DEPARTMENT OF MINES
SOUTH AUSTRALIA

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REPORT ON THE STANLEY COPPER MINE

Section 1977, Hundred Clare

by

K.R. Warne
Geologist
METALLIC MINERALS SECTION

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PLANS TO ACCOMPANY REPORT

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66-563	Stanley Copper Mine - Geological Plan of Section 1977, Hd. Clare showing Mine area and sample locations.	1in. : 100ft.
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Rept. Bk. No. 63/22
G.S. No. 3504
D.M. 1666/65

29th July, 1966

DEPARTMENT OF MINES
SOUTH AUSTRALIA

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REPORT ON THE STANLEY COPPER MINE

Section 1977, Hundred Clare

ABSTRACT

The Stanley mine (also known as the Pompurne mine) was operated by two separate mining companies during the latter part of last century. Production figures for the mine are incomplete but recorded production approximates 150 tons of 17 per cent copper ore.

The mine is located in a dolomitic sequence near the crest of a domed structure which plunges at a low angle to the south.

Mineralisation is confined to a sporadic distribution of copper carbonate minerals in a lenticular quartz vein with a maximum thickness of 4 ft., which lenses out along the strike and down-dip. No sulphide minerals were observed in the workings.

Title

Section 1977, Hundred of Clare, (the site of the old Stanley mine) is private land with mineral rights alienated from the Crown. Authority to enter was granted to Mr. K.F. Fernandez on the 26th October, 1965, by the owner and occupier, Mr. F.C. Brooks.

INTRODUCTION

The mine, situated west of Clare, was one of the many small copper mines active during the latter part of last century. It was initially known as the Pompurne mine when operated by the South Australian Smelting Association from 1858 to 1860. It was renamed the Stanley mine and worked by the Stanley Copper Mining Company between 1872 and 1875. A number of prospecting trenches and pits were cut and several shafts, drives and adits were developed, yielding about 150 tons of ore with a grade

of about 17 per cent copper, valued at £1,786. No further mining activity has been recorded since the mine was abandoned in 1875.

Following a request for assistance by Mr. K.F. Fernandez, geological and stadia surveys were conducted over the greater portion of Section 1977, Hundred of Clare, during November, 1965, to assess the economical potential of the mine and to outline the geology; the writer was assisted by B. Frost (Survey Assistant).

LOCATION AND ACCESS

The mine is situated in the northern Mount Lofty Ranges, approximately 80 miles north of Adelaide and 3½ miles west of Clare. Although no tracks lead directly to the mine area, access is provided by a graded unsurfaced road branching off from the bitumen section of the Clare-Blyth road. Railways pass through Clare and also through Blyth, four miles west of the mine.

GEOGRAPHY

The Clare district has a temperate climate and receives reliablewinter rains, the mean annual rainfall for Clare being 24.3 inches.

The mature topography is reflected by the broad rounded hills of moderate relief dissected by shallow ephemeral creeks.

The workings are located in hilly country where a number of small creeks and gullies drain into the sandy plains to the west. Most of the workings lie on the southern slope of a smooth rounded hill with a gradient of 1 in 4. Here a creek has, in places, become incised into alluvium to a depth of 6 ft. to 10 ft. Bedrock is generally obscured by thin grey-brown soil. There is a cover of short grasses and scattered clumps of native

shrubs and bushes (Melaleuca pubescens Shau., Acacia armata, A. pycnantha and Bursaria spinosa Car.). Isolated stands of casuarina (C. stricta) and occasional groups of eucalypts (E. oleosa F.v.M. and E. calcicultrix F.v.M.) grow on the hill slopes.

MINING HISTORY

Sections 1934 - 2000, Hundred of Clare, were surveyed in 1847-48 and copper mineralisation was noted on sections 1977, 1982, and 1976. On 10th April, 1850, the South Australian Mining Association purchased ten sections (1966-67, 1969-73, 1977-79), but active prospecting and mining operations did not commence until 1858. In the southwestern portion of section 1977, a lode 20 ins. wide, striking N 15° E, was reported to carry "copper pyrites, grey sulphuret of copper, red oxide and blue and green carbonates embedded in quartz and sandstone, carbonate of lime and iron". Six selected surface samples averaged 32.75 per cent copper. Several shallow pits and shafts were sunk and "galleries" (drives and stopes) were extended north and south along the lode, which varied in width from 2 ft. to 4 ft. It was reported that several veinlets of good ore were intersected in the exploratory crosscuts extending east and west from the bottom of a permanent whim shaft 102 ft. deep, and also in a crosscut extending east from a shaft 48 ft. deep. Mining operations were discontinued in April, 1860 after 32 tons of ore had been raised, of which 29 tons were sold for £338. The company's loss was estimated at £1.230.

The freehold sections 1970, 1972-73, and 1977-79 passed through several hands before they were eventually purchased by the Stanley Copper Mining Company on 16th September, 1872. There appears to be no record of this company's activities on

these sections and production figures were probably included with those from the Emu Flat mine (approximately two miles west of the Stanley mine) which was operated from 1869 to 1871.

PREVIOUS INVESTIGATIONS

In the early part of 1899, the mine was visited by H.Y.L. Brown (then Government Geologist). He considered that the principal lode consists of quartz stained with small amounts of copper ore and that it has a bedded character inclined to the southeast at a low angle, cut by steeply-dipping subsidiary veins. Brown noted that two shallow shafts, both about 20 ft. deep, had cut a continuation of the flat lode and he recommended that both shafts be extended to test the continuity or otherwise of the main lode and to explore the probability of a similar lode occurring at a moderate depth. He also suggested that the old shafts be cleaned and repaired.

The mine area comprises part of the Clare 1-mile geological map (Forbes, 1964); petrological descriptions of two rock samples taken from the mine by Forbes are included in Appendix 1.

REGIONAL GEOLOGY

A.F. Wilson (1952), produced the first comprehensive geological plan of the Riverton-Clare district and detailed the stratigraphy although his mapping did not include the area round the Stanley mine.

Stratigraphic units defined in the region by Forbes (1964) include sediments of the River Wakefield Group conformably overlain by the Burra (Torrensian) and Umberatana (Sturtian) Groups.

The lowermost units of the River Wakefield Group, outcropping over an extensive area about three miles west of Clare, include the Blyth dolomite beds forming the core of a domed structure and having a minimum thickness of 200-400 ft. The overlying formations include the Boconnoc Formation (700 ft.), Igomar Quartzite (300 ft.), Stradbrooke Formation (700 ft.) and the Bembeurnie Dolomite (400 ft.). These are succeeded by formations of the Burra Group, consisting of the Rhynie Sandstone, Skillogalee Dolomite, Woolshed Flat Shale, Undalya Quartzite and Saddleworth Formation.

The regional fold pattern is outlined on the Burra 4-mile geological map (Mirams, 1964) and the Clare 1-mile geological map (Forbes, 1964). The Proterozoic sediments have been buckled into a series of meridionally trending asymmetric folds which are generally overturned and plunge northwards. Domed structures on the western side of the ranges indicate flexures also produced during the early Palaeozoic orogeny. The Stanley mine is located near the crest ofone of these structures. Faults in the region strike in several directions. One of the more persistent is the Alma fault which trends N.W. - S.E. and dips steeply to the southwest, forming a western escarpment to the Mount Lofty Range west of Clare.

LOCAL GEOLOGY

The hilly country round the mine workings is largely covered by a thin veneer of grey-brown soil varying in thickness from 2ins. to 18ins. Bedrock is poorly exposed on the hill slopes and is often coated by kunkar. The valleys between the broad rounded hills are usually filled with a red-brown clayey alluvial soil but in places the creeks have cut into the alluvium to expose weathered bedrock.

Two stratigraphic units were recognised in the mine area, namely the Blyth dolomite beds and the Boconnoc Formation of the River Wakefield Group.

The Blyth dolomite beds consist of a conformable sequence of calcareous rocks which have been subdivided in order from the eldest to the youngest as below.

1. Dolomitised-muscovite schist: This rock is exposed in the creek immediately south of the mine area, and in a 30ft. shaft near the eastern limit of the workings. The rock is cream coloured, altering to light brown on weathering. Bedding is masked by a well developed schistosity.
2. Banded dolomite. This is a recrystallised coarsely-bedded yellow-brown dolomitic rock, approximately 30ft. thick, characterised by thin bands of soft silty dolomite alternating with coarser bands of quartz-rich dolomite giving a graded bedding effect. It is strongly cleaved and possesses a poorly developed schistosity; the schistosity is probably closely related to isoclinal folding of the beds.
3. Siliceous dolomite: A prominent band of hard, tough, dense fine to medium-grained siliceous dolomite, 5ft. to 12ft. thick, serves as a useful marker horizon. The rock has been recrystallised to marble and is isoclinally folded and crenulated. Silica content is variable and the rock in places varies from a dolomite to a quartzite.
4. Flaggy dolomite: The uppermost member of the Blyth dolomite beds is represented by a white-cream, strongly cleaved flaggy dolomite carrying occasional specks of pyrite, which may be locally tightly folded. The rock alters to a cream-brown colour on weathering.

Near the central portion of section 1977 a band of weathered pink-brown coarse-grained sandstone-quartzite occurs. This unit has been correlated with the Boconnoc Formation.

The rocks in the area mapped tend overall to dip and plunge at a low angle (0-10°) to the south, forming the core of a domed structure.

Minor faults showing displacements of a few inches strike generally east-west, subparallel to a major joint direction. No mineralisation is associated with the faults.

Jointing is generally well developed, the major directions being E-W and N.W. - S.E. with steep dips to the north and southwest respectively. Quartz veining in No. 2 adit, at the western limit of the workings, parallels the east-west jointing direction.

Cleavage is prominent, particularly in the banded dolomite rock. It strikes northwest and dips at 60° to 85° to the northeast, cutting across the schistosity which has a similar strike direction but with a dip of 45° to 60° to the northeast.

MINERALISATION

Copper mineralisation in the Stanley mine is confined to a sporadic distribution of oxidised copper minerals (azurite and malachite), associated with goethite/limonite after pyrite, within small quartz veins. The principal lode has been exposed in the central portion of the mine workings. The vein does not outcrop but where observed in a shallow stope about 10ft. below surface it is lenticular and varies in thickness from 1ft. to 4ft., striking between 15° and 30° (Magnetic) and dipping at 20° to the southeast. The quartz is coarsely crystalline and the copper carbonates azurite and malachite are scattered as fine

encrustations and staining in small vughs and fractures. The highest assay obtained from this stope was 0.18 per cent copper over a width of 4ft.

The downward continuation of this vein was intersected in No. 1 adit where it has thinned to between 6ins. and 1ft., carrying a sporadic distribution of malachite in small fractures. The best assay in this locality was 0.48 per cent copper over a width of 1ft.

Examination of the accessible workings indicates that the main quartz vein is lenticular in habit, pinching out both to the northeast and southwest along the strike, and also down-dip. Although a little chalcopyrite was found in the dump material, none was observed in the accessible workings and it is most likely that most of the production from the mine was from small isolated rich pockets of oxidised ore in the quartz vein.

Small, thin (¼in. to 3in.) coarsely crystalline quartz veinlets branch off from the larger quartz vein, some of which contain a little unrecoverable malachite. They generally strike in an east-west direction, parallel to the well-developed joint direction, and often have coarsely crystalline pyrite (now altered to goethite/limonite) associated with them. There is no indication that these veinlets will improve in grade or width with depth.

The contacts of the quartz veins with the country rock are sharp and well defined. There is no apparent copper mineralisation in the dolomitic country rock.

MINE WORKINGS

Numerous shallow diggings provide evidence of the intensive surface and underground prospecting and mining carried out during the latter part of last century. Altogether, 14 vertical shafts varying in depth from 10ft. to 110ft. have been

recorded, in addition to a number of shallow trenches, pits and opencuts. Because most of the shafts have been partly or wholly filled with debris or broken rock the underground workings are no longer accessible and the two shafts mentioned by Brown (1899) could not be positively identified. In several of the surface workings the rocks have been coated with a crust of kunkar while others are filled with soil.

An old stope, about 10ft. below the surface and now in disrepair, was worked from a network of small interconnecting crosscuts and drives following the principal quartz vein over a distance of 180ft. along a bearing of 020°-030° (Magnetic).

Two adits not mentioned by Brown (1899) were probably cut at a later date by tributors in an attempt to exploit the mine. No. 1 adit, located on the north side of the creek, was driven into the hill on a bearing of 332° (Magnetic) for 104ft., intersecting the downward continuation of the principal quartz vein and several small quartz veinlets.

No. 2 adit, sited in section 1976 on the south side of the creek, was cut into the side of the hill for 156ft. on a bearing of 168° (Magnetic). Several thin barren quartz veinlets were intersected.

CONCLUSION AND RECOMMENDATIONS

The Stanley mine is located in the Blyth dolomite beds of the River Wakefield Group, near the crest of a domed structure plunging at a low angle southwards.

Copper mineralisation is confined to a sporadic distribution of malachite and azurite in one main quartz lode with a maximum thickness of 4ft., striking to 015°-030° (Magnetic) and dipping at 10° - 20° to the southeast. It appears that most of the production came from this vein. Small isolated rich pockets

of oxidised copper ore were extracted from a small stope 10ft. below the surface and were selectively hand-picked. However the quartz vein is lenticular in habit with a maximum length of 260ft. lensing out also down-dip. The prospects of further economic production from such a vein are remote. Further development of the mine would depend upon locating a separate lode.

No further work is recommended.

K.R. Warne
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METALLIC MINERALS SECTION

KRW:AGK:SMA
29.7.1966

BIBLIOGRAPHY

BROWN, H.Y.L., 1899. Stanley Mine, near Armagh. Rept. Dept. of Mines of S. Aust., Rpt.Bk. 1, pp. 987-988. (Unpub.)

FORBES, B.G., 1964. The River Wakefield Group west of Clare. Quart. geol. Notes, geol. Surv. S.Aust., 11, pp. 6-7.

THOMSON, B.P., COATS, R.P., MIRAMS, R.C., FORBES, B.G., DALGARNO, C.R., and JOHNSON, J.E., 1964. Precambrian Rock Groups in the Adelaide Geosyncline: A New Subdivision Quart. geol. Notes, geol. Surv. S.Aust. 9.

TODD, M.A., 1965. The Distribution of Eucalyptus Species in Portion of County Stanley, South Australia. Trans. R. Soc. S. Aust., 89, pp. 25-40.

WILSON, A.F., 1952. The Adelaide System as developed in the Riverton-Clare Region, northern Mount Lofty Ranges, South Australia. Trans. R. Soc. S. Aust., 75, pp. 131-149.

APPENDIX 1

AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

Petrological and Mineragraphic Reports

P.177/62. T.S. 9664 & 9665. P.S. 8639

Material from mine dumps.

The rock is composed of irregular broken fragments of haematite and quartz together with malachite which have been cemented together. Many of the larger haematite grains are in the process of altering to goethite which occurs round the edges, and along the fractures of the grains.

The cement is composed of heavily iron-stained calcareous material, either calcite or dolomite, together with extensive areas of goethite and earthy iron oxides. Copper sulphides are present, the main mineral being chalcopyrite, which shows alteration along the cleavage planes to covellite and neodigenite.

Other areas show that vein-quartz and malachite are the main constituents, together with minor amounts of azurite and chalcopyrite.

P.181/62 T.S. 9670

This is a fine to medium-grained marble which has been formed by the recrystallisation of a dolomite.

The main constituent is dolomite which represents about 98 per cent of the rock. The grains vary in size from 0.2mm to 0.01mm but the majority can be divided into two groups averaging 0.03mm and 0.08mm respectively. The grains are graded in size, bands of the smaller variety alternating with bands of the larger, possibly indicating current bedding; and a certain parallelism of both the grains within the bands and the bands themselves is indicated.

Anhedral grains of quartz up to 0.15mm, generally isolated but occasionally occurring in aligned groups; muscovite flakes up to 0.3mm in length; very rare grains of plagioclase and sphene are also present, none of which represents a significan proportion of the rock. Scattered particles of goethite, representing somewhat less than 1 per cent of the section are also seen and appear to constitute the only heavy mineral present.

Investigated by A. Weeks. AMDEL.

REPORT MP. 1378 - 65

SAMPLES FROM THE STANLEY MINE, 3½ MILES WEST OF CLARE

P.932/65; K.R.W. 5/65; T.S. 17077

Locality

At excavation by old ruin - Stanley mine area.

The rock is an isoclinally folded quartz-bearing dolomite. The rock is, for the most part, fine-grained and granular in texture. Coarse-grained recrystallised quartz and dolomite crystals are present in the rock but are confined to the cores of the folds. Detrital potassic and plagioclase feldspar grains as well as muscovite flakes and quartz grains are scattered throughout the rock. Overall, the non-carbonate detritus in the rock forms about 5 to 10 per cent of the sample. Both fine and coarse-grained muscovite is present along shears and fracture planes associated with the folding. Iron staining is also common along these fractures.

P. 933/65; K.R.W. 44/65; T.S. 17078

Locality

Vertical shaft at east end of mine area.

This rock is a dolomitised muscovite schist. It is difficult to say whether the strong schistosity, as seen in hand specimen and thin section, is related to tight isoclinal folding or not.

The major components of the rock are muscovite, quartz and dolomite in approximately equal proportions.

Subhedral opaque minerals with goethite rims form 1 to 2 per cent of the rock while feldspathic grains are present in accessory amounts only.

P.935/65; K.R.W. 46/65; T.S. 17079

Locality

South side of creek - Stanley mine area.

This is a quartz-bearing dolomite in which recrystallised quartz grains reach a maximum diameter of 0.60mm. The quartz usually occurs in mosaic segregations which are fairly evenly scattered throughout the rock. Nearly 25 per cent of the sample must be quartz. The dolomitic material is fine-grained and granular in texture. The rock is quite porous due to a large number of cavities which have been centres for growth of euhedral quartz crystals as well as places of deposition of secondary minerals. Linings in these cavities consist of opal, chalcedony and calcite. All three or various combinations of each are present in different places in the rock. The opal was deposited

first, followed by colloform bands of chalcedony. However, other examples are present where calcite was deposited before and after the chalcedony in the absence of opal.

Opaques from 1 to 2 per cent of the rock and minor yellow iron staining is pfesent in cracks and cavities.

P.936/65: K.R.W. 47/65. T.S. 17080

Locality

North side of creek - Stanley mine area.

This rock is a dolomite bearing quartzite. Approximately 30 to 40 per cent of the rock is dolomite while the remainder consists of quartz and chalcedony as well as minor calcite (5 per cent) crystals. The latter are scattered throughout the rock without any particular associations.

Only trace amounts of opaques are present and a little iron staining around the very few cavities and cracks is evident.

Chalcedony is not very common but it does occur as colloform banded linings in some of the cavities, sometimes completely filling the voids.

The majority of the grains,in the rock are equivalent to the fine sand size range although a number of dolomite grains are larger.

P.943/65: K.R.W. 42/65: T.S. 17124. P.S. 9201

Locality

Stope area, 10ft. below surface.

The chip samples in this specimen are for the most strained quartz mosaics with cavities and fractures lined with chalcedonic quartz. Sometimes minor amounts of iron oxides are present in these cavities but usually as discrete areas. The material appears to be mainly goethite with various textures. There is no indication of what minerals the goethite is pseudomorphing. No copper minerals were detected.

Mineragraphy by: R. Townend

Petrology and Report by: I.F. Scott

APPENDIX II

AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

Assays and Spectrographic Analyses

REPORT A.R. 1377/66

SAMPLE MARK	LOCATION		ANALYSIS % Copper Cu	SEMI-QUANTITATIVE SPECTROGRAPHIC ANALYSIS RESULTS IN P.P.M. Cobalt Co	Nickel Ni	Molybdenum Mo	Gold Au	Caesium Cs
A2578/65	No. 1 Adit	20' - 30'	0.060	8	8	4	* 3	* 300
A2580/65	"	50' - 60'	0.037	5	3	1	* 3	* 300
A2585/65	"	90' - 100'	0.076	4	1	* 1	* 3	* 300
A2589/65	No. 2 Adit	30' - 40'	0.012	4	6	4	* 3	* 300
A2591/65	"	50' - 60'	0.010	1	1	1	* 3	* 300
A2593/65	"	70' - 80'	0.070	40	8	5	* 3	* 300
A2599/65	No.1 Adit Quartz vein	(1')	0.480	12	1	* 1	* 3	* 300
A2603/65	No. 1 Adit Quartz vein	(6")	0.031	80	10	4	* 3	* 300
A2618/65	Stope Area. Quartz vein	(4')	0.184	150	250	5	* 3	* 300
A2621/65	Stope Area Quartz vein	(2')	0.005	5	8	4	* 3	* 300

* = Less than

Chemical Analysis by: A. Hodges

Spectrographic Analysis by:
N.V. Johnston.

M N

Soil Cover

Qtz float

Scattered Outcrop

Soil Cover

Soil Cover

Quartz float

Scattered Outcrop

1976

1977

1972

Vertical Shaft

Vertical Shaft Depth 60'

Vertical Shaft depth unknown

Vertical Shaft Depth

Adit

Pit

Trench

Track

White Qtz

LEGEND

PROTEROZOIC
RIVER WAKEFIELD GROUP
BLYTH DOLOMITE BEDS

- Soil
- Alluvium
- Flaggy Dolomite
- Siliceous Dolomite
- Banded Dolomite
- Dolomitised Muscovite Schist
- Quartz
- Trend of principal Quartz lode
- Rock outcrop
- Limit of outcrop
- Faults
- Plunge of minor fold
- Bedding
  - Inclined
  - Horizontal
  - Trend of bedding
- Cleavage
  - Inclined
  - Vertical
- Joints
  - Inclined
  - Vertical
- Schistosity
- Shaft
- Pit
- Adit
- Trench
- Underground Workings
- Quarry
- Dump
- Ruins
- Creek
- Contour (10 ft intervals)
- Survey station
- Track

SCALE

FEET 40 20 0 40 60 120 160 200 FEET

DEPARTMENT OF MINES — SOUTH AUSTRALIA

STANLEY MINE AREA
PT SECTION 1977 HD CLARE
GEOLOGICAL PLAN SHOWING LOCATION OF MINE OPENINGS

		Drn. K.W.	SCALE: As Shown
		Tod. R.H.	66-564
		Chd. L.V.W.	Gd 11
Director of Mines		Esd.	DATE: 5-8-68

FIGURE 1. GEOLOGICAL PLAN SHOWING LOCATION OF MINE OPENINGS
STANLEY MINE AREA
HD. SECTION 1977 HD CLARE

R. 125

M N

SEE ENLARGEMENT

1976

1977

1972

Qtz. Float

Soil

Cover

White Qtz.

Adit

Vertical Shaft
Depth Unknown

Creek

Scattered outcrop

Ruin

Pit 6ft.

Vertical Shaft
Depth 60ft.

Adit No. 2

Qtz. Float

Scattered outcrop

K. R. Warne Geologist

SCALE

FEET 50 0 50 100 150 200 FEET

SCALE IN FEET

SCALE IN METRES

66-564

66-564/4

S.A. Dept. of Mines

LEGEND

Soil

Alluvium

Flaggy Dolomite

Siliceous Dolomite

Banded Dolomite

Dolomitised Muscovite Schist

Quartz

PROTEROZOIC
RIVER WAKEFIELD GROUP
BLYTH DOLOMITE BEDS

Trend of principal Quartz lode

Rock outcrop

Limit of outcrop

Faults

Plunge of minor fold

Bedding
- Inclined
- Horizontal
- Trend of bedding

Cleavage
- Inclined
- Vertical

Joints
- Inclined
- Vertical

Schistosity

Shaft

Pit

Adit

Trench

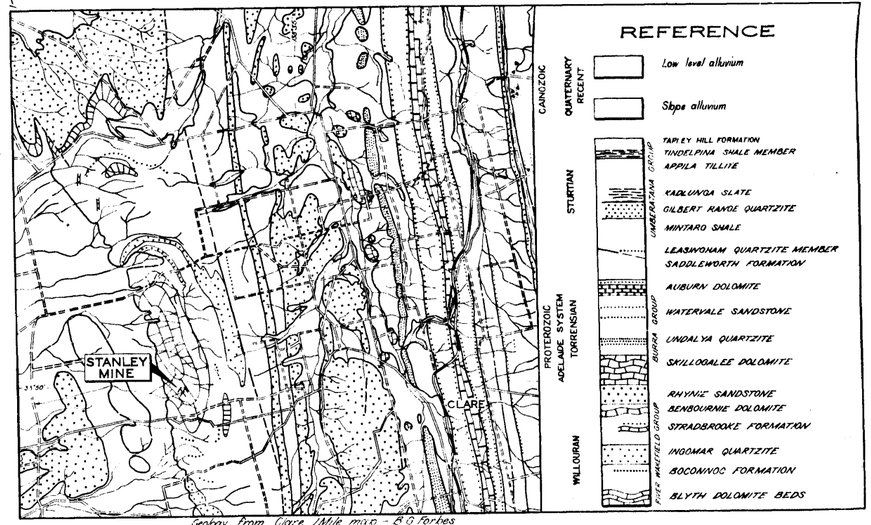
Underground Workings

Contour (10ft. intervals)
Arbitrary Datum

Reduce to 6"

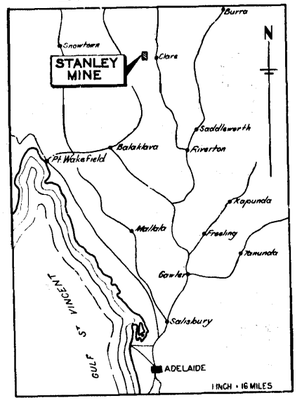
1972 0 3708

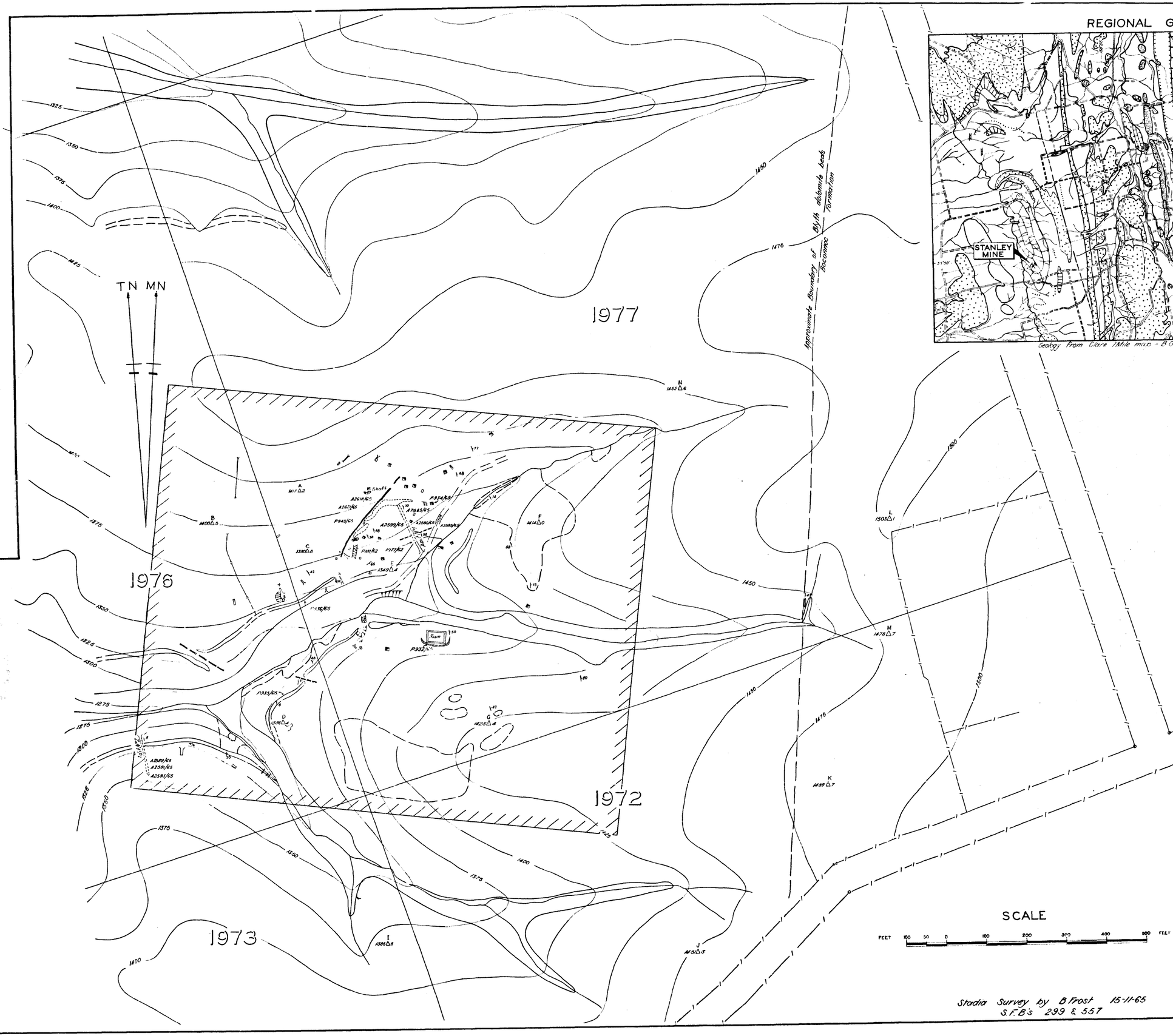
REGIONAL GEOLOGICAL MAP



Geology from Clare 1 Mile map - B.O. Forbes

LOCALITY PLAN





LEGEND

CAINOZOIC
RECENT
Alluvium

PROTEROZOIC
RIVER WAKEFIELD GROUP
Boconnoc formation
Blyth dolomite beds
Trend of quartz vein
Assay sample — A2578/K5
Petrological or mineragraphic sample — P938/K5

SCALE

FEET 100 50 0 100 200 300 400 800 FEET

Stadia Survey by B Frost 15-11-65
S.F.Bs 299 & 557

DEPARTMENT OF MINES — SOUTH AUSTRALIA

STANLEY COPPER MINE
SECTION 1977 HD. CLARE
GEOLOGICAL PLAN SHOWING MINE AREA AND SAMPLE LOCATIONS

	Drn. K.R.H.	SCALE: 1 inch = 100 feet
	Tcd. R.H.	66-563 Gd 11
Director of Mines	Chd. L.V.W.	
	Exd.	DATE: 5-8-66