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COMMONWEALTH OF AUSTRALIA

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

RECORDS:

1967/77



**PHOTO-INTERPRETATION OF BURKETOWN 1:250,000 SCALE SHEET
QUEENSLAND.**

by

W.J. Perry

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 It may not be published in any form or used in a company prospectus without the permission in writing of the Director, Bureau of Mineral Resources, Geology and Geophysics.

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SUMMARY

Cretaceous rocks crop out in the east of the Sheet, and possible outcrops of this age have been interpreted in the south-central area, and on Sweers and Bentinck Islands. Elsewhere the rocks are lateritised or covered by younger superficial deposits.

INTRODUCTION

Burketown 1:250,000 scale Sheet area lies in the Carpentaria Basin between 17 and 18 degrees south latitude and 139 degrees 30 minutes and 141 degrees east longitude. Photointerpretation has been carried out with the purpose of assisting in the planning and execution of the field work scheduled for the 1968 season. Vertical photography with a nominal scale of 1:50,000 was taken by the Royal Australian Air Force in 1951, and the planimetric base map was prepared by the Royal Australian Survey Corps.

The following method was used in the preparation of the photogeological map. Transparent overlays of alternate photographs were annotated, and the annotations compiled on overlays of the Royal Australian Army Corps photo-scale planimetric sheets. After editing, letter symbols were added, and the resulting photogeological compilations were reduced photographically to 1:250,000 scale; film positives were then made and assembled, and the positive assembly combined with the R.A.S.C. 1:250,000 planimetric compilation to produce a composite print.

Access to Burketown by formed-earth road from the south may be gained from Cloncurry; Burketown is also connected by road with Normanton, just east of the Sheet boundary and thence through Croydon, Georgetown and Einasleigh to Townsville. There are landing grounds at Burketown and Normanton, and at Inverleigh just south of the Sheet boundary.

The regional surface geology of a broad area including the Burketown Sheet has been described by Laing and Power (1960) and by Prichard (1964). Whitehouse (1944) has described river meander patterns on the tidal salt flats of the Gulf of Carpentaria. The geology of Westmoreland, the Sheet

BURKETOWN

Stratigraphic Table

Photogeological Character	Possible Geological Equivalent		
	Qca Coastal & riverine deposits	Quaternary	CAINOZOIC
	Qs Sand		
	Qa Mainly river alluvium		
	Cz Residual soil, sand, alluvium	Undifferentiated	CAINOZOIC
Medium to dark toned, mesa-form	Czl Laterite or duricrust		
Light toned, soft appearance	K Sedimentary rocks	Cretaceous	MESOZOIC

area to the west of Burketown Sheet, has been summarized by Carter (1959).

PHYSIOGRAPHY

The whole sheet area is low lying, the greatest spot height reported on the R.A.S.C. base map being 51 feet at Magoura Landing Ground. The Reaphook Range to the south however, is higher than this, but too much distortion is present in the photos to allow a satisfactory determination of altitude to be made by parallax bar.

The principal rivers draining the area are the Albert and Leichhardt in the west, and the Flinders, Bynoe and Norman in the east.

Twidale (1964, 1966) has discussed the geomorphology of the Leichhardt-Gilbert area, and the following physiographic divisions are based on his work. Depositional plains and erosional plains comprise the important categories into which the terrain may be divided.

The depositional plains can be divided into 1. the tidal salt flats or marine plains (Qca on the photogeological map) and 2. the riverine plains, which include Twidale's riverine paludal plains and lacine and scroll plains. (Qa plus the Cz west of the Leichhardt River and Cz between the Bynoe and Flinders Rivers, and west to L Creek). Whitehouse (1944) has described in detail the peculiarities of the meanders of rivers crossing the tidal salt flats.

The erosional plains are distinguished on the photogeological map by the symbols K, Cz/K, Cz1 and Cz.

STRATIGRAPHY

Cretaceous K

Lower Cretaceous (Albian) sandstone, siltstone and shale of the Normanton Formation crop out at Magoura (Laing and Power, 1960, p.328).

From the air photo evidence, Cretaceous rocks may also be found north of Magoura along a low scarp east of Saltwater Creek, and also to the south, in the Reaphook Range, (R14/5052).

In the south-central part of the Sheet, possible outcrops of Cretaceous rocks have been outlined near M Creek (R15/5110) Rocky Creek (R13/5018) and Pandanus Creek. At Pandanus Creek (R12/5054) a doubtful dip to the east at a low angle is recorded, but in general, outcrops are too low and poorly exposed to show bedding.

Possible outcrops of Cretaceous rocks may be present on Bentinck and Sweers Islands in the north-west of the Sheet.

Cainozoic

Laterite Czl

Laterite is well-developed in the south-east, in the Reaphook Range, along the Cloncurry-Normanton road, and to the north of Magoura. East of the Leichhardt River only scattered remnants of a once extensive laterite surface remain. Laterite has also been interpreted on Bentinck Island.

Coastal and riverine deposits Qca

The letter symbol Qca is applied to tidal flats on which are many low rises of coastal sediments that are above high water level. These are outlined by broken lines, but no attempt has been made to separate them into different types of superficial deposits, except for some prominent sand bars near Spring Creek and the Flinders River.

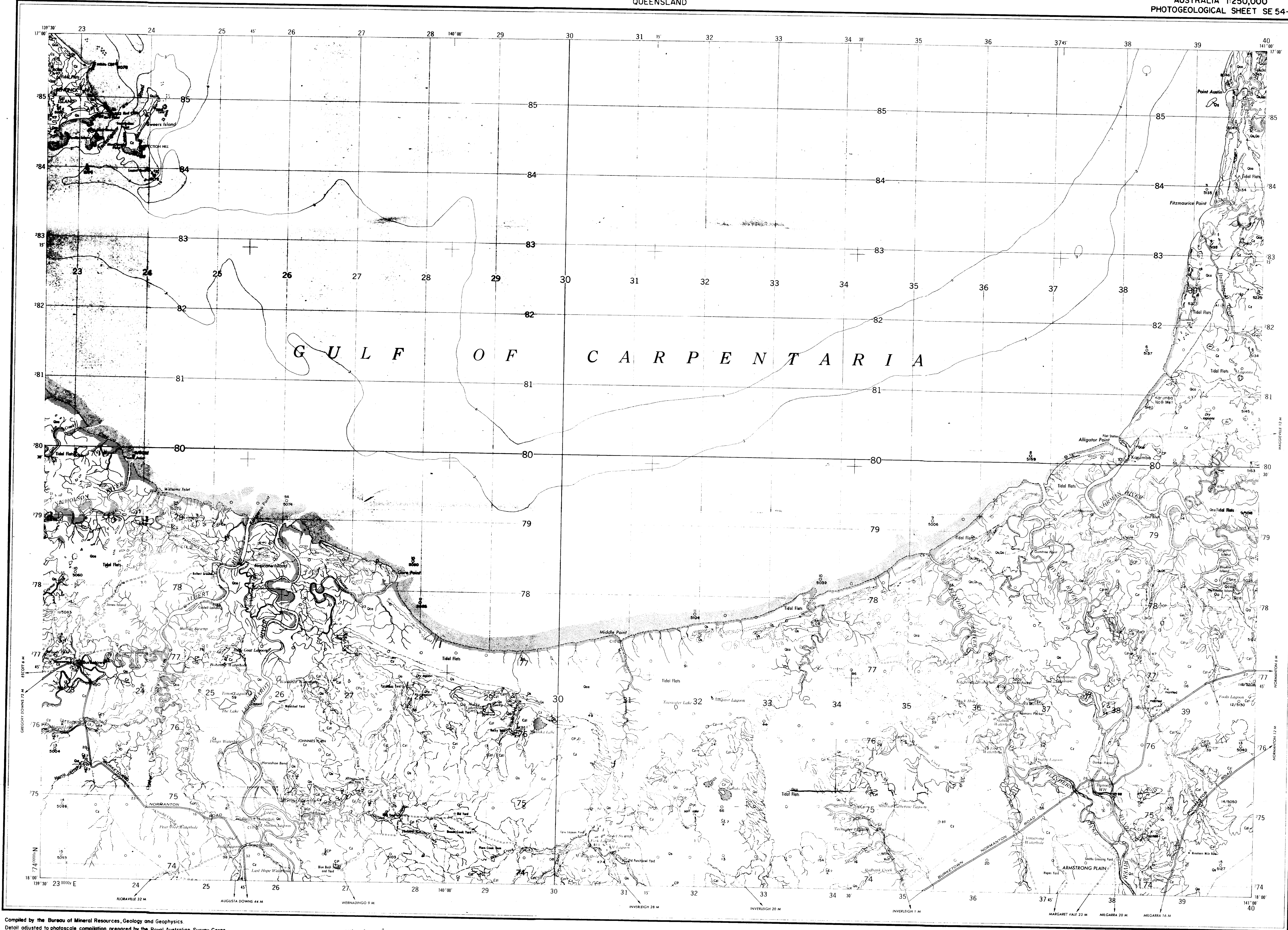
STRUCTURE

Because of the widespread cover of superficial deposits little can be said about the geological structure, except that from the land form it is reasonable to assume that the Cretaceous rocks are flat lying. This is

supported to some extent in the east of the Sheet by the fact that at Magoura the Normanton Formation, probably near its top, is at 50 feet above sea level, and at A.A.O. No. 8 Well Karumba, some 25 miles to the north, the top of the Normanton Formation is approximately 130 feet below sea level. A dip to the north of the order of 8 feet per mile would account for this difference.

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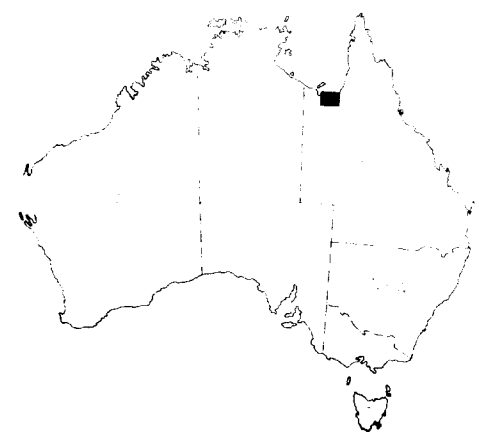
REFERENCE

Photogeological Character Possible Geological Equivalent

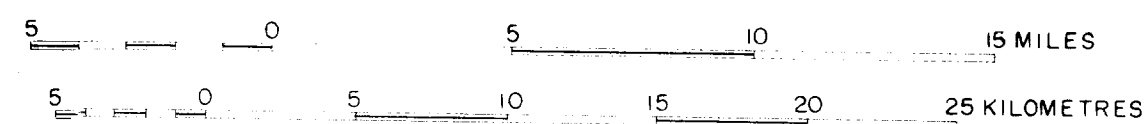
Qca	Coastal and riverine deposits	QUATERNARY	CAINOZOIC
Qs	Sand		
Qa	Mainly river alluvium		
Cz	Residual soil, sand, alluvium	UNDIFFERENTIATED	
Czl	Laterite or duricrust		
K	Sedimentary rocks	CRETACEOUS	MESOZOIC

- Lithological boundary
Probable lithological boundary
Anticline axis
Syncline axis
Fault
Probable fault
Edge of bed
Probable edge of bed
Edge of bed expressed as scarp
Estimated dips
Horizontal
Very low
Low
Medium
Steep
Vertical
Trend line
Joint pattern
Topographic scarp
Laterite (L), Terrace (T), Scree (S)
Dyke
Sand dunes
Dry hole - abandoned
- Principal road
Minor roads and tracks
Railway line
Telephone line
Fence
State boundary
Mine
Homestead
Yard
Windpump
Airport or Airfield, Landing ground
Bore
Tank
Well
Spring
Waterhole
Dam
Mangroves
Tidal limits
Spot elevation
Photo-centre points
Photo-centre points - adjoining sheet
Astronomical station

Compiled by the Bureau of Mineral Resources, Geology and Geophysics.
Detail adjusted to photoscale compilation prepared by the Royal Australian Survey Corps.
Aerial photography by Royal Australian Air Force; complete vertical coverage at 1:48,000 scale.
Transverse Mercator Projection.



SCALE 1:250,000



INDEX TO ADJOINING SHEETS

MORNINGTON	CAPE VAN DIEMEN	GALBRAITH
WESTMORELAND	BURKETOWN	NORMANTON
LAWN HILL	DONORS HILL	CROYDON

Photo-interpretation by the Photogeological Group,
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Interpreted by: W.J. Perry
Compiled and drawn by: R.G. Winchester