

FURTHER OCCURRENCES OF ANTIMONY AND TELLURIUM
MINERALS IN WESTERN CANADA

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These notes identifying some of the less common ore minerals from Western Canada continue the series of notes previously published in *Univ. Toronto Studies*, Geol. Ser., **49**, 78, 1945; **50**, 75, 1946; **51**, 71, 1947; **52**, 82, 1948. The identifications have all been established or verified by *x*-ray powder photographs. Numerous students at the University of British Columbia assisted both in collecting and examining samples; the most deserving of mention are R. B. Campbell, L. B. Stark, and C. Cheriton. The writers are indebted to Professor M. A. Peacock for the use of the *x*-ray equipment in Toronto.

Native bismuth and tellurbismuth. Allan Lake, Yellowknife, N.W.T. At this property veins composed largely of quartz contain less than one per cent of metallic minerals, amongst which native bismuth is conspicuous. Arsenopyrite, chalcopyrite, sphalerite, gold, and tellurbismuth all occur in the vicinity of native bismuth.

Berthierite. Crestaurum Mine, Yellowknife, N.W.T. A single hand specimen of glassy quartz showed a 2 mm. area of a steel-gray compact fibrous mineral which proved to be berthierite.

Jamesonite. Morris Mine, Tatlayoko Lake, Clinton M.D., B.C. Arsenopyrite and stibnite, in veins consisting predominantly of quartz, are characteristic of this property. Sphalerite, tetrahedrite, galena, pyrite, native gold, and a carbonate, probably calcite, are all present in small amounts. Jamesonite may be found in quartz up to 1.5 mm., along fractures and disseminated as minute needles. The jamesonite is also intimately associated with both tetrahedrite and galena and less closely with stibnite; it occurs rarely veining sphalerite and arsenopyrite.

Tetrahedrite. Ajax Claim, Wavell Group, Clinton M.D., B.C. This claim situated at the head of the North Fork of Watson Bar Creek had previously produced minor amounts of placer gold but no vein had been discovered prior to 1948. In 1948 ground sluicing revealed a much weathered carbonate vein varying from a few inches to two feet in width, with scant sulphides of which tetrahedrite has so far been the only metallic mineral positively identified.

Jamesonite. Ten Mile Creek, Skagit River, Yale M.D., B.C. Through the kindness of Dr. H. Sargent, Chief Mining Engineer for the province of B.C., a specimen from this now deserted camp was obtained. Early reports referred to the presence of stibnite mixed with a number of sulphides, of which pyrrhotite and sphalerite were most abundant. No

stibnite could be found in the specimen but jamesonite was positively identified as the steel-gray mineral veining dark sphalerite.

Boulangerite. Mayflower Claim, Rossland Camp, Trail M.D. Through the kindness of Dr. M. Hedley of the B.C. Department of Mines a specimen of ore from this claim was obtained from Mr. S. Bruce. The ore consists of galena, sphalerite, pyrite, pyrrhotite, and arsenopyrite. Associated with these minerals was a fibrous one, in large compact areas up to 30 mm., whose identity was uncertain: it proved to be boulangerite.

Petzite, Hessite, Altaite. Sweetner Vein, Hedley Monarch Property, Olalla Camp, Osoyoos M.D., B.C. This vein varies in width from $\frac{1}{4}$ inch to $1\frac{1}{2}$ inches and is sparsely mineralized with pyrite, chalcopyrite, sphalerite, galena, tetrahedrite, gold, petzite, hessite, and altaite for 130 feet. The erratic distribution of the microscopic telluride minerals and gold leads to erratic gold and silver values. In view of the tendency of the tellurides to rapid decomposition, further careful prospecting in this area is suggested.

GOONGARRITE AND WARTHAITE DISCREDITED

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Goongarrite was first described by Simpson (*J. Roy. Soc. Western Australia*, 10, 65, 1924) as a monoclinic lead bismuth sulphide from Lake Goongarrie, Comet Vale Township, Western Australia. It occurs as irregular to platy masses in part subfibrous and slightly radiating, in association with gold in a quartz vein in amphibolite. Analysis: Pb 54.26, Bi 28.81, S 15.24, rem. (Zn, Fe, Ag, Sb, Se) 1.63, total 99.94, giving the formula $4\text{PbS} \cdot \text{Bi}_2\text{S}_3$.

Dr. V. B. Meen of the Royal Ontario Museum kindly loaned a specimen labelled "goongarrite" (M14011) from the above locality. The specimen consists of a few silver-grey compact fibrous masses in white quartz. An x -ray powder photograph of these fibres yielded a complex pattern which proved to be that of a mixture of cosalite ($2\text{PbS} \cdot \text{Bi}_2\text{S}_3$) and galena.

Warthaite is the name given by Krenner (*Mat. Termés Ért.*, 42, 4, 1926) to a sulphide of bismuth and lead from Vaskö, Hungary. Analysis: Pb 54.53, Bi 28.18, S 15.31, rem. (Ag, Cu, Fe) 2.23, total 100.25.

Dr. Meen also loaned a specimen labelled "warthaite" (M13912) for study. It consists of white crystalline limestone with grains of sphalerite, pyrite, and hematite, also sparse acicular to radial aggregates of steely-grey "warthaite." An x -ray powder photograph of a radial aggregate gave a pattern identical with that given by "goongarrite." An x -ray photograph of the needles alone gave the cosalite pattern.