

INDEX TO MINERAL LOCALITIES

1. Veins of shattered, vitreous quartz, holding a little pyrite and low gold values.
2. Swamp deposit of nearly pure diatomite.
- 3 to 5. Replacement deposits at or near edge of granitic rocks and chiefly in limestone; they consist of silicates, calcite, and two or more of the following minerals, sphalerite, pyrite, pyrrhotite, chalcopyrite, galena, arsenopyrite, and molybdenite; zinc and low gold values.
6. Small veins of vuggy, crystalline quartz containing calcite and mineralized with galena, pyrite, grey copper, hematite and, probably sphalerite and chalcopyrite; values in silver.
7. Quartz and sulphide replacement deposits along shear zones; chief ore minerals are grey copper, galena, and sphalerite; small production in 1927, of silver-lead-zinc ore.
8. Quartz veins carrying pyrite, galena, sphalerite, and chalcopyrite; chief values in gold; lesser values in silver and copper; small shipments in 1918.
9. Principal deposits are sizable replacements of sediments, chiefly limestone, near granitic intrusives; they consist of silicates, quartz, calcite, and a variable but generally high proportion of pyrite and arsenopyrite, both fine-grained and coarse crystalline, and carry important gold values; also a persistent vein or veins of drusy, vitreous quartz, 2 to 3 feet wide, mineralized with abundant, dark sphalerite, considerable pyrite and lesser chalcopyrite and containing low gold values.
10. Several seams of high-volatile, bituminous coal, the widest about 5 feet; analyses indicate high ash and moisture content; clay partings are common in the wider seams and locally the coal contains considerable pyrite; a small production.
- 11 to 14. Several quartz veins, 2 to 6 feet wide, some steep and others with flat dips; mineralized with pyrite, lesser galena, and free gold; values in small shoots carrying an important gold content, mostly free; oxidized outcrops enriched with gold; veins much faulted and workings shallow; best values commonly associated with high pyrite content; a considerable aggregate production, partly milled and partly shipped direct, has come, mostly from the Twin Lakes (11) and Grandoro (14) mines.
15. Vein and replacement deposits mineralized with pyrite, chalcopyrite, molybdenite and, in places, magnetite; small concentrations of the sulphides have provided a few tons of ore, in part high in molybdenum and in part high in copper with lower values in silver.
16. A wide, brecciated zone of sediments infiltrated with quartz carrying sparse pyrite; values in gold reported.
17. A lode containing segregations of, principally, chalcopyrite and pyrite; values are chiefly in copper and several car loads of ore were shipped in the years 1916 to 1918.
18. Veins of vitreous quartz mineralized with pyrite and a little galena and sphalerite; some high assays in gold reported.
- 19 to 21. Veins of vitreous, white to glassy, partly shattered quartz, occurring in granitic rocks and partly replacing them; mostly sparingly mineralized but with local concentrations of pyrite, galena, and lesser molybdenite; the veins average several feet wide, strike northerly, and are persistent, though faulted; values are in gold and, on the whole, are low but indicate possible ore shoots of consequence.
22. Large exposures of vitreous, vein quartz like above, very sparsely mineralized; have been quarried for silica flux.
- 23 to 25. Quartz veins, averaging several feet wide and in places as much as 30 feet wide; most of them strike easterly in approximate conformity with the enclosing rocks; they have been followed for distances up to 1000 feet or more though offset by many faults, and, in places, highly fractured and crushed; there is much evidence of silicification and replacement of the wall rocks; mineralization, on the whole is scanty and is chiefly by pyrite with lesser galena, sphalerite, chalcopyrite, and free gold; values are in gold and the ore occurs in shoots of varying size with values ranging up to half an ounce or more of gold to the ton; surface enrichment provided considerable high grade ore which was mined in the early history of this camp; more recent production is being milled though, previously, several thousand tons had been shipped direct; productive mines are the Fairview (23), Stenwinder (24), and Morning Star (25).
26. Large body of crystalline limestone; remains of old lime kiln.
29. Quartz veins sparsely mineralized with pyrite, galena and (?) chalcopyrite and carrying low gold values; several hundred tons milled about 1897, covering a considerable area; the principal product is magnesium sulphate.
31. Quartz stringers, veins and lenses mineralized with pyrite, chalcopyrite, magnetite, and molybdenite; values in copper and molybdenum.
32. Veins of vitreous, drusy quartz (containing tourmaline and associated with some crystalline calcite) and sulphide-rich replacement bodies, chiefly pyrite along faults and shear zones striking northerly; apparently the shear zones are persistent but important mineralization seems confined to shoots; values are in gold; small shipments have been made.
33. Over 2,000 tons of magnesium salts shipped from this locality in the years 1915 to 1920 inclusive; the occurrence is a Recent, lake-bottom deposit covering a considerable area; the principal product is magnesium sulphate.
34. A quartz vein following a shear in a small body of alkaline intrusives and mineralized with grey copper, galena, chalcopyrite, sphalerite, and molybdenite; values in silver; small shipments made.
35. A low-dipping, much faulted, quartz vein (or veins) mineralized with grey copper, galena, pyrite, sphalerite, chalcopyrite, hematite, and native silver; values have been principally in silver with lesser gold; several thousand tons of ore have been mined.
- 36 to 38. Chiefly replacement deposits in limestone and greenstone; they consist of lime-silicate minerals (garnet, epidote, etc.), partly replaced and altered greenstone, coarsely crystalline calcite, quartz, and lesser molybdenite; the veins average several feet wide, strike northerly, and are persistent, though faulted; values are in gold and, on the whole, are low but indicate possible ore shoots of consequence.
39. Over 2,000 tons of magnesium salts shipped from this locality in the years 1915 to 1920 inclusive; the occurrence is a Recent, lake-bottom deposit covering a considerable area; the principal product is magnesium sulphate.
- 40 to 42. Principally mineralized shear zones in greenstone; the lodes strike northwesterly, show considerable carbonate alteration of the wall rocks and contain disseminated to massive pyrite, pyrrhotite and chalcopyrite; 40 tons shipped from locality 41 in 1916 contained 2 ounces of gold and 5 ounces of silver per ton and 5 per cent copper.
- 43 to 47. Irregular veins of massive, white to bluish quartz, up to several hundred feet long, and striking, in most cases, westerly to northwesterly and about parallel with the schistosity of enclosing formations; they are mineralized with pyrite, galena, sphalerite, and free gold; values are in gold, and appear to occur in shoots and to be more closely associated with the lead and zinc sulphides than with pyrite; from the principal producer, the Cariboo-Amelia mine, (46), over a million dollars worth of ore was mined in the years 1895 to 1903 inclusive.
- 48 and 49. Silicified shear zones, in greenstone, holding veins and stringers of quartz and mineralized with pyrite, galena, sphalerite, chalcopyrite, and locally free gold; the wall rocks are commonly partly altered to ankeritic carbonates; a trial shipment, in 1897, of over 25 tons of sorted ore ran 2.15 ounces gold and 5.2 ounces silver, net, per ton.
50. Segregations of chromite in serpentinized peridotite.
51. Quartz veins and silicified wall rocks along shear zones striking northwesterly; the principal deposit is in greenstone and consists, mainly, of quartz and a conspicuous amount of sulphide minerals including grey copper, galena, sphalerite, pyrite and chalcopyrite; principal values are in silver; a small shipment of high-grade silver ore was made in 1916.
52. A siliceous zone striking northerly across quartzitic sediments; it contains stringers, veins, and lenses of quartz and is mineralized with galena, sphalerite, and pyrite; values are principally in silver with lesser lead and zinc.
53. Quartz veins, up to several feet wide, mineralized with galena and pyrite and reported to have provided some encouraging gold assays.
54. A small body of serpentinized peridotite containing deposits of chrysotile asbestos; not commercial.
55. Irregular, small, replacement deposits and veins consisting, mainly, of mixed sphalerite, pyrite, chalcopyrite and magnetite; values in gold and copper.
56. Stockwork carrying irregular veins and stringers of quartz and mineralized with pyrite, arsenopyrite, and chalcopyrite; values in gold and copper.
- 57 to 66. Mineralized shear zones in granitic rocks, striking mainly about west, dipping south and offset by numerous, nearly north-south, mostly west-dipping, normal faults; the shear zones are mostly from 1 to 10 feet wide and are composed of brecciated wall rock, partly altered and replaced, and vein filling; the filling may form distinct single, parallel or linked veins or (and) an irregular matrix to the rock fragments; it consists, mainly of quartz and ore minerals, the latter partly distributed through the gangue and partly forming masses of mixed sulphides; the latter constitute the bulk of the ore bodies and form the principal ore shoots; they consist of galena and sphalerite and one or more of the following minerals,—pyrite, grey copper, ruby silver (chiefly pyrrargyrite), native silver, argentite, and other polysulphides of antimony and arsenic; ore shoots are small but rich; values are principally in silver, have averaged 150 to 200 ounces per ton and, exceptionally, as high as 600 ounces; the lead and zinc content is also important; mined is hand-sorted but not concentrated.
67. Fracture zone mineralized with pyrite, chalcopyrite, galena, and sphalerite; values in gold, silver, and copper.
68. Shear zones carrying vein quartz and mineralized with pyrite, galena and sphalerite; small shipments have indicated principal value in gold with lesser values in zinc and lead.
69. Narrow quartz veins mineralized with pyrite, galena and sphalerite; values in gold and silver.
- 70 and 71. Mineralized shear zones holding ore bodies consisting of sphalerite, chalcopyrite, pyrite, galena and some molybdenite in a gangue of quartz, ankerite, and altered wall rock; values are principally in gold, partly in copper; 885 tons shipped from the Carmi Mine (70) in 1901 averaged over an ounce in gold per ton.
72. Brecciated zone partly cemented with quartz and calcite and mineralized with chalcopyrite and pyrite; said to carry values in silver and copper.
73. Well, 2560 feet deep (1936), sunk for oil and gas; has passed through Tertiary sediments into granitic rocks, presumably of Shuswap gneiss.
74. Limestone quarry for local uses.

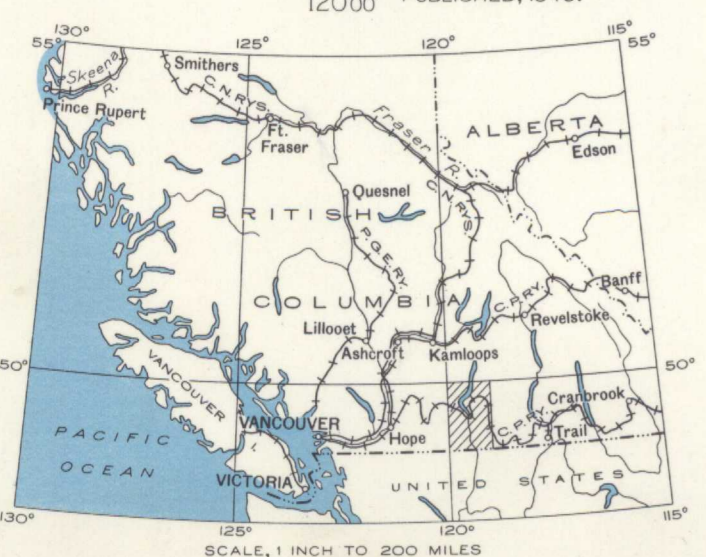
ECONOMIC GEOLOGY

The area contains many scattered mines and prospects and a few productive camps. The silver-rich lead-zinc ores of Beavertail have been the most continuously productive and profitable. Elsewhere, principal production has been in gold, partly from the placer deposits of Mission and Rock creeks and partly from the lode deposits of Camp McKinney, Osoyoos, Fairview and Oro Fino Mountain camps and a few other, isolated properties. Silver-bearing ores have been mined, in relatively small amounts, from properties in Similkameen river and Trout creek valleys. Copper and molybdenum have been produced from ores near Olalla and copper, especially, is a common and in places, a commercial constituent of many of the gold and silver-bearing deposits in the area. No lead or zinc ores have yet been mined for these metals only, though there are occurrences of some. Chromium occurs in chromite segregations in serpentine along Kettle river near Rock creek.

Non-metallic deposits of consequence include the coal seams near White lake and the magnesium salts of Spotted lake. Some limestone has been quarried for local uses. A little quartz has been mined for fluxing purposes and a deposit of diatomite has been discovered near Glenrosa.

The metallic, lode deposits are confined to the Okanagan intrusives and pre-batholithic formations. They consist, mainly, of mineralized quartz veins and shear zones in these rocks as well as replacement deposits in the intruded formations. No mineralization of consequence has been observed in the Tertiary formations and intrusives or in the great areas occupied by the Shuswap complex.

In spite of the great variations in the concentrations and proportions of the metallic constituents of the deposits, various features suggest that all are related in origin to the Okanagan intrusives; certain, high-temperature replacement deposits seem definitely related to adjacent intrusive masses and their period of formation probably antedates, in some degree, the abundant vein and replacement deposits occurring in fissures and shear-zones intersecting the intrusive masses and the intruded formations.



MAP 539A
MINERAL LOCALITIES
KETTLE RIVER
(WEST HALF)
SIMILKAMEEN AND OSOYOOS DISTRICTS
BRITISH COLUMBIA
Scale, 1:250,000 or 1 Inch to 4 Miles
Approximate magnetic declination, 25° East.

LEGEND
Mineral localities..... 68 Gold Placer..... 0
Geological compilation by C.E. Cairnes, 1937.
For Geology, see Map 538A, "Kettle River, West Half"
Road well travelled..... International boundary.....
Road not well travelled..... Land District boundary.....
Trail..... Indian Reserve boundary.....
Abandoned railway..... Intermittent lake and stream.....
School..... Contours (interval 500 feet).....
Post Office..... Height in feet above Mean sea-level..... 7588'
Wharf.....

Base-map prepared by the Topographical Survey, 1936, from maps supplied by the British Columbia Department of Lands. Cartography by the Drafting and Reproducing Division, 1939.

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