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GEOLOGICAL REPORT ON A COPPER-GOLD DEPOSIT AT YEURALBA. N.T.

by.

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Introduction.

Consequent upon instructions received from the Superintending Geologist, Mr. C.J. Sullivan, the copper-gold deposit at Yeuralba was visited and inspected on the 9th, 10th, and 11th May 1950.

Situation and Access.

The mineral deposit is situated approximately 22 miles northeast of Maranboy Government Battery. A bush track leads to the workings. The last three or four miles of this track are impassable in wet weather.

A constant supply of water can be obtained within a mile of the owners camp. Timber for mining purposes can be obtained on what is locally known as "table land country" three miles away.

History and Ownership.

The deposit was first found in 1917 but was not worked until September 1929 when Jim Eskrett and Mick Coleman carried out some surface work near the present camp site. They also sank a shaft about 100 ft. deep approximately 2½ miles to the north west of the present camp site before they left in September 1929. Paul Allmich and Charlie Holt came about the end of January 1930 and worked until July of the same year. They sank two shafts (called in the report No. 2 Workings) about 100 ft. apart; the southernmost shaft was about 18 ft. deep and the other was about 35 ft. deep.

No further work was done until the present owners commenced work in the dry season of 1949 when they sank a shaft 35 ft. deep about 1 mile south of their camp site, which is adjacent to No. 2 Workings.

Workings.

Copper has been mined in three localities;

No. 1 Workings: These workings are situated one mile south of the owners campsite. They consist of a vertical shaft 33 ft. deep from the bottom of which a crosscut to the east, reported to be 40 ft. in length, has been made. It was not possible to inspect the crosscut .

No. 2 Workings: About a mile north of No. 1 Workings a series of shallow workings estending over 200 ft. are all that remains of the work done by Paul Allmich and Charlie Holt. The two shafts sunk by Allmich and Coleman are now filled in.

No. 3 Workings: These workings situated about 2 miles on a bearing of 330 degrees from No. 2 workings consist of several potholes and a shaft reported to be formerly 100 ft. deep but now only 38 ft. deep.

No. 4 Workings: A large quartz reef, about 2 miles north of No. 2 Workings and about 1 mile N 30° E of No. 3 Workings has been tested by several small costeans.

General Geology.

The rocks of the area consist of slates, metamorphosed sandstones and hematite quartzites which have been intruded by bodies (possibly sills) of diorite. The sediments have been folded - just to the south of No. 1 Workings a dragfold

has a southwesterly plunge. The sedimentary rocks have a general northwesterly trend and a dip which varies from 50° - 70° west.

Orebody.

The hematite quartzite has been intruded by mineralised quartz reefs and veins which outcrop discontinuously over a distance of four miles in different horizons of the quartzite.

In No. 1 Workings the orebody, which is approximately 400 ft. long and 10 ft. wide at the surface, strikes N30° W and dips 30°W.

In No. 2 Workings the orebody was proved to exist over a length of 200 ft. It had a maximum width of 4 ft. The strike of the orebody is N50°W and the dip is vertical.

In the vicinity of No. 3 Workings the country rock has a general N 50°W strike and a 65° E dip but the lode has a N10°E strike and a reported vertical dip and widths of 1.ft. This difference in strike of country rock and orebody is thought to be due to local folding of the country rock adjacent to the orebody which could not be seen on account of the long grass and soil cover.

The mineralised quartz reef at No. 4 Working is approximately 400 ft. long and about 20 ft. in width. The quartz reef is thought to be at the nose of a south plunging fold but more detailed work is necessary to verify this. The general trend of the reef is N.65°E and it appears to dip to the west at 30 degrees.

Mineralisation.

Together with copper, small amounts of gold, silver and lead are reported to have been found. Copper occurs in the form of malachite and occasionally as azurite. The presence of bornite and silver sulphide are reported by Paul Allmich from No. 2 Workings at a depth of about 20 ft. At No. 3 Workings pyrite was observed in two places at the surface yet the copper ore which was mined from the shaft was in the carbonate form (reported).

Production:

The following production figures were verbally given to the writer by Paul Allmich:

From No. 2 Workings 7½ tons of 28½ % copper ore.
From No. 3 Workings 8 tons of 29 % copper ore.

Ownership.

At the present time the mineralised belt of country is within the boundaries of a mining reservation, 4 miles long and one mile wide, which is held by the Johnstone brothers, namely: Donald George, Murray, and Max Johnstone.

Conclusions and Recommendations.

Mineralisation of the orebody at the surface is not particularly strong nor are there any gossans which indicate large orebodies at depth.

If it is true that bornite was found at approximately 20 ft. below the surface in No. 2 Workings then it is unlikely that the deposit will be of great economic importance; quartz veins containing bornite are not uncommon but they have rarely been producers of copper ore. The presence of sulphides at such shallow depths does not indicate

a zone of secondary enrichment. Bornite is rarely found in the zone of sulphide enrichment and although argentite may develop as a result of supergene enrichment it is definitely hypogene.

The Johnstone Brothers - all energetic young prospectors who have a portable smelting plant were advised to open up No. 2 Workings by means of a shaft on the orebody and drive on the orebody about forty feet below the surface. From this work they should obtain payable quantities of secondary copper ore.

The Johnstone Brothers were asked to notify the Bureau of the progress made and they were told that possibly another visit would be undertaken by Commonwealth geologists. (It was thought that either the Rum Jungle Party when on its way to Mt. Isa or the Brocks Creek party could undertake this work).

I consider that this deposit which is of a lenticular nature may yield more ore to energetic prospectors and that it is worthwhile watching the development if it is undertaken. I might add that the owners were agreeably surprised that the Bureau geologists arrived so quickly on the spot, apparently they had requested an investigation by Commonwealth Officers but did not expect them to arrive so soon.

(Hector Ward.)