of the aquifer just east of these points. Sites 1, 2, 3, 4 and 5 are therefore clearly unsuitable places in which to bore for shallow water.

Sub-artesian conditions exist on Woodleigh Station west of the line joining the Nos. 3 and 4 bores, as may be seen from the sections. It should be noted, however, that a bore at site 7 would probably obtain artesian water at a depth of about 280 feet; the potential head line passing above the surface at this point. The water obtained would probably be of fair quality.

Bore No. 6 is one of the shallowest on the Station, and the supply from it could be improved by deepening to the basal Cretaceous aquifer. The water at this point should be of a fair quality. Owing to the fact that the elevations used in the preparation of the cross sections are only approximate (aneroid barometer elevations) it is uncertain if the No. 6 bore site is actually above or below the potential head line, but it is certain that if the bore were deepened, the water would rise at least very close to the surface.

Site No. 6 should yield a sub-artesian supply from a depth of 230 feet; the quality would probably be poor stock water* similar to that obtained from No. 7 bore.

That portion of Woodleigh Station west of the line joining Nos. 3 and 4 bores can be adequately watered by bores put down to the base of the Cretaceous, with depths varying with the elevation of the ground. At any site with a surface elevation of less than 180 feet, artesian water should be obtainable. Unfortunately such sites are rare on the property as the general elevation is 300 feet to 400 feet above sea-level. Site No. 7 has already been mentioned as a favourable location for a flowing bore.

The eastern portion of Woodleigh Station must depend for its water supplies on bores drilled to possible aquifers in the Kennedy sandstones, below the base of the Cretaceous rocks. The nearest points to Woodleigh Station on which the Kennedy sandstones have been exploited are the Nos. 1, 3 and 5 bore sites on Wahroonga Station to the north. Wahroonga No. 1 bore obtained flows from sandstones at depths of 144 feet and 343 feet below the base of the Cretaceous. No 3 bore obtained flows at depths of 125 feet and 460 feet below the Cretaceous, and No. 5 bore obtained a flow from a depth of 136 feet below the Cretaceous.

Woodleigh No. 4 Bore was sunk to a depth of 800 feet below the surface, and beneath the basal Cretaceous beds penetrated chocolate and grey shales similar to those in Wahroonga No. 3 Bore. These shales are regarded as a lateral variation in the Kennedy sandstone. A water horizon was cut between 752 feet and 758 feet. Salt water was obtained at the base of the Cretaceous in this bore, the water level standing at 228 feet below the surface. The standing level of the water after cutting the deeper aquifer at 752 feet was 240 feet, which makes it clear that the deeper aquifer has a lower potential head than the shallower one. These two waters were not separated during drilling operations and consequently it is almost certain that the upper salt water is mixing with the lower water, and this bore cannot be considered a fair test of the quality of the water in the deeper aquifer. At present it is unfit for stock, but it is pointed out that it is almost certainly contaminated by the upper salt water.

Woodleigh No. 9 Bore penetrated 343 feet below the base of the Cretaceous, which is not deep enough to reach the 752 ft. aquifer in No. 4 Bore, which is about 500 feet below the base of the Cretaceous.

The logs of Woodleigh Nos. 1 and 2 Bores are unreliable owing to the confusion of records, and it is now difficult to state the depths of either bore or the water conditions found at the lower levels.

The only useful evidence therefore of the presence of water below the base of the Cretaceous rocks on Woodleigh Station is afforded by No. 4 Bore, which, as previously pointed out, does not supply a conclusive test. Owing to the lack of knowledge of the surface elevations or the static heads of the flowing bores on Wahroonga Station, it is difficult to form an opinion of the probable potential head of waters in the lower beds on Woodleigh, but Woodleigh No. 4 Bore does afford some evidence that useful water supplies might be present with a potential head of about 130 feet above sea level.

The only method of proving the presence or absence of useful deep water supplies on the eastern portion of Woodleigh Station and the surrounding country is by boring in search for aquifers below the base of the Cretaceous rocks. A position should be chosen east of the line joining Woodleigh Nos. 3 and 4 Bores at as low an elevation as possible, and a bore put down to at least 1,000 feet and preferably to 1,500 feet. The 756 ft. aquifer of Woodleigh No. 4 Bore should be expected between the depths of 700 and 800 feet, and a 1,500 ft. hole would provide for exploration for a depth of 700 feet below this.

BORING FOR "DEEP LEADS," GREENBUSHES TINFIELD, SOUTH-WEST DIVISION.

(F. G. Forman, B.Sc.)

An inspection of the alluvial ground of the Greenbushes Tinfield† by the writer in 1933, led to the conclusion that deep leads likely to carry payable tin might exist below the shallow alluvial ground worked in the past, particularly in the vicinity of the Phoenix East and Battler's Hope leases.

During April of this year, a further inspection was made and bore sites located by Mr. H. A. Ellis, of this Branch. Boring with a percussion power plant commenced in August on the first line of bores located by Mr. Ellis on the Battler's Hope leases. Information gained in the first few holes caused the abandonment of the original programme, the bore sites as finally selected being shown on the accompanying locality plan.

Six holes on the Battler's Hope leases and three holes immediately to the west of the Phoenix East lease proved the existence of deep alluvial ground below the level to which the leases and claims had been worked previously, but failed entirely to locate payable tin deposits in this deep ground.

Assays of the material from the upper part of the holes indicated extensions of the previously worked shallow ground, but the distribution of the bores and their number was insufficient to indicate the full extent of shallow alluvial tin or its average grade.

---

* Since writing this report I have been informed by Mr. A. Thomson, of Woodleigh Station, that there is a probable leakage of an upper salt water into the No. 7 bore. If this leakage were stopped, the quality of the water in No. 7 bore would probably be improved.

† G.S.W.A. Ann. Prog. Rept. 1933, pp. 13-15.

The object of the present programme was to search for deep alluvial, and the holes put down were located in what were considered the most favourable locations for this purpose. The failure of any bore to locate tin of anything approaching payable grade in what were judged to be the most favourable locations was considered to justify abandonment of the programme, and consequently additional lines of bores to the east of the Phoenix East area and Poverty Flat and Elliot's Gully were not proceeded with.

The following are the logs of the bores together with the assay results from the samples obtained. The assays were carried out by the Government Mineralogist and Analyst.

BATTLER'S HOPE—No. 1 BORE.

Depth in Feet	Succession of Strata.	Assay Values (lbs. per cubic yd.).	Sample No.
0′ 0″ to 6′ 3″	1ft. 6ins. of sand overlying laterite	·028	G. 1 } G. 2 }
6′ 3″ to 11′ 3″	Puggy kaolinised sediment	·05	G. 3
11′ 3″ to 16′ 3″	do. do. do.	·008	G. 4
16′ 3″ to 21′ 3″	do. do. do.	·01	G. 5
21′ 3″ to 32′ 11″	Argillaceous alluvium	·009	G. 6
	26ft. Ground Water Level.		
32′ 11″ to 38′ 0″	Argillaceous alluvium	·004	G. 7
38′ 0″ to 43′ 0″	do. do.	·004	G. 8
43′ 0″ to 48′ 0″	At 46ft. fragments of quartz and ironstone pebbles	·005	G. 9
48′ 0″ to 53′ 0″	do. do. do. do. do.	·001	G. 10
53′ 0″ to 58′ 0″	Argillaceous alluvium	·004	G. 11
58′ 0″ to 63′ 0″	do. do.	·001	G. 12
63′ 0″ to 68′ 0″	do. do.	·004	G. 13
68′ 0″ to 73′ 0″	do. do.	·06	G. 14
73′ 0″ to 78′ 0″	do. do.	·008	G. 15
78′ 0″ to 83′ 0″	At 78ft. becomes sandy	·02	G. 16
83′ 0″ to 87′ 0″	Gravelly. Fine wash	·23	G. 17
87′ 0″ to 92′ 6″	Change at 88ft. to decomposed mica schist	·004	G. 18
92′ 6″ to 97′ 6″	do. do. do. do.	·001	G. 19
97′ 6″ to 102′ 6″	do. do. do. do.	·004	G. 20
102′ 6″ to 108′ 0″	do. do. do. do.	·004	G. 21

BATTLER'S HOPE LINE—No. 2 BORE.

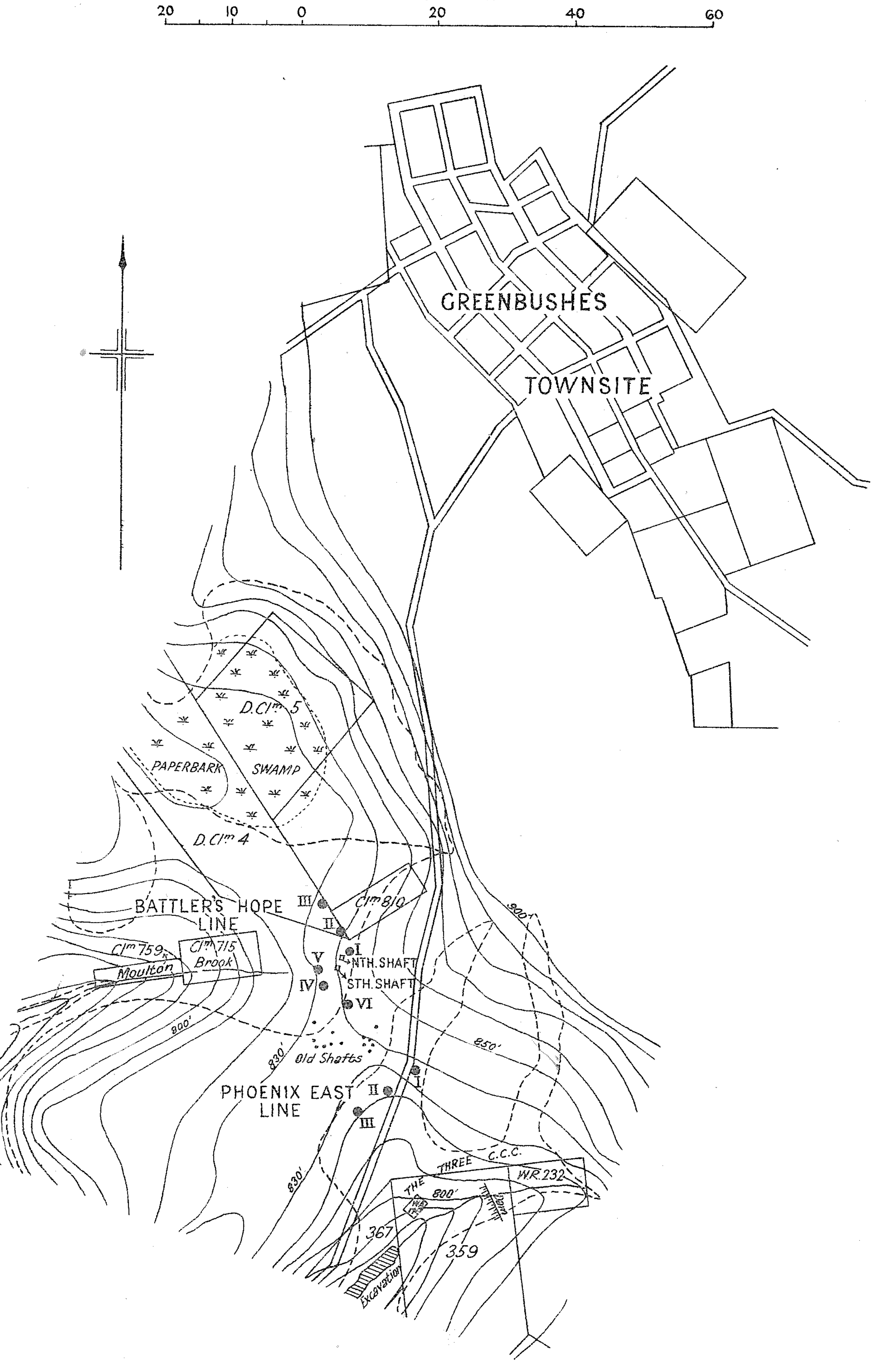
Depth in Feet.	Succession of Strata.	Assay Values (lbs. per cubic yd.).	Sample No.
0′ 0″ to 6′ 6″	2ft. 6ins. of sand overlying laterite	·27	G. 22
6′ 6″ to 11′ 6″	Laterite grading to kaolinised sediment	·44	G. 23
11′ 6″ to 16′ 6″	Puggy kaolinised sediment	·78	G. 24
16′ 6″ to 21′ 6″	do. do. do.	·02	G. 25
21′ 6″ to 26′ 6″	Change at 23ft. 6ins. to argillaceous alluvium	·03	G. 26
26′ 6″ to 31′ 6″	do. do. do. do. do.	·04	G. 27
	26ft. 6ins. Ground Water Level.		
31′ 6″ to 36′ 6″	Argillaceous alluvium with quartz and ironstone fragments ...	·01	G. 28
36′ 6″ to 41′ 6″	do. do. do. do. do.	·01	G. 29
41′ 6″ to 47′ 4″	Alluvium more gritty	·01	G. 30
47′ 4″ to 52′ 4″	do. sample discarded	...	...
52′ 4″ to 57′ 4″	do.	·07	G. 31
57′ 4″ to 62′ 4″	do.	·01	G. 32
62′ 4″ to 67′ 4″	Alluvium containing fine pebbles, quartz and ironstone ...	·009	G. 33
67′ 4″ to 72′ 4″	do. do. do. do. do. ...	·009	G. 34
72′ 4″ to 77′ 4″	Wash. Waterworn quartz pebbles	·009	G. 35
77′ 4″ to 79′ 4″	Wash	·01	G. 36
79′ 4″ to 81′ 4″	do.	·03	G. 37
81′ 4″ to 83′ 4″	Granitic sand and chloritic fragments	·03	G. 38
83′ 4″ to 88′ 4″	do. more micaceous	·03	G. 39
88′ 4″ to 93′ 4″	Decomposed mica schist	·005	G. 40
93′ 4″ to 95′ 3″	Micaceous schist	·005	G. 41

Bore completed 95ft. 3ins. Vertical Depth.

PLATE No III

LOCALITY PLAN OF BORE SITES GREENBUSHES TINFIELD

Scale 20 Chains to an Inch



J. McL. del. 22·1·37

Survey & Topographical Data from G.S.W.A. Bulletin 32

BATTLER'S HOPE LINE—No. 3 BORE.

Depth in Feet.	Succession of Strata.	Assay Values (lbs. per cubic yd.).	Sample No.
0′ 0″ to 1′ 0″	Fine sand and humus	·902	G. 42
1′ 0″ to 6′ 0″	Sand at 5ft. becomes lateritised grit	·45	G. 43
6′ 0″ to 11′ 0″	At 8ft. puggy kaolinised sediment	1·08	G. ·44
11′ 0″ to 16′ 0″	do. do. do. do.	·09	G. 45
16′ 0″ to 21′ 0″	Change at 17ft. to red gritty alluvium	·047	G. 46
21′ 0″ to 26′ 0″	Argillaceous alluvium	·02	G. 47
26′ 0″ to 31′ 0″	do. do.	·008	G. 48
31′ 0″ to 36′ 0″	do. do.	·005	G. 49
36′ 0″ to 43′ 0″	do. do.	·02	G. 50
43′ 0″ to 48′ 0″	Fine wash	·005	G. 51
48′ 0″ to 53′ 0″	do.	·005	G. 52
53′ 0″ to 58′ 0″	Alluvium changes at 36ft. 4ins. to wash	·016	G. 53
58′ 0″ to 63′ 0″	Lateritic gravel	·019	G. 54
63′ 0″ to 68′ 0″	Clay with mica and chloritic material	·004	G. 55
68′ 0″ to 73′ 0″	At 72ft. gritty with quartz and chloritic fragments	·016	G. 56
73′ 0″ to 78′ 0″	Granitic wash. Sample discarded	...	...
78′ 0″ to 82′ 5″	Granite at 79ft.	·004	G. 58

Bore completed 82ft. 5ins. Vertical Depth.

BATTLER'S HOPE LINE—No. 4 BORE.

Depth in Feet.	Succession of Strata.	Assay Values (lbs. per cubic yd.).	Sample No.
0′ 0″ to 7′ 0″	2ft. of sand, 2ft. of laterite	·117	G. 59
7′ 0″ to 12′ 0″	Kaolinised sediment with sub-angular quartz	·13	G. 60
12′ 0″ to 17′ 0″	do. do. do. do.	·52	G. 61
17′ 0″ to 22′ 0″	do. do. do. do. more argillaceous ...	·01	G. 62
22′ 0″ to 27′ 0″	do. do. do. do. more arenaceous ...	·02	G. 63
27′ 0″ to 32′ 0″	do. do. do. do. sandy wash ...	·01	G. 64
32′ 0″ to 37′ 0″	Sandy wash. Sample discarded	...	...
37′ 0″ to 42′ 0″	Brown clay	·01	G. 65
42′ 0″ to 47′ 0″	Clay with flakes of muscovite	·01	G. 66
47′ 0″ to 52′ 0″	At 49ft. changes to ferruginous grit	·07	G. 67
52′ 0″ to 57′ 0″	do. do. do. At 56ft. pebble wash ...	·05	G. 68
57′ 0″ to 62′ 0″	At 57ft. change to clay	·04	G. 69
62′ 0″ to 67′ 0″	Alluvium	·03	G. 70
67′ 0″ to 72′ 0″	Alluvium with pebble phases	·03	G. 71
72′ 0″ to 74′ 0″	At 71ft. dense clay. At 72ft. boulder wash	·24	G. 72
74′ 6″ to 79′ 6″	Boulder wash. At 75ft. decomposed granite	·15	G. 73
79′ 6″ to 84′ 6″	Denser. Granite	·02	G. 74

Bore completed at 85ft. 6ins. Vertical Depth.

This bore revealed the fact that the basal wash dips towards the south shaft. Bore No. 5 was set 150ft N.N.W. from No. 4 to test the behaviour of the supposed "lead" at right angles to the direction bored.

BATTLER'S HOPE LINE—No. 5 BORE.

Depth in Feet.	Succession of Strata.	Assay Values (lbs. per cubic yd.).	Sample No.
0′ 0″ to 3′ 6″	Fine sand	·05	G. 75
3′ 6″ to 8′ 6″	Laterite	·49	G. 76
8′ 6″ to 13′ 6″	Change at 9ft. 6ins. to puggy kaolinised sediment	·52	G. 77
13′ 6″ to 18′ 6″	do. do. do. do.	·115	G. 78
18′ 6″ to 23′ 6″	do. do. do. do. more argillaceous	·02	G. 79
23′ 6″ to 28′ 6″	do. do. do. do. do. do. ...	·01	G. 80
28′ 6″ to 32′ 0″	do. do. do. do. more oxidised ...	·01	G. 81
32′ 0″ to 37′ 0″	Sandy wash	·009	G. 82
37′ 0″ to 42′ 0″	Fine pebble wash	·014	G. 83
42′ 0″ to 47′ 0″	Clay with gritty phases	·014	G. 84
47′ 0″ to 52′ 0″	do. do.	·007	G. 85
52′ 0″ to 57′ 0″	At 53ft. sandy wash	·029	G. 86
57′ 0″ to 62′ 0″	Sandy wash	·021	G. 87
62′ 0″ to 67′ 0″	Clay at 63ft.	·02	G. 88
67′ 0″ to 72′ 0″	Sandy wash	·078	G. 89
72′ 0″ to 77′ 0″	Granitic wash	·034	G. 90
77′ 0″ to 82′ 0″	Granite decomposed	·17	G. 91
82′ 0″ to 87′ 0″	Granite	·07	G. 92
87′ 0″ to 92′ 0″	do.	·005	G. 93

Bore completed at 98ft. Vertical Depth.

BATTLER'S HOPE LINE—No. 6 BORE.

Depth in Feet.	Succession of Strata.	Assay Values (lbs. per cubic yd.).	Sample No.
0′ 0″ to 6′ 0″	1ft. 6ins. sand overlying decomposed laterite	·02	G. 94
6′ 0″ to 11′ 0″	Puggy kaolinised sediment	·004	G. 95
11′ 0″ to 16′ 0″	do. do. do. more argillaceous	·007	G. 96
16′ 0″ to 21′ 0″	do. do. do. more sandy	·007	G. 97
21′ 0″ to 26′ 0″	Sandy wash	·003	G. 98
26′ 0″ to 31′ 0″	do. ferruginous	·001	G. 99
31′ 0″ to 36′ 0″	Coarser grained. Changes at 35ft. to clay	1·35	G. 100
36′ 0″ to 41′ 0″	Clay	·04	G. 101
41′ 0″ to 46′ 0″	do.	·01	G. 102
46′ 0″ to 51′ 0″	Clay with laterite fragments	·016	G. 103
51′ 0″ to 56′ 0″	Changes at 54ft. to alluvium	·006	G. 104
56′ 0″ to 61′ 0″	At 56ft. alluvium denser (clay)	·001	G. 105
61′ 0″ to 66′ 0″	Alluvium. At 64ft. 6ins. an old lateritised surface	·002	G. 106
66′ 0″ to 71′ 0″	Alluvium with laterite fragments	·003	G. 107
71′ 0″ to 76′ 0″	Alluvium	·001	G. 108
76′ 0″ to 81′ 0″	Alluvium. Micaceous clay at 81ft.	·005	G. 109
81′ 0″ to 86′ 0″	Micaceous Clay	·004	G. 110
86′ 0″ to 91′ 0″	do. do. Granitic wash at 86ft.	·048	G. 111
91′ 0″ to 96′ 0″	Granitic wash	...	G. 112
96′ 0″ to 101′ 0″	Granite at 98ft.	...	...

Bore Completed at 101ft. Vertical Depth.

PHOENIX EAST LINE—No. 1 BORE.

Depth in Feet.	Succession of Strata.	Assay Values (lbs. per cubic yd.).	Sample No.
0′ 0″ to 8′ 6″	4ft 6ins. of sand overlying laterite	·23	G. 114
8′ 6″ to 13′ 6″	Laterite	·30	G. 115
13′ 6″ to 18′ 6″	do.	·24	G. 116
18′ 6″ to 21′ 0″	Puggy kaolinised sediment. Sample discarded	...	G. 117
21′ 0″ to 26′ 0″	do. do. do. with fragments of ironstone ...	·05	G. 118
26′ 0″ to 31′ 0″	Change at 32ft. to light brown clay	·006	G. 119
31′ 0″ to 36′ 0″	do. do. do.	·002	G. 120
	Ground Water Level 35ft. 9ins.		
36′ 0″ to 41′ 0″	Argillaceous alluvium	·001	G. 121
41′ 0″ to 46′ 0″	do. do.	·0004	G. 122
46′ 0″ to 51′ 0″	Grey clay	·001	G. 123
51′ 0″ to 56′ 0″	At 51ft. sandy wash	·002	G. 124
56′ 0″ to 61′ 0″	do. do.	·003	G. 125
61′ 0″ to 66′ 0″	do. do.	·017	G. 126
66′ 0″ to 71′ 0″	do. do.	·004	G. 127
71′ 0″ to 76′ 0″	do. do. Coarser at 76ft.	·001	G. 128
76′ 0″ to 81′ 0″	At 78ft. greenish clay	·01	G. 129
81′ 0″ to 86′ 0″	do. do.	Basement	G. 130
86′ 0″ to 91′ 0″	do. do. denser	Rock	G. 131
91′ 0″ to 96′ 0″	Changing to Greenstone	not	G. 132
96′ 0″ to 101′ 0″	Greenstone	Assayed	...

PHOENIX EAST LINE—No. 2 BORE.

Depth in Feet.	Succession of Strata.	Assay Values (lbs. per cubic yd.).	Sample No.
0′ 0″ to 4′ 0″	Sand	·42	G. 133
4′ 0″ to 9′ 0″	6ins. sand passes into laterite	·29	G. 134
9′ 0″ to 14′ 0″	Kaolinised sediment	·02	G. 135
14′ 0″ to 19′ 0″	Puggy kaolinised sediment	·003	G. 136
19′ 0″ to 24′ 0″	do. do. do.	·005	G. 137
24′ 0″ to 29′ 0″	Grey clay	·006	G. 138
29′ 0″ to 34′ 0″	At 30ft. sandy wash	·004	G. 139
34′ 0″ to 39′ 0″	do. do.	·002	G. 140
39′ 0″ to 44′ 0″	do. do.	·002	G. 141
44′ 0″ to 49′ 0″	Coarse wash	·002	G. 142
49′ 0″ to 54′ 0″	At 52ft. brown clay	·003	G. 143
54′ 0″ to 59′ 0″	At 55ft. wash	·04	G. 144
59′ 0″ to 64′ 0″	Sandy wash	·03	G. 145
64′ 0″ to 69′ 0″	do. with small pebbles	·01	G. 146
69′ 0″ to 74′ 0″	do. do. do.	·004	G. 147
74′ 0″ to 79′ 0″	At 75ft. wash coarser	·008	G. 148
79′ 0″ to 84′ 0″	Pebble wash in green clay	·03	G. 149
84′ 0″ to 90′ 0″	do. do.	·001	G. 150
90′ 0″ to 95′ 0″	do. do.	·004	G. 151
95′ 0″ to 100′ 0″	Change at 103ft. to granitic wash	·008	G. 152
100′ 0″ to 105′ 0″	Granitic wash	·008	G. 153
105′ 0″ to 108′ 0″	Granite	...	G. 154

PHOENIX EAST LINE—No. 3 BORE.

Depth in Feet.	Succession of Strata.	Assay Values (lbs. per cubic yd.).	Sample No.
0′ 0″ to 6′ 0″	5ft. sand overlying laterite ...	·37	G. 155
6′ 0″ to 11′ 0″	Laterite at 9ft. becomes kaolinised sediment ...	·05	G. 156
11′ 0″ to 16′ 0″	do. do. do. do. ...	·03	G. 157
16′ 0″ to 21′ 0″	do. do. do. do. ...	·01	G. 158
21′ 0″ to 26′ 0″	do. do. do. do. ...	·01	G. 159
26′ 0″ to 31′ 0″	Sandy wash ...	·005	G. 160
31′ 0″ to 36′ 0″	do. ...	·02	G. 161
36′ 0″ to 41′ 0″	do. ...	·02	G. 162
41′ 0″ to 46′ 0″	do. ...	·01	G. 163
46′ 0″ to 51′ 0″	do. ...	·01	G. 164
51′ 0″ to 56′ 0″	Coarser wash ...	·03	G. 165
56′ 0″ to 61′ 0″	do. in clay ...	·01	G. 166
61′ 0″ to 66′ 0″	Coarse wash ...	·01	G. 167
66′ 0″ to 71′ 0″	Coarse wash at 69ft. becomes granitic alluvium ...	·01	G. 168
71′ 0″ to 76′ 0″	Granitic alluvium ...	·32	G. 169
76′ 0″ to 81′ 0″	do. ...	·01	G. 170
81′ 0″ to 86′ 0″	do. ...	·002	G. 171
86′ 0″ to 91′ 0″	At 90ft. becomes granite ...	·001	G. 172
91′ 0″ to 96′ 0″	do. do. do. ...	·005	G. 173
96′ 0″ to 101′ 0″	do. do. do. ...	·085	G. 174
101′ 0″ to 105′ 0″	Granite (not sampled) ...	...	...

LEINSTER GOLD MINE—MT. SIR SAMUEL, EAST MURCHISON GOLDFIELD.

(F. G. Forman, B.Sc.)

On the 17th December last, accompanied by Mr. Frank Atkins, I made an examination of the Leinster Mine, with the object of assessing the possibility of re-locating the reef below the existing bottom level (400 feet, vertical depth).

The mine has only recently been unwatered and the shaft reconditioned; the levels were found to be in excellent condition and easily accessible, but it was not possible to make an examination of the old stopes. Information supplied by Mr. Atkins enabled me, however, to gain an idea of the conditions which formerly existed in the reef.

The ore body in the mine was a quartz reef of lenticular habit about 300 feet in length, occurring as a metasomatic replacement in a shear zone of fine grained serpentinous greenstone. It strikes roughly north and south and has an almost vertical dip. Four levels have been driven at depths of approximately 100, 200, 300 and 400 feet. An examination of the Nos. 1, 2, and 3 levels made it clear that the reef had a decidedly northerly pitch of about 60°. The faces of these three drives were examined and the shear track could be seen to continue through the country rock, and the quartz reef, which has all been removed, apparently had quite blunt terminations. According to Mr. Atkins, who was employed on this mine when it was formerly worked, the reef on two occasions was found to have vertical blanks and gave out at a depth of 60 feet and was found again at a depth of 100 feet; it gave out at a depth of 220 feet and made again at 250 feet. The reef finally gave out at a depth of about 380 feet from the surface and was not again located. On each occasion when the reef cut out, a narrow shear track continued in its place, and it was by following down on this shear that the reef was again located.

At the present bottom level, vertical depth 400 feet, a considerable amount of driving has been done both north and south, on a rather indistinct shear about 25 feet east of the shaft. A much more distinct shear track is visible in the walls of the main crosscut, 16 feet east of the shaft. Two west crosscuts from the north drive have intersected the same shear, and rises put up from the ends of these crosscuts on the shear track have broken into the bottom of the old stopes at a depth of about 380 feet. It seems certain, therefore, that this more distinct shear cut in both the west crosscut and the main east crosscut, represents the reef channel.

Mr. Atkins assures me that the behaviour of the reef when it cut out at 380 feet was similar in all respects to its behaviour when it was lost on the two former occasions at the 60 ft. and 220 ft. levels. As the reef was successfully re-located on both these occasions by sinking on the shear track, I can see no reason why it should not be re-located by similar methods below the 400 ft. level. It is impossible to form an estimate of the possible extent of the blank, but judging by the extent of the former blanks, I would not expect the present one to be much more than 50 to 60 feet in depth; it may, however, be greater. In my opinion the best method to prospect for the continuation of the reef at depth is to sink a winze on the shear track at the 400 ft. level in the most northerly of the two west crosscuts from the north drive. A winze from this crosscut would be preferable to one in the southerly crosscut, as there would be less chance of missing the reef because of its northerly pitch.