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PERMIAN PELECYPODS AND GASTROPODS FROM THE BOWEN BASIN, QUEENSLAND

by

J. M. Dickins

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INTRODUCTION

During 1958 identifications were made of pelecypods and gastropods in the collections of the museum of the Department of Geology of the University of Queensland. Although in some cases the locality and stratigraphical information is incomplete and the list is not exhaustive, the information is tabulated so that some accessible record may be preserved.

The help and co-operation of Professor W.H. Bryan, Dr. D. Hill, Dr. W.G.H. Maxwell and Mr. F.S. Colliver, is gratefully acknowledged. Much of the stratigraphical information has been supplied by Dr. D. Hill, but the information on the sequence in the south-east part of the Bowen Basin has been based on the work of Mines Administration Pty. Ltd.

Additional information on the correlation is available elsewhere (Dickins, in manuscript).

IDENTIFICATIONS

West and South-West Part of Bowen Basin

A.O.E. Reid's Dome Surface Outcrop (apparently from Dilly Beds, Hill 1955; 1957, and not above Staircase Sandstone).

Eurydesma sp. (*E. hobartense* type)

Aviculopecten sp. A. ("*A. subquinquelineatus*-line". A rather small specimen with simple type of ribbing).

K.O.E.5 and S86. Orion Creek 5 miles west of the Springsure-Rolleston road, Springsure 4-mile map sheet 645,978. (Mapped as Dilly Beds but may be equivalent of lower part of Staircase Sandstone).

Megadesmus cf. *globosus* Sowerby 1838.

Stutchburia? sp. ind.

Chaenomya sp. A.

Oriocrassatella queenslandica sp. nov. Dickins ms.

Aviculopecten sp. A. (very large specimen with non-specialized ribbing).

Aviculopecten sp.? (large specimen, ribbing obscure)

Schizodus sp. nov. (cf. *S. "webbi"* from Collinsville area).

Pelecypoda gen. ind.

Pleurotomariid gastropod indet.

K.O.E.6. Orion Creek 6 miles west of Springsure-Rolleston road, Springsure 4-mile map sheet, 643,978. (Mapped as Dilly Beds but may be equivalent of lower part of Staircase Sandstone, stratigraphically lower than K.O.E.5).

Megadesmus cf. globosus Sowerby 1838

Pleurophorus sp.

Pseudomyalina sp. (prisms readily visible to naked eye).

Chaenomya sp. A. (not unlike form found in Flat Top Formation. The Chaenomyas are rather variable in shape and are difficult to assess specifically unless a large number of specimens are available).

Oriocrassatella queenslandica sp. nov. Dickins ms.

Aviculopecten sp. A. ("A. subquinquelineatus-line" - ribbing appears to be of a rather simple type even in large specimens).

K.O.E.3. 7.2 miles north-east of Dilly and 4.1 miles east of Minewa, near base of Staircase Sandstone.

Nuculana sp. (some V-ing of ribbing towards the rear).

Pachymyonia sp. (very wide with well developed carina - similar to the species at Mt. Britton).

Chaenomya sp. B (wider than C. sp. A, but the two forms may be varieties rather than species).

Volsellina? cf. mytiliformis (Etheridge Jnr.) 1892.

Aviculopecten sp.? (large specimen - may have specialized type of ribbing).

Ptychomphalina or possibly Mourlonia sp. (identified in collections as Platyteichum costatum Campbell 1953, but shape is rather different).

Warthia sp.

Cattle Creek Formation (Outcrop at Cattle Creek). Fossils in reddish siltstone matrix very different from lithology of K.O.E.5 and K.O.E.6, brachiopods very numerous.

Eurydesma sp. (E. hobartense type).

Aviculopecten sp.? (large specimen, ribbing not preserved well enough for comparison with other forms).

Ingelara Formation (type area)

Glyptoleda reidi Fletcher 1945

Glyptoleda glomerata Fletcher 1945

Chaenomya sp.? (Juvenile form)

Streblochondria parkesi (Fletcher) 1929

Platyteichum costatum Campbell 1953

Mantuan Productus Bed (various localities)

Megadesmus? sp. ind.

Stutchburia sp. ind. (F13,636)

Myonia cf. carinata (Morris) 1845

Chaenomya sp. C. (more convex and extends further in front of umbo than in C. sp. A, more elongate than C. sp. B).

Parallelodon sp. nov. (non P. costellata (McCoy) described by Etheridge Jnr. 1892, which is from the Carboniferous).

Aviculopecten sp. B. (F13,634 - a small specimen with specialized spinose ribbing - probably a juvenile specimen).

Northern Part of Bowen Basin

Beds at Mt. Britton (Homevale)

Astartila? cf. gryphoides (de Koninck) 1877

Myonia sp. (may be a variety of M. cf. carinata but quite similar to specimens from Rosella Creek)

Pachymyonia sp. (similar or same as that from K.O.E.3)

Stutchburia cf. costata (Morris) 1845 - in Bed 12.

Pseudomyalina sp.

Volsellina? mytiliformis (Etheridge Jnr.) 1892

Eurydesma sp. (seems to be E. hobartense type).

Streblochondria sp.

Aviculopecten sp. B. (Mature specimens large and with spinose specialized type of ribbing (same species occurs in the top horizon at Cracow Homestead)).

Deltopecten limaeformis (Morris) 1845

Corduroy Creek (sequence from bottom to top).

Bed 1. Aviculopecten sp. B. (complex spinose ornament).
Terrakea sp. and other productids and Streptorynchus?

Bed 2. Productids

Bed 3. Chaenomya sp. B.
Stutchburia cf. compressa (Morris) 1845
Platyteichum? sp. ind.
Warthia sp.

Bed 4. Chaenomya sp. D. (this form also occurs at Rosella Creek)

Bed 5. Chaenomya sp. D.
Warthia sp.

Bed 6. Myonia cf. carinata (Morris) 1845

Bed 7. Aviculopecten sp. B? and productids.

Bed 8. Brachiopods.

Bed 9. Merismopteria sp.
Indet. pleurotomariid gastropod.
"Martiniopsis" sp.
Brachiopods and fenestellids.

Rosella Creek (Isbell, 1955 - Streptorynchus Horizon)

Nuculana sp. (N. attenuata of Isbell, unpublished - internals similar to those of Glyptoleda from Mt. Britton area).

Astartila sp. nov. (A.roselli of Isbell, unpublished)

Stutchburia cf. recta Dana 1847

Myonia sp. (similar to species at Homevale - may, however, be the same as in the Mantuan Productus Bed - Isbell, unpublished Myonia sp. E.)

Chaenomya sp.? (rather crushed, Myonia sp. D. of Isbell, unpublished).

Chaenomya sp. D. (as at Corduroy Creek - identified in collections as Chaenomya cf. acuta (Etheridge Snr.) 1872).

Eurydesma sp. (apparently of E. hobartense type)

Aviculopecten sp. B.

Pelecypoda gen. et sp.? (identified in the collections as Chaenomya cf. acuta, but may be a Notomya).

Walnichollsia cf. subcancellata (Morris) 1845

Platyteichum sp. (appears to have flatter whorls than genotype).

Ptychomphalina sp. (compare with species from K.O.E.3)

Streptorynchus cf. pelicanensis Fletcher 1952

Homevale Glyptoleda Horizon

Glyptoleda glomerata Fletcher 1945

Stutchburia cf. compressa (Morris)

Platyteichum costatum Campbell 1953

South-East Part of Bowen Basin

L.1849 Cracow Station, ½ mile west of Homestead.

(a) Lower Horizon:

Eurydesma sp.

Deltopecten cf. limaeformis (Morris) 1845

Aviculopecten sp. ind.

Ptychomphalina? sp.

Keeneia sp. nov.(almost certainly same species as Keeneia sp. nov. of Dickins 1957 from Allandale "Formation" of N.S.W. - there is considerable variation in the spire height and whorl cross-section and some specimens are of a type that have been referred to Platyschisma (e.g. see Platyschisma? sp. nov. Dickins 1957). There seems to be, however, no reliable way of discriminating any of the forms).

(b) Higher Horizon:

Vosellina? cf. mytiliformis (Etheridge Jnr.) 1892

Streblochondria sp. (radiating ribs on anterior ear of right valve).

Deltopecten cf. limaeformis (Morris) 1845

Aviculopecten sp. B.

L. 1853. Cracow. North side of Cracow-Theordore road, 14.3 miles from Orange Creek Formation.

Streblechondria sp.

L.1854. Oxtrack Creek, 200 yards upstream from bridge on Cracow-Theodore road.

Volsellina? cf. mytiliformis (Etheridge Jnr.) 1892.

L.1855. Kianga Creek road, 27.8 miles from Theodore, Portion 24, Parish of Kianga, county Dawson, Flat Top Formation.

Chaenomya sp. (Type specimen of Chaenomya? carinata Etheridge Jnr. 1892 comes from the Flat Top Formation near Banana but unfortunately the specimen is very squashed).

Parallelodon sp. nov. (Similar or same as that in Mantuan Productus Bed).

Astartidae? gen. et sp. nov. (has radiating costae and appears to have cardinal or cardinal and lateral teeth).

Plagiostoma? (nov.gen.?) sp. nov.

Streblochondria sp. (ribbing over body, probably same species as at Cracow Homestead).

Aviculopecten sp. B.

Walnichollsia cf. subcancellata (Morris) 1845

Warthia sp.

L.1859. Baralaba Range Railways, 1.4 miles from Baralaba, Portion 13, Parish Barleith, County Ferguson.

Glyptoleda cf. glomerata (Fletcher) 1945

Conocardium sp.

Astartila or Astartella sp.

Myonia sp.

Stutchburia cf. costata (Morris) 1845

Volsellina? sp. (internal only)

Parallelodon sp. (may be the same species at L.1855 and in Mantuan Productus Bed).

"Aphanaia" sp. ind.

Walnichollsia cf. subcancellata (Morris) 1845

COMMENTS AND CONCLUSIONS

Much collecting remains to be done before an adequate picture will be possible of the molluscan faunas of the Bowen Basin so that the following comments are necessarily of a tentative nature. The collections, however, already indicate the value of these forms for use in stratigraphical subdivision and for correlation within and beyond the Bowen Basin.

1. Two broad faunal subdivisions are apparent. The upper comprises the Cattle Creek (in the restricted sense of Hill, 1955; 1957) and the higher formations in the Springsure area, the Middle Bowen marine beds of the Collinsville area, the beds at Mt. Britton, and at least all the beds above the fossiliferous Cracow Homestead horizon in the south-east part of the syncline. If the upper fauna is compared with the faunas found in the Sydney Basin of New South Wales, it has a definite "Upper Marine" aspect. Forms which afford evidence for this correlation are Myonia cf. carinata, Stutchburia cf. compressa, Stutchburia cf. recta and Walnichollsia cf.

subcancellata. The occurrence of Glyptoleda and Aviculopecten sp. B., by comparison with the distribution of similar forms in Western Australia, supports this conclusion. The lower part of this sequence (the Cattle Creek Formation and the beds at Mt. Britton) may be distinguished by the persistence of Eurydesma and D. limaeformis from below.

The lower subdivision comprises the Dilly Beds and the Staircase Sandstone of the Springsure area, possibly the marine horizons of the Collinsville Coal Measures and at least the lower horizon at Cracow Homestead. These beds have a "Lower Marine" aspect and are related to the Lower Marine beds of the Sydney Basin, New South Wales, by the occurrence of Megadesmus cf. globosus, Aviculopecten sp. A., and Keeneia sp. nov. Abundant Eurydesma, Oriocrassatella and Schizodus are also characteristic.

2. The absence of forms referable to Eurydesma cordatum Morris 1845 may be significant. All the forms I examined were of the "hobartense" type.

3. The molluscan faunas seem to lack the complexity found in New South Wales - there is a lesser number of species and some of the groups such as the pectinoids lack many both of the non-specialized and specialized forms found in New South Wales. For instance the D. illawarensis-mitchelli group of forms is entirely absent in the collections. I propose dealing elsewhere with Etheridge Jnr's. identification of D. illawarensis (Morris) 1845 in Queensland. Forms with more complex ribbing such as D. squamuliferous and D. multicostatus also appear to be absent.

Possible explanations of this feature include:

(a) Inadequate collection (my examination, however, suggests this cannot be more than part of the explanation).

(b) Restricted migration and failure to develop equivalent numbers of indigenous forms, possibly because of unfavourable environmental conditions.

(c) Representation of more restricted environments in the sequence.

(d) The absence of the earlier faunas of the "Lower Marine" beds of New South Wales.

(e) Unrecognized breaks in the sequence.

My examination of the faunas suggests that whether the other factors were effective or not, part of the sequence equivalent to the "Lower Marine" beds of New South Wales, probably the lower part, is not developed as marine fossiliferous rocks in theBowen Basin.

REFERENCES

(Only those references are given which are not included in Dickins, 1956; 1957).

CAMPBELL, K.S.W., 1953 - The Fauna of the Permo-Carboniferous Ingelara Beds of Queensland. Qld. Univ. Geol. Dep. Pap., 4 (3).

DICKINS, J.M., 1956 - Permian Pelecypods from the Carnarvon Basin, Western Australia. Bur. Min. Resour. Aust. Bull. 29.

DICKINS, J.M., 1957 - Lower Permian Pelecypods and Gastropods from the Carnarvon Basin, Western Australia. Ibid., 41.

_____, (in manuscript) - Some Genera of Pelecypods previously unrecorded from the Permian Rocks of Eastern Australia.

FLETCHER, H.O., 1952 - Permian Fossils from Waikiki District, Southland, New Zealand, Pt. 1. Palaeont. Bull. geol. Surv. N.Z., 19, 1-18.

HILL, D., 1955 - Contributions to the Correlation and Fauna of the Permian in Australia and New Zealand. J. geol. Soc. Aust., 2, 83-107.

_____, 1957 - Explanatory Notes, Springsure - 4-mile Geological Series. Bur. Min. Resour. Aust. Note Ser. 5.

ISBELL, R.F., 1955 - The Geology of the Northern Section of the Bowen Basin. Qld. Univ. Geol. Dep. Pap., 4 (11).

WEBB, E.A., 1956 - Review of Exploratory Oil Wells Penetrating Permian Sections in Central Queensland, Australia. Bull. Amer. Ass. Petr. Geol., 40 (10), 2329-2353 also in Australasian Oil Gas J., 3 (7), 3-22, 1957).

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