

CHINTOCK'S TIN MINING SYNDICATE

The leases surveyed and inspected are 54M/38 of 10 acres, (formerly known as the Kent Workings), 55M/38 of 5 acres (previously known as the Lottie Chintock Prospect) and Machinery Site 23W/38.

Position and Access:

These leases are situated near the head of Kent Creek, which, together with Star Creek, flows into Wickborg Creek, a tributary of the Frome River. The track from Weldborough to Poimena passes through the Kent Workings, but this is little better than a pack track in the immediate vicinity of the leases. Poimena is four miles distant, but the track can be used by motor for only half this distance.

General Geological Settings:

The leases are situated in the granites of the Blue Tier massif and both types of granite are represented. Their distribution is shown in the plans.

(a) The Porphyritic Granite: This is coarse grained and is characterised by large and abundant felspar phenocrysts. This granite is older than the tin bearing veins, and Tin Granite, and is not in itself tin bearing, except where it is intruded by greisen veins. As a rule, these veins are thin and run in well defined directions which are related to the jointing of the granite. Where the rocks are sufficiently soft, the ground is sluiced and the tin is recovered in boxes. The greisen veins are generally harder than the granite and the greisen veins are not disintegrated by sluicing, and have to be crushed to free the tin. Several small mines have attempted to work on this system but with indifferent success. When concentration of the greisen cannot be effected by sluicing, selective mining has proved a failure.

(b) The Tin Granite: This granite is intrusive into the porphyritic granite and is much finer grained and lacks the large porphyritic crystals of the older granite. From an economic point of view, the occurrences of the tin is the main point of difference between the granites. The tin occurs as a mineral in the granite and in places is of sufficient concentration to be mined. These concentrations are generally areas which have been affected to a marked degree by the action of mineralising solutions.

In the leases under discussion both types of granite occur.

The Mining Leases:

Lease 54M/38 (Kent Workings):

This lease is chiefly on Tin Granite. Over most of the lease the Tin Granite is not very rich in tin. Near the eastern side where it junctions with the porphyritic granite, there is a definite enrichment. This is shown by the shallow workings which enable the rich seams to be examined. The long costean to the west of this belt is apparently outside this enrichment as all the samples that were crushed and panned gave only traces of tin. As far as could be determined, the area with richer values

is roughly triangular in shape with a length of 200 feet, and a maximum width of 100 feet. The deepest holes are about 6 feet deep. To determine the nature, extent and value of this part of the lease, it would be necessary to costean and then carefully sample these costeans. This trenching would also define the boundary of the two granites to the north east of the track where exposures are not of the best.

Apparently very little work has been done on this lease since A. Reid's report in 1926, (Geol. Surv. Bull. 38 p. 122). Until more porpsecting work has been accomplished it is difficult to form any estimate of the quantity of tin that is available here.

Lease 55M/38 ("Lottie Chintock Prospect"):

From the plan, it can be seen that these workings are on a greisen "blow" which intrudes the Porphyritic Granite. The open cut runs N.W. to S.E., and is about 45 feet long, with a maximum width of 30 feet. The maximum depth of the open cut would be about 12 feet, and the approach is 60 feet long. In the open cut there is a shaft just over 20 feet deep. From this, a drive extends to the N.W. for about 30 feet, and a short crosscut to the east. There is a short crosscut to the west, but this has been mullocked up and could not be examined.

The exposures in the shaft and in the surface workings show clearly that we are dealing with a greisen blow due to the junctioning of three systems of reefs - the north and south, the east and west, and the north-west to south-east systems. The open cut and the underground workings delimit the boundaries of this ore body laterally but its depth has not been proved. There is very little likelihood of persistence at depth, if the behaviour of similar occurrences in this area can be accepted as a standard. The shallow trenches to the south of the open cut indicate that the width of the reef diminishes in this direction. At the same time it should be recorded that the size of this blow is greater than is usual in this district.

As a mining proposition, the quantity of ore, that is available is insufficient to warrant the re-opening of this mine. If sufficient water were available, the greisen could be concentrated and crushed. It is impossible to form any estimate of the quantity of ore that would be available in this lease, if the barren ground were sluiced away.

Lease No. 23W/38: On the machinery site, there are two six head stamps which were driven by a 30 ft. overshot water wheel. This wheel is in a bad state of repair and it is doubtful whether it could be reconditioned. Water was obtained from the Wyniford River, but part of this race has been destroyed by ground sluicing. The tin was recovered by boxing.

The Proposed Programme of Work:

Chintock Tin Mining Syndicate have applied for a grant of £4,000 to be used in the following manner:-

- (1) To get a water supply from the Wyniford River sufficient to sluice the open cut and for ore dressing at the Battery;
- (2) To shift the battery further downstream so that it is more suitably located for working the Kent ore-body.

Two alternative schemes for a water supply were suggested:-

- (a) To cut a race from the Wyniford River. This race would utilise an old race to the east side of Camp Creek, and would then be flumed or siphoned across this Creek, and a similar procedure would then be necessary for Velocipede Creek. The exact course of this race has not been surveyed and their estimate of £400 for this work cannot be checked.

About one mile of old race would have to be re-conditioned and then after siphoning across Camp Creek, a new race would have to be cut for just over $1\frac{1}{2}$ miles.

- (b) The alternative scheme is to pump water from a spot nearer the workings. This implies a lift of just over 200 feet.

Of the two schemes, the first mentioned is the more attractive.

In order to be suitably located for the Kent Workings, the battery would have to be re-erected at least $\frac{1}{2}$ mile downstream. The water wheel would have to be renewed or else a Pelton Wheel provided. While there is enough water available in the wet months, there would be insufficient during the dry months for this purpose.

Conclusions:

While the programme of work outlined by the Syndicate can be carried out, there are so many doubtful factors governing any estimates of the total amount of tin that would be recoverable, that it is difficult to justify the granting of the loan. One of the most serious objections to the whole scheme is its dependence on water for power. While there would be plenty in winter, there would definitely be a shortage in the dry months.

The patchy occurrence of tin in the tin bearing greisen leaders, the rapid variation in their width, and the general increase in hardness of the enclosing porphyritic granite once the weathered surface is removed, are all factors which render difficult any estimation of ore reserves.

In the case of the Kent Workings, a programme of costeaning would give valuable information as to the tonnage and grade of ore that is available. This information should be obtained before attempting any other work.

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