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COPPER-SILVER DEPOSITS.

SPECIAL REPORT by DOUGLAS LAY and J. T. MANDY.....1937.

Usk Area

SILVER MITTS (Formerly Mitts). This group of 9 claims, owned by E. Mitts, O. Berg, A. Oswald, and A. Lopez of Usk, at the time of examination in May was under option to E. M. Angell of Prince Rupert. The property is situated on the south side of the North fork of Chindemash Creek, and is distant about $8\frac{1}{2}$ miles from Usk. It is reached by a good pack-trail $6\frac{1}{4}$ miles in length, which leaves the highway at a point about 2 miles north of the ferry landing at Usk on the east side of the Skeena River, and follows Chindemash Creek, crossing to the right bank of the latter about $6\frac{1}{4}$ miles from Usk, and ascending the right bank of the North fork to the cabin of the owners at elevation 1975 feet.

The property was discovered by E. Mitts in 1926 and staked during that year. In 1929 it was optioned to R. E. Doan by whom certain adits were driven, which have no relation to the chief mineral showing described in this report. This option was abandoned in 1931, and in 1936 an option on the property was acquired by E. M. Angell of Prince Rupert. (Refer to Annual Reports of the Minister of Mines for the years 1929 and 1930 under "Mitts", and to Memoir 212, 1937, Geological Survey of Canada).

The showings examined are situated between elevations 2275 feet and 3200 feet on the steep heavily-timbered mountain-slope, which rises sharply from the creek on a slope of about 40 degrees.

Owing to snow conditions apart from a few showings of no commercial significance, it was only possible to examine the mineral showings, which the owners consider of chief importance. This mineralization consists of mainly bornite and chalcopyrite, with subordinate amounts of cuprite and specularite, and prevalent malachite staining. A noticeable amount of ferromagnesian silicate, presumably biotite, is also present. The mineralization follows fractures, jointing, and quartz veinlets in a silicified section in red andesite, in the near vicinity of an intrusive tongue of porphyritic diorite with which it is quite possibly genetically associated. The mineralization is exposed in a rock-bluff at elevation 3200 feet over a maximum length of somewhat over 40 feet and a maximum height of 16 feet, but is mainly confined to an area 23.4 feet in length by 16 feet in height. Though there is some evidence that the silicification exhibits a general strike in a direction north 15 degrees west, the mineralization is heaviest in a system of fracturing striking north 75 degrees west and dipping 67 degrees north eastward. The strike of this conforms approximately with that of the rock-Bluff and the dip with that of the mountain

slope. These fractures are more pronouncedly developed at the east part of the exposure, and are crossed by jointing striking north and south and dipping west at 65 degrees. The region above the bluff was obscured by snow at the time of examination, but the owners state that exposures of rock in this vicinity do not show any mineralization. It is possible, however, that the outcrop of a silicified zone striking as indicated might be covered with vegetation and glacial debris, nevertheless any positive evidence of major structural conditions, appertaining to a mineralized zone likely to persist, is lacking. Quartz veinlets occur within the exposed section of silicification and there is also a considerable development of calcite. Snow obscured rock-exposures east of the mineralization, and also the region between the latter and the intrusive porphyritic diorite. The open-cut at the eastern extremity of the exposure is from 3 to 16 feet in height and 12.4 feet long. Its bearing is due south and it well exposes the fracturing and jointing mentioned. A sample, taken in this open-cut across a width of 6.7 feet, being a fair sample taken at right angles to the strike of the best mineralized fractures mentioned, assayed: Gold, 0.005 oz. per ton; silver, 1.4 oz. per ton; copper, 2.9 per cent. The open-cut distant 18 feet west of that described is only about 5 feet in length by 4.5 feet in height, and width, and mineralization exposed by it is less. The formation in the region of the open-cuts is traversed by small veinlets of quartz, and there is a development of a con-

siderable amount of calcite. Silicification is more marked in the western part, but it should be understood that there is no pronounced evidence of any major structure, in the form, for example, of a definite zone of shearing within which mineralization might be expected to persist for some distance.

The estimated volume of the more easterly open-cut is 256 cubic feet. From this open-cut the owners, by hand-sorting, obtained one small pile of first-grade vein-material of an estimated volume of 27 cubic feet, equivalent to 2.25 tons, and another pile of second grade having an estimated volume of 45 cubic feet, equivalent to 3 tons. A chip-sample of the former assayed: Gold, 0.005 oz. per ton; silver, 9.0 oz per ton; copper, 10.7 per cent. A chip-sample of the latter assayed: Gold, 0.005 oz. per ton; silver 3.0 oz. per ton; copper, 3.4 per cent.

Distant about 60 feet in a northerly direction from the east open-cut, porphyritic diorite, with phenocrysts of feldspar, is exposed. Other exposures of the same rock occur at lower points on the mountain slope.

Distant in a north-westerly direction from the exposure above described at elevation 2275 feet on the same mountain-slope, there is exposed a silicified shear-zone in green andesite. This strikes north 40 degrees east, and dips south-east at 35 degrees. At this point only the hanging-wall

side of this shear-zone is exposed. The owners state that it can be traced for a great distance, and at some points reaches a width of upwards of 50 feet. The filling at this point examined consists of silicified and brecciated andesite showing a very sparse mineralization of pyrite. A sample of the best, although still sparsely pyritized parts of this shear-zone, assayed: Gold, trace; silver, trace.

The green andesite formation in the more immediate vicinity of the hanging-wall of this shear-zone shows occasional widely-separated patches or blebs of bornite and chalcopyrite in the contact-planes and jointing. This condition is exposed in two open-cuts on the steep mountain slope, about 125 feet apart at elevations of 50 feet and 75 feet respectively above the point of exposure of the shear-zone. These open-cuts do not expose any mineralization of commercial significance.

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