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1962/84

THE MESOZOIC STRATA OF KATHERINE AND FERGUSSON RIVER 1:250,000 SHEETS

by

S.K. Skwarko.

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C O N T E N T S

SUMMARY

Of the thirteen assemblages of fossils collected on the Katherine-Ferguson River area, nine are marine and four consist of plant remains. They appear to range in age from Neocomian to uppermost Albian.

Lower Cretaceous sediments outcropping on the north-eastern portion of the Katherine 1:250,000 Sheet area are remnants of a once continuous sheet of Neocomian strata which extended to the east and south-east of this area. Remnants of Aptian sediments are very rare.

The lowest Cretaceous sediments outcropping on the Fergusson River 1:250,000 Sheet area are the non-marine, plant bearing, sandstone of possibly Mid-Aptian to Mid-Albian age; these have been traced almost as far as the Queensland border to the south-east. The sandstone is overlain by finer-grained sediments, the topmost of which have yielded marine fossils. The age of these sediments is thought to be uppermost Albian and they appear to have extended originally as a continuation of the Great Artesian Basin from the Queensland border to Darwin.

INTRODUCTION AND ACKNOWLEDGEMENTS

Lower Cretaceous strata of the Katherine and the Fergusson River 1:250,000 Sheets were examined during the 1960 and 1961 field seasons. Field observations on lithology and palaeogeography were summarised in previous Records (Skwarko, 1961a,b) and these, together with the identification of the fossils collected and their dating have provided material for conclusions expressed in the present Record.

I wish to thank C.E. Prichard, Senior Geologist, Darwin office, Bureau of Mineral Resources, for facilitating the examination of the areas.

FOSSIL LISTS

Open nomenclature has been used when listing names of fossils. New generic and specific names will replace those inBureau of Mineral Resources publications where the individual forms will be described.

Lower Cretaceous marine and non-marine macrofossils collected at twelve localities on the two sheets are arranged below in alphabetical order.

FOSSILIFEROUS LOCALITIES

	Katherine									Fergusson River	
	9,	10,	11,	13,	14,	16,	17,	18,	49,	49a	54,	12E
Pelecypoda:												
Astarte sp.(?)										x		
Astarte (?) sp.nov.		x										
Camptonectes sp.nov.a		x							x			
Cyrenopsis (?) sp.nov.									x			
Cyrenopsis (?) sp.		x								x		
Grammatodon sp.nov.										x		
Lima sp.									x			
Maccoyella corbiensis (Moore)										x		
Neithea occidentalis (Conrad)									x			
Notctrigonia sp.nov.i									x			
Nototrigonia sp.indet.										x		
Ostrea spp.										x		
Pseudavicula sp.nov.aff.P.papyracea Etheridge Jnr.		x							x			
Pterotrigonia (R.) sp.nov.									x			
Syncyclonema sp.nov.		x							x			
Tatella cf.aptiana Whitehouse										x		
Trigonia sp.indet.		x										
Cephalopoda:												
Ammonite frags.indet.					x	x	x					
Australiceras sp.nov.aff. A.jackii							x					
Brachiopods indet.		x		x								
Belemnites indet.		x			x	x						
Echinoid spines									x			
Plants:												
Cladophlebis cf. C.roylei Arber												x
Cladophlebis sp.nov.cf. roylei Arber												x
Conifer frags.			x								x	
Elatocladus cf. E.plana(Feistmantel)												x
Elatocladus sp.								x				
Otozamites bengalensis (Morris)								x				
Otozamites feistmanteli (Zingo)(?)			x									
Otozamites sp.indet.												x
Ptilophyllum oligoneurum Tenison-Woods(?)			x					x				
Taeniopteris spatulata McClelland								x				x
Taeniopteris cf. T.tenison-woodsi Etheridge Jnr.												x

Thirteen localities of Lower Cretaceous age at which fossils were collected are described in the following pages. They are accompanied by lists of fossils and suggested datings.

KATHERINE 1:250,000 SHEET

T.T.9: Black Cap I-mile Sheet; about ¼ mile at 150° from Baker Creek crossing; 7 miles north of Beswick Homestead. Baker Creek is a tributary of the Waterhouse River.

Pelecypoda: Maccoyella corbiensis (Moore),1870

Others: Indeterminate belemnites,echinoid spines, and roots.

T.T.10: Black Cap I-mile Sheet; about 7 miles north-west from the Maranboy-Mainoru Road, along the west bank of the Bukalorkmi Creek.

Pelecypoda: Pseudavicula sp.nov.aff.P.papyracea Etheridge Jnr. 1892
Syncyclonema sp.nov.
Camptonectes sp.nov.a
Trigonia sp.indet.
Astarte(?) sp.nov.
Cyrenopsis (?) sp.

Also: Indeterminate fragments of brachiopods,and indeterminate belemnites.

T.T.11: Black Cap I-mile Sheet; 2 miles due north from locality T.T.10.

Plants: Otozamites feistmanteli Zingo (?)
Ptilophyllum oligoneurum Tenison-Woods(?)
Conifer fragments

T.T.13: Katherine River I-mile Sheet; Yeuralba, 28 miles due north from Maranboy Police Station.

Indeterminate brachiopods, root remains, worm borings?

T.T.14: Waterhouse I-mile Sheet;
east-south-east of Sugarbag Waterhole which is situated on the Maranboy-Mainoru Road about 13 miles east of Beswick Homestead.

Ammonite frag.indet.
Belemnites frags. indet.

T.T.16: Waterhouse I-mile Sheet; about 3 miles due south of the Maranboy-Mainoru Road at a point about 6 miles east of Beswick Homestead.

Ammonite frag.indet.
Belemnite frags.indet.

T.T.17: Waterhouse I-mile Sheet; about 2 miles east-south-east from locality T.T.16.

Cephalopoda: Australiceras sp.nov.aff.A.jackii
Ammonite frag.indet.

T.T.18: Waterhouse I-mile Sheet; 5 miles due south of the Maranboy-Mainoru Road at a point some 10 miles east of Beswick Homestead.

Plants: Otozamites bengalensis (Morris)
Ptilophyllum pecten (Phillips)
Elatocladus sp.
Ptilophyllum oligoneurum Tenison-Woods (?)
Taeniopteris spatulata McClelland
Equisetalean stem indet.

T.T.19: Black Cap I-mile Sheet; a sharp half-way between localities T.T.10 and T.T.11.

Wood frags.indet.
Worm borings(?)

T.T.49: Katherine River I -mile Sheet; 1.2 mile north of the edge of the plateau, in cliffs facing Katherine River across main Yeuralba mine road.

Pelecypoda: Pseudavicula sp.nov.aff.P.papyracea Etheridge Jnr., 1892
Syncyclonema sp.nov.
Camptonectes sp.nov.a
Neithea occidentalis (Conrad),1855
Lima sp.
Pterotrigonia (Rinetrigonia) sp.nov.
Nototrigonia sp.nov.i
Cyrenopsis (?) sp.nov.

Also: Echinoid spines

T.T.49a: "Yeuralba, east side of Katherine River, 20 miles north of Maranboy." Collected by P.B. Nye, 1939. Probably close to locality T.T.49 but exact position not known.

Pelecypoda: Grammatodon sp.nov.
Maccoyella corbiensis (Moore), 1870
Syncyclonema sp.
Lima sp.
Ostrea spp.indet.
Nototrigonia sp.indet.
Astarte (?) spp.
Cyrenopsis (?) sp.
Tatella cf. T.aptiana Whitehouse,1925

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

Age: Lr. Aptian

FERGUSSON RIVER 1:250,000 SHEET

T.T.54: Hungry Knob I-mile Sheet; about 9 miles south-west from the Daly River crossing, on road to Dorisvale Homestead.

Plants: Conifer foliage
Indeterminate plant stems and branches

12E (Buldiva): Brunnschweiler (in Traves, 1955) listed plant fossils from Buldiva area. He regarded these of Jurassic age:

Cladophlebis cf. C.roylei Arber
Cladophlebis sp.nov.aff. C.roylei Arber
Taeniopteris spatulata McClelland
Taeniopteris cf. T. tenison-woodsi Etheridge Jnr.
Otozamites sp.indet.
Elatocladus cf. E.plana (Feistmaritel)

A collection of fossils from "24.5 miles west of Munbulloo Outstation" made by Vacuum Oil Company and lodged with the Bureau of Mineral Resources collections consists of the following:

Teredo sp. cf T.vastitas Etheridge Jnr. 1902
Dimitobelus sp.aff. D.eremos (Tate)
Glyphaea sp.indet.

Of these, both Terido and Glyphaea are limited to Aptian-Upper Albian strata of the Great Artesian Basin; D.eremos is an Upper Albian form; but specimens in the collection are very poor and determinations are not definite.

DISCUSSION

Of the thirteen assemblages of fossils collected on the Katherine-Fergusson River area, nine have marine invertebrates and four plants only.

In the north-eastern portion of the Katherine area shallow water marine conditions of sedimentation prevailed. Locally, rivers brought in plant remains which are found associated with poorly sorted cross-bedded conglomerates and included in the finer grained sediments surrounding them. Most collections of marine fossils have too few species to be individually used for determining the age of strata from which they were derived, but faunal similarity to such assemblages as T.T.10 and T.T. 49, which have a number of species in common with Neocomian collection T.T.35, on the Mt. Young 1:250,000 Sheet area suggests that they are of Neocomian age. On the other hand, fossil assemblage T.T.49a is distinct from these and has some species, e.g. Tatella sp. cf. T.aptiana and Natica (L.) variabilis, which occur in the Aptian strata of the Great Artesian Basin. This is the only evidence for the continuation of marine sedimentation into the Aptian times in the whole of the Roper River-Urapunga-Katherine area.

The first Lower Cretaceous sediments which were deposited over the whole of Fergusson River 1:250,000 Sheet area and the south-western portion of the Katherine 1:250,000 Sheet area consist mainly of quartz sandstone. They have accumulated in a non-marine, probably lacustrine, environment. Plant remains are the only fossils collected. Time ranges of these plants indicate Upper Jurassic to Lower Cretaceous; their most likely age, on palaeogeographical evidence, is Mid-Aptian to Mid-Albian. They are over-lain apparently conformably by finer sediments, mostly claystone , the upper layers of which contain Radiolaria, Lower Cretaceous arenaceous Formanifera, and rare Aptian or Upper Albian marine macrofossils. For reasons given earlier (Skwarko, 1962), most of which are stratigraphical, the age of claystone is thought to be uppermost Albian.

The outcrops of the quartz sandstone have been traced from about the middle of the Pine Creek 1:250,000 Sheet area in the north to Calvert Hills 1:250,000 Sheet area in the south-east. The overlying claystone originally occupied a much greater area; it is thought to have been deposited in a sea - a continuation of the Great Artesian Basin - which stretched from Queensland border as far as Darwin.

REFERENCES

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