

*Goodenough Group*¹

This group, owned by H. J. Blurton, Vernon, B.C., is situated on the ridge between Naswhito (Siwash) and Equesis (Sixmile) creeks about 3½ miles directly west of Okanagan lake. It is nearly reached by a branch road that leads off from the highway along the west side of the lake at a point a little north of Naswhito creek. Most of the workings lie between 1,300 and 1,800 feet above lake-level.

The property has had a long history, having been staked and restaked a number of times under different names and explored by various individuals and organizations. Interest has been maintained by the extent and variety of mineral deposition rather than by assay values. Exploratory work has been largely devoted to attempts to delimit the area of mineralization.

The mineralization has been produced at the contact of a body of grey granite with overlying sedimentary and volcanic rocks. The granite has been partly unroofed in the vicinity of the workings, but higher up the hill to the west and northwest disappears beneath a heavy cover of older rocks. It is a light grey, medium-grained, massive granite in which the original, dark constituents, chiefly biotite, have been completely altered to secondary minerals, principally chlorite.

The granite is included with the older members of Group III. The pre-granitic rocks comprise greenstones, limestone, and some argillaceous sediments and are included with the formations of Group II. The greenstones are probably, in the main, old volcanics, but in part are secondary rocks formed by contact metamorphism of limestone. The latter are highly altered at the granite contact, but elsewhere, as on a prominent knoll a little northwest of the mineralized area, form conspicuous outcrops of nearly pure, grey limestone carrying abundant fossils of Carboniferous age.

Workings include six or more shallow shafts; three or more adits, one of which is 200 feet long; many open-cuts; and several hundred feet of surface trenching. They are scattered over an area about 1,200 feet long and 800 feet broad in which occur many exposures of iron and copper-stained rocks.

The various showings reveal a general similarity in mineralization and in the alteration of the associated rocks. Both phenomena are suggestive of high-temperature conditions involving recrystallization of the older rocks and their replacement by mineralizing gases and solutions. In these respects the limestone and limy members of the invaded rocks have suffered most complete transformation, being now composed largely of lime-silicate minerals, principally epidote and garnet, associated with more or less crystalline calcite and metallic minerals.

The principal metalliferous constituents are pyrrhotite, pyrite, magnetite, and chalcopyrite in order of relative abundance. Of these the copper sulphide is most important economically. It occurs in part as tiny

¹ Ann. Repts., Minister of Mines, B.C., as follows:
 1899—p. 746—"I.O.U., Gem, Buckthorn, and Copper Queen."
 1900—pp. 886-887—"Porteous Camp."
 1902—p. 189—"Gale, Dawson, Blue Bell, and Phoenix."
 1904—p. 228—"Gale group."
 1921—p. 191—"Queen group."
 1924—p. 140—"Goodenough group."
 1929—p. 247—"Goodenough group" (Okanagan Copper Co.).

PROPERTY FILE

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veinlets intersecting the other minerals, and in part as disseminations, irregular streaks, and small masses associated in varying proportions with other minerals. Pyrrhotite oxidation has furnished much of both the reddish oxide and whitish iron-sulphate stains observed at the various showings. It is a particularly prominent constituent of the mineralized greenstones in which it occurs in forms varying from minute disseminations to masses of nearly solid sulphide. Magnetite occurs in masses associated chiefly with pyrite and chalcopyrite. Pyrite is disseminated through the older rocks and the granite. Copper carbonate stains and soot-like decomposition products are common wherever chalcopyrite is present. A little galena was also noted. The mineralization is connected in origin with the granite and occurs mainly within a zone along the contact of this intrusive body. It is principally confined to the overlying older rocks, though in places the granite itself is sparingly mineralized. At most if not all the showings the mineralized zone appears to be shallow because it is largely confined to the rocks covering the granite and this cover is shallow. Information gained from many operations to date suggests that mineralization has tended to follow fractures or shear zones striking north to north-easterly and that beyond the zone of contact influence there is a change from mixed sulphide ores with comparatively little quartz gangue, to quartz veins carrying a sparse dissemination of metallic minerals. It may eventually be shown that other structures within the roof rocks, such as folds having a general northwesterly trend parallel to the main axis of deformation of the pre-granitic rocks, have exerted an important influence on the mineral concentration. It would greatly enhance the prospects of the property if it could be proved that the granite roof lies at workable depths where the cover of older rocks is thicker, particularly beneath the limestone belt to the northwest. In such case, the possibilities for the development of deposits of substantial thickness should be exceptionally good.

In spite of the amount of surface or near-surface work and the great number of showings, the property is difficult to evaluate. Many samples taken at different times and by different persons indicate values in copper of rarely less than 1 per cent, more commonly ranging from 1 to 8 per cent, and, for selected material, much higher than this. Assays also generally show values in gold and silver averaging about 0.03 ounce and 0.05 ounce a ton, respectively. Such values combined should be attractive if a large tonnage could be definitely proved. The property seems to be one where geophysical methods of prospecting could be employed to advantage and where systematic drilling should be attempted in order to obtain a better idea of average values and of average thickness of the mineralized contact zone.

*Ophir Group*¹

This property, comprising seven claims, held by location, is owned by Joe St. Laurent, Falkland, B.C., *et al.* It is on the east side of the northwest arm of Okanagan lake about 6 miles from the head of the lake and 15 miles by road from Vernon.

The property was originally staked in the summer of 1923 by Wm. Brent of Vernon and was known for some time as the Brent property.

¹ *Ann. Repts., Minister of Mines, B.C., 1923, p. 161; 1925, p. 184; 1926, p. 200; 1927, p. 213; 1928, p. 220.*