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Geo. S. Pearson, Minister.

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REPORT ON THE PROPERTIES OF

CARDINAL MINING & DEVELOPMENT COMPANY, LIMITED, N.P.L.

Yale Mining Division

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By:

B.T. O'Grady,
Resident Mining Engineer.

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AURUM

This property, in the Yale Mining Division, consists of the Aurum Nos. 1 to 6, Idaho, Tramway, and Monitor Crown- granted mineral claims together with the Annex held by location. It covers much of the ground originally occupied by the Idaho and Snowstorm groups. The consolidated properties, controlled by A.E. Raab of Hope, are under option to the recently incorporated Cardinal Mining and Development Company, Ltd.

The property is situated on the South fork of Ladner creek $2\frac{1}{4}$ miles (camp) north-west of Verona (Aurum siding) on the Kettle Valley railway. The Aurum property lies on both sides of the small valley of the South fork of Ladner creek, the camp being on a bench 30 feet above and south-east of the stream. The workings are from 180 to 930 feet above the creek or at elevations of 2600 to 3350 feet and on the north-western side of it. The side-hill is well-wooded and covered with overburden, slopes being generally uniform at angles of about 30 degrees towards the creek. The camp, at 2,450 feet elevation, is connected by a road, about $4\frac{1}{8}$ miles in length, mostly on a well-surveyed grade, with the railway siding at about 1,350 feet elevation. The road has fallen into disuse in recent years.

The geology of the district has been described in the following publications of the Geological Survey of Canada:- Summary Reports 1919, Part B; 1920, Part A; Memoir 139 "Coquihalla River Area" published in 1924; and Summary Report, 1929, Part A.

Past references to the properties are contained in the Report of the Minister of Mines for the years 1922 and 1926 under the name of Idaho, and 1927 to 1932 inclusive, under the name of Aurum. The present group was consolidated in 1926 and was optioned to the Aurum Gold Mines Ltd., most of the development having been done by this company. Between 1930 and 1932 inclusive, 95 tons of ore were shipped from the Aurum mine, containing gold 432.0 oz. and silver 92.0 oz.

The older Aurum mine workings comprising Nos. 1, 2, 2-A, 3, and 4 adits at respective elevations of 2,920, 2,830, 2,790, 2,705, and 2,600 feet, aggregate about 2,500 lineal feet of work. This work consisted chiefly of drifting north-westerly on or adjacent to the talc seam formed along the periphery of a serpentine

contact. Nos. 2, 2-A, 3 and 4 adits are respectively in a south-easterly direction from No. 1 adit. Two small shoots of auriferous talc were stoped above the No. 1 level, and another small shoot (corresponding to the south-easterly shoot, near the portal, in No. 1 adit) stoped above No. 2. There is also a small stope on the No. 3 level where some gold values were encountered in a siliceous zone. No stoping was done on the No. 4 level, the face of which is about vertically below the portal of No. 2-A. Subsequent work in the mine is as follows:- At 2,898 feet elevation or about 35 feet below No. 1 level on the dip of the talc seam, an adit, 49 feet long has been driven to exploit the small area left between the portal pre-shoot on No. 1 level and the stope put up below it from No. 2 level. The new workings show talc in the face, and adjoining hanging wall, 24 inches wide. In No. 4 level, 20 feet back from the northern face, a winze, full of water when inspected, has been sunk about 5 feet adjoining a talc shear in greenstone near the contact with sediments. At the collar of the winze there is a showing of quartz mixed with calcite 6 to 9 inches wide, which apparently widens to about 18 inches below the water-level. Continuity of the showing, from which picked specimens have shown visible gold, is not apparent in the drift above the winze. Superficial exploration in the Ladner Slate belt to the north-east of the north-westerly-trending serpentine contact has exposed several parallel zones of quartz stringers or silicified zones in metamorphosed sediments, and greenstones. In this type of deposit low gold values are associated with pyrite, with, in places, accompanying arsenopyrite, the sulphides occurring as irregular disseminations or fine streaks through the rock formation in the vicinity of quartz stringers or silicified phases. The mineralization in general conforms to the attitude of the enclosing formation, prevailing strikes being westerly or a little north of west with dips ranging from 40 to 80 degrees to the north. The better gold values are obtainable in areas of oxidation which, while intense in places, is shallow. The approximate position of the principal workings is described with reference to the portal of the No. 3 Aurum adit which is the nearest of the old mine workings and, in general extends along the serpentine contact.

From the point specified the Queen (formerly McConnel) trench (south-west end) is distant 530 feet along a bearing of north 5 degrees west, the elevation here being 2,885 feet. This trench, about 100 feet long, is dug approximately at right angles to the zone which strikes about north 70 degrees west and dips from 70 to 80 degrees to the north-east. Towards the hanging-wall side the showing consists of a width of 20 feet of massive, greenish altered rock containing widely separated quartz stringers paralleling the attitude of the formation, sulphide mineralization being very light. Adjoining this section on the foot-wall side there is a lens, 16 feet wide, of similar rock, largely composed of quartz. The exposures are generally fresh with a little oxidation in places. A

A selected sample of pyritized silicified rock assayed: Gold 0.03 oz. to the ton; silver, trace. Just west of this trench and at 2,905 feet elevation, a curving adit, with short branches, has been driven north-westerly for 60 feet. These workings expose quartz stringers at widely separated points, with no appreciable sulphide mineralization, in the rock of similar character to that in the trench below. On the Idaho zone the highest point exposed is 1,350 feet distant measured along a bearing of north 25 degrees west from the portal of the No. 3 Aurum adit. The distance between the Idaho zone and the serpentine contact, measured at right angles to the trend of the latter, is estimated at about 480 feet. Surface workings here, distributed over a length of 250 feet between elevations of 3,200 and 3,326 feet, consist of extensive stripping by ground-slucing together with open-cuts and a long trench. These indicate a shear zone, strike north 85 degrees west, dip from 60 to 80 degrees northerly, in dark slate and schist. The rocks, which are generally weathered, containing rusty seams and streaks, are in places decomposed and intensely oxidized. Where exposures are fairly fresh the mineralization, conforming in general with the structure of the enclosing strata, consists of quartz stringers and irregularly silicified areas with small amounts of pyrite and arsenopyrite, the sulphides impregnating the rock but not the quartz to any noticeable extent. The area uncovered by ground-slucing and open-cuts, over a length of 100 feet between elevations 3,330 and 3,266, is of irregular outline up to 25 feet wide.

Chaining easterly down the slope from elevation 3,330 the showings are briefly as follows:-- At the top there is a width of 7.5 feet of soft, iron-stained decomposed rock and soil; at chainage 9, a width of 25 feet of highly altered sedimentary rock with, in places where silicification is more intense, as in the 6 foot central section, finely divided sulphides in bands paralleling the strike; between chainages 9 and 100, widths of from 5 to 11.5 feet of irregularly pyritized silicified rock with rusty zones and iron-stained decomposed streaks. The following samples of fairly fresh pyritized, silicified rock were taken:

Chainage from elevation	Description	Gold Oz. to the ton	Silver Oz. to the ton
3,330	Selected	0.01	Trace
20	Selected	0.01	Trace
44	Grab	0.26	0.15
85	Selected	0.18	Trace
89	Selected		

These were taken to get an idea of values in primary material free from oxidation.

Fifty feet southerly from the upper part of the exposure described and opposite the section between chainages 8 and 52, an open cut, up to 17 feet wide, exposes a rusty zone in schistose argillaceous rock. This working and a smaller cut 65 feet east of it (opposite chainage 117) indicate a zone of indefinite mineralization paralleling the main Idaho showings. Reverting to the latter there is at chainage 195, and elevation 3,200 feet, a long trench across the strike of the zone. Here there is exposed a width up to 55 feet, of rusty, decomposed slaty rock and soil from which a selected sample of intensely oxidized material assayed: Gold, 1.10 oz. to the ton; silver, 0.1 oz. to the ton, and a sample across 6 feet, where oxidation was pronounced, gave: Gold, 0.52 oz. to the ton; and silver, 0.1 oz. to the ton. At 3,172 feet elevation and just east of the trench there is a meandering adit, comprising 188 lineal feet of work. It crosscuts the mineralized zone in irregular manner but does not afford a proper section at right angles to the strike. Its main course is from south 70 degrees west to south 80 degrees west for 110 feet. At 30 feet in from the portal a branch extends north 65 degrees west for 30 feet, then turns north-east for 48 feet. The last mentioned course, directly under the 55 foot trench, crosscuts the ground diagonally. Appreciable mineralization in the adit workings is apparently limited to the 16 or 20 foot section adjoining the face in the last course mentioned, where there is scattered light sulphide mineralization with some irregular silicification. Fifty feet north of the adit portal a trench, at 3,170 feet elevation, exposes rusty slates, this being outside the Idaho zone strike.

When the property was examined late in October 1935, development had not reached the stage where tonnage estimates of specific value could be made. As the examination was curtailed by a snowstorm only a few check samples could be taken by the writer, which showed variable gold values evidently present in patches in the Idaho showings, and higher assays from oxidized, decomposed, residual material as in the 55 foot trench. The zone is very imperfectly exposed in the superficial workings. Underground work including drifting with crosscuts at regular intervals, followed by large sampling operations, will be necessary before average values in primary material can be gauged. Between the Idaho and Queen (McConnel) workings there are widely separated cuts and trenches indicating other rusty zones of quartz veinlets or silicified areas but these are insufficiently exposed for detailed description or appraisal. There was no activity at the property when visited by the writer.