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**RECORDS.**

1958/122



# THE GEOLOGY OF WOOLWONGA, MT. BUNDEY AND LARRAKAI EAST AREAS, NORTHERN TERRITORY

by

D.B. Dow and P.W. Pritchard

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## SUMMARY

This report describes the regional geology of approximately 1,500 square miles of country east of the Adelaide River, Katherine-Darwin region, Northern Territory.

Lower Proterozoic rocks crop out over most of the area and are composed of marginal, transitional, and trough type sediments of the Pine Creek geosyncline. The sediments are tightly folded, and are intruded by granite and syenite and by small intermediate sills and dykes.

Small faulted outliers of arenaceous and rudaceous sediments of Upper Proterozoic age rest with angular unconformity on Lower Proterozoic rocks.

Flat-lying Lower Cretaceous rocks occur in the north-eastern part of the area where they give rise to extensive areas of residual sand.

There are no known important economic mineral deposits in the area.

## INTRODUCTION

The area, of approximately 1,500 square miles, was mapped in 1956 by D.B. Dow and P.W. Pritchard of the Woolwonga Party, Bureau of Mineral Resources, as part of a program of regional mapping and prospecting for radioactive mineral deposits in the Katherine-Darwin region. The party consisted of P.R. Dunn (Leader), who assisted the authors at the beginning and end of the field season, D.B. Dow and P.W. Pritchard. The area includes the Woolwonga, Mt. Bundey, and part of the Marrakai one-mile areas of the Pine Creek and Darwin four-mile sheets.

Access is from the Stuart Highway by vehicle tracks from the 47 mile peg; from Adelaide River Township; or from the Burrundie railway siding. Monsoonal rains make these tracks impassable from November to May.

The area fringes the swampy coastal plains bordering Van Diemen Gulf and the topography consists of low hills rising out of extensive alluvial and black soil plains. The maximum relief above the plains is about 500 feet.

The hills are covered by open forest but few trees grow on the plains. The whole region is covered by thick grass which is usually burned off during the winter dry season. The larger rivers and permanent waterholes are marked by lines of trees or dense thickets of bamboo.

The region has no permanent inhabitants; two buffalo shooters with aborigine helpers worked in the area during the season of 1956.

## STRATIGRAPHY

Lower Proterozoic rocks crop out over most of the area. They have been divided into formations which have been mapped in previous years by Bureau of Mineral Resources parties working to the south and east.

Small outliers of Upper Proterozoic rocks rest, with marked angular unconformity, on Lower Proterozoic rocks. Flat-lying sandstone of Mesozoic age and Quarternary alluvial deposits are the only other sediments occurring in the area. Laterite soil horizons of probable Tertiary age are widespread in the northern half of the area.

## LOWER PROTEROZOIC ROCKS

The formations recognized in the Lower Proterozoic sequence are listed in Table I below.

TABLE I

| Formation and Member | Thickness | Lithology |
|---|---|---|
| Burrell Creek Formation | Not Known | Siltstone, greywacke, greywacke siltstone, minor pebble conglomerate. |
| Golden Dyke Formation | 4,000 ft. | Bedded, nodular, and massive chert, siliceous siltstone minor pebble conglomerate. |
| Gibson Creek Member | | Pyritic carbonaceous dolomitic siltstone with chert nodules, slump breccia, chert "oolite". |
| Masson Formation | 4,000 ft.+ | Quartz greywacke, quartz sandstone, minor quartzite, quartz pebble conglomerate, carbonaceous pyritic quartz siltstone. |
| Mt. Partridge Formation | 2,000 ft.+ | Quartz sandstone, quartzite pebble conglomerate, quartz siltstone. |

The Mount Partridge Formation

The oldest rocks in the area are those belonging to the Mt. Partridge Formation. These occur in the eastern part of the Mount Bundey one mile area.

Purple and red quartz sandstone and interbedded quartz siltstone are the most common rock types together with quartzite and conglomerate. The quartz sandstone is mainly medium-bedded in some places with current bedding. It is medium-grained to coarse-grained and grades into pebble conglomerate. It is composed of rounded and well-sorted quartz grains set in an iron-stained siliceous and sericitic matrix which imparts a dark red or purple colour to the rock. Detrital grains of muscovite and chert are common. One sample of sandstone consists of rounded and well-sorted quartz grains widely separated in a matrix of opaline silica which forms about one third of the rock. This rock may have been originally a calcareous sandstone, later silicified. The quartzite consists of an interlocking mosaic of quartz with a few interstitial flakes of muscovite; in some places relics of rounded quartz grains can still be seen.

The siltstone is commonly a dark red, massive, sericitic quartz siltstone and constitutes about 40% of the formation. The conglomerate is composed of angular and sub-rounded pebbles of quartzite and chert up to one inch in diameter in a red quartz sandstone matrix.

The sandstone is commonly current-bedded and medium to thick-bedded. The siltstone is massive. The formation was probably deposited in a near-shore, shallow water environment.

The Mt. Partridge Formation is apparently conformable with the overlying siltstone of the Masson Formation. A thickness of approximately 2,000 feet of Mt. Partridge Formation is exposed in the area mapped but the base of the formation was not seen.

The Masson Formation

The Masson Formation overlies the Mt. Partridge Formation with apparent conformity and conformably underlies siltstone and chert beds of the Golden Dyke Formation. In the Woolwonga area it consists of quartz greywacke and quartz sandstone, conglomerate, and

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interbedded carbonaceous siltstone.

Fine-grained to coarse-grained quartz greywacke constitutes about one quarter of the formation and consists of sub-rounded to rounded quartz grains in a fine-grained siliceous and sericitic matrix. Rounded chert grains and angular shale and feldspar fragments are common.

The quartz sandstone is also fine-grained to coarse-grained and consists of rounded and well-sorted quartz grains in a fine grained siliceous matrix.

The quartz greywacke and quartz sandstone in places grade into lensing quartz pebble conglomerate which consists of rounded quartz, quartzite and rare chert pebbles in a quartz sandstone matrix. Some of the conglomerate has angular quartz and chert pebbles and contains angular siltstone and shale fragments.

Current-bedding is a characteristic feature of all the beds, and graded bedding is common in the quartz greywacke.

Red and brown quartz siltstone constitutes about 40% of the sequence. Much of it is distinctively colour banded in red and green beds up to an inch thick; it is frequently laminated and in places small scale current-bedding and ripple marks occur. Samples from mines and drill cores in the Masson Formation to the south show that the unweathered siltstone is black, carbonaceous, and commonly pyritic. In some places near the southern margin of the Woolwonga one mile area, pyrite casts one-quarter inch across and constituting about 20% of the rock are found in the siltstone and sandstone.

The Masson Formation changes gradually along the strike to the north-west of the Woolwonga one mile area and in the Mount Bundey one-mile area it consists mainly of red siltstone with lenses of regularly bedded, fine-grained quartz sandstone, quartz greywacke, and quartzite. These are confined to the upper half of the formation. The lenses of quartz sandstone and quartzite range up to 20 feet thick but mostly are less than 6 feet thick. Current-bedding is rare and in most places the rocks are thin-bedded or laminated.

The quartz sandstone consists of rounded and well-sorted quartz grains in a small amount of iron-stained, finely granular

siliceous matrix. The majority of the quartz grains are partly recrystallized, and the rock frequently grades to quartzite.

Fine-grained quartz greywacke is common as massive beds up to five feet thick. It consists of sub-angular to angular quartz grains in a matrix of fine-grained quartz and sericite with accessory detrital muscovite, biotite, iron oxides, and ferro-magnesian minerals.

In the Woolwonga one-mile area the almost ubiquitous current bedding, the abundance of sandstone composed of rounded quartz grains, and the many conglomerate beds, show that the Masson Formation was probably deposited near a shore.

To the north-west the Masson Formation was probably deposited farther from the source area and in deeper water. Red siltstone is dominant and the other clastics are characteristically fine-grained and well-sorted. Sporadic fine-grained quartz greywacke indicates irregular deposition by density currents.

Interbedded with the siltstone and about 500 feet stratigraphically above the Mt. Partridge Formation is a weathered brown massive rock of doubtful origin which is porous and contains no clastic grains. Its maximum thickness is about 200 feet. It crops out round the dome which exposes the Mt. Partridge Formation in the western half of the Mt. Bundey one-mile area and also to the east of the dome, where it is repeated, probably by tight folding.

The rock does not show any sedimentary features and is believed to be a weathered basic or intermediate sill. Lateritisation and deep weathering have obscured most of the original features of the rock, and microscopic evidence is inconclusive. The rock now consists of iron and clay minerals and commonly contains round grains of secondary chalcedony. Relict feldspar laths and minute acicular crystals (possibly apatite or zircon) are seen in places in the clay minerals. These, however, could be found in either a tuff or an intrusive rock.

The total thickness of the Masson Formation near Mt. Bundey is about 4,000 feet. It is probably much thicker in the Woolwonga one-mile area, but tight folding does not allow the thickness to be estimated.

The Golden Dyke Formation

The type area of the Golden Dyke Formation is near the Golden Dyke Mine in the Burrundie one-mile area. In the area described in this report, the Gibson Creek Member, which consists mainly of iron-rich siltstone and chert, has been separated from the rest of the Golden Dyke Formation.

The Gibson Creek Member

The type area of the Gibson Creek Member is near Gibson Creek in the eastern half of the Woolwonga one-mile area.

The member conformably overlies the Masson Formation and consists of the following rock types:-

1. Carbonaceous pyritic shale and siltstone which weathers to form an iron-rich gossan-like outcrop;
2. Carbonaceous dolomitic and pyritic siltstone with lenses and nodules of chert;
3. Breccia consisting of large, angular, chert fragments up to six inches across and set in a siliceous hematitic matrix. It is interbedded with siltstone and is probably a slump breccia.
4. Breccia consisting of angular fragments up to one foot across, of siltstone, quartz greywacke, and quartz sandstone, in an iron-rich, siltstone matrix. The fragments were derived from the underlying Masson Formation and were probably involved in submarine slumping to form the breccia;
5. Chert "oolite" which grades into the chert breccia. It consists of structureless chert ooliths which have a fairly constant diameter of about one-tenth of an inch in an iron-rich, siltstone matrix; a few isolated ooliths are one-quarter of an inch across. Irregularly rounded ooliths are common and were apparently formed by coalescence and interference between growing ooliths. Angular chert and quartz fragments of the same grain size are common. It seems probable that the rock was originally a calcareous oolite which was silicified during diagenesis.
6. Massive, silicified, dolomitic marl which breaks with conchoided fracture. The rock is white to cream or grey and is

commonly massive, though laminae of fine sand are sometimes seen. It is resistant to weathering and forms lens-shaped outcrops up to fifty feet wide and twenty feet high.

The Gibson Creek Member varies rapidly laterally in composition and thickness. In the type locality the thickness ranges from 200 feet to 500 feet. Near the southern boundary of the Mt. Bundey one-mile area, the Gibson Creek Member cuts out for about one mile along the strike, and chert and siliceous siltstone of the Golden Dyke Formation rest directly on the Masson Formation. Elsewhere the member ranges from about 20 feet to 600 feet.

The change from sandstone of the Masson Formation to the iron-rich siltstone and chert beds of the Gibson Creek Member is abrupt. The sandstone near the contact is silicified and resistant to weathering and even where the member does not crop out the boundary can be easily mapped. The Gibson Creek Member persists through Woolwonga and Mt. Bundey to the Marrakai one-mile area. Slump breccia is the dominant rock for about five miles along the strike to the west of Mt. Bundey.

The Gibson Creek Member is overlain by white and grey siliceous siltstone and interbedded chert, which constitutes the rest of the Golden Dyke Formation.

Chert is the dominant rock and is mostly thin-bedded, though a few beds are up to three feet thick. White, siliceous siltstone containing chert nodules is common. The chert is mostly white or grey with minor black, green, and red varieties.

A conglomerate, composed of subrounded fragments of chert in a siliceous siltstone matrix, overlies the Gibson Creek Member in some places.

Medium-bedded white and grey siliceous siltstone constitutes about 40% of the sequence. Red siliceous siltstone occurs near the top of the formation. It crops out as beds up to two feet thick containing chert lenses and nodules. In the Marrakai one-mile area these beds become thicker, and near the Adelaide River they constitute about half of the Golden Dyke Formation. Near the top of the formation in the Woolwonga and Mt. Bundey one mile areas, are several beds of green,

micaceous greywacke, up to six feet thick.

Some of the cherty beds in the formation have been affected by contemporaneous slumping.

The only place where the thickness of the Golden Dyke Formation can be measured is south of Mt. Bundey where it is about 4,000 feet thick.

The Burrell Creek Formation

The type locality of the Burrell Creek Formation is near Burrell Creek in the Burnside one-mile area. Rocks of the formation crop out over most of the western half of the Woolwonga one-mile area, in the southern part of the Marrakai one-mile area, and in the south-eastern part of the Mt. Bundey one-mile area.

The formation consists mainly of micaceous greywacke, greywacke siltstone, and siltstone. The siltstone beds are up to one foot thick and often colour-banded parallel to the bedding, mostly in alternating red and green. Casts of pyrite crystals up to one-quarter of an inch across are present in some places. Calcareous siltstone was noted in several localities near the southern border of the Woolwonga one-mile area. The greywacke occurs in beds one to two feet thick and frequently weathers to form rough blocky outcrops. The unweathered rock is dark greenish-grey with sub-rounded grains of quartz, feldspar, and chert, and angular shale fragments, set in a dark-fine-grained matrix. Biotite is the only ferromagnesian mineral normally present. "Tombstone Greywacke", a silicified calcareous greywacke which weathers to form characteristic tombstone-like outcrops, is common in this region. It is not confined to any particular horizon and merges imperceptibly along the strike, into the normal weathering greywacke.

Pebble and cobble conglomerate crops out within the Burrell Creek Formation in two localities in the western half of the Woolwonga one-mile area. The conglomerate contains well-rounded pebbles and cobbles up to four inches in diameter in the normal greywacke matrix. The pebbles and cobbles consist of red, green and grey chert, rhyolite, granite-porphyry, basalt, andesite, and "greenstone" (probably an altered basic igneous rock). Cavities in the conglomerate are filled with calcite.

The boundary between the Golden Dyke Formation and the Burrell Creek Formation is transitional over a zone about 300 feet to 500 feet thick. Within this zone are prominent beds of red siliceous siltstone containing chert nodules, massive red siltstone, and some green micaceous greywacke. The boundary between the formations has been arbitrarily put at the last prominent bed containing chert, and therefore most of the transition zone is included in the Golden Dyke Formation. Minor discontinuous beds of siltstone containing chert nodules do occur for several hundred feet above the boundary but they are not mappable at one inch to one mile scale.

The Mt. Bundey Granite and the Mt. Goyder Syenite

The Mt. Bundey Granite and the Mt. Goyder Syenite form a plutonic complex which intrudes Lower Proterozoic rocks in the western half of the Mt. Bundey one mile area. The Mt. Bundey Granite crops out over most of Mt. Bundey, which is a rugged hilly area on the western side of the Mary River. The Mt. Goyder Syenite crops out round the northern margin of Mt. Bundey, and in a small area round Mt. Goyder which is seven miles north of New Annaburroo Homestead on the eastern side of the Mary River.

Hasan (1958) states that the Mt. Bundey Granite ranges in composition from granite to adamellite and that the Mt. Goyder Syenite contains quartz syenite and syenite. Both bodies are intruded by aplitic and syenitic dykes and both contain inclusions up to three feet long, of metamorphosed country rock near their margins. A large body about 2,000 feet long by 40 feet wide composed of hematite pseudomorphous after magnetite crops out near the northern boundary of the granite.

The petrological evidence indicates that the granite and syenite complex and the syenite and aplite dykes, are similar to and probably genetically related to the Cullen Granite which crops out to the south of the area mapped.

The sediments surrounding the complex are little metamorphosed and the metamorphic aureole does not exceed one quarter of a mile wide. Silicified greywackes occur on the western side, where the complex is

in contact with the Burrell Creek Formation. On the southern and eastern sides, the carbonaceous members of the Golden Dyke Formation have been altered to black chiastolite schist and black hornfels. On the northern margin, sandstone of the Masson Formation has been altered to quartzite.

The complex is located in a predominantly anticlinal structure in Lower Proterozoic sediments. Country rocks have been stoped and assimilated; inclusions of sedimentary rocks are present in the margin of the complex, and the relationship of the complex to the Lower Proterozoic rocks on the western side of Mt. Bundey is discordant. The complex was probably emplaced at the time of the folding of the Lower Proterozoic rocks.

Both the granitic and syenitic bodies are well jointed; both primary joints related to the intrusion of the complex and joints related to the deformation of the enclosing Lower Proterozoic sediments are present. The latter are the predominant joint planes and they trend roughly north-south and dip to the east at angles of about 75°.

Small sills and dykes of intermediate composition crop out within a radius of five miles of the Mt. Bundey Granite and the Mt. Goyder Syenite. They range in width from a few feet to about 30 feet, and in length from 50 feet to nearly half a mile. They are fine-grained to medium-grained melanocratic rocks which in hand specimen appear to be basic. Microscopic examination identified the following rock types:- hornblende microdiorite, biotite microdiorite, microtonalite and microsyenite. The weathered brown rock of doubtful origin discussed under the Masson Formation was probably a sill of similar composition to these sills and dykes. They are probably related to the Mt. Bundey Granite and Mt. Goyder Syenite.

UPPER PROTEROZOIC ROCKS

Rocks belonging to the Katherine River Group of Upper Proterozoic age overlie Lower Proterozoic rocks with marked angular unconformity. They crop out a large outlier at Mt. Douglas and as several smaller outliers in the Woolwonga one-mile area. The rocks are quartz sandstone (which locally becomes quartzite near faults),

quartz greywacke, and quartz pebble and cobble conglomerate. Current bedding and ripple marks are common.

The maximum thickness is about 1,000 feet.

CRETACEOUS ROCKS

Mullaman Group

Sediments belonging to the Mullaman Group (Noakes 1949) of probable Lower Cretaceous age, unconformably overlie Lower Proterozoic rocks in the north-eastern part of the Mt. Bundey one-mile area, and in scattered localities in the eastern part of the Woolwonga one-mile area.

The most common rock type is a coarse-grained current-bedded sandstone consisting of rounded and well-sorted quartz grains in a granular hematic matrix. Much of the hematite is specular. Quartz-pebble conglomerate is common and consists of rounded quartz pebbles in a hematitic sandstone matrix. A friable, clean quartz sandstone crops out on the northern edge of the Mt. Bundey one-mile area. The beds are commonly flat lying, but initial dips of up to 20° are common on the uneven surfaces of deposition.

Cainozoic

A lateritic soil horizon of Cainozoic age is extensively developed in the northern half of the Mt. Bundey one-mile area. The only other sediments in the region are alluvial deposits of carbonaceous clay and silt of Quaternary age, which form extensive plains throughout the area mapped.

## STRUCTURE

Lower Proterozoic Rocks

Over most of the area mapped, Lower Proterozoic strata are tightly folded and dip between 60° and 80°. The fold axes strike commonly at about 20° magnetic and pitch to the south at angles ranging up to 35°. The pitch reverses suddenly to 35° north near the southern margin of the Woolwonga one-mile area. In the eastern part of the Woolwonga one-mile area this reversal of pitch is accompanied by a swing in axial strike from north to 45° east, by tight folding with some overturn to the west and by many minor changes in pitch. In

the western half of the area the change is expressed by the large basin structure of Mt. Ringwood.

In the northern half of the Mt. Bundey one-mile area there is another change of pitch, forming a dome in which the Mt. Partridge Formation is exposed. On the northern margin of the area the regional pitch is again to the south.

Overturning of strata is not important in the area but near the southern margin of the Mt. Bundey one-mile area the axial plane of a large anticline is overturned by about 10° to 15° to the west.

Upper Proterozoic Rocks

The Upper Proterozoic rocks are faulted and gently folded.

Mt. Douglas is a structural and possibly a depositional basin in which the beds dip between 15° and 30°. The beds steepen locally to about 70° near the eastern side of the basin, where they are bounded by arcuate faults of unknown throw.

Large barren quartz reefs in the Woolwonga and Mt. Bundey one-mile areas mark faults which disrupt Lower Proterozoic rocks; in one place in the western half of the Woolwonga one-mile area, a Lower Proterozoic conglomerate has been displaced 1,000 feet horizontally along the quartz reef. The age of these faults is not known but they show no relationship to the structure of the Lower Proterozoic rocks.

The regional trend of the faults is north-east, but east-west and north-south trends are fairly common. The dip of all the fault planes is over 75°.

Cretaceous Rocks

Cretaceous rocks in the area are usually flat and undisturbed. In one locality in the north-eastern part of Mt. Bundey one-mile area there is evidence that the rocks of the Mullaman Group have been either faulted, or folded into a monocline. Ferruginous sandstone and conglomerate lie horizontally on top of a hill, and one quarter of a mile to the west and 30 feet lower, they are exposed dipping vertically along a north-south trending line for about half a mile.

## ECONOMIC GEOLOGY

Gold was mined last century from the Ringwood Mines in the Woolwonga one-mile area; recorded production was -

| Year | Production | Value |
|---|---|---|
| 1894 | 310 oz. | £1085 10 0 |
| 1895 | 311 oz. | 1088 10 0 |
| 1896 | 1146 oz. | 4011 0 0 |
| 1897 | 698 oz. | 2433 0 0 |
| 1898 | 40 oz. | 80 0 0 |

The gold was won from small quartz veins in rocks of the Burrell Creek Formation. The veins were small and irregular and roughly follow either the bedding or small shears. The veins were probably emplaced at a late stage of the deformation of the Lower Proterozoic rocks.

The only recorded production of gold from the pighole Mine in the Marrakai one-mile area, was in 1952-53, when 32 oz. valued at £499 was won. The gold occurs in a thin quartz reef which is parallel to the bedding on the nose of a south-plunging anticline in Burrell Creek rocks.

During prospecting operations carried out by Territory Enterprise Pty. Ltd. in 1954, some pits and trenches were dug south of Gibson Creek to investigate a small deposit of manganese in rocks of the Gibson Creek Member. The manganese occurs as small ramifying veins and is not of economic significance. During the present survey two similar occurrences were found in the same locality. A small gossan-like capping found in rocks of the Gibson Creek Member south of Mt. Bundey is almost entirely composed of psilomelane.

Near the northern edge of Mt. Bundey, and within the Mt. Goyder Syenite, a large body composed of hematite pseudomorphous after magnetite was found. It is probably a magmatic segregation of magnetite. Boxworks in the rock could possibly be after sulphide, but geochemical test showed no anomalous lead or copper content. The

body is too small to have significance as iron ore, but the possibility that it caps lead or copper sulphides cannot be lightly discarded.

REFERENCES

HASAN, S. (1958) - Petrography and Petrology of the Mt. Bundey Granite and Mt. Goyder Syenite N.T. Bur.Min.Resour.Aust.Rec. 1958/36.

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# WOOLWONGA

APPROXIMATE SCALE : ONE INCH TO ONE MILE

## REFERENCE

**QUATERNARY**

Soil and Alluvium

**LOWER CRETACEOUS**

Mullaman Group

Klm — Purple ferruginous sandstone and conglomerate

**UPPER PROTEROZOIC**

Katherine River Group

Kombolgie Formation — Puk — Sandstone, quartz greywacke and conglomerate

**LOWER PROTEROZOIC**

Brocks Creek Group

Burrell Creek Formation — Plb — Siltstone, greywacke siltstone, siltstone greywacke, greywacke and calcareous greywacke.

Coarse greywacke.

Lenses of pebble conglomerate with pebbles of porphyry and greenstone.

Golden Dyke Formation — Pld

Gibson Creek Member — Quartz and siliceous siltstone, carbonaceous siltstone and chert nodules in siltstone. Silicified dolomite, silicified dolomite nodules in a pyritic silicified carbonaceous marl, sedimenting breccia.

Goodparla Group

Masson Formation — Plm — Quartz greywacke, sandstone and banded siltstone.

Conglomerate lenses.

**IGNEOUS ROCKS**

Margaret Granite — Medium to coarse grained hornblende granite.

Altered basic intrusives.

## SYMBOLS

- Established boundary – position accurate.
- Established boundary – position approximate.
- Established Fault – position accurate (D: Downthrown block) (U: Upthrown)
- Established Fault – position approximate.
- Inferred Fault – concealed by alluvium.
- Quartz vein.
- Dip and Strike.
- Anticlinal axis with direction of plunge.
- Synclinal axis with direction of plunge.
- Vehicle track.
- Mine workings or Alluvial diggings.
- Au — Gold.

TO MT BUNDEY

TO ADELAIDE RIVER

TO BURRUNDIE

MARY RIVER

MC KINLAY RIVER

YARD

North Ringwood Mine (Au)

South Ringwood Mine (Au)

Battery Site

MT DOUGLAS

Puk

Plb

Pld

Plm

Klm

FIELD SHEET ONLY – NOT FOR PUBLICATION

# MT BUNDEY

APPROXIMATE SCALE : ONE INCH TO ONE MILE

## REFERENCE.

**QUATERNARY.**

Soil and alluvium

**LOWER CRETACEOUS.**

Mullaman Group.

Klm — Medium to coarse grained ferruginous sandstone and conglomerate.

**LOWER PROTEROZOIC.**

Mt Goyder Syenite.

Syenite, syenite aplite

Mt Bundey Granite.

Biotite granite, hornblende granite

Altered basic igneous rocks.

**Brocks Creek Group.**

Burrell Creek Formation.

Plb — Greywacke, siltstone and greywacke siltstone.

Golden Dyke Formation

Pld — Massive, bedded and nodular chert, siliceous siltstone and siltstone. Ferruginous siltstone, silicified dolomite, dolerite, pyrite, carbonaceous dolomitic siltstone with chert lenses and nodules; imposes a stump breccia.

**Goodparla Group.**

Massen Formation

Plm — Quartz greywacke, quartz sandstone and siltstone. Quartz pebble conglomerate.

Annaburoo Tuff.

Massive brown tuff

Mundogie Sandstone.

Plu — Quartz sandstone and siltstone with conglomerate lenses.

Strike and dip

Vertical dip

Folds showing direction and angle of plunge

Quartz veins.

Established fault – position accurate.

Probable fault.

Probable fault – concealed.

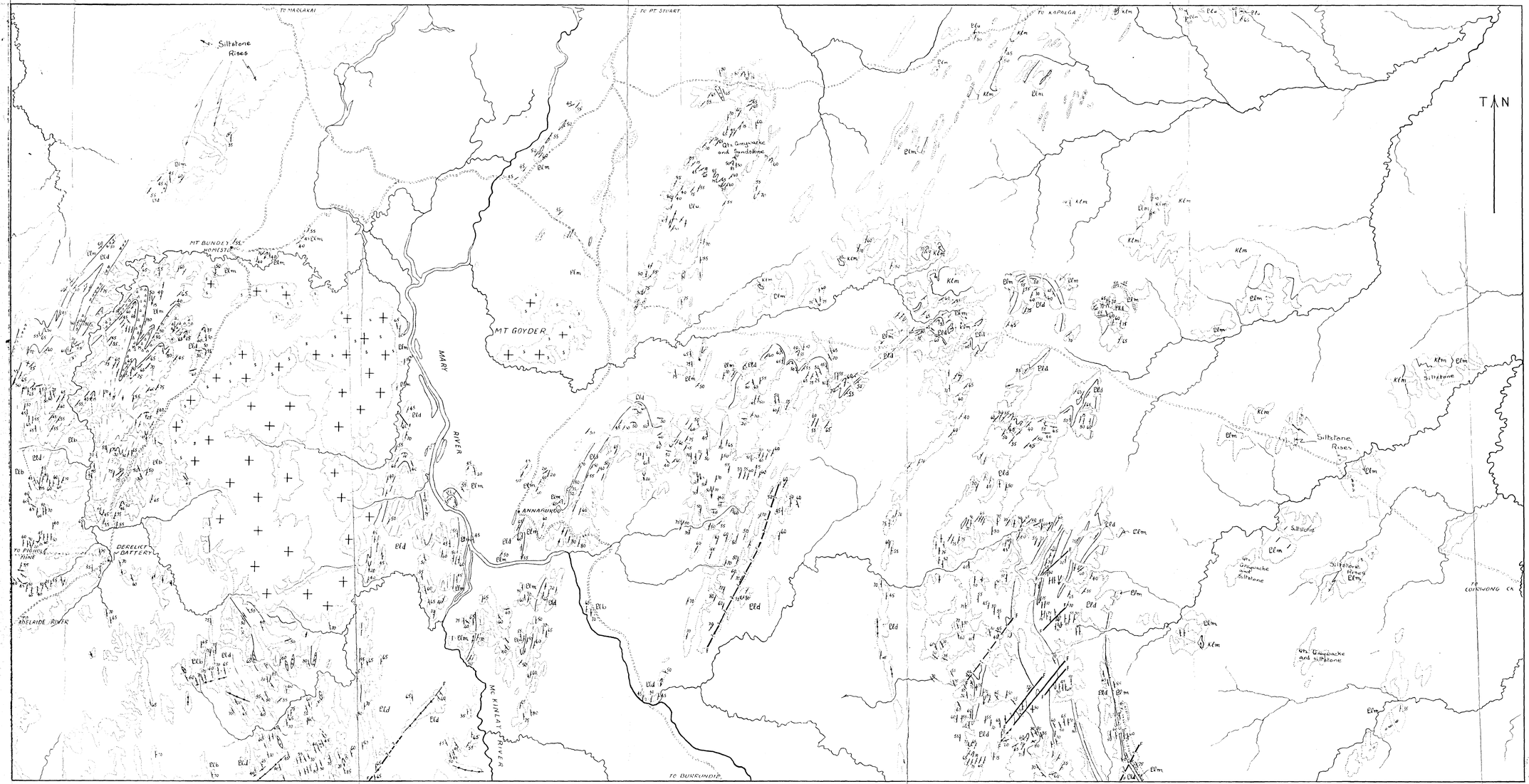
Geological boundary – position accurate.

Geological boundary – position approximate

Alluvium boundary.

Vehicle track

Building.



# MARRAKAI

FIELD SHEET — NOT FOR PUBLICATION.

APPROXIMATE SCALE ONE INCH TO ONE MILE.

## REFERENCE

**QUATERNARY**

- Soil and alluvium.
- Ferruginous deposits, reconsorted debris, laterization etc.

**UPPER PROTEROZOIC**

**Tolmer Group**

**Buldiva Sandstone**

**Depot Sandstone Member** — Pud — Pink rock-marked quartz sandstone, with quartz conglomerate lenses. Hematite-rich silicified silt-granule breccia; grading into pink friable quartz sandstone with quartz conglomeratic lenses.

**LOWER PROTEROZOIC**

**Rum Jungle Granite** — Pgr

**Finniss River Group**

**Noltemius Formation** — Pfn — Undifferentiated quartz conglomerate, quartz greywacke, siltstone and quartz sandstone. Quartz pebble conglomerate.

**Brocks Creek Group**

**Burrell Creek Formation** — Pfb — Undifferentiated siltstone, siltstone greywacke, greywacke.

**Golden Dyke Formation** — Pfd — Undifferentiated carbonaceous siltstone, quartz siltstone, rhythmic mud greywacke, carbonaceous greywacke. Banded iron formation: Pyrite, carbonaceous dolomitic marl with chert lenses and nodules, replaces stromatolites and brecciated and interbedded with cryptic siltstones. Dolomitic stromatolite breccia, silicified in places.

**Acacia Gap Formation** — Pfa — Undifferentiated quartz greywacke, pyritic and siliceous in places quartz sandstone, pyritic siltstone, siltstone

**Goodparla Group**

**Masson Formation** — Pfm — Quartz greywacke, sandstone, siltstone.

**Batchelor Group**

**Coomalie Dolomite** — Pfo — Undifferentiated pisolitic cherty stromatolitic dolomite with Collenia, calcarenite, siltstone. Dolomitic stromatolite breccia, silicified in places.

**Crater Formation** — Pfr — Quartz greywacke, feldspathic greywacke, pebble conglomerate, siltstone. Banded iron formation: Pyrite carbonaceous dolomitic marl with chert lenses and nodules, replaces stromatolites and brecciated and interbedded with cryptic siltstone. Quartz pebble conglomerate.

**Celia Creek Dolomite** — Pfl — Dolomite with Collenia, silicified and metamorphosed in places, tremolite schist.

**Beestons Creek Formation** — Pfe — Arkose, greywacke, siltstone, conglomerate, arkosic conglomerate.

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- Geological boundary — position accurate.
- Geological boundary — position approximate.
- Established fault — position accurate.
- Established fault — position approximate.
- Inferred fault.
- Inferred fault — concealed by alluvium.
- Established fault — concealed by alluvium.
- Strike and dip.
- Vertical dip.
- Folds showing plunge.
- Quartz vein.
- Brodribb (Th) — Mine or prospect.
- Road.
- Vehicle track.
- Railway.
- MARRAKAI — Homestead.