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COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS

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1966/229



REPORT ON PHOTO-INTERPRETATION OF DALBY 1:250,000 SCALE SHEET,
QUEENSLAND.

by

J.C. Rivereau
Institut Français du Pétrole

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 It may not be published in any form or used in a company prospectus without the permission in writing of the Director, Bureau of Mineral Resources, Geology and Geophysics.

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The opinions and views expressed in this Record are those of the author and are not necessarily those of the Bureau of Mineral Resources.

SUMMARY

The formations of the Dalby Sheet range in age from Palaeozoic in the south to Lower Cretaceous in the north. They are composed of sandstone, mudstone and siltstone and crop out mainly in the central part of the Sheet area. They are generally duricrusted and to differentiate between them by air photographs is difficult in many places. The western part of the Sheet is occupied by Tertiary sand and gravel, and the eastern part by Quaternary alluvial sand. Tablelands of basalt crop out north-east of Dalby and south of Millmerran.

INTRODUCTION

Dalby 1:250,000 scale Sheet is in the Surat Basin, between 27° and 28°S latitude and 150°00 and 151°30'E longitude. The photo-interpretation of this area has been carried out with the purpose of assisting in the planning and execution of the field work scheduled for the 1967 season. The air photographs used were flown in 1963 at a nominal scale of 1:85,000. Detail from the individual photo-scale overlays has been reported on overlays of the National Mapping photo-scale compilation sheets and then reduced to a scale of 1:250,000.

Complementary notes, based on a field check of a week in this area which was carried out after the photo-interpretation, have been included at the end of the report.

PHYSIOGRAPHY

The Sheet area can be divided into three physiographic units:

The western part is a monotonous, very gently undulating plain covered by Quaternary sand and Tertiary gravel and sand, with some duricrusted areas.

- The central part consists of Jurassic and Cretaceous sandstone, siltstone and mudstone mostly duricrusted, and forms a succession of tablelands covered with timber.

- The eastern part is a very flat plain filled up with alluvial sand. It is a much cultivated area, principally around Dalby.

In the north-eastern corner plateaux of basalt are prominent, and south of Millmerran outcrops of basalt and quartzite form a landscape of hills and higher tablelands.

STRATIGRAPHY

In assigning possible geological equivalents to the photogeological units, reference has been made to the result of the field work and photo-interpretation previously completed, (Exon, Casey and Galloway, 1966; Rivereau, 1966), and much information was obtained in discussion in the field with N.F. Exon and E.N. Milligan.

Palaeozoic

Pz, Quartzite

It occurs in a little area south of Millmerran. It was determined on the ground and is hardly distinguishable on air photographs. It consists of silicified saccharoidal white sandstone, quartzite and thin conglomerate.

TABLE 1

DALBY

Reference

	Qa - Alluvium			
	Qs - Sand, residual soil		QUATERNARY	
	Qco - Sand, conglomerate. Pleistocene?			
Dark toned, flat, scarp-forming	Czd - Duricrust		UNDIFFER- ENTIATED	CAINOZOIC
Medium grey toned, soft appearance, timber cover, gently undulating surface	T - Sandstone, sand, gravel			
Dark toned or cultivated, hard appearance	Tb - Basalt		TERTIARY	
Flat, rather soft appearance, timber cover or cultivated	K - Sandstone, siltstone, Blythesdale mudstone		LOWER CRETACEOUS	
Small hills, timber cover	Juo, Jug - Sandstone, shale	Orallo? Gubbera- munda? Formations	JURASSIC	MESOZOIC
Light grey to grey toned, fairly soft	Jmi - Sandstone, siltstone, shale	Injune Creek Group		
Light grey toned, hummocky surface	P - Sandstone		PERMIAN	
	Pz - Quartzite		UNDIFFER- ENTIATED	PALAEOZOIC

P, Sandstone Permian?

On air photographs it appears as an area of low cultivated hills. On the ground it is covered by residual black soil from the surrounding tablelands of basalt, and the formation crops out only in creek beds or at the foot of the basalt mesas. It is composed of brown coarse sandstone and sand. The relationship between this presumed Permian formation and the Jurassic is not clear.

Mesozoic Jurassic

Jmi, Sandstone, siltstone, shale; Injune Creek Group

It is shown in the eastern part of the Sheet area, mainly north-east of Dalby. On air photos it forms a well defined talus and is capped by basalt, but on the ground this formation is uniformly covered by black soil derived from the basalt, and is concealed.

Juc-Jug, Sandstone, shale. Orallo?, Gubberamunda? Formations

The slopes west of the Dalby plain have been assigned to these formations, as well as the low areas in the southern part of the Sheet.

Lower Cretaceous

K, Sandstone, siltstone, mudstone. Blythesdale Formation

Although some differentiation was made on the ground, it is impossible to differentiate the members of this formation on air photographs, partly because of the similarity of lithology and partly because of the large extent of the duricrusted areas. However the Roma Formation is absent and the K symbol includes the Minmi, Nullawurt, Kingull and Mooga members (Blythesdale Formation).

Cainozoic Tertiary

Tb, Basalt

It crops out north-east of Dalby in well defined tablelands. Scoria, tuff and porcellanite are also present.

In the southern part of the studied area, south-west of Millmerran two ridges of basalt stand out.

The weathering of the basalt produces a very fertile black soil.

T, Sandstone, sand, gravel

It is mainly exposed in the western part of the Sheet but also occurs in the central part, within the Cretaceous and duricrusted area, in scattered outcrops of coarse, poorly sorted sandstone or gravel mantle. In most places it is not differentiated from the duricrust Czd or sand cover Qs.

Undifferentiated

Czd, Duricrust

In the central part of the sheet, the Cretaceous is extensively duricrusted. The duricrust forms scarps and bears timber, and its surface is

mantled by Tertiary gravel or Quaternary sand derived from the duricrust.

Quaternary

Qco, Alluvial sand, Pleistocene?

The plain around Dalby and east of Cecil Plains and Millmerran is filled up with alluvial sand. This alluvial sand is presumably of Pleistocene age (Woods, 1960), and may be a lateral equivalent of the Chinchilla sand; therefore it has been separated from the other Quaternary sand labelled "Qs".

Complementary notes

These notes concern the field traverses carried out during a week spent in the Dalby area, in September, 1966.

Sampling points are numbered and the corresponding numbers have been reported on the map and on the photographs. Numbers between brackets refer to run and photo numbers.

191. (R1-30)

Fine, well sorted sandstone, siltstone with mud pellets and mudstone. Very duricrusted. Boulders of duricrusted Tertiary at the top;

This formation is regarded as the Minmi Member, Blythesdale Formation.

192. (R1-30)

White, friable, well sorted sandstone and siltstone. Some interbedded mudstone - no duricrust. Kingull Member? Blythesdale Formation.

193. (R2-30)

White, friable, medium to coarse sandstone overlain by a sequence of argillite - Boulders of Tertiary at the top. Mooga Member? Blythesdale Formation.

194. (R2-30)

Tertiary and duricrust.

197. (R1-18)

Basalt with zeolites(?) and interbedded tuff and porcellanite.

198. (R1-16)

Blue basalt, scoria, tuff.

1910. (R3-32)

White, fine, well sorted sandstone - Interbedded thin pebble conglomerate. It is regarded as Mooga Member, Blythesdale Formation.

1911. (R4-26)

Similar to 1910.

1912. (R4-26)

Similar to 1910 but duricrusted.

1913. (R5-28)

Similar to 1910.

201-202-203. (R5-28)

Siltstone and sandstone.

Mooga Member? Blythesdale Formation.

204. (R5-28)

Friable, yellowish, well sorted, medium sandstone interbedded with blue grey silty beds; concretions of white claystone with plant impressions; duricrusted at the top.

Probably Orallo Formation.

205. (R5-32)

Very duricrusted at the top; sandstone and mudstone at the base.

206. (R5-36)

In the creek bed.

Duricrusted siltstone and mudstone.

207. (R5-36)

Similar to 206.

208. (R8-08)

Coarse brown sandstone at the base then yellow sand or very friable sandstone; basalt at the top with cobbles of Tertiary.

Permian?

209. (R8-08)

Similar to 208.

2011. (R8-08) (St George Sheet)

Coming from the bottom of a dam; green claystone, sandstone, quartzite.

2012. (R8-08)

White silicified sandstone and quartzite; thin conglomerate.

Palaeozoic?

2013. (R8-08)

Brown, coarse sandstone similar to 208 - this sandstone (Permian?) crops out in many places in this area and is covered by sand and black soil (from basalt).

211. (R8-08) (St George Sheet)

Basalt.

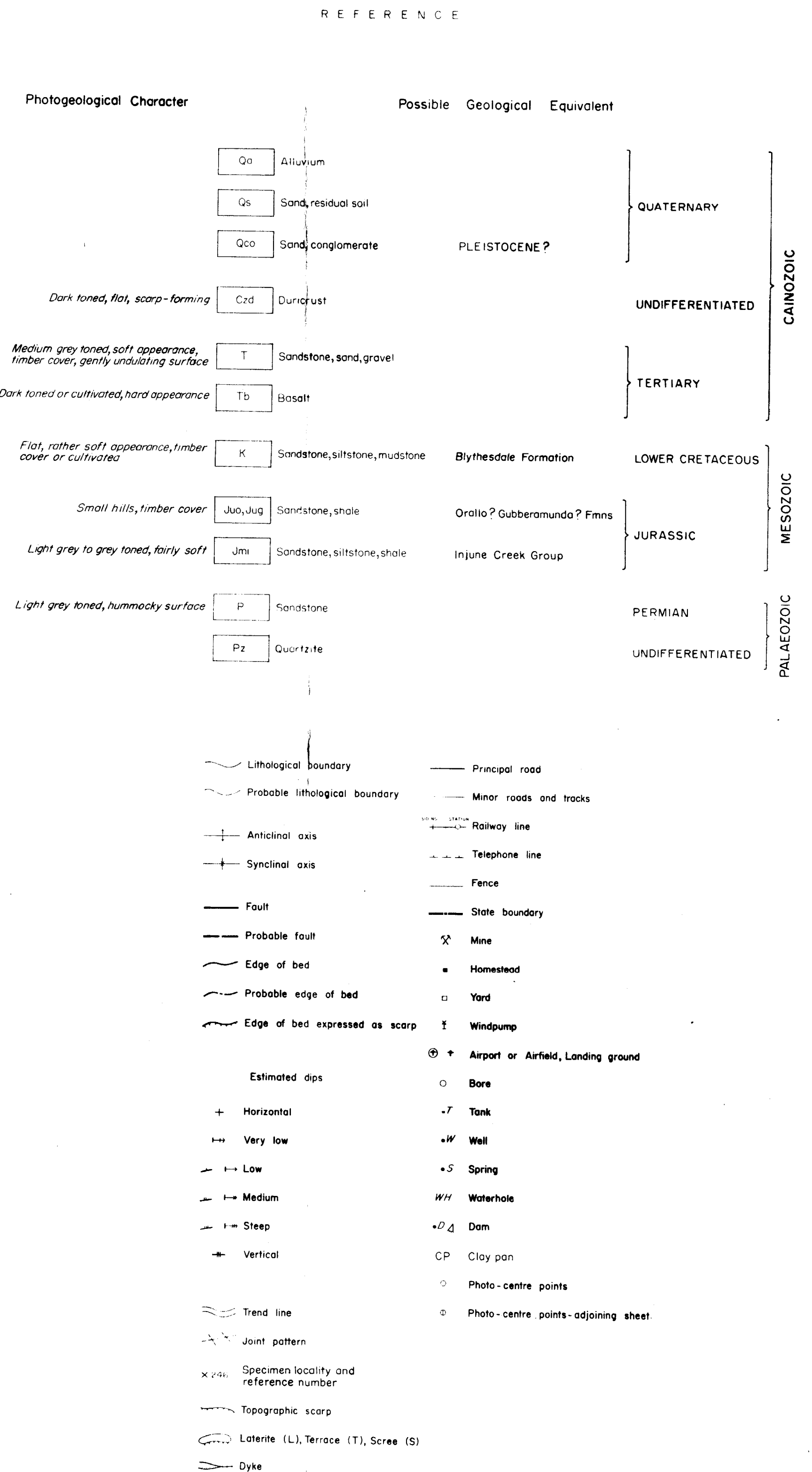
212. (R8-12) (St George Sheet)

Basalt and sandstone.

213. (R8-08)
Quartzite similar to 2012.
- 214-215. (R8-04)
Duricrusted fine sandstone.
- 216-217. (R8-00)
Duricrusted fine sandstone.
218. (R8-98)
In the creek bed : mudstone.
219. (R8-94)
Duricrusted sandstone.
2110. (R8-88)
Duricrusted mudstone.
2111. (R8-80) (St George Sheet)
Mudstone and fine siltstone
2112. (R8-80)
Similar to 2111.
222. (R6-50)
Sand and Tertiary gravel capping duricrusted siltstone and mudstone.
223. (R5-24)
Tertiary sand and conglomerate.
- 224-225. (R4. 24)
Siltstone and fine sandstone.
227. (R3-40)
Compacted mudstone.
- 228-229. (R3-40)
More or less duricrusted mudstone;
Siltstone and fine white sandstone at the top.
- 2210-2211. (R3-36)
Fine white sandstone.
Minmi Member? Blythesdale Formation.
232. (R2-38)
Mudstone.

REFERENCES

- EXON, N.F., CASEY, D.J., and GALLOWAY, M.C., 1966 - The Geology of the northern half of the Mitchell 1:250,000 Sheet area, Qld, Bur. Min. Resour. Aust. Rec. 1966/90.
- RIVEREAU, J.C., 1966 - Report on photo-interpretation of Mitchell (southern half), Roma and Chinchilla 1:250,000 scale Sheets, Qld, Bur. Min. Resour. Aust. Rec. 1966/100.
- WOODS, J.T., 1960 - Pleistocene alluvia of the eastern Darling Downs, in The Geology of Queensland, J. Geol. Soc. Aust., 7, pp. 397-400.



A map of Australia with a dashed rectangle indicating the study area in the southeast. The rectangle is located in the state of Victoria, covering the coastal and inland regions around Melbourne. The map shows the outline of Australia and the dashed rectangle is positioned in the lower right quadrant of the continent.

ROMA	CHINCHILLA	GYMPIE
SURAT	DALBY	IPSWICH
DIRRANBANDI	ST GEORGE	GOONDIWINDI

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