DEPARTMENT OF MINES
SOUTH AUSTRALIA

Report on

TALISKER LEAD-ARSENIC MINE

MINERAL SECTION 1554, LAND SECS. 339 & 340

HD. WAITPINGA, CO. HINDMARSH

by

L. G. Nixon
Geologist

MINERAL RESOURCES SECTION

GEOLOGICAL SURVEY

CONTENTS

MAP NO.	TITLE	SCALE
L 58-18	Talisker Mine Area Sec. 339 & 340, Hd. Waitpinga, Co. Hindmarsh	50' = 1"
53-34	Talisker Mine Composite Level Plan	50' = 1"
53-37	Talisker Mine Longitudinal Projection	50' = 1"
S-1833	Talisker Mine Cross Section A.B.	50' = 1"

D.M. 521/53

Rept. Bk. No. 46/202
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DEPARTMENT OF MINES
SOUTH AUSTRALIA

Report on

TALISKER LEAD-ARSENIC MINE

SEC. 1554, HD. WAITPINGA, CO. HINDMARSH

1. ABSTRACT

Sediments including micaceous phyllites, sandstones, greywackes and quartzites have been mapped in the vicinity of the Talisker mine. These rocks are thought to be ~~Upper~~ ~~Pre~~ Cambrian in age. Mineralised quartz veins which appear to be confined to the greywackes, form an en echelon pattern across the strike of the beds. The lode system at the Talisker mine consists of a number of discontinuous veins pitching steeply south, in which the ore minerals occur as shoots with a slightly shallower pitch.

Bleaching around the lodes at the Talisker mine is believed to be closely associated with the mineralisation and is considered a promising guide in prospecting for further ore.

2. REFERENCES

Mines of South Australia, pp. 85-86. 1863		(J.B. Austin)
Record of Mines of S.A. (4th Ed.) pp. 189-190. 1908		(H.Y.L. Brown)
Mining Review	26, p. 11. 1917	(General Notes)
" "	26, pp. 91-93. 1917	(L.J. Winton)
" "	27, p. 11. 1918	(General Notes)
" "	31, p. 11. 1920	"
" "	32, p. 11. 1920	"
" "	40, p. 11. 1924	"
" "	43, p. 11. 1926	"
" "	44, p. 11. 1926	"
" "	45, pp. 79-83 1927	(R.L. Jack & J.L.Pearson)
" "	98 pp. 122-129. 1953	(K.W. Summers)

Report of Investigations No. 3. "The Geology of the Jervis and Yankalilla Military sheets" by B. Campana & R.B. Wilson.

3. INTRODUCTION

Following recommendations for further surface mapping by the Senior Geologist, Engineering Geology and Mineral Resources Section (G.F. Whitten), and by Senior Geologist, Mineral Resources Section (R.K. Johns), this survey was carried out on 2½ days between 29.10.57 and 1.11.57.

A precis of the Mine history is contained in M.R. 98, p. 122. Further details may be found in the references listed above. The last recorded attempt to open the mine was in 1934-35.

All plans and sections of the underground workings are copies of plans and sections originally drawn by W.H. Price, 1867. Since the mine was inaccessible at the time of this survey, all other data on underground workings has been compiled from previous work and added to Price's plans.

The area mapped is in rugged country approximately 60 miles south from Adelaide and about 4 miles E.S.E. from Cape Jervis. Access to the mine area from the Range road is passable. About ¼ mile from the mine site the gradient increases and the road surface deteriorates. The mine itself is located on the eastern flank of a large spur trending southerly.

Timber is abundant in the area and water for drilling purposes is available either from a nearby dam or from the mine itself.

4. GENERAL GEOLOGY

Previous workers equated the sediments in the area with the Cambrian Series and possibly the upper Adelaide System. More recent work (Thomson & others) indicates that the rocks may be stratigraphically equated with the Cambrian Archaeocyathina limestone ~~Marinoan in age (upper Pre Cambrian)~~ and the greywackes merely a facies change ~~from the finer grained~~ of the sediments further north.

Rock types include phyllites, quartzites, sandstones and greywackes, tightly folded in a north easterly direction, overturned to the west and pitching to the south. The general dip of the beds in the area is to the south east averaging 60°.

Barren and mineralised quartz veins occupy fractures in the greywackes. In the micaceous phyllites and quartzites the quartz veins appear to be barren or weakly mineralised.

A major fault extending from the coast to the vicinity of the Talisker mine is shown on the 1 mile ~~Yankalilla~~ Jervis Military Sheet Geological map, and is referred to elsewhere in this report as the Talisker fault. Actual evidence of the existence of the Talisker fault was not seen in the mapped area.

It may be pointed out here that since the sediments on the western side of the Talisker fault are younger than those on the east side, and since the angle of dip of the fault plane is easterly (Campana & Wilson. Report of Investigations No. 5. Summers M.R. 98, p. 129) the relative movement must have been east block up, that is, a reverse fault, not a normal one as illustrated in the above references.

Otherwise the plane of the fault must dip west, the movement would then be normal (west block down) and the younger beds would be on the western side of the fault plane.

5. DETAILED GEOLOGY

The main rock types noted in the area mapped include micaceous phyllites, greywackes, quartzites and sandstones, the general strike of the beds is 45°(M) the average dip approximately 60° easterly.

Micaceous phyllites predominate in the area just north of the main shaft at the Talisker mine. These sediments are finely laminated with a well developed schistosity. Usually they are seen as rusty to mustard coloured rocks at the surface, because of weathering; the fresh rocks are greyish green in colour. Because of the abundance of mica these rocks are comparatively soft and have a markedly silky feel and lustre. A petrological report of these rock types is appended (See appendix A).

Interbedded with the micaceous phyllites are thin sandstone and greywacke beds.

Greywackes predominate in the area to the south east from their contact with the micaceous phyllites (see Map No. L 58-18). They are medium to fine grained rocks; medium grey is the predominating colour, but localised bleaching of the rocks from grey to off-white has been mapped, particularly around the lodes at the Talisker mine, where the rock is well exposed and extensively bleached.

Thin beds of siliceous and micaceous phyllites and more massive quartzites are interbedded with the greywackes. The siliceous and micaceous phyllites are similar in colour to the greywackes.

Contacts within the greywacke between fine and medium grained rock types are usually transitional and the boundaries shown on the accompanying map are approximations. Contact of the quartzite horizons and the greywackes however, is quite sharp.

Variations in grain size between medium and fine grained greywackes was noted visually and is liable to error; however, it is believed that the general distribution of rock types on grain size as indicated on the accompanying map is correct. The main purpose for the attempted differentiation was to examine possible ore controls.

In outcrop the greywackes may be massive or sheared. Current mapping indicates that the sheared gryewackes are probably better host rocks than the more massive stone.

The main sandstone horizon in the micaceous phyllites is approximately 15' thick, and has been followed along its strike across the projected Talisker line of lode without displacement.

The rock is much lighter in colour than the enclosing rocks and much coarser grained. This makes it comparatively easy to identify. Where exposed, the rock is massive, poorly bedded, and iron stained to a light rusty brown. As its name implies this rock is comparatively soft and crumbly.

To the south of the mine workings two prominent medium to fine grained quartzite beds occur within the greywackes. These beds are similar to one another in physical characteristics and the following description applies to both. The rock is tough, dense, highly siliceous and laminated with some relatively massive layers. Colour varies from pink to white. In the thicker of the two beds (the more ~~northerly~~ southerly) quartz veinlets intrude the more massive layers. Some of these veinlets are iron-stained and may have carried pyrites.

At the lower contact of the thinner (more northerly) of the quartzite beds with the greywackes, small quartz veinlets only a few inches long, sometimes carrying feldspar, occur in the quartzites but not in the "underlying" greywackes, and are probably rudimentary boudinage structure? - the veins strike 130° dip 80°W. These beds were followed across the line of strike of the Talisker lodes without displacement.

In the western portion of the area mapped, where the chimney tunnel connected with the chimney on top of a hill, the beds are heavily iron stained. This may be the base of the laterite capping which covers the hills to the north west.

6. STRUCTURAL GEOLOGY

Folding. Although the beds have been intensely folded on a regional scale, as evidenced by the steep dip of the beds in the area mapped, no complications in the form of drag folds were found. Some slight variations in dip and strike probably reflect incipient drags.

Faulting. No major faults were seen in the area. Drags seen in the vicinity of the ore shoots are small and indicate east block up and north.

"Slides" shown on the underground plans have displaced the lodes and movement on them must have been post ore. The slides are probably shear planes developed at the time of folding and along which movement has continued after the emplacement of the lodes.

As indicated earlier, movement along the line of lode was comparatively small because of the lack of displacement of beds both north and south of the mine. It is probable that the veins have occupied a series of tension fractures in the greywackes. Numerous other smaller lodes within the greywackes are nearly parallel to each other and the main lode.

Schistosity is well developed in some of the greywacke beds and is thought to have some control on the emplacement of the ore bodies. As can be seen from the map the schistosity is sub parallel to the plotted position of the slides as shown by Price (their angles of dips are similar). It is thus possible that they have developed from the same stresses.

Jointing is well developed in some of the medium grained massive greywackes, sandstones, and quartzites, which have no developed schistosity.

7. TALISKER AND OTHER LODES

The lodes consist of quartz veins carrying sulphides striking 355(M)^{o} and dipping 70^{o} to the south east, the main ore minerals being arsenopyrite and galena. Other minerals identified by La Ganza include sphalerite, tennantite, argentite, marcasite, pyrite, pyrrhotite and lollingite. (See petrological report Appendix A).

The lode system at the Talisker mine consists of a number of individual quartz lenses, pitching to the southeast at about 65°, arranged in an echelon pattern pitching to the north at about 35°. Barren ground separates the quartz lenses.

Jack (op. cit.) describes the lodes and localisation of mineralisation within the lodes as follows:

"The result of this fracturing of the lode course has been the formation of a series of apparently disconnected bodies of lode material arranged en echelon. The lode has in places a very dense greyish to glassy quartz gangue with mineral sparingly distributed in it; slaty gangue and galena and arsenopyrite. The galena occurs in shoots which at the ends contain a greater proportion of arsenical pyrite. Portions of the lode between the ore shoots consist of dense quartz which appears to be more abundant in the footwall part of the lode, the portion towards the hanging wall carrying more mineral."

As pointed out by Whitten (Minute to Chief Geologist DM 521/53) the pitch of ore within the lodes is also to the south. The writer agrees that the ore, localised in the lodes, pitches south and suggests further, that this pitch is a little shallower than the pitch of the lode. The possible ore controls are discussed in the next section.

The main lodes vary in width from a few inches to more than twenty feet. It is pointed out that the greatest development of the main ore body is where the plane of the lode is steepest. The width may be due to dilation of the main vein together with replacement of the country rock.

Other lodes prospected in the area vary from 6" to 1'.

8. POSSIBLE ORE CONTROLS AND ORE GUIDES

As can be seen from the accompanying map (No. L 58-18) all the mineralised quartz veins mapped occur in the greywackes and it is inferred from this that these rocks are more suitable physically than the micaceous phyllites, and chemically than the sandstones and quartzites. Localisation of lodes within the greywackes is believed to have been influenced by the following factors.

Firstly the grain size of the sediments. It is found that most of the lodes occur in the medium grained greywackes.

Secondly the well sheared medium grained greywackes contain the economic deposits. Where massive rock occurs and is projected to the plane of the lode, the lode died out. This can be seen happening between Price's shaft and Mufford's shaft and Tapley's ~~Topleys~~ shaft and the main shaft.

The lodes in the host rock pitch about 65° to the south east. It is found that the pitch of the intersection of the lode and the cleavage approximates the pitch of the lode, and the pitch of the intersection of bedding and lode is slightly shallower and could account for the shallower pitch of the ore within the lode. It is of interest to note here, that samples of ore taken from the Talisker mine (A.G. Whittle) show replacement of the country rock.

The pitch of the intersection of the joints and the lode does not coincide with the pitch of the lode or the ore within the lode and is considered to have had no part in the location of the lode.

Bleached zones surround the main ore bodies at the Talisker Mine. The lateral extent of this bleaching is about 5 feet on either side of the vein. It is evident from field observations that the bleaching is connected with the ore bodies. This may be due to either the breakdown of the sulphides with the production of H_2SO_4 which reacted with the surrounding country rock, or the action of hydrothermal solutions connected with the lodes. Whatever the cause of the bleaching, its relationship to the presence of ore bearing veins is unmistakable, and it is suggested that bleached zones in medium grained sheared greywackes would be worthwhile prospecting.

9. GEOPHYSICAL PROSPECTING

Accompanying this report is a report by B.E. Milton (Geophysicist) on Geo-Electrical and Magnetic Prospecting for Sulphide ore, Talisker Mine. Only one anomaly No. 6 (See Map No. 58-121) is considered worth testing. Since there is no outcrop in the area of this anomaly it would best be investigated by trenching. Other self potential anomalies near some of the bleached zones were not confirmed by other methods. Further geological investigation of anomalies 5, 7, 8, 9 is recommended.

10. EXPLORATORY DRILLING & TRENCHING

Two target areas to be tested by diamond drilling to locate possible ore are recommended.

D.D. Hole No. 1 is to test the possibility of another ore shoot down pitch along the en echelon pattern of lodes. Three D.D. Holes were recommended by Summers (op. cit.) to test this possibility, but it is considered that one hole would indicate ore, if any, and further holes could be laid out to outline any lens which might be intersected. It is pointed out here that the position of the possible lens down pitch places the lode entirely within the micaceous phyllites; since, from surface mapping the micaceous phyllites are considered less favourable host rocks than the greywackes the probability of the location of another lens in the area is considered less likely than if the rock were a greywacke. Nevertheless it is recommended that the area be test drilled. The hole to be drilled should be vertical and drilled to a depth of 430' at the site laid out on map No. L 58-18.

D.D. Hole No. 2 is to test the possibility of the extension of the existing main lode at depth. This hole should be drilled vertically to a depth of 550' to test the extension of the main lode at 100 feet below the present workings. Further holes can be laid out to test any intersection of ore with this hole.

Because of the depth of the holes and the angle of the beds to the inclination of the hole, it is considered desirable to survey the boreholes.

It is assumed here that the depths of the levels in the mine are measured on the lode and not vertically down the shaft.

Trenching is recommended to explore three areas A, B, C, outlined on Map No. L.58-18. If labour is not available to do this work then three short holes approximately 50' each is recommended to test the areas. Areas A & C are bleached zones in sheared medium grained greywackes and area B is anomaly 6 on map No. 58-121.

11. CONCLUSIONS & RECOMMENDATIONS

Sediments including micaceous phyllites, sandstones, greywackes and quartzites, ~~previously~~ stratigraphically equated with the Cambrian Archaeocyathina limestone ~~and Upper Pre Cambrian series and now thought to be Marinoan~~ (~~Upper Pre Cambrian~~) have been mapped in the above section.

Mineralised quartz veins appear to be confined to the greywackes where they are essentially parallel to one another striking across the beds and dipping south easterly. Quartz veins seen in the micaceous phyllites, sand stones and quartzites were barren.

Schistosity appears to be a controlling factor in the location of the lodes and bedding a controlling factor in the localisation of ore within the lode.

Because the location of a possible repetition of the lode down en echelon pitch lies entirely within micaceous phyllites, the prospects of intersecting ore are not as good as if the rock type were greywacke.

One vertical diamond drill hole, to a depth of 430' on the site marked out, is recommended to test this possibility.

It is assumed that the main lode persists below the existing levels, and D.D. Hole No. 2 is designed to test this possibility with a vertical hole to 550' at the site marked out on Map No. L.58-18.

Only anomaly 6, Map No. 58-121 appears to warrant testing. No anomalies over bleached greywackes were observed. It is recommended that anomaly 6 and two bleached zones, marked on the map as A, B, C be tested by trenching, if labour is available, and by short drill holes each about 50', if not. Further geological investigation of anomalies 5, 7, 8 & 9 is recommended.

Bleaching around the lodes at the Talisker mine is believed to be closely associated with the ore bodies and is considered a promising guide to possible ore when prospecting the greywackes.

L.G. Nixon
GEOLOGIST

LGN:AGK
13/6/58.

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SOUTH AUSTRALIA

In your reply please quote this number : N.P.R.C. No. 3/58.

DEPARTMENT OF MINES

RESEARCH AND DEVELOPMENT BRANCH

Flemington Street, Parkside, S.A.

3rd February, 1958.

PRELIMINARY INVESTIGATION OF THE TALISKER AREA.

INTRODUCTION.

The following investigation is based on samples collected at the mine. Samples were taken of the altered and unaltered country rock and of the ore.

Description of the Different Stratigraphic Horizons.

The orebodies are contained in greywacke sediments. North of the greywackes are phyllites and still farther north are sandstones. The greywackes are cut by quartz veins; a bleached zone surrounds the orebodies.

Greywacke:

Macroscopically, the greywacke is a very fine-grained, light grey rock with a distinct lineation. Microscopically, it is a quartz-feldspar-mica rock with accessory zircon, apatite, tourmaline and opaques. In general, the rock consists of an aggregate of irregular grains of quartz and feldspar surrounded by muscovite and biotite. A distinct lineation is also apparent as may be seen in Fig. 1.

The quartz and feldspar are equigranular in most instances. The feldspar exhibits albite twinning and is a sodic oligoclase. Most of the feldspar grains contain tiny laths of muscovite (sericite), indicating incipient alteration.

Muscovite and biotite occur together as small, lath-shaped grains surrounding the other minerals. It is the biotite which imparts to the rock its grey color.

Zircon, apatite, tourmaline, and a few opaque grains are scattered throughout the rock.

The greywackes are commonly cut by quartz stringers. The quartz is strained, probably due to the force of injection, and the veins are surrounded by concentrations of biotite (Fig. 2); this suggests hydrothermal emplacement.

Phyllite:

Macroscopically the phyllite is a very fine-grained, finely-bedded rock having a light grey color. Microscopically it is a quartz-mica rock with accessory apatite and rutile.

The quartz grains are equigranular, irregular, and elongate in the same direction as are the micas which surround them.

The muscovite and biotite are finer-grained than the quartz and surround it in parallel alignment. The micas extinguish at the same time demonstrating a well developed schistosity. As in the greywacke, the biotite is responsible for the grey color.

Apatite and rutile occur as accessory minerals scattered throughout the rock.

No feldspar was detected.

Sandstone:

Macroscopically the sandstone is a rust-colored granular rock with weak bedding.

Microscopically it consists of irregular grains of quartz and feldspar surrounded by biotite and muscovite with accessory zircon and opaques. There is less biotite than in the other rocks of the area.

The feldspar is present as both plagioclase (oligoclase) and microcline and has the same grain size as does the quartz.

Zircon and opaques occur as accessory minerals and are scattered throughout the rock; the opaques occur essentially with the biotite.

Bleached zone:

As previously mentioned, a bleached zone separates the ore lenses from the fresh greywackes. Macroscopically the rock is white to buff in color and crumbles easily into very fine grains. Microscopic examination showed a highly altered and sheared rock now consisting of irregular elongate grains of quartz surrounded by secondary sericite and opal in sympathetic alignment. A few grains of zircon and tourmaline were also encountered.

In one of the two samples quartz stringers were present; these had been infiltrated by sericite.

Jarosite is present as stringers and crystals which cut the quartz and sericite. The jarosite forms fibrous aggregates or rhombohedral-like crystals of varying size (Fig. 3).

MINERAGRAPHY.

Four polished sections of the ore were examined and while these by no means give a complete picture of the ore mineral relationships they nevertheless give a general indication as to what may be found.

Nine mineral varieties were identified. These are arsenopyrite $FeAsS$, galena PbS, sphalerite ZnS, tennantite $(Cu_2,Ag_2)_3As_2S_6$, argentite Ag_2S, marcasite FeS_2, pyrite FeS_2, pyrrhotite FeS, and löllingite $FeAs_2$.

The general relationships thus far developed are as follows. Arsenopyrite crystallized first as euhedral crystals. This was followed by the formation of colloform marcasite and plates of pyrrhotite. Galena, sphalerite, tennantite, and argentite next solidified, chiefly as interstitial matter between the arsenopyrite, marcasite, and pyrrhotite but also somewhat replacing the marcasite and pyrrhotite. Weathering has produced some secondary marcasite.

The pyrite and löllingite were not observed with relation to the other minerals but occur as euhedral crystals in the altered country rock.

CONCLUSIONS.

The main conclusion to be made relates to the bleaching of the greywacke i.e. the altered zone surrounding the ore lenses. The bleached rock represents the greywacke from which plagioclase and biotite have been removed and to which sericite, opal, and jarosite have been added. This is best explained on the basis of an influx of sulphurous hydrothermal solutions. These penetrated the greywacke, altering the plagioclase to sericite, removing the iron from the biotite (hence the bleaching), and adding silica in the form of opal. The iron, liberated from the biotite, combined with the sulphur in the hydrothermal solutions to form jarosite. It seems likely, therefore, that the bleaching is directly related to the mineralization. Before final confirmation can be made, however, a more detailed investigation must be made.

On the basis of investigations so far, the presence of a bleached zone in the greywacke can be used as a prospecting guide for the occurrence of non-outcropping ore just below the surface.

Examined by : R.F. La Ganza

A. W. Whittle,
CHIEF MINERALOGIST AND
PETROLOGIST.

FIG.1 Greywacke showing irregular grains of quartz and feldspar surrounded by muscovite and biotite. Note lineation.

FIG.2 Greywacke cut by quartz veinlet. Note concentrations of biotite around veinlet and also lineation.

FIG.3 Bleached zone showing jarosite and sericite.

FIG.4 Typical ore - euhedral crystals of arsenopyrite in groundmass of galena. Black is gangue mineral.

Deptl. Sample No. P. 509/57.

PETROLOGICAL REPORT

Description of Sample(s) L.G.N./66.

Locality etc. County of Hindmarsh; Hundred of Waitpinga; Section 1554.

Submitted by L.G. Nixon, GEOLOGICAL SURVEY.

The material submitted is a metamorphosed subgreywacke with a poorly developed schistosity. Two thin sections have been prepared, both taken at right angles to the plane of schistosity. They are also perpendicular to each other.

Examinations of both sections failed to reveal any structure that could be related to bedding, the only feature seen being the poor schistosity. There were no systematic or abrupt changes in grain size or composition, and no special structures. The sections resembled each other closely, except that in one a slightly higher apparent schistosity was caused by a higher content of mica. This was confirmed by modal analysis, as follows:-

	Thin Section Nos.	
	3255	3256
Quartz	66.0%	59.7%
Micas	31.8%	38.1%
Felspar	1.3%	1.4%
Apatite	0.6%	0.6%
Opaque	0.3%	0.2%

Variation in composition across each section is as great as the difference between them.

Quartz occurs in subangular grains, 20-200 microns across. They are embayed by adjacent biotite crystals, and show very little sign of stress.

Biotite crystals vary from 3-60 microns in diameter. They are poorly elongated, especially the larger grains, and usually irregular in shape, but with convex margins adjacent to quartz. Locally this mineral is somewhat concentrated, and muscovite, only a minor constituent of the rock, tends to occur where the other mica is clustered. The biotite has a maximum refractive index of 1.657 $\pm$ 0.005, which corresponds to a Fe:Mg ratio of 2:1 to 3:1 depending on the Aluminium content.

Felspar occurs as occasional, slightly stained grains of orthoclase. One or two fragments had a graphic intergrowth of quartz and felspar.

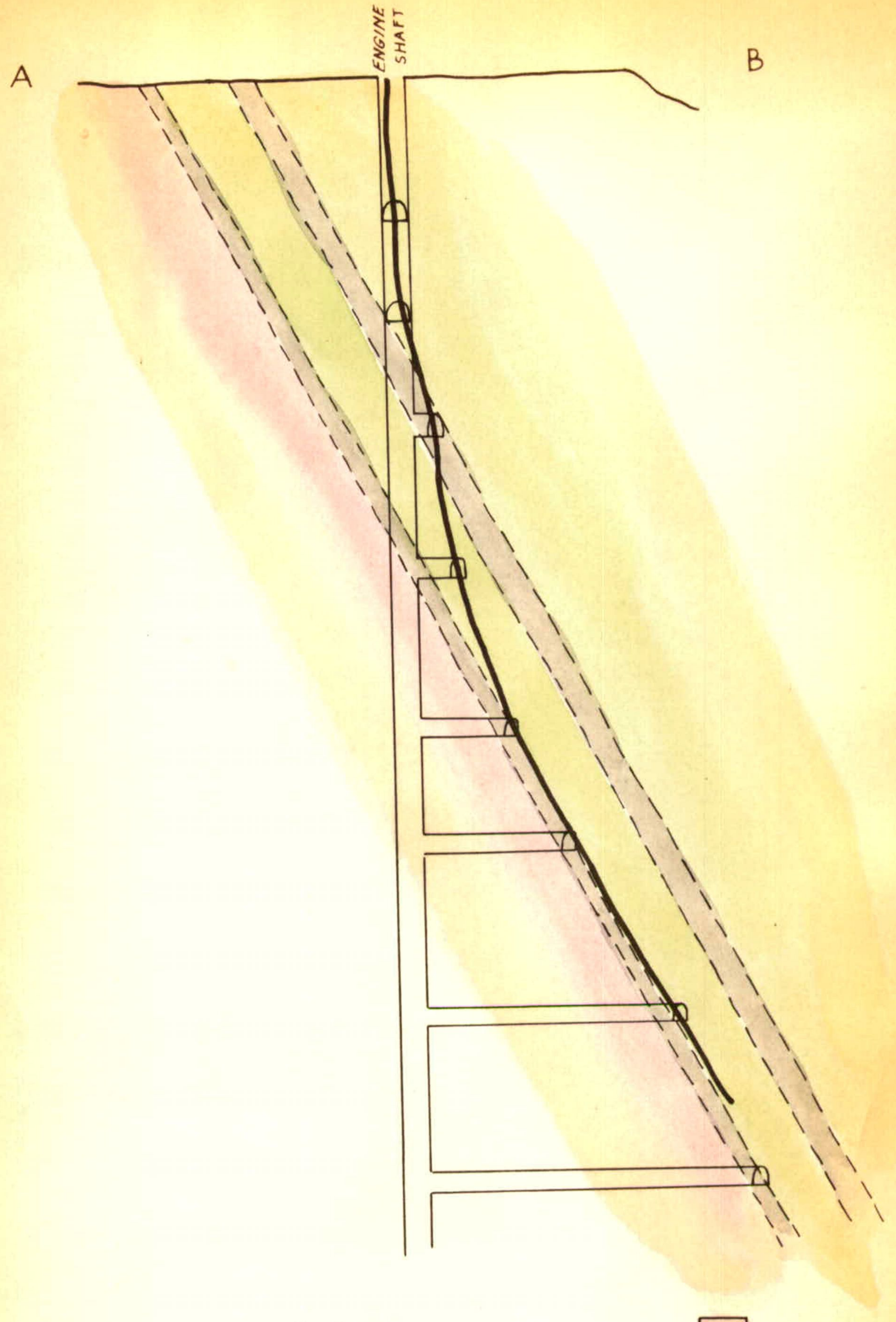
Apatite crystals are rounded-subangular, and 30-60 microns across. Irregular opaque masses are found interstitially or as inclusions in biotite; one of these opaque fragments is 250 microns long. Rounded crystals of zircon and sphene occur in traces.

The time involved in carrying out orthodox exhaustive petrofabric is at present prohibitive. Information such as that above is all that is presently possible.

Examined by: M. J. Bucknell.

A. W. Whittle,
CHIEF MINERALOGIST AND
PETROLOGIST.

20/3/58.



Micaceous phyllites
Medium grained greywacke
Unbleached fine grained greywacke
Ore lode

To accompany report by L. G. Nixon

S.A. DEPARTMENT OF MINES					
Approved	Passed	Drn. L.N.	TALISKER MINE	D.M.	50 ft. to in.
		Tcd. B.F.			S1833 Hcll
		Ckd.	CROSS SECTION		
Director		Exd.			17·6·58

Fig. 4 GEOLOGICAL PLAN OF TALISKER MINE AREA Secs. 339 & 340, Hd. Waitpinga, Co. Hindmarsh.

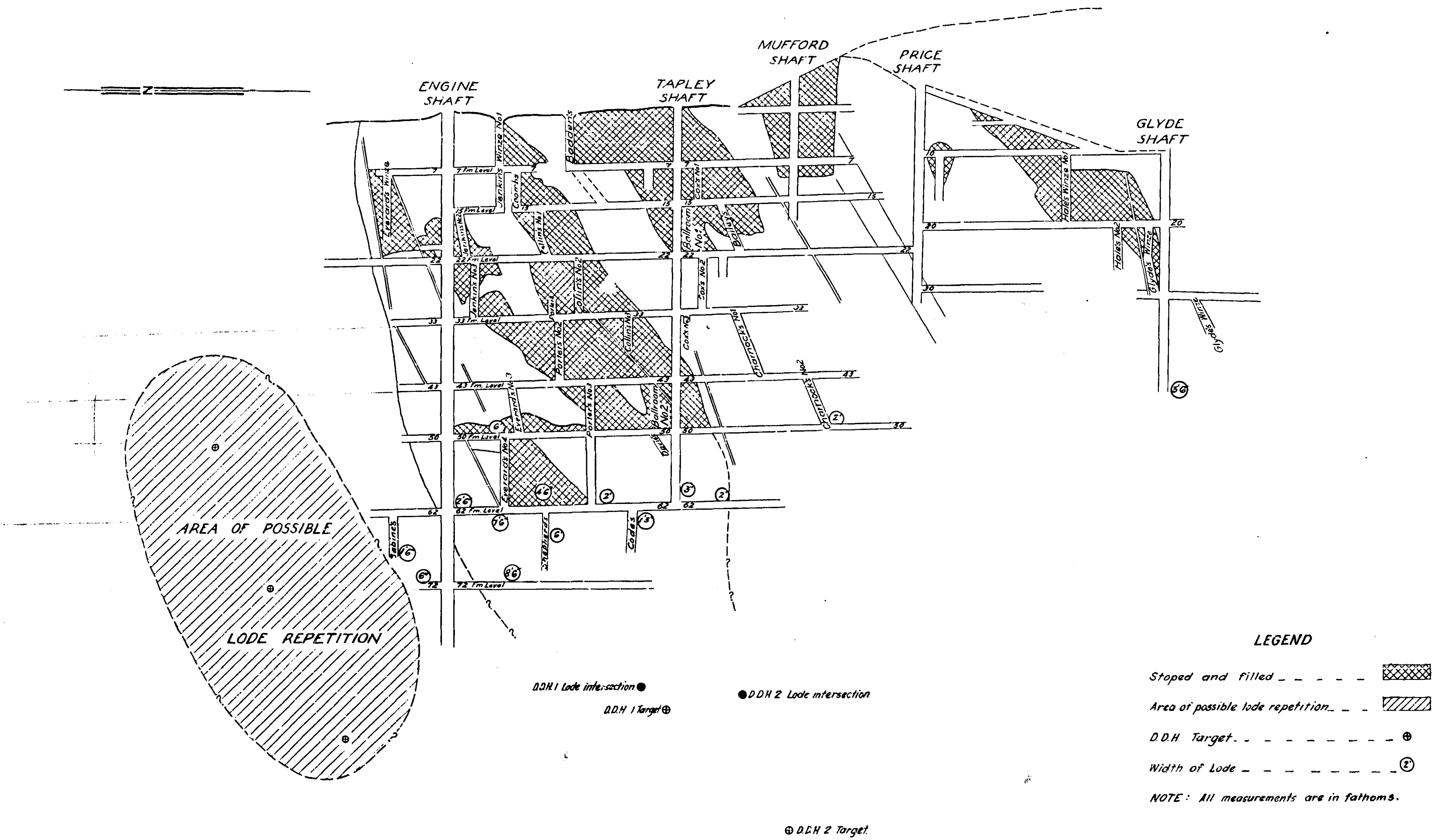
SCALE IN FEET 50 0 50 100 150 200 250

SCALE IN METRES 10 0 10 20 30 40 50 60 70

6

GEOLOGICAL PLAN OF TALISKER MINE AREA
SEC. 339 & 340 HD. WAITPINGA
CO. HINDMARSH

L58-18/4



Reduced from original plan by W.H. Price 1867 & 1871.

To accompany report by K. Summers.

S.A. DEPT. OF MINES

TALISKER MINE
LONGITUDINAL PROJECTION

Associated Drawing	No.	No.	Amendment	Exd.	Date
		1	D.D.H 1 & 2 intersections.		26-3-53

Req. No.
D.M.
Compiled from TALISKER MINE - VERTICAL SEC. PLAN No 370.

Approved: Director of Mines
Passed

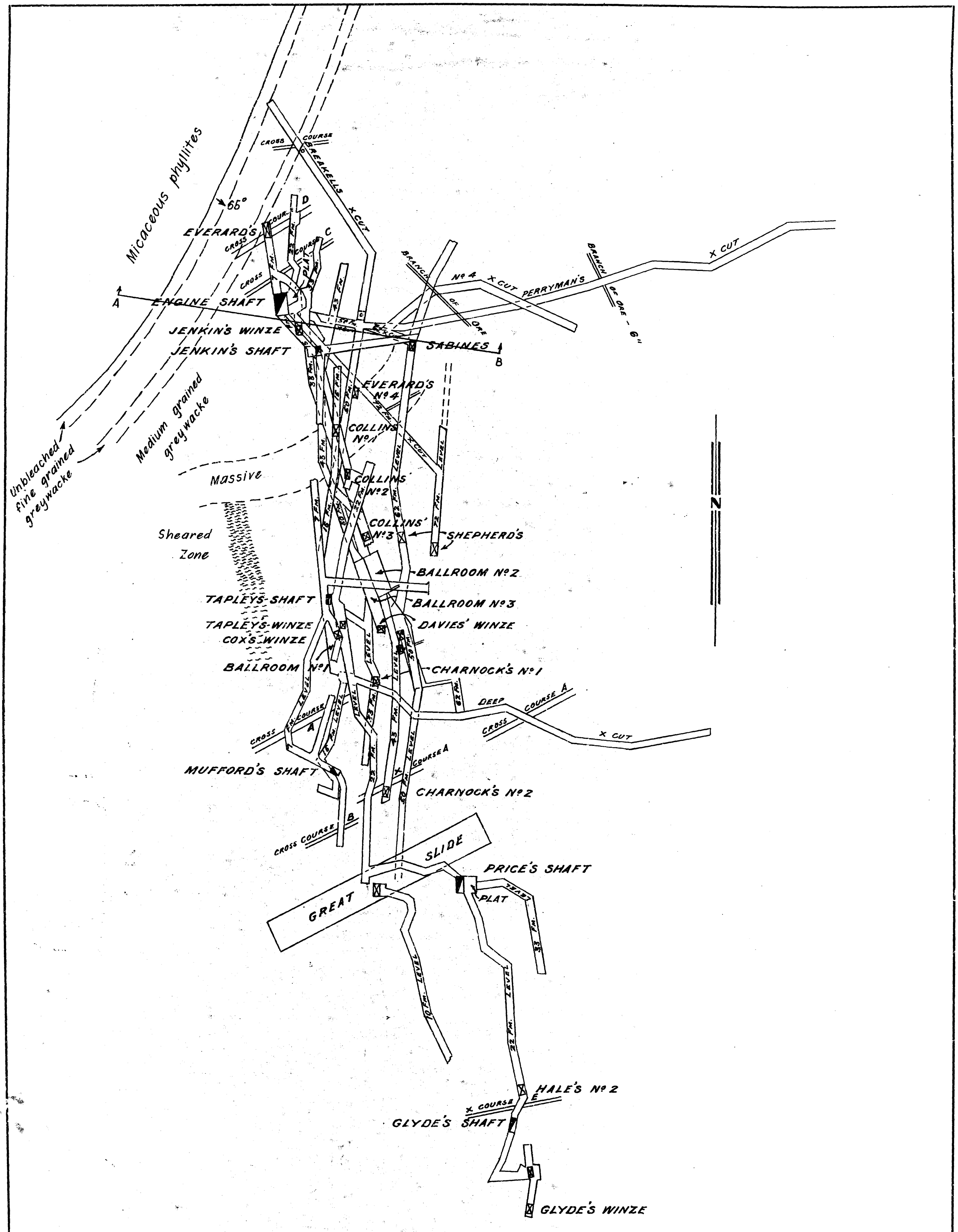
Drn. A.E.T.
Tcd.
Ckd. R.R.
Exd.

Scale 50 FEET TO 1 INCH (APPROX.)

53 - 37

Hell

Date 18 . 2 . 53



Reduced from plan by W.H. Price 1867. *To accompany report by K. Summers.*

S. A. DEPT. OF MINES

TALISKER MINE
COMPOSITE LEVEL PLAN

No.	Amendment	Exd.	Date
	Geology by L.G. Nixon		20.6.58

Approved	Passed		
Director		Drn. A.R. / Tcd. / Ckd. / Exd.	Scale: 50 FT to 1 IN. (APPROX) / 53-34 / Hc 11 / Date 11-2-53