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COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS

RECORDS:

1965/6



RUM JUNGLE GEOCHEMICAL SURVEY - 1963
THE MOUNT BURTON MINE - NORTH MOUNT FITCH PROSPECT AREA.

by

P.W.Pritchard and D.J.French

The information contained in this report has been obtained by the Department of National Development, as part of the policy of the Commonwealth Government, to assist in the exploration and development of mineral resources. It may not be published in any form or used in a company prospectus without the permission in writing of the Director, Bureau of Mineral Resources, Geology and Geophysics.

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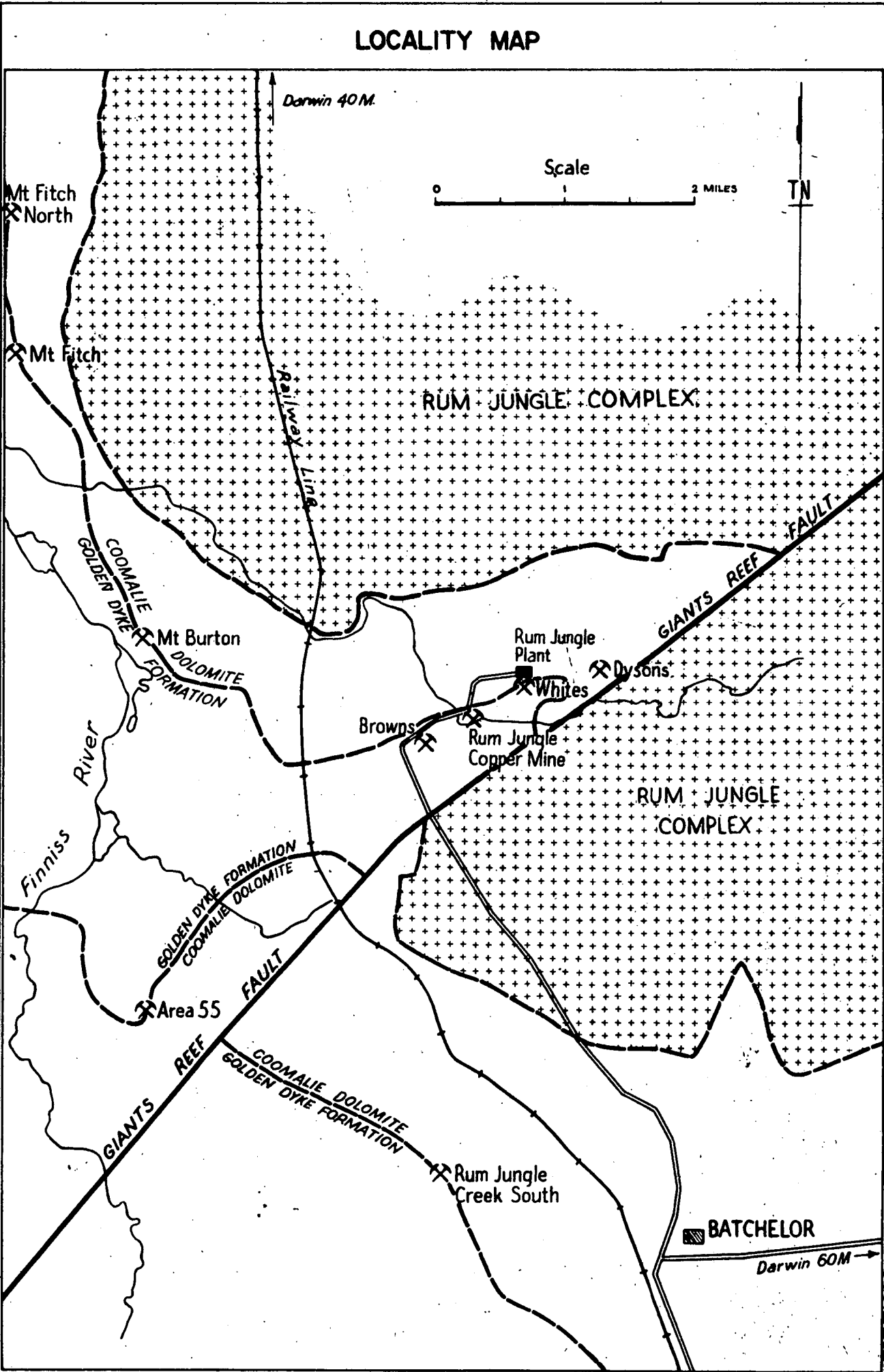
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Bureau of Mineral Resources, Geology and Geophysics, Sept. 1964

To accompany Record 1965/6

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RUM JUNGLE GEOCHEMICAL SURVEY - 1963

THE MOUNT BURTON MINE - NORTH MT. FITCH PROSPECT AREA

SUMMARY

The geology of the area between Mount Burton Mine and the North Mount Fitch Prospect was mapped to provide information for the interpretation of the 1963 geochemical prospecting results.

Within this area a basement of Rum Jungle Complex granite and gneiss is overlain by a metamorphosed superstructure of Lower Proterozoic sandstone, shale and carbonate shelf sediments.

The Rum Jungle Complex has been subjected to three deformations, first of these formed an east-west foliation; the second has formed a cleavage striking at 315° to 350° and the third has produced folding and faulting parallel to the Giants Reef fault. The younger Lower Proterozoic metasediments have been subjected to only the last two of these deformations.

Copper, lead, uranium, cobalt and nickel mineralization occurs in the Golden Dyke Formation and the Coomalie Dolomite. It is thought to be syngenetic mineralization concentrated during the subsequent folding.

Fourteen base metal geochemical anomalies, all associated with radiometric anomalies occur in the Mount Burton Opencut - North Mount Fitch Prospect area.

They occur in the Coomalie Dolomite and the Golden Dyke Formation either along or near the contact between the two formations.

The largest anomalies occur in the Coomalie Dolomite and these have been tested by diamond drilling. Some of the smaller anomalies along the Golden Dyke Formation/Coomalie Dolomite contact have been tested as radiometric prospects. One of the larger anomalies in this stratigraphic position should be further examined as a test case to decide the follow up work needed on the other anomalies.

A number of copper anomalies at Mount Fitch Prospect was tested with ten diamond and nine rotary drill holes. These indicated that the primary copper mineralization probably occurs as shallow pitching lenses, and that 100,000 tons of 2% supergene copper mineralization may be present in the weathered Coomalie Dolomite in the Tamblyn's Shaft area.

Further diamond drilling will be needed to complete the examination of this prospect.

INTRODUCTION

In 1963 a detailed geological mapping, geochemical sampling and diamond drilling in the Mount Burton Mine - North Mount Fitch Prospect area, was carried out as part of a Special Mineral Survey Programme to examine selected mineral prospects in the Northern Territory.

The Mount Fitch uranium and base metal prospect, four to five miles north-west of the Rum Jungle Treatment Plant, has been known as a copper prospect since the end of the 19th Century, when the shallow Tamblyn's shaft was sunk. In 1952 Wood and McCarthy showed that the area around the shaft is the site of a first order airborne radiometric anomaly, and in 1958 a geochemical survey by Haldane and Debnam (1959) for lead and copper outlined an elongated copper anomaly which extends on either side of the prospect over a total length of more than 4,000 feet.

In 1950 Ward and Gates discovered uranium near Tamblyn's Shaft and tested this mineralization by costeans, two shallow shafts (B.M.R. 1 and 2) and three diamond drill holes (F.D.A., F.D.B., and F.B.C.), (Ward, 1953). Later Territory Enterprises Pty. Limited continued the testing of the prospect by costeaning and by drilling four diamond drill holes (DD.146, DD.158, DD.339, and DD.340) and numerous rotary churn and waggon drill holes.

Messrs P.Pritchard, D. French, and A. Mather participated in the survey.

Table 1

STRATIGRAPHY

NORTH MOUNT FITCH PROSPECT TO MOUNT BURTON MINE

Age	Formation	Lithology	Sedimentary Environment	Economic Potential
Recent	Alluvium, laterite, and gravels. Continental			?
Unconformity				
Intrusives	Dolerite and basic rocks, "revived" granite.	Grey medium grained, and pink aplitic granite.		Pyrrhotite, pyrite, quartz tourmaline mineral association.
	Burrel Creek Formation.	Ferruginous metamorphosed greywacke and shale.	Basin facies	
	Golden Dyke Formation.	Carbonaceous schist; quartz sericite schist; cherty near the base.	Shelf facies	Co, Cu, Ni, V, U, Pb, Zn, Fe, S.
Lower	Acacia Gap Tongue	Quartzite, carbonaceous schist.		Pyrite
	Coomalie Dolomite	This is a variable usually arenaceous, succession of dolomite; and talc, tremolite, and Kaolin schist.		Cu, Co, Ni, Pb, Zn, Fe, P.
Proterozoic	Crater Formation	Arkose, quartzite and "boulder" conglomerate.		Au, Th.
	Beestons Formation	Feldspathic, quartzite, crossbedded.	?Continental	
Unconformity				
Archean.	Porphyritic* granite	Feldspathised halo surrounding late Granite.		
	Late granite	Grey to pink, fine to coarse grained, massive granite.		
	Gneissic or older early granite	Granitised sediments.		Cu.

GEOLOGY

INTRODUCTION

The geology of the area between the Mount Burton Mine, three miles west of the Rum Jungle Treatment Plant, and the North Mount Fitch Prospect was mapped, by D.J. French, at a scale of 100 feet to one inch as part of the Bureau of Mineral Resources (B.M.R.) 1963 geochemical prospecting programme in the Rum Jungle area.

PHYSIOGRAPHY

The most prominent physiographic feature in the area is the long ridge of Acacia Gap quartzite extending from Mount Fitch to Mount Burton. It is flanked by smaller discontinuous ridges of Beestons, Crater and Golden Dyke rocks.

The largest drainage features are the Finniss River on the western side of the area, and the East Finniss River which runs from east to west across the middle of the area. Small perennial creeks are found at Mount Burton Open Cut; joining the East Finniss; and at Mount Fitch North. All have their sources in springs in the Coomalie Dolomite. The small intermittent drainage feature at the Mount Fitch Prospect is believed to be a fault trace.

The East Finniss is polluted by mine effluent, but the other creeks and billabongs contain potable water throughout the year.

The area is well served by dry weather tracks and by one all weather track from the Rum Jungle Treatment Plant.

The Darwin Railway line lies 1 to 2 miles east of the area.

STRATIGRAPHY

Strongly folded Lower Proterozoic metasediments overlie an older crystalline basement (the Rum Jungle Complex) and, in turn, are overlain by Tertiary to Recent sand and laterite (Table 1).

Rum Jungle Complex

The complex has been mapped by Rhodes (1964). It consists of:

Early or gneissic granite. A variable unit composed of granitised Archaean sediments.

Late granite. A pink to grey, medium to coarse-grained, homogeneous, well jointed granite with tourmaline "sunbursts" on the joint planes. This granite is the commonest in the Mount Fitch - Mount Burton area. It weathers to small, rounded domes or knolls of exfoliated boulders. Pegmatites a few inches thick parallel (as do the granite pods) the 310-350° foliation developed within it.

Near the Mount Fitch Copper Prospect a fresh, massive, grey, medium-grained granite intrudes (see Fig.2) arkosic sediments. Tourmaline quartz lenses out the granite.

This intrusive granite appears to be a remobilized portion of the "late granite", or a granitised variant of the Crater Formation. It partially predates the tourmaline which occurs as inclusions within it and as "sunbursts" on joint planes.

Porphyritic granite. This occurs as a feldspathised margin to the late granite where the latter is adjacent to the gneissic granite.

Lower Proterozoic Metasediments

A folded sequence of shelf deposits overlain by basin deposits unconformably overlies the Rum Jungle Complex. The stratigraphic units within this sequence have been defined by Malone (1962). The sequence is:

1. Beestons Formation. Beestons Formation is the basal unit in the north part of the area between Mount Fitch and Mount Fitch North, and is mainly crossbedded feldspathic quartzite and arkosic schist. The cross bedding indicates that the source area of the sediments was either to the north or the south.
2. Crater Formation. The Crater Formation is the basal unit in the southern part of the area, and is an arkosic formation containing quartzite bands. "Hematite boulder conglomerate" is common near its base. No granite pebbles have been found in the conglomerate and there is no known source area for the chert "boulders". The conglomerate may be a sheared ferruginous mudstone with chert interbands. In the southern part of the area pink marly quartzite becomes more shaley and is a ferruginous sericitic quartz schist.

Quartz-tourmaline lenses are found paralleling the 310°-350° foliation throughout the formation.

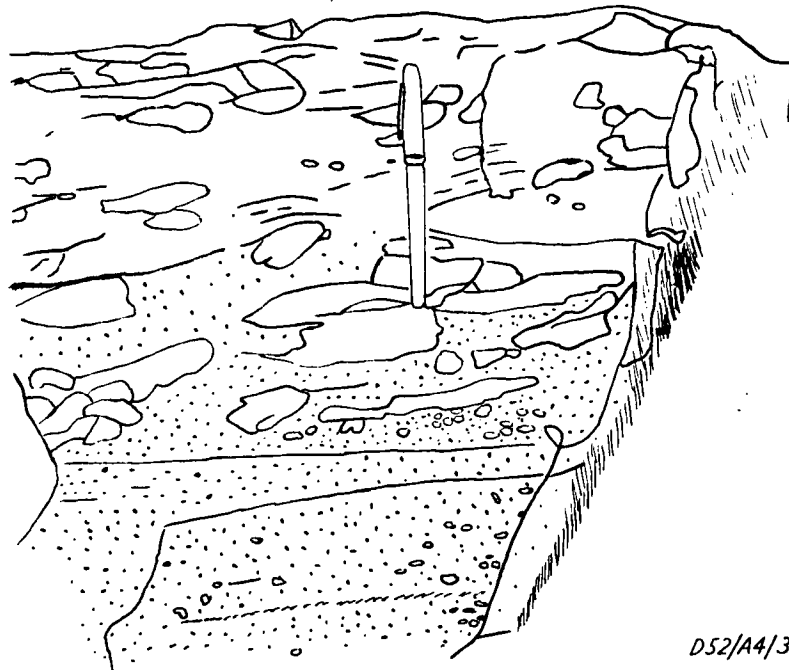
3. Coomalie Dolomite. This formation overlies the Crater and the Beestons Formation, and although it is referred to as a dolomite, crystalline dolomite is rare in outcrop and is found only at the Mount Fitch Prospect: opposite Mount Burton Beacon, not far from the Crater boundary; and at Mount Fitch North. Tremolite is abundant at Mount Burton and between Mount Fitch and Mount Fitch North.

Outcrop in the Mount Fitch - Mount Burton area indicates that the formation is essentially an arenaceous one. Quartz-kaolin schist is found south of the Mount Fitch Copper Prospect and forms most of the outcrop at Mount Fitch North and along the Crater Formation boundary near Mount Burton. From Mount Burton Open Cut to the Mount Burton beacon an arenaceous partly conglomeratic lens is found within the tremolitic part of the succession. Calcareous, silicified and, in places, brecciated quartzite occurs near the Crater boundary opposite the Mount Burton Beacon, and quartzite breccia occurs opposite the Mount Fitch Beacon.

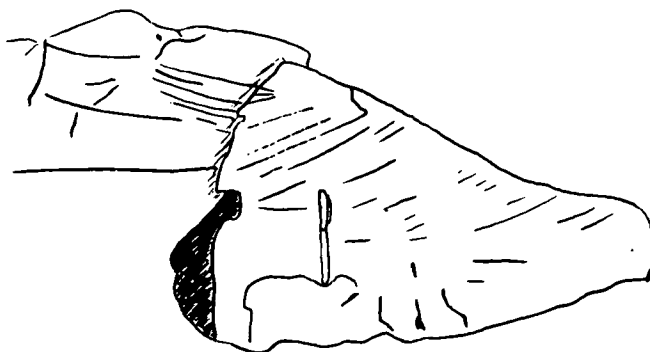
4. Masson Formation, Acacia Gap Tongue. Interbedded quartzite and carbonaceous schist mapped as part of the Acacia Gap Tongue (Malone 1962) is exposed at the Mount Burton Mine. It lenses out to the north before reaching the Mount Fitch Prospect.

Figure 2.

STRUCTURES IN THE CRATER AND BEESTONS FORMATIONS



- a) Crater formation boulder conglomerate at the top grading down into arkose. Near Mount Fitch Beacon.



- b) Cross bedded feldspathic quartzite in the Beestons Formation. Locality 462N 134E.

5. Golden Dyke Formation. This formation overlies the Coomalie Dolomite and the Acacia Gap Tongue and consists of grey carbonaceous schist; grey carbonaceous quartz sericite schist; blue-white cherty carbonaceous schist; and white chert.

Along its contact with the Acacia Gap Tongue north of Mount Burton Mine it is a black carbonaceous schist but at the Mount Fitch Prospect it consists of

- (1) blue-white, carbonaceous, cherty schist; and carbonaceous quartz-sericite schist which may be the lateral equivalent of the Acacia Gap Tongue overlain by
- (2) carbonaceous schist.

These units are traceable from the Mount Fitch Prospect northwards to the edge of the area.

Intrusives

(1) Aplitic granite

In addition to the "revived" granite described in the section on the Rum Jungle Complex, a fresh massive pink aplitic granite which contains inclusions of porphyritic granite crops out along the north bank of the East Finnis River between 348.75N/145E and 348.75N/160E, where it is adjacent to a quartz filled fault of Giants Reef age. The granite surrounding the aplitic granite is sheared and weathered whereas the aplitic granite is neither and is therefore thought to be younger than the "revived" granite.

(2) Dolerite

Dolerite boulders are found in various parts of the area. They are very common down the west side of the Acacia Gap ridge and some occur on the northern most ridge near the Mount Fitch Prospect.

(3) ?Basic Intrusive

An intensely weathered "basic" rock occurs at the north-western edge of the Mount Burton - Mount Fitch ridge.

Recent Sediments

Much of the outcrop of the Precambrian rocks is covered by Recent and ?Tertiary sand and laterite.

STRUCTURE

The Mount Burton - Mount Fitch area is part of the shelf of the Pine Creek Geosyncline and has been subjected to three foldings (Williams, pers.comm.).

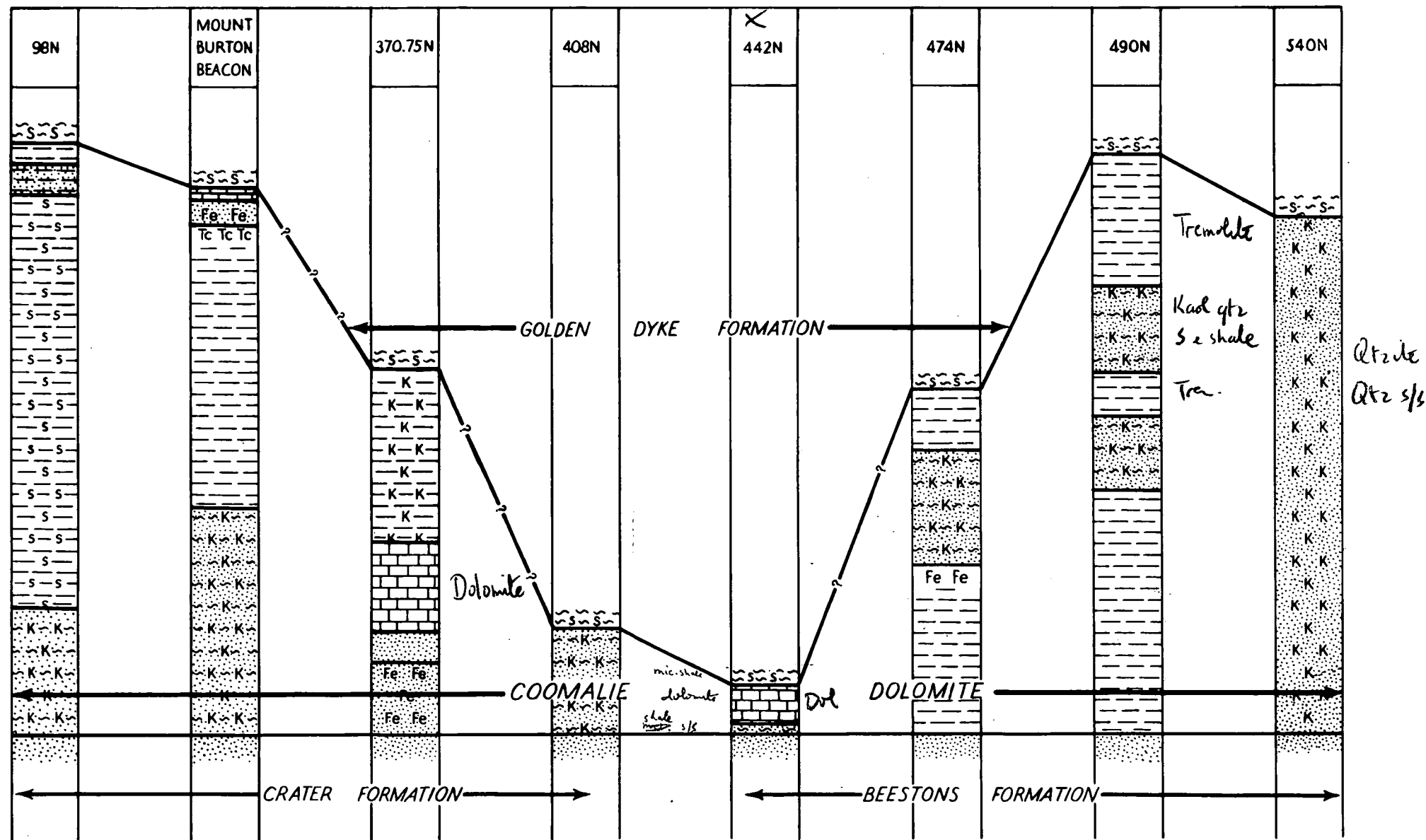
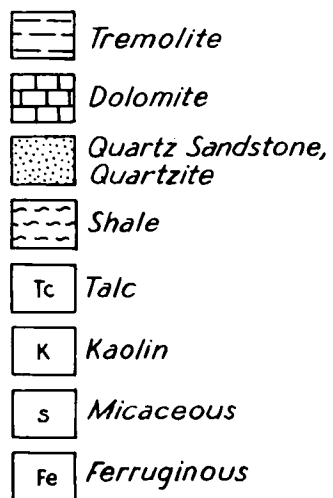
(1) The oldest folding (F_1) has produced an east-west cleavage in the granite near the Rum Jungle Mine and in the lowest of the Lower Proterozoic rock units.

(2) The second folding (F_2) has developed a cleavage which strikes from 315°-355° and dips at about 70° to the west. This cleavage is the predominant foliation visible in the Mount Fitch Prospect area and has frequently been mapped as bedding which it usually parallels. The F_2 folding is characterised by small scale isoclinal folds and the development of

Rum Jungle Survey, 1963

Northings

Vertical
Scale: 1"=500'
(1:6000)

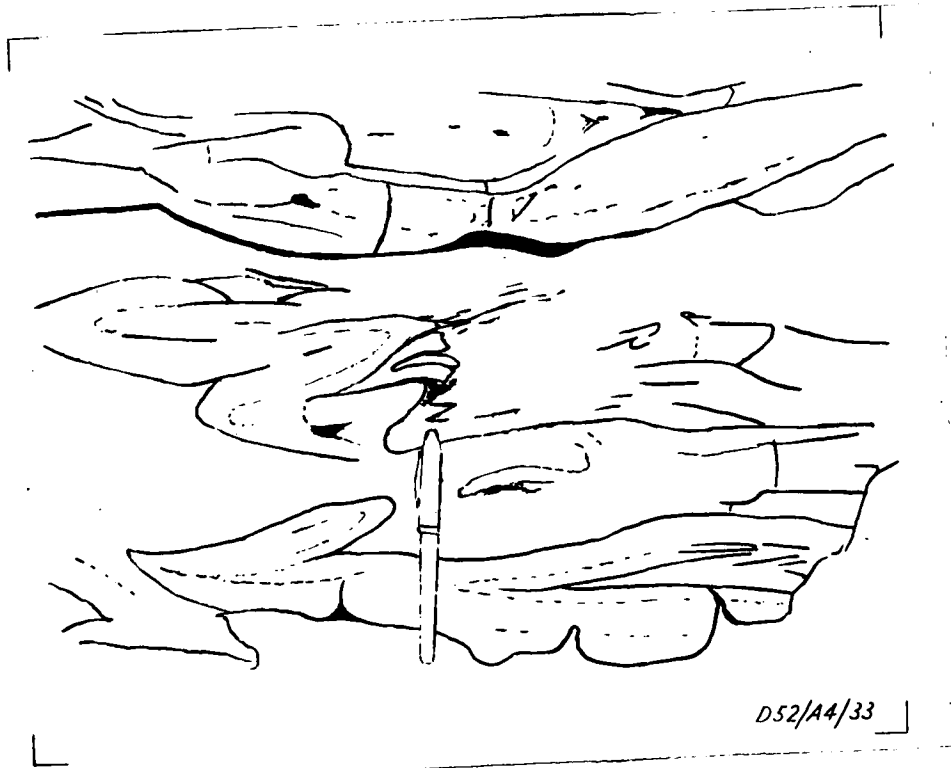


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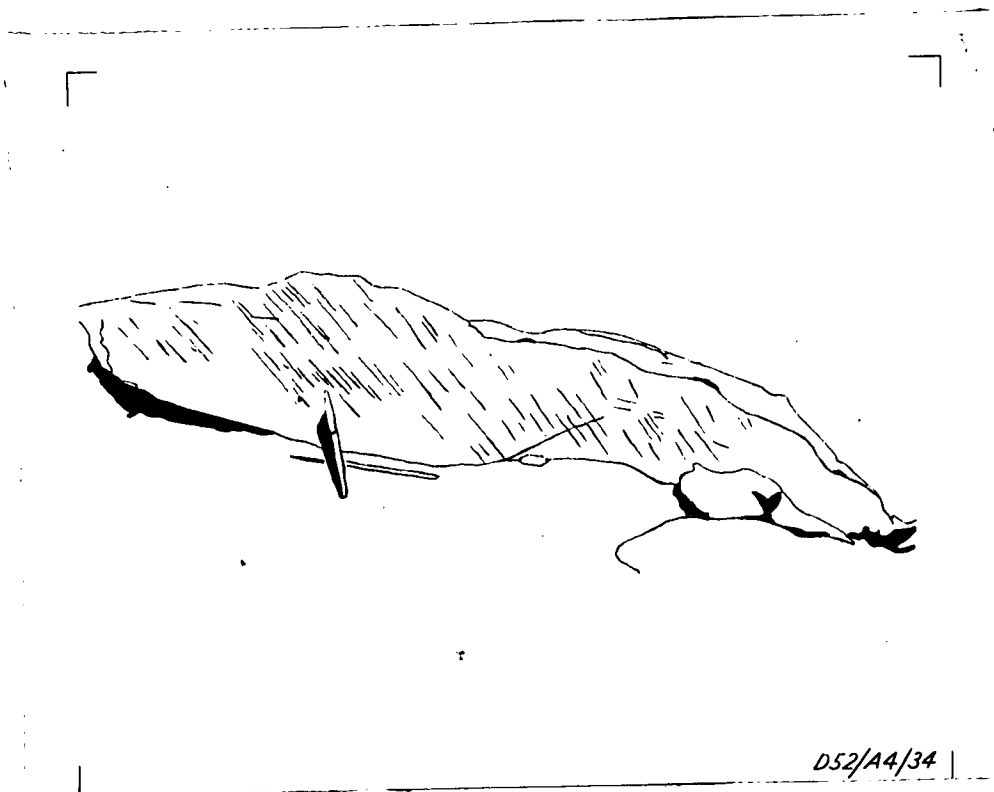
Fig.3- Lithological variations in Coomalie Dolomite

Figure 4.

THE STYLE OF DEFORMATION OF THE PRECAMBRIAN ROCKS

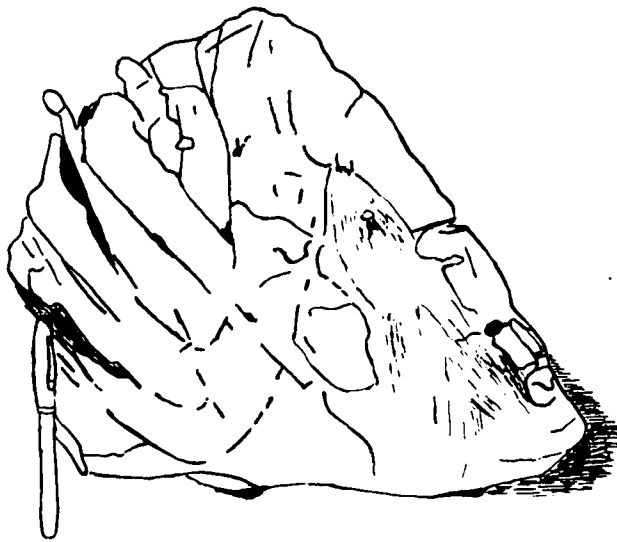


- a) Two cleavages produced by the F_1 and F_2 folding. Location 414N, 143E. Left to right cleavage strikes at 160° and dips at $67^\circ W$, diagonal cleavage strikes at 50° and is vertical.



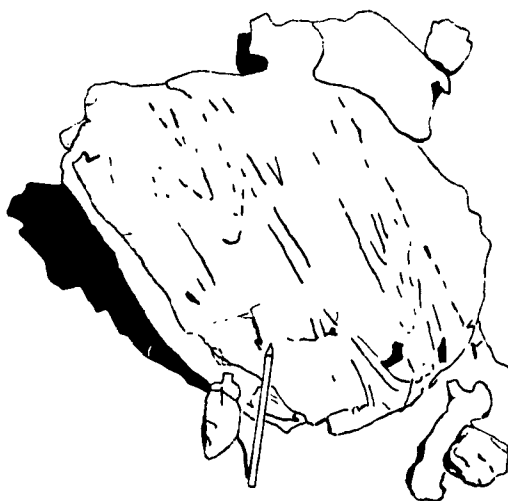
- b) Tectonic fish and boudins in pink marly quartzite of the Crater Formation. Near the Mount Fitch Copper Prospect.

Fig 4.



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- c) Fold in pink marly quartzite of the Crater Formation near the Mount Fitch Copper Prospect.



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- d) Folding in quartzite of the Crater Formation near the East Finniss River.

of breccias. Williams attributes the duplication of the quartzite ridges near the Mount Burton Beacon to isoclinal folding.

(3) The third "Giants Reef" folding (F_3) is about an axis which strikes at roughly 60° . Most of the faulting in the Mount Burton to Mount Fitch North area is associated with this folding. These faults often occur where one facies grades into another. The best example is the faulting at the northern end of the Acacia Gap ridge.

The "Mount Fitch Fault" depicted on the Rum Jungle special map is believed to be an anticlinal shear on or parallel to the crest of a anticlinal fold formed by the F_2 folding. It was found to continue along strike for only a very short distance, and does not appear to extend much beyond the area mapped in 1963.

ECONOMIC GEOLOGY

In the Mount Fitch area mineralization occurs in Golden Dyke Formation and Coomalie Dolomite. The primary minerals in the area are pyrite, chalcopyrite, ?linnaeite, and ?pitchblende. The secondary minerals are malachite, azurite, chalcocite, torbernite and autunite.

GEOLOGICAL HISTORY

A study of the geological history in the Mount Fitch area suggests that part of the Rum Jungle Complex and adjacent sediments were remobilised and that this metamorphism could have played a part in concentrating mineral deposits in favourable structural and sedimentary environments.

Peneplanation followed and a succession of thin sedimentary horizons were probably deposited and re-eroded. No evidence remains of any extensive post Lower Proterozoic sedimentation, in the Mount Burton - Mount Fitch area.

The present geomorphological stage of development is the initial dissection of an uplifted peneplain.

GEOCHEMISTRY

INTRODUCTION

During the 1963 field season geochemical prospecting was carried out over the Mount Fitch Prospect, Mount Burton Open Cut area in order to define the geochemical copper anomalies found by Haldane and Debnam (1959) both at the Mount Fitch Prospect and near the Mount Burton Open Cut, and to prospect the meta-sediments along the Golden Dyke Formation/Coomalie Dolomite contact in the rest of the area. D.J. French and P.W. Pritchard and A.L. Mather participated in the work.

AUGER DRILLING

The auger drilling was carried out by three drilling contractors and supplemented by the Bureau of Mineral Resources Gemcodrill.

Table 2.

AUGER DRILLING - Footage and cost.

Driller	Footage	Cost per foot
B.M.R.	2,960	-
Atlantic Drillers	8,000	6/-
	14,209	5/6
	108	6
Geotechnical and Engineering Services Ltd.	456	3/4
Associated Diamond Drillers	699	6/6

The drilling was started at the Mount Fitch Prospect where holes were drilled on a 300 x 200 foot grid which was closed up over the anomaly to 200 x 50 foot and 100 x 50 foot grids. Over the rest of the area holes were drilled on 200 x 200 foot centres. The anomaly near Mount Burton was drilled on 100 x 200 foot centres.

Most of the holes on the 200 x 200 foot grid were drilled into weathered rock to a depth between ten and twenty feet. Holes in the anomalous areas were drilled as deep as possible and are up to 100 feet deep.

SAMPLING

In all cases two samples were collected, one from the bottom of the hole and a composite sample of all the weathered rock penetrated. In the anomalous areas the holes were also sampled over intervals of not more than twelve feet.

ASSAYING

All the weathered rock samples and some of the bottom hole and some of the interval samples were spectrographically assayed for copper, cobalt, nickel, lead, molybdenum and vanadium by E. J. Howard and A.D. Haldane. Those results are reported in Kousal (1964) and Morgan (1963).

GEOCHEMICAL ANOMALIES

The geochemical copper, cobalt, nickel and lead anomalies are shown on Plate 1. The significant contours used to outline the anomalous areas were obtained from the cumulative frequency diagrams in figure 5. They are listed in Table 3.

MT FITCH ASSAYS OF WEATHERED BEDROCK

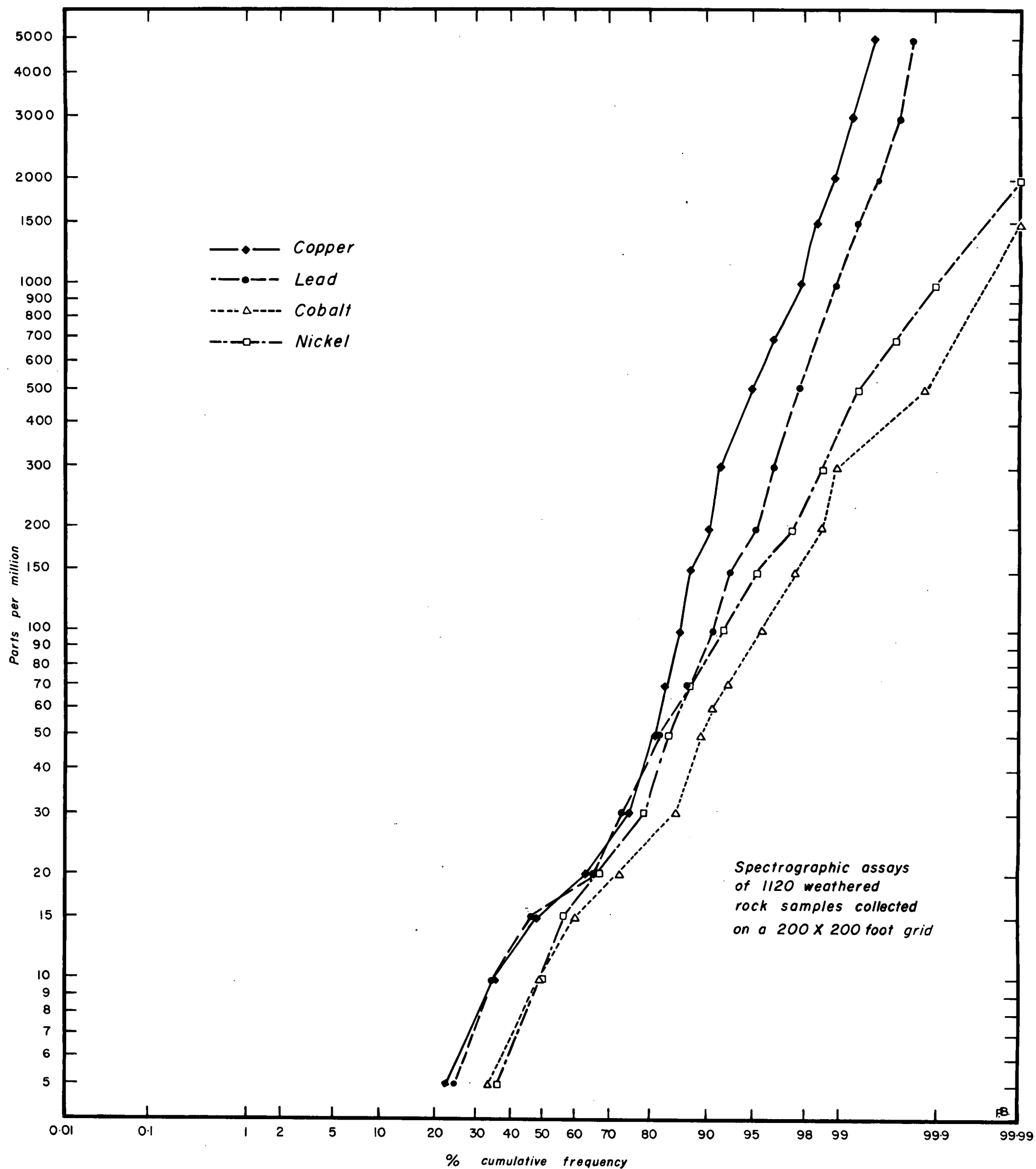


Table 3

SIGNIFICANT GEOCHEMICAL CONTOURS

Element	Contour values (p.p.m.)
Copper	50,300
Cobalt	50
Nickel	30,200
Lead	20,200

CONCLUSION

Fourteen base metal geochemical anomalies, each associated with a radiometric anomaly, have been outlined (Plate 3) in the metasediments near the Golden Dyke Formation, Coomalie Dolomite contact.

The peaks of the most extensive anomalies, namely the Mount Fitch Prospect anomaly (number 11) and the anomaly north of the Mount Burton Open Cut (number 13), occur in the Coomalie Dolomite but extend into the Golden Dyke Formation. Both were outlined by the Haldane and Debnam (1959) survey and have been diamond drilled with discouraging results. Unless further testing of these two anomalies proves the presence of economic mineralization it seems unlikely that the other anomalies over the Coomalie Dolomite reflect substantial mineralization at depth.

Smaller anomalies occur along the Coomalie Dolomite/Golden Dyke Formation contact and in the Golden Dyke Formation. Some have been tested as radiometric prospects but the largest (No.3) should be chosen as a test case and should be mapped in detail and further tested by geochemical sampling methods to determine if diamond drilling is warranted.

If this proves anomaly 3 to overlie an orebody the other anomalies in the Golden Dyke Formation and on the contact of this formation and the Coomalie Dolomite should be examined in the same way.

DIAMOND DRILLINGINTRODUCTION

The Mount Fitch uranium and base metal prospect 4.5 miles north-west of the Rum Jungle Treatment Plant has been known as a copper prospect since the end of the 19th century, when the shallow Tamblyn's shaft was sunk. In 1952 Wood and McCarthy (1952) showed that the area around the shaft is the site of a first order airborne radiometric anomaly, and in 1958 a geochemical survey by Haldane and Debnam (1959) for lead and copper outlined a elongated copper anomaly which extends on either side of the prospect over a total length of more than 4000 feet.

In 1950 Ward and Gates discovered uranium near Tambllyn's Shaft and tested this mineralization by costeans, two shallow shafts (B.M.R. 1 and 2) and three diamond drill holes (FDA, FDB, and FBC) (Ward 1953). Later Territory Enterprises Pty Ltd continued the testing of the prospect by costeaming and by drilling four diamond drill holes (DD146, DD158, DD339 and DD340) and numerous rotary, churn and waggon drill holes. This company concluded that 'there is no economic uranium' orebody present (Mellor, 1960).

In 1963 the Mount Fitch Prospect was included in the area subjected to a detailed geochemical auger drill survey and ten diamond and nine rotary drill holes were used to examine the copper mineralization. The results of the diamond and rotary drilling are the subject of this report and has been compiled by P.W. Pritchard and D.J. French.

STRATIGRAPHY

The Mount Fitch Prospect straddles the Coomalie Dolomite/Golden Dyke Formation contact (Table 4).

Table 4

STRATIGRAPHY - MOUNT FITCH PROSPECT

Age	Rock Unit	Lithology	Comments
Quaternary		Sand, ferricrete	The edge of deposits on an older land surface preserved north of the prospect.
Lower Proterozoic	Golden Dyke Formation	Carbonaceous $\pm$ pyritic schist; cherty carbonaceous schist; sericitic schist; chert.	?Facies change from south to north of carbonaceous pyritic schist into cherty carbonaceous schist and sericite schist.
	Acacia Gap Tongue	Interbedded quartzite, (pyritic in places) sericitic schist, and carbonaceous schist.	Lenses out from north to south, south of the prospect.
	Coomalie Dolomite	Limestone; dolomitic, ferroan, manganeseiferous	Usually recrystallised, brecciated in many places.
	Crater Formation	Quartzite; arkosic quartzite; ferruginous mudstone with chert bands and balls (hematite boulder conglomerate).	
	Beestons Formation	Arkose; quartzite; conglomerate.	
?Archaean	Rum Jungle Granite Complex	Granite, gneiss	Basement to the overlying Lower Proterozoic rocks.

The prospect lies in a peculiar stratigraphic and structural position where

1. the Crater Formation quartzite and "hematite boulder conglomerate" pass northwards into the Beeston Formation arkosic rocks.
2. The Celia Dolomite is absent.
3. The Coomalie Dolomite appears to change from a relatively thin unit containing rocks similar to the quartz hematite breccia of Castlemaine Hill and the Embayment Area, to a thicker unit containing sandstone lenses near the top.
4. The Acacia Gap Tongue of the Masson Formation lenses out south of the prospect.
5. The graphitic and in places pyritic schist, (known in other parts of the Rum Jungle areas as the conducting horizon) near the base of the Golden Dyke Formation appears to pass northwards into cherty carbonaceous schist.
6. The edge of the granite has an angular, rather than a smooth bend in it.

The relationships of the Crater Formation and the Beestons Formation and the absence of the Celia Dolomite might be explained by the presence of two unconformities within the sequence one at the base of the Crater Formation and the other at the base of the Coomalie Dolomite) and by the overlap of these formations over the older sediments, but this remains an untested hypothesis. No explanation is available for the apparent facies changes in the Coomalie Dolomite, the Acacia Gap Tongue and the Golden Dyke Formation.

Most of the diamond and rotary/percussion drilling was in the Coomalie Dolomite; Two lithologies predominate in the diamond drill hole intersections of this unit.

1. White and pale green, medium to coarsely crystalline carbonate. Some blue-grey limestone, minor lilac carbonate which weathers brown and patches containing black fragments. Vughy with well developed calcite crystals in the vughs. Abundant stylolites which are usually lined with a soft, green mineral or a soft, grey, flakey mineral. Scattered flakes of pyrite and rarely chalcopyrite occur.
2. Green limestone, ?chloritic, commonly brecciated. Bands containing grey schist fragments are common. The highest grade copper intersections are in this unit and it is more radioactive than type 2.

Minor sandstone lenses were intersected by the drill holes. The outcrops north of the prospect indicate that sandstone forms a larger part of the unit in this direction.

STRUCTURE

The Lower Proterozoic metasediments have been folded about at least three fold axes. The first folding has produced an east-west foliation, the second a foliation striking between 315° and 350° and the third has produced folds and faults parallel to the Giants Reef Fault.

The predominant foliation in the clastic parts of the sequence is a tectonic surface related to the second of the deformations. Most of it parallels the boundaries of the rock units and it is deformed bedding. Much of it is tightly folded and where the original lithology consisted of hard and soft bands, many of the harder bands have brecciated during the folding.

The only detailed structural information is the mapping of Territory Enterprises Pty Ltd (Mellor, 1961) and in the central western part of the area, where the Golden Dyke is tightly folded about north trending axial surfaces.

Some of the lineations in the metasediments dip away from the granite boundary and the overall structure of the basement suggests that it is a mantled gneiss dome.

On a broader scale the Lower Proterozoic metasediments dip westwards at about 50° off the granitic and gneissic Rum Jungle Complex. They appear to be dislocated by a shear zone trending north-west through the centre of the prospect area. This structure may be the sheared limit of an overturned anticline about a fold axis with an unknown westerly plunge.

Faults trending north-east, parallel to the Giants Reef Fault occur in the area.

MINERALIZATION

The 1000 and 5000 p.p.m. copper contour based on spectrograph assays of bottom hole samples is shown on Plate 3. Cobalt and nickel anomalies occur in similar areas to the copper anomaly.

Visible copper mineralization crops out near Tamblyn's Shaft where malachite occurs in the clay, and chalcopyrite and bornite occurs in the dolomite. Traces of malachite are also visible in the soil from the B.M.R. No.2 shaft. At both localities are small clearings which D.J. French and S. Yeaman have likened to the "copper clearings" present over copper mineralization in the Rhodesian copper belt.

The gossan in the central and southern part of the Coomalie Dolomite outcrop was assayed but did not contain significant amounts of base metals.

The 1963 drilling programme was based on the results of surface geochemical sampling. It was assumed that the copper mineralization outlined by these results was conformable with the dip of the Coomalie Dolomite and the diamond drilling was laid out to probe for downdip extensions of the mineralization in the primary zone. This drilling showed that the copper mineralization lenses out downdip from the anomaly and rotary drill holes were sited to try to find out which way the lenses of mineralization were pitching. The results from this drilling are not conclusive because the drills were unable to penetrate the unweathered Coomalie Dolomite, but indicates that the angle of pitch of the lenses is small. However this rotary drilling

showed that in the terra rossa formed by the complete degradation of the Coomalie Dolomite contains supergene copper mineralization.

Primary sulphide mineralization was intersected in unweathered Coomalie Dolomite downdip from the geochemical anomaly in DDG22 (109'6" - 113'), DDG23 (220'4" - 242'), DD31 (590'-600'). The highest grade intersection was 3-5 feet of chalcopryrite, pyrite mineralization containing 2.3% copper in DG22 between 109'6" and 113'. Radioactive mineralization of up to 1.4 lbs/ton eU_3O_8 occurs in the "dolomite" above this intersection. Higher grade secondary and partly secondary chalcopryrite, bornite, chalcocite, native copper and malachite mineralization was intersected in DDG24 (251'-255', 353'-356'), DDG27 (122'6"-128'6") and DDG31 (655'-660'). The best of these intersections was 4 feet of 13.0% copper in DDG27 between 122'6" and 128'6".

Supergene copper mineralization in the terra rossa on the Coomalie Dolomite was intersected by six of the eight rotary holes (Table 6) and R142 near Tambllyn's Shaft intersected 60 feet of 3.1% copper in this material.

Low grade copper mineralization in the Golden Dyke Formation was intersected in DG30 and Dg31.

All of the copper mineralization is associated with cobalt and nickel concentrations in the weathered rock. Pontifex (Appendix 3) suggests that gold may also be present.

MINERALIZATION CONTROLS

The highest grade intersections of primary mineralization are in the lower part of the Coomalie Dolomite where the mineralization appears to form lenses elongated parallel to the strike of the formation and plunging at shallow angles.

Secondary mineralization occurs in partly weathered Coomalie Dolomite to depths of at least 300 feet (DG24) and in the terra rossa formed from the complete weathering of Coomalie Dolomite down to an irregular surface which is from 0 to 190 feet below the ground. The highest grade mineralization is in the partly weathered dolomite but the thickest intersections are in the terra rossa.

J. Ivanac has suggested (pers.comm.) that parts of the 1000 p.p.m. copper geochemical contours on Plate 3 parallel the inferred north east trending faults which may exercise some structural control on the mineralization.

RESERVES

The diamond drilling has not outlined any reserves of copper ore in the primary zone.

Inferred reserves of 47,000 tons of 1.9% copper are present in the Tambllyn's Shaft area. (Ivanac 1964). Most of this is malachite and chalcocite in terra rossa, some is bornite and chalcopryrite.

Table 5

SUMMARY OF DIAMOND DRILLING RESULTS - MOUNT FITCH PROSPECTS

Hole No.	Location (Grid Reference)	Direction (Surface)	Depression	Length	Intersections
DG22 To test the peak of the Cu anomaly.	11200E 44500N	093° Mag.	55.5°	248' 6"	0 - 63' Clay 63' - 174' 6" Dolomite, minor pyrite, chalcoppyrite. 109' 6" - 113' 6" 2.3% Cu elsewhere 0.3% Cu. 174' 6" - 190' 6" Clay 190' 6" - 248' 6" Quartz-feldspar schist.
DG23 As for DG22 on the same section but at a deeper level	11225E 44185N	086° Mag.	56°	408'	0 - 102' 5" Quartz-sericite schist, carbonaceous schist, chlorite schist, schist breccia Pyrite. 102' 5" - 331' Dolomite 220' 4" - 242' Traces chalcoppyrite and native copper. Spectro- graphic results show 0.3% Cu. 331' - 399' Talcose schist and clay. 399' - 408' Quartz-feldspar schist.
DG24 To prospect below the central peak of the Copper anomaly	11475E 43030N	054° Mag.	57°	430'	0 - 15' Not cored. 15' - 30' Siliceous hematite. 30' - 78' 6" Clay - mottled; 73' - 78' 6" borworks. 78' 6" - 150' Clay and silt, chocolate and yellow. 150' - 245' Siliceous dolomite, clay. 217' 8" - 221' 6" tremolite- and 0.6% Cu 223' 4" - 235' borworks after calcite 210' - 211' 6" 0.1% Cu. 245' - 404' 6" Dolomite, silicified bands; Cavities at 266' - 271', 273' - 330', 348' 7" 301' - 348' 7", 374' - 375', 382' - 404' 6". % Recovery 72 250' 11" - 255' Chalcop- yrite and chalcocite 1.9% Cu. 71 348' 7" - 350' 0.5% Cu. 44 350' - 355' 1.4% Cu 60 355' - 360' 2.5% Cu. 64 361' - 374' 0.4% Cu 13 404' - 409' 6" 0.3% Cu. 66 409' 6" - 415' 0.2% Cu. 404' 6" - 430' Chlorite schist, brown.
DG25 To examine the southern end of the Cu anomaly Cu	12067E 42600N	060° Mag	54°	282' 6"	0 - 20' Not cored. 20' - 92' Clay, ferruginous, weathered. 36' 3" - 37' .2% Cu. 37' - 39' 4" .2% mottled (Cu) black 39' 4" - 41' .12% chocolate (Cu) and pink 41' - 42' 5" .35% clay (Cu) 42' 5" - 43' .3% Cu 43' - 44' 6" .15% Cu 44' 6" - 47' 4" .1% Cu 65' 6" - 70' .7% Cu. 92' - 98' 6" Clay, purple and cream. Talcose. 98' 6" - 117' 4" Schist, chlorite with purple hematite rock from 106' 2" - 100' 10". 117' 4" - 130' Dolomite, tremolite, wea- thered. 130' - 205' Clay, cream. 141' - 144' 0.25% Cu. 205' - 282' 6" Talc Schist and quartz- ite with narrow quartz- tourmaline veins.

Hole No.	Location (Grid Reference)	Direction (Surface)	Depression	Length	Intersections	
DG26 To test the southern end of the Cu anomaly (see also DG25)	11870E 42515N	060° Mag.	55°	439'	0 - 20' 20' - 148'1"	Not cored. Dolomite, weathered, silt- stone beds.
					148'1" - 325'8"	Dolomite, crystalline with minor stringers of chlorite and fragments of grey schist
					239' - 270'6"	mottled schist with dolomite beds, phos- phatic; cavities - 192' - 204', 223-227'
					325'8" - 439'	Schist green siliceous pyritic.
DG27 To prospect the central peak of the Cu anomaly (See also DG24, DG28).	11810E 43110N	054° Mag.	55°	163'6"	0 - 30' 30' - 151'	Not cored. Clay and siliceous silt- stone after dolomite.
					85' - 92'6"	0.5% Cu - siliceous siltstone.
					122'6" - 128'6"	.13% Cu - chalcocite, malachite.
					161' - 163'6"	Arkosic schist.
DG28 To test downdip extension of mineralization in DG24 and DG27	11475E 43030N	Vertical		556'	0' - 30' 30' - 537'3"	Not cored. Clay and dolomite grading to dolomite at 303'6"
					537'3" - 556'9"	Green tale after sheared chlorite schist.
DG30 To test IP anomaly extension	11400E 42760N	Vertical		682'	0' - 20' 20' - 63'	Not cored. Schist carbonaceous and chloritic
					63' - 83'9"	Interbedded chlorite schist and quartzite, finely dis- seminated pyrite.
					83'9" - 109'6"	Chert, minor pyrite, c (★)
		(★) Chalcopyrite	75' - 80' 0.7) Cu 80' - 85' 0.9) Cu		245'6" - 682'1"	Dolomite, vuggy, crysta- lline; talc veirlets 320' - 325'3"; minor pyrite.
			109'6" - 249'6". Schist, dark grey, chlorite, sericite, carbonaceous		590' - 595'	1.3% Cu; cavity 591' - 593'6" mang- aniferous lime- stone.
					595' - 600'	0.9% Cu. mala- chite, limestone.
					600' - 625'	Traces malachite, chalcocite, chalco- pyrite; up to 1/2% Cu.
DG31 To test IP anomaly	11250E 43200N	Vertical		733'6"	0' - 6' 6' - 90'6"	Not core. Sericite and chlorite schist with cert bands.
					75' - 80'	0.4% Cu pyrite chalcopyrite.
					80' - 85'	0.6% Cu pyrite chalcopyrite.
					85' - 90'	Grey graphitic schist.
					90'6" - 733'6"	Dolomite, cavities, silici- fied, minor pyrite.
					590' - 600'	1.5% Cu.
					655' - 660'	4.2% Cu.
					720' - 733'6"	leached yellow limestone with minor native copper.
DG36 To test below Tamblyn's shaft.	Mt. Fitch 11420E 44530N	090° Mag.	54°	268'	0' - 6' 6' - 268'	Not cored. Cavernous limestone; chlorite, minor pyrite, and chalcopy- rite.

Table 6

ASSAY RESULTS OF ROTARY DRILL HOLE CUTTINGS - MOUNT FITCH
PROSPECT

Footage	% Cu								
	R130	R132	R134	R136	R138	R140	R142	R165	R167
0- 5	-	0.4	-	0.7	0.7	0.5	1.2	-	0.3
5- 10	-	0.4	-	0.4	0.7	0.6	1.9	-	0.5
10- 15	-	0.5	-	0.6	-	0.9	2.1	-	0.4
15- 20	-	0.4	-	-	0.7	0.9	1.8	-	0.3
20- 25	-	0.5	1.6	0.7	0.7	0.5	2.0	-	0.3
25- 30	-	0.5	0.5	0.6	0.5	0.5	3.3	-	0.2
30- 35	-	0.5	0.2	0.5	0.7	0.4	2.8	-	0.7
35- 40	-	0.5	0.5	0.7	0.7	0.9	4.7	-	0.2
40- 45	-	0.2	0.4	0.6	0.7	-	2.3	-	0.5
45- 50	-	0.2	0.3	0.5	-	1.1	5.9	-	0.4
50- 55	-	-	0.4	0.5	-	0.9	4.9	-	1.0
55- 60	-	0.2	0.2	0.5	-	0.4	4.0	-	1.0
60- 65	-	-	0.2	0.8	-	0.3	1.4	-	0.5
65- 70	-	-	0.2	0.7	-	0.2	-	-	0.2
70- 75	Water	-	0.4	0.7	-	0.8	-	-	1.3
75- 80	-	Cavity	0.2	0.5	-	0.6	-	0.3	0.2
80- 85	-	-	0.1	-	-	0.6	-	0.3	0.2
85- 90	-	-	0.1	-	-	0.3	-	-	0.7
90- 95	-	-	0.5	0.5	-	0.4	-	0.4	0.2
95-100	-	-	0.5	0.5	-	2.4	-	0.7	0.3
100-105	-	-	1.8	-	-	0.9	0.3	-	-
105-110	-	-	-	-	-	0.6	0.6	0.9	-
110-115	-	-	0.8	-	-	0.6	0.2	0.4	-
115-120	-	-	-	-	-	0.6	-	-	-
120-125	-	-	Water	-	-	0.5	0.5	-	-
125-130	-	-	-	-	-	-	-	-	-
130-135	-	-	-	-	-	-	0.5	-	Cavity
135-140	-	-	-	-	-	-	0.5	-	-
140-145	-	-	-	Water	Hard	-	0.6	-	-
145-150	-	-	-	-	-	-	-	-	-
150-155	-	-	-	-	-	Cavity	-	-	-
155-160	-	-	-	-	-	-	-	-	-
160-165	-	-	-	-	-	-	-	-	-
165-170	-	-	-	-	-	-	-	-	-
170-175	-	-	-	-	-	-	-	-	-
175-180	-	-	-	-	-	-	-	-	-
180-185	-	-	-	-	-	-	-	-	-
185-190	-	-	-	-	-	-	0.9	-	-
190-195	-	-	-	-	-	-	-	-	-
195-200	-	-	-	-	-	-	Hard	-	-
100-205	-	-	-	-	-	-	-	-	-
205-210	-	-	-	-	-	-	-	-	-
210-215	-	-	-	-	-	-	-	-	-
215-220	-	-	-	-	-	-	-	-	-

* Cuttings from each 5 foot interval were analysed spectrographically by A.D. Haldane; Copper analyses 5000 p.p.m or better were assayed by R. Beevers, Bureau of Mineral Resources.

TABLE 7.

DRILL HOLE ASSAYS - TAMBLYN'S DEPOSIT

Hole	Grid Reference	Footage	% Cu
A5122	11550E* 44500N	10'-40' (30')	1.3
A5121	11600E* 44500N	12'-40' (20')	1.3
A5123	11550E 44600N	6'-36' (30')	0.9
A5125	11650E	6'-40' (34') 0'-60' (60')	2.0 3.1
R142			
AVERAGE		36 feet	1.9%

Inferred Reserves assuming weathered Coomalie Dolomite averages 17 cubic feet per ton = 47,000 tons.

* Bottomed in 1.3 and 1.4% Cu respectively.

Assayed by Bureau of Mineral Resources

A, auger hole R, rotary drill hole

The boundary of this mineralization coincides with the bottom half of the area around Tamblyn's Shaft within the 5000 p.p.m. copper contour. Assuming that the mineralization occurs in all of the area within this contour, about 100,000 tons is present.

RECOMMENDATIONS

Should the inferred 100,000 tons of about 2% secondary copper mineralization in the terra rossa deposit near Tamblyn's Shaft be of economic interest, the treatment problems associated with this material should be appraised before any further drilling is carried out. It may not be suitable for leach ore because of the carbonate gangue. The prospects of recovering cobalt and nickel should be examined should the prospects prove worthwhile.

The structural control of the copper mineralization in the Coomalie Dolomite at Mount Fitch is not known and should be determined.

This information could then be used to site diamond drilling to test the primary mineralization responsible for the copper anomaly and secondary mineralization in the Tamblyn's Shaft area (Plate 3). If this drilling is successful the other anomalies in the Coomalie Dolomite south of Tamblyn's Shaft should be prospected.

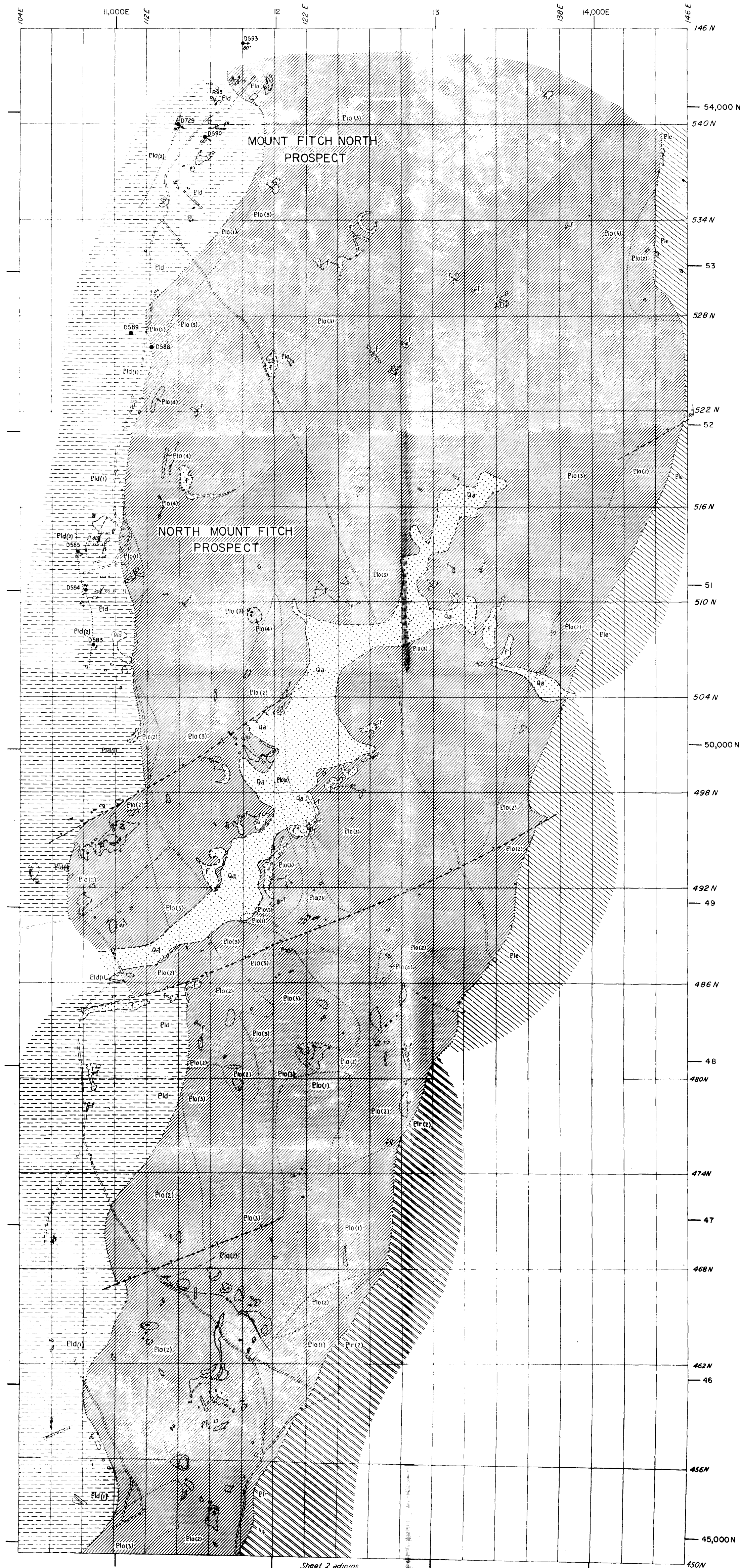
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MOUNT BURTON MINE-NORTH MOUNT FITCH PROSPECT GEOLOGY

Plate I
Sheet I

Rum Jungle Survey, 1963



See sheet 2 for Reference

Sheet 2 adjoins

Rum Jungle Survey, 1963

MOUNT BURTON MINE - NORTH MOUNT FITCH PROSPECT
GEOLOGY

Scale: 1 Inch to 400 Feet



- Geological boundary
Fault
Anticline
Shear zone
Where location of boundaries, folds and faults is approximate, line is broken; where inferred, queried, where concealed, boundaries are dotted and faults are shown by short dashes.
Strike and dip of strata
Strike and dip of cleavage
Vertical cleavage
Strike and dip of foliation
Quartz vein
Costean
Diamond drill hole
Rotary drill hole
Churn drill hole
Vehicle track
Major grid - Mine grid
Minor grid - Geophysicists' grid

REFERENCE

QUATERNARY

- Qa Alluvium, grey, sandy and silty soils
F Ferricrete
G Gossan

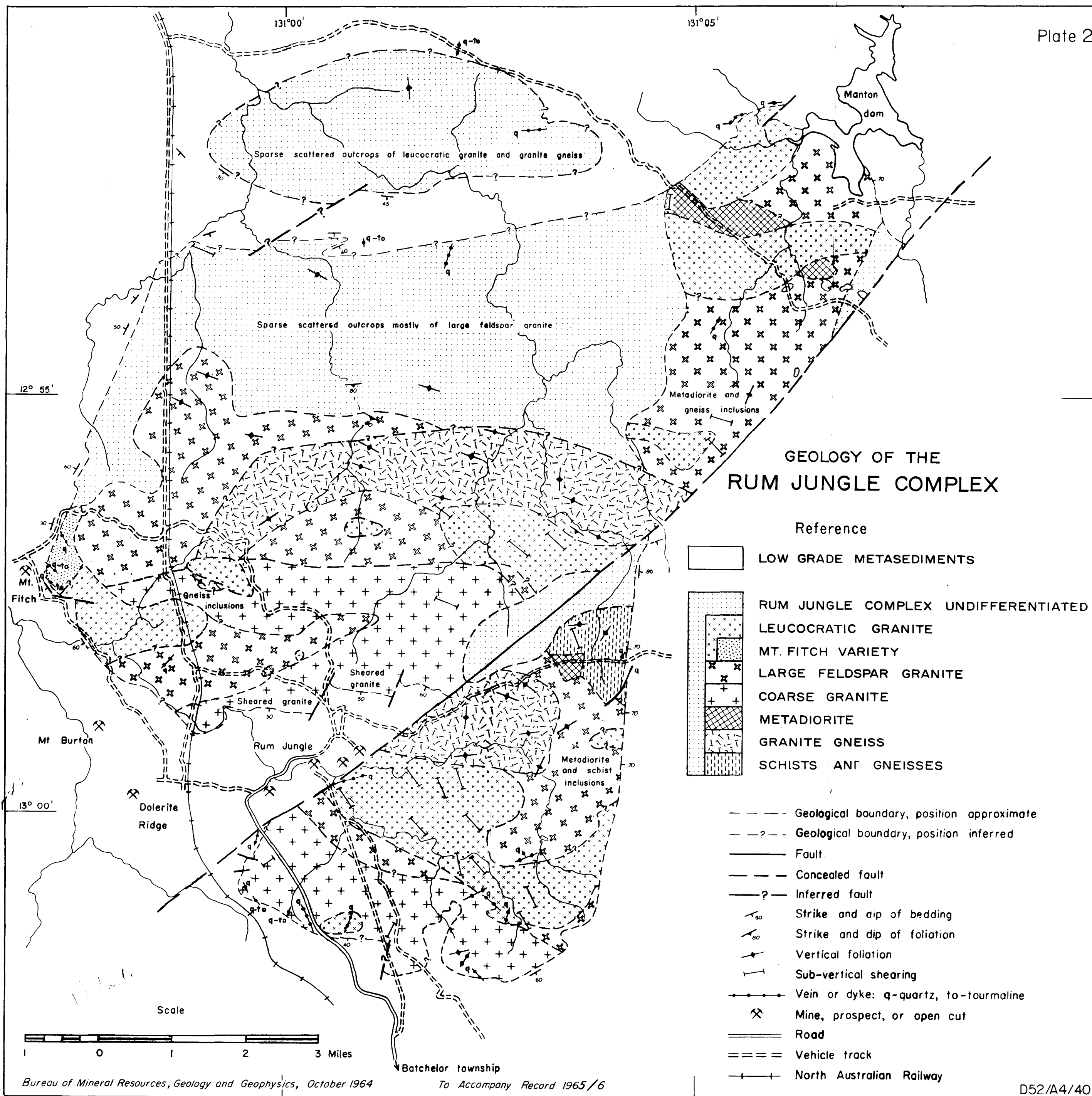
LOWER PROTEROZOIC

- Burrell Creek Formation
Quartz mica schist
Golden Dyke Formation
Carbonaceous and chloritic schist, chert, minor quartz mica schist
Sericitic schist, quartz sericite schist
Talcose schist, talc sericite schist, chloritic schist
Acacia Gap Tongue
Quartzite, pyritic quartzite, carbonaceous schist
Coomalie Formation
Dolomite, chloritic dolomite, talc schist, calcareous shale, kaolinitic schist, residual brown soil
Tremolite schist, tremolite chlorite schist, talc schist, dolomite, minor chert
Residual ferruginous and kaolinitic quartz sand
Sandstone
Pink quartzite, pink quartzite breccia, quartz hematite breccia
Crater Formation
Quartz schist, quartz feldspar schist
Hematite boulder conglomerate and schist
Beestons Formation
Arkasic schist, arkasic conglomerate

ARCHAEOAN

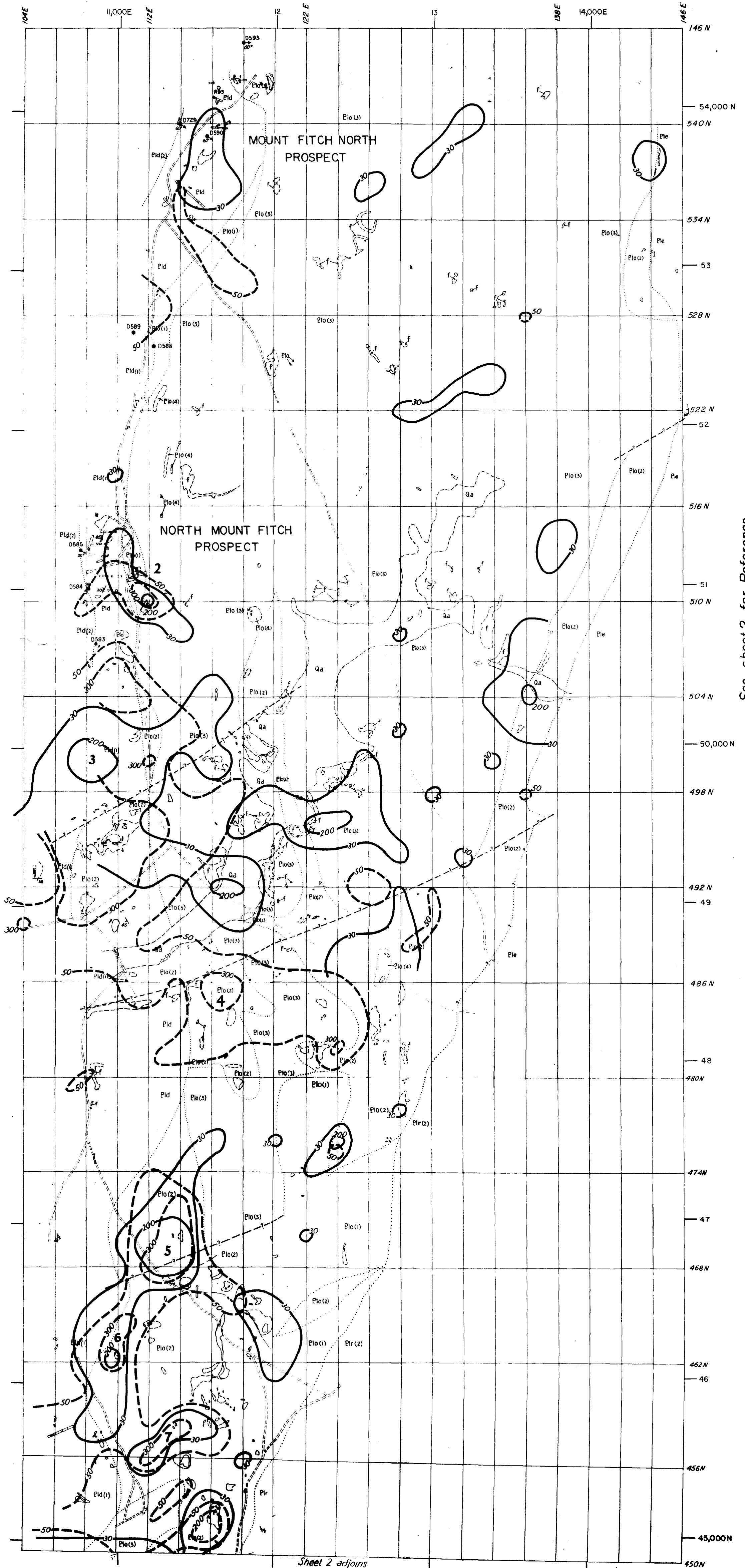
- Rum Jungle Granite Complex

To accompany Record 1965/6



MOUNT BURTON MINE- NORTH MOUNT FITCH PROSPECT
GEOCHEMICAL ANOMALIES

Rum Jungle Survey, 1963



See sheet 2 for Reference

Sheet 2 adjoins

Rum Jungle Survey, 1963

MOUNT BURTON MINE - NORTH MOUNT FITCH PROSPECT
GEOCHEMICAL ANOMALIES

Scale: 1 inch to 400 Feet



- Geological boundary
Fault
Anticline
Shear zone
Where location of boundaries, folds and faults is approximate, line is broken, where inferred, queried, where concealed, boundaries are dotted and faults are shown by short dashes
Strike and dip of strata
Strike and dip of cleavage
Vertical cleavage
Strike and dip of foliation
Quartz vein
Costean
Diamond drill hole
Rotary drill hole
Churn drill hole
Vehicle track
Major grid - Mine grid
Minor grid - Geophysicists' grid
Isochems in parts per million based on assays of weathered rock auger samples
200 Copper
300 Nickel
7 Anomaly number

REFERENCE

QUATERNARY

- Qa Alluvium, grey, sandy and silty soils
f Ferricrete
g Gossan

LOWER PROTEROZOIC

- Burrell Creek Formation
Pib Quartz mica schist
Pld Carbonaceous and chloritic schist, chert, minor quartz mica schist
Golden Dyke Formation
Pld(a) Sericite schist, quartz sericite schist
Pld(b) Talcose schist, talc sericite schist, chloritic schist
Acacia Gap Tongue
Pla Quartzite, pyritic quartzite, carbonaceous schist
Plo Dolomite, chloritic dolomite, talc schist, calcareous shale, kaolinitic schist, residual brown soil
Coomalie Formation
Plo(a) Tremolite schist, tremolite chlorite schist, talc schist, dolomite, minor chert
Plo(b) Residual ferruginous and kaolinitic quartz sand
Plo(c) Sandstone
Plo(d) Pink quartzite, pink quartzite breccia, quartz hematite breccia
Crater Formation
Plr Quartz schist, quartz feldspar schist
Plr(l) Hematite boulder conglomerate and schist
Beestons Formation
Ple Arkasic schist, arkasic conglomerate

ARCHAEAN

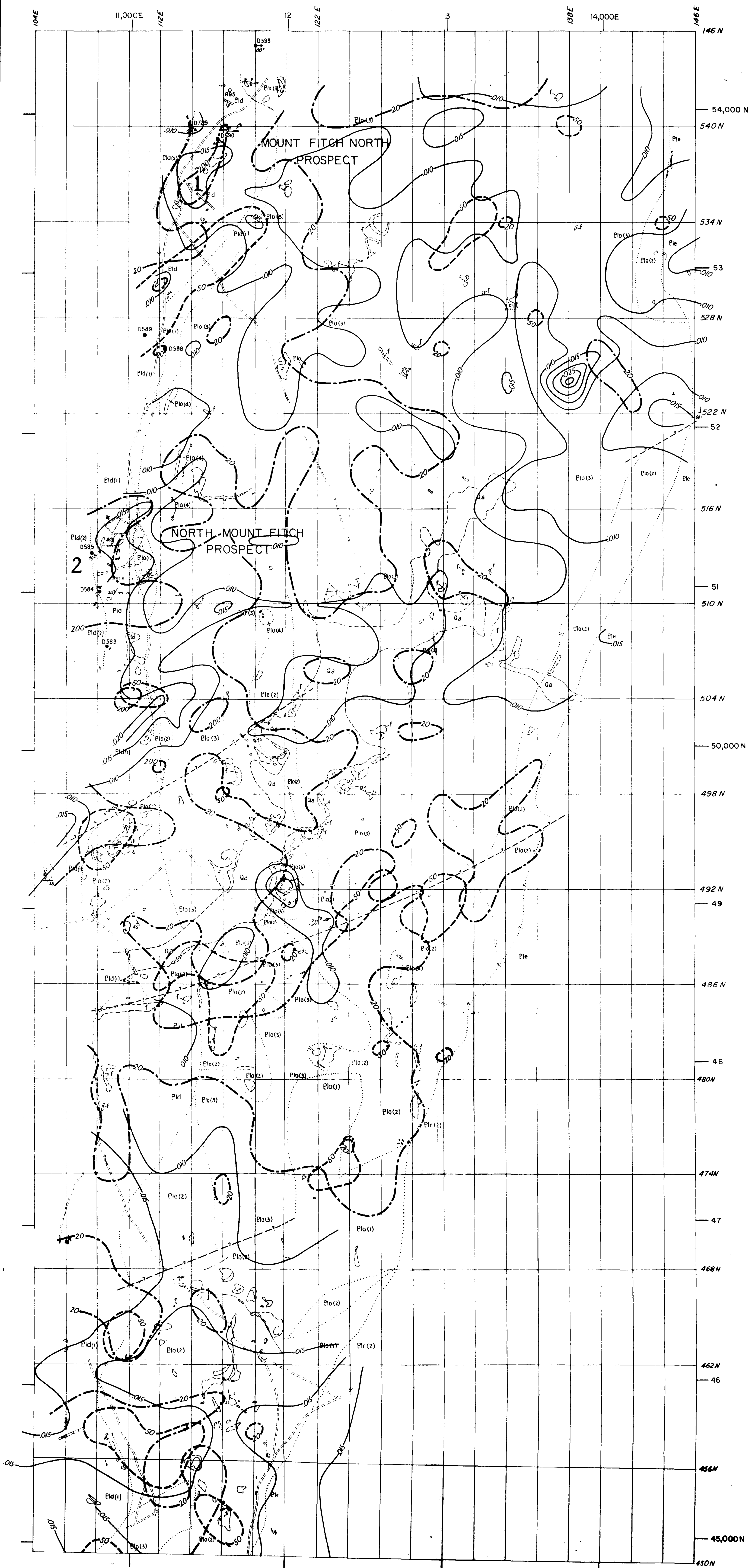
- Rum Jungle Granite Complex
Ag

To accompany Record 1965/6

Bureau of Mineral Resources, Geology and Geophysics, October 1964

MOUNT BURTON MINE — NORTH MOUNT FITCH PROSPECT
GEOCHEMICAL AND RADIOMETRIC ANOMALIES

Rum Jungle Survey, 1963

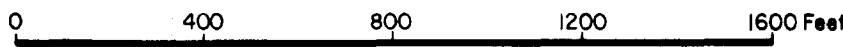


See sheet 2 for Reference

Rum Jungle Survey, 1963

MOUNT BURTON MINE-NORTH MOUNT FITCH PROSPECT
GEOCHEMICAL AND RADIOMETRIC ANOMALIES

Scale: 1 Inch to 400 Feet



- Geological boundary
Fault
Anticline
Shear zone
Where location of boundaries, folds and faults is approximate, line is broken; where inferred, queried, where concealed, boundaries are dotted and faults are shown by short dashes.
Strike and dip of strata
Strike and dip of cleavage
Vertical cleavage
Strike and dip of foliation
- Quartz vein
Costean
Diamond drill hole
Rotary drill hole
Churn drill hole
Vehicle track
- Major grid:- Mine grid
Minor grid:- Geophysicists' grid

Isochems in parts per million based on assays of weathered rock auger samples
20 Lead
50 Cobalt
0.05 Isorad at a depth of one foot.
0.015 unit is equivalent to 0.044 mR/Hr

REFERENCE

QUATERNARY

- Qa Alluvium, gray, sandy and silty soils
f Ferricrete
g Gossan

LOWER PROTEROZOIC

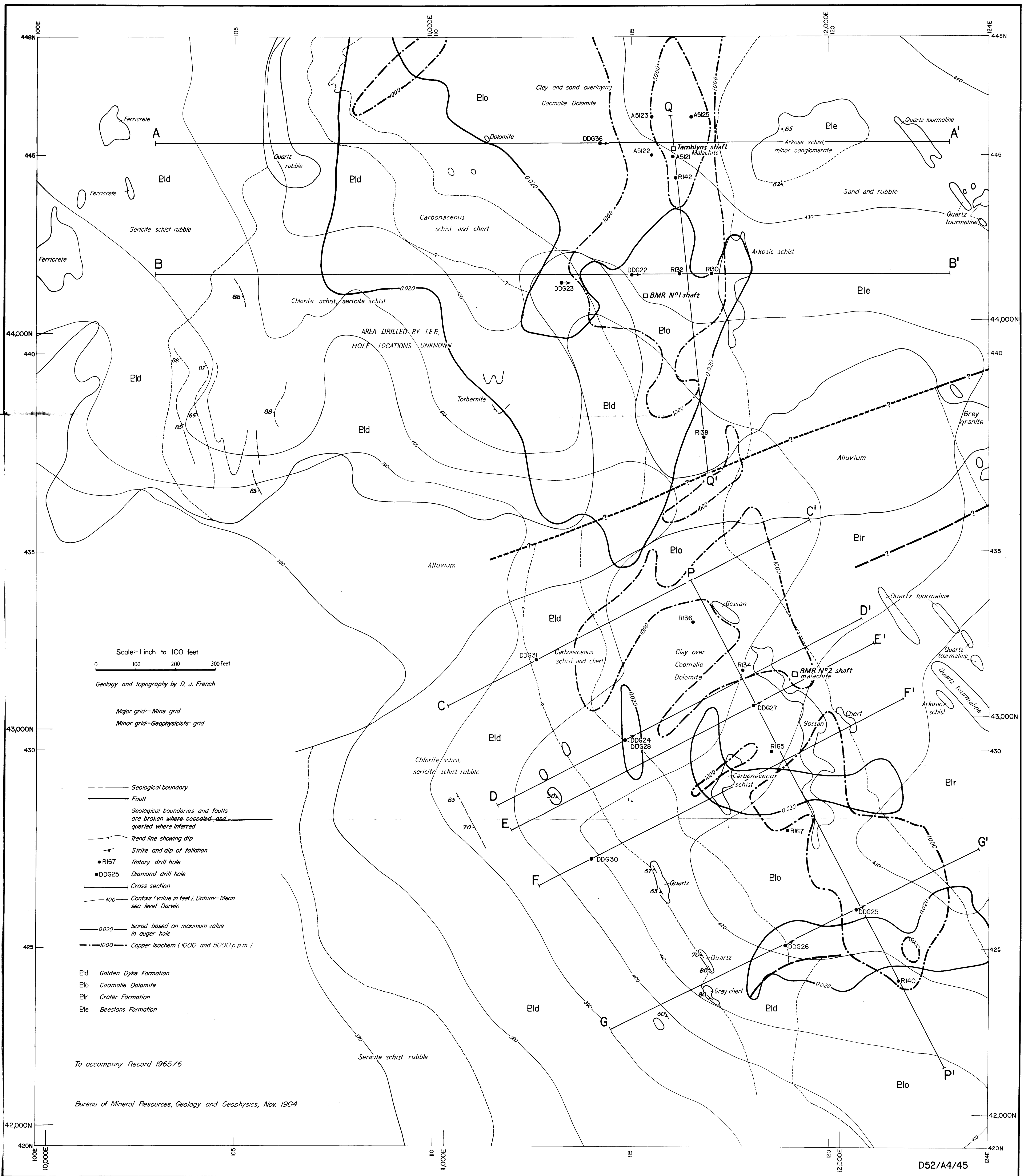
- Burrell Creek Formation
Eld Carbonaceous and chloritic schist, chert, minor quartz mica schist
Eld(1) Carbonaceous and chloritic schist, chert, minor quartz mica schist
Eld(2) Sericite schist, quartz sericite schist
Eld(3) Talcose schist, talc sericite schist, chloritic schist
- Acacia Gap Tongue
Pla Quartzite, pyritic quartzite, carbonaceous schist
- Coomalie Formation
Pla Dolomite, chloritic dolomite, talc schist, calcareous shale, kaolinitic schist, residual brown soil
Pla(1) Tremolite schist, tremolite chlorite schist, talc schist, dolomite, minor chert
Pla(2) Residual ferruginous and kaolinitic quartz sand
Pla(3) Sandstone
Pla(4) Pink quartzite, pink quartzite breccia, quartz hematite breccia
- Crater Formation
Plr Quartz schist, quartz feldspar schist
Plr(1) Hematite boulder conglomerate and schist
- Beestons Formation
Ple Arkosic schist, arkosic conglomerate

ARCHAEOAN

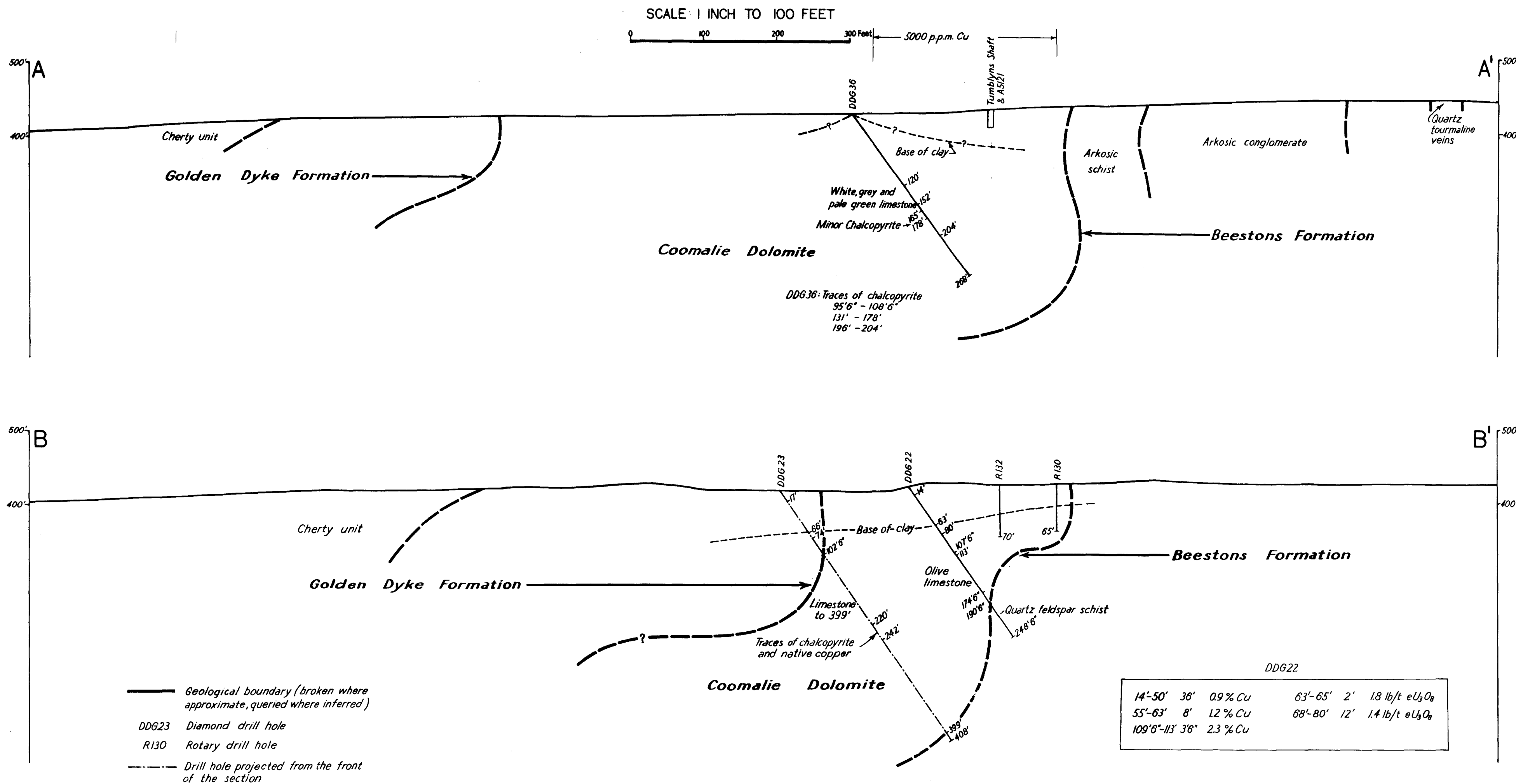
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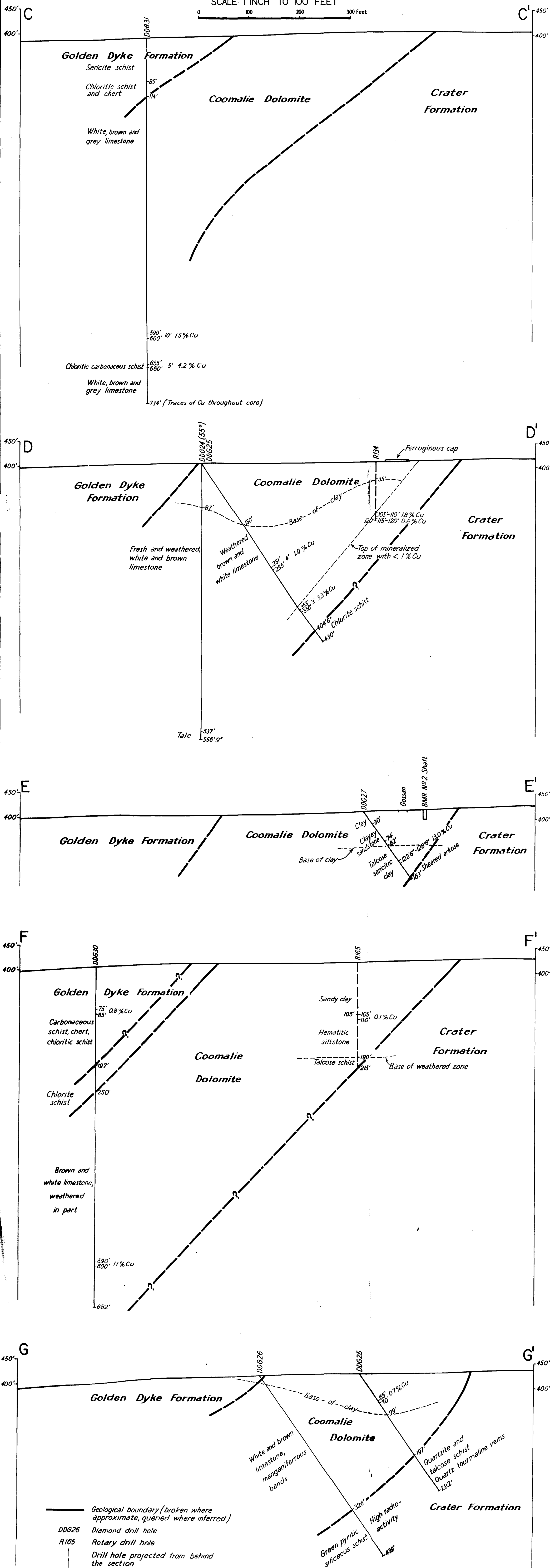
MOUNT FITCH PROSPECT—CROSS SECTIONS AA', BB'



MOUNT FITCH PROSPECT CROSS SECTIONS CC', DD', EE', FF', GG'

SCALE 1 INCH TO 100 FEET

0 100 200 300 Feet

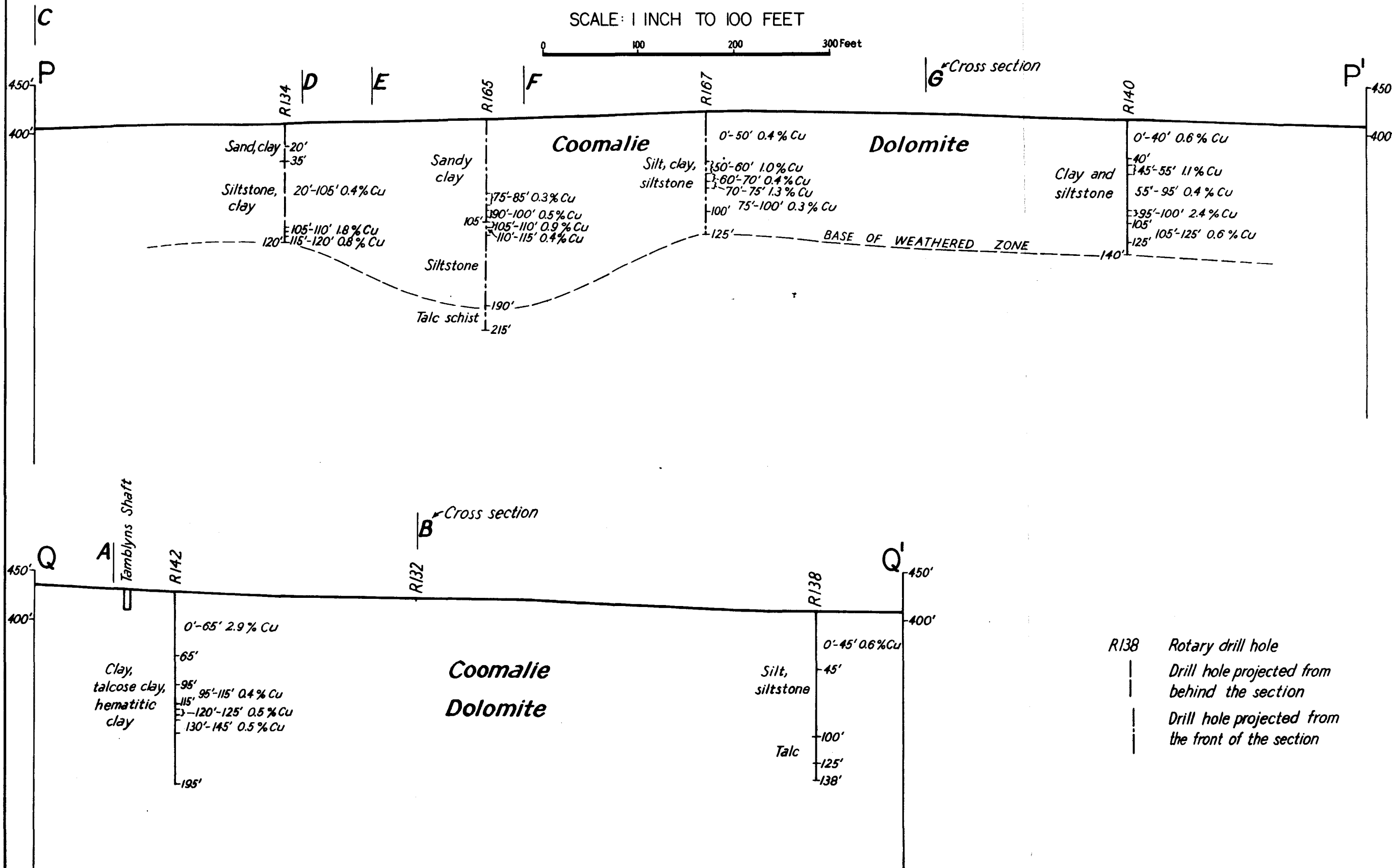


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D52/A4/47

MOUNT FITCH PROSPECT LONGITUDINAL SECTIONS



APPENDIX I.

DIAMOND DRILL LOGS.

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS Water table 40' below collar.
 HOLE No. DD 922 CO-ORDINATES 115 E 442 N (B.M.R. GRID) R.L. GROUND
 LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL 55 DIRECTION 093 M.

DESCRIPTION OF CORE	RADIO-METRY	DEPTH SIZE OF CORE	LOG	CORE RECOVERY %	LIFT	REMARKS	ASSAYS
							Cu % U ₃ O ₈ lbs/ton
Not cored.	0.015	0.16					
		0.25					
		0.25					
		0.40					
		0.55					
		0.55					
		0.50					
		0.50					
		0.55					
		0.60	10				
		0.66					
		0.61					
		0.60	14				
		0.61					
Mottled chocolate, brown and white clay and silt. (Completely weathered dolomite.)		0.56	NX	78			0.88
		0.50					
		0.45					
		0.45					
		0.43	20				
		0.40					
		0.40					
		0.37					
		0.33					
		0.32					
		0.37					
		0.46					
		0.39					
		0.40	30				
		0.40					
		0.38					
		0.42		46	3 1/2"		3 1/2"
		0.41					
		0.38					
		0.35			35		35'
		0.36		36		0.71	
		0.34					
		0.36		24	38		
		0.35	40				40
		0.34		24	40		
		0.33	NX			0.84	
		0.35			43		
		0.34		46			45'
		0.36				0.72	
		0.35					
		0.33		98	47		
		0.33					
		0.31	50				50
		0.29					
		0.26					0.71
		0.26					
		0.33					
		0.36		2	55 1/2"	1.15	0.54
		0.33					
		0.36					
		0.29	60				
		0.29					
		0.19					
		0.19					
		0.18	63				63'
		0.27			63		
Olive-grey dolomite with fragments of black schist and bands of white coarsely crystalline dolomite and patches of hematitic dolomite. (Type 2.)		0.66		59	64	0.03	1.34 64
		0.60					2.35 64
		0.55					0.35
		0.72				0.03	68
		0.78		59	68 1/2"	0.03	2.20 70
		0.60	70				1.10
		0.90					
Scattered blebs of pyrite and chalcopyrite throughout		0.95					
71-73 abundant sulphides in dolomite - black schist breccia.		0.71					
		0.26		22	73 1/2"	0.06	75
		0.200					
		0.160		35	75"		1.30
		0.200					
		0.200					
		0.180		47	78	0.12	85
		0.130	80				0.41
		0.075				0.03	82
		0.55				0.03	0.60
		0.71		58	82		85
		0.80					
		0.95				0.03	0.30
		0.70					
		0.95					
		0.12		54	87		
		0.157	90				90
		0.175					
		0.135					
		0.120					
		0.110		97	91 1/6"		95
		0.108					
		0.028					
		0.035					
		0.092					
		0.145				0.03	0.09
		0.140					
		0.085					
		0.060	100		99 1/2"		100

DRILL NO. <u>MINDRILL F20</u>	EXPLANATION	HEAD OFFICE
TYPE	CASING IN HOLE DURING DRILLING	LOGGED BY <u>P. PRITCHARD</u>
DRILLER <u>C. UNDERWOOD</u>	REFERENCES	DRAWN BY
COMMENCED <u>10.10.63</u>	Assays <u>S. Baker R. Beavers</u>	CHECKED BY
COMPLETED <u>29.10.63</u>	Assays by T.E.D. an unweighted composite sample gave 1.24 lbs/ton U ₃ O ₈ (chemical assay) suggesting that the series is not in equilibrium.	SHEET <u>1</u> OF <u>3</u>
		DRAWING NO.

DRILL NO TYPE		EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE LOGGED BY P. PRITCHARD DRAWN BY CHECKED BY
DRILLER COMMENCED COMPLETED		REFERENCES 172'-240' weathered. 174'-190' probable zone of shearing along formation contact.	SHEET 2 OF 3 DRAWING NO

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS _____
 HOLE No. DD G22 CO-ORDINATES _____ R.L. GROUND _____
 LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL (24D.) 54° DIRECTION E 41° N (mag)
TROPICAL SURVEY

DESCRIPTION OF CORE	RADIO-METRY	DEPTH SIZE OF CORE	LOG	LIFT CORE RECOVERY %	LIFT SAMPLES	SPECTROGRAPHIC	ASSAYS
						RESULTS Cu Co Ni Pb Mo V p.p.m.	
	014	8XM				20 <5 <5 a a <5	
	014				9 204		205
	015					25 <5 <5 a a <5	
	016				10 207 1/2		
	015				22 208 1/2		210
	016	210				25 <5 <5 10 a <5	
	016				44 213		215
	016					40 <5 <5 10 a <5	
	014				26 218		220
	015	220				20 <5 <5 a a <5	
	020				38 221 1/2		225
	021					20 5 <5 10 a <5	
	022				18 226 3		230
	022				10 229		
	022	230			30 230	20 <5 <5 10 a <5	
	022				36 233		235
	020				36 236	15 <5 <5 10 a <5	
	021				6 239		240
	022	240			7 240	40 <5 <5 10 a <5	
	022	BMS			8 241		245
	020				14 242		
		BMX			26 244 1/2	15 <5 <5 15 a <5	
T.D. 248'6"					248'6"		248'6"

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING <u>H</u>	HEAD OFFICE	
TYPE		LOGGED BY <u>P. PAITCHARD</u>	
DRILLER	REFERENCES	DRAWN BY	
COMMENCED		CHECKED BY	
COMPLETED <u>29.10.63</u>		SHEET <u>3</u> OF <u>3</u>	
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
HOLE NO. DD G23 CO-ORDINATES 44° 85' N 113° 25' E (BMR GRID) R.L. GROUND
LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL 56° DIRECTION 86° Mag.

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RECOVERY %	LFT.	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
Not cored.							
		10					
		173					
Broken, grey interbanded quartz sericite schist and carbonaceous schist.		20		14	19'		
				37			
				18	23		
				38	26'6"		
29' Foliation 25'		30		29	10"		
				11	31'8"		
Green chlorite schist. 32'8"				25			
Grey carbonaceous schist. 33'9"				31	34'9"		
				14	37'9"		
39' Foliation 65'		40		30	40'8"		41'10"
Broken, grey carbonaceous and chloritic schist.				31	43'9"		45'
				24	46'8"		
		50		19	49		50
				19	51		
Grey carbonaceous schist Pyritic. 52'3"				24	53		55
				12	57		
		60		15	59'2"		60
				33	61		
				52	65		65
66'3" Base of weathering brecciation and limonitic staining on fractures.		70		42	70'2"		70
				30	74		74
Grey carbonaceous and chloritic schist breccia. 79'-86' Cavity.		80		40	79		79
				89			86
86'-89' abundant dolomite fragments. Abundant pyrite in the carbonaceous schist.		90		21	91'6"		90
				10	93'6"		
				34	96'6"		95
				36	99'6"		
		100		99	6"		100

DRILL NO. <u>A.D. DRILLERS</u>	EXPLANATION	HEAD OFFICE
TYPE <u>F.62</u>	CASING IN HOLE DURING DRILLING ☒	LOGGED BY <u>P. PRITCHARD</u>
DRILLER <u>J. Collingwood</u> <u>M. Kamaruts</u>	REFERENCES	DRAWN BY
COMMENCED <u>10.10.63</u>		CHECKED BY
COMPLETED <u>4.11.63</u>		SHEET <u>1</u> OF <u>5</u>
		DRAWING NO.

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
 HOLE No. DD G.28. CO-ORDINATES R.L. GROUND
 LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	LIFT OF CORE RE- COVERY %	LIFT OF SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
102'6" Green brecciated dolomite with scattered patches of black schist breccia and scattered patches of coarsely crystalline dolomite with rare red, hematitic carbonate.				31			
				9	103'9"		
				54	104'6"		
				56	109'3"		
				116	114'3"		
				111	124'3"		
				90	133'4"		
				112	141'		
				118	150'4"		
				118	160'2"		
179'8" Typical specimen green brecciated dolomite.				116	170'		
				120	179'8"		
				120	189'8"		
187-189'6" Coarsely crystalline white and red dolomite.							
192'10" - 220'4" Rare patches of grey schist breccia with green dolomite matrix.							
198'2" Specimen of breccia.							

DRILL NO.	EXPLANATION	HEAD OFFICE	
TYPE		LOGGED BY	P. PRITCHARD
DRILLER	REFERENCES	DRAWN BY	.....
COMMENCED		CHECKED BY	.....
COMPLETED		SHEET .. 2 .. OF .. 5 ..	
		DRAWING NO.	.....

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS.....
HOLE No. DD. G23 CO-ORDINATES..... R.L. GROUND.....
LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL..... DIRECTION.....

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORRECTION CORE RE COVERY %	LIFT SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
220'4"-242' Breccia matrix becomes dark olive green. Disseminated chalcopyrite.		210		112	209		
				120			
		220		119	219		220
							225
		230		111	228'11"		230
							235
		240		116	238'2" 238'6"		240
							242
		250		116	247'10"		
		260		116	257'6"		
Pale green dolomite with minor grey green stringers of dolomite. Stylolitic.		270		115	267'2"		
				96	277		
		280					
				120	285		
		290			289		
Dark olive green dolomite.				116	295		
		300					

DRILL NO.....	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE	
TYPE.....		LOGGED BY <u>P. PRITCHARD</u>	
DRILLER.....	REFERENCES	DRAWN BY	
COMMENCED.....		CHECKED BY	
COMPLETED.....		SHEET <u>3</u> OF <u>5</u>	
		DRAWING NO.....	

REMARKS

CO-ORDINATES

R.L. GROUND

LOCATION .. MT. FITCH COPPER PROSPECT

ANGLE FROM HORIZONTAL

DIRECTION

DRILL NO.	EXPLANATION	HEAD OFFICE	
TYPE		LOGGED BY .....	.....
	REFERENCES	DRAWN BY .....	.....
DRILLER		CHECKED BY .....	.....
COMMENCED			
COMPLETED		SHEET 4 OF 5	
		DRAWING NO. ....	.....

GEOLOGICAL LOG OF DRILL HOLE

PROJECT. RUM JUNGLE REMARKS.
HOLE No. DDC 23 CO-ORDINATES 441.85N 112.25E R.L. GROUND
LOCATION MT. FITCH ANGLE FROM HORIZONTAL 56 DIRECTION 083 Mag.
TROPICAL SURVEY AT 400'

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	HFT SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
Purple quartz felspar schist Cavings of green chlorite schist 405'-408'. T.D. 408.		BMS.		7 42	401		
				28	405' 408'		
		410					
		420					

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE	
TYPE		LOGGED BY .....	.....
DRILLER	REFERENCES	DRAWN BY .....	.....
COMMENCED		CHECKED BY .....	.....
COMPLETED		SHEET <u>5</u> OF <u>5</u>	.....
		DRAWING NO. ....	.....

[illegible]

DRILL NO. A.D. DRILLERS	EXPLANATION	HEAD OFFICE	
TYPE A 3000	CASING IN HOLE DURING DRILLING H () Repeat determinations.	LOGGED BY	P. PRITCHARD
DRILLER Johanson Davis	REFERENCES	DRAWN BY	
COMMENCED 15.10.63		CHECKED BY	
COMPLETED 18.11.63		SHEET 1	# 5
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT **RUM JUNGLE**
HOLE No. **DD C24**

REMARKS

CO-ORDINATES

R L JUNGLE

LOCATION

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	R L	DEPTH	LOG	LIFT CORE RECOVERY %	SPECTROGRAPHIC RESULTS Cu Co Ni Pb Mo V PPM	ASSAYS
	CASING	SIZE OF CORE				
		003			500 200	
		003				
		003				
		003		56	104	105
		003			500 200 700 a 15 <5	
		003				
		003				110
		003		116	111	700 150 500 20 15 5
		004		20	114	115
		004			1000 150 500 20 10 5	
		004		29	117	
		004				120
		004		6	122	500 200 700 a 15 <5
		004				125
		004		6	125'6	2000 300 700 20 10 <5
		003		6	127'6	
		005		2	129'6	130
		005		11	130'6	3000 300 700 20 10 <5
		005		22	131'9	
		005		18	134'	135
		005		18	135'6	5000 500 1000 a 5 <5
		005		11	137	
		006		42	138	
		007		18	140'6	140
		007		54	142	5000 1000 1000 50 10 10
		006				145
		006		18	146'6	5000+ 700 500 300 10 10
		005		18	148	
		005		39	149'6	150
		005			1000 500 2000 50 10 20	
		006		12	153	Be 10 Pa. (clay)
		006		21	154	1000 200 500 50 10 <5
		006				Pa. (core)
		006		14	157	no result. (clay)
		006			2000 400 1000 50 10 5	
		005		4	159'9	Pa. (core)
		004		21	162'9	2000 500 1000 50 50 5
		003				Pa. (clay)
		003		11	165	1500 150 200 a 5 <5
		004		36	166	Pa. (core)
		004			700 150 400 a 5 <5	
		004				Pa. (core)
		004		17	169'5	(clay) no result.
		004				170
		004		2	171'9	1000 500 500 10 10 <5
		005		10	172'9	Be 10 Pa. (clay)
		008		3	174'6	500 100 200 a 5 <5
		008				Pa. (core)
		007		20	177	700 150 400 a 5 <5
		006				Pa.
		007		46	180	
		008				700 200 1000 a 10 <5
		008				Pa.
		007				
		009		22	187'6	700 100 400 a 10 <5
		009				Pa.
		010				
		009		8	190	
		011				700 200 400 a 10 <5
		009		8	192	Pa.
		008				
		004		3	196	
		004				700 200 400 a 5 <5
		003		9	198	Pa.
		003				
		002				200

DRILL NO.	EXPLANATION	HEAD OFFICE
TYPE	CASING IN HOLE DURING DRILLING	LOGGED BY
DRILLER	REFERENCES	DRAWN BY
COMMENCED		CHECKED BY
COMPLETED		SHEET 2 OF 5
		DRAWING NO.

GEOLOGICAL LOG OF DRILL HOLE

PROJECT. RUM JUNGLE

REMARKS

HOLE No DDC24

CO-ORDINATES

R L GROUND

LOCATION MT. FITCH COPPER PROSPECT.

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	LIFT CORE RECOVERY 1985	LIFT SAMPLES	SPECTROGRAPHIC RESULTS Cu Co Ni Pb Mo V p.p.m.	ASSAYS Cu %
	CASING	SIZE OF CORE					
		30					
		320					
		330					
Brown, limonitic vughy siliceous siltstone		330		11	330	1500 200 400 a 10 26 Pa	330
Cavity.		331			331		331
		340					
		350					
Brown, vughy siliceous rock (siltstone) altered limestone. Chalcocite, malachite.		348'7"		9"	348'7"	5000+ 2000 2000+ 10 10 5 350	348'7"
		350		11"	349'6"	Pa.	349'6"
		355			C	5000+ 2000+ 2000+ 5 5 10	
		353		1"	353'6"	Pa.	353
		354		13"	354'6"	355	354'6"
		355		7"	355'8"	5000+ 2000+ 2000+ a 10 10	355
		356		12"	357'8"	Pa.	357'8"
		357		2"	358'4"		358'4"
Grey schist, ? chloritic.		360'10"		80"	360'10"	2000 100 200 a 10 100	360'10"
Chocolate sand derived from break down of material between 348'7"- 360'10". May be a cavity filling.		361'10"				5000 500 1000 a 5 100 0 4	
		370				Pa. (core)	
		374		6	368'6"	5000+ 2000+ 1000 a 5 100	
Cavity.		374		15	372'	Pa. (clay)	
		378			374		374
Brown siliceous siltstone.		378					
Chalcocite		382		10	378'	5000+ 2000 500 a 10 20	378
Cavity.		382		6	380'	Pa.	
		390			382	5000+ 2000 500 a 10 100	382
		400				Pa.	

DRILL NO.

TYPE

DRILLER

COMMENCED

COMPLETED

CASING IN HOLE DURING DRILLING

EXPLANATION

The following sections were
resplit. 348'7" - 349'6" - 353' (1+2) - 354'6"
- 356' (1+2) - 357'4" - 358'6" - 360'10"

REFERENCES

Analyst. S. Baker.

Spectrographic results A.D. Haldane.

HEAD OFFICE

LOGGED BY

DRAWN BY

CHECKED BY

SHEET 4

DRAWING 5

GDI30

Note 354'6" to 356' 8 1/2" black siliceous rock 0.81% Cu. 350'-355' 1.4% Cu. 4 1/2" at 5.2% Cu.
4 1/2" brown siliceous rock 8.1% Cu. remainder 0.7% Cu.

GEOLOGICAL LOG OF DRILL HOLE

PROJECT. RUM JUNGLE

HOLE No. **DD C 24**

REMARKS

CO-ORDINATES

R.L. GROUND

LOCATION MT. FITCH.

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	LIFT CORE RECOVERY IN %	SPECTROGRAPHIC RESULTS	ASSAYS	
	CASING	SIZE OF CORE					Au Co Ni Pb Mo V p.p.m.	Au %
	404'6"			404'6"		404'6"	
Brown chlorite schist.				2"	406'6"	0.3	
				6"			
		410		15"	409'6"	0.2	
				70"	412'6"		
					5000 + 150 200 5 10 20 Pa. (core)		
					2000 200 400 a 5 20 Pa. (clay).	409'6"	
					200 60 30 5 10 50 Pa. (core).	415'	
		420		30"	418'8"	500 100 60 a 5 50 Pa. (clay.)	
	423'6"				423'6"	200 15 10 a 10 20 Pa.	423'6"
Grey chert.	425'6"			7	425'	1500 100 200 5 5 50 Pa. (core).	425'6"
Brown chlorite schist.				36	428'6"	4000 200 200 a 5 50 Pa. (clay)	430'
	430' T.D.	430		6"	430		
Tropari survey. Casing 380' 17 ²⁴ Set for 35 minutes. 17 ⁴⁰ At 410' 18 ¹⁵ Released Angle 53° bearing 49° E.							
		440					
		450					
		460					
		470					
		480					
	490						
	500						

DRILL NO. <u>A 3000</u> TYPE <u>JOHANSSON</u> <u>DAVIS</u>	EXPLANATION CASING IN HOLE DURING DRILLING <u>H</u>	HEAD OFFICE LOGGED BY <u>P. PRITCHARD</u> DRAWN BY CHECKED BY SHEET <u>5</u> OF <u>5</u> DRAWING NO.
DRILLER COMMENCED <u>15.10.63</u> COMPLETED <u>18.11.63</u>	REFERENCES <u>Spectrographic results A. Haldrup.</u> <u>Assays S. Baker.</u>	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
 HOLE NO. DC25 CO-ORDINATES 120.67E 426N R L GROUND
 LOCATION MT. FITCH Copper Prospect ANGLE FROM HORIZONTAL 54 DIRECTION 060 mag

DESCRIPTION OF CORE	R.L. CASING	DEPTH SIZE OF CORE	LOG	FT CORE RE COVERY 195	LEFT CL SAMPLES	REMARKS	ASSAYS
							Cu %
		10					
		20		7	20		
Chocolate ferruginous clay.				33	21		
					24		
Yellow from 24'				12	25 1/2"		
				12	27 1/2"		
				24			
		30		10	30		
				36	31		
					34 1/2"		
				30			
				48	37	700 2000 1000 a 15 50 Zn 100	0.20
Mottled yellow, black, chocolate and pink from 37'						1000 1000 2000 a 5 100	0.20
Psilomelane 37'						Zn 500	
		40				1000 300 700 a 10 10	0.12
				24	41	500 500 700 a 10 10	0.35
				43	43	1000 1000 1000 a 15 50 Zn 200	0.3
				23	46	1000 300 700 a 5 30 Zn 200	0.15
				24		700 150 500 a 10 30	0.1
					48		
		50		20			
				28	51 1/2"		
					56 1/2"		
		60		24			
				36	59		
					65 1/2"		
				34		(1) 5000 500 700 a 10 30	0.7
						Zn 100	
						(2) 5000+2000 1000 a 10 30	
						Zn 500	
		70		48	70	(3) 5000 1500 1000 a 10 30 Zn 500	70
69'-70' Psilomelane							
					75'		
				63			
		80			80 1/2"		
				20	82 1/2"		
				36			
				90	85 1/2"		
		90					
					93		
				42			
				18	96 1/2"		
				12	98 1/2"		
				3	99 1/2"		
		100					
Completely weathered		92'					
Slightly weathered.							
Purple and cream mottled talcose clay.							
		98 1/2"					

DRILL NO. P25
 TYPE MINDRILL
 DRILLER Steel Keam
 COMMENCED 30.10.63
 COMPLETED 21.11.63

EXPLANATION
 CASING IN HOLE DURING DRILLING

REFERENCES

Assays - S. Baker.

HEAD OFFICE

LOGGED BY P. PRITCHARD
 DRAWN BY
 CHECKED BY
 SHEET 1 OF 3
 DRAWING NO.

68 1/2"-70 (1) 15" brown clay 0.74% Cu.
 16" black clay 0.70% Cu.
 2" brown clay 0.45% Cu.

GEOLOGICAL LOG OF DRILL HOLE

HOLE No **DC 25**

REMARKS

HOLE No DA 25 CO-ORDINATES

R.L GROUND

LOCATION MT. FITCH COPPER

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORRECTION RECOVERY 198	LIFT SAMPLES	REMARKS	ASSAYS	
	CASING	SIZE OF CORE					Cu.	%
Purple grading to olive chlorite schist.					30			
					42	102'8"		
Purple quartz hematite rock					16	106'2"		
					46	108'6"		
Olive & purple chlorite schist		110			113'			
					26			
					11	117'6"		
Brown limonitic siliceous siltstone (weathered limestone).		120			119			
					16	121'6"		
As above with tremolite.					25			
					22	126'6"		
					12	128'6"		
Cream rughy limestone.		130			15	130		
					132			
Brown mottled limonitic clay.					12	134		
					50			
		140			139			
					60			
143' Manganese.					55	144		
					42	149		
Cream clay.		150			36	152'6"		
					30	156		
					12	159		
		160			12	161		
					48	163		
					51	167		
		170			60	171'6"		
					30	176		
					24	178		
		180						
		190						
Quartz fragments from 190'6"								
Brown sand								
Cream clay grading down into green soapstone.		200						

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE	
TYPE		LOGGED BY .....	.....
DRILLER	REFERENCES	DRAWN BY .....	.....
COMMENCED		CHECKED BY .....	.....
COMPLETED		SHEET <u>2</u> OF <u>3</u>	
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE

REMARKS

HOLE No. DD G25

CO-ORDINATES

R.L. GROUND

LOCATION MT. FITCH COPPER PROSPECT

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	LIFT SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE				
205' Green talc schist and quartzite. Pyritic. 232'-233'6" quartz tourmaline. 236'-237'7" quartz tourmaline. 242'3" quartz tourmaline. 247'11" quartz tourmaline. 258'3" quartz tourmaline. 279'-282'6" quartz tourmaline. TJ 282'6"		BKM		28		
				32	202'4"	
		205'		39	205' 205' TS	Talc
				209		
				18	211	
				12	212	
				16	213'6"	Quartzite.
				30	214' TS	
				48	216	
				36	221	
				35	225	
				55	228'4"	
				56	233'6"	
				49	238	
				9	242'3"	
				45	243	
				40	246'10"	
				45	250'6"	
				60	254'6"	
				60	259'6"	
				59	264'6"	
				39	269'6"	
				24	272'9"	
				26	274'9"	
				22	277	
				42	279	

DRILL NO.	EXPLANATION	HEAD OFFICE	
TYPE		LOGGED BY <u>P. PRITCHARD</u>	
DRILLER	REFERENCES	DRAWN BY	
COMMENCED		CHECKED BY	
COMPLETED		SHEET <u>3</u> OF <u>3</u>	
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT, RUM JUNGLEHOLE No. DD 626CO-ORDINATES 118 8E 425 10 N

REMARKS

R.L. GROUND

LOCATION MT. FITCH, COPPER PROSPECTANGLE FROM HORIZONTAL 55°DIRECTION 057 Mag.

DESCRIPTION OF CORE	RADIO METRY	DEPTH SIZE OF CORE	LOG	CORE RE COVERY 198	LIFT SAMPLES	REMARKS	ASSAYS
Not cored.	.008 .008 .009 .010 .009 .007 .008 .008 .009 .010 .009 .007 .007 .007 .006 .007 .007	10					
20' Completely weathered limestone.	.007	20			20'		
20'-21' Yellow limonitic siliceous rock (siltstone).	.007 .007 .007 .007 .008 .007 .008 .009 .008 .008 .009 .010 .011 .011 .010 .009 .009 .009 .008 .006 .006 .007 .007 .007 .007 .008 .008 .009 .009 .009 .010 .009 .008 .008 .007 .007 .007 .007 .008 .009 .009 .009 .010 .009 .008 .008 .007 .007 .006 .006 .005 .006 .006 .007 .007 .007 .007 .006 .006 .006 .006 .005 .005 .005 .005 .006	20 NMS		9 28 12 46 24 41 14 12 18 12 23 14 16 12 36 48 46 5 81 4 29 26 2 30 6 27'	21' 24' 26' 31' 36' 40' 45' 46 48 51 56 59 63 3/8" 66 70 74 77 1/8" 80 1/8" 83' 84' 86" 88 6/8" 89 1/2" 92 1/8" 96 5/8"		
21-56' Pink yellow brown and purple siltstone with minor siliceous bands and clay.		30					
40-45'8" Fragments of green schist.		40					
56'-67'6" Chocolate, manganeseous		60					
67'6" 67'6"-113' Purple and yellow.		70					
		80					
		90					
		100					

DRILL NO. <u>F20</u>	EXPLANATION	HEAD OFFICE
TYPE <u>MINDRILL</u>	CASING IN HOLE DURING DRILLING ☒	LOGGED BY <u>P. PRITCHARD</u>
DRILLER <u>UNDERWOOD KEMP</u>	REFERENCES	DRAWN BY
DRILLER <u>COLLINGWOOD, DAYIS</u>		CHECKED BY
COMMENCED <u>4.11.63</u>		SPES
COMPLETED <u>20.12.63</u>		GRAB NO.

	PAGE	FROM		LIFTS	
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DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING H	HEAD OFFICE	
TYPE		LOGGED BY P. PRITCHARD	
DRILLER	REFERENCES B casing to 180' on probing.	DRAWN BY 	
COMMENCED		CHECKED BY 	
COMPLETED			
		SHEET 2 OF 5	
		DRAWING NO	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
HOLE No. DD C 26 CO-ORDINATES R.L. GROUND
LOCATION MT. FITCH ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	RADIO-METRY	DEPTH SIZE OF CORE	LOG	CORE RE COVERY 100%	LIFTS ↓ SAMPLES	REMARKS	ASSAYS
	003	BXM					
	003						
	003						
204'	003				9	204'	
Slightly weathered 204'-239'	003				16	205'	
Brown limonitic limestone, roughy;	002					206'	
in places siliceous.	003				39		
	003						
	003	210					
	002				8	211	
	002	BMS					
	003					214'	
	003				44		
	002						
	002					218	
	002				15		
	003						
	003	220					
	002						
223'	002						
Cavity	003						
	003						
	003						
227'	004					226	
As for 204'-223'	004				43		
	004						
	003	230					
	003					232	
	003				50		
	003						
	003						
	003					239	
239'	003						
Mottled purple, green and white	003	240			32	241'	
schist with limestone bands.	003				41	241'	
Phosphatic.	003					TS	
	004					241'	
267'-268 Hematitic calcite.	004					245'6"	
	004				118		
	004						
	004	250					
	004						
	005					255'4"	
	005						
	006				37		
	004					259'9"	
	004						
	004	260			19		
	005					262'6"	
	005				76		
	005						
	005						
	004						
	004					269'2"	
270'6"	004	270			123		
White coarsely crystalline	003						
limestone, minor green and	003						
purple bands	003						
	003						
	002						
	002						
	002					279'5"	
	002	280			124		
	002						
	002						
	002						
	002					289'9"	
	002	290			122		
	001						
	002						
	002						
	002						
	002						
	002						
	002						
	002	300				299'11"	
	002						

DRILL NO.	EXPLANATION	HEAD OFFICE
TYPE	CASING IN HOLE DURING DRILLING	LOGGED BY <u>P. PITCHARD</u>
DRILLER	REFERENCES	DRAWN BY
COMMENCED		CHECKED BY
COMPLETED		SHEET <u>3</u> OF <u>5</u>
		DRAWING NO.

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS
GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS.....
HOLE No. DD. G26 CO-ORDINATES..... R.L. GROUND.....
LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL..... DIRECTION.....

DESCRIPTION OF CORE	RADIO-METRY	DEPTH SIZE OF CORE	LOG	CORE RE COVERY PER CENT	LIFTS ↓ SAMPLES	REMARKS	ASSAYS
	001				16	301'3"	
	002				120		
	001						
	001						
	002						
	002						
	002						
	002						
	002	310					
	002				15	311'3"	
	002				107	312'6"	
	002						
	002						
	002						
	003						
	003						
	004	320					
321'9"-322' Purple chlorite schist.	004				53	321'9"	
	003						
325'8"	003						
	004				24	326'3"	
Green pyritic siliceous schist.	004				30	328'3"	
325'8"-345' Type 1.	005						
345'-439 Type 2+3.	006	330			48	331'1"	
	006						
	007						
	008				31	335'	
	009						
	010				41	337'9"	
	012	340			71	339'6"	
	015						
	012					342'4" Type 1. TS	
	012						
	022						
	022						
	024				49	346'1"	
	025						
	025						
	024	350			26	350'3"	
	024				60		
	026						
	024						
	020						
	019						
	014				23	357' TS Type 2.	
	014						
	012						
	026	360			17	359'	
	028				16	360'6"	
	029				23	362'0"	
	030				14	364'3"	
	075				36	365'9"	
	070						
	055				24	368'9"	
	060				7	371'	
	058	370			10	374'	
	052				88	375'	
	047						
	044						
	041						
	040						
	042						
	042						
	041						
	034						
	035						
	041						
	032	380					
	030						
	032						
	030				42	382'4"	
	039						
	041						
	036						
	035				22	386'3"	
	035						
	035				92	388'4"	
	030	390					
	030						
	030						
	030						
	031						
	035				36	397'2"	
	035	400					
	032						

DRILL NO.	EXPLANATION	HEAD OFFICE
TYPE	CASING IN HOLE DURING DRILLING	LOGGED BY <u>P. PRITCHARD</u>
DRILLER	REFERENCES	DRAWN BY <u>A. TAYLOR</u>
COMMENCED		CHECKED BY
COMPLETED		SHEET <u>4</u> OF <u>5</u>
		DRAWING NO

GEOLOGICAL LOG OF DRILL HOLE

PROJECT. RUM JUNGLE

HOLE No. DDG 27

CO-ORDINATES 431 11 N 118 08 E

REMARKS.

R.L. GROUND

LOCATION MT. FITCH COPPER PROSPECT.

ANGLE FROM HORIZONTAL 55'

DIRECTION 054 Mag.

DESCRIPTION OF CORE	RADIO-METRY	DEPTH SIZE OF CORE	LOG	LIFTS ↓ CORE RE COVERY TMS	SPECTROGRAPHIC RESULTS. Cu Co Ni Pb Mo V p.p.m.	ASSAYS Cu %
Not cored.		006				
		004				
		003	10			
		003				
		004	20			
		004				
		013	30	12 30		
Mottled yellow-brown and white kaolinitic quartz sandstone.		013		36 31		
Well rounded grains. A few siliceous bands. Hematite at 31 1/2"		016				
		015				
		015		22 35		
		014				
		015				
		012				
		011	40	9 39		
		010		20 41		
		008				
		006				
		005				
		003				
		004	50	18 49		
				12 51 6"		
				4 52 9"		
		005		21 53 10"		
				30 56 6"		
		006	60	15 61'		
62' Grades to sandy clay and clayey sandstone in bands.				12 62 9"		
		006		34 64		
67-79' Manganese stained patches.				6 67		
				31 68		
		006	70	23 71 3"		
				21 75		
Yellow brown and chocolate clay and siltstone with hard siliceous bands from 82 1/2"		009				
		011				
		011				
		016				
Weathered limestone.		019	80	30 79		
		017				
		015				
		017		16 82		
		011		32 83 2"		
		010				
		009				
Hard, limonitic, siliceous siltstone with blebs of chalcocite. (2mm).		008		17 86'	5000+ 2000+ 2000 10 10 50 Be 10 Pa.	0.5 (clay 1.5)
		012				
		010				
		009		13 89 6"		
		008	90			
Base of complete weathering. 92 1/2"		008				
		009				
		008		32 92 1/2"		
Slightly weathered pale olive siltstone grading to olive talcose schist at 95'		008				
		006				
		006				
		006				
		005				
		005	100			

 DRILL NO. F62 MINDRILL
 KAMARUTS
 COLLINGWOOD

 EXPLANATION
 CASING IN HOLE DURING DRILLING

 DRILLER
 COMMENCED 8.11.63
 COMPLETED 21.11.63

REFERENCES

 HEAD OFFICE
 LOGGED BY P. PRITCHARD
 DRAWN BY
 CHECKED BY
 SHEET 1 OF 2
 DRAWING NO

GEOLOGICAL LOG OF DRILL HOLE

PROJECT	REMARKS
RUM JUNGLE	
HOLE No. DD G27	
CO-ORDINATES	R L GROUND
LOCATION MT. FITCH COPPER PROSPECT	
ANGLE FROM HORIZONTAL	DIRECTION

DESCRIPTION OF CORE	RADIO-	DEPTH	LOG	CORE RECOVERY (%)	SAMPLES	SPECTROGRAPHIC RESULTS.						ASSAYS
	METER	SIZE OF CORE				Cu	Co	Ni	Pb	Mo	V.		Cu %
						p.p.m.						
					18	100'8"						
					19	102'6"						
					37	105'2"						
					57	108'6"						
					54	113'6"						
					36	118'6"	T.S.					
					12	121'6"						
					45	122'6"						
						126'8"						
					15	128'6"						
					14	130						
					15							
					14	133'6"						
					26	136'						
					29	139						
					28	141'6"						
					32	143'6"						
						147						
					20	148'6"						
					14	150						
					16	150'6"						
					10	153						
					33	155'						
					18	157'6"						
					12	159						
					36	160						
					6	163						
						163'6"						

DRILL NO	CASING IN HOLE DURING DRILLING	H	EXPLANATION	HEAD OFFICE	
TYPE				LOGGED BY	P. PRITCHARD
DRILLER	Assays 122'6" - 128'6" S. Baker. (Core 13.02% Cu fines 12.98% Cu)			DRAWN BY	
COMMENCED				CHECKED BY	
COMPLETED				SHEET 2	OF 2
				DRAWING NO	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
HOLE No. DD G 28 CO-ORDINATES R.L. GROUND
LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL Vertical DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY IMS	HFT SAMPLES	REMARKS	ASSAYS
	CASING SIZE OF CORE	SIZE OF CORE					
Not cored.	.006						
	.009						
	.010						
	.012						
	.012						
	.011						
	.012						
	.010						
	.009						
	.008						
	.005	10					
	.004						
	.004						
	.004						
	.007						
	.013						
	.016						
	.016						
	.014						
	.011	20					
	.009						
	.007						
	.006						
	.005						
	.005						
	.004						
	.005						
	.005						
	.006						
	.006	30			30'		
Brown, grey and chocolate clay.	.006						
	.006				33		
	.005				33		
	.004				30		
	.004						
	.005				37'		
	.005				38'		
	.004				22		
	.005	40					
	.005				42'		
	.005				28		
	.005						
	.005				46'		
	.005				32"		
	.005						
	.005	50			50'		
	.006				54		
	.006						
	.005						
	.005						
	.004				57'		
	.004				57		
	.004	60					
	.004				62'		
	.003				51		
	.003						
	.003						
	.004				67		
	.004				31		
	.004	70					
	.004				72'		
	.004				45		
	.004						
	.004				77'		
	.004						
	.004	80			21		
	.004				82'8"		
	.005				56		
	.005						
	.006						
	.007						
	.006				87'		
	.006				9		
	.006	90			90		
	.005				36		
	.005						
	.005						
	.005						
	.004						
	.003						
	.003						
	.003						
	.004	100			99'8"		
	.004						

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE	
TYPE		LOGGED BY	A. TURNER
DRILLER	REFERENCES	DRAWN BY	
COMMENCED		CHECKED BY	
COMPLETED		SHEET 1 OF 6	
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
HOLE NO. DD G28 CO-ORDINATES
LOCATION MT. FITCH COPPER PROSPECT R.L. GROUND
ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	RADIO-METRY	DEPTH SIZE OF CORE	LOG	CORE RE COVERY 1985	LIFT SAMPLES	REMARKS	ASSAYS
	005			39			
	004						
	003						
	003				104'8"		
	004			30			
	004				108		
	004			38			
	004	110					
	003				112'3"		
	003			40			
	003						
	002				117		
	002			56			
	002	120					
	002				122		
	004			22			
	004				125'9"	T.S.	
127' Chalcocite.	005			3	127 127		
	004			36			
	004						
	005	130			131'1"		
	005			44			
	005						
	004				136'3"		
	004			55			
	005						
	003	140			141'3"		
	003			37			
144'6"-146'6" cavity.	003				144'6"		
	004				146'6"		
148'-149' chocolate weathered.	004			57			
	004						
	003	150			151'6"		
	003			57			
	006				156'6"		
155'-155'6" Talcose schist.	007			4	157'6"		
	005			6			
	004			5	159'6"		
	005	160			161		
	005			16	163		
163-165 cavity.	004				165		
	004			6	167		
	003			29			
	003	170			170		
173'10"-174'6" light green talcose schist	005			26			
	010				173'10"		
	010			38			
	007				177'4"		
	006						
	006			54			
	005	180			182'4"		
	006						
183'6"-184' Green talcose schist.	005			47			
184'-187' Sideritic limestone	004				187	T.S. 186	
	005			52			
	006	190			192		
	005			52			
	004				197		
	004			54			
	004						
	004						
	005						
	010						
	011						
	010						
	009	200					

DRILL NO.	EXPLANATION	HEAD OFFICE
TYPE	CASING IN HOLE DURING DRILLING	LOGGED BY <u>A. TURNER</u>
DRILLER	REFERENCES	DRAWN BY
COMMENCED		CHECKED BY
COMPLETED		SHEET <u>2</u> OF <u>6</u>
		DRAWING NO.

HOLE No. DD G28 CO-ORDINATES
LOCATION MT. FITCH COPPER PROSPECT.

REMARKS

R.L. GROUND

LOCATION MT. FITCH COPPER PROSPECT

ANGLE FROM HORIZONTAL

DIRECTION

DRILL NO.		EXPLANATION	HEAD OFFICE	
TYPE			LOGGED BY	A. TURNER
CASING IN HOLE DURING DRILLING		REFERENCES	DRAWN BY	.....
.....			CHECKED BY	.....
DRILLER			SHEET 3	OF 6
COMMENCED			DRAWING NO.	.....
COMPLETED				

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
HOLE No. DD G28 CO-ORDINATES R.L. GROUND
LOCATION MT. FITCH COPPER PROSPECT. ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY 1996	LIFTS of SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
Cavity. White and brown limestone with bands of green schist. 335' - 337' 341' - 342' 383'6" - 384' hematite at 372'6", 378' manganese staining 389'		303'6"					
		310		50	303'6"		
				38	308'8"		
				20	312'6"		
				56	317'		
		320		57	322		
				55	327		
		330		4	331'9"		
				6	332'6"		
				17	333'6"		
				8	335		
				4	337		
		340		36	338		
				54	342'6"		
				53	347'6"		
		350		24	352'6"		
				56	354'6"		
				36	359'6"		
		360		46	363		
				54	368		
		370		53	373		
				54	378		
		380		52	383		
				52	388		
		390		24	393		
				54	395'3"		
		400					

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE	
TYPE		LOGGED BY	A. TURNER.
DRILLER	REFERENCES	DRAWN BY	.....
COMMENCED		CHECKED BY	.....
COMPLETED		SHEET 4 OF 6	
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
HOLE No. DD C28 CO-ORDINATES
LOCATION MT FITCH COPPER PROSPECT R.L. GROUND
ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	LIFT 8 CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
		510		120	509'		
		520		37	519'		
		522'3"		2	522'3"		
Cavity.		525'6"					
Weathered limestone.		526'9"		102	525'9"		
Unweathered limestone.		530					
		533'6"					
Weathered brown limestone.				44	534'3"		
534'9"-535' Well rounded sandstone		537'3"					
Weathered strongly sheared green talc.		540		43	538'3"		
				12	542'3"		
				12	545'		
		550		3	548'		
				8	549'		
				45	550'3"		
					554'		
				27	556'9"		
		560					
		570					
		580					
		590					
		600					

DRILL NO.	EXPLANATION	HEAD OFFICE	
TYPE		LOGGED BY	P. PRITCHARD.
DRILLER	REFERENCES	DRAWN BY	.....
COMMENCED		CHECKED BY	.....
COMPLETED		SHEET 6 OF 6	
		DRAWING NO	.....

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS _____
HOLE No. DD G30 CO-ORDINATES 114E 427.6N. R L GROUND _____
LOCATION MT FITCH COPPER PROSPECT. ANGLE FROM HORIZONTAL Vertical DIRECTION —

LOCATION		DATE		TIME		CITY		STATE		COUNTRY		REMARKS		ASSAYS	
DESCRIPTION OF CORE		RADIO-METRY	DEPTH	LOG	CORE NO.	RECOVERY %	SAMPLES	REMARKS		ASSAYS					
		SIZE OF CORE													
Not cored.		007	NX												
		007													
		008													
		007													
		007													
		007													
		008													
		008													
		009													
		010	10												
		009													
		008													
		008													
		010													
		010													
		010													
		010													
		011													
20		011													
Hard black schist; soft grey chloritic schist, white chert lenses and stringers. Chert contains stylolites		012	20		3	20									
		010	NM		8	21'4"									
		008	LC.		20	22'4"									
		007			2	24"									
		006			16	24'5"									
		006			24	26'									
38-47' hematitic, siliceous.		006	NX												
		006													
S, 20' at 23'		007			17	29'6"									
" " " 28'		008	30												
		006			7	32									
		005	NM												
Moderately weathered.		005	LC.		10	34'6"									
		005													
		006			10	37									
		006				38'3"									
		006			3										
		006	40												
		007				41'6"									
		006			0	43'6"									
		006			8										
		006				47'									
47		006			34										
Slightly weathered soft and hard chloritic schist.		006				48'6"									
52'6"-56'6" quartz schist after sandstone.		005	50			T.S.									
		005				52									
		005			59										
		008													
S, 60' at 53'		007			60	57									
		006													
		007	60												
		008				62									
63		009			42										
Grey and white interbands of chloritic schist and quartzite.		010				63'									
Finely disseminated pyrite.		011				T.S.									
		010				65'6"									
S, 45' at 63'		009			42										
		008				69'6"									
		008	70		54										
		009													
		008				74									
		010			42										
slightly weathered.		010				77'6"									
		009			20	79'6"									
		008	80		18										
		008				82'6"									
		008			6	83'9"									
83'9"		008			58	84'9"									
Grey chert, brecciated in places, broken and ugly.		008													
Minor disseminated pyrite.		011													
		011													
		009													
slightly weathered.		009	90												
		008				92'2"									
93'9"		007			13										
Cavity.		006													
		005													
97'6"		005			2	97'6"									
As for 83'9"-93'9"		005			3	98'6"									
		006	100												

DRILL NO. <u>F.62</u> TYPE <u>MINDRILL</u>		EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE LOGGED BY <u>P. PRITCHARD</u> DRAWN BY CHECKED BY
DRILLER <u>Kamaruls</u> <u>Briggsley</u> COMMENT <u>28.11.63</u> COMPLETED <u>29.1.64</u>		REFERENCES <u>Assays 75-85 S. Baker</u>	SHEET <u>1</u> OF <u>7</u> DRAWING NO

GEOLOGICAL LOG OF DRILL HOLE

PROJECT	RUM JUNGLE	REMARKS	
HOLE NO.	DD Q30	CO-ORDINATES	R.L. GROUND
LOCATION	MT. FITCH COPPER PROSPECT.	ANGLE FROM HORIZONTAL	DIRECTION

[illegible]

DRILL NO.	EXPLANATION	HEAD OFFICE	
TYPE ..		LOGGED BY	P. RICHARD
DRILLER	REFERENCES	DRAWN BY	
COMMENCED		CHECKED BY	
COMPLETED		SHEET 2 OF 7	
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE

HOLE No DD G30.

CO-ORDINATES

REMARKS

R L GROUND

LOCATION MT. FITCH COPPER PROSPECT.

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	RADIO METRY	DEPTH SIZE OF CORE	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
with green talc on shear planes pyrite along shears and disseminated throughout the rock. Slightly weathered, limonite on fractures.	005						
	005						
	005						
	006						
	006						
	006						
	006						
	006						
	006						
	005						
	005						
	006						
	006						
	006						
	006						
	006						
	006						
	005						
	005						
	005						
	006						
	006						
	006						
	006						
Brown, vughy, limonitic sheared limestone. Weathered.	003						
	003						
	003						
	003						
	003						
	003						
	003						
	003						
	003						
	003						
	003						
	003						
	003						
	003						
	003						
	003						
Yellow brown sandy limestone. Weathered.	005						
	005						
	005						
	005						
	005						
	005						
	005						
	005						
	005						
	005						
	005						
	005						
Cavity.	004						
	003						
	003						
	002						
	002						
	003						
	004						
	003						
	003						
	003						
	003						
	003						
	001						
	001						
	001						
	001						
	001						
	001						
	001						
	001						
	001						
	001						
	001						
	001						

DRILL NO.

TYPE

CASING IN HOLE DURING DRILLING

EXPLANATION

REFERENCES

HEAD OFFICE

LOGGED BY

P. PRITCHARD
D. FRENCH

DRAWN BY

CHECKED BY

SHEET 3 OF 7

DRAWING NO.

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS
GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
HOLE No. DD G30 CO-ORDINATES R.L. GROUND
LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	RADIO-METRY	DEPTH SIZE OF CORE	LOG	CORE RECOVERY %	SAMPLES	REMARKS	ASSAYS
Weathered crystalline limestone. Yellow, brown, white. Sandy. 305-307' limonitic.	Probe readings are suspect below 292'	310		104	307'		
312-316'3" sandy.							
316'3"-320' yellow limonitic sandstone.				32	316'6"		
		320		26	320'6"		
320-325'3" talc veinlets.				23	323		
				98	325'3"		
		330					
333-342 limonitic.				90	334		
342-348' Vuggy, sericitic, grey.		340		60	343		
				44	348		
		350		45	353		
		360		60	359		
369-370'6" kaolinitic.				18	364'6"		
370'6"-377'6" chloritic and talcose.				6	366		
				38	364"		
		370		78	370'6"		
377'6"-387'9" sandy, tremolitic. hematite 381-382'							
		380		110	377'9"		
				118	387'6"		
		390					
398-405 minor tremolite.							
					397'6"		
		400					

DRILL NO.	EXPLANATION	HEAD OFFICE	
TYPE	CASING IN HOLE DURING DRILLING	LOGGED BY	D. FRENCH
DRILLER	REFERENCES	DRAWN BY	.....
COMMENCED		CHECKED BY	.....
COMPLETED		SHEET	OF 7
		DRAWING NO.	.....

GEOLOGICAL LOG OF DRILL HOLE

PROJECT	RUM JUNGLE	REMARKS	
HOLE No.	DDG30	CO-ORDINATES	R L GROUND
LOCATION	MT. FITCH COPPER PROSPECT.	ANGLE FROM HORIZONTAL	DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	LIFT S CORE RE COVERY %	SAMPLES	SPECTROGRAPHIC	ASSAYS
	CASING	SIZE OF CORE				RESULTS	
						Cu Co Ni Pb Mo V P.p.m. Cu %	
		510					
		520					
		530					
536' pyrite .		540					
		550					
		560					
		570					
		580					
		590					
593 1/2"-595' q" manganiferous limestone						700 60 100 a <5 <5	588
596'-599' malachite .						5000+ 2000 1000 100 5 150	590
						5000+ 2000 700 100 5 100	595
		600					600

DRILL NO.	EXPLANATION	HEAD OFFICE	
TYPE		LOGGED BY	DJ. FRENCH
DRILLER	REFERENCES	DRAWN BY	.....
COMMENCED		CHECKED BY	.....
COMPLETED		SHEET 6 OF 7	
		DRAWING NO	.....

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS _____

HOLE No. DG. 30 CO-ORDINATES _____ R.L. GROUND _____

LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL _____ DIRECTION _____

DESCRIPTION OF CORE	R.L.	DEPTH SIZE OF CORE	LOG	LIFT & CORE RE- COVERY %	SAMPLES	SPECTROGRAPHIC RESULTS.	ASSAYS
	CASING					Cu Co Ni Pb Mo V		Ce %
						pp.m. 1500 150 200 50 10 50	
				80			
				607		200 80 150 10 10 <5	605'
				77			610'
610-615 leached cupriferous limestone with malachite, chalcocite and chalcopyrite from 613'-614'		610		613 3/4		5000 200 200 10 <5 <5	615'
615-616 1/2 silicified limestone.				31		1500 1000 700 10 <5 <5	
616 1/2"-627. Manganese spotted cupriferous limestone. Disseminated malachite, chalcopyrite, chalcocite. to 622'		620		619		500 200 200 α <5 <5	620'
				90			625'
				627			
Cavity. 629'				0			
				7			
As above, weathered limestone, cavitous, vughy.		630		629			
				111			
				634 1/2"			
		640		54			
				64			
				84			
650-658' Some siliceous bands.		650		654 9"			655'
				23			4.2
				32			
		660		657			660'
				36			
				668			
				0			
Cavity. 671'		670		671			
				46			
As above slightly mangniferous 674-675 1/2"				676'			
				20			
		680		682			
TD 682'							
		690					
		700					

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE	
TYPE		LOGGED BY	D. J. FRENCH
DRILLER	REFERENCES Tropari Survey. 640' bearing 39° E dip 80' Assays 655-660 S. Baker.	DRAWN BY	.....
COMMENCED		CHECKED BY	.....
COMPLETED		SHEET 7 OF 7	DRAWING NO.

GEOLOGICAL LOC OF DRILL HOLE

PROJECT. RUM JUNGLE
HOLE No. DD G31 CO-ORDINATES 112.5E 432
LOCATION MT. FITCH COPPER PROSPECT.

REMARKS	R L GROUND	DIRECTION
ANGLE FROM HORIZONTAL		

[illegible]

DRILL NO. <u>A 3000</u> TYPE <u>MINDRILL</u>		EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE LOGGED BY <u>D. PRITCHARD</u> DRAWN BY <u>D. J. FRENCH</u> CHECKED BY _____	
DRILLER <u>Johansson, Marks</u> <u>McCarthy</u> COMMENCED <u>18. 12. 63</u> COMPLETED <u>3. 2. 64</u>		REFERENCES	SHEET <u>1</u> OF <u>8</u> DRAWING NO. _____	

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS
GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
HOLE No. DD. 931 CO-ORDINATES R.L. GROUND
LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L. CASING	DEPTH SIZE OF CORE	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
Abundant pyrite, carbonaceous. 301'6"	011	BX		6	300'6"		
Cavity.	012			0	301'6"		
	012						
	014						
As above cavity. 306'	014			12	306		
	015			0	307		
Cavity.	015						
	019						
	020						
	019	310					
	018						
Yellow, leached non pyritic. 314'	019			18	312		
	020				314		
Cavity.	014			0			
	011						
	010			6	317		
Cavity. 319'6"	009						
	008				319'6"		
	008	320		17	321'3"		
Limestone, weathered, leached yellow and brown. Silicified in places. Strongly leached from 342'	008						
	008			33			
	008						
	008			8	325		
	008				327		
	008			35			
	008						
	009	330			330'6"		
	009			63			
	009						
	009						
	008						
	008						
	008						
	008						
	008	340		79	338		
	008						
	008						
	008						
	009						
	010						
	011						
246'6" - 355	010				346		
Siliceous, mangani ferous limestone	010	AX		32			
	015						
	016	350					
	017						
	019						
	019						
	019				355		
	019			25			
	023				357'6"		
	024			30			
	020						
	015	360			361'6"		
	015			40			
	015						
	009						
	009						
	008						
	008						
White crystalline limestone.	007						
	007						
	007	370					
	006						
	006						
	006			114	372		
	006						
	006						
	006						
	006						
	005	380					
	005						
	005			45	381'6"		
	005						
	005						
	005						
	005						
	005						
	005						
	005	390					
	005						
	005						
	005			0	387		
Cavity.	005						
	005						
	005	390					
	005						
	005			4	391		
leached uggy limestone.	005			35	392		
	005						
	005						
	006						
Cavity.	006			0	395'6"		
	006						
	006						
	006						
	006						
	007	400					

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE	
TYPE		LOGGED BY <u>D. FRENCH</u>	
DRILLER	REFERENCES	DRAWN BY	
COMMENCED		CHECKED BY	
COMPLETED		SHEET <u>4</u> OF <u>8</u>	
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUN JUNGLE REMARKS
 HOLE NO. DG31 CO-ORDINATES R.L. GROUND
 LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	LIFT 8 CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
603-612. slightly more mottled than above, drusy quartz linings to vugs, disseminated <u>native copper</u> and <u>limonite</u>	.004 to .006 to 695'	610		115	603	100 300 500 a a <5	
				105		500 300 300 a a <5	605
		610			612	1000 300 500 a a 10	0.50
				114		100 150 100 a a <5	615
620-625 White limestone? sideritic with disseminated <u>chalcocite</u> ? <u>pyrrhotite</u> , manganese oxide.		620			622	30 40 50 a a a	620
				117		50 300 200 a <5 <5	625
		630			632	200 500 700 a <5 <5	630
				118		700 700 1000 a <5 <5	635
638-644 Finely disseminated <u>native copper</u> and <u>chalcocite</u> . Chloritic from 642'.		640			642'	1000 300 300 a 5 <5	640
				118		300 200 150 a a <5	645
		650			652	2000 500 500 a <5 <5	650
		654'		35		5000++ 2000+ 2000+ 20 70	655
Weathered blue, green-black limestone; talc, chloritic graphite schist with abundant <u>chalcocite</u> .		660		42	657	700 300 200 a a <5	660
Weathered white to yellow limestone with rare native copper.				68	662	1000 200 100 a a <5	665
		670		23	668	1500 200 200 a a <5	670
Cavity.	672'			7	672		672
As above cavity.	674'			6	674'		
Cavity.	676'			6	676'		
As above cavity.	677'			6	677'		677
Cavity.	680'			40	680		
White limestone, mottled, sheared, stylolitic, chloritic. 684' kaolinitic clay.		690		14	684		
693-695' isolated specks of <u>chalcocite</u> .	695'			60	693		
Yellow weathered siliceous limestone grading into kaolinitic limonitic schist. 699-699'6" quartz sericite schist.		700			698		

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE	
TYPE		LOGGED BY <u>D. FRENCH</u>	
DRILLER	REFERENCES <u>Assay 610-615 S. Baker.</u>	DRAWN BY	
COMMENCED		CHECKED BY	
COMPLETED		SHEET <u>7</u> OF <u>8</u>	
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
 HOLE No. DD. G.31 CO-ORDINATES R.L. GROUND
 LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	LIFT 6 CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
Weathered, grey to yellow quartzite from 699'6" - 700'. 700' - 700'6" cuprous chlorite schist. 700'6" - 720' brown clay silt, yellow limestone. chloritic limestone. 720' - 733'6" leached, yellow limestone with native copper. Slightly siliceous sericitic and chloritic. 730'6" becomes pink-grey. T.D. 733'6"				85			
				48	704'6"		
		710		50	709'6"		
				16	714'6"		
				21	717'		
		720		30	719'6"		720
				48	724	100 100 30 a <5 <5.	725
		730		20	731		
					733'6"		
Rods sheared off, hole abandoned.		740					
		750					

DRILL NO.	EXPLANATION	HEAD OFFICE	
TYPE		LOGGED BY <u>D. FRENCH</u>	
DRILLER	REFERENCES <u>Tropari survey 695' bearing 15°W dip 84°</u>	DRAWN BY	
COMMENCED		CHECKED BY	
COMPLETED		SHEET <u>8</u> OF <u>8</u>	
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT **RUM JUNGLE** REMARKS
HOLE NO. **DD G36** CO-ORDINATES **114°2 E 445°3 N** R.L. GROUND
LOCATION **MT. FITCH COPPER PROSPECT** ANGLE FROM HORIZONTAL **54°** DIRECTION **086 Mag**

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RECOVERY %	SAMPLES	REMARKS	ASSAYS
	CASING SIZE OF CORE	SIZE OF CORE					
Not cored.	.005 .005 .006						
		6'			6		
Pale green to white crystalline limestone. Chloritic, abundant stylolites. Solution cavities, vugs	.007 .007 .006	10 BIT.			217		
14-21 Pyritic.		CASING.					
	.006	20 NX					
26'6"-27'6" Pyritic					26'6"		
					60		
	.005	30			31'3"		
33-35 shear zone 0' (w.r.t core axis) abundant chlorite, some pyrite					38		
					36'3"		
39'6"-41'6" blue-brown limestone.					36		
42'9"-45'	.005	40			41	39'3"	
					56	42'9"	
					57	47'9"	
52'-53' - weathered.	.006	50			48	52'6"	
					58	58'6"	
58-60 brown mottled.					61'6"		
	.003	60			60	66'6"	
68-72 abundant vugs.					71'6"		
70-75 blue-white mottled.	.004	70			58	76'6"	
					81'6"		
	.004	80			57	86'6"	
					60	91'6"	
95'6"-96'6" <u>chalcopyrite</u> and <u>chalcocite</u>					97'6"		
98'-99' shear zone, chloritic, fine grey crystals (? arsenopyrite) on	.004	90					
		100					

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE	
TYPE		LOGGED BY	D. FRENCH
DRILLER	REFERENCES	DRAWN BY	
COMMENCED		CHECKED BY	
COMPLETED		SHEET 1	OF 3
		DRAWING NO	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT, RUM JUNGLEHOLE No. DDG 36

CO-ORDINATES

REMARKS

R L GROUND

LOCATION MT. FITCH COPPER PROSPECT

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RECOVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
calcite crystals, some pyrite, minor <u>chalcopryite</u> .		004		29	101'6"		
105'6" small shear.				60			
106'6" - 107'6" abundant pyrite and arsenopyrite sublimite (as in 93'-99') together with a greenish-yellow mineral				60	106'6"		
108'6" as above.		003	110	60	111'6"		
				40	116'6"		
120'		002	120	84	120		
Blue-white limestone; no vughs or mineralisation to 132'			BX				
				120	127		
132' - vughs with rare pyrite on calcite crystals.		003	130			45 60 15 a 20 45	
135' - 136' Pyrite and <u>chalcopryite</u> in chloritic band.					137		136'2"
		003	140	116			
145' - 147' Abundant pyrite in shear				76	147		
152'		004	150				
Grey, medium to coarsely crystalline limestone (chloritic) with bands of the material to 152' and with grey schist fragments. <u>Pyritic</u> .				114	156		
		004	160				
165' - 178' disseminated <u>chalcopryite</u> and pyrite. Talcose.		008					
		006					
		007			163'6"		164'9"
		008		115		200 60 30 a 45 45	
		011					
		034					
		030					
		060					
		115	170				170'8"
		120					
		095					
		060					
		018			173'8"		173'8"
		017		112			
		018					
		013					177'8"
		011					
		011					
		009	180				
					183		
				114			
192' - 196' abundant chlorite, shear.			190				
				22	192'9"		
				40	195		
199 - 204'4" disseminated sulphide(?cpy)					199		199

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE	
TYPE		LOGGED BY <u>D. FRENCH</u>	
DRILLER	REFERENCES	DRAWN BY	
COMMENCED		CHECKED BY	
COMPLETED		SHEET <u>2</u> OF <u>3</u>	
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

DRILL NO.	EXPLANATION	HEAD OFFICE	
TYPE CASING IN HOLE DURING DRILLING		LOGGED BY	D. FRENCH..
DR.	REFERENCES	DRAWN BY	.....
COMMENCED	Tropari survey 235' bearing 085.5° Mag.	CHECKED BY	.....
COMPLETED	angle 55°	SHEET 3 OF 3	
		DRAWING NO.	

APPENDIX II.

ROTARY DRILL LOGS.

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
HOLE NO. R130 CO-ORDINATES 117°E 44'2"N R.L. GROUND
LOCATION MT. FITCH, COPPER PROSPECT ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RECOVERY %	SAMPLES	SPECTROGRAPHIC ANALYSIS MARKS	ASSAYS
	CASING SIZE OF CORE	SIZE OF CORE				Ca Co Ni Pb Mo V Sn ppm	
Greasy mottled, yellow, brown and white limonitic clay.		028					
		028				150 250 10- 15 100	
		023					5
		020					
		019					
		018				100 300 500 10- 15 150	
		014					10
		013					
		012					
		010				500 150 150 10- 10 100	
25-30' Fragments of magnesite.		013					15
		014					
		020					
		029				200 150 10- 10 30	
		025					20
		028					
		026					
		036				50 25 30 10- 10 50	
		035					25
		036					
Cream limestone.		033				30 15 10- 10 50	
		029					30
		028					
		026					
		026				50 15 10- 10 50	
		026					35
		025					
		025				60 10 10- 10 50	
		025					40
		026					
Too wet for hammer.		027				40 20 10- 10 20	
		028					45
		026					
		026				15 5- 10 30 7 30	
		026					50
		030					
		028				25 5- 20 10 20	
		028					55
		027					
		027				No sample.	
TD 65'		025					60
		025					
		032					
		032					
		030				60 20 50 10 20	
		030					65
		030					
		030					
		030					
		030					

DRILL NO. TYPE <u>Maxhew 1000</u>	EXPLANATION CASING IN HOLE DURING DRILLING <u>H</u>	HEAD OFFICE LOGGED BY <u>P. PRITCHARD</u> DRAWN BY CHECKED BY SHEET DRAWING C
DRILLER <u>McIlwaine</u> COMMENCED <u>18.11.63</u> COMPLETED	REFERENCES	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT **RUM JUNGLE** REMARKS
 HOLE NO **R132** CO-ORDINATES **442N 116.2E** R.L. GROUND
 LOCATION **MT. FITCH** ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	SAMPLES	SPECTROGRAPHIC ANALYSES Cu Co Ni Pb Mo V ppm.	Cu. % ASSAYS
	CASING SIZE OF CORE	SIZE OF CORE					
Chocolate, red brown and purple clay. 0-5' hematite.	050						
	060					5000 500 200 100	0.4
	070						5
	080						
	090						
	100					5000+ 1000 70 150	0.4
	110						10
	120						
	130					5000+ 1000 700 50 200	0.5
	140						15
	150					5000+ 1000 70 200	0.4
	160						20
	170					5000+ 700 50 300	0.5
	180						25
	190					5000+ 1000 50 200	0.5
	200						30
	210					5000+ 700 50 200	0.5
	220						35
	230					5000+ 700 70 200	0.5
	240						40
Brown limonitic clay with hard hematite fragments.	250					5000 700 100 300	0.2
	260						45
	270					5000 700 100 200	0.2
	280						50
	290					2000 500 500 100 200	N
	300						55
	310					5000 700 150 200	0.2
	320						60
	330					700 700 20 200	-
	340						65
Cream talcose clay, hematite fragments.	350					700 500 20 150	-
	360						70
	370						
	380						
	390						
	400						
	410						
	420						
	430						
	440						
lost circulation.	450						
	460						
	470						
	480						
	490						
	500						
	510						
	520						
	530						
	540						

DRILL NO.	EXPLANATION	HEAD OFFICE
TYPE MAXHEW 1000	CASING IN HOLE DURING DRILLING H	LOGGED BY P. PRITCHARD
DRILLER McIlwaine	REFERENCES	DRAWN BY
COMMENCED 18.11.63		CHECKED BY
COMPLETED		SHEET 1 OF 1
		DRAWING NO.

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE

REMARKS

HOLE No. R134

CO-ORDINATES 117.8 E 432 N

R.L. GROUND

LOCATION MT. FITCH COPPER PROSPECT

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
Red, brown, white and yellow ferruginous quartz sand and clay.	009	0-10'	0-rock bit/air.				Cu 90
	008	10-20'					
	007	20-30'					
	006	30-40'					
	005	40-50'					
Chocolate sandy clay.	005	50-60'	4 3/4" blades with air.				
	004	60-70'					
	003	70-80'					
	002	80-90'					
	001	90-100'					
Brown and chocolate siliceous ferruginous siltstone after limestone; quartz; ferruginous quartz sandstone (cf 0-20').	001	100-110'	35'-TD				
	002	110-120'					
	003	120-130'					
	004	130-140'					
	005	140-150'					
80'-90' Green talcose clay and chlorite schist fragments.	005	150-160'	35'-TD				
	006	160-170'					
	007	170-180'					
	008	180-190'					
	009	190-200'					

DRILL NO. TYPE MAYHEW 1000	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE LOGGED BY P. PRITCHARD DRAWN BY CHECKED BY
DRILLER McIlwaine COMMENCED 19-11-63 COMPLETED	Assays R. Beavers REFERENCES	SHEET 1 OF 2 DRAWING NO.

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS.....
HOLE No. R134 CO-ORDINATES..... R.L. GROUND.....
LOCATION MT. FITCH COPPER PROSPECT. ANGLE FROM HORIZONTAL..... DIRECTION.....

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
105-120' <u>malachite.</u>	008						Cu %
	011						0.51
	008						
	006						105
	004						
	003						1.80
	003						
	002						110
	002						
	002						115
T.D. 120.	002	110					
		120					0.79
Too hard and wet for rock bit or hammer.							120

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE	
TYPE		LOGGED BY .....	.....
DRILLER	REFERENCES	DRAWN BY .....	.....
COMMENCED		CHECKED BY .....	.....
COMPLETED		SHEET ... 2 ...	2
		DRAWING NO. ....	.....

[illegible]

DRILL NO. TYPE <u>MAYHEW 1000</u>		EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE LOGGED BY <u>P. PRITCHARD</u>	
DRILLER <u>McIlwaine</u> COMMENCED <u>19.11.63</u> COMPLETED		REFERENCES <u>Assays R. Beevers</u>	DRAWN BY CHECKED BY SHEET <u>1</u> OF <u>2</u> DRAWING NO.	

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS
GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
HOLE No. R 136 CO-ORDINATES
LOCATION MT. FITCH COPPER PROSPECT R.L. GROUND
ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
		.006					
		.006					
		.005 110					
		.005					
		.005 120					
		.005					
		.005					
		130					
Too hard for rock bit. Too wet for hammer.							

DRILL NO.	CASING IN HOLE DURING DRILLING <u>H</u>	EXPLANATION	HEAD OFFICE	
TYPE			LOGGED BY	
DRILLER	REFERENCES		DRAWN BY	
COMMENCED			CHECKED BY	
COMPLETED			SHEET <u>2</u> OF <u>2</u>	
			DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLEHOLE No. R138

CO-ORDINATES

116.80 E. 437.85 N.

REMARKS

R.L. GROUND

LOCATION MT. FITCH COPPER PROSPECT

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING SIZE OF CORE	SIZE OF CORE					
		016					Cu %
Brown and chocolate hematitic sand and siltstone. Quartz.		017					0.69
		020					
		024					
		030					5'
		024					
		024					0.75
		018					
		019					
		016					10'
		015					
Mottled yellow and brown limonitic clay, hematitic siltstone, quartz		014					
		014					
		014					15'
		012					
		012					0.66
		012					
		012					
		010					20'
		010					0.73
		010					
Green clay in addition from 15'-55'		012					25'
		011					
		011					0.50
		014					
		018					30'
		018					
		020					0.68
		021					
		022					35'
		021					0.74
43" blades		021					
		021					40'
		020					
		018					0.68
		016					
		016					
		015					65'
		014					
		013					
		012					
55'-65' Cream clay.		012					50'
		010					
		011					
		011					
		012					55'
		025					
		025					
		022					
		022					
		020					60'
Chocolate, ugly, siliceous siltstone after limestone; cream talcose clay; quartz fragments.		020					
		019					60'
		018					
		016					
		015					65'
		014					
		012					65'
		011					
		010					
		011					70'
90'-100' abundant quartz crystals from vugs		010					
		009					
		008					
		008					75'
		008					
		008					
		009					
		008					80'
		007					
		007					
		006					85'
		006					
		006					
		006					90'
		006					
		006					
		006					
		006					90'
		005					95'
		006					100'

DRILL NO.	EXPLANATION	HEAD OFFICE
TYPE <u>MAYHEW 1000</u>	CASING IN HOLE DURING DRILLING ☒	LOGGED BY <u>P. PRITCHARD</u>
DRILLER <u>McIlwaine</u>	REFERENCES	DRAWN BY
COMMENCED <u>20.11.63</u>	Assays R. Beeders.	CHECKED BY
COMPLETED		SHEET <u>1</u> OF <u>2</u>
		DRAWING NO.

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS

HOLE No R138 CO-ORDINATES R.L. GROUND

LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
Green talcose schist.		007					105
		014					110
		012					
		010					115
		008					
		006					120
		005					125
		125'					125
Cream crystalline limestone.		004					130
130' T.D.		004					130
Too hard for rock bit.							

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING <u>H</u>	HEAD OFFICE	
TYPE		LOGGED BY <u>P. PAITCHARD</u>	
DRILLER	REFERENCES	DRAWN BY	
COMMENCED		CHECKED BY	
COMPLETED		SHEET <u>2</u> OF <u>2</u>	
		DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE REMARKS
HOLE No. R140 CO-ORDINATES 121° 7' E 424° 2' N R.L. GROUND
LOCATION MT. FITCH COPPER PROSPECT ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
Red brown hematite fragments and clay.	014						Cu %
	014						0.45
	012						
	012						
	012						
	011						5
	010						
	010						
	012						
	010						10
	010	10					
	012						0.87
	013						
	014						15
	014						0.93
Brown limonitic siliceous siltstone after limestone; red brown hematite, brown clay.	014						
	012						
	011						20
	011	20					
	011						0.45
	013						
	014						
	014						25
	013						0.48
	013						
	013						
	014						30
	015	30					
	015						0.37
	015						
55'-140 purple. 55-60 grey fragments.	015						35
	014						0.93
	014						
	013						
	012						40
	011						
	011						
	010						
	010						45
	010						
	009						
	009						1.14
	009						
	008						50
	008						0.89
55'-140 purple. 55-60 grey fragments.	008						
	008						55
	008						0.38
	008						
	009						60
	009						0.30
	009						
	009						65
	009						0.17
	009						
	009						70
	009						0.84
	009						
	009						75
	009						0.57
55'-140 purple. 55-60 grey fragments.	009						
	009						80
	009						0.59
	009						
	009						85
	009						0.34
	009						
	009						90
	009						0.37
	009						
	009						95
	009						2.4
	009						
	009						100
	009						

DRILL NO. TYPE <u>MAYHEW 1000</u>	EXPLANATION CASING IN HOLE DURING DRILLING	HEAD OFFICE LOGGED BY <u>P. PRITCHARD</u> DRAWN BY CHECKED BY
WOODS COMES <u>21.11.63</u> COMPLETE	Assays R. Beavers.	REFERENCES SHEET <u>1</u> OF <u>2</u> DRAWING NO.

GEOLOGICAL LOG OF DRILL HOLE

PROJECT Rum Jungle REMARKS

HOLE No. R140 CO-ORDINATES R.L. GROUND

LOCATION Mt. Fitch ANGLE FROM HORIZONTAL DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
							Cu %
							0.94
							105
							0.64
		110					110
							0.65
							115
							0.64
		120					120
							0.51
T.D140 Lost circulation.							125
							130
		130					135
							140
		140					

DRILL NO.	CASING IN HOLE DURING DRILLING 	EXPLANATION	HEAD OFFICE	
TYPE			LOGGED BY	
DRILLER	REFERENCES		DRAWN BY	
COMMENCED			CHECKED BY	
COMPLETED			SHEET <u>2</u> OF <u>2</u>	
			DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

REMARKS

CO-ORDINATES 444.5 N 116.1 E

R.L. GROUND

LOCATION MT. FITCH

ANGLE FROM HORIZONTAL

DIRECTION

DRILL NO. TYPE <u>MAXHEW 1000</u>		EXPLANATION CASING IN HOLE DURING DRILLING <u>H</u>	HEAD OFFICE LOGGED BY <u>P. PRITCHARD</u> DRAWN BY CHECKED BY	
DRILLER <u>McIlwaine</u> COMMENCED <u>21.11.63</u> COMPLETED		REFERENCES 	SHEET <u>1</u> OF <u>2</u> DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLEHOLE No. R 165CO-ORDINATES 118 SE 430N

REMARKS

R.L. GROUND

LOCATION MT. FITCH COPPER PROSPECT

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS	
	CASING	SIZE OF CORE					Cu %	
Pink clayey quartz sand and sandy clay. Well rounded sand grains. Some quartz fragments.		003						
		006						5
		006	10					10
		008						15
		008						20
		005	20					25
		004						30
		012	30					35
		012						40
		011	40					45
25-50 chocolate.		008	0-60					50
		007	50					55
		007						60
		007	60					65
		007						70
		006	70					75
		006					0.32	80
		006	8 blades					85
		006	8 blades				0.28	90
		008	60-135'					95
70-105' chocolate.		009	90				0.37	
		025					0.72	
		016	100					

DRILL NO.
TYPE MAYHEW 1000

CASING IN HOLE DURING DRILLING

EXPLANATION

HEAD OFFICE

LOGGED BY P. PRITCHARD

DRAWN BY

CHECKED BY

SHEET 1 OF 3

DRAWING NO.

DRILLER WOODSCOMMENCED 18.11.63

COMPLETED

Assays R. Beavers

REFERENCES

GEOLOGICAL LOG OF DRILL HOLE

HOLE No. R165

HOLE No

HOLE No. R165 CO-ORDINATES
LOCATION MT. FITCH COPPER PROSPECT.

REMARKS

. R.L GROUND

ANGLE FROM HORIZONTAL

DIRECTION

DRILL NO	CASING IN HOLE DURING DRILLING	EXPLANATION	HEAD OFFICE	
TYPE			LOGGED BY	
DRILLER		REFERENCES	DRAWN BY	
COMMENCED			CHECKED BY	
COMPLETED			SHEET <u>2</u> OF <u>3</u>	
			DRAWING NO.	

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE

HOLE NO. R 167

CO-ORDINATES 118 9 E 428 N

REMARKS

R L GROUND

LOCATION MT. FITCH COPPER PROSPECT

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
		011					Cu %
Chocolate and red brown silt, clay, sand. Hematite fragments.		011					0.26
		013					
		013					5
		013					
		012					0.46
		012					0.28
		014					0.23
		013					10
		011					0.36
		010					
Brown clay with kunker fragments.		011					15
		011					0.33
		011					
		010					20
		009					0.34
		009					
		008					25
		009					0.20
		009					
		010					30
Brown limonitic silt.		010					0.70
		010					
		009					35
		009					0.17
		009					
		010					40
		011					0.49
		012					
		011					45
		010					0.37
Purple hematitic silt and vuggy, siliceous siltstone after limestone		012					50
		012					1.03
		010					
		010					55
		010					0.99
		008					60
		008					0.50
		008					
		008					65
		009					0.22
		009					
		010					70
		009					
		010					1.3
		010					
		010					75
		009					0.24
		008					
		007					80
		006					0.17
		006					
		006					85
		006					0.68
		007					
		009					90
		008					0.22
		009					
		011					95
		010					0.27
		010					
		010					100
		007					

DRILL NO.
TYPE MAYHEW 1000

CASING IN HOLE DURING DRILLING

EXPLANATION

HEAD OFFICE

LOGGED BY

P. PAITCHARD

DRAWN BY

CHECKED BY

SHEET 1 OF 2

DRAWING NO.

DRILLER WOODS

COMMENCED 19.11.63

COMPLETED

Assays R. Beavers.

REFERENCES

GEOLOGICAL LOG OF DRILL HOLE

PROJECT RUM JUNGLE

REMARKS

HOLE No. R167

CO-ORDINATES

R.L. GROUND

LOCATION MT. FITCH

ANGLE FROM HORIZONTAL

DIRECTION

DESCRIPTION OF CORE	R.L.	DEPTH	LOG	CORE RE COVERY %	SAMPLES	REMARKS	ASSAYS
	CASING	SIZE OF CORE					
		007					
		007					
		110					
		120					
		T.D. 125'					
Lost circulation.		130					

DRILL NO.	EXPLANATION CASING IN HOLE DURING DRILLING 	HEAD OFFICE	
TYPE		LOGGED BY .....	.....
DRILLER	REFERENCES	DRAWN BY .....	.....
COMMENCED		CHECKED BY .....	.....
COMPLETED		SHEET OF .....	.....
		DRAWING NO. ....	.....

APPENDIX 3Mineragraphy of mineralization in DG24

by

I.R. Pontifex

Introduction

The investigation of 6 selected specimens from this hole was made in conjunction with the detailed logging of the core by D.O. Zimmerman and the proposed chemical analysis of selected sections by A.D. Haldane. The specimens were taken from cuttings representing 5 ft. intervals in the hole.

Summary

The entire core is extensively leached and silicified. Only minor occurrences of mineralization are intersected by the hole and the distribution of this is sporadic. With the exception of a specimen examined from 205' to 210' which consists entirely of psilomelane, the ore minerals consist mainly of chalcocite with relatively accessory amounts of bornite, malachite pyrite, hydrated iron oxide, native Cu and ?native Au.

In two sections from 250' to 251' chalcopyrite is altered to secondary copper minerals. This chalcopyrite has been extensively leached and as a result, along grain boundaries and fractures it has been altered to bornite and chalcocite and these respectively represent successive stages of iron removal from the original chalcopyrite. The removed iron has concentrated as hydrated iron oxide in the centre of the alteration veins and this forms the beginning of gossan boxworks. Pyrite shows no evidence of incipient boxwork development.

In a silicified rock from 350' to 355' chalcocite stringers follow grain boundaries which often have a rhombohedral shape. These boundaries were inherent to the component grains pre-silicification.

Native Cu and ?Au in 2 samples from 350' to 355' occur as fine grains which are localised in leached voids within massive siliceous gangue.

Conclusions

Chalcopyrite is the only primary ore mineral observed in the core. The alteration of chalcopyrite to secondary copper minerals, in situ, is the result of the widespread leaching. The common occurrence of secondary copper minerals which are not spatially related to any primary minerals, (and in fact are present at greater depth than the intersected chalcopyrite) may represent the complete alteration of pre-existing primary minerals in situ. The mode of occurrence of these secondary minerals however indicates that they were introduced by supergene agencies. The relationship of chalcocite to inherent grain boundaries suggests that it was introduced before or contemporaneously with the silicification of the enclosing country rock. The localisation of native Cu in leached voids suggests that it was introduced and deposited post-silicification or possibly contemporaneously with it. The native elements are not evident in the hand specimen and were only detected because the sections were examined for a microscopic study of minor copper mineralization.

It is suggested that the two specimens indicated are assayed for gold and copper content in the subsequent chemical analyses.

Depth - 205' - 210'

Ore minerals - Psilomelane.

Macro - The specimen consists entirely of an aggregate of radiating stalactitic columns of a sooty black, soft mineral.

Micro - Micro chemical test indicated the presence of Mn.

The entire section has a fine felted flower-like texture and consists of a grey-white mineral of strong anisotropism. The mineral is psilomelane.

Although occurring alone, associated core cuttings consist of leached, silicified calcareous material. Psilomelane or dolomitic rocks, formed by meteoric waters.

Depth - 250' 11" to 251' 7" (2 specimens were examined)

Ore minerals - Chalcopyrite, chalcocite, bornite, hydrated iron oxide, pyrite, marcasite.

Macro - Buff coarsely crystalline dolomite contains chalcopyrite which is ramified by a network of chalcocite.

Micro - Massive chalcopyrite is ramified by a network of alteration veins of chalcocite and other secondary minerals. The chalcopyrite occurs as remnant isolated irregularly shaped grains up to 5 mm. across, essentially filling the cells produced by the secondary minerals. The grains are leached and as a result they are often extremely porous and in polished section they have a marked low relief in relation to the surrounding secondary minerals which replace them. The chalcopyrite is replaced around grain boundaries and along fractures within the grains.

The width of the replacement veins and coronas varies up to a maximum of 3 mm. and this expresses the variation in the degree of alteration. The wider veins commonly consist of 3 secondary products. Hydrated iron oxide forms a central core as the innermost constituent of the vein.

Chalcocite is the most abundant and widespread of the secondary minerals and this borders the hydrated iron oxide on the side nearest the chalcopyrite, or in the case of some veins replacing along fractures, on both sides. Often chalcocite is the only secondary mineral in any one vein.

Bornite is in places associated with chalcocite and it forms irregular poorly defined zones between chalcocite and chalcopyrite. Bornite often merges with feather like projections into adjacent chalcocite and chalcopyrite, without any distinctive boundary.

Accessory amounts of small pyrite grains are dispersed through the chalcopyrite and may occur independently in the gangue. The distribution of pyrite is apparently at random, however some grains are strung out in

stringers, occasionally parallel to chalcocite veins within the chalcopyrite. This direction may be a crystallographic direction within the chalcopyrite. Marcasite often partially replaces pyrite grains.

Depth - 350' to 355'

Ore minerals - Chalcocite, malachite, native Cu.

Macro - Reddish dense siliceous rock with sporadic distribution of skeletal masses of chalcocite and associated malachite which measure up to several mms. across.

Micro - Several discrete irregular patches and veins of chalcocite occur at random through the section. It makes up about 5% of the section. Some chalcocite veinlets cut dense siliceous grains, the larger masses however, are localised in irregular apparent leach voids in the siliceous mass.

Approximately 3% of the section consists of fine grains of native Cu which are dispersed at random with an even distribution throughout. The maximum size of these grains is about 0.075 mms. across and they are invariably localised within irregular leached voids in the siliceous aggregate.

Depth - 350' to 355'

Ore minerals - Chalcocite, native Cu, ?native Au.

Macro - Buff grey silicified fine grained rock. A fracture face in the rock is lined with fine quartz crystals.

Micro - The entire rock is ramified by veinlets and stringers of chalcocite. These veins almost invariably follow grain boundaries inherent to the component grains which existed before the rock was silicified. Often the grains have a rhombohedral outline suggesting that the pre-existing rock was a carbonate. In any one field of view the chalcocite constitutes less than 3% of the minerals present.

Minor accessory amounts of highly reflective grains of the order of 0.001 mm. in size are dispersed sporadically through the section and there are localised in intergranular voids. The identification of these grains was not conclusive, they do however, appear to be grains of native Cu as found in another section in this depth range. Some are possibly grains of native Au.

It is suggested that this section is analysed for gold in the subsequent chemical analyses.

APPENDIX 4X-RAY SPECTROCHEMICAL COPPER ASSAYS - MOUNT FITCH AUGER HOLES

by

S.C. Goadby

Hole No. A	Co-ordinates Eastings Northings		Depth (feet)	Copper
5008	124	424	5 - 12 $\frac{1}{2}$ B at 12 $\frac{1}{2}$	0.25 0.39
5011	122	426	7 $\frac{1}{2}$ - 40 B at 40	0.58 0.38
5012	120	426	2 $\frac{1}{2}$ - 5 B at 40	0.42 0.28
5017	118	429	B at 44	0.17
5020	119.5	429	B at 14	0.15
5021	120	429	B at 52	0.62
5021			B at 52 (2)	0.29
5022	120.5	429	10 - 40	0.31
5032	116.5	435	B at 20	0.27
5033	117	435	B at 20	0.50
5035	118	435	B at 3	0.14
5040	122	425	B at 40 B at 40	0.59 0.14
5042	120.5	425	16 - 66	0.30
5043	120	425	8 - 90	0.82
5043			B at 98	0.27
5049	122/5	426	B at 40	0.26
5077	122/5	427	B at 40	0.35
5078	121	427	B at 40	0.37
5082	117	440	B at 20	0.35
5083	116.5	440	B at 20	0.44
5085	116.5	441	B at 20	0.69
5086	117	441	12 - 20 B at 20	0.79 0.77
5088	117	442	B at 20	0.35
5089	116.5	442	B at 20	0.49
5090	116	443	B at 20	1.72
5093	117	443	B at 20	0.34
5095	116.5	444	B at 20	0.87
5096	122	427	B at 40	0.61
5097	121	425	6 - 60 B at 60	0.37 0.23
5100	120	427	B	0.11
5103	118.5	427	B	0.13
5104	118	427	B	0.98
5106	119	433	6 - 40 B at 40	0.65 0.63
5120	116.5	445	2 - 40 B at 40	0.34 0.79
5121	116	445	12 - 40 B at 40	1.26 1.38
5122	115.5	445	10 - 40 B at 40	1.28 1.27
5123	115.5	446	6 - 36 B at 40	0.91 0.44
5124	116	446	10 - 40	0.62
5125	116.5	446	6 - 40 B - 40	2.00 0.72
5126	117	446	8 - 24 B at 24	0.20 0.63
5127	115.5	443	4 - 40 B at 40	0.51 0.31

Hole No. A	Co-ordinates		Depth (feet)	Copper
	Eastings	Northings		
5128	115	442	6 - 28 B at 40	0.40 0.45
5129	115.5	442	8 - 36	0.31
5131	117.5	437	10 - 28	0.31
5134	117	438	14 - 28	0.19
5136	116	439	14 - 20	0.33
5137	116.5	439	8 - 22	0.37
5144	115	440	12 - 28	0.35
5149	115.5	441	4 - 28	0.79
5150	115	441	6 - 28	0.30
5151	114.5	441	2 - 28	0.79
5153	114.5	442	4 - 22	0.41
5154	115	443	6 - 28	0.41
5155	114.5	443	4 - 8	0.21
5156	114	443	4 - 28	0.10
5157	114.5	444	8 - 22	0.28
5158	115	444	8 - 22	0.41
5159	114/5	445	4 - 10	0.16
5169	116	448	6 - 22	0.32
5182	116	452	14 - 16	0.10
5200	116	442	8 - 40 B at 40	0.59 0.63
5205	116	440	4 - 36 B at 40	0.43 0.43
5216	118	434	6 - 38	0.90
5221	114	432	8 - 40	0.37
5229	116	430	B at 40	0.45
5231	112	430	B	0.12
5241	119.5	428	0 - 2	0.22
5243	118.5	428	0 - 8 B	0.16 0.34
5272	119.5	430	B at 6	0.14
5274	119.5	432	B at 10	0.49
5275	119	432	B at 10	2.70
5301	114.5	440	B at 10	0.30
5316	102	444	B at 10	0.16
5321	116	444	B at 10	0.20
5328	110	448	B at 10	0.35
5330	114	448	B at 10	0.11
5756	130	448	8 - 26	0.70
7380	129	419	9 - 26	0.35
7383	129	418	12 - 18	0.18
7387	131	416	9 - 30	0.13
5109	117	445	8 - 40 B at 40	0.09 0.05
5223	118	432	B at 16	0.61

B. Bottom hole sample taken from auger bit.