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DEPARTMENT OF NATIONAL DEVELOPMENT.
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS.

RECORDS:

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PRELIMINARY TECTONIC MAPS OF THE AMADEUS BASIN 1:500,000

by

D.J. Forman

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Ref.....

These preliminary tectonic map sheets have been compiled in the Geological Branch of the Bureau of Mineral Resources from geological and photo-interpretation maps. The geological 1:250,000 Sheet areas of Scott (NE part), Rawlinson, Macdonald, Mount Rennie, Mount Liebig, Bloods Range, Petermann Ranges, Ayers Rock, Lake Amadeus, Hermannsburg, Henbury, Kulgera, Finke, and Illogwa Creek, and the Harts Range area of the Alice Springs 1:250,000 Sheet area were mapped by the Bureau of Mineral Resources. Most of the information on Rodinga, Alice Springs, and Hale River was obtained from Frome Broken Hill Company map (Wulff, 1960), and from photo-interpretation maps prepared for the Bureau of Mineral Resources by the Institut Français du Pétrole (Scanvic, 1961). The maps have been prepared in this interim form to meet the current demand for information on the Amadeus Basin. They will be incorporated in reports and bulletins either in preparation or awaiting the completion of mapping in the Basin.

The Precambrian rocks along the margins, particularly in the south-west and north-east, were folded during two orogenies.

The older folding occurred in the south-west after the Upper Proterozoic sediments had been deposited, and caused the recumbent and isoclinal folding of sediments below the Bitter Springs Limestone and Pinyinna Beds. The sediments overlying the Bitter Springs Limestone probably slid northwards on a décollement surface.

The younger folding took place along the northern margin of the Basin, probably late in the Devonian. The Arunta Complex and the Heavitree Quartzite were folded into isoclinal and recumbent folds beneath the Bitter Springs Limestone, and the sediments overlying the Bitter Springs Limestone slid southwards on a décollement surface in the Bitter Springs Limestone. It is suggested that the Upper Proterozoic sediments in the mapped area represent stable shelf sedimentation in the Heavitree Quartzite, Dean Quartzite, Pinyinna Beds and Bitter Springs Limestone, and pre-orogenic sedimentation in the Carnegie Formation, Boord Formation, Inindia Beds, Areyonga Formation, Pertatataka Formation, Winnall Beds, Ellis Sandstone, Sir Frederick Conglomerate, and Maurice Formation.

The Lower Palaeozoic sediments include orogenic sediments (the Mount Currie Conglomerate and the arkose at Ayers Rock) and post orogenic sediments (the Cleland Sandstone, the Pertacorrta Formation, and their equivalents).

Overlying these are stable shelf sediments of the Larapinta Group.

The Middle Palaeozoic sediments comprise a pre-orogenic sandstone, the Mereenie Sandstone, and the post-orogenic conglomerate, sandstone, and siltstone of the Pertnjarra Formation.

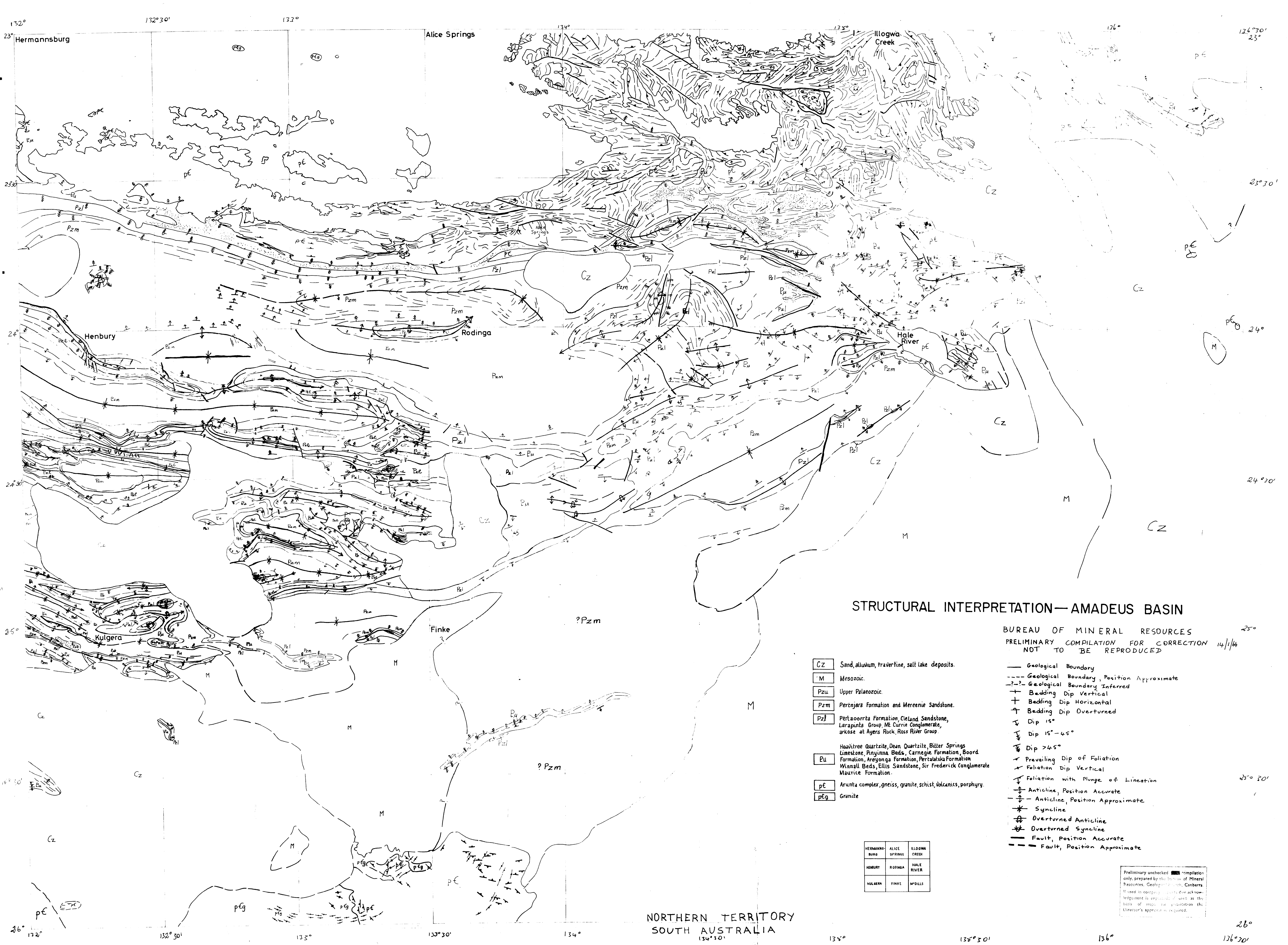
Upper Palaeozoic, Mesozoic, and Cainozoic strata are typically flat-lying and unconformably overlie the older sediments of the Basin.

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Reports on Scott, Petermann Ranges, Ayers Rock, Henbury, Kulgera, Finke and Illogwa Creek Sheet areas are in preparation.

Enclosures: Structural maps of the Amadeus Basin (in two sheets) scale 1:500,000.



STRUCTURAL INTERPRETATION—AMADEUS BASIN

BUREAU OF MINERAL RESOURCES
PRELIMINARY COMPILATION FOR CORRECTION 14/1/64
NOT TO BE REPRODUCED

- CZ Sand, alluvium, travertine, salt lake deposits.
- M Mesozoic.
- Pzu Upper Palaeozoic.
- Pzm Pertnjara Formation and Mereenie Sandstone.
- Pzl Pertaoorla Formation, Cleland Sandstone, Larapinta Group, Mt Currie Conglomerate, arkose at Ayers Rock, Ross River Group.
- Pu Heavitree Quartzite, Dean Quartzite, Bitter Springs Limestone, Anyjima Beds, Carnegie Formation, Boord Formation, Arayonga Formation, Pertalataka Formation, Wianall Beds, Ellis Sandstone, Sir Frederick Conglomerate, Maurice Formation.
- pE Arunta complex, gneiss, granite, schist, volcanics, porphyry.
- pG Granite.

- Geological Boundary
- - - Geological Boundary, Position Approximate
- ? - Geological Boundary Inferred
- + Bedding Dip Vertical
- + Bedding Dip Horizontal
- + Bedding Dip Overturned
- ∇ Dip 15°
- ∇ Dip 15°-45°
- ∇ Dip >45°
- ↗ Prevailing Dip of Foliation
- ↗ Foliation Dip Vertical
- ↗ Foliation with Plunge of Lineation
- ⊕ Anticline, Position Accurate
- ⊕ Anticline, Position Approximate
- * Syncline
- ⊗ Overturned Anticline
- ⊗ Overturned Syncline
- Fault, Position Accurate
- - - Fault, Position Approximate

HERMANN- BURG	ALICE SPRINGS	ILLOGWA CREEK
HENBURY	RODINGA	HALE RIVER
KULGERA	FINKE	M'DILLS

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