over to the present company, who in turn have devoted attention to an appraisal of the real value of the mineral-showings, under the direction of J. W. Herman, superintendent, and P. M. Hurley, geologist, with a crew of fourteen men.

The rocks in the vicinity are andesites of the Vancouver Island volcanic series. A few miles to the west a small stock of granite rock, similar in appearance to the granite of the Coast Range batholith, outcrops. The mineralization under development consists of quartz veins in sheared sections of the andesitic rocks, the valuable mineral constituents being gold and silver, associated with pyrite. The quartz is massive and the walls of the veins are free. Excellent specimens of free gold have been obtained from several of the workings, in particular from the Mac vein.

The surface and underground workings as at November, 1934, are shown in detail on the accompanying map. The surface-trenching disclosed three main veins. The Waterfall vein is opened up by cuts C, D, and E, where a 3-inch to 2.5-foot vein is exposed along a length of 108 feet, and from which generally low gold values were obtained by the company, except for two assays, 1.4 oz. gold per ton across 3 inches and 11.8 oz. gold per ton across 6 inches, both

from the creek open-cut. The Belcher vein is developed by open-cuts G, H, I, N, O, R, and V, and possibly underground by the Belcher adit and by the shaft and stope at Q. The values obtained by the company on this vein were generally low grade, and while the vein in some places is several feet in width, it is only in the shaft and stope-workings that good gold values have so far been obtained over narrow widths and along short vein-lengths. The vein is more or less lenticular and fairly well defined.



B.C. Department of Mines

Plan of Workings, Vancouver Gold Mines, Ltd. From Company's Plans.

The most important showing to date is the Mac vein, developed by open-cuts J, K, L, M, S, T, and U, and by the Mac and Dunsmuir adits, and sub-levels above the Mac adit. Over a length of approximately 250 feet (from U to T on the map), the company has disclosed by sampling a narrow but good-grade showing of gold-bearing quartz. The average of sixty-three samples taken by P. Hurley over this 250-foot length shows the quartz to have an average width of 0.51 feet and an average gold content of 3.69 oz. gold per ton. Of the sixty-three samples taken, seventeen samples were above the average in grade, the highest sample being 20 oz. gold per ton across a 6-inch vein-width. It is from the workings on this vein that the company recently made a trial shipment of 40 tons of ore to the Tacoma smelter. Preliminary smelter returns on this shipment are reported as being 2.9 oz. gold per ton and 0.5 oz. silver per ton.

Development-work underground on this showing seems to indicate that the gold values are concentrated in the vein just above a 3- to 4-foot bed of argillaceous sediments which strike and dip almost in conformity with the slope of the hillside. Below the sediments the gold values are quite low, but sufficient development has not been done as yet to show the possible relationship between the mineralization and the sediments. The strike and dip of the sedimentary bed has caused the underground work on the showing to be done in a series of short sub-levels above the main Mac adit. These short levels have been connected by raises. Possibly 80 feet higher stratigraphically than the thin band of sediments is another bed of similar sediments, possibly 20 feet or more in thickness, and of similar strike and dip. Development-work at the present time is being directed to establish the continuity of the gold values between the two parallel beds of sediments along the strike of the Mac vein, and in the driving of a raise from the Belcher adit to connect through to the bottom of the old shaft-stope in which gold values were found on the Belcher vein. In this raise a bed of sediments corresponding in strike and dip with the lower bed mentioned above has been recently encountered.

The property is equipped with an office and camp accommodation for twenty men, assay office, 50-horse-power Diesel-engine-driven compressor, steel-sharpener and oil-furnace, machines, steel, rails, cars, etc., required in development-work. A short rope-tramway to supply material to the Belcher adit-workings was constructed from the compressor-house to the portal. A bridge from the compressor-house gives access to the Mac adit-workings. A caterpillar tractor is used for transferring supplies from the railway siding to the mine camp.

This company was incorporated in April, 1934, with a capitalization of **Taylor River Gold Mines, Ltd. (N.P.L.)** 2,000,000 shares of no par value. The registered office of the company is 316-320 Hall Building, Vancouver. The company owns twenty-three claims, including the *Morning*, *Morning No. 1*, and *Apex* claims, and holds an option to purchase seven additional claims, all situated about 3½ miles up Taylor river, which flows into the upper end of Sproat lake. The main workings and camp are reached from Port Alberni by road to Sproat lake, launch up Sproat lake to the mouth of Taylor river, and thence 3½ miles by pack-trail which follows the river-grade for most of that distance.

This property was formerly owned by A. Smith, of Alberni, and W. P. Beavan, of Nanaimo, and it has been described in some detail in Bulletin No. 1, 1932, under the name of *Morning* group. During 1934 the present company made extensive improvements to the trail, constructed log camp buildings, and spent several months sampling and surveying the numerous veins which are found outcropping principally on the *Morning* and *Morning No. 1* claims. Eight to twelve men were employed for part of the season under the supervision of B. P. Johnson.

The country-rocks in the vicinity of the workings are basalts and andesites of the Vancouver Island volcanic series. These rocks in places are intruded by quartz-diorite dykes. The area has been faulted and sheared to a marked extent in the vicinity of the showings, the shearing taking place mostly before the mineralization, and the faulting, generally of but slight displacement, after the intrusion of the acid dykes. Several quartz-filled fissures have been traced by surface and underground work. The quartz is mineralized principally with pyrite, with which is found associated gold values. In some places small quantities of chalcopyrite, galena, and sphalerite were noticed.

The most westerly surface exposures are on the *M.T.* claim, about 1,500 feet west of the *Morning* showings. At this location low-grade galena-pyrite mineralization has been exposed in several large open-cuts. In the largest cut at 450 feet elevation the mineralization has been exposed for a length of 40 feet and across a width of 14 feet. The company reports that gold

values up to \$9 per ton were obtained from this cut. A second cut, approximately 150 feet to the east of the above working, exposes 3 to 5 feet of sulphide mineralization at the contact of diorite and basaltic rocks over a length of 25 feet.

The main showings on the *Morning and Morning No. 1* claims consist of open-cuts and one 360-foot adit that have exposed eleven fissure-veins, all approximately parallel and striking north-easterly into the hill. The veins dip at high angles. No. 8 vein at the westerly end of the showings has been opened up by one open-cut at 730 feet elevation. It strikes north 55 degrees east and dips 80 degrees to the south-east. The width exposed is 14 inches, mineralized with quartz and pyrite, with stringers of altered wall-rock. Only low gold values have been obtained from this cut. No. 7 vein is exposed by one open-cut at 700 feet elevation, 65 feet south from No. 8 vein open-cut. The vein is narrow, of similar strike to No. 8 vein, but dips 80 degrees to the north-west. No. 6 vein, approximately 65 feet south-east from No. 7 vein, has been exposed by open-cuts and a short adit over a length of about 280 feet, the width varying from a few inches to 4.6 feet. This vein strikes north 44 degrees east and dips 85 degrees north-west to vertical. Company sampling on the vein indicates values from 0.05 oz. gold per ton to 0.13 oz. gold per ton across widths of 0.9 to 2 feet. The writer took a channel sample across the exposure in No. 2 adit at 640 feet elevation and obtained 1 oz. gold per ton and 0.2 oz. silver per ton over the 4.6-foot width sampled. This showing justifies further drifting to establish the continuity and grade of the mineralization exposed in the short adit.

Very little work has been done on No. 5 vein, 55 feet south-easterly from No. 6 vein. No. 4 vein has been opened up along a length of 110 feet by open-cuts. This vein is 40 feet south-east of No. 5 vein and approximately 250 feet south 70 degrees east from No. 8 vein open-cut. The vein varies in width from 0.8 to 1.8 feet, strikes north 40 degrees east to north, and has a vertical dip. Company sampling indicates gold values of 0.09 to 0.22 oz. gold per ton. No. 3 vein would appear to be a branch from No. 4 vein. The south end of it as exposed is but 15 feet from No. 4 vein, and the strike of north 73 degrees east causes it to diverge rapidly as the outcrop of the vein is followed up the hillside. Open-cuts have exposed No. 3 vein along a length of 160 feet. The width varies from 3 to 16 inches and company sampling has indicated gold values varying from 0.02 to 0.25 oz. gold per ton across vein-widths. No. 2 vein, of which a portion is named the "Stump" vein, is approximately 70 feet east of No. 3 vein. The northern section of this vein outcrops at 950 feet elevation and company samples indicate a gold content of approximately 0.24 oz. gold per ton and an average width of 1.5 feet. One company sample, not included in the above average, assayed 2.48 oz. gold per ton across the 1-foot vein-width. The writer obtained an assay of 0.20 oz. gold across a 1-foot vein-width. The southern section of No. 2 vein, or Stringer vein as it is sometimes called, averages 1.9 feet wide and four company channel samples returned an average of 0.17 oz. gold per ton over this vein-width.

No. 1 vein, upon which development was formerly concentrated, has been stripped along the surface for 400 feet in length and followed underground for 250 feet in a 360-foot adit at 600 feet elevation. This vein is 20 to 30 feet south-east of No. 2 vein, strikes north 60 degrees east, dips vertically, and varies in width from 1.3 to 6.6 feet. Sampling underground by the company has indicated values from 0.02 to 0.34 oz. gold per ton, with many assays in the 0.13- to 0.25-oz. brackets. The mineralization is chiefly quartz and pyrite with low gold values. A sample across 3.3 feet in No. 2 cut, No. 1 vein, taken by the writer, assayed 0.30 oz. gold per ton and 0.06 oz. silver per ton.

Three other veins of similar type to those mentioned have been discovered south-east of No. 1 vein. Values up to 0.22 oz. gold per ton across vein-widths of less than 1 foot have been obtained by the company. These veins are called No. 1 east, No. 2 east, and No. 3 east, and are located 80, 100, and 240 feet, respectively, south-east from No. 1 vein.

Further work was done during 1934 in prospecting on the *Apex* claim at 3,000 feet elevation, where several veins of similar character to the above are reported to have been discovered.

CLAYOQUOT MINING DIVISION.

This Division is served by boats of the west-coast service of the Canadian Pacific steamships once every ten days. During 1934 there was considerable small-scale mining activity in the area and several new discoveries were reported from the Zeballos and Herbert Arm districts.

References.—*B.C. Wonder*, 1931; *Big Boy*, 1933; *Copper King*, 1931; *Craigellachie*, 1928; *Douglas*, 1930; *Indian Chief* (Pacific Tidewater Mines, Limited), 1931; *King Midas Mining*

Company, Limited, 1933; *Mary McQuilton* (Abco Mines, Limited), 1933; *Ormond*, 1932; *Jo Jo*, Bulletin No. 1, 1932; *Rose Marie*, Bulletin No. 1, 1932; *Shannon* (Silverado), 1928; *Star of the West*, 1928; Zeballos River Mining Company, 1933.

ZEBALLOS RIVER SECTION.

Following the publication of H. C. Gunning's report on the Zeballos River area by the Geological Survey of Canada in their Summary Report for 1932, Part A-II., the area adjacent to the Zeballos river was intensively prospected by many of the west-coast inhabitants, and as a result of this activity several discoveries have been reported.

This property has been described in considerable detail in the Geological Survey of Canada Summary Report, Part A-II., pages 38-42, for the year **King Midas Mining Co., Ltd.** 1932, and in the 1933 Annual Report. The following notes will bring the data up to date: The property is about 9 miles by trail from the head of Zeballos river, and during 1934 a small crew of men was employed on contract to extend No. 1 adit-workings. A total of 225 feet of drifting and crosscutting, some surface-stripping and prospecting was completed. The drift north from the winze in No. 1 adit-crosscut was extended a distance of 120 feet, following a narrow, well-mineralized fissure-vein of irregular strike and steep dip for much of the way. The writer took a composite sample of eleven channel samples along a 40-foot length of the vein exposed in this drift, and it assayed 4.04 oz. gold per ton, 0.6 oz. silver per ton, 1.9 per cent. copper, lead *nil*, and zinc 8.2 per cent., over an average width of 3.7 inches. A sample from the same vein at the surface, almost directly above this drift, assayed 3.30 oz. gold per ton, 0.8 oz. silver per ton, 4 per cent. copper, and 11.8 per cent. zinc, across a vein-width of 4 inches. A sample across an 18-inch width of mineralization at the glory-hole workings, some 1,400 feet northerly from the No. 1 adit portal, assayed a trace in gold and silver, 0.6 per cent. copper, and 1 per cent. zinc.

QUATSINO MINING DIVISION.

This Division is reached either by west-coast boats from Victoria every ten days, or by road from Port Hardy, on the east coast of Vancouver island, to Coal harbour, from which point the mail-boat calls at several places, or launches are available.

References.—*Alice Lake*, 1932; Canada Copper Company, Limited, 1930; Coast Copper Company, Limited, 1931; Copper Cup Mines, Limited, 1930; *June*, 1931, and Summary Report, G.S.C., Part A, 1929; *Marble Creek*, 1930; *Millington*, 1927-28-29, and Summary Report, G.S.C., Part A, 1929; Quatsino Copper-Gold Mines, Limited, 1931; *Quatsino King* (Teta River Gold), 1931; *Yreka*, 1928, and Summary Report, G.S.C., Part A, 1929.

NANAIMO MINING DIVISION.

This Division includes the eastern half of Vancouver island north of Chemainus and the west coast of the Mainland from the south end of Texada island and Jervis inlet, north to Seymour inlet, including the drainage areas of the Klinaklini, Homathko, Southgate, and Toba rivers. The recording office is at Nanaimo. This is one of the largest Divisions in the district and one of the most important in the Province on account of the great variety of mineral products that are mined in it. It contains all the coal mines of Vancouver island; many iron-ore deposits; many deposits of gold, silver, copper, lead, and zinc ores; as well as most of the non-metallic materials, such as lime, cement, brick, sand, gravel, crushed rock, and building-stone, which are of such importance to the development of the populous centres of the Province.

During 1934 the greatest mining activity, aside from coal and structural materials, was in the areas on Phillips arm and Shoal bay and in the Tatlayoko Lake district.

References (Vancouver Island).—*Big G.*, 1916; *Caledonia*, 1927-28-29, and G.S.C. Summary Report, Part A, 1929; *H.P.H.*, 1931-32; *Jubilee*, 1930; *Kinman*, 1929-30, and G.S.C. Summary Report, Part A, 1929; *Lucky Jim*, Bulletin No. 1, 1932; *Lynx*, 1927-30; *Maple Leaf*, 1930; Paramount Mining Company, 1920; *P.D.*, 1927; Price Creek Mining Company, 1929; *Robbins*, 1930; *Silver Leaf*, Bulletin No. 1, 1932; *Sumpter*, 1929; *Smith Copper*, 1931.

References (Mainland and Islands).—*Alexandria*, 1933, and Bulletin No. 1, 1932; *Blue Bells*, Bulletin No. 1, 1932; Cambria Copper Company, 1928-29; Central Copper and Gold Company (Vananda), 1928-29; *Colossus*, 1929; *Copper Bowl*, 1928; *Doratha Morton* (Hercules),

Bulletin No. 1, 1932, 1933; *Douglas Pine*, 1930; *Geiler*, Bulletin No. 1, 1932; Gem Gold Mines, Limited (B.C. Gold Mines, Limited), Bulletin No. 1, 1932, 1933; Hayden Bay Gold Mines, Limited, 1933; *Inca*, 1929-30; *John Bull*, 1926; *Juneau*, Bulletin No. 1, 1932; Lasqueti Mining Company, Bulletin No. 1, 1932; *Lucky Jim*, 1916, and Bulletin No. 1, 1932; Malaspina Mines, Limited, 1927-29; *Marjorie*, Bulletin No. 1, 1932; *Nancy Bell*, 1927; Romana Copper Mines, Limited, 1928-29-30; Santana Copper Syndicate, 1929-30; *Solyman and Freya*, 1930; Sonora Gold Mines, Limited, Bulletin No. 1, 1932; *Stromberg*, 1927; Tatlayoko Lake Gold Mines, Limited, Bulletin No. 1, 1932; Thurlow Gold Mines, Limited, Bulletin No. 1, 1932, 1933; *White Pine*, Bulletin No. 1, 1932; *Wyho*, 1927.

VANCOUVER ISLAND SECTION.

Georgina. This property includes the *Georgina*, *Bessie*, *Margaret*, *Louise*, and *Josie* claims, all locations, owned by F. A. Whitehouse, of Nanoose Bay, and associates. The claims are situated within a quarter of a mile of the main Island highway, 1½ miles north of Nanoose Bay Post-office. A short trail leads from the road to the principal showings located on the west bank of Nanoose creek, just below a small timber dam constructed several years ago.

The mineralization, consisting of quartz, chalcopyrite, and associated gold and silver values, occurs in greenstone volcanics, presumably members of the Vancouver Island volcanic series, just west of a fault separating the greenstones from younger conglomerates of Upper Cretaceous age. The fault follows the creek-bed in the vicinity of the mineralization so far uncovered. Several open-cuts and trenches have indicated the occurrence of narrow fissures in the greenstone, all mineralized with quartz and occasionally with sulphides.

The main open-cut and shaft-workings, just below the dam, have disclosed two or three very narrow parallel (1 to 14 inches in width) fissures, strike approximately north 75 degrees west, dip 78 degrees north-east. The fissures, exposed for 35 feet, narrow to fractures in width as they are followed away from the fault, suggesting that a search towards the fault might indicate better widths of vein-filling. Development in this latter direction is seriously interfered with by the flow of water in the creek, but the owner is at present sinking a winze from the open-cut and intends to drift south-easterly under the creek as soon as sufficient depth has been gained.

The writer took several samples at the property. A channel sample, five cuts, across fissure-widths of 1½ to 4 inches, along a length of 20 feet, assayed 0.16 oz. gold per ton, 0.05 oz. silver per ton, and 0.4 per cent. copper per ton. Selected sulphides, which occur in the vein-filling in widths up to 12 to 14 inches and in irregular bunches, have been sorted from the deposit, a 1-ton shipment of such ore to the Tacoma smelter assaying 1.22 oz. gold per ton, 0.35 oz. silver per ton, and 5 per cent. copper. Another sample of approximately ½ ton of selected sulphide ore from the above workings assayed 1.60 oz. gold per ton, 0.6 oz. silver per ton, and 7.4 per cent. copper.

Approximately half a mile to the south-west and at 300 feet elevation a series of quartz-filled fissures, sparingly mineralized with pyrite, occur in schistose rocks. Assays from these showings returned no values in gold.

SHOAL BAY-PHILLIPS ARM SECTION.

This area is reached by Coast steamships to Shoal Bay and surrounding points. The most important operations are only briefly reviewed here as most of them have been reported on at length in previous publications of the Department of Mines.

At this property, on the north shore of Phillips arm, and some 2 miles from **Alexandria Gold Mines, Ltd.** Shoal bay by boat, the Premier Gold Mining Company, with a crew of twenty-five to thirty men under the superintendency of S. M. Manning, and later J. C. McCutcheon, started an aggressive development programme early in 1934, discontinuing their work in the summer months. It is recently reported that R. Crowe-Swords, of Vancouver, has the property under personal option.

The Premier Company unwatered the shaft and did an appreciable amount of drifting and crosscutting on the 100- and 200-foot levels. The shaft-pumps failed temporarily and the underground workings below sea-level had to be abandoned pending the recovery of the pumps.

During this period No. 2 adit-level, approximately 50 feet above sea-level, and the main (or No. 1) adit-level were extended north along the mineralized shear-zone, which at this property is found in a bed of highly altered sedimentary rocks between two granite sills or stocks.

The underground workings were all carefully sampled by the Premier Company, the results of some hundreds of carefully taken channel samples checking very closely the figures obtained by engineers who had formerly sampled the mine. It is indicated that the values, chiefly pyrite and some chalcopyrite, with which is associated gold and silver, are confined to that portion of the shear-zone between the portal and the flat-dipping fault on No. 1 level. In this area it appears that there have been two periods of mineralization; the first period during which the quartz and pyrite was deposited, and the second period subsequent to faulting, when quartz, chalcopyrite, pyrite, and the associated gold values were deposited. This is indicated by the distribution of values as obtained by sampling, the best values coming in the section of the shear underlying the fault, while past it very little in the way of values were found. Ore-zones were located by sampling on the main or No. 1 level and on the 100-foot level, with almost negative results being obtained on the 200-foot and No. 2 levels.

About 15,000 tons of material assaying approximately 0.30 oz. gold per ton is indicated in the ore-shoot between No. 1 and 100-foot levels, due allowance being made for the extension of the ore some distance above and below the two levels mentioned.

Following the dropping of the option by the Premier Gold Mining Company, the property was placed in charge of a watchman. Power mining equipment, camps, and boat-landing facilities are a part of the property equipment. The power equipment is driven by a 116-132-horse-power Crossley Diesel engine.

This company's property, which is located on the west side of Phillips arm between the *Alexandria* and the *Doratha Morton* properties, is reached by boat to the beach and a steep 2-mile trail to the mine camp at 2,100 feet elevation. During the early part of 1934 a crew of eleven to fifteen men was employed in driving the 780-foot level to get under the shaft showing, located 780 feet in elevation above and 800 to 1,000 feet beyond the portal. This adit was in 284 feet as at June, 1934, and the work was discontinued a few weeks later. The working followed a quartz-filled shear, mineralized with pyrite, in the altered sedimentary rocks of the area. The shear followed by the adit is not considered to be the same one on which the shaft is sunk.

At the upper (or shaft) showing, where high gold values are reported to have been obtained across 1½- to 3½-foot widths, the writer took three channel samples across widths of 3½ and 3 feet respectively of quartz mineralization. The average gold content obtained on assay of these samples was 0.1 oz. per ton. A selected sample showing approximately 3 per cent. galena and pyrite assayed 0.85 oz. gold per ton, but little or no mineralization of this character was visible in the well-defined shear at this shaft. A short distance downhill from the 10-foot shaft the quartz-filling pinches in width and at 60 to 80 feet distance it disappears as a narrow stringer under the overburden.

The property is equipped with a camp, a small gasoline-driven portable compressor, and necessary machines. It is understood that operations have been suspended since early in July, 1934.

This property is owned by the Hercules Consolidated Mining, Smelting, and **Doratha Morton** Power Company, Limited, which is capitalized at 10,000,000 shares of \$1 par value, and has several holdings in British Columbia, including a group of some seventy-three claims in the Phillips Arm district. The claims held by the company include sixty-four claims by location and the following nine Crown-granted claims: *Doratha Morton*, *Doratha Morton Fraction*, *Percy*, *Africa*, *Comox Fraction*, *Chimnang*, *Eva*, *Douglas*, and *Banker*. J. Y. McCarter, of Vancouver, is the managing director.

Phillips arm is approximately 120 miles by boat from Vancouver, and the claims, approximately 3,400 acres in area, cover the strike of a mineralized shear-zone which extends to the north-west of the *Alexandria* and *Enid-Julie* properties on the west side of Phillips arm. The principal workings are located on the *Marble* and *Doratha Morton* claims; the *Marble* claim camp being situated on the shore of Fanny bay, 1 mile north of the main beach camp, and the *Doratha Morton* workings and mine camp being situated approximately 2 miles by road and trail west of the beach camp and at an elevation of 2,300 to 2,600 feet above sea-level. An aerial tramway of light construction was built in 1934 to transport supplies to the upper camp.

The *Doratha Morton* group of claims was first worked in 1898 and late in 1899, the operation being closed after about 10,000 tons of ore, yielding approximately 10,000 oz. silver and 4,434 oz. gold, had been mined and treated in the cyanide-mill which the company had erected at tide-water. This mill, the first cyanide-mill in the Province, was connected to the mine-workings by an aerial tramway. Following the shut-down the milling plant and other mining machinery, including compressors, tramway, etc., were dismantled and the property remained idle until 1924, when the Glasair Mining Corporation, of Vancouver, acquired title to the ground. This company expended an appreciable amount of money in further developing the various mineral-showings on the property. More recently title to the ground passed to the present company and during 1934 a crew of up to thirty-five or forty men has been employed in the construction of camps at the beach; building a light aerial tramway; constructing a road and trails from the beach to the upper camp; driving a 409-foot adit on the *Marble* claim; and developing various showings on the *Doratha Morton* claim, the scene of the original mine-workings.

The main zone of mineralization, best developed on the *Doratha Morton* claim, is a wide shear-zone following a north-west and south-east strike along the contact of altered volcanic and sedimentary rocks with granitic rocks of the Coast Range batholith. The shear-zone is up to approximately 100 feet in width, possibly more, and the quartz mineralization, with which is associated pyrite, gold, and silver, and occasionally chalcopyrite, is found occurring as veins, stringers, and broken lenses, generally at and near the foot-wall side of the shear. In some cases the mineralization has been found on the foot-wall of the shear. Several basic dykes cut the veins.

The shear-zone has been definitely traced along a length of approximately 1,400 feet.

The old mine-workings consist of five adits, from two of which there are drifts aggregating approximately 600 feet. The more recent work consists of open-cutting the westerly continuation of the shear-zone and the driving of a new adit (the 250 level) some 800 feet west of No. 1 adit, to tap a mineralized section of the shear-zone at a depth of approximately 75 feet. A short adit (the 100 level) was also started below outcrop showings situated 400 feet west of No. 1 adit.

In the most westerly working on the shear-zone, approximately 70 feet from the western boundary of the *Doratha Morton* claim, two channel samples taken across widths of 2½ and 3 feet averaged but a trace in gold and silver, while a representative grab sample of 500 lb. of sorted quartz pieces from the shear-filling assayed 0.1 oz. gold per ton and 0.8 oz. silver per ton. Approximately 75 feet easterly from this cut a quartz-filling in the shear was sampled across a width of 5 feet and the assay value was 0.08 oz. gold per ton. This cut is directly above the projected end of the new 250 level adit, wherein crosscutting is being continued.

At 240 feet east of the first cut and 165 feet from the last-mentioned cut the company has opened up a small stope, from which has been extracted the ore shipped to the Tacoma smelter. Two samples across widths of 24 inches in the best section and 48 inches in the hanging-wall section assayed 5.36 oz. gold and 0.02 oz. gold respectively. A sample across the possible continuation of the shear-filling underground near by assayed 0.04 oz. gold across a width of 34 inches of quartz and iron oxidation. In the 250 level crosscut two zones of quartz have been encountered, the first at 50 feet from the portal and the second at 122 feet from the portal (the face on November 7th, 1934). Both quartz-fillings were sampled across widths of 30 inches and 24 inches respectively and returned assays of 0.12 oz. gold and 0.02 oz. gold per ton. From the above assays on this part of the property it is seemingly apparent that the values are associated with the heavy pyritic mineralization.

To the east of the creek and some 500 feet east of the first-mentioned cut the 100-foot level adit is under an open-cut exposure of sulphide and quartz shear-filling in the volcanics. Two samples taken here gave low gold values, while a cut 35 feet to the east of this level and across a quartz-width of 30 inches, partially oxidized, assayed a trace in gold.

In No. 1 east cut, which is 90 feet east of the new 100-foot level, a strong showing of sulphide mineralization and quartz has been stripped over a length of 12 to 15 feet. Five channel samples in this area over widths of 10 inches to 2 feet 6 inches assayed from a trace to 0.3 oz. gold per ton; the average value of the mineralization over a length of 15 feet and an average width of 3.6 feet being 0.19 oz. gold per ton. This showing is worth further development along its strike and depth.

Just above the western end of the old stoped section of the mine an open-cut 40 feet long opened up a zone of quartz-pyrite mineralization in the schistose rocks. This was sampled at 10-foot intervals along the strike, the four channel samples averaging 0.14 oz. gold over an average width of 2.2 feet, the highest and lowest assays here being 0.2 oz. gold and 0.04 oz. gold per ton.

In the old underground workings thirty-one samples taken by the writer, with four exceptions, assayed from *nil* to 0.16 oz. gold per ton, the majority being but a trace or less than 0.1 oz. gold per ton. Of the four samples better than the general run, one assayed 0.8 oz. gold per ton across a width of 19 inches of sulphides in a short hanging-wall crosscut and drift on the west end of No. 1 level; another assayed 0.42 oz. gold per ton across a width of 5 feet of the quartz-filled shear 320 feet east of No. 1 adit-crosscut; another assayed 0.4 oz. gold per ton across a width of 3.9 feet at a point 340 feet east of No. 1 adit-crosscut; and the fourth assayed 0.5 oz. gold per ton across a width of 5 feet, 30 feet north of the main drift on No. 1 level. This last sample is in the so-called low-grade zone of silicification.

In No. 3 level only traces in gold and silver were obtained in the eight channel samples taken.

Since the writer visited the property the new 100-foot level has been driven a total length of 47 feet from the portal. The average of twenty-one samples taken by C. C. Starr for the last 28 feet of the drift-length are reported to show an average width of 2.45 feet and a gold content of 0.74 oz. per ton. The 250-foot level has been extended 8 feet past the hanging-wall of the shear-zone at 140 feet from the portal, and a drift at 55 feet in from the portal has been driven 19 feet on the quartz-filling. This assays, according to Starr's samples, 1.02 oz. gold per ton across an average width of 3 feet sampled by him.

These later results are encouraging and will require further work to delimit the showings. The main section of the old workings proved disappointing as to values when sampled. The mineralization on No. 3 level at 2,315 feet elevation is sparse and low grade. Some sections toward the west end of the No. 1 adit-level may contain values, possibly under the sill-floor of the stopes from which the original company mined the ore for the old cyanide plant.

The present operators have made several small shipments of ore, aggregating possibly 30 to 40 tons, from the old No. 2 workings, to the west of the creek and between the 250 level and the new 100 level. The shipments have contained between 1.58 and 2.89 oz. gold per ton and about 6 or 7 oz. silver per ton. The small segment of the vein from which this ore was obtained has been cut off by a fault, and the continuation of the ore beyond the fault has not, as yet, been picked up.

The *Marble* adit, at sea-level, is driven for 409 feet in granitic rocks. Several narrow beds of sedimentary rocks are encountered in this length, but no mineralization other than occasional segregations of pyrrhotite and pyrite is exposed.

This property, formerly owned by Seymour Campbell, of Shoal Bay, consists of nine claims, two of which, the *White Pine* and *Electric*, are Crown-granted. Early in 1934 the ground was acquired by the Shoal Bay Mining Syndicate and active development with a crew of four to six men under the supervision of S. Campbell continued throughout the year. The claims are reached by an old logging-road and trail from Shoal Bay, the distance to the present workings being about 2 miles from tide-water. Shoal Bay is a regular port of call by Union Steamships from Vancouver.

A brief description of the workings is given in Bulletin No. 1, 1932. The mineralization consists of massive quartz veins in fissures and quartz lenses frozen in granitic rocks of the Coast Range batholith. The veins and lenses are from 6 to 20 feet in width, and in places are heavily mineralized with pyrrhotite, pyrite, and small associated gold values.

On the *Electric* and *White Pine* claims considerable surface and underground work was done many years ago. The most easterly working, an open-cut, shows massive pyrite-pyrrhotite mineralization in an irregular quartz-outcrop. The foot-wall is not in evidence in the cut, but there is an indicated width of 10 to 12 feet of quartz, slightly oxidized. Approximately 60 feet west of this cut and 30 feet higher in elevation at 700 feet above sea-level, a 26-foot shaft (No. 1 shaft) shows a vein-width of 10 feet. Parts of the vein are mineralized with massive bunches of sulphides. A representative sample of the dump at this shaft assayed a trace in gold per ton. Cuts to the west of this shaft indicate the continuity of the quartz mineralization for possibly 200 feet along a strike of north 80 degrees west.

About 1,200 feet west of the above shaft, and on the *White Pine* claim at 830 feet elevation, there is an adit (No. 1 tunnel) 165 feet long. This working, driven on a north 17 degrees west bearing, intersects a 5-foot vein 75 feet from the portal. The vein strikes north 70 degrees west and dips at 70 degrees to the north-east. A chip sample across 5 feet of vein material in this working is reported by J. F. Coates to assay 0.04 oz. gold per ton. At 165 feet north 39 degrees west from the adit portal, and at 915 feet elevation above sea-level, there is a 74-foot shaft (No. 2 shaft) on an 8-foot vein of quartz, containing about 5 per cent. pyrite. Selected samples containing up to 1.10 oz. gold per ton have been reported by the syndicate from this shaft. Generally the values are low in gold. It would appear that a fault between the adit and the shaft has offset the vein as exposed in the shaft about 60 feet to the north. A 40-foot crosscut from the face of the present adit on a westerly bearing should intersect the vein about 20 feet below the shaft-bottom. The vein has been traced for 175 feet west of the shaft, where it is again cut off by a fault.

Approximately 1,000 feet in a north 40 degrees west direction from No. 2 shaft, the syndicate has done considerable open-cut and underground work during 1934. An open-cut at 1,000 feet elevation shows a narrow width of oxidized quartz in the granite. A short distance to the east, at 1,015 feet elevation, No. 2 adit has been driven about 60 feet south 60 degrees west. Heavy sulphide mineralization was found across widths of 6 to 12 feet in this adit. A sample representative of 10 tons of sulphide mineralization from this working when it was in 16 feet was taken by the writer. The sample assayed 0.32 oz. gold per ton. Open-cuts to the south-west (up the hill) indicate the continuation of the quartz mineralization for 200 to 250 feet.

Since the writer visited the property in June, 1934, it is reported by S. Campbell that No. 3 adit was started below No. 2 adit, and that 35 feet of drifting exposed mineralization in bunches and stringers of sulphides along the granite shear. Surface work is also reported to have been done recently between No. 2 shaft and No. 2 adit, and on another vein outcropping to the north of No. 2 adit. A camp for five men was erected during 1934.

TEXADA ISLAND SECTION.

Nancy Bell. This property, owned by Hugh McMillan, of Nanaimo, is said to consist of ten Crown-granted mineral claims and one held on location, including the *Silvertip, Nancy Bell, Dundee, Surprise, Copper King, Hillside, Apache, Retriever, Silver Plume, R.A.M.,* and *Westgate* claims. They are situated on the south-western slope of Surprise mountain near the north end of Texada island and approximately 3½ miles due south-west from Vananda bay. Access to the property is by road (4 miles) and trail 1½ miles from Vananda. The general rock formation is a basic porphyry (basic fine-grained porphyritic rock in the vicinity of the *Nancy Bell* claim) and limestone-beds of the Marble Bay formation. The mineralization occurs in shears and fissures in the porphyry and consists of quartz, pyrite, chalcopyrite, galena, sphalerite, and associated gold and silver values.

On the *Nancy Bell* claim a 48-foot shaft at 1,090 feet elevation and one or two open-cuts have disclosed a shear carrying iron, copper, lead, and zinc sulphides. A sample taken to represent about 15 tons of sorted ore at the shaft assayed: Gold, 0.30 oz. per ton; silver, 2 oz. per ton; copper, 0.7 per cent.; lead, 0.7 per cent.; zinc, 17.8 per cent.; while another sample from a similar pile of ore on the south side of the shaft-collar assayed: Gold, 0.30 oz. per ton; silver, 1.5 oz. per ton; copper, 2.4 per cent.; lead, trace; zinc, 10 per cent. Further work might be done on the surface to the north-west of the shaft along the strike of the shear in order to test out the continuity and grade of the mineralization in view of the above values.

Very little can be seen on the *Silvertip, Surprise, Copper King,* and *Retriever* claims of the group at the present time, due to the caved condition of the several shafts and adit-workings thereon. These claims have been described in past Annual Reports (1921-23-26) and in Memoir 58 of the Geological Survey of Canada, "Texada Island, B.C." During 1934 a zone of mineralization, heavily impregnated with iron oxides and containing minor amounts of copper, lead, and zinc sulphides, was uncovered by trenching to the south-east of the old *Surprise* shaft. A grab sample representing the material excavated from five large open-cuts assayed: Gold and silver, trace; copper, 0.5 per cent.; zinc, 1.8 per cent. Another sample representing several tons of oxidized material from a long cut 100 feet south of the above five cuts assayed: Gold, 0.04 oz. per ton; silver, 0.10 oz. per ton; copper, 2.4 per cent.; lead, trace; zinc, 3 per cent.

TATLAYOKO LAKE SECTION.

Several descriptions of the general topography, accessibility, mineral-showings, and possibilities of this area have been published in past Annual Reports of the Department of Mines (1910, 1916, 1921); also the 1924 Summary Report, Part A, of the Geological Survey of Canada. Very little work has been done in the way of development since Brewer and Dolmage wrote their reports, and the following notes are simply for the purpose of bringing the foregoing reports up to date.

This company acquired the *Morris* property from the Tatlayoko Gold Mining **Bridge Island Gold Mines, Ltd.** Company, Limited, early in 1934. The claims, six in number, and including the *Tatlico, Tyee, Isaac, Spokane, Copper Dyke, and Copper Dyke Extension* Crown-granted claims, are situated about 4 miles south-east of the southern end of Tatlayoko lake at an elevation of 6,000 to 7,000 feet above sea-level. The only means of access to the property at present is by motor-road for 170 miles west of the Pacific Great Eastern Railway at Williams Lake to the north end of Tatlayoko lake, and thence 16 miles by launch to the wagon-road at the south end of the lake. This road, 3 miles in length, has been built to the company's camp on Mathews creek near their power-plant site. From this camp it is 4 to 5 miles by trail and a 3,000-foot climb to the mine camp and workings. It is approximately 53 miles from the property down the Homathko river to Bute inlet and tide-water, but the country traversed is exceptionally rugged and to date there is not even a passable Indian or trapper's trail along this route.

During 1934 the present holding company established boat-landings at both ends of Tatlayoko lake; built several miles of road and trail to gain access on an easy grade to the mine-workings; established a semi-permanent camp at the power-site and a temporary camp at the mine; geologically and topographically mapped the area in the vicinity of the mine-workings both on the surface and underground; further prospected the surface of the claims by open-cut work and cleaned out the underground workings preparatory to the resumption of underground development.

The mineralization developed on the steep and rocky sides of a gulch at 6,000 to 6,500 feet elevation consists of several veins of quartz in which the metallic mineral constituents are arsenopyrite, stibnite, pyrite, and gold and silver values. Many different vein-outcroppings have been uncovered in an area of highly altered argillaceous rocks and fine-grained sandstones, but the principal exploration-work has been confined to two of the veins, on each of which several open-cuts and an adit have been excavated. The sedimentary rocks in the vicinity of the adits are cut by numerous east-west and north-westerly-striking dykes, while a short distance to the north-east of the portal of the upper (or No. 1) adit there is an outcrop of a quartz-diorite stock. The dykes are up to 8 feet in width, dip at steep angles into the hill, and are generally basaltic, although occasionally dykes of dioritic type are found. A thin bed of fine-grained siliceous conglomerate outcrops between No. 1 and No. 2 adits.

No. 1 adit at 6,150 feet elevation is 382 feet long. It develops the underground continuation of a portion of the 800-900-foot length of the *Morris* vein (main vein), which can be seen outcropping up the rocky hillside. The vein varies in width from a few inches to 4 feet, averaging possibly 16 to 18 inches. The mineralization in places is well developed and an ore-shoot 150 feet long, averaging 20.5 inches wide and containing 0.53 oz. gold per ton and 8.5 oz. silver per ton, is indicated by ten channel samples. Values up to 4.5 oz. gold per ton have been obtained from vein-widths of 3½ feet at the surface outcrop of this ore-shoot. At the inner end of this adit the vein is lower in grade and at the face a dyke splits it. The vein strikes north 8 degrees west and dips at 25 to 40 degrees into the hillside (north-east).

No. 2 adit at 6,015 feet elevation and 350 feet south 56 degrees west from No. 1 adit portal is 255 feet long, the last 75 feet of it being a crosscut to the foot-wall of the narrow vein exposed on this level. The vein varies in width up to 8 inches and strikes south 35 degrees to 40 degrees east, with a dip of 65 degrees to the north-east. At 130 feet from the portal the vein is cut by a narrow dyke and a fault of small displacement. Two samples across 8-inch widths of vein assayed 0.7 oz. gold per ton and 13 oz. silver per ton.

Encouraging assays have been obtained from a new vein known as the *Hume* vein, the outcrop location being at an elevation of 6,500 feet and 500 feet south 73 degrees east from No. 1 adit portal. The writer took two channel samples across vein-widths of 34 inches and 36 inches, the average assay being 0.36 oz. gold per ton and 3 oz. silver per ton.

In 1935 the company contemplates extensive surface exploration and further underground development, particularly on No. 1 adit-level.

This property, owned by J. I. Feeney and associates, of Vancouver, includes the following nineteen mineral claims, all held on location: *Langara Nos. 1 to 8*, inclusive, *Braemar, Standard, Argo Nos. 1 and 2, Federal, Mary, Joan, Helen Nos. 1 and 2*, and *Tatla Nos. 1 and 2*. The claims are situated on both sides of the South fork of Feeney (Ottarasko) river, about 10 miles by fair pack-trail in a north-westerly direction from the southern end of Tatlayoko lake. The mineral-showings were first discovered many years ago by Mr. Feeney, who relocated them before the present exploration and development work was started.

The mineralization consists of quartz veins, in places well mineralized with arsenopyrite, pyrite, and associated gold and silver values. The veins are found cutting highly altered sediments, principally argillites and quartzites, in the vicinity of tongues and stocks of diorite. The diorite intrusions are in all probability related to the granitic rocks of the Coast Range batholith, which outcrop within comparatively short distances of the showings. Numerous dark basaltic dykes are found cutting the formation.

For convenience in description, the workings, with the exception of one short adit, are described from south-east to north-west across the property.

On the *Langara* showings, about 1 mile by trail and 1,100 to 1,300 feet in elevation above the camp, one main vein and several smaller veins have been uncovered. The most easterly vein, at 6,000 feet elevation, strike south 80 degrees east, dip 80 degrees south-west, varies in width from 2 to 20 inches and has been traced up the mountain-side for 300 feet. A channel sample across two 20-inch cuts on the vein, mineralized with arsenopyrite and pyrite, assayed: Gold, 0.08 oz. per ton; silver, 0.3 oz. per ton; arsenic, 17 per cent. About 500 feet to the west of this vein and at an elevation of from 5,650 to 5,850 feet, a well-defined vein, strike south 53 degrees east, dip 60 degrees south-west, has been uncovered for a length of possibly 350 to 400 feet, with showings in the bluffs above the open-cuts indicating greater length. A branch of this vein, strike north 30 degrees west, dip vertical, intersects the main vein at 5,900 feet elevation on the surface. These veins occur in a diorite stock close to its contact with argillaceous sediments, the vein continuing into the argillites. The main vein averages possibly 4 feet in width where exposed, the branch vein being 2 feet wide. The writer took five samples across widths of from 21 to 54 inches, the average assay being 0.16 oz. gold per ton and 22.6 oz. silver per ton. The owners report having had considerably better but still low-grade values from this section of the property, and further work should be done on the showings to prove their real merit.

On the west side of the South fork of Feeney river and at 5,820 feet elevation on the *Standard* claim, a massive showing of arsenopyrite-pyrite mineralization, occurring as a replacement in the argillites on either side of a north 20 degrees west vertical shear, has been exposed by an open-cut. Two samples representing a mineralized width of 6 feet were taken. The assay returned 0.24 oz. gold per ton and 0.15 oz. silver per ton. The mineralization has been shown up for a length of possibly 250 feet and varies from 2 to 6 feet in width.

About 2,000 feet to the north-west on the *Argo* claim several north-south-striking fissure-veins in cherty argillites have been uncovered by trenching. Seven mineralized fractures, varying from 1 to 4 inches in width, occur within a width of 50 feet. Selected material assayed 0.13 oz. gold per ton, trace in silver, and 28.5 per cent. arsenic.

Approximately 1,000 feet to the west at 5,700 feet elevation a 4- to 6-foot quartz vein, strike north 30 degrees west, dip vertical, was discovered during 1934. A chip sample of the vein exposed in a small creek assayed 0.24 oz. gold per ton and 2 per cent. arsenic. This showing requires and justifies considerable exploration-work before its value will be properly known.

The property is located in a geologically favourable area, and the widespread and uniform mineralization found with the limited prospecting it has been possible to do in the past year warrants further exploration.

VANCOUVER MINING DIVISION.

PACIFIC GREAT EASTERN RAILWAY SECTION.

This group of eight claims—*Exchange, Brandywine, May, June, August, Dan, Den, and Cypress*—is owned by Wm. Barclay and Wm. Anderson, of Brandywine Falls. The claims are situated 2 miles up the Brandywine river by

trail from the falls at the Pacific Great Eastern Railway. The mineralization consists of quartz-filled fissures and lenses of quartz in a wide zone of schistose greenstones and sericitic schists which here occur surrounded by granodiorite of the Coast Range batholith. Development-work in the past, described in the 1927 Annual Report and Bulletin No. 1, 1932, has shown up several low-grade showings of quartz mineralized with small amounts of pyrite, galena, and sphalerite, carrying small gold and silver values. The writer took four samples of representative mineralization from the various workings and obtained traces of gold and silver upon assay in three of the samples. The fourth sample, taken across a 12-inch vein at 1,900 feet elevation and up-stream opposite the owner's cabin, assayed 0.06 oz. gold per ton, 0.6 oz. silver per ton, and 1 per cent. lead. This vein, varying in width from 8 to 14 inches, has been drifted on in a southerly direction for 86 feet, the vein being on the hanging-wall side of an acid-porphry dyke which cuts the granodiorite of the immediate area. The owners report having obtained high gold values from this last-mentioned working, and some further prospecting is planned in view of the results they have to date.

Blue Jack.

This group, consisting of eight claims—*Blue Jack Nos. 1 to 8, inclusive*—situated on the west side of the Pacific Great Eastern Railway, 3 miles by trail from Brandywine falls, is owned by the Blue Jack Mines, Limited. A. E. Snow, one of the original owners, is the Vancouver representative of the company. The property is described in some detail in the 1927 and 1930 Annual Reports of this Department.

The showings are exposed above and below the camp cabins at 2,250 feet elevation, along either side of a shear-zone in schistose greenstone exposed on both sides of a small southerly-flowing tributary of the Brandywine river.

The lowest showing, on the banks of the river at the outlet of the creek, shows 12 inches of sparse galena-pyrite mineralization of indefinite length in the schist. At 2,200 feet elevation a new low-level adit below the two upper adits at 2,600 and 2,650 feet elevation respectively was started in 1933 and driven north 35 degrees east for 100 feet through overburden.

At 2,475 feet elevation, on the west bank of the creek, a small open-cut in the schist shows segregations of galena and quartz mineralization a few inches wide and short exposed length. A selected sample of mineral from this exposure assayed 1.22 oz. gold per ton, 1 oz. silver per ton, 1.2 per cent. lead, and 4 per cent. zinc. At 2,700 feet elevation and approximately 200 feet west of the main showings to be described, stripping has exposed galena and sphalerite mineralization in quartz stringers along a length of 20 feet and over a width of 14 to 24 inches. A sample taken across a width of 24 inches of the best mineralization in the schist assayed a trace of gold, silver, copper, and lead, and 2.5 per cent. zinc.

At 2,600 to 2,700 feet elevation along the creek-banks, open-cuts and two adits have exposed pyrite-galena-sphalerite segregations over an aggregate width of 40 to 50 feet of a shear-zone in schistose greenstone. The mineralization occurs as stringers and bunches across this width, and no one segregation of mineral has any appreciable continuity along the trend of the schistosity. A channel sample across a 7½-foot width of mineralization, on the east bank of the creek at 2,675 feet elevation, assayed: Gold, 0.16 oz. per ton; silver, 2.2 oz. per ton; copper, *nil*; lead, 0.8 per cent.; zinc, 1 per cent. The two adits, No. 2 at 2,650 feet elevation on the west side of the creek and No. 1 at 2,600 feet elevation on the east side of the creek, expose small segregations of sulphide mineralization near the portal of No. 2 and in a short crosscut to the west from the face of this working, and in the present face of No. 1 adit-crosscut.

The occurrence of good gold values with the sulphides justifies further prospecting in the area, and this should be done before any long crosscut adits are considered.

Astra and Cambria.

This group of fourteen claims, including the *Astra, Cardiff, Cambria, Doffofy, Dick, Harry, Pal, Progress, Ruth,* and *Tom* claims, all held on location, is situated about 1 mile to the north-west of the *Blue Jack* group. The same trail serves both properties, the distance from the Pacific Great Eastern Railway being 4 miles to the cabins at 3,250 feet elevation. The claims are owned by Frank Price, of Vancouver, and associates.

Several zones of disseminated low-grade galena-sphalerite mineralization with narrow lenses of more massive sulphides have been developed by open-cuts in schistose greenstone found in association with diorite tongues of the Coast Range batholith. Of those examined the zone developed by four large and several smaller open-cuts at 3,250 feet elevation and approximately 2,500 feet north-westerly from the cabin is the largest in areal extent. This showing is called

No. 6 lead and mineralization over a length of 600 to 800 feet and up to 65 to 75 feet in width is indicated by open-cut work. No. 4 cut at the south end of the open-cut workings was sampled by taking chip samples from the 15-foot width of sulphide mineralization, principally pyrite with galena and sphalerite; the sample assaying 0.40 oz. gold per ton, 2 oz. silver per ton, trace in copper, 2.6 per cent. lead, and 4 per cent. zinc. Approximately 175 feet north 35 degrees west of No. 4 cut is No. 3 cut, which shows similar sulphide mineralization of the greenstones, and a representative sample of the 16-foot-wide exposure assayed: Gold, trace; silver, 1 oz. per ton; copper, *nil*; lead, *nil*; zinc, 2.5 per cent.

No. 2 cut, 30 feet north 35 degrees west from No. 3 cut, indicates a width of 30 feet of sulphide mineralization and a grab sample from the entire exposure assayed: Gold, trace; silver, 1.5 oz. per ton; copper, *nil*; lead, 1 per cent.; zinc, 3 per cent. No. 1 cut, a short distance north-west from No. 2 cut, indicates a 75-foot width to the zone of mineralization and a chip sample from forty or fifty places in the open-cut assayed: Gold, trace; silver, 1.5 oz. per ton; copper, trace; lead, 1.4 per cent.; zinc, 4 per cent. From the various exposures it is indicated the zone strikes north 35 degrees west and dips at 65 degrees into the hill (south-west).

Approximately 600 feet to the south-east and at 2,960 feet elevation a long open-cut in schistose rocks, partly silicified, exposes what is regarded as the hanging-wall of the zone, the strike and dip of the mineralization being the same as above. One sample from the open-cut face assayed: Gold, 0.14 oz. per ton; silver, 1.5 oz. per ton; zinc, trace; while a sample from an open-cut above the long open-cut assayed: Gold, trace; silver, 2 oz. per ton; copper, trace; lead, 0.8 per cent.; zinc, 3 per cent.

Several other showings of sulphide mineralization have been located by prospecting along a northerly-flowing tributary of the North fork of the Cheakamus river, about 1 mile to the north-west of the cabin at 2,400 feet elevation. Assays of a 15-foot sample from one such showing (No. 5 vein showing) contained only a trace in zinc. Above this showing, on the same small creek at 2,850 feet elevation, a 24-inch quartz vein, strike north 15 degrees west, dip 60 degrees south-west, has been opened up by open-cuts and a shallow shaft. A sample of the mineralized portion of this vein assayed: Gold, 0.06 oz. per ton; silver, 1 oz. per ton; copper, trace; lead, 1 per cent.; zinc, 4 per cent.

Within 1,500 feet of the cabin and above a small pond on the divide between the Brandywine and Cheakamus rivers a mineralized replacement of limestone by galena occurs close to the contact of the limestone and the underlying serpentized and chloritized greenstone-schists, in the vicinity of a quartz-porphry dyke.

The widespread distribution of the mineralization, though low in grade, indicates that the area is worthy of further prospecting.

NEW WESTMINSTER MINING DIVISION.

References.—Barkoola, 1930; *Blue Lead*, 1930; *Cox* claims, 1928; *Dandy (Mayflower)*, 1930; *Empress*, 1931; *Faith* (Silver Chief Mining Company, Limited) (*Providence*), Bulletin No. 1, 1932; *Lucky Four*, 1931; *Money Spinner*, 1930; *Mountain Goat*, Bulletin No. 1, 1932; Pitt Mining Company, 1930; Slease Creek Mining and Development Company, 1929; *Wissota and Zenith*, 1929.

This property, comprising the *Money Spinner*, *Wonderful*, *Prince*, *Golden Money Spinner Queen*, *Tellurium*, *Free Gold*, *Neptune*, and *Star Crown*-granted mineral **Gold Mines, Ltd.** claims, is situated 16 miles north-west of Tipella by trail on the north side (N.P.L.) of Fire lake, on the southern slope of Fire mountain. Tipella is 42 miles by boat north of Harrison Hot Springs, and Harrison Hot Springs is 6 miles from Agassiz, on the Canadian Pacific Railway, or 90 miles by road from Vancouver.

The principal showing on the property is a well-defined quartz fissure-vein averaging 4 feet in width, strike almost north-south, dip 50 degrees to 40 degrees west. The vein occurs in fine-grained to porphyritic greenstone, profoundly sheared in many areas to greenstone-schist. The vein is well banded and sheared between gouge-filled walls. This vein is on the *Money Spinner* claim and it outcrops at 4,900 feet elevation above sea-level. It is at this point that the principal workings are located.

No. 1 adit, 4,900 feet elevation, is caved at 250 feet from the portal, but is stated to have been driven 420 feet along the strike of the vein. At 83 feet from the portal a winze was sunk

on the vein for 84 feet, and from the bottom of the winze two short drifts aggregating 35 feet in length were driven on the vein. At 138 feet a raise was driven 80 feet up on the vein, following it almost to the surface. Two small stopes were excavated at the bottom of this raise.

No. 1 level shows the vein to be well defined and mineralized with small amounts of pyrite. Occasional samples showing free gold in small amounts have been found along the fracturing in the banded vein. Five channel samples taken across vein-widths varying from 30 to 49 inches in this level and in the two small stopes from it showed traces in gold. Two samples, 250 and 230 feet from the portal, assayed 0.06 oz. gold per ton, while one sample across a 3-foot vein-width in the stope assayed 0.16 oz. gold per ton. Two samples were taken from the vein at the bottom of the winze across 3.5- and 5.7-foot vein-widths. These samples showed traces in gold. A specimen showing a small quantity of free gold was found at the bottom of the winze-workings. In the winze-workings there is evidence of a concentration of sulphides and it is from this place that the former owners report having obtained excellent gold values.

Surface work has shown the continuation of the vein for several hundred feet. The occurrence of reported good gold values at places warrants a thorough sampling of the vein as exposed and the cleaning-out of the workings beyond the caved ground on the No. 1 level. A short crosscut and drift from the new No. 2 adit-level, 125 feet below No. 1 level, would definitely establish whether or not minable values are located below the winze from No. 1 level.

When the property was examined in October the new No. 2 adit was in 16 feet from the portal.

This group of five Crown-granted claims—the *Barkoola*, *Toledo*, *Monterey*, **Barkoola.** *Washington*, and *Golden Eagle*—are located about 1 mile west of the *Money Spinner*. A rough trail joins the two properties. The showings consist of a number of narrow veins, most of them gash-veins, in greenstone, the quartz being mineralized with traces of copper. On the *Barkoola* claim an adit at 5,100 feet elevation, 57 feet long in a north-easterly direction, exposes a quartz vein up to 2 feet wide. A sample of three cuts across 13 inches of quartz in the bottom on an 8-foot winze at the face of the working showed only a trace in gold. A second sample of three cuts across 18 inches of quartz on the back of the working assayed 0.04 oz. gold per ton.

On the *Monterey* claim, at 5,300 feet elevation and to the west of the *Barkoola* adit, are a caved adit and shaft and a fairly large dump of quartz and greenstone, the quartz containing slight copper mineralization. Quartz veins are found in greenstone here as at the other claims of the group. No work has been done on this property for many years.

This company owns by location a group of approximately sixty mineral claims **Richfield Cariboo** staked along the north side of Fire creek and Fire lake. The claims include **Gold Mines, Ltd.** the *Blue Lead* and *King No. 1* claims, formerly owned by C. D. Morgan, of Vancouver. The *Money Spinner* trail from Tipella and branch trails give access to the various claim-workings. During 1934 two to four men were employed doing assessment-work during the summer and autumn months.

The most westerly showing consists of four parallel gash-veins on the *Blue Lead* claim. These veins are from 60 to 80 feet in length, vary from nothing to 18 inches in width at the central portion, strike north 85 degrees east, and dip 43 degrees to 46 degrees north-east. On the lowest vein at 5,450 feet elevation a 35-foot shaft was sunk several years ago. The vein exposed in the shaft varies from 12 to 24 inches in width and a sample of four channel cuts across widths of 16, 19, 20, and 24 inches, at 10-foot intervals, assayed a trace in gold. A grab sample of the quartz-dump from this shaft assayed 0.04 oz. gold per ton. On the *Blue Lead* No. 1 vein, 400 feet north-west from the above winze, a gash-vein 20 feet long and 14 inches at its widest part assayed: Gold, *nil*; silver, *nil*; copper, trace; across an average width sampled of 11 inches.

At 3,700 feet elevation at the west end of Fire lake and about 300 feet above there is a 34-foot shaft on another gash-vein in the greenstone. This vein has an exposed length of 110 feet and a width of 6 to 14 inches. It strikes east and west and dips 26 degrees to the north. The vein pinches to a fracture 15 feet down the shaft. Two channel samples at the shaft-collar across an average width of 15 inches of quartz assayed: Gold, trace; while two channel samples across an average width of 12.5 inches, 10 feet down the shaft, assayed: Gold, 0.02 oz. per ton.

About 1 mile from the west end of Fire lake and close to the north shore-line there is a massive outcrop of quartz in schistose greenstone. The quartz is white and shows practically no mineralization other than a slight iron-oxide discoloration.

The *King* No. 1 vein is located to the east of the *Money Spinner* showings. It consists of a series of short gash-veins 6 to 24 inches wide exposed along a length of 50 feet in the greenstone at 4,600 feet elevation. A chip sample from fourteen of the exposed gash-veins assayed a trace in gold per ton. About 200 feet above and due north from this showing there is a massive irregular outcrop of barren-looking quartz. The main *King* outcrop is located at 5,050 feet elevation and about 800 feet from the *Money Spinner* No. 1 adit. Here several gash-veins varying up to 36 inches in width are exposed by open-cut work along a length of 150 feet. Two samples of three cuts each over average widths of 14 inches and 9 inches on the largest of these veins assayed: Gold, *nil*.

A great number of similar gash-veins outcrop on the property, and from several of them occasional specimens showing chalcopyrite and containing good gold values have been obtained, but the average values of all the samples taken are practically *nil*.

YALE MINING DIVISION.

CHOATE SECTION.

References.—*Aurum*, 1927-28-29-30-31-32; B.C. Nickel Mines, Limited, 1929-30-31-33; *Dawson*, 1931-32-33; *Emancipation* (Dawson), 1915-18 to 1920, 1922 to 1927, 1929-30; *Emigrant*, 1917-18; *Eureka*, 1915-24-25-26; Home Gold, 1929-31-32-33; *Home X*, 1933; *Master Ace*, 1930-32-33; *Pipestem* (Home Gold), 1922-27-28-29-32; *Pride of Emory* (B.C. Nickel), 1924-26-28-29; *Roddick*, 1915; *Siwash Creek*, 1915-22-23-26; *Star*, 1933; *St. Patrick*, 1933.

B.C. Nickel Mines, Ltd.

This property, comprising in all approximately 113 mineral claims, including the *Pride of Emory* group, is situated across the ridge between Choate and Emory creeks, approximately 15 miles by road north-west of Hope. Access to the property is by means of a private road constructed by the company from the main Cariboo highway at Choate. This road is 7½ miles long and climbs from an elevation of about 100 feet above sea-level to No. 1 tunnel portal at 3,527 feet elevation.

During 1934 approximately 130 men were employed under the direction of C. B. North, engineer in charge, in furthering development-work on the extensive property holdings. Several hundred acres of the company's claims were surveyed with a magnetometer of the Askania type under the direction of E. E. Bergman, of Seattle. This work indicated approximately sixty-eight areas of possible nickeliferous-pyrrhotite mineralization. On several of these indicated areas test-pits were sunk to bed-rock and in every case nickeliferous mineralization was found to occur where it had been indicated.

About 20,000 feet of diamond-drilling was also done during 1934, most of it being done from underground stations in the No. 1 tunnel.

The general geology of the area has been described in some detail in the 1933 Summary Report, Part A, Geological Survey of Canada.

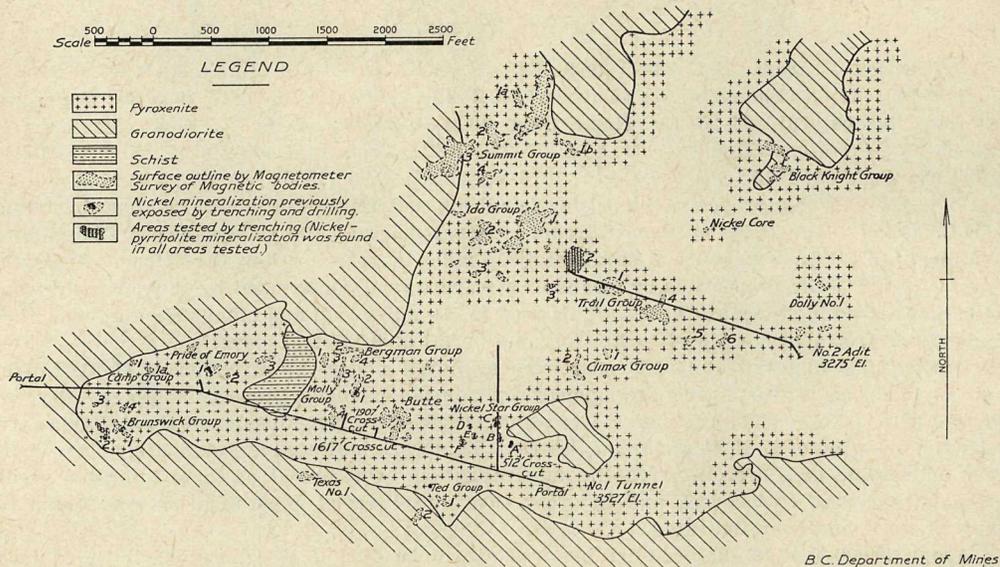
The company's map which accompanies this report shows the general geology; the occurrence and location of the nickeliferous-pyrrhotite mineralization located by the magnetometer survey, and the underground work done by the company in 1934. As shown on the map, the Main (or No. 1) tunnel at 3,527 feet elevation was holed through in a length of 4,700 feet to the Emory Creek side of the mountain. At 512 feet from the eastern portal (or Main camp side) of this tunnel the 512 crosscut, to the north, had been advanced 1,125 feet at the end of 1934. At 1,617 feet from the eastern portal of No. 1 tunnel, the 1,617 north crosscut was in 84 feet in pyroxenite at December 31st, 1934, while the 1,907 north crosscut at 1,907 feet west of the portal had been advanced a total of 147 feet at the end of the year. These development-workings are being advanced at an exceptionally good rate of speed, it not being uncommon to make 600 feet of progress in a heading in one month. The several crosscuts listed are being driven for the purpose of getting under the various magnetometer indications, and as soon as these workings have been advanced a sufficient distance, diamond-drilling will be used to delimit and determine the possibilities of the ground on either side.

Diamond-drilling from this main tunnel has located in several holes widths of nickeliferous-pyrrhotite mineralization averaging more than 1 per cent. nickel.

In hole No. 36, which is located about 1,600 feet in from the eastern portal of the main tunnel and which was drilled in a northerly direction, a width of 120 feet of nickeliferous-pyrrhotite mineralization averaging 1.13 per cent. nickel was encountered. Of this 120 feet, 30 feet of what is presumably the hanging-wall section assayed 2.59 per cent. nickel.

In hole No. 37 from the same set-up and drilled at an angle of 30 degrees to the east of hole 36, 30 feet of nickel-pyrrhotite mineralization averaging 1.08 per cent. nickel was encountered. In holes 57, 60, 68, 70, 208, and 210, which were drilled southerly under the *Brunswick* group of showings near the west end of the main tunnel, good sections of mineralization have been encountered.

In hole No. 57, which is drilled in a southerly direction from the No. 1 tunnel at 3,837 feet west of the eastern portal, a composite sample across a width of 60 feet assayed 1.09 per cent. nickel and 0.37 per cent. copper. In hole No. 60 at the same set-up and drilled southerly at a direction of $7\frac{1}{2}$ degrees to the east of No. 57 hole, a composite sample along a length of 49 feet of core assayed 1.37 per cent. nickel and 0.3 per cent. copper. In hole No. 70, drilled in a southerly direction from a point in the No. 1 tunnel, 367 feet east of the last two mentioned holes, a core-length of 70 feet averaged 1.29 per cent. nickel. In hole No. 208, drilled in a



Plan showing the Workings, Rock Formations, and Mineralization on the Property of B.C. Nickel Mines, Ltd. From Company's Maps.

southerly direction from the No. 1 tunnel at about 183 feet east of holes Nos. 57 and 60, a composite sample along a length of 49 feet of drill-core assayed 1.44 per cent. nickel and 0.6 per cent. copper. In several diamond-drill holes short sections of core assaying more than 1 per cent. nickel have been encountered.

No. 2 adit, the portal of which is approximately 2,200 feet west of No. 1 tunnel and at an elevation of 3,275 feet above sea-level, was advanced to a total distance of 2,208 feet from the portal at the end of 1934. It is planned to continue this working in a westerly direction for another 800 feet, at which point a connection will be made to the 512 north crosscut now being driven from No. 1 tunnel. From No. 2 adit a large amount of diamond-drilling has been done and in several holes nickel mineralization, generally of low grade, has been encountered. Hole No. 79, which is located 1,706 feet in from the portal, was drilled in a north 21 degrees east direction horizontally, and an average of 1.02 per cent. nickel and 0.45 per cent. copper was obtained from 50 feet of core-length, with 20 feet of core-length averaging 1.67 per cent. nickel.

The property is equipped with its own hydro-electric plant which drives two Sullivan air-compressors capable of providing 2,500 cubic feet of air per minute. Underground equipment necessary for the rapid driving of the large development-workings includes three Nordberg-

Butler shovels, several switching-track sections, 25-cubic-foot steel cars of the Coeur d'Alene type, Ingersoll-Rand and Gardner-Denver heavy-duty drifting-machines, and necessary steel-sharpening shops. The surface mechanical shops are located at the eastern portal of the No. 1 tunnel. The company also owns and operates a sawmill capable of producing 15,000 feet board measure daily to provide necessary timber used underground and in camp-construction. Comfortable camp accommodation for a crew of 130 men, 100 of whom work underground, has been provided.

Diamond-drilling is conducted on a three-shift basis with two drills, the core from the holes being stored and, when necessary, assayed at the property by the company's own staff.

A large amount of underground development and diamond-drilling work was done during the year, but there still remains to be done a great deal of development to delimit the many mineral indications which have been shown up on the property by the magnetometer survey. It is expected that results in this work in the next six months will be sufficient and of such character as to definitely indicate the commercial importance of this low-grade nickeliferous-pyrrhotite occurrence.

The assays which are given in the above report were furnished through the courtesy of C. B. North, the assays and sampling being done in the company's assay office.

This company's property, comprising thirty-four claims held on location, is situated 4 miles north of Hope, on the Fraser River highway. The camps, **Ideal Gold and Nickel Mines, Ltd.** power-house, and main adit are all within a few hundred yards of the road and the main line of the Canadian Pacific Railway. W. T. Fairgreaves, of Vancouver, is managing director for the company. In the vicinity of the main adit coarse-grained hornblende diorite is in contact with altered siliceous-feldspar tongues and dykes, while at the Dam showings are schistose greenstone and talc.

The workings shown to the writer were: (1.) An open-cut 320 feet in elevation above the adit in the bed of a small creek used as a source of water for the small Pelton installation. Here there is an outcrop of lenses of quartz aggregating 34 inches in width in the talc-schist. A sample across this width assayed a trace in gold and silver. (2.) A large open-cut at 940 feet elevation, called the Upper cut, where pyrite mineralization occurs in granitic rocks; a representative sample of the exposure, 20 feet by 20 feet in area, assayed trace in gold and silver. (3.) The main adit, where several siliceous-feldspar zones in hornblende diorite have been cross-cut by the 507-foot working. This working, driven 425 feet south 57 degrees west, with the last 80 feet south 50 degrees west, was found to cut two quartz sections, the first at 190 to 220 feet from the portal and the second at 331 feet from the portal. The writer carefully cut six 5-foot channel samples across the 30-foot width of the first showing intersected. All the samples, upon assay, were found to contain only traces in gold and silver. Values of \$8 to \$14 per ton in gold have been reported from this showing. The exposure at 331 feet from the portal was sampled across its 36-inch width and found to assay only a trace in gold and silver.

The property is equipped with portable Ingersoll-Rand compressor, air-drills, etc., and a camp. Work was carried out during the early part of 1934, but the property was idle when examined in December.

YALE SECTION.

Roddick. This claim, situated 4 miles up Siwash creek by trail from the Fraser River cable-crossing, 1½ miles above Yale, was further developed during 1934 by the Fagan Bros. and partners. The camp at 2,050 feet elevation on Roddick creek, a north-easterly-flowing tributary of the South fork of Siwash creek, is a short distance above the main showings.

The mineralization consists, as far as could be seen, of a narrow quartz vein, 2 to 10 inches wide, strike north 50 degrees west, dip 25 degrees south-west, in slate. A short distance to the west of the adit and the quartz-outcrops a wide feldspar-porphry dyke outcrops between the slates and a zone of greenstone-schists.

The owners were engaged in driving a short crosscut (in 30 feet in slates and slide-rocks when examined) to intersect the vein at a depth of possibly 30 feet below its outcrop. It is reported by the owners that gold values of spectacular amount have been found in the heavily oxidized sections of the vein. Approximately 50 feet east of the present working there is the portal of an old crosscut adit said to be 140 feet long.

16 by 9¼ by 10 Sullivan angle compound compressor of 700-cubic-foot capacity, and a 112-k.v.a. alternator used for driving the mill equipment. A new machine-shop, blacksmith-shop, assay office, sawmill, two-story bunk-house for fifty men, cook-house, staff-house, two bungalows, and a guest-house were also added to the plant equipment in the period under review.

The main ore-showings developed to date have been on the north-westerly side of a faulted zone which occurs between the Broken Ridge shaft-workings and the main shaft. This, the Tenfold vein, narrow at the surface, averages about 18 inches in width for the 750-foot length developed on No. 1 level. Ore was also developed along an appreciable stoping-length on No. 2 level, but the winze from this level encountered a fault 20 feet below the drift. It is reported that the vein has been located by diamond-drilling beyond the fault. Good values across narrow vein-widths were found in the short lengths exposed by the 139 south drift and 161 winze at the Broken Ridge shaft-workings.

Stoping operations were conducted mainly on No. 2 and No. 1 levels on the Tenfold vein-workings, and to a limited amount from No. 1 level on the Broken Ridge vein. Of the 7,216.5 tons milled, approximately 1,250 tons was from development-work. The development-work up to the end of 1934 and the diamond-drilling is shown on the accompanying map. Approximately 1,875 feet of drifting, 880 feet of croscutting, 400 feet of sinking, and 435 feet of raising was done as development-work in 1934. Diamond-drilling in search of the faulted portion of the vein amounted to 2,788 feet.

At the end of 1934 the development-work, additional of course to mining of ore in the stopes, included diamond-drilling at the third level to locate the vein below the No. 2 level fault; the sinking of a winze to No. 2 level in the Broken Ridge workings, with a view to establishing greater lengths of ore on the lower levels (due to fault-dip conditions); and drifting on No. 2 level on the Broken Ridge vein.

According to a statement by Gordon F. Dickson, managing director of the company, at September 30th, 1934, the amount of developed ore estimated to be still in the mine above No. 2 level of the Tenfold workings and north-west of the fault between the Tenfold and Broken Ridge workings was sufficient for seven to eight months' operation at 850 tons per month milling capacity. H. A. Rose is superintendent in charge of the plant operation.

During 1934 a new road to the mine was constructed from Tobacco flats. This 17-mile section of new road materially reduces the cost of transportation of supplies from Savona, the nearest station on the Canadian Pacific Railway.

This company, capitalized for \$1,000,000, divided into 1,000,000 shares of \$1 par value, acquired the property formerly known as the *Last Chance-Sylvanite Gold Mines, Ltd.* group of nine claims and fractions, all situated to the north-west of the property of the Vidette Gold Mines, Limited. The company office is at 1016 Vancouver Block, Vancouver. The claims are reached by road from Savona, up the valley of Deadman river, a distance of 43 miles.

Exploration-work during the past year has exposed several veins occurring in north-westerly-striking fractures and fissures in the greenstones of the Nicola series. Mineralization consists of quartz and occasionally small amounts of pyrite and chalcopyrite. Diamond-drilling (1,600 feet total) in eight holes indicated quartz-vein extensions along a horizontal length of approximately 1,000 feet.

When the writer visited the property in August, 1934, a crew of thirty men was employed in surface camp-construction and underground development-work. The main underground work, known as the main adit, had been driven 268 feet as a crosscut north 65 degrees east to intersect the Sylvanite vein at 228 feet from the portal. Approximately 100 feet of drifting south 32 degrees west had been done on this quartz vein, which, as exposed, varies in width from 8 to 24 inches (averaging possibly 15 inches) and dips to the north-east at 70 degrees. Six channel samples across the quartz vein at 10-foot intervals across an average width of 14 inches assayed in every case a trace in gold and silver content. It is reported that high values from gold tellurides have been obtained from one of the small veins exposed by open-cutting just to the north-east of the Sylvanite vein-outcrop.

Another adit, in 57 feet from the portal on a north 40 degrees west bearing, was also being driven to connect with the main adit-drift. So far gold values uncovered have been low, but the occasional occurrence of good gold values in the veins in the greenstones makes the area worthy of a thorough exploration.

The property is equipped with a 50-60-horse-power McCormack-Deering Diesel engine and a 225-cubic-foot single-stage Holman compressor. Camps and an assay office have been provided. The crew at the end of the year numbered eight men, under the supervision of A. D. Kerr.

This company owns the *Hamilton Creek*, *Ruth Hope*, *Dick*, *Last*, *Last Nos. 2*, **Hamilton Creek 3**, and *4*, *Argentine No. 2*, and *Downie Fraction* surveyed mineral claims, all **Gold Mines, Ltd.** situated adjoining the Vidette Gold Mines, Limited, claims to the west. The property was explored and prospected by trenching, diamond-drilling, and crosscutting during 1934. The principal workings are located on the *Hamilton Creek* claim, approximately half a mile by trail north-west of the Vidette camp and the road connecting Vidette with the Canadian Pacific Railway at Savona.

The showings exposed in the valley-bottom and by a 360-foot length of trench, near the middle of the eastern boundary of the *Hamilton Creek* claim, consist of narrow quartz stringers in greenstone. The veins and stringers strike north 80 degrees west and dip 35 to 45 degrees north-east. Following the open-cut work, a programme of diamond-drilling for formational information was started under the supervision of J. Bennett, the company's engineer and manager. Three holes were drilled south 63 degrees west into the hill for 400, 250, and 260 feet respectively at an angle perpendicular to the assumed plane of the veins. Several quartz-showings were encountered and low gold assays on short sections of the core were obtained.

The main adit, following the line of No. 2 drill-hole, was started after the writer's visit to the property, and it is reported by the management to have been advanced a total distance of 245 feet on January 11th, 1935. In this crosscut-length it is reported by J. Bennett that eight quartz-filled fissures varying in width from 2 to 24 inches have been intersected, and it is further reported that values up to 0.32 and 0.56 oz. gold per ton have been obtained across the 24-inch and 20-inch quartz veins encountered at 85 and 150 feet from the portal.

W. C. Shelly and associates, of Vancouver, owning twenty-four claims and fractions, all held on location, did a limited amount of surface and underground exploration on their *Ply U.*, *Grebo*, and *Alpha No. 1* claims during 1934. The claims are situated to the north-east of Vidette lake, about 1½ miles by road from Vidette, on the old Vidette-Savona road. The property was in charge of a watchman when it was visited in August, 1934.

On the *Ply U.* claim a 30-foot adit driven into the hill at 3,450 feet elevation in an easterly direction exposes at its portal a narrow quartz-filled fissure in schistose greenstone. A small open-cut just above the adit exposes a narrow band of calcite in the greenstone. A sample of selected material from the 1- to 3-inch stringer exposed at the portal assayed *nil* in gold and silver.

Approximately 2,000 feet to the south-east of the above working and on the *Grebo* claim at 3,250 feet elevation, a 10- by 9-foot open-cut in a small draw has exposed a narrow, badly crushed quartz vein (strike north 60 degrees east and dip 45 degrees north-west), 3 to 12 inches wide, in volcanic rocks. A sample assayed *nil* in gold and silver. About 30 feet to the west of this cut, another 10- by 6-foot cut exposes what is undoubtedly the same vein. A 12-inch channel sample from this exposure assayed *nil* in gold. Quartz float was also found about 150 feet to the west and up the hill from this last-mentioned exposure.

On the *Alpha No. 1* claim there is a 15-foot open-cut and a 24-foot adit (with a maximum possible back cover of 20 to 25 feet) driven north 65 degrees east on a narrow calcite stringer. Approximately 1,000 feet south 70 degrees east of this adit and 200 feet north 10 degrees east from the *Alpha No. 1* post, a shallow shaft exposes a quartz vein in the volcanics similar in appearance to the exposures on the *Grebo* claim. These workings were all that were known to the watchman in charge at the property. Possibly there are other showings on the claims which the writer did not see.

A number of prospectors were in the hills in the Vidette Lake section and to the north-west in the Clinton Mining Division.

LYTTON AND ASHCROFT SECTIONS.

The Epsom-salt lakes at Basque were worked in a small way during 1934 by Epsom Refineries, Limited, a Winnipeg company. The company was organized in 1934 with a Dominion charter, with a capitalization of 1,000 shares, each of \$100 par value. In the fall of 1934 the refinery at Ashcroft was started and in 1935 the new company hopes to market from 1,000 to

2,500 tons of the salts. The deposits, which are the best known in British Columbia, have been described in detail in past Annual Reports and in "Investigations of the Mineral Resources and Mining Industry, 1924," issued by the Dominion Department of Mines, Ottawa.

PLACER-MINING.

The usual number of individuals were working on the bars of the Fraser and Thompson rivers during 1934.

CLINTON MINING DIVISION.

Within this Division are located the numerous non-metallic clay, salt, and carbonate deposits of the Green Timber plateau north of Clinton; the lode-gold deposits on Kelly creek and the Fraser river to the west of Clinton; the Watson bar and Fraser River bar placer-diggings; the Poison Mountain and Creek placer area; the Chilko, Tatla, and Taseko lode-gold area, situated 40 to 50 miles north-west of the main Bridge River camp by trail.

Mining activity in 1934 was concentrated in the Kelly Creek and Taseko Lake and River areas.

References.—*Astonisher*, 1933; B.C. Chemical Company, 1929-30; *Buzzer*, 1928-30-31; Churn creek, 1932; *Copper King*, 1919; Crow's Bar Placers, 1931-32; Dominion Soda Producers, Limited, 1918-28-29-30; Grange Mines, Limited, 1933; *Maggie*, 1915-30; *Motherlode*, 1927-29-30, and Bulletin No. 1, 1932; Pavilion Gold Mines, Limited, 1933; Poison Mountain area, 1933; Timothy Mountain, 1929-30-31, and Bulletin No. 1, 1932; Watson Bar creek, 1923-24-30-32; *Windfall*, 1922-23-29-31, and Bulletin No. 1, 1932.

CLINTON SECTION.

(See past Annual Reports, 1928-33). This company started milling operations **Grange Mines, Ltd.** at their 25-ton-per-day table-flotation plant at the beginning of 1934, continuing at somewhat less than rated capacity until near the end of the year, when the mill equipment was increased to treat 60 tons of ore per day, since when operations have been at the rate of 50 tons per day. A total of 646.1 oz. gold, 765 oz. silver, and 4,669 lb. copper were recovered by milling operations in 1934.

Development-work underground resulted in considerably improving the position of this property as regards ore possibilities. The main shaft was sunk a further 115 feet and the sixth level, at 105 feet below No. 5 level, was developed by a total of 940 feet of drifts and crosscuts and 300 feet of raises. Drifting and raising on the fifth level during 1934, totalling 30 feet and 100 feet respectively, was done.

The No. 6 level was opened up by a drift along the foot-wall shear for 200 feet in a north-westerly direction and disclosed a lens of heavy sulphide mineralization along an ore-shoot length of possibly 150 feet over an average width of 15 to 18 inches. Three stope-shoots were being worked in this section of the mine when the writer visited the property in November, the stope-backs at that time being 12 to 16 feet above the No. 6 level drift. Channel-sampling in this stoping section by the writer across an average width of 16 inches averaged slightly over 1 oz. gold per ton in the massive pyrrhotite-pyrite mineralization exposed. Near the end of this north-west drift the formation, principally hornblende diorite, becomes badly fractured and very basic, and the vein lenses gradually diminish in width and strength in this less competent rock.

To the south-west of the shaft on No. 6 level the foot-wall shear was followed by drifting for 140 feet to a fault of 25-foot displacement to the east. The vein was picked up at several places in the form of short lenses. Sampling of a 35-foot lens of ore encountered just to the west of the fault assayed 0.3 oz. gold per ton across an average width of 30 inches.

After the vein was picked up to the south-east of the fault on No. 6 level it was followed for 60 feet before the ore-lens pinched to a fracture. This fracture, it is reported, was followed a further 60 feet to a second fault of short easterly displacement. The writer took a channel sample of this vein section 10 feet south-east of the No. 1 fault across a vein-width of 28 inches. The sample assayed: Gold, 0.64 oz. per ton; silver, 2.5 oz. per ton; copper, 0.7 per cent. The management reports that this lens of ore widened out to 7 feet in width a short distance to the south-east of where this sample was cut, gradually narrowing to a fracture.

The diorite in the south-east end of the mine is considerably less fractured than it is in the north-western end of the mine. The ore-lenses also are of better width and the possibilities

are that further work to the south-east beyond the second fault will show up more uniform conditions of mineralization.

The hanging-wall shear, 30 feet to the east of the shaft-bottom on No. 6 level, was followed north-west for a short distance along a fairly narrow vein-filling of pyrrhotite-pyrite mineralization in badly fractured diorite. Considerable ore above No. 5 level was stoped from the foot-wall shear lenses of ore described in the 1933 Annual Report.

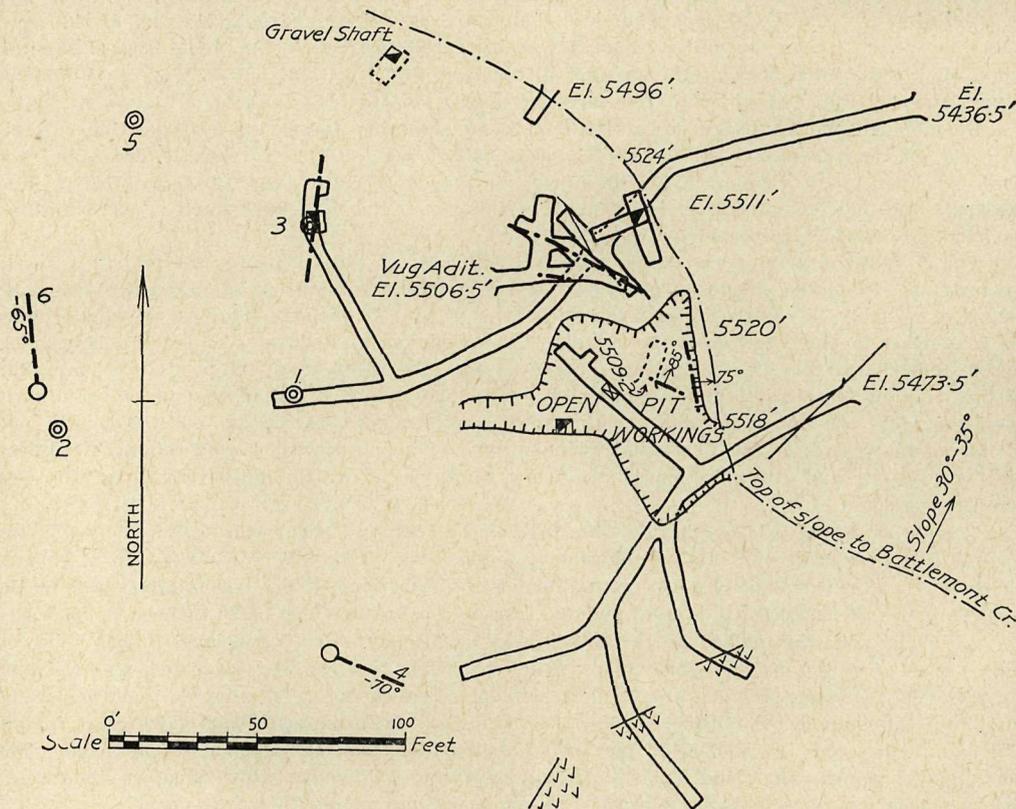
During 1934 improvements were made to the trail leading down to the mine, and a new siding on the Pacific Great Eastern Railway at Grange was built to serve the mine.

In December a fire destroyed the dry-house and part of the bunk-house. This structure has been replaced by a new bunk-house and a separate change-house. J. W. Southin was appointed general superintendent for the company in November, 1934, and many improvements have been made in operating methods, both underground and on the surface.

TASEKO LAKE SECTION.

This company, capitalized at 500,000 shares of \$1 par value, owns the *Windfall* and *Windfall No. 2* Crown-granted claims and the *Sunnyside*, *Sunshine*, *Buzzer No. 2*, *Buzzer No. 3*, and *Buzzer No. 4* claim locations. The claims are all located on Battlement creek, 12 miles west of Taseko lake up the valley of the Taseko river. Access to the property is by trail from the Minto mine, Bridge River, over Warner pass (7,600 feet elevation), a distance of about 45 miles, or by aeroplane from either Seton lake or Vancouver to Taseko lake, and thence by a 12-mile trail up Taseko river to the mine-workings and camp on Battlement creek.

The country-rocks in the immediate vicinity of the workings are tuffs which overlie the Coast Range granitic rocks to a thickness of possibly 800 to 1,000 feet. The mineralization which was found on the surface in the open-cut working shown on the accompanying map



Sketch-plan of Taylor-Windfall Main Workings.

consisted of rich pockets of badly oxidized, rusty, silicified sections of the tuffs, with tourmaline in some of the fractures. The results obtained from the mining and milling of about 85 tons of this surface material disclosed a number of these rich pockets, all without any appreciable continuity of length, width, or depth, but all apparently following lines of fracturing which varied from east to north-east in strike.

Shortly after the company was formed in the spring of 1934, a 3-4-ton-per-day amalgamation-table mill was shipped to the property by aeroplane.

Later in the season the property came under the charge of R. H. Stewart. Diamond-drilling of six holes, shown on the map, resulted in finding two or three mineralized sections of core in holes No. 1 and No. 3. In hole No. 1 the sludge assay at 38-48 feet was 1.48 oz. gold per ton; at 160-162 feet it was 1.98 oz. gold per ton; and at 205-235 feet it was 0.35 oz. gold per ton. In hole No. 3 the sludge assay between 70-90 feet was 1.52 oz. gold per ton. These assay results were supplied by the management. The showings obtained by drilling were partially investigated by drifting and sinking before the close of the season's work, and no doubt further testing-work will be done on this section of the property in 1935 as soon as weather conditions permit.

An adit at 5,436 feet elevation was extended to cut No. 1 hole and a raise was driven through to the surface, following the line of the drill-hole, without encountering any definite structure which would indicate an ore-shoot. A crosscut and winze were then driven on No. 3 drill-hole and 2½ to 3 feet of ore assaying more than 1.5 oz. gold per ton was followed down for a depth of 24 feet in the winze, with the width of the vein being 2.5 feet at the winze-bottom. The mineralization occurs in a silicified section of the tuffs in which there is a zone of chloritic alteration containing gold tellurides. As opened up by the winze and a short drift and crosscut to the north of the winze the impression is gained that the top of an ore-shoot has been cut by the work to date. The vein strikes north, dips at 75 degrees west (on the map), and has been opened up along a length of 18 feet and to a depth of 24 feet.

The camp was closed for the winter shortly after this interesting showing was encountered, but present plans indicate that an appreciable amount of development-work will be done underground on this showing in the summer of 1935. A crew of twelve men was employed under the supervision of E. E. Mason during the latter part of the 1934 work.

**Taseko
Motherlode.**

This property is situated approximately 9 miles by trail from the south end of Taseko lake. The claims are all located on the east side of Granite creek, a northerly-flowing tributary of Taseko river. During 1934 Vancouver interests transported about 9 tons of supplies in to the ground, built winter camps, and repaired the trails leading to the various showings, in addition to doing further surface and underground development-work.

The mineralization consists of sparse amounts of pyrite, chalcopyrite, galena, and sphalerite in a silicified shear-zone which strikes north-easterly across the property. The country-rocks are principally granodiorite phases of the Coast Range batholith, and the two principal and approximately parallel shear or fracture zones have been exposed on the surface by trenching for a length of 600 to 700 feet. The westerly shear-zone, the better mineralized, is about 1,000 feet downhill from the other. The width of the western shear varies from about 100 feet at the south end of the exposures to possibly 75 feet at the north end. At the south end of the shear-zone, at an elevation of 6,400 feet above sea-level, a crosscut adit 290 feet long has been driven and partly cuts it. The present company contemplates continuing the adit a further 60 feet to crosscut through the width of the shear and then to drift to the north-east along the foot-wall for a distance of 150 feet, with crosscuts to the hanging-wall every 75 feet.

As regards values in the sparsely mineralized shear-zone, R. H. Stewart reports that several years ago H. L. Batten sampled across 60 feet of the shear-zone and obtained an average of 0.15 oz. gold per ton. Sampling of the underground work by R. H. Stewart shows that a section of 15½ feet next to the foot-wall assayed 0.135 oz. gold per ton, 1.4 oz. silver, and 0.73 per cent. copper. The next 12 feet of the zone showed an assay value of 0.045 oz. gold per ton, 1.4 oz. silver per ton, and 0.14 per cent. copper; while surface sampling gave gold values of 0.19 oz. per ton over a width sampled of 15 feet, 0.145 oz. over 23 feet, and 0.08 oz. over 10 feet. The values seem to be associated with the copper, and with the possible development of a large tonnage of comparatively low-grade ore of the character visible in the surface and underground work done to date it would be possible to make a fairly high grade gold-copper concentrate by comparatively simple metallurgical methods.

LILLOOET MINING DIVISION.

References.—The reader is referred to the 1933 Annual Report and the following references in the Annual Reports from 1916 to 1932, inclusive, for information about Bridge River properties and the Lillooet Mining Division: *Alpha* (now Minto Gold Mines, Limited), 1930–33, and Bulletin No. 1, 1932; Anderson Lake Mining and Milling Company, Limited (now National Gold Mines, Limited), 1933, and Bulletin No. 1, 1932; *Arlo*, 1918; B.C. Alluvials, 1927; Cayoosh creek (Enterprise Mining Partnership), 1927; *Cinnibar King*, 1931; *Copper Bear*, 1927–28; *Copper Mount*, 1929–30; *Copper Mountain*, 1917–18; *Copper Plate*, 1918; Copper Queen Mining and Smelting Company, Limited, 1916–28; *Coronation* (now Bradian Mines, Limited), 1923–25–27; *Countless (Pioneer)*, 1923; *Crown*, 1923–25; *Eureka*, 1928–33; *Eva (Moffatt)*, 1918–23–25–26; *Forty Thieves* (now Bridge River Consolidated), 1916–33; *Gold King*, 1923–27–30; *Griswold*, 1929–30; *Index*, 1916; *Iron Ridge*, 1924; *Li-li-kei*, 1923–25–27–33; *Lorne (Bralorne)*, 1916–18–23 to 33, and Bulletin No. 1, 1932; Lower Bridge River Placers, 1931–33; *Lucky Gem*, 1924–31, and Bulletin No. 1, 1932; *Marion*, 1927–29; McGillivray Gold Mines, Limited, 1929; *Native Son*, 1924–25–33; Nobb's placer claim, 1922; *Paymaster*, 1930; P.E. Gold Mines, Limited, 1930; *Pioneer*, 1916–18–22 to 33, and Bulletin No. 1, 1932; *Regal*, 1918; *Shulap*, 1925–26; *Silver Bell*, 1923–25–26; *Thelma Maud*, 1918; *Tyughton*, 1927; Universal Mining and Milling Company, Limited, 1925; *Wayside*, 1925.

PEMBERTON-BIRKENHEAD SECTION.

Mariposa. This property, situated 5 miles by road and trail west of D'Arcy Station on the Pacific Great Eastern Railway, received extensive prospecting and exploration during 1934. A crew of eight to twelve men, under the supervision of J. Savage, the Syndicate manager, established camps a short distance south of Blackwater creek; excavated many open-cuts at various showings found on the surface; and drove several hundred feet of workings to test the underground continuation of some of the surface showings.

The mineralization consists of sparsely mineralized quartz veins in an area of schistose greenstones and sedimentary rocks. Very little sulphide mineralization is in evidence in the showings and only low gold values were obtained in representative samples taken.

About 800 to 1,000 feet above the camp, and to the south of it, the *Wonder* showings have been opened up by four surface cuts. The No. 4 *Wonder* showing, the most westerly of the four, at 3,275 feet elevation, exposes a partially oxidized 24-inch quartz vein, strike north 55 degrees west, dip 45 degrees south-west, in greenstone-schist. The best value obtained in this cut is stated to be 60 cents gold per ton. The No. 3 *Wonder* showing, 1,700 feet south-east of the No. 4 showing and at 3,300 feet elevation, consists of an 18-inch quartz vein, strike north 60 degrees east, dip 60 degrees north-west, in schist. A channel sample of two cuts across the width of the quartz assayed: Gold, *nil*; silver, 0.5 oz. per ton. The No. 2 *Wonder* showing, a few hundred feet to the east at 3,500 feet elevation, is opened up by two open-cuts. The cuts expose a width of 4 to 6 feet of a slightly oxidized quartz vein in greenstone and schist. This vein strikes north 50 degrees west and dips into the hill at 75 degrees to the north-east. A chip sample across a 4-foot width of the most heavily oxidized portion of the vein assayed *nil* in gold and silver.

A short distance up-stream from the camp at 2,400 feet elevation four short adits and several open-cuts have been made. Except for the No. 4 adit at 2,825 feet elevation, and in an open-cut just above it, the various exposures are all narrow in width and carry low gold values. They do not show any marked continuity in the schist and sheared greenstone country-rocks. The No. 4 adit outcrop shows an 8- to 10-inch quartz vein, strike south 30 degrees east, dip 45 degrees west, in schist. Below and 20 feet to the east is exposed 15 feet of soft clayey and chloritic schist. The adit is driven on the foot-wall side of a feldspar-porphry dyke in an easterly direction, a slight turn to the west being made to cut through the dyke, strike south 30 degrees east. Just before the dyke was cut underground, 3 feet of silicified and banded sediments (argillite) were found on the foot-wall. A sample was taken of 9 inches of quartz on the dyke foot-wall. It assayed *nil* in gold and silver. The No. 4-A adit, 25 feet higher than No. 4 and a short distance up-stream, exposes a fine-grained basic dyke and greenstone rocks with no values. Across the creek from the portal of No. 4 adit a 24-foot width of pyritized quartz is stated by J. Savage to have assayed \$1.02 in gold per ton. No. 3 adit, at 2,815 feet elevation and down-stream from No. 4, is in 25 feet in dyke-rocks. No. 2 adit, at 2,750 feet

elevation and down-stream from No. 3, was driven 65 feet on a band of quartzite. Small stringers of quartz occur in this working. From No. 1 adit, at 2,700 feet elevation, J. Savage reports a \$13.20 gold assay. This adit is in 50 feet in an easterly direction and the inner end of it breaks through into slide-rock after passing through schist. The open-cuts on the westerly side of the creek expose several narrow quartz veins from which it is reported that values of from 60 cents to \$1 in gold have been obtained.

ANDERSON LAKE SECTION.

This company controls two groups of mineral claims on McGillivray creek west from McGillivray Falls Station on the Pacific Great Eastern Railway. **National Gold Mines, Ltd.** The *National* group of six claims, held by location, is approximately 9 miles by trail west of the station. Very little work has been done on this section of the property. The *Youcon-Skeena* group of seven claims, formerly owned by the Anderson Lake Mining and Milling Company, Limited, and known as the National or McGillivray Creek mine, is situated to the north of McGillivray creek, 3½ miles by trail west of McGillivray falls. The mine camp and principal underground workings are on the *Youcon-Skeena* claims at elevations varying between 3,275 and 4,000 feet. The underground workings have been described in detail in past Annual Reports and in Summary Report, 1933, Part A, recently issued by the Geological Survey of Canada.

The country-rocks in the vicinity of the mine are carbonaceous phyllites and slaty beds which may be altered tuffs or volcanics. Outcropping a short distance to the west of the mine is an area of greenstone, while underground in the No. 3 level west workings, dykes of diorite were encountered.

The vein outcrops along a north strike up the back of a small ridge between elevations of 3,525 and 4,050 feet over a horizontal distance of some 900 feet. It dips at steep angles to the west almost conformable with the surrounding formations.

Three adits were driven on the vein in past development operations. No. 1 level, at 3,655 feet elevation, is now caved and inaccessible. No. 2 level, at 3,550 feet elevation, follows the vein for approximately 450 feet before encountering a fault. No. 3 level, at 3,400 feet elevation, follows the vein and a faulted segment of it for approximately 500 feet before striking the same major fault. This fault, on the No. 2 level innermost workings, strikes north 42 degrees west and dips 55 degrees to the south-west. On the No. 3 level this fault strikes north 41 degrees west and dips at 50 degrees to the south-west.

During the past summer a crosscut to the east succeeded in picking up the faulted portion of the vein about 100 feet distant from the main vein. At the time of the writer's visit this new section of the vein had been drifted on for 250 feet. The vein was continuous for 200 feet of this drift-length. Where the vein was first encountered it is 19 feet in width and two cross-cuts in the length of this new drift on No. 3 level indicate that the vein will possibly average 12 to 15 feet in width. The vein-filling of quartz is partially oxidized and iron-stained and car samples taken by the management during the driving of this drift are reported by them to assay \$8 to \$9 in gold per ton. Two hundred feet from where the vein was first crosscut in this new working a second fault, parallel in strike and dip to the major fault, was encountered. Underground conditions would indicate that this second fault is also a normal fault, and that the northerly continuation of the vein beyond the fault should be picked up a short distance to the east of the present drift.

During 1934 the company also completed a raise between No. 3 and No. 2 levels in well-oxidized quartz in the vein on the west side of the major fault. Three large open-cuts and a short crosscut were also driven to intersect the surface showing above the portion of the vein recently located underground. The vein-width is here about 24 feet. A small crew of men has been employed throughout the year under the supervision of T. Brett, one of the original locators and now managing director for the company.

It is very difficult to properly estimate the values underground in the large amount of quartz which has been exposed by the development-work by ordinary sampling methods. A shipment of several tons of bulk samples to the smelter would give a very good idea as to what might be expected in mining the large amount of quartz which has been exposed. It is reported that the

company proposes to install a 50-ton pilot-mill early in 1935 and with this to properly determine the gold values in the 200,000 or more tons of quartz vein-matter which has been exposed.

This company owns a large number of claims situated on either side of **Canadian Rand Gold Mines, Ltd.** McGillivray creek west of McGillivray Falls Station. The claims are reached by a continuation of the National Gold Mines trail, the Canadian Rand camp being approximately 6 miles from the railway and at 3,700 feet elevation. During 1934 a crew, varying from twelve to twenty-five men, was employed by the company in prospecting several surface showings and driving two adits.

On the *California* section of the property, situated just below the National Gold *Youcon-Skeena* claims, a drift 188 feet long was driven in a north-westerly direction. This drift followed a narrow quartz vein for a portion of its length, the vein varying in width from a mere fracture to 3 feet. It contains only low values in gold. On the diorite section of the property, located just to the north and west of the main camp, approximately 450 feet of drifting and crosscutting was done to establish underground continuity of the No. 1 Diorite vein. The vein, as exposed in the last 120 feet of this working, varies in width from 1 to 3 feet and shows practically no mineralization. The gold values obtained in this showing were practically negligible according to company officials. When the writer visited the property in November the camp was in charge of a watchman, all work having been stopped about the middle of July, 1934. In addition to the underground work described, the company did assessment-work in prospecting on the *Colorado-Washington* claims.

(See previous Annual Reports.) This company was incorporated in March, 1928, with a capitalization of \$2,500,000, divided into shares of \$1 par value. **Pioneer Gold Mines, Ltd.** The holdings consist of eighteen mineral claims and fractional claims situated on Cadwallader creek. The mine plant is 55 miles by road from Shalalth Station on the Pacific Great Eastern Railway.

This mine, for the second year in succession, is British Columbia's leading lode-gold producer. The mill capacity was stepped up during the year to approximately 400 tons of ore milled per twenty-four hours.

Underground developments have been of importance and have added appreciably to ore reserves. On the fourteenth level west 270 feet of high-grade ore averaging 2½ to 3 feet in width was encountered early in the year; a 78-foot length of this ore-shoot averaged 7 oz. gold per ton over vein-widths. On the fifth level east a length of 550 feet of ore averaging 3 feet wide and containing 3.9 oz. gold per ton was also opened up by drifting early in the summer months. Development-work on the fourth level east and on the levels below the tenth, both east and west, was continued with additional ore discoveries.

Early in June the work of sinking the No. 2 shaft to the 3,100-foot level was commenced from the 1,700-foot level (fourteenth level). At the end of the year the shaft was down to the nineteenth level, about half the total depth to be sunk before lateral work from the shaft will be started. Shaft-stations are being cut at 125-foot intervals, so that the 3,100-foot level will correspond to the twenty-sixth mine level.

Many additions to the surface plant and equipment have been made during 1934, and the camp and buildings reflect the prosperity of the company and its efficient management. New houses and camp facilities, a new hospital, community buildings, tennis-courts, and skating-rink have all been added to make life enjoyable. Minor changes in the mill resulted in increased capacity. Underground, many minor improvements in practice have been made. D. Sloan is managing director, H. T. James is general superintendent, Ed. Emmons is mine superintendent, and P. Schultz is mill superintendent for the company.

This company was formed in January, 1934, with a capitalization of \$2,000,000, divided into shares of \$1 par value, to acquire and develop the eastern half of the property owned by Bralorne Mines, Limited. **Bradian Mines, Ltd.** The ground acquired includes twenty-one Crown-granted and five un-Crown-granted claims, with a total area of 773 acres. Following the installation of an electrically-driven Ingersoll-Rand 550-cubic-foot compressor plant, underground development-work was started at the *Coronation* and *Ida May* sections of the property. The No. 1 shaft (old *Coronation* shaft—collar at 3,850 feet elevation), which was down to a depth of 200 feet below the *Coronation* adit, was sunk 510 feet farther. Three shaft-stations were cut at 150-foot level intervals. Crosscutting from the

lowest level (650-foot) to the north-east was expected to cut the *Coronation* vein at a distance of 250 feet from the shaft. This vein was cut shortly before the end of 1934.

At the *Ida May* property a new shaft is being sunk to a depth of 500 feet below the *Ida May* adit level at 4,110 elevation. From the 460-foot level, corresponding in elevation with the 200-foot level of the *Coronation* shaft, a crosscut will be run to intersect the *Ida May* vein, and for the purpose of exploring the ground between the two shafts which are approximately 2,000 feet apart horizontally.

In the past good gold values from vein-widths up to 4 feet were explored and partially mined on both the *Coronation* and *Ida May* properties. The veins are well ribboned, generally less than 3 feet in thickness, strike parallel to the trend of the hornblende-diorite stock in which they occur, and dip at high angles.

Comfortable camps have been provided for the crew of forty-six men employed under the supervision of Don Matheson, the mine superintendent. Power is supplied by the B.C. Electric Company through its high-tension line from Bridge river, to drive two 100-horse-power electric motors, each direct-connected to 550-cubic-foot Ingersoll-Rand compressors.

(See previous Annual Reports.) During the period under review underground developments and surface improvements at the **Bralorne Mines, Ltd.** have kept up with the developments of 1933. The milling plant was increased in size to handle a capacity of 450 tons per day by the addition of a new 250-ton unit and the revamping and reconditioning of the old 200-ton flotation unit. At the end of the year about 375 tons of ore was being milled daily.

Development-work underground included the installation of new shaft-hoisting equipment following the completion of the main shaft to the eleventh level. At the end of 1934 approximately 500 feet of drifting had been done on the eleventh level west of No. 1 fault on the King vein and about 400 feet on the King vein east of the No. 1 fault. The vein, as exposed west of the fault on this the lowest level in the mine (500 feet below the eighth level on the dip of the vein), is wider than drift-width. Development raises from the eleventh to tenth levels have shown increased values over those obtained on the eleventh level. The "C" vein and Shaft vein systems, which responded exceptionally well to development on the sixth, seventh, eighth, and ninth levels, have not yet been reached on the eleventh level. During the mining of the King vein above the eighth level it was found that the gold values had a tendency to occur in ore-shoots of horizontal rake, and that between the ore-shoots it was common to find low-grade and barren vein sections. Similar conditions apparently exist on No. 11 level and further work both above and below the level will no doubt disclose conditions similar to those found above. During 1934 the King vein was opened up west of the No. 2 fault on the sixth, seventh, and eighth levels, and good widths of average grade ore disclosed. The "C" vein, lying along the No. 2 fault-zone, has responded well to development. The 805 drift on the eighth level (main adit-level) opened up a length of more than 300 feet of better than average grade ore across vein-widths of 3 feet average. This is considered to be the Shaft vein, and, if so, it will require considerable drifting on the sixth, seventh, ninth, and lower levels to delimit its possibilities. The various developments have added materially to ore reserves. Numerous camp building additions and improvements were completed during 1934. R. Bosustow is manager, T. Chenoweth is mine superintendent, and F. Grey is mill superintendent.

This company, owning two groups of claims in the Bridge River camp, continued work throughout 1934. The main group of claims, twenty-one in number, which adjoins the *Bralorne* ground to the north, was diamond-drilled and prospected further by underground drifting and crosscutting from the main adit of the *Bralorne*. This latter work was done under contract by the *Bralorne Mines, Limited*, and at the end of 1934 approximately 3,000 feet of a 3,700-foot contract had been completed, and 2,250 feet of the distance driven was in *Taylor* ground.

The long crosscut from the eighth level of the *Bralorne* entered *Taylor-Bridge River* ground early in January, 1934, and subsequent drifting and crosscutting has encountered seven quartz-filled fault-fissures and shears. The first vein was cut 450 feet north of the *Bralorne* property-line and 116 feet of drifting in a northerly direction on the fault-fissure (filled with broken quartz and gouge) showed only low values and narrow quartz-widths. The second vein, 100 feet to the north, was drifted on for 30 feet. Here again values and widths were below com-

mercial grade. The third vein was struck in the main crosscut 135 feet north of the first vein. It varies in width from 14 inches to 6 feet, is well ribboned, and structurally looks attractive, although samples taken indicate the values are quite low, the best assay being 0.08 oz. gold per ton. A short drift to the north-west on this vein shows it to pinch rapidly to a 14-inch width in a drift distance of 16 feet. Towards the end of the year the four other veins and lenses mentioned were found. Approximately 3,700 feet of diamond-drilling for geological structure was completed during the year and the property was surveyed and geologically mapped.

B.R.X. Early in January, 1934, a diamond-drill hole from the No. 3 level of the *California* vein-workings encountered a section of core at a depth of 400 feet below the No. 3 level which assayed 0.7 oz. gold per ton along a core-length of 10 feet. The sludge for the same distance assayed 1.4 oz. gold per ton. This diamond-drill hole, No. 2, which was collared 905 feet from the portal of No. 3 adit, was drilled at a vertical angle of approximately 78 degrees, thereby indicating that the 10-foot core-length would be representative of a vein approximately 7 feet wide. Up to the time that this drill intersection was made, the company had extensively developed the *California* vein on three levels without finding commercial values of mineralization. Following the intersection of the good gold values in diamond-drill hole No. 2, drilling was stopped and an incline shaft from the No. 3 level on the *California* vein was sunk 557 feet on the dip of the *California* shear, intersecting the diamond-drill hole at a vertical distance of approximately 400 feet below No. 3 level. Lateral development totalling 857 feet of drifting and 355 feet of crosscutting was done on the shear on No. 6 level, started at the drill-hole intersection with the shaft, and while values over narrow widths have been found, commercial values and tonnage have not been developed. Approximately 278 feet of drifting and crosscutting was also done on the shear on the fifth level, also off the shaft, with similar results. More recently a long crosscut adit was started on the *Arizona* claim, and the company plans to extend this working eventually a total distance of 6,000 feet to cut under the *California* shear at a depth of 675 feet below the present No. 6 level.

At the end of 1934 this crosscut had been advanced a distance of 180 feet. New camps, compressor and blacksmith-shop, machinery, etc., were installed at the portal of this new adit.

During 1934 a 1,400-foot motor-driven compressor was installed at No. 3 portal of the *California* adit and several additions were made to the camp facilities, such as four modern bungalow residences for employees, new store-house, office, and staff-house. Late in 1934 a fire destroyed the office and records contained therein. The property is under the direction of E. R. Shepherd, president and managing director for the company.

Tuscarora Gold Mines, Ltd. This company was formed in September, 1934, with a capitalization of \$1,500,000, divided into 3,000,000 shares of 50 cents par value. The registered office of the company is 409-410 Rogers Building, Vancouver. The property comprises twelve mineral claims and two fractional claims, approximately 500 acres in area, all situated between Bridge river and Gun lake. The country-rocks, as exposed by numerous outcrops and open-cuts, consist principally of a banded zone of argillites and cherty quartzites lying in contact with hornblende-diorite masses. The mineralization would appear to be in silicified zones in the sediments, and surface and underground work on the property has so far only shown up minor values in gold in the silicified zones. A crew of six to eight men is employed under the supervision of T. B. Lewis.

Congress Gold Mines, Ltd. This company's property consists of twenty-one mineral claims situated on both sides of Gun creek and extending five claims up-stream from the mouth of Gun creek at Bridge river. The main Bridge River highway passes through the lower claims close by the portal of the main adit. The general rock formation in the area under most intensive development is a zone of sedimentary rocks cut by wide feldspar-porphry dykes. On the west the sedimentaries are bordered by a wide zone of greenstone and argillites. There is an outcrop of augite diorite above the main showings at a distance of about 1,000 feet north of the Gun Creek bridge. The mineralization consists of arsenopyrite, pyrite, and stibnite, with associated gold values in the arsenopyrite and pyrite. This mineralization apparently is developed along fracture-zones and fissure-fillings in the greenstone and the sedimentaries. The mineralization is later than the porphyry dykes, for the veins cut through the dykes, but generally with narrower widths.

Underground development-work done during the past year has been mainly confined to the driving of three adits close to the road. No. 3 adit (upper level), at 2,455 feet elevation, was

extended a total distance of approximately 305 feet along a well-mineralized zone. The first 70 feet of this working cut through a porphyry dyke, the mineralization therein being confined to narrow widths. The sampling done by the management has shown gold values over minable widths to vary between 0.04 and 0.72 oz. gold per ton, the average value not yet having been computed.

The writer took four channel samples across 20 feet of the 27-foot width of mineralization exposed in a crosscut and the drift in this level. The average assay for the 20-foot width was 0.16 oz. gold per ton, 2 oz. silver per ton, and 1 per cent. zinc. Other sampling at this same section has indicated values between 0.2 and 0.3 oz. gold per ton across the 27-foot width of mineralization. No. 2 adit is 170 feet south 65 degrees east of and 125 feet below No. 3. This working is a crosscut which intersects the same mineral-zone exposed in No. 3 adit at 325 feet from the portal. The mineralization has been drifted on along a length of approximately 390 to 400 feet. About 100 feet from the portal some 100 feet of drifting has been done along a narrow shear. No. 1, or the lowest adit, at 2,140 feet elevation, is now being driven to cut the mineralization at a point 750 feet from the portal. At the end of 1934 it had been driven 400 feet; the last half of this distance is in greenstone, the first 200 feet being in a porphyry dyke. Approximately 1,200 feet easterly of No. 1 adit a new low-level adit has been started to intersect another shear similar in appearance to that developed by the three preceding workings.

The property is equipped with compressor plant, steel-sharpening shop, and camp.

Olympic Gold Mines, Ltd. The property of the Olympic Gold Mines, Limited, consisting of twenty claims, is 37 miles by road from Bridge River Station on the Pacific Great Eastern Railway. It is on the south side of Bridge river, almost directly opposite the Minto Gold Mines property. When the writer visited the property in the fall of 1934 work was being concentrated on what are known as the Leckie and Magee adit showings, both located at or close to the river-level. The main camp, situated near No. 1 vein, is over 1,000 feet above the river-level. Work had been discontinued on the heavy pyrite-magnetite showing, just below the camp, prior to the writer's visit to the property. Values are said to have been disappointing in this working in spite of the heavy sulphide mineralization.

The more recent work at the river-level has been for the purpose of developing what appears to be possibly a shear-zone in the fine-grained, altered rocks of the Bridge River series.

The Leckie adit, 8 feet above the river-level, develops a heavily mineralized quartz-sulphide vein, strike south 55 degrees east, dip 50 to 60 degrees south-west, which has a width of 13 feet 2 inches where first intersected. This adit, it is understood, has since been advanced to a total distance of 200 feet from the portal. The vein was sampled where first intersected in three sample sections, each section being a milled channel sample. The first sample across 46 inches on the hanging-wall side of the vein assayed a trace in gold, 0.6 oz. silver per ton, and 1.7 per cent. zinc. The centre 54 inches of the vein assayed 0.02 oz. gold per ton, 6.5 oz. silver per ton, 1 per cent. lead, and 2.5 per cent. zinc. The 58-inch foot-wall section of the vein assayed 0.04 oz. gold per ton, 0.8 oz. silver per ton, and 2.5 per cent. zinc. Three carefully taken representative samples of the sorted mineralization from the Leckie adit showed an average assay of 0.078 oz. gold per ton, 5.7 oz. silver per ton, 0.3 per cent. copper, 0.7 per cent. lead, and 3.2 per cent. zinc.

Approximately 150 feet higher in elevation and 200 feet south-easterly from the portal of the Leckie adit is the *Magee* showing, on which an adit has recently been started. The mineralization as here exposed consists of 10 to 12 feet of badly decomposed and highly oxidized vein material separated into a hanging-wall and a foot-wall section by a 3- to 4-foot felsite dyke. The Magee vein shows strikes and dips similar to the showing in the Leckie adit, and the two showings are believed to be closely related.

A sample of selected oxidized material from the open-cut at the north-west end of the outcrop assayed 0.12 oz. gold per ton, 2.6 oz. silver per ton, 0.3 per cent. copper, and 2 per cent. zinc. A channel sample across a width of 60 inches of quartz and sulphide mineralization at the portal of the Magee adit (being driven into the hill south 55 degrees east) assayed 0.06 oz. gold per ton, 4.4 oz. silver per ton, 0.3 per cent. copper, 1 per cent. lead, and 1 per cent. zinc.

A crew of fourteen men was employed at the property under the supervision of W. J. Uzzell. Portable compressor equipment was being used in the driving of the Leckie adit; the work at the Magee adit being driven by hand-mining methods.

GUN CREEK SECTION.

This company has had under development the *Simons* property, situated near **Goldside Mines, Ltd.** Fish lake, and the *Taylor* property, situated in Taylor basin. The properties are known respectively as the *South* and *North Goldside* properties. Work at the *South Goldside* property during the period under review consisted of driving a 140-foot adit into a wide porphyry dyke which outcrops on the property. In this dyke a small quartz-filled fissure widening at one end to 3½ feet was developed for a short length. Diamond-drilling was also used to explore the underground continuation of this particular vein. The best value obtained across the 3½-foot vein of quartz close to the eastern edge of the dyke was 0.07 oz. gold per ton. Work was subsequently stopped at this property and concentrated on the *North Goldside*, situated in Taylor basin, about 8 miles by trail from the road at Tyaughton lake.

At *North Goldside* property several mineral-showings are being developed by a crew of twelve men under the supervision of S. H. Davis. The lower showing consists of a massive gossan-outcropping of iron oxide which, overlying a calcite-body in serpentine, was being developed by ground-slucing and surface-trenching. A sample of the oxidized gossan over an area approximately 30 by 20 feet assayed but a trace in gold, while another sample of the unaltered calcite and iron pyrite, which was exposed over a length of up to 17 feet by 40 feet in width, assayed but a trace in gold. This exposure is at 6,000 feet elevation and close to the bank of Taylor creek. Several narrow quartz stringers partially oxidized and but a few inches in width, showing arsenopyrite mineralization, have been exposed by a long ground-slucic open-cut at 6,600 feet elevation, a short distance above the camp. These exposures occur in serpentine rocks, with which are interbedded silicified rocks of volcanic origin, locally called greenstone. No work is being done on this showing at the present time.

North-east about 500 feet from No. 1 (or Big) cut, another open-cut has exposed some dark-brown-stained siliceous rocks and pyrite mineralization over a width of about 6 feet. The main showings at the camp, where development-work is being pushed by diamond-drilling, underground and open-cut work, is situated half a mile west of the last-mentioned showings at an elevation of 7,350 feet above sea-level. This showing, which consists of several narrow disconnected veins in association with diorite and porphyry, was diamond-drilled, and at the present writing it is reported that the No. 1 crosscut adit has been advanced a distance of 282 feet from the portal toward the showings. At the surface on this showing a branching vein system was exposed by open-cut work. The most important exposure is along a vein-length of 25 feet, with the vein averaging from 6 to 22 inches in width. Two channel samples across widths of 12 and 22 inches of the vein in a shallow shaft sunk on this section of the property assayed 0.64 oz. gold per ton. The diamond-drilling was done to strike this vein at a depth of 40 to 50 feet below its outcrop. The other veins in this branching system are not more than 2 or 3 inches in width.

At still higher elevations and above the showings just referred to, several open-cuts have been made along mineral-showings in the sedimentary formations. A sample of selected ore from one of the open-cuts at 7,900 feet elevation assayed 0.5 oz. gold and 1.4 oz. silver per ton. The mineralization in all the veins at the higher elevations consists of arsenopyrite and pyrite with associated gold values. Since the writer visited the property winter camps have been established and outfitted with sufficient food and mining supplies to last the winter months. A crew of eight to twelve men is employed under the supervision of S. H. Davis.

GUN LAKE SECTION.

This company was incorporated in April, 1934, with a capitalization of 3,000,000 shares of no par value, to take over and operate the *Ypres* group of mineral claims, then owned by the Cariboo Bridge River Properties, Limited. The property consists of eighteen mineral claims and fractional claims, all situated on the west side of Gun lake. During 1934 a new road was constructed along the west shore of the lake to the property from the end of the Little Gun Lake road. The property is therefore about 7 miles by road from the main Bridge River road at South Forks, and 49 miles by road from Bridge River Station on the Pacific Great Eastern Railway.

The claims cover a stock, or tongue, of augite diorite in which several narrow, well-defined quartz veins were previously exposed by surface-slucing done under the direction of O. Fergus-

son. Most of the underground work has been done on the *Ypres* claim near the lake-shore, and it has disclosed several persistent quartz veins which vary in width from a few inches to as much as 4 feet, averaging possibly 18 inches.

The main crosscut adit, started 50 feet above the lake-level (3,000 feet elevation), is driven north, crosscutting the diorite, for a distance of 775 feet. The first vein is intersected 65 feet from the portal and is drifted on for 600 feet in a north 25 degrees west direction to a shear-zone, probably a major fault. The vein averages about 16 inches in width for a length of 400 feet, the gold content being up to \$1.60 per ton, according to the company sampling. The second vein is cut 130 feet from the portal. It is similar in strike, dip, and gold content to No. 1 vein. It is of greater average width and is drifted on in a north 25 degrees west direction for 110 feet. The No. 3 vein is cut at 250 feet from the portal and it is similar in strike and dip (steep to almost vertical) to No. 1 and No. 2 veins. A drift 250 feet long in a north 25 degrees west direction shows the vein to average about 18 to 20 inches in width for 200 feet along the drift. Two channel samples from this vein assayed 0.02 oz. gold per ton.

Approximately 500 feet of drifting along the main fault-zone, encountered in the No. 1 vein-drift, was done in a northerly direction and small inclusions of sulphide mineralization, with generally low, but occasionally fair, gold values, were found along the gouge-filled fault.

More recently it is reported that a drift to the west from the intersection of the vein and the fault has encountered a quartz vein in a shear-zone along a length of 80 feet, with the quartz averaging possibly 3 to 4 feet in width. Five samples of this quartz by H. J. Cain, the managing director, returned an average assay of 0.06 oz. gold per ton, and 1.17 oz. silver per ton across an average width of 2.6 feet from four of the samples; the fifth sample, an average of the dump from the vein, assaying 0.06 oz. gold per ton and 0.72 oz. silver per ton. Samples taken by the mine superintendent, A. Arland, across an average width of 3.1 feet along the 80-foot length assayed 0.135 oz. gold per ton. Drifting to the north in this section of the mine is reported to have picked up several narrower lenses of quartz in the sheared ground.

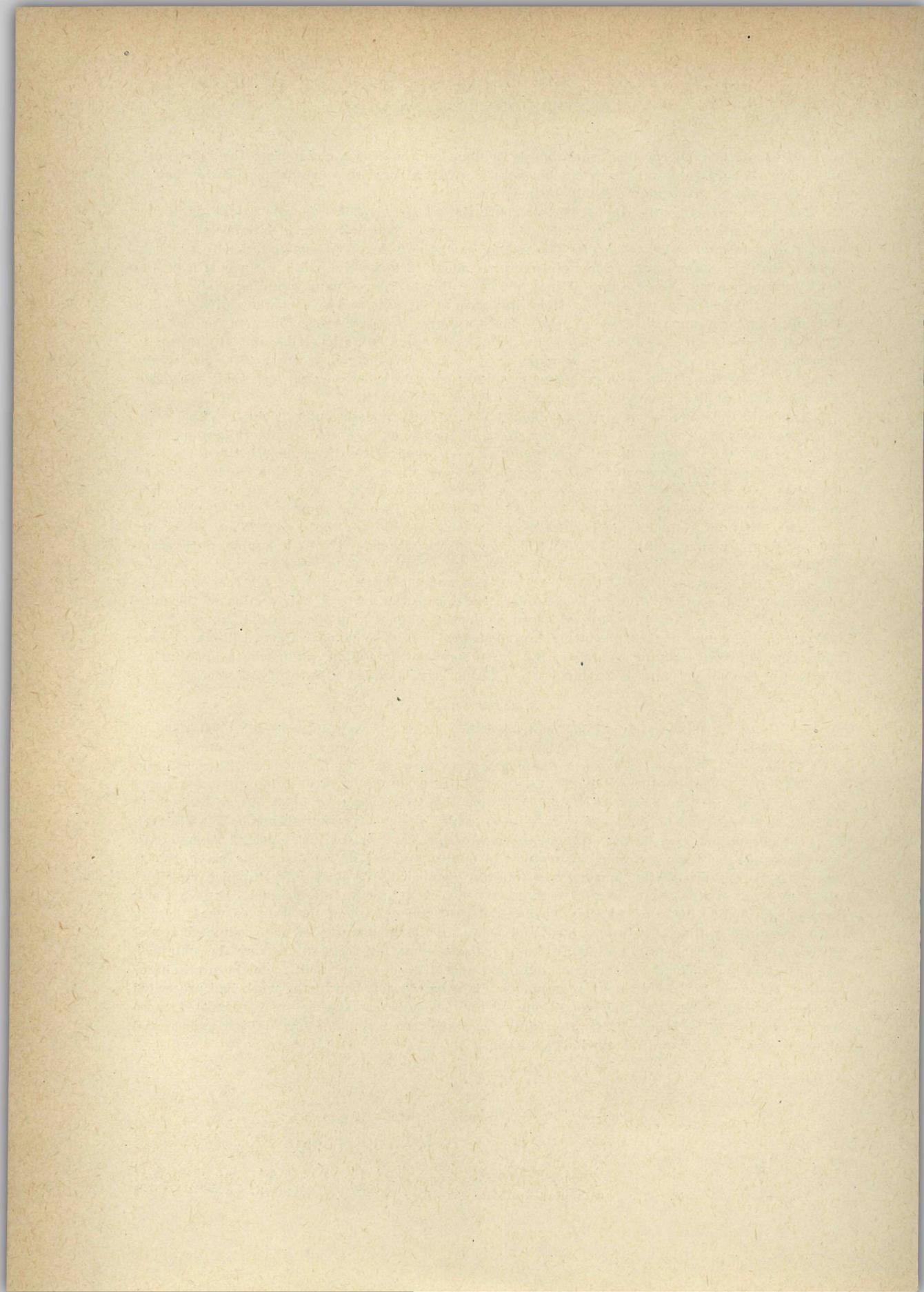
A camp capable of accommodating fifty men has been erected near the workings. Power equipment used for mining is driven by a 200-horse-power Pelton water-wheel installation. Water for the power plant is supplied from Walker creek under a head of 287 feet.

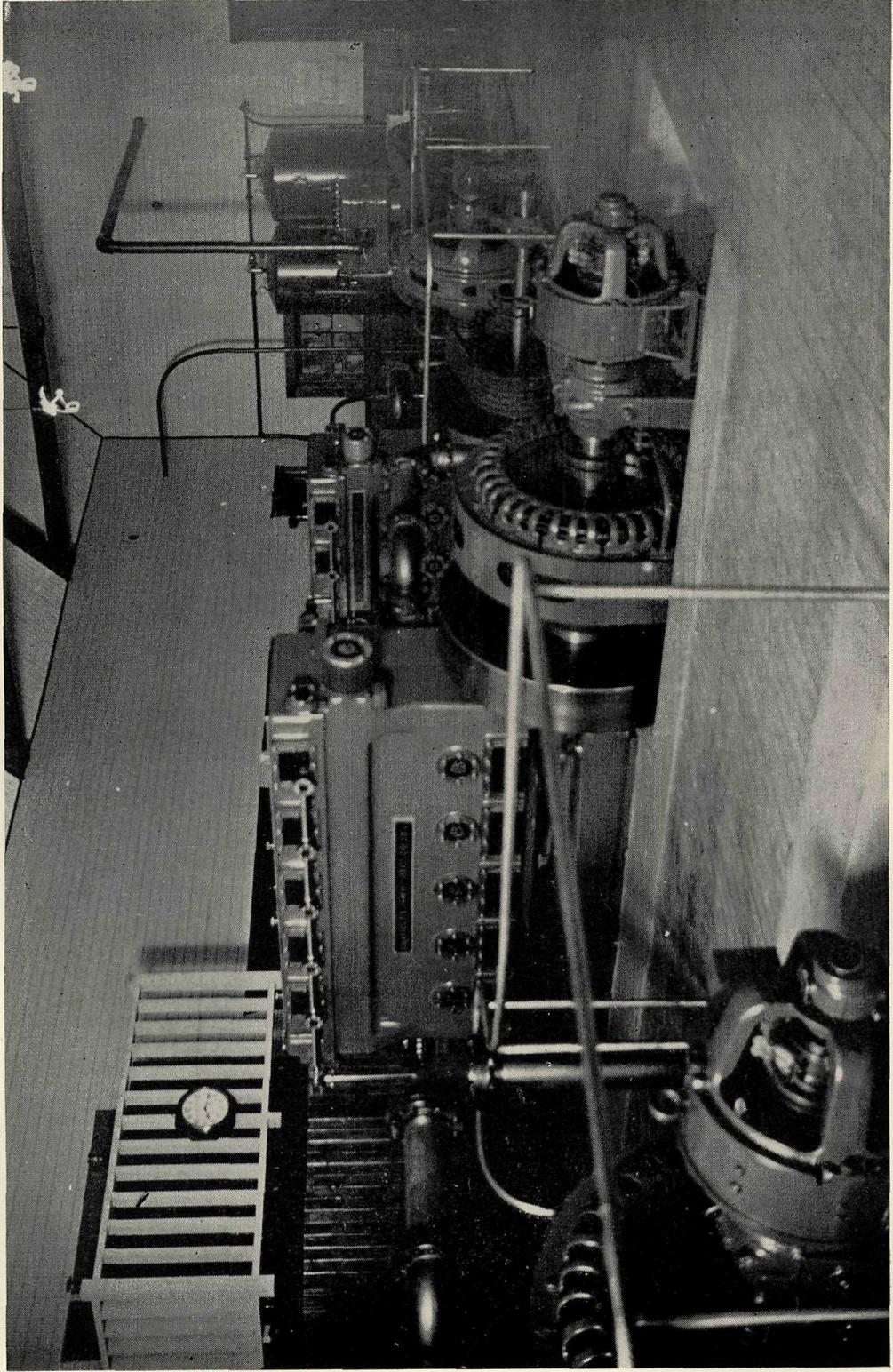
PLACER-MINING.

Texas Creek Placers.

This organization, controlled by the A.P. Consolidated Oils, Limited, of Calgary, during 1934 worked a crew of nine men under the direction of Colonel Harstone at the mouth of Texas creek, 15 miles by road below Lillooet, on the Fraser river. Approximately 10,000 feet of steel flume was constructed from the dam built on Texas creek. This system furnishes water to 1,000 feet of 22-inch to 15-inch steel pipe and a No. 4 monitor (6-inch nozzle) under a pressure-head of 250-300 feet.

The ground being worked is on the west bank of the Fraser river just south of Texas creek, and hydraulic methods are being used for the double purpose of removing the recent river-grave's and sand from what appears to be an old channel of the Fraser river which cuts into the west bank at this point and for testing the bed-rock values in this channel. Only a small area of old channel bed-rock had been uncovered in October, most of the season's work having been spent in installing the water system and removing a large quantity of unconsolidated recent river-gravels; consequently nothing is known about what bed-rock values may be obtained. Colonel Harstone reports recovering encouraging quantities of coarse gold from the preliminary testing, but could not say what average values might be recovered until the work had proceeded further and indicated the true conditions of the old bed-rock channel and permitted more extensive tests. The bed-rock is slate, badly fractured, the beds standing at high angles, and thus excellent as a natural channel-riffle system.





Consolidated Gold Alluvials of B.C.—Interior of Power-house.

