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1957/69

PERMIAN FOSSILS FROM CARYNGINIA GULLY, IRWIN RIVER AREA, WESTERN AUSTRALIA

by

J. M. Dickins and G. A. Thomas

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INTRODUCTION

The material which is considered in the present record has been sent by West Australian Petroleum Pty. Ltd. under the two field numbers IR20 and IR21 (B.M.R. registered numbers F21602 and F21603 respectively). A single locality was supplied - Carynginia Gully, Grid Reference Canna One-Mile Sheet, 540155, which is about $1\frac{3}{4}$ miles on a bearing of 297° from Carynginia Well.

Although the samples are small, a large number of genera and species, as well as individuals, are present. It is considered the fauna is the same as that from the Fossil Cliff Formation (for the stratigraphy of the Irwin River area see Clarke et al., 1951).

TYPE OF SEDIMENT AND MANNER OF OCCURRENCE OF FOSSILS

The rock containing the fossils consists of siltstone matrix with many sand grains mainly of quartz. Many of the sand grains range from coarse to very coarse, some being up to 5 mm. across. The rock is very much weathered and all the calcareous material has been leached out and the whole ferruginized. The fossils are preserved as internal and external impressions and in many cases fine detail is preserved. Brachiopods and molluscs preponderate and are present in approximately equal numbers, the proportion varying from piece to piece. Most of the shells are small but in most species larger, apparently mature, shells or shell fragments suggest that the small shells may be immature individuals rather than dwarfed forms.

IDENTIFICATION OF FOSSILS

(a) Macrofossils

G.A.T. is responsible for the identification of the brachiopods and J.M.D. for the identification of the other macrofossils. (* indicates conspecific or closely related forms also occur in the Lyons Group or Carrandibby Shale. + indicates conspecic or closely related forms also occur in the Byro Group).

IR20
Brachiopods

Linoproductus (Cancrinella) sp.+

Linoproductus (Cancrinella) lyoni (Prendergast) 1942.*

Linoproductus cora var. foordi Etheridge Jnr. 1903

Aulosteges sp.

Dielasmidae sp. ind.

"Chonetes" sp. (sulcate form)

"Martiniopsis" sp. ind.

Phricidothyris sp. nov.

Composita sp. nov.

Neospirifer sp.

Pseudosyrinx? sp. (external ornament of elongated tear-shaped grooves)

Spiriferellina? sp.

Gastropods

Peruvispira? sp. ind. (Peruvispira Chronic 1949 is a recently proposed generic name for a group of forms which in Australia have previously been referred to Ptychomphalina or Pleurotomaria).

Mourlonia? sp. ind. (similar form is Mourlonia? lyndonensis Dickins - in press - from the Lyons Group, although not necessarily conspecific).

Baylea sp. nov. +

Warthia sp.

Bellerophon sp. ind.

Pelecypods

Nucula spp.

Nuculacea gen. et sp. (a type not previously recorded. Shell subcircular with a distinct posterior carina).

Nuculana cf. lyonsensis Dickins 1956.*

Stutchburia sp. nov.

Stutchburia cf. variabilis Dickins* (in press).

Pachymyonia sp.

Parallelodon sp. nov. (this species also occurs in the Callytharra Formation).

Schizodus sp. (apparently differs from Schizodus crespinae Dickins - in press - in having a more distinct carina).

Limatulina or Palaeolima sp. nov. (similar to form from fossiliferous basal member of Poole Sandstone in the St. George's Range, West Kimberley).

Aviculopecten cf. subquinquelineatus (McCoy), 1847 (form with unspecialized ribbing)*

Bryozoa

Fenestellidae gen. et sp. ind.

Batostomellidae gen. et sp.

Other unidentifiable fragments

Also straight nautiloids, scaphopods, crinoid stems, wood, and unidentifiable fragments of brachiopods, gastropods and pelecypods.

IR21
Brachiopods

Linoproductus (Cancrinella) sp.

Pseudosyrinx sp. nov. * +

Gastropods

Peruvispira sp. ind.

Baylea sp. nov. +

Warthia sp.

Bellerophontidae gen. et sp. ind.

Pelecypods

Nuculana sp. ind.

Also unidentifiable bryozoa and unidentifiable gastropods and pelecypods.

(b) Microfossils

Miss I. Crespin has contributed the following identifications and remarks about the microfossils from IR20:

"Microfossils are present chiefly as casts in the limonitic sandy shale. The foraminifera are difficult to recognize because of almost complete replacement of the test by limonite. Casts of ostracoda are numerous. Tentative determinations are as follows:

Foraminifera

Calcitornella sp.

cf. Trepeilopsis

Ammodiscus sp.

cf. Reophax

Trochammina sp.

Ostracoda

cf. Amphissites

Bairdia spp.

Healdia spp.

Although the preservation of the Foraminifera and Ostracoda is so unsatisfactory, it would appear that with the presence of Calcitornella and numerous Ostracoda, the bed may be correlated with the Fossil Cliff Formation."

CONCLUSIONS

The fauna appears to be identical with that found in the Fossil Cliff and Callytharra Formations. The faunal and stratigraphical evidence at present available would suggest these formations were continuous at the time of deposition.

All the identifiable species of macrofossils in the above list which are generically determined without qualification (21 species) are conspecific or closely related to forms which occur in the Fossil Cliff and Callytharra Formations or their equivalents in the Fitzroy Basin - namely the Nura Nura Member and the marine beds at the base of the Poole Sandstone in the St. George's Range. It appears likely that some of the other forms also occur in the Callytharra and equivalents but it is not possible to be certain because of their poor preservation or fragmentary nature.

Only five of the identifiable species are known to occur in the Lyons Group and the Carrandibby Shale, although further work and collecting may add to this number.

Only three are known to occur in the Byro Group, two of which are not known above the Madeline Formation and its equivalents. One or possibly two of the species occur in the restricted fauna of about 10 species which occurs at the base of the One Gum Formation of the Wooramel Group.

Apparently a number of forms which are known only in the Fossil Cliff and Callytharra Formations are confined to these formations, partly at least because of the presence of a particular environment when these beds were deposited. This assumption is supported by the occurrence of some of these forms in the Noonkanbah Formation of the Fitzroy Basin. The Noonkanbah Formation is younger than the Callytharra Formation (see Thomas and Dickins, 1954), but some of it is lithologically similar to the Callytharra Formation and apparently was deposited in a similar environment. The occurrence of some of these forms such as Linoproductus cora var. foordi and Composita sp. nov. in the present samples would thus be additional evidence that the fauna is from the Fossil Cliff Formation.

To sum up, the fauna appears to be the same as that found in the Fossil Cliff Formation and the faunal evidence as a whole suggests the outcrop at Carynginia Gully belongs to the Fossil Cliff Formation.

REFERENCES

CLARKE, E. de C., PRENDERGAST, K.L., TEICHERT, C., and FAIRBRIDGE, R.W., 1951 - Permian Succession in the Northern Part of the Irwin Basin, Western Australia. J.roy.Soc.W.Aust., 25, 31-84.

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