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Micropalaeontological examination of samples from 1, 2, 3 & 4 Broome and Derby Town bores, W.A.

by

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MICROPALAEONTOLOGICAL EXAMINATION OF SAMPLES FROM BORES NOS. 1, 2, 3 AND 4, BROOME AND DERBY TOWN BORE, WESTERN AUSTRALIA.

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(Pal. Bor. No.23).

No. 1 Bore Broome.

30 feet.	Brick red sands.
68 feet.	Whitish micaceous sandstone.
88-280 feet.	Whitish sandstone with fine angular quartz grains and flakes of white mica.
490 feet.	Fine whitish to yellowish quartz sand.
537 feet.	Fine sand.
567 feet.	Yellowish sand.
749 feet.	Coarse sand with ? sponge.
852 feet.	Whitish to yellowish sandstone.
922 feet.	Hard sandstone.
952 feet.	Greyish sandstone.
963 feet.	Greyish, carbonaceous shale with small foraminifera. Foraminifera: cf. Sigmoilina, cf. Lituotuba.
977feet.	Greyish sandstone.
983 feet.	Grey glauconitic sandy marl.
1007 feet.	Greyish carbonaceous shale.
1018 feet.	Grey shale.
1074 feet.	Grey shale.
1090 feet.	Grey carbonaceous shale.
1127 feet.	Hard shale, with carbonaceous fragments and pyrites.
1250 feet.	Greyish sandstone.
1275 feet.	Hard grey calcareous sandstone with patches of green glauconite.
1445 feet.	Hard calcareous sandstone.

NOTE ON THE SAMPLES.

The sands and sandstones from 30 feet down to 852 feet are most probably Pleistocene to Recent in age. A small fossil suggesting a Recent sponge occurs at 749 feet.

Correlation with the other bores suggests a Jurassic age for the samples from 922 feet down to 1445 feet. Small arenaceous foraminifera occur at 963 feet, but their poor preservation does not permit an age determination.

No. 2 Bore Broome.

920-1240 feet.	Greyish micaceous marl with some carbonaceous material.
1240-1305 feet.	Grey sandy marl with angular to subangular quartz grains, foraminifera and a few fragments of a pelecypod.
	Foraminifera: Lenticulina sp.
1305-1390 feet.	Grey sandy marl with foraminifera.
	Foraminifera: cf. Polyparmina.
1390-1405 feet.	Quartz sand.
1405-1455 feet.	Hard sandstone and dark grey to black carbonaceous shale.
1455-1468 feet.	Coarse sand with large rounded grains.
1468-1504 feet.	Hard, dark grey micaceous, carbonaceous shale.
1773-1775 feet.	Grey sandy shale with a little carbonaceous material and glauconite grains.
1804-1834 feet.	Dark grey micaceous, carbonaceous shale.

NOTE ON THE SAMPLES.

The samples from 920 feet down to 1468 feet are regarded as Jurassic in age. Small foraminifera are present at 1240-1305 feet and at 1305-1390 feet. Although the specimen of Lenticulina at 1240-1305 feet is well preserved, it is not referable to any of the species described by Chapman from the Jurassic at Geraldton.

The samples from 1468 feet down to 1834 feet are most probably of Permian age. No palaeontological evidence is available but the lithology is comparable with the Permian sediments known from bores in Northwest Australia.

No. 3 Bore, Broome.

47-102 feet.	Fine whitish micaceous sandstone.
218-246 feet.	Coarse sandstone.
304-422 feet.	Fine sand.
534-548 feet.	Coarse sand.
581-763 feet.	Quartz sand.
763-775 feet.	Quartz sand.
849-856 feet.	Brown sandstone.
867-868 feet.	Brownish to yellowish sandstone.
961-971 feet.	Greyish sandy shale, with foraminifera.
	Foraminifera: Lenticulina sp., Saracenaria cf. angularis.
971-972 feet.	Hard chocolate coloured sandstone.
972-1001 feet.	Greyish shale with glauconite.

1001-1042 feet. Greyish micaceous shale, with foraminifera and ostracoda.

Foraminifera: Ammodiscus sp., Epistomina sp.

Ostracoda: Cythere sp.

1043-1120 feet. Grey micaceous shale with carbonaceous fragments.

1159-1184 feet. Grey shale with ostracoda indeterminate.

1270-1272 feet. Hard brownish sandstone.

1272-1273'9". Dark green, glauconitic sandstone with fossils.

Cephalopoda: Belemnopsis sp.

1273'9"-1275'6". Hard calcareous sandstone with a little glauconite.

1275'6"-1302! Grey sandstone.

1432-1436 feet. Hard calcareous sandstone.

NOTE ON THE SAMPLES.

The sands and sandstones from 47 feet down to 868 feet are Pleistocene to Recent in age. The sample at 47-102 feet is identical with 68-280 feet in Bore No. 1.

The samples from 961 feet down to 1436 feet are regarded as Jurassic. Foraminifera and ostracoda are present at 961-971, 1002-1042, and 1159-1184 feet. None of the species are referable to those described by Chapman from Geraldton. A small rotaline, Epistomina sp., is comparatively common at 1001-1042 feet.

Specimens of the cephalopod Belemnopsis occur at 1272-1273 feet 9 inches and are referable to the form described by Teichert from the depth of 1300-1305 feet in Bore No. 2 and at 1250 feet in Bore No. 4.

No. 4 Bore, Broome.

918-950 feet. Sandstone with glauconite grains.

950-980 feet. Sandstone with angular quartz grains.

1286-1287'6". Glauconitic sandstone.

1293-1321 feet. Sandstone with some glauconite.

1404-1415'6". Sandstone with some glauconite.

1415'6"-1418'. Sandstone with some glauconite.

NOTE ON THE SAMPLES.

No fossils are present in these samples to suggest an age for these samples, but the lithological characters indicate that they belong to the Jurassic.

The Town Bore, Derby.

139 feet. Fine white sandstone with flakes of white mica.

846-1769 feet. Hard greyish mudstone. No microfossils.

1860 feet. Greyish calcareous sandstone with fragments of brachiopoda. Foraminifera, ostracoda and brachiopoda spines are present in washings.

Foraminifera: Calcitornella sp. Nodosaria springsurensis Crespin, Nodosaria sp. Frondicularia woodwardi Howchin, Geinitzina triangularis Chapman and Howchin.

Ostracoda: Healdia cf. chapmani Crespin Hollinella sp.

2068-2200 feet. Dark grey to black micaceous sandstone.

2301 feet. Highly polished ovate and flattened ovate pellets of brown limonite in dark brown limonitic matrix.

2371 feet. Calcareous sandstone and dark grey micaceous shale with patches of calcareous material.

NOTE ON THE SAMPLES.

The sample at 139 feet is Pleistocene to Recent in age and is similar to the material in the topmost portion of the Broome bores.

The sample from 846 feet down to 1769 feet contains no fossil evidence as to age.

The samples from 1860 feet down to 2200 feet are Permian in age. The sample at 1860 feet contains an assemblage of foraminifera, which occurs in the Nerrima Bore, West Kimberley area, between the depths of 38 feet down to 424 feet.

The age of the samples from 2301 feet and 2371 feet is uncertain. The limonitic rock at 2301 feet has not been met with in any other bores in Western Australia. The limonitic pellets may represent a replacement of glauconitic grains which is not an uncommon occurrence.

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