REPORT ON THE MINNOW GOLD DEPOSIT

The Kentish Council made representations to the Mines Department for consideration of a diamond drilling campaign to test the Minnow goldfield (Star of the West, etc.). On arriving at Sheffield, a visit was paid to the Council Chambers and a discussion held with the Council Clerk, Mr. A.H. Dyer. Mr. Dyer stated that the matter had been brought up by Councillor K.A. Frankcombe and accordingly a visit was paid to Mr. Frankcombe. Mr. Frankcombe stated that he thought that mddern methods of investigation might reveal an important quartz reef at depth in the Minnow goldfield and that as he understood that funds were available for drilling, some might be spent in the Minnow District. Although the reasons given by Mr. Frankcombe gave no material support to his proposed drilling campaign, a visit was paid to the Minnow goldfield to determine the nature of the gold occurrences.

The old Minnow goldfield is situated mainly on the southside of the Minnow River in the vicinity of the Minnow town reserve. The most extensive workings are near the old Star of the West lease, about 0.5 mile south of the Minnow River and 1.0 mile west of the Minnow town reserve. Access is gained by road from Sheffield and other towns in the adjacent districts.

Gold was found prior to 1881, as in that year the field was visited by G. Thureau whose report (Report on the North-Western Mineral Deposits) referred to a number of adits and shafts already in existence. It would appear that alluvial or detrital gold was found at a few places within a distance of 2 miles on the southern side of the Minnow River. The gold was apparently more plentiful near the Star of the West and adits were driven and shafts sunk to determine the source of the gold in that vicinity. These adits and shafts were situated on the northern slope of a hill which rises fairly steeply to the south. At least, two companies were working as well as prospecting parties. The two companies were Star of the West, (formed in 1881) and Star of the East.

Looking at the workings at the present time, it would appear that they were put in for two different purposes. Firstly, there are a number of closely-spaced shafts which were probably sunk in a search for alluvial or detrital gold in the superficial deposits above the bedrock. The other workings consist mainly of adits and were put in in search for the source of the gold. Most of the workings cannot now be entered and it is difficult to decide which of the adits were those described by Thureau, as only sketch plans accompanied his report.

One adit (probably on the Star of the West) could be entered for a short distance and exposed a white weathered quartz porphyry. Similar material is exposed on the dump of another adit about 8 chains to the east. Unweathered quartz porphyry is exposed on the surface in some places between the two adits. These occurrences suggest a band of quartz porphyry with a general east-west strike. It is possible that a narrower band exists to the north. The evidence is insufficient to determine whether the rocks were lava flows or dykes.

On most of the adit dumps, the rocks are thin-bedded and light-coloured slates. Detritus suggests the presence of slates at other places, the slates, in general being to the north of the main band of quartz porphyry. However, slates have also been shown to exist to the south of the main band of porphyry by a shaft to the south of the main band of porphyry by a shaft to the south of the easternmost adit.

Between the northernmost adit and the western adits, loose pieces of a weathered reddish rock occurs. Its exact nature could not be determined in the field, but it is either a fine-grained basic volcanic rock, a basic tuff, or a felspathic breccia or sandstone. This rock is associated with the slates and probably forms a bed in them. In this report, it will be termed "tuff".

Exposures were not sufficient to enable the structure to be determined and all that can be said is that the above rocks appear to occur in east-west bands.

Numerous veins and reefs of quartz occur in the slates to the north of the quartz porphyry. These are not restricted to the toe of the hill but occur as far as 600 feet north of the hill. Trenches and shafts have been sunk on these reefs, but there is no evidence of stoping and it would appear that the reefs have been adequately tested and that little or no quartz of profitable grade existed. It is stated that the gold-bearing material treated, came from narrow veinlets in the adits (and one shaft at least). At present, the one adit available for inspection shows a few narrow excavations along what were probably such veinlets. The veinlets dip to the north.

Thureau's report describes the geology and some of the material which was treated for gold, but it is somewhat difficult to recognise the workings referred to by him, and also the rocks which he described. He referred to a reddish rock, granular in parts, in which he detected sparsely distributed and small crystals of felspar, hornblende, and mica, which he termed a porphyry. This appears to correspond with the rock described above as a "tuff". It seems unlikely that Thureau is referring to the quartz porphyry because he could not have failed to notice the plentiful quartz in the latter. Either, therefore, Thureau did not see the quartz porphyry, or else his description is so inaccurate and misleading that the rock cannot be recognised from it. The importance of this matter lies in Thureau's statement that gold occured in the quartz veins in the porphyry and also in the matrix of the porphyry. The present investigation shows that similar veinlets occur in the quartz porphyry. When it is remembered that the quartz veins also occur in the slates, it is obvious that the veins are not restricted to any one rock type and that the porphyry (Thureau) has no particular significance in this respect.

One aspect of Thureau's report requires further consideration, viz., his reported statement that gold occurred in the matrix of the porphry. While such may have appeared to be the case, the gold may havebbeen of secondary origin and restricted to the oxidised zone. Further, there may have been in the porphyry, very narrow veinlets, which contained the gold, but were readily detectable. It is possible, therefore, that Thureau's statement may not be strictly correct, but such incorrectness would not necessarily affect the commercial possibilities in the oxidised zone.

CONCLUSIONS

Quartz reefs and veins occur in the slates and quartz porphyry and possibly in the tuff of the Minnow goldfield, and have been tested by trenches, shafts, adits, etc. Little, if any, stoping has been done and the only conclusion that can be drawn is that the quartz was not of profitable grade.

Thureau stated that the matrix of a porphyry contained 3 dwt. of gold per ton. It is difficult to determine whether he referred to the quartz porphyry or the tuff as described in this report. There is no indication that any work subsequent to Thureau's visit proved the rock to be profitable (it is stated that there was a battery on the field.)

As there are no reefs of value on the surface, it is most unlikely that any valuable ones would occur, at depth, and there is no justification for a drilling campaign as suggested by Mr. Frankcombe. Further, any drilling would be "blind stabbing" as it is impossible to predict where a reef might occur.

Before visiting the Minnow goldfield, it appeared that the porphyry might justify testing, but the visit indicated that the prospects were not nearly as favourable as appeared from Thureau's report. Drilling is not recommended but if any is contemplated, at any time, it should be preceded by a detailed geological survey and a surface and sub-surface sampling campaign. The geological survey would have as its obejctive the elucidation of the geological structure and would have to be accompanied by the sinking of many pits to expose the bedrock. The sampling might serve to indicate in which rock (quartz porphyry or tuff) if any, gold occurs in the matrix. The results of this campaign might prove whether drilling was justified or not.

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