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REPORT ON BABEL ISLAND TIN DEPOSIT.

GEOGRAPHICAL POSITION

Babel Island is one of the smallest of the Furneaux Group of Islands in Bass Strait, lying about 60 miles due north of the extreme north east portion of Tasmania.

It is situated about 1½ miles to the east of Flinders Island (the largest of the group) and about 20 miles from the southern extremity of the latter.

From Lady Barron - the chief calling place in the south of Flinders Island for trading boats - the distance by sea to Babel Island is about 25 miles.

From Launceston the sea journey to Lady Barron occupies from 12 to 14 hours, the distance is approximately 140 miles.

Babel Island covers an area of about 1,100 acres, it has a fairly even coast line; from north to south the extreme length is 2½ miles and breadth at widest point 2 miles.

Accessibility

Access to the Island is usually made by small fishing boats from Lady Barron. There is no regular service; if such was warranted it would be subject to weather conditions there being no inlets on the Island which afford permanent shelter.

The short distance separating Flinders from Babel Island can be negotiated by rowing boat in fine weather but as there is no road connecting the chief settlements of Flinders Island to within the vicinity of the landing place, the sea route is exclusively used as a means of communication and transport.

A narrow sand spit connects Flinders with Babel Island and in years past access from one island to the other could be made by this means; in late years the inroads of the sea destroyed this dry land connection. At the present time at low tide the sand spit is uncovered for the greater portion of the distance, several deep channels however in the spit break the connection between the islands. It is said to be some ten years since permanent land connection between these two islands was severed.

The only means of landing on Babel Island is by small rowing boat or fishing boat and this can be accomplished in fine weather only or on the lee side if the weather is unpropitious. In stormy weather the island is practically inaccessible.

Topography

The shores of the Island at the north and east and part of the north west sides are low lying but have a gradual rise towards the central portion; on the south and west the land rises more abruptly from the shore. Two ranges of hills rising to height of about 600 feet above sea level form the back bone of the Island. From the seashore on the north, north east and part of the north west coasts the land as stated rises gradually inland for a distance of about ¾ miles to the base of the northern range of hills. The hills have fairly steep sides and in some places particularly at the south end they are precipitous.

In the central portion of the southern part of the Island there is an area of fairly level country forming the valley between the eastern and western range of hills.

The level land and portions of the hill sides where sand has accumulated are thickly covered with native grass and in parts with a prolific growth of artificial grasses. These areas where the sand is soft are used as rookeries by mutton birds.

Geology

The country rock of the Island is composed wholly of granite the predominating kind being normal biotite variety, but there are many variations of structure and texture, including granite porphyry and pegmatite. Quartz porphyry dykes if irregular formation are not of infrequent occurrence.

The granite where exposed on the hills and sea shore is hard and resistant to the influence to weathering agencies. The general strike of the main shrinkage planes which are almost vertical is a little to the east of north, minor planes cross these at varying angles. On the north, north east and north west portions of the Island from the sea shore inland there is a very slight rise in the surface of the granite to within a short distance of the base of the northern range of hills. On the north east side between the latter and the coast line there is a thick bed of wind borne sand extending for some distance along the foot of the hill and parallel to the coast line. At one point where tested by a shaft 400 feet from high water mark the depth of sand proved to be 36 feet deep, the collar of shaft being about 50 feet above sea level.

In sinking shaft no shells were seen, at or near, the bottom several fairly large pieces of bone were dug up, these have been submitted for determination. The depth of sand between the sea shore and the hill on the north and north western portion of the Island has not been tested.

Economic Geology

From a general examination of the granite exposed on the higher ground of the Island there is nothing to indicate the presence of any extensive ore deposits of economic value. In several places tin ore in small quantity is said to have been found.

In the valley on the south between the ranges of hills boulders of greisen are fairly plentiful. From the position of the boulders they would seem to have been shed from the western side of the eastern range of hills. The type of greisen constituting these boulders is very favourable for the occurrence of tin.

At a point on the north east shore 32 chains from the extreme north of the Island an outcrop carrying rich tin oxide was found some fifteen years ago when it is said several tons of marketable ore were taken out and sold. The outcrop was situated but a few feet above high water mark and some work of excavation below sea level was then undertaken for a depth of a few feet and then abandoned.

The tin-bearing formation which is exposed at the surface for a width of about 70 feet consists of white mica greisen in which small crystals of fluorspar are

fairly abundant. In places where oxidation has not been so pronounced, which is general in the upper portions of the formation, small quantities of pyrite occur.

The formation is enclosed in normal granite walls and strikes N35°E. The northern extremity of the formation abuts against hard granite a little to the east of high water mark. There does not appear to be any indication of it continuing further in that direction. Going inland the lode which appears to be dipping north westerly under the granite has been traced by trenching and shallow shafts for a distance of about two chains, its extension on the apparent line of strike has not been proved beyond that point.

Owing to the action of the sea water the tin bearing formation has been subject to considerable oxidation, and this has resulted in much of the tin being present in the "free" state, that is by simple washing a high grade sample of tin oxide can be obtained. The distribution of tin oxide throughout the formation is general, with characteristic enrichments in parts. Coarse pieces of tin oxide up to ½ inch diameter are frequently met with.

The division between the hard granite walls and the lode formation is well defined.

Babel Island Mining Syndicate

The above named Syndicate of which Mr. C. Kelly, 87 St. John Street, Launceston is the legal manager, has carried out considerable developmental work on the above described lode formation.

On that portion of the orebody where the tin ore was at first located an excavation 28 feet long, width at top 10 feet at bottom 4 feet has been taken out below sea level at high tide. A good quantity of lode material was extracted and stacked for treatment. The ore was much decomposed containing a good quantity of clayey material, on simple washing treatment the latter would yield any free tin oxide it contained, there would however be a greater proportion of the ore in a solid form which would necessitate fine crushing for the extraction of the tin.

Owing to this excavation being situated below high water mark it was filled with sea water at each rise of the tide and in order that further testing could be undertaken a small pumping plant was installed to drain the workings as the tide receded. This enabled the operators to carry out considerably more work than would otherwise have been possible, and a depth of about 14 feet below high water mark was by this means attained. At this depth the lode carried very good prospects of tin. Owing to the slurried condition of the excavation it was not possible to take a bulk sample.

At a point 50 feet south of the excavation above referred to a shaft has been sunk in about the central portion of the formation. At surface about 9 inches of black sand was passed through then 4 to 5 feet of clay, 2 feet of iron stained granite carrying fluorspar below this greisen was met with. Samples of the latter at a depth of 16 feet were taken, the results of these and other samples taken will be forwarded as a supplementary report to this.

From the shaft a trench has been cut westerly to the wall of the lode formation. At the head of this trench pyrite shows freely in the granite porphyry rock.

Further south of shaft some prospecting work has been carried out on the formation. At 38 feet south a small shaft has been sunk, at surface 2 feet loose sand then a layer of hard granite about 1 foot thick, below this granite is decomposed merging into soft gossaneous material at a depth of 7 feet, the latter carrying very fair prospects of tin, with further sinking solid greisen in which fluorspar is abundant was met with.

With a view of picking up the formation further inland on the apparent line of strike a shaft was sunk at a point about 400 feet south of high water mark. The surface of the ground here has a rise of about 10 degrees. The collar of the shaft is approximately 50 feet above high water mark. The shaft was sunk through 36 feet of sand at this depth hard granite was met with.

The difference of the horizon of granite at bottom of shaft and high water mark would therefore be only 14 feet. If the lode formation takes this course a comparatively small quantity of ore would be available above sea level. The continuity of the lode beyond the furthest point south as proved in the shallow workings near the sea shore has yet to be determined.

The Babel Island Syndicate hold a mineral lease of 20 acres which includes land on which the above mentioned tin deposit occurs. At least half the lease extends beyond the shore line, roughly the latter cuts diagonally across the section from the north west to the south east angle. That portion of the section above high water mark is low lying, the highest point on the plain being not more than 50 feet above sea level. The plain as previously mentioned being covered with a thick deposit of sand there will be very little solid ground available on the section above high water mark.

The work carried out on the lode formation exposed on the sea shore has proved the existence of a very promising tin orebody. Its horizon so far as proved is but a few feet above that of the sea. Considerably more developmental work is necessary in order to prove the lateral extension of the lode, it may prove to be a "pipe" formation; indications so far observed would lead to that conclusion. Should future developments warrant consideration being given to the commencement of productive work on the lode, there are several factors of outstanding importance which should not be lost sight of. Of these it is obvious that for the production of any considerable quantity of ore shaft work below sea level will be necessary, involving the use of large quantities of timber for supporting excavations. There being no timber on the Island or adjacent islands costs under this heading would be extremely heavy. Extraction of ore by underground mining excepting on comparatively high grade material and under most favourable conditions, is not payable.

There is no fresh water supply on the island excepting a few small springs. Any fuel need would have to be shipped to the island, the quantity of firewood available is limited to a small area of stunted ti-tree.

Summary and Conclusion

From the foregoing it will be gathered that the tin occurrence on the island is of very promising character, but its low lying position detracts much from its value. To successfully work an orebody so placed it would of necessity have to be much above the average richness of a lode of its kind. The work so far carried out does not lend support to the latter idea.

The disabilities connected with carrying on mining operations at the island owing to its isolation, want of shipping facilities, cost of transport and other natural disadvantages all tend to make mining costs prohibitive.

To Mr. J. Motley the Syndicate's Mining Manager the writer desires to express his appreciation for assistance, hospitality and information supplied, also to Mr. M.W. Barrett for information and assistance.

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