

Report on the boring campaign on the Arba Lead,
Branxholm.

This boring campaign was designed to test the flat ground to the north of the Arba Hill and if possible to intersect the Arba or Branxholm Creek lead. This lead passes out of the Arba Mine workings in a general northerly direction beneath the basalt-covered hill which exists in that direction. Still further north it passes beneath the flood plain of the Ringarooma River to eventually junction with the Ringarooma lead. It was this latter part of the lead that it was proposed to test and in particular that portion supposed to be on Consolidated Lease No. 9787/M of 117 acres then held by P.W. Edwards.

The boring was carried out under the control and direction of Mr. J.B. Scott, State Mining Engineer. The number of holes was 8 and the total depth bored was 1447 feet. Nos. 2, 1, 3, 4, 5 and 6 formed a line running from south east to north west over a length of 20 chains. No. 7 and 8 were situated about 12 chains south of No. 2 hole. The ground was sampled in lengths of 7 feet which in a 5 inch diameter hole represents a volume of one cubic foot. All samples were concentrated by panning at the drill, and all concentrates obtained were forwarded to the Mines Department Laboratory for weighing and assaying for tin.

The results were calculated by the staff of the Geological Survey and the tin contents of each sample and each hole determined.

RESULTS.

The complete results are given in Table No. 1 which is attached at the end of this report.

The average results of each hole are given in Table No. 2 below -

Table No. 2

Number of Bore	Depth		Nature of Bottom	Average value of Ground in ozs. of tin oxide per cub. yd.		
	of hole.	To Bottom.		To depth of	Total depth	
1	176	170	Granite	119 -	0.48	0.45
2	154	149	" (hard)			0.51
3	191	180	Sandstone	98ft. -	1.388	0.75
4	198	190	"	112 -	0.67	0.47
5	203	198	"	119ft. -	0.73	0.44
6	206	203	"	84 " -	0.48	0.20
7	184	173	"	119 " -	0.74	0.59
8	182	174	"	91 " -	0.44	0.34

Material Passed Through.

The material passed through represented a fairly uniform section in all the eight holes, the chief difference being in the thicknesses of some layers. The general section was -

	Range in thickness.	Average thickness.
Tailings	2 - 12 feet.	6 feet.
Oil Soil &c.	7 - 10 "	8 "
Shingle	5 - 10 "	8 "
Drifts	85 - 92 "	90 "
Shingle	36 - 96 "	90 "

The Tailings represent the result of the past mining operations which covered the former surface of the alluvial plain along the Ringarooma River. The old soil &c. represents the alluvial soil, sub-soil &c. of the above plain. The upper shingle is a deposit in the plain of the Ringarooma River and was formed by the present stream possibly as far back as the Pleistocene. The stones in the shingle are generally sandstone, but may also be basalt.

The drifts, with interbedded clay, pug and carbonaceous seams represent the ordinary deposits of the Ringarooma system of leads such as occur in all the deep lead mines in the Ringarooma Valley.

The lower layers of shingle represent the coarser deposits nearer the bottom of the lead. The pebbles were reported as sandstone and this together with the shingle rather suggests that the deposits were formed by the ancestor of the Ringarooma, i.e. are portion of the Main lead rather than that of the Arba lead.

Course of the Lead.

As suggested above, it would appear that the material bored was that of the Ringarooma or Main lead. If this is so, the line of boreholes (from Nos. 2 to 6) is to the east or north-east of the Arba lead. Such would also be the case if the mapped position of the Arba lead is correct. Thus it is probable that the line of holes from No. 2 to No. 6 is not across the Arba lead, but is most likely across the southern part of the Ringarooma lead immediately east of the junction of the Arba lead.

Value of the Lead.

The values of the material as revealed by the boring are very low. Much of the material is tin-bearing, but parts either contain no tin ore or only a trace. The contents of the tin-bearing parts are generally below 1 oz. per cubic yard. Only 25 samples exceeded 1 oz. per cubic yard, 14 of which were between 1 and 2 ozs, 5 were between 2 and 4 ozs., 4 were between 4 and 5 ozs. and 2 were over 5 ozs. per cubic yard.

It is not surprising therefore, that the average values for each hole as shown in Table No. 2 are low and range from 0.20 to 0.75 ozs. per cubic yard. The values when taken to depths of 84 - 119 feet instead of the full depth are somewhat higher, but in only one case (No. 3) exceeds 1 oz. per yd.

Distribution of the Values.

The distribution of the values was unusual in that the best values were not obtained in the bottom layers of the lead. (This probably indicates that no actual gutters or runs were intersected and that only the side or sides of the Main lead and possibly the Arba lead were intersected) as the lower layer of shingle in Nos. 3,5,6,7 and portion of it in the other holes was devoid of tin ore.

The values were best at three main horizons -

- (a) Between 14 and 35 feet or portions of this horizon. This corresponds to the upper layer of shingle.
- (b) Between 56 and 83 feet. This corresponds to a portion of the thick layer of drifts in which conditions were apparently suitable for concentration.
- (c) In some cases, a concentration appears in the lower shingle, but it represents no definite horizon.

Conclusions.

Although the boring campaign proved that the greater part of the material passed through is tin-bearing, the values of the material are too low to enable the deposits to be worked. Further there is no concentration sufficiently great to enable portion of the ground to be economically exploited.

P.B. Nye (Sgd)
GOVERNMENT GEOLOGIST.

Mines Department,
Hobart.

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BRANXHOLM DISTRICTNo. 2 Bore.

Number of Sample	Sectional Depth. (In feet)	Amount of Tin Oxide in oz. per c. yd. (70% Sn)
1	1 - 7	Nil
2	7 - 14	Nil
3	14 - 21	.886
4	21 - 28	1.203
5	28 - 35	.364
6	35 - 42	.245
7	42 - 49	.310
8	49 - 56	.315
9	56 - 63	1.020
10	63 - 70	.680
11	70 - 77	Nil
12	77 - 84	.354
13	84 - 91	.138
14	91 - 98	.283
15	98 - 105	.327
16	105 - 112	.176
17	112 - 119	.366
18	119 - 130 $\frac{1}{2}$.311
19	130 $\frac{1}{2}$ - 142	.341
20	142 - 149	2 .579

No. 1 Bore.

1	1 - 7	Nil
2	7 - 14	Nil
3	14 - 21	.281
4	21 - 28	1.629
5	28 - 35	.165
6	35 - 42	.274
7	42 - 49	.853
8	49 - 56	.435
9	56 - 63	1.781
10	63 - 70	.418
11	70 - 77	.458
12	77 - 84	.341
13	84 - 91	.101
14	91 - 98	.191
15	98 - 105	.238
16	105 - 112	.189
17	112 - 119	.868
18	119 - 126	Nil
19	126 - 133	Nil
20	133 - 140	Nil
21	140 - 147	.117
22	147 - 154	1.520
23	154 - 165 $\frac{1}{2}$.641
24	165 $\frac{1}{2}$ - 170	.544

Number of Sample.	Sectional Depth. (In feet)	Amount of Tin Oxide in oz. per c. yd. (70% Sn.)
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No. 3 Bore.

1	1 - 7	Nil
2	7 - 14	Nil
3	14 - 21	.562
4	21 - 28	1.311
5	28 - 35	2.551
6	35 - 42	.167
7	42 - 49	1.426
8	49 - 56	.207
9	56 - 63	.965
10	63 - 70	.241
11	70 - 77	4.962
12	77 - 84	2.288
13	84 - 91	.508
14	91 - 98	4.238
	98 - 180	Nil

No. 4 Bore.

1	1 - 7	Nil
2	7 - 14	Nil
3	14 - 21	.630
4	21 - 28	5.799
5	28 - 35	.534
6	35 - 42	.582
7	42 - 49	.597
8	49 - 56	.118
9	56 - 63	1.118
10	63 - 70	.174
11	70 - 77	.290
12	77 - 84	.482
13	84 - 91	.136
14	91 - 98	.112
15	98 - 105	.146
16	105 - 112	.081
17	112 - 119	.112
18	119 - 126	.080
19	126 - 137 $\frac{1}{2}$	Nil
20	137 $\frac{1}{2}$ - 149	Nil
21	149 - 160 $\frac{1}{2}$	Nil
22	160 $\frac{1}{2}$ - 172	Nil
23	172 - 183 $\frac{1}{2}$.8216
24	183 - 190	.0434

No. 5 Bore

1	1 - 7	Nil
2	7 - 14	Nil
3	14 - 21	4.4680
4	21 - 28	5.3209
5	28 - 35	.2058
6	35 - 42	.2570
7	42 - 49	.5380
8	49 - 56	.1509
9	56 - 63	.0676
10	63 - 70	.5054
11	70 - 77	.3567
12	77 - 84	.2746
13	84 - 91	.0559
14	91 - 98	.0450
15	98 - 105	Nil
16	105 - 112	.1734
17	112 - 119	.0902
	119 - 198	Nil

Number of Sample	Sectional Depth (In feet)	Amount of tin Oxide in oz. per c. yd. (70% Sn.)
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1	1 - 7	Nil
2	7 - 14	Nil
3	14 - 21	.8952
4	21 - 28	2.8485
5	28 - 35	.0608
6	35 - 42	.7346
7	42 - 49	.2607
8	49 - 56	.5487
9	56 - 63	.2866
10	63 - 70	.0498
11	70 - 77	.0599
12	77 - 84	.0375
13	84 - 206	Nil

No. 7 Bore.

1	1 - 7	Nil
2	7 - 14	Nil
3	14 - 21	Nil
4	21 - 28	2.4180
5	28 - 35	4.7960
6	35 - 42	.3681
7	42 - 49	.2256
8	49 - 56	.2331
9	56 - 63	1.0343
10	63 - 70	.1361
11	70 - 77	Missing sample
12	77 - 84	.2182
13	84 - 91	.1061
14	91 - 98	.4436
15	98 - 105	.2047
16	105 - 112	.1457
17	112 - 119	1.5923
18	119 - 126	1.8435
19	126 - 133	.4352
20	133 - 140	.3011
	140 - 173	

No. 8 Bore.

1	1 - 7	Nil
2	7 - 14	Nil
3	14 - 21	Nil
4	21 - 28	1.4394
5	28 - 35	.9567
6	35 - 42	.0465
7	42 - 49	.0656
8	49 - 56	.0720
9	56 - 63	.8030
10	63 - 70	.8827
11	70 - 77	1.0008
12	77 - 84	.1357
13	84 - 91	.3161
14	91 - 98	Nil
15	98 - 105	Nil
16	105 - 112	Nil
17	112 - 119	.5637
18	119 - 126	.1707
19	126 - 133	.2708
20	133 - 140	.2180
21	140 - 147	Nil
22	147 - 154	Nil
23	154 - 161	Nil
24	161 - 168	1.2633
25	168 - 175	.2175