COPY 3

S.K. Skwarko

(11)

COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS.

RECORDS.

1963/2

MESOZOIC FOSSILS FROM THE GIBSON DESERT, CENTRAL WESTERN AUSTRALIA.

by

S.K. Skwarko

MESOZOIC FOSSILS FROM THE GIBSON DESERT, CENTRAL WESTERN AUSTRALIA

by

S.K.Skwarko

RECORD 1963/2

CONTENTS

MESOZOIC FOSSILS FROM THE GIBSON DESERT, CENTRAL WESTERN AUSTRALIA

by

S.K. Skwarko.

RECORD 1963/2

SUMMARY

Six out of the nine collections from Western Australia, i.e., B.4, B.5, Be.7, W.3, and W.5, from "Kidson" and Bejah Beds, contain fossils which occur in the Roma "Formation" (Aptian) of the Great Artesian Basin, and are therefore dated as Aptian.

Of the remaining three collections, B.1, and W.4, are probably also of Aptian age since they were in sediments mapped as the "Kidson" and Bejah Beds respectively, whereas C.4 may be of Jurassic age, but on evidence independent of its fossil content, such as photo-pattern, lithology and superposition.

INTRODUCTION

The collections of ?Jurassic and Cretaceous marine fossils submitted by A.T.Wells for dating, were collected by him during helicopter traverses in the Gibson Desert in the 1962 field season. They are as follows: B.1, B.4, and B.5, on the Browne 1:250,000 Sheet area; Be.6, and Be.7, on the Bentley Sheet area; C.4, on the Cobb Sheet area, and W.3, W.4, and W.5, on the Warri Sheet area. They supplement collection B.6, made two years previously also by A.T.Wells, from Browne Sheet area (Skwarko, 1962), and give further evidence of the existence of an area of marine sedimentation which was continuous with the Great Artesian Basin of eastern and southern Australia.

The accompanying locality map shows the distribution of the collecting sites.

THE FOSSILS AND THEIR AGE

In the Gibson Desert, strata of probable Jurassic age are limited to western and north-western portions of the Cobb Sheet area. Area covered by the Lower Cretaceous continuous or intermittent strata is much more extensive as shown approximately on the appended map.

Apart from locality C.4, which may be of Jurassic age, two stratigraphical horizons are represented in Cretaceous strata by the marine fossils. The lower "Kidson Beds, about 150 feet thick, are predominantly coarse-grained and consist of quartz sandstone with some claystone and siltstone layers and lenses. The overlying Bejah Beds measure about 100 feet in thickness; they are finer grained and their main constituent is porcellanite, claystone and siltstone. The difference in age between the two horizons is not great, and their fossil content suggests Aptian age for both.

All beds are severely leached and in the case of molluscan fossils no shell material remains. The study of fossils is then limited to interpretation of impression of shells.

Individual descriptionsof the collecting sites and fossils which they contain are as follows:

BROWN 1:250,000 SHEET AREA:

Locality B.1 - 3/426 1-mile Sheet, Gibson Desert, 48 miles north-east of Mount Beadell. Run 4, Ph.23, "?Kidson Beds" (?Cretaceous).

The collection consists of four samples, three of siltstone and one of quartz sandstone.

The fossil content of the siltstone samples is similar, and is limited to plant-like regularly ramifying tunnel structures which neither cross each other nor anastomose. The structures are of uniform width, and their origin is probably that of dwelling burrows or feeding burrows made by marine worms. These fossils are usually referred to as "trace fossils" or "fucoids", and the genus represented is probably Chondrites, which is known from Cambrian to Tertiary of Europe.

The fourth sample, a coarse-grained quartz sandstone, contains a flattened cylindrical structure, which may or may not be of organic origin.

Fossils in the collection B.1, give very little evidence on its age, which, however, may be Aptian (Lower Cretaceous) i.e.the same as strata of apparently identical stratigraphical position, and of similar photo pattern occurring in close to this locality.

Locality B.4 - Gibson Desert, 40 miles north-east of Mount Beadell, Run 2, Ph.5022 Pt.7. Bejah Beds (Cretaceous).

Pelecypoda: Pseudavicula anomala (Moore), 1870.
"Glycimeris" sp.cf. "G". sulcata Etheridge Snr., 1872.
"Malletia elongata" (Etheridge Snr.), 1872.
Pelecypoda indet. (small forms)

Pseudavicula anomala has been identified from the Great Artesian Basin Lower Cretaceous beds in eastern Queensland, north-western New South Wales, central South Australia and southern portion of the Northern Territory, where it is confined to the Roma "Formation" (Aptian) or its equivalents. Presence of this species in the collection suggests, therefore, Aptian age.

"Glycimeris" sp.cf."G".sulcata. Two specimens have been referred to this species. In their small size and regular ornamentation they resemble more closely the smaller species, "G", aramacensis Etheridge Jnr., 1892, from the Aptian of Aramac, Queensland, but differ from it in a wider posterior portion and a more inclined hinge margin. "G" sulcata from the Roma"Formation" of Queensland is somewhat larger but in shape closely agrees with the specimens under discussion.

"Malletia elongata". Three specimens have been referred to this species, which is known from Roma and Tambo strata of Queensland, and from (?)Roma strata of New South Wales and South Australia. Previously, apparently identical specimens have been recorded from Mount Samuel (B.6), 60 miles to the south-south-east from B.4, but from a sandstone horizon which, however, is also of Aptian age.

Locality B.5 - Gibson Desert, eight miles south-west of Mount Beadell. Run 6, Ph.5062, Pt.10, Bejah Beds. (Cretaceous).

Pelecypoda: Pseudavicula anomala (Moore), 1870.
"Glycimeris" sp.of "G". sulcata Etheridge Snr. 1872
Camptonectes sp. indet. (small form)
?Sycyclonema sp. indet.
Pelecypoda indet. (internal casts, large and small).

Pseudavicula anomala. Two specimens apparently identical to P.anomala from localityB.4, as well as from the Great Artesian Basin to the east and south-east, have been identified from this assemblage.

"Glycimeris" sp.cf. "G". sulcata is represented by four specimens. They are identical to those from locality B.4.

Camptonectes sp. indet. The single specimens present is very small and may represent an already known species, but its comparison with already described mature species is difficult.

?Syncyclonema sp. indet. A single internal impression of a crushed specimen is not specifically determinable.

BENTLEY 1:250,000 SHEET AREA

Locality Be.6. - Gibson Desert, Mount Charles, Pt.17, Bejah Beds, (Cretaceous).

Pelecypoda: ?Palaeomoera mariaeburiensis (Etheridge Snr.) 1872.
?Mytilus inflatus Moore, 1870.
Nuculoid gen.et sp.indet.

?Palaeomoera mariaeburiensis. By far the most common pelecypod here is a small bivalve whose specimens vary considerably in the detail of the shape of the shell as well as in ornamentation. Some specimens seem closest to Etheridge's P.mariaeburiensis from the Roma "Formation" beds of Queensland, although they are smaller. Others seem to have closest affinities with the equally small "Pachydomella" chutus Etheridge Jnr., 1907, which occurs in great abundance in the Lower Cretaceous strata of the Great Artesian Basin. Others still are most similar to "Cytherea" woodwardiana Huddleston, 1884. These three species may or may not be synonymous, but for the purpose of this report it is sufficient that the presence of this gregarious form at the locality under Discussion is indicative of Aptian age.

?Mytilus inflatus. Three very poorly preserved specimens have a general outline not unlike this fossil. Nuculoid gen.et sp. indet. A single specimen shows proximal portion of an internal cast of a shell with an incomplete line of taxodont teeth. Not enough of the specimen is showing to enable generic determination.

It is suggested that the age of the collection Be.6 is Aptian.

Locality Be.7.- Gibson Desert, eight miles south of Mount Charles. "Kidson Beds", (?Cretaceous).

Pelecypoda: "Macrocallista"plana (Moore), 1870.

Gastropoda: Natica (Lunatia) variabilis (Moore), 1870.

Both molluscs are well known from the Great Artesian Basin. "M".plana is confined to the beds of Roma "Formation" (Aptian) in Queensland, New South Wales, and South Australia, while N.(L.) variabilis occurs in both the Roma and Tambo (Albian) "Formations" or their equivalents in these three states.

COBB 1:250,000 SHEET AREA

Locality C.4 - Gibson Desert, Ryan Buttes. Run 4, Ph.5669, Pt.8 ?Jurassic.

The collection consists of two samples, one without any obvious organic remains and the other with a mass of structures similar to those from locality B.1, on Browne 1:250,000 Sheet area, which were identified as trace fossils probably belonging to genus Chondrites.

WARRI 1:250,000 SHEET AREA.

Locality W.3. - Gibson Desert, 32 miles north-east of Mount Cox. Run 12, Ph.5768 Pt.3. "Kidson Beds". (.Cretaceous).

Pelecypoda: "Malletia elongata" (Etheridge Snr.), 1872.
Pelecypoda indet.

"Malletia elongata". One specimen from this locality has been referred to this Aptian - Albian species. Another pelecypod, although indeterminate, is similar to the one occurring at locality W.5,of Aptian age, about 35 miles tothe south-west. The suggested age for localityW.3 is Aptian.

Locality W.4, - Gibson Desert, 24 miles east-north-east from Mount Cox. Run 14, Ph.5369 Pt.4, Bejah Beds, (Cretaceous).

Pelecypoda: ?Pecten sp. nov.
?Syncyclonema sp.indet.

?Pecten sp. nov. Three fragments belonging to the same species may represent a hitherto undescribed Pecten. Its ornamentation is diagnostic and consists of straight, wide and well developed primary costae which increase in width fairly rapidly distally andwhich are separated from each other by wider flat-bottomed interspaces. These latter are transversely lined with growth-striae. The rectangular cross-section of each primary rib is complicated by presence of a linear longitudinal ridge which occupies a median position.

?Syncyclonema sp. indet. Two specimens, one of an almost complete internal impression of a valve, and another of a badly crushed specimen, may belong to Syncyclonema.

The fossil content of locality W.4, gives therefore, no indication of the age of beds represented, but other fossil assemblages from Bejah Beds strongly suggest Aptian age.

Locality W.5 - Gibson Desert, near Mount Cox, Run 18,Ph.5033, Pt.7, Bejah Beds, (Cretaceous).

Pelecypoda: Pseudavicula anomala (Moore), 1870.
Camptonectes sp. indet. (a small form).
Nucula (?) sp. (a small form)
Pelecypoda indet.

Pseudavicula anomala. Three somewhat crushed but otherwise well preserved specimens of this Aptian key fossil have been identified from this collection.

Camptonectes sp.is represented by three small specimens, the largest of which measures less than 6 mm. im height. Both valves seem to be devoid of sculpture. The anterior auricle on the right valve is well developed and relatively free. The combination of these features set this species apart from the hitherto described forms. It may be a new species.

Nucula(?) sp. Two pelecypoda are questionably referred to Nucula. One is a fragment of a small shell which shows a portion of hinge margin with a row of taxodont teeth. The other shows the external aspect of a (?) left valve, which has a shape of a Nucula, but which may not belong to the same species as the first specimen.

It is suggested that the age of the collection is Aptian on the presence of P.anomala.

TABLE 1 : DISTRIBUTION OF FOSSILS

	B.1	B.4	B.5	Be.6	Be.7	C.4	W.3	W.4	W.5
Pelecypoda:									
Nucula (?) sp.									x
Nuculoid gen.et sp. indet.				x					
"Malletia elongata"		x					x		
"G."sp.cf."G". sulcata		x	x						
Pseudavicula anomala		x	x						x
?Pecten sp.nov.								x	
Camptonectes sp.indet			x						x
?Syncyclonema sp.indet			x					x	
?Mytilus inflatus				x					
"Macrocallista" plana					x				
Palaeomoera mariaeburiensis				x					
Gastropoda:									
Natica (L) variabilis					x				
Problematica:									
Chondrites sp.?	x					x			x

REFERENCE:

SKWARKO, S.K., 1962 - "Notes on Australian Lower Cretaceous Palaeogeography". Bur.Min.Res.Aust. Rec.1962/11 (unpub.)

123°
124° 30
126°
24°
25°
26°

Woolnough Hills
Alfred & Marie Ranges
Ryan
Burtles
C4
W3
W4
W5
Mt. Cox
Young Ra.
B4
B1
B5
Mt Beadell
Browne Ra.
Todd Ranges
BE6
Mt. Charles
Mt. Samuel
B6
Baker Ra
BE 7
Bentley Hills
Spring Rocks

MADLEY
WARRI
COBB
HERBERT
BROWNE
BENTLEY

REFERENCE

- Cretaceous
- Jurassic (?)
- Permian
- Palaeozoic
- Precambrian
- Road
- Outcrop Boundaries
- ● 4 Fossiliferous Localities

0 10 20 30 40 50 miles

MESOZOIC FOSSILIFEROUS LOCALITIES
GIBSON DESERT

Geology by A.T. Wells

Bureau of Mineral Resources, Geology and Geophysics Dec. 1962

To accompany Record No 1963/2

W6 F.C.S