REPORT ON H.G. WATSON'S SHOW AT NORTH HEEMSKIRK

LOCATION: The show is situated in the north Heemskirk district approximately 11 miles from Zeehan. From the end of the Corinna Road, 8 miles from Zeehan; the old Zeehan-Granville Harbour tramline is followed for about 3 miles until the Heemskirk River is crossed. Half a mile further is the turnoff to the workings, which are situated at about 400 yards N. of the tramline.

The old alluvial workings in this area were known as the Eureka Mine, in section 4901 M.

GENERAL LAY-OUT OF THE WORKINGS

The mine proper has been dug out on the bottom of a gully draining in a southerly direction. On the flanks of the surrounding hills two areas have been worked for alluvial tin in the early days of the district. A simple concentration plant has been erected near the entrance of the mine.

GEOLOGICAL SURVEY OF THE SHOW AND VICINITY

The survey has been carried out in three stages.

1. Reconnaisance of the area surrounding the show.
2. The immediate surroundings of the mine.
3. The mine proper.

Each part of the survey will be discussed separately.

1. RECONNAISSANCE OF THE AREA SURROUNDING THE SHOW

Plate 1 shows the general relation between the show and the surrounding formations.

In the gully, N.E. of the show and directly draining into the Heemskirk River, lies a dump from an old waterfilled adit. Stone of this dump shows that the country rock consists of slate.

Following the gully down, several exposures of slate occur with N.E. strike and N.W. dip varying from 60° to 85°. At the confluent of a tributary, and farther down at the top of a waterfall, two pyritic quartzveins occur, 1" to 2" wide, running parallel to the general strike of the country.

Downstream, the contact with the dolerite was found locally overlying the slate.

Following the Heemskirk River upstream the dolerite-slate contact runs more or less parallel to and W. of the river. The dolerite clearly stands out as low hills covered by heavy timber, in contrast to the flats at the foot of the smooth hills of the slate country carrying button grass.

Approaching the old tramline the contact continues in a westerly direction, S. of the Eureka Creek.

The exposures of this creek and its tributaries are slate, in places carrying quartzveins. Upstream, below the S-bend in the creek, a pyritic quartzvein, ½" wide, occurs in hard slate. The general strike of the slate is E.N.E with average N.E. dip of 65°.

Granite does not occur in the investigated area, the nearest outcrop of the North Heemskirk granite being at a distance of approximately 1¼ mile S.W. of the show.

There is evidence that the granite shelves flatly under the slates, which are much impregnated by quartzveins.

Solutions from the underlying granite have caused the tin and pyrite mineralization in the mine. Elsewhere in the North Heemskirk district much replacement took place in the slate by quartz and tourmaline in alternate bands. This does not actually occur in the investigated area.

2. GEOLOGY OF THE IMMEDIATE SURROUNDINGS OF THE MINE

The results of this survey have been plotted on plate 2. The survey included the investigation of the old alluvial workings on the hill flanks where the bedrock has been exposed over considerable areas. The bedrock consists of partly decomposed slate, mostly of a light grey or light brown colour, which in places becomes dark brown, while surface weathering causes a nearly white colour.

The general strike of the country is E. to N.E. with local strikes towards E.S.E., especially in the area immediately E. of the mine. The most conspicuous

quartzveins and -lenses have been plotted but small quartzveins occur practically everywhere. They follow in general the strike of the country.

In a trench, 20' S.W. on point 5, Mr Watson showed us an occurrence of garnets in a clayey mass.

Although occasionally crenulations were seen, prominent folds and faults do not occur in the area, neither do gossans.

An old shaft, about 50' W. of point 5 has been sunk in soft slate; the adit, 40' E. of point 5 has been driven in similar material and is characterised by the absence of quartzveins.

The alluvium in the area consists of:

1. Angular fragments of white quartz; these are evidently derived from quartzveins in the decomposed slate of the local bedrock.
2. Smooth water worn pebbles and small round boulders up to 4" diameter. Gravel deposits up to 20' thick are well exposed in the excavations E. of point 12 in the western part of the area.

Pebbles of the following rock occur: Quartzite, Quartz-Tourmaline and Tourmaline replacement in slate.

The writer is of the opinion that the earlier mentioned occurrence of garnets in clay is of alluvial origin rather than derived from local bedrock, as gravel in the flat of the Eureka Creek contains garnets.

Considering the size of the old workings one comes to the conclusion that their gravels must have yielded an appreciable amount of tin concentrates. Additional ground has been tested by numerous trenches and pits.

Interesting is the fact that a dish full of dirt, taken at random E. of the dump, showed a small amount of cassiterite.

3. THE MINE PROPER

A plan of the mine is shown in plate 3. The mine consists of a cut, 83' long, running N.N.E.

and a drive of 25' driven in an E.S.E. direction. In this cut the country rock consists of soft light grey slate with varying strikes (E.S.E. to N.E.) and northerly dips from 53° up to nearly vertical.

Narrow quartzveins occur, ¼" to 2" thick, generally following the strike of the country.

An interesting fact is the presence of a feeble pyrite mineralization, limited to joint planes in the slates and associated with some of the quartz-veins.

Close to the entrance of the drive the slate is much decomposed while the quartzveins are fractured. Two faultplanes can be distinguised, one striking E.N.E. and the other E.S.E., both with steep southerly dips.

Inside the drive the slate is completely decomposed and altered into a sticky brown clay in which structural details are hard to recognize. Near the face a prominent joint occurs, striking N.E. and dipping S.E. under 65°. Evidence of a possible strike-fault occurs at the S. edge of the face in the form of slickensides; its strike is S.E. and its dip 77° to N.E.

MINERALIZATION

With the exception of the last 6' the drive has been timbered so that no proper examination of this part was possible. According to Mr Watson a rich pocket of pyrite and cassiterite was found at the N. side of the entrance.

The writer closely examined the present face and noticed a mineralised zone of about 3' wide, consisting of a clayey mass of decomposed slate in which coarse pyrite and cassiterite are irregularly distributed. The hanging wall is ill defined, but the footwall seems to be the abovementioned strike fault.

A pocket of high grade ore was located in the bottom northern corner of the face. Two dishes from this pocket yielded 8lbs of concentrate.

From the abovementioned facts, it is evident that the mineralization is associated with a zone of faulting. The ore occurs in irregular pockets rather than in a well defined lode.

PRODUCTION

The following table shows the yearly production from 1942 up till November 1950. A part of the concentrates was produced from alluvial deposits.

Year	Weight				Gross Value		
	Ton	Cwt	Qrs	Lbs	£.	s.	d.
'42	-	3	2	1	31.	10.	0
'43	-	1	-	2	9.	13.	11
'44	3	1	2	19	233.	10.	9
'45	-	3	2	14	13.	3.	4
'47	-	3	1	20	34.	10.	11
'49	-	1	2	18	6.	8.	8.
'50 (up till Nov.)	-	7	1	20	76.	6.	3
	4	2	1	10	405	3	10

SAMPLES

A total of 10 samples have been collected from the mine, ore dump, slime and quartz veins, and forwarded to the Chief Chemist and Mettalurgist at Launceston. Results are as follows:

No. of Sample	Location	Sn %	Au dwt/ton	Pb %	Zn %
1.	From hanging wall side of face chip sample over 18"	0.1	nd	nd	nd
2.	From mineralized zone in face, chip sample over 37"	1.78	nil	nd	nd
3.	From joint filling near face	0.32	nd	nd	nd
4.	Chip sample 0' to 5' south of entrance to drive	0.17	nd	nd	nd
5.	Chip sample 5' to 10' S. of entrance of drive	Trace	nd	nd	nd
6.	From dump obtained as bulk from roof of drive	1.62	nd	nd	nd
7.	From dump obtained as bulk while extending drive	3.45	nd	nil	Trace
8.	Slime from tail element of sluice box	7.22	nd	nd	nd
9.	Refuse from hopper plate	2.19	nd	nd	nd
10.	From pyritic quartz vein N.E. of show	nil	Trace	nd	nd

(nd = not determined)

CONCLUSIONS AND RECOMMENDATIONS

From the investigation which has been made the the following conclusions can be drawn:-

1. The mineralization in the mine consists of cassiterite and pyrite irregularly distributed in pockets and associated with a local zone of faulting, striking E.S.E. with strongly varying dips.

2. Although narrow pyritic quartzveins occur N.E. and S.W. of the show, the absence of gossans, prominent faults and folds in the area does not suggest the presence of an important orebody.

The following recommendations are made :-

1. Extend the present drive while careful sampling is applied.
2. Cross cutting in order to find a possible increase of width of the mineralised zone.
3. A drive in a westerly direction from the N. end of the cut to search for a westerly extension of the lode.

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Zeehan,
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