

PRELIMINARY REPORT ON KUBE'S PROSPECT AT CYGNET.

INTRODUCTION.

Gold was discovered at Cygnet as far back as 1869, but no particular interest was excited until 1898 when rich prospects were obtained from the alluvium of Forster Creek near Lymington. The narrow gutter of this small creek has yielded between £5000 and £10,000 worth of gold. Many attempts have been made to find the ore-body from which the alluvial gold was shed. All, however, were foredoomed to failure because the miners looked for the ordinary signs (quartz reefs) as guides in their operations and employed methods not applicable to these peculiar occurrences.

The rather extensive exploratory works performed by the early prospectors have provided valuable information and have enabled the late-comers to profit by their mistakes. A few months ago a syndicate was formed to continue the search, the results of which are contained in this brief report.

GEOLOGIC RELATIONS.

The sedimentary rocks of this field are the Lower Marine Mudstones, sandstones, and shales of the Permo-Carboniferous system. These have been intruded by sills and dykes of porphyries and syenites belonging to a suite of Alkali rocks of extraordinary character. Some of the many varieties have been determined as solvebergite and tinguaitite porphyries and elaeolite and alkali eyenites. Accessory component minerals are sphene, zircon and garnet. The metamorphic effect of the intrusive on the sedimentary rocks is chiefly that of induration and slight silicification with the development of secondary mica. The general trend of the dykes is north-westward and the dip is toward the north-east.

THE ORE BODIES.

Attention has been concentrated in the past on the igneous rocks (porphyries, eyenites, etc.) especially where they contain a high proportion of the foreign mineral pyrite. Not all the pyrite, however, contains gold and not any of it contains much. Likewise the igneous rocks generally are barren and at best are poor, the less poor being the more basic varieties. It has been established that in the detritus deposits the gold usually accompanies jasperised rock, why it is difficult to determine. Hornblends and iron oxide (limonite) are also common companions. The gold is coarse, rough and jagged suggesting its derivation from limonitic puggy bodies in altered calcareous mudstones.

The chief mineral associates are pyrite, pyrrhotite, and chalcopyrite. An extraordinary occurrence is native lead in elongated, flattened discs found in veins traversing calcareous mudstone. Striking developments are golden yellow mica of brilliant lustre and another secondary mica of a greyish green shade. Both are found in altered mudstone associated with a little vein quartz, and are due to the action of mineralising agents. Their presence, therefore, may be taken as an indication of the proximity of ore deposits. The known occurrences of metallic lead in other parts are in relation to rocks of dolomitic limestone in some respects similar to this.

The strike of the veins is north-westward parallel to the course of the igneous dykes. They extend from Petchey's Bay through Kube's property past the eastern side of Mt. Mary. There are probably a number of these veins within a width of five chains, they in all forming a vein system. It is probable also that the shoots of gold-bearing material are not long and that they are separated by much longer barren sections. This mode of occurrence is indicated by the distribution of the gold in the alluvial and detrital grounds where rich sections are widely separated. One unusual feature of these deposits is the comparative dearth of quartz which is found only in veinlets and blebs in mudstone and in thin veins associated with very narrow dykes of the intrusive rocks.

On Kube's property a shaft has been sunk 25 feet on two narrow veins of limonitic mineral separated by a two-foot band of altered mudstone. The veins dip north-easterly at a high angle. Both vein material and the encased mudstone contain a little gold and silver and on the footwall native lead is found. Secondary Mica has been developed in this rock and pollucid quartz has been deposited as blebs and veinlets.

A few chains below these workings in the creek bed very coarse gold was obtained and in a gutter leading past them gold has been found. A little to the westward is a permanent spring which may mark the position of a larger vein and a little below another spring was tapped in a prospect hole the material from which contained a fair proportion of fine gold. South of this property no alluvial gold has been found on the Lymington fall of the hill, but on the Petchey's Bay side coarse nuggety gold has been obtained from the rubble. This coarse gold has not been reprecipitated from percolating solutions but is a primary mineral.

#### SUMMARY.

Kube's prospect is on the line of the vein system traversing the district. The work performed on it is not sufficient to indicate the relative importance of the find yet the prospects are encouraging and are worthy of further attention. The Syndicate proposes to cross-cut the vein system in order to ascertain the true nature of this unique deposit. No other course of action is justifiable at this stage.

The operators realise that the gold has not been shed from a quartz reef, but from heavily mineralised veins containing a relatively small proportion of quartz and traversing horizontally disposed sediments. It is evident that the distribution of the gold is very erratic and that the value of the lode material varies greatly from foot to foot. Veins occur on both sides of the shaft workings. It is difficult, however, to determine in which direction the more important lie.

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