ROBERTSON

AUSTRALIA 1 : 250 000 GEOLOGICAL SERIES — **GEOLOGICAL SURVEY OF WESTERN AUSTRALIA** — **SHEET SF 51-13**

SYMBOLS

Geological boundary
Fault
- accurate
- concealed
- inferred
- shear zone

Fold (axial trace, showing plunge)
- anticline
- syncline
- overturned anticline
- overturned syncline
- plunge of minor anticline
- plunge of minor syncline

Small scale folds showing orientation of axial surface
- direction of plunge and nature of vergence (z, s or m)
- Pre-Capricorn Orogeny
- Capricorn Orogeny
- Late, post-orogenic fold
  - inclined axial surface
  - vertical axial surface

Bedding
- inclined
- vertical
- horizontal
- overturned
- dip estimated from aerial photography
  - 0-15°
  - 15-45°
  - 45-90°

Way-up indicator
- differentiation in mafic sills
- cross-bedding

Cleavage, slaty or spaced
- Pre-Capricorn Orogeny
  - inclined
  - vertical
- Capricorn Orogeny, inclined
- Late post-orogenic, inclined

Foliation
- Pre-Capricorn Orogeny
  - inclined
  - vertical
- Capricorn Orogeny, inclined

Trend of foliation
Lineation
- plunge of stretching lineation
- axes of crenulation hinges
  - Pre-Capricorn Orogeny
  - Capricorn Orogeny

Stromatolite locality
Megascopic algae
Isotopic age determination site

Mineral field boundary
Mineral field district boundary
Formed road
Track
Telegraph line
Homestead — Mundiwindi
Building
Yard
Airfield
Landing ground
Horizontal control, major, minor
Vertical control, height accurate
Sand dunes
Sinkhole

Watercourse, intermittent
Pool
Pipeline
Well
Bore
Windpump
Rockhole
Waterhole
Soak
Spring
Tank
Abandoned
Position doubtful

Mine with recorded production (gold unless otherwise indicated) — Shearers
Mineral prospect
Open cut or pit
Mineral occurrence
- Barite — Ba
- Chromite — Cr
- Copper — Cu
- Gemstones — Gs
- Gold — Au
- Iron — Fe
- Lead — Pb
- Manganese — Mn
- Road metal — Rm

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MT BRUCE SF 50-11	ROY HILL SF 50-12	GALTEE MORE SF 51-9	RUDALL SF 51-10	TABLETOP SF 51-11
TUREE CREEK SF 50-15	NIMINGA SF 50-16	ROBERTSON SF 51-13	GUNANYA SF 51-14	HUNTER SF 51-15
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The lines indicate magnetic declination, 1980
+ means declination is east and correction must be added to compass bearing to give true bearing
- means declination is west and correction must be subtracted from compass bearing to give true bearing

Annual change is — 7' westerly

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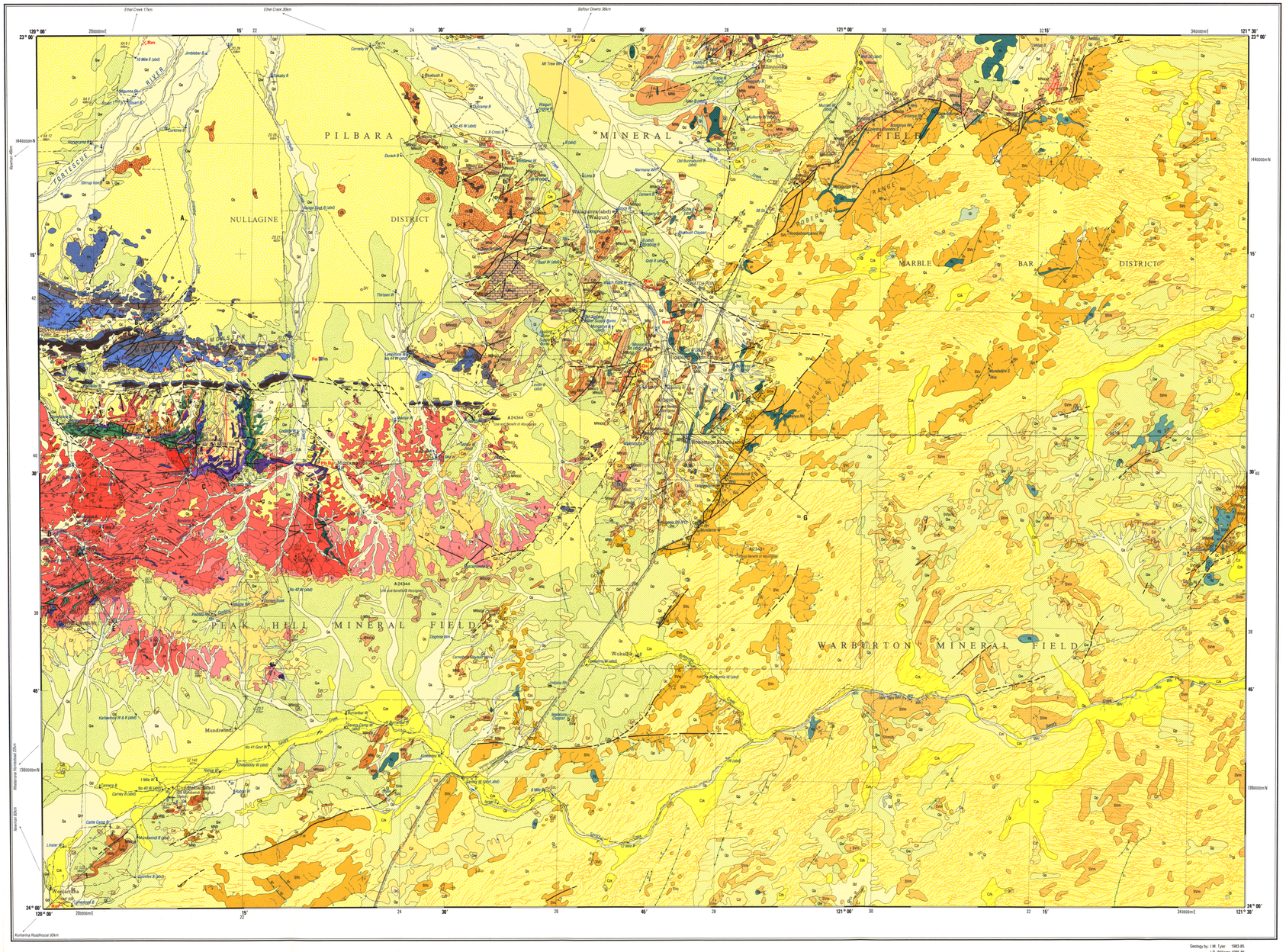
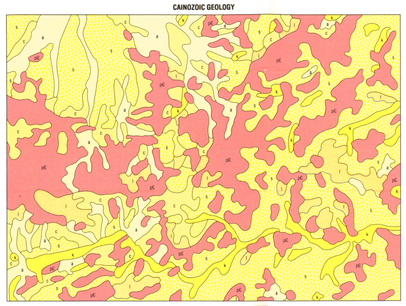


CAINOZOIC GEOLOGY



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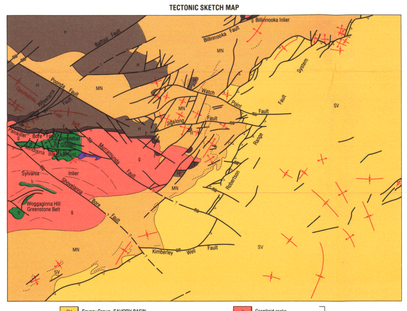
OF WESTERN AUSTRALIA

SCALE 1: 250 000

5000 0 5 10 15 20 25 30
Metres — Kilometres

TRANSVERSE MERCATOR PROJECTION
ZONE 51 AUSTRALIAN MAP GRID

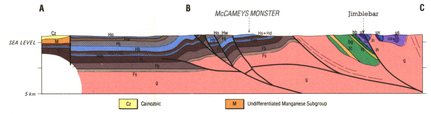
TECTONIC SKETCH MAP



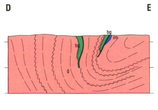
DIAGRAMMATIC SECTIONS

NATURAL SCALE

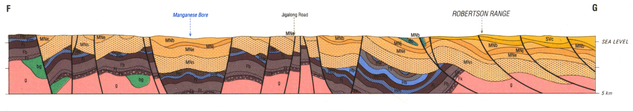
SECTION A-B-C



SECTION D-E



SECTION F-G



REFERENCE

Ga Alluvium — clay, silt, sand, gravel; in drainage channels and adjacent flood plains
Gl Lacustrine deposits — clay, silt; saline in part
Ge Mixed lacustrine and eolian deposits — clay, silt, sand
Gs Eolian sand — in sheets and longitudinal (seif), chain and net dunes
Gp Eolian sand — in sheets mixed and veneered with ironstone pebbles derived from Czl and Czc

Cb Eluvium — gilgai, swelling clay soils characterised by "crabholes"; derived from basalt, dolerite or shale
Cr Colluvium — mixed gilgai and gravel flood plain; low slope deposit
Cw Colluvium and alluvium — clay, silt, sand, gravel in broad sheet wash areas; distinctive vegetation striped photo-pattern
Cc Colluvium and minor alluvium — quartz pebble and rock fragments in silt, sand; adjacent to bedrock; scree, talus slope deposits
Cn Colluvium and eluvium — clay hardpan, partly ferruginised silt, sand, gravel derived from and overlying Czc and Czb

Czc Colluvium — partly consolidated and consolidated ferruginized silt, sand, gravel; valley-fill deposits dissected by present drainage
Czb Silcrete — siliceous duricrust; mixed siliceous caprock and colluvium; secondary siliceous breccia
Czl Laterite — ferruginous duricrust; massive, nodular, pebbly and pisolithic
Czk Calcrete — carbonate in sheets and lenses, usually in major drainage lines; some secondary opaline silica capping
Czs Opaline silica — vuggy white opaline silica formed on partly consolidated sandstone and conglomerate deposits

To **OAKOVER FORMATION:** vuggy white opaline silica, bedded limestone, calcareous sandstone; restricted to headwaters of Oakover River

CAINOZOIC — QUATERNARY / TERTIARY

PROTEROZOIC

ARCHAEAN

Quartz veins, various ages

Dolerite, metadolerite dykes; includes Murramunda Dolerite; numbers identify different suites, lowest number earliest

ds Amygdaloidal basalt, fine-grained dolerite; in shallow-level sills and dykes
dg Medium- to coarse-grained quartz dolerite; in sills and small intrusions

SVb **BOONDAWARI FORMATION:** interbedded diamictite, mudstone, siltstone, sandstone conglomerate, dolomite
SVb(m) Diamictite containing wide variety of striated, faceted, and polished clasts up to boulder size; interbedded mudstone, siltstone, sandstone, conglomerate
SVb(c) Coarse-grained pebbly sandstone, conglomerate
SVb(s) Interbedded shale, rhythmite, fine-grained sandstone
SVb(d) Interbedded shale, siltstone, dolomite, oolitic dolomite, silicified oolite; some stromatolites

SVm **MUNDAJARI FORMATION:** thick, cross-bedded sandstone, siltstone, minor shale; conglomerate, halite pseudomorphs
SVm(d) Dolomite, sandy dolomite

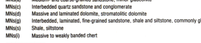
SVc **COONDRA FORMATION:** coarse-grained sandstone, pebbly sandstone, large cross-beds; pebble to boulder conglomerate
SVc(r) Cobble to boulder conglomerate; poorly sorted

SVw **WATCH POINT FORMATION:** shale, siltstone, thin-bedded, fine-grained sandstone

dd **DAVIS DOLERITE:** very fine- to medium-grained dolerite in sills; prominent magnetite
dc Medium- to coarse-grained dolerite in sills and small intrusions

MNb **BALFOUR FORMATION:** pale-grey to green-grey manganiferous shale, fine-grained micaceous, calcareous and glauconitic sandstone, interbedded red-brown shale, micaceous siltstone
MNj **JIGALONG FORMATION:** green silicified glauconitic mudstone, chert, sandstone, pebble conglomerate
MNe **ENACHEDDONG DOLOMITE:** multicoloured, laminated, clastic dolomite, minor shale
MNe(c) Interbedded dolomite, maroon shale, banded chert

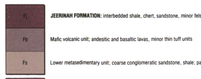
MNs **STAG ARRON FORMATION:** interbedded sandstone, siltstone, shale, conglomerate, dolomite, chert
MNs(c) Medium- and coarse-grained sandstone, minor glauconite
MNs(c) Interbedded quartz sandstone and conglomerate
MNs(d) Massive and laminated dolomite, stromatolitic dolomite
MNs(g) Interbedded, laminated, fine-grained sandstone, shale and siltstone, commonly glauconitic; contains megascopic algae
MNs(s) Shale, siltstone
MNs(d) Massive to weakly banded chert



nk **PINJIAN CHERT BRECCIA:** chert breccia, poorly banded chert, overlies CARAWINE DOLOMITE

Ho **BOOLGEEDA IRON FORMATION:** fine-grained, finely laminated, dark grey-brown to black flaggy iron formation, minor chert, jaspilite shale
Hwr **WOONGARRA VOLCANICS:** rhyolite and rhyodacite as sills or flows; commonly porphyritic, phenocrysts of quartz, feldspar, minor tuff and jaspilitic iron-formation
Hj **WEELI WOLLI FORMATION:** interlayered banded iron-formation, and metadiorite sills, minor shale
Hsf Medium- to coarse-grained massive grey-green metadiorite sills usually foliated
Hb **BROCKMAN IRON FORMATION:** banded iron-formation, chert, shale
Hm **MOUNT McRAE SHALE** and **MOUNT SYLVIA FORMATION:** interbedded shale, chert, banded iron-formation
Hd **WITTENOOM DOLOMITE:** interbedded thin chert, shale and dolomite
Hc **CARAWINE DOLOMITE:** massive to weakly banded recrystallized dolomite, stromatolitic dolomite, minor chert

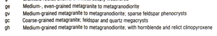
Hmb **MARRA MAMBA IRON FORMATION:** chert, ferruginous chert, minor shale



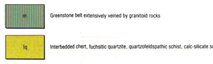
Fj **JEERINAH FORMATION:** interbedded shale, chert, sandstone, minor felsic tuff
Fb Mafic volcanic unit; andesitic and basaltic lavas, minor thin tuff units
Fs Lower metasedimentary unit; coarse conglomeratic sandstone, shale; partly silicified
Ft **TUMBIANA FORMATION:** pisolitic tuff, tuff, mudstone, lithic sandstone
KYLENA BASALT: dark green amygdaloidal, vesicular and massive basalt

a Amphibolite dykes, foliated and lineated; number identifies suite, lowest number earliest
s Schistose amphibolite dykes; intruded into and deformed with **JIMBLEBAR GREENSTONE BELT**

g Granitoid rocks, undifferentiated, deeply weathered
gr Medium-, even-grained metagranite to metagranodiorite
gv Medium-grained metagranite to metagranodiorite; sparse feldspar phenocrysts
gc Coarse-grained metagranite, feldspar and quartz megacrysts
gh Medium-grained metagranite to metagranodiorite, with hornblende and relict clinopyroxene



m Greenstone belt extensively veined by granitoid rocks



sg Interbedded chert, fuchsitic quartzite, quartzofeldspathic schist, calc-silicate schist, minor pelitic and semi-pelitic schist

i Banded iron-formation, chert; undifferentiated
ih Hematite-magnetite-quartz banded iron-formation
ia Amphibole (grunerite or minor hornblende)-magnetite-quartz banded iron-formation
im Magnetite-quartz banded iron-formation; recrystallized

zc Quartz-chlorite-amphibole-feldspar (-garnet) schist; possibly after tuff
zh "Hybrid" intermediate rock; grades into recrystallized garnet-bearing granitoid rock

bb Metabasalt; tholeiitic, locally amygdaloidal
bg Metagabbro, medium- and coarse-grained; includes some serpentinite, metaperidotite and metapyroxenite layers
bo Metamicrogabbro; <30% mafic minerals, minor quartz
bu Komatiitic metabasalt
ba Amphibolite, fine- and medium-grained, lineated and foliated

ua Tremolite-chlorite-talc schist; minor talc-chlorite (serpentine) schist
us Serpentinite; cumulate textures may be preserved
un Metagrywenite, amphibole-chlorite rock
uz Silicified cap rock developed on ultramafic rocks

2500 Ma — Hamersley Group
c. 2760 Ma — Fortescue Group
> 2760 Ma

SAVORY BASIN — Savory Group
BANGEMALL BASIN — Bangemall Group — Manganese Subgroup
HAMERSLEY BASIN
SYLVANIA INLIER

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