

1955/103  
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COMMONWEALTH OF AUSTRALIA.

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

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REPORT No.

1955/103

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MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM GRIERSON NO. 1,  
ROUGH RANGE NO. 4, ROUGH RANGE NO. 5, ROUGH RANGE NO. 8,  
AND CAPE RANGE NO. 2 WELLS, CARNARVON BASIN,  
WEST AUSTRALIA.

by

D. J. Belford.



Canberra. October, 1955.

Micropalaeontological Examination of Samples from  
Grierson No. 1, Rough Range No. 4, Rough Range No. 5, Rough Range  
No. 8, and Cape Range No. 2 Wells, Carnarvon Basin, West Australia.

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Records 1955/103.

One sample from each of the wells Grierson No. 1, Rough Range No. 4, Rough Range No. 5, and Rough Range No. 8, and five samples from Cape Range No. 2 were forwarded for examination by West Australian Petroleum Pty. Ltd. The species identified in each sample, with notes on the fauna and age of the sample, are:-

Grierson No. 1. Core No. 3,989-991 feet.

Ammodiscus rotularius Loeblich and Tappan  
Spiroplectammia nuda Lalicker  
Trochammia ragratti Cressin  
Hyperammia sp.

This assemblage is of Lower Cretaceous age (Aptian-Albian) and is similar to that recorded from water bores throughout the Great Artesian Basin.

Rough Range No. 4. Core No. 1, 1380-1388 feet.

Globotruncana arca (Cushman)  
G. ventricosa White  
G. lapparenti lapparenti Brotzen  
G. lapparenti Brotzen tricarinata (Guereau)  
Planulina taylorensis (Carsey)  
P. voltziana (d'Orbigny)  
Marssonella oxycona (Reuss)  
Anomalina velascoensis Cushman  
Globorotalites micholiniana (d'Orbigny)  
Spiroplectammia laevis (Roemer) var. cretosa Cushman  
Bolivinitella elevi (Cushman)  
Bolivina incrassata Reuss  
Gublerina sp.

Age:- Campanian. This assemblage is typical of the Korojon Calcarenite of the Giralda Anticline.

Rough Range No. 5. Core No. 1, 1569-1597 feet.

Globotruncana (Rotundina) stephani stephani (Gandolfi)  
G. (Rotundina) stephani (Gandolfi) turbinata (Reichel)  
G. helvetica Bolli  
Spiroplectammia nuda Lalicker  
Marssonella oxycona (Reuss)  
Pleurostomella obtusa Berthelin  
Anomalina petita Carsey  
Vaginulina triplicura Reuss  
Gaudryina cf. canadensis Cushman  
Bulimina sp.

As far as is known, the species of Globotruncana in this core have not previously been recorded from the Upper Cretaceous of West Australia. They are known from the Upper Cenomanian and Lower Turonian of Europe, but in the absence of Turonian planktonic species from this sample, it is regarded as Upper Cenomanian in age. Kupper, (1955), states that the association of the subspecies of Globotruncana stephani has not been recorded, but according to Hagn, (1954), they have the same distribution, with the subspecies turbinata appearing a little later in the section. Only one specimen of Globotruncana helvetica has been found in this sample, but specimens of G. stephani subsp. are abundant. The occurrence of Marssonella oxycona in this core gives this species a long range in the Carnarvon Basin, from the

Upper Cenomanian to the Upper Senonian; however, it has the same vertical range in Europe.

Rough Range No. 8. Core No.1. 1530-1548 feet.

Globotruncana lapparenti Brotzen tricarinata (Quereau)  
Globigerina cretacea Reuss  
Globigerinella aspera (Ehrenberg)  
Hastigerinella cf. subcretacea Tappan  
Anomalina cf. petita Carsey  
Spiroplectammina nuda Lalicker  
Spiroloculina sp.  
Ammodiscus cretaceus Cushman  
Gaudryina cf. canadensis Cushman

As far as is known, this assemblage also has not previously been recorded from the Upper Cretaceous of West Australia. Globotruncana lapparenti tricarinata, which is the dominant form, and also Globigerina cretacea and Globigerinella aspera are not known below the Turonian, and the sample is regarded as Turonian in age. This is the first record of the genus Hastigerinella from this area; the species is similar to the species subcretacea described by Tappan (1943) from the Duck Creek Formation (Middle Albian) of Oklahoma and Texas, but is more strongly ornamented on the outer edges of the chambers.

Cape Range No. 2. 1540-1560 feet.

Globorotalia membranacea (Ehrenberg)  
G. wilcoxensis Cushman and Ponton var. acuta Toulmin  
Globigerina triloculinoides Plummer  
G. pseudobulloides Plummer  
G. cf. hornibrooki Bronniman  
Neoflabellina semireticulata (Cushman and Jarvis)  
Quadrиморфина allomorphinoides (Reuss)  
Verneullina parri Cushman  
Anomalinoides danica Brotzen  
Cibicides cf. succedens Brotzen  
Gyroldinoides soldanii (d'Orbigny) var. octocamerata  
(Cushman and Hanna)  
Bulimina tuxpamensis Cole  
Anomalina velascoensis Cushman  
Pseudovalvulinaria sp.  
Vaginulina midwayana Fox and Ross  
Pullenia corvelli White  
P. jarvisi Cushman  
Cyclammina sp.

Age:- Danian-Paleocene. This is a mixed assemblage including species from the Upper Cretaceous of the Carnarvon Basin-- Verneullina parri, Quadrиморфина allomorphinoides, Anomalina velascoensis -- and also species of Globigerina and Globorotalia recorded from the Paleocene or Lower Eocene in other areas of the world. No species of Globotruncana are present.

Mixed assemblages of this nature are typical of the Cretaceous-Tertiary transition beds, and the problem of the Cretaceous-Tertiary boundary has nowhere been satisfactorily settled. Quadrиморфина allomorphinoides occurs in the Upper Cretaceous of the Gulf Coast area of America, and also in the Midway Formation (Paleocene) of Texas. Neoflabellina semireticulata and Pullenia jarvisi were described from the Lizard Springs Formation of Trinidad, and Pullenia corvelli from the Velasco Shale of the Tampico Embayment region of Mexico, occurring also in the Lizard Springs Formation. There is disagreement about the age of these Formations, some regarding them as Upper Cretaceous and others as Paleocene; it appears as though some part of the Formations is to be included in the Danian. Anomalinoides danica ranges in Sweden from the uppermost Maastrichtian to the Paleocene; Gyroldinoides

soldanii var. oetocamerata occurs in the American Paleocene and Eocene, and in the Swedish Paleocene and Vaginulina midwayana in the Midway Formation.

Cape Range No. 2, Core No. 16, 3970-3991 feet.

Ammobaculites fisheri Crespin  
Trochammina raggatti Crespin  
Robulus warregoensis (Crespin)  
Reophax sp.  
Hyperammina sp.  
Inoceramus prism  
Ostracods.

Age:- Lower Cretaceous. These species have previously been recorded from Lower Cretaceous deposits in the Great Artesian Basin.

Cape Range No. 2, Core No. 24, 6032-6050 feet.

Unfossiliferous.

Cape Range No. 2, Core No. 32, 8041-8044 feet.

Unfossiliferous.

Cape Range No. 2, Core No. 42, 9570-9575 feet.

Lenticulina sp. Age indefinite.

#### REFERENCES.

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