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PALAEONTOLOGICAL EXAMINATION OF SURFACE SAMPLES
FROM THE EROMANGA BASIN.

by

G.R.J. Terpstra

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 It may not be published in any form or used in a company prospectus without the permission in writing of the Director, Bureau of Mineral Resources, Geology and Geophysics.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

Surface samples collected by R. Vine and party from the Northern Margin of the Eromanga Basin (1:250,000 Sheet's of Richmond, Hughenden and Mackunda) Queensland have been examined.

The majority of the samples are fossiliferous and the fauna observed indicates a Lower Cretaceous age for the rocks concerned.

MICROFAUNAL INFORMATION:

Eighty six samples have been submitted and examined. Some of these are unfossiliferous, others contain prisms of the pelecypod Inoceramus and a great number contain an assemblage of arenaceous foraminifera indicating a Lower Cretaceous age.

1. The following samples proved to be unfossiliferous -
G.A.B., 683, 687, 689H, 693, 695, 837, 839, 843, 847,
878, 898, 909, 920, 921, 1021, 1022, 1023, 1034C,
1034 E, 1034G.
2. The following samples have been found to contain Inoceramus prisms, but did not yield foraminifera:
G.A.B. 671, 677A, 678, 806, 807, 820, 836, 842, 849, 850,
852, 853, 855, 856, 911, 912, 913, 914, 950, 1001,
1001A, 1003A, 1007, 1032, 1034F, 1034H, 1100, 1101,
1102, 1103, 1108, 1120.
3. The following samples contain foraminifera:
G.A.B., 668A (Hughenden)
Globigerina planispira Tappan 1940
Psammosphaera parva sp.nov. Crespin M.S. 1962.
Trochamminoides cf. coronus Loeblich and Tappan 1946
Scaphopoda sp.

G.A.B., 668B (Hughenden)

Globerigerina planispira Tappan 1940

Haplophragmoides gigas Cushman 1927

Psammospaera parva sp.nov. Crespin M.S. 1962.

Trochamminoides cf. coronus Loeblich and Tappan 1946

Verneuilina sp.

G.A.B., 679 (Hughenden)

Ammobaculites erectus sp.nov. Crespín M.S. 1962

Ammobaculites minimum Crespín 1953

Ammodiscus cretaceus (Reuss) 1845

Haplophragmoides gigas Cushman 1927

Spiroplectammina aequabila sp.nov. Crespín M.S. 1962

G.A.B. 680 (Hughenden)

Ammobaculites sp.

Ammobaculoides romaensis Crespín 1953

Trochammina sp.

G.A.B., 690 (Hughenden)

Haplophragmoides sp.

Hyperammina sp.

G.A.B. 695B (Hughenden)

Ammobaculites sp.

Ammobaculites cf. implanus sp.nov. Crespín M.S. 1962.

Ammobaculites minimus Crespín 1953

Haplophragmoides arenatus sp.nov. Crespín M.S. 1962.

Verneuilina sp.

Verneuilina howchini Crespín 1953

Inoceramus prisms

G.A.B. 696A (Hughenden)

Ammobaculites sp.

Ammobaculites exertus sp.nov. Crespín M.S. 1962

Ammobaculites minimus Crespín 1953

Ammobaculoides romaensis Crespín 1953

Hyperammina sp.

Pelosina lagenoides Crespín 1953.

G.A.B., 696B (Hughenden)

Ammobaculites exertus sp.nov.Crespin M.S. 1962Ammobaculoides romaensis Crespin 1953Haplophragmoides sp.Miliammina sp.Pelosina lagenoides Crespin 1953Inoceramus prisms

G.A.B., 697 (Hughenden)

Ammobaculites minimus Crespin 1953Flabellammina alexanderi Cushman 1928Trochammina delicatula sp.nov.Crespin M.S.1962.Megaspores spp.

G.A.B., 840 (Manuka)

Ammobaculites torosus Loeblich and Tappan 1949Haplophragmoides gigas Cushman 1927Textularia? anacooraensis Crespin 1953Trochammina delicatula sp.nov. Crespin M.S. 1962.Inoceramus prisms

G.A.B. 885 (Richmond)

Haplophragmoides gigas Cushman 1927

G.A.B. 888 (Richmond)

Hyperammina sp.

G.A.B. 892 (Richmond)

Haplophragmoides gigas Cushman 1927Saccammina globosa sp.nov.Crespin M.S. 1962Trochammina minuta Crespin 1953

G.A.B. 893 (Richmond)

Ammobaculites erectus sp.nov.Crespin M.S.1962Ammobaculites minimus Crespin 1953Haplophragmoides gigas Cushman 1927Miliammina sp.Psammosphaera parva sp.nov.Crespin M.S.1962Saccammina globosa sp.nov.Crespin M.S.1962Verneuilina howchini Crespin 1953

G.A.B. 894 (Hughenden)

Haplophragmoides sp.Hyperammina sp.Spiroplectammina aequabilis sp.nov.Crespin M.S.1953

G.A.B. 895 (Manuka)

Haplophragmoides wilgunyaensis sp.nov.Crespin M.S.1962

Inoceramus prisms

G.A.B. 918B (Manuka)

Reophax cf. deckeri Tappan 1940

G.A.B. 922 (Manuka)

Haplophragmoides arenatus sp.nov.Crespin M.S. 1962

G.A.B. 924 (Manuka)

Ammobaculites fisheri Crespin 1953

Ammodiscus cretaceus (Reuss) 1845

Spiroplectammina aequabila sp.nov.Crespin M.S. 1962

Textularia cf. anacooraensis Crespin 1953

Trochammina delicatula sp.nov. Crespin M.S. 1962

Inoceramus prisms

G.A.B. 926 (Manuka)

Textularia cf. anacooraensis Crespin 1953

Trochamminoides cf. coronus Loeblich and Tappan 1946

G.A.B. 986 (Hughenden)

Ammobaculites erectus sp.nov. Crespin M.S. 1962

Ammobaculites fisheri Crespin 1953

A. cf. goodlandensis Cushman and Alexander 1930

Haplophragmoides gigas Cushman 1927

Hyperammina spp.

Trochammina delicatula sp. nov. Crespin M.S. 1962

Verneuilina sp.

Inoceramus prisms

G.A.B. 1012B (Richmond)

Ammobaculites minimus Crespin 1953

Haplophragmoides gigas Cushman 1927

Psammosphaera parva sp.nov.Crespin M.S. 1962

Trochammina minuta Crespin 1953

Inoceramus prisms

G.A.B. 1015 (Richmond)

Ammodiscus cretaceus (Reuss) 1845

Haplophragmoides gigas Cushman 1927

Hyperammina sp.

Pelosina lagenoides Crespin 1953.

G.A.B. 1016 (Richmond)

Haplophragmoides arenatus sp.nov.Crespin M.S.1962H. gigas Cushman 1927Trochammina minuta Crespin 1953

G.A.B. 1017 (Richmond)

Haplophragmoides gigas Cushman 1927H. cf. wilgunyaensis sp.nov. Crespin M.S. 1962Hyperammina sp.Inoceramus prisms

G.A.B. 1030 (Hughenden)

Ammobaculoides romaensis Crespin 1953Haplophragmoides arenatus sp.nov.Crespin M.S.1962Hyperammina sp.

G.A.B. 1107 (Manuka)

Megaspores

G.A.B. 1131 (Hughenden)

Ammobaculites erectus sp. nov. Crespin M.S.1962A. exertus sp.nov.Crespin M.S. 1962A. minimus Crespin 1953Ammodiscus cretaceus (Reuss) 1845Dorothia cf. filiformis (Berthelin) 1880Haplophragmoides spp.Psammospaera parva sp.nov.Crespin M.S. 1962Reophax cf. deckeri Tappan 1940Saccammina sp.Spiroplectammina aequabila sp.nov.Crespin M.S.1962Trochammina sp.Verneuilina howchini Crespin 1953Verneuilina spp.Verneuilinoides asperulus sp.nov.Crespin M.S. 1962

4. The following samples examined from thin sections have been found to contain Radiolaria. They apparently all represent the Toolebuc (limestone) Member except for one (G.A.B. 882) which was collected just above the Toolebuc.

G.A.B. 692 (Hughenden)

Radiolaria including Dictyomitra sp.

G.A.B. 882 (Hughenden)

Radiolaria including Dictyomitra sp.

Inoceramus prisms

G.A.B. 932 (Richmond)

Radiolaria including Dictyomitra sp.

Globigerina, probably Globigerina planispira
Tappan 1940

Inoceramus prisms

G.A.B. 946 (Richmond)

Radiolaria including Dictyomitra sp.

G.A.B. 1119 (Richmond)

Radiolaria including Dictyomitra sp.

Globigerina sp.

Inoceramus prisms

G.A.B. 1127 (Richmond)

Radiolaria including Dictyomitra sp.

Inoceramus prisms

5. Limestone Sample

G.A.B. 890 (Richmond)

This sample does not contain foraminifera or radiolaria but Algae have been observed in thin sections. According to field evidence the rock was collected from the Doncaster Member of the Wilgunya Formation which is older than the Toolebuc Member.

STRATIGRAPHICAL INFORMATION

The foraminifera in the samples are mainly those with arenaceous tests. It would appear that the majority of the calcareous types (if present at the time of deposition) have been leached out by weathering. Nevertheless the assemblages indicate a marine environment of deposition and suggest a Lower Cretaceous age for the beds concerned as all species determined have been found and described previously from Lower Cretaceous deposits. At present, however, there is insufficient knowledge as to the precise distribution of the species within the Lower Cretaceous. The faunas encountered in the surface samples have been arranged in stratigraphical order (Vine pers.comm.)

and are shown on Table 1. Comparing these faunal assemblages with those found in water bores (Cressy Station, Queensland) Nos. 15363 and 15364 respectively from 420-600 feet and 120 feet (Lloyd, 1963) and with those recorded from Delhi Santos Mornington Island No.1 Well (Terpstra and Evans, 1962) it has been noticed that:

1. The fauna occurring in bores 15363 and 15364 is not present in any of the surface samples. This fauna, however, is comparable with that of core 1 (450-460 feet) of the Mornington Island No.1 well (highest occurrence in that well of foraminifera in the "Winton Formation"). This is interesting as it shows that there is evidence of faunal differentiation within the Lower Cretaceous in this area and it would indicate that the beds represented by the fossiliferous surface samples are older than those encountered in bores 15363 and 15364.

2. The faunal assemblages observed in the surface samples are comparable in general with those found in Mornington Island No.1 below 460 feet. There appears to be a faunal differentiation within the sequence and the lower part is distinctly more fossiliferous.

It is felt at this stage that a closer correlation is not justified and it is suggested that during the coming field season, if possible, more detailed sampling is carried out to provide one or preferably two Lower Cretaceous standard sections in the area.

REFERENCES

- BERTHELIN, G., 1880 - Mémoire sur les foraminifères fossiles de Montcley (Doubs). Soc.Géol.France Mem., Paris ser.3, tome 2 No.5, p.25.
- CRESPIN, I., 1953 - Lower Cretaceous Foraminifera from the Great Artesian Basin, Australia. Contrib.Cushman Found. Foram.Research 4 (1), 26-36.
- CRESPIN, I., 1962 - Lower Cretaceous arenaceous Foraminifera of Australia. Bur.Min. Res. Aust.Bull., 66 (in press).
- CUSHMAN, J.A., 1927 - Some Foraminifera from the Cretaceous of Canada. Roy.Soc.Canada.Trans. Ottawa, Ser. 3, 21 (4), 129-130.
- CUSHMAN, J.A., 1928 - Additional Genera of Foraminifera. Contrib.Cush.Lab.Foram.Res. 4, 1-8.
- CUSHMAN, J.A., 1946 - Upper Cretaceous Foraminifera of the Gulf Coastal Region of the United States and adjacent areas. U.S. Geol.Surv.Professional Paper 206
- CUSHMAN, J.A. & ALEXANDER, C.I., 1930 - Some Vaginulinas and other foraminifera from the Lower Cretaceous of Texas. Cont.Cush.Lab. For.Res. 6(1), 8.
- LLOYD, A.R., 1963 - Microfossils from the Lower Cretaceous beds penetrated by Water bores Registered Numbers 15363 and 15364, Cressy Station, Great Artesian Basin, Queensland. Bur.Min. Res.Aust.Rec. 1963/48 (unpubl.).
- LOEBLICH, A.R., Jr. & TAPPAN, H., 1946 - New Washita Foraminifera. J. Pal., 20, 244.
- LOEBLICH, A.R., & TAPPAN, H., 1949 - Foraminifera from the Walnut Formation (Lower Cretaceous) of northern Texas and southern Oklahoma. J. Pal. 23, (3), 245-266.
- REUSS, A.E., 1845 - Die Versteinerungen der böhmischen Kreide formation. Stuttgart, Deutschland, E. Schweizerbart, Abth. 1. p.35.
- TAPPAN, H., 1940 - Foraminifera from the Grayson Formation of Northern Texas. J. Pal., 14 (2), 93-126.
- TERPSTRA, G.R.J. & EVANS, P.R., 1962 - Palaeontological examination of samples from Delhi-Santos Mornington Island No.1 Well, Carpentaria Basin, Queensland. Bur.Min. Res.Aust.Rec. 1962/77 (unpubl.)
- VINE, R.R., BASTIAN, L.V. & CASEY, D.J., 1963 - Geology of the Manuka, Richmond and part of the Hughenden 1:250,000 Sheets, Queensland Bur.Min.Res.Aust.Rec. (in preparation)

WILGUNYA FORMATION						Macunda	TABLE 1
Doncaster Member	Jones Valley	Ranmoor Member	Toolle Member	Allaru Member	Beds		
kld	klj	klq	klo	kla	klm		
1015			1131		918	x	Reophax cf. deckeri
			679		922	x	Haplophragmoides arenatus
			680		924	x	Ammobaculites fisheri
			894		895	x	Ammodiscus cretaceus
			690		926	x	Spiroplectammina aequabilis
			986		840	x	Textularia cf. anocooraensis
			668		882	x	Trochammina delicatula
			893			x	Haplophragmoides wilgunyaensis
			888				Trochamminoides cf. coronus
							Ammobaculites torosus
							Haplophragmoides gigas
							Radiolaria including Dictyomitra
							Globigerina planispira
							Ammobaculites erectus
							Ammobaculites exertus
							Ammobaculites minimus
							Dorothia cf. filiformis
							Haplophragmoides sp.
							Pelosina lagenoides
							Psammospaera parva
							Saccamina sp.
							Trochammina sp.
							Verneuilina sp.
							Verneuilina howchini
							Verneuilinoides asperulus
							Ammobaculoides romaensis
							Hyperammina sp.
							Ammobaculites cf. goodlandensis
							Miliammina sp.
							Saccamina globosa
							Ammobaculites cf. implanus
							Flabellammina alexanderi
							Trochammina minuta

* A similar fauna was observed in G.A.B. 692, 946, 1119 and 1127 all these samples are from (klo) Toolle Member.