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THE MICRO-FAUNA FROM SOME OF THE TERTIARY DEPOSITS IN THE VICINITY
OF ALDINGA BAY, SOUTH AUSTRALIA

by

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DEPARTMENT OF SUPPLY AND SHIPPING.

BUREAU OF MINERAL RESOURCES.

THE MICRO-FAUNA FROM SOME OF THE TERTIARY DEPOSITS IN THE
VICINITY OF ALDINGA BAY, SOUTH AUSTRALIA.

Report No. 1946/27.

This report gives the result of a microscopic examination of a small collection of fossiliferous rocks made by the writer in 1936, from the glauconitic deposits at Maslin Beach, Blanche Point, and of material collected by Sir Douglas Mawson from the vicinity of Aldinga Bay. Only the micro-fauna has been investigated as the mega-fossils have been described by many palaeontologists.

There is little doubt that the sediments examined are of Middle Miocene age and are referable to the basal part of the Balcombian Stage of the Victorian Tertiaries. The presence, in some abundance, of certain foraminiferal species in some samples suggests a correlation with the Longford Substage of the Balcombian (Crespin, 1943).

The samples examined are as follows:

1. Whitish bryozoal sandstone from a small Headland, just north of Aldinga Creek.
2. Yellowish marl from the same locality as No.1, but stratigraphically higher than that sample.
3. Yellowish marl from Cliffs immediately south of Aldinga Creek, about 200 yards north of the Jetty, and stratigraphically higher than No.2.
4. Yellowish marl from Cliffs 12 feet above beach level, several hundred yards south of Jetty, and stratigraphically higher than No.3.

(Notes for Nos. 1 to 4 supplied by Sir Douglas Mawson).

5. Greenish glauconitic marl, Maslin's Beach, Blanche Point.

The micro-faunal content of these rocks and the distribution of species is given below:

Species	Localities				
	1	2	3	4	5
<u>FORAMINIFERA</u>					
Anomalina ammonoides Reuss	-	f	-	-	f
A. glabrata Cushman	-	-	-	f	f
A. nonionoides Parr	f	f	f	-	-
Astrononion australe Cushman	-	-	f	-	f
Baggina sp.	-	-	-	c	-
Bolivina limbata Brady	-	-	f	-	-
B. victoriana Cushman	-	-	f	-	-
Cassidulina subglobosa d'Orb.	-	-	f	f	-
Carpenteria rotaliformis Chapm. & Cresp.	-	-	f	-	-
Cibicides lobatulus (W. & J.)	f	-	c	f	c
C. refulgens (Montf.)	-	-	f	f	-
C. ungerianus (d'Orb.)	f	-	f	f	c
C. victoriensis Chapm., Parr & Collins ...	f	f	-	-	-
C. sp. 2.	f	f	c	f	f
C. sp.	-	-	-	-	f
Dentalina filiformis (d'Orb.)	-	-	f	-	-
D. fissicostata (Gumbel)	-	-	f	-	-
D. obliqua (Linne)	-	-	f	-	-

Species	Localities				
	1	2	3	4	5
FORAMINIFERA					
<i>D. soluta</i> Reuss	-	-	-	f	f
<i>D. sp.</i>	-	f	-	-	-
<i>Discorbis orbicularis</i> (Terq.)	-	-	-	f	-
<i>D. sp.</i>	-	-	-	f	-
<i>Dorothia parri</i> Cushman	f	-	f	f	-
<i>Eponides concentricus</i> (P. & J.)	-	-	-	f	-
<i>E. repandus</i> (P. & H.)	f	-	f	f	f
<i>E. cf. seabriculus</i> (Chapman)	-	f	-	-	-
<i>Fronicularia</i> sp. nov.	-	-	f	-	-
<i>Gaudryina</i> (<i>Pseudogaudryina</i>) <i>crespiniae</i> Cushman	-	-	-	f	f
<i>Glandulina laevigata</i> Reuss	-	-	f	f	f
<i>Globigerinoides trilobus</i> (Reuss)	-	-	-	-	f
<i>Guttulina irregularis</i> (d'Orb.)	-	f	f	-	-
<i>G. lactea</i> (A. & J.)	-	-	-	-	f
<i>G. problema</i> (d'Orb.)	-	-	-	-	f
<i>G. (sigmoidina) silvestri</i> Cush. & Ozawa.	-	f	f	-	f
<i>Gyroldina soldanii</i> (d'Orb.)	-	-	f	-	-
<i>Heronellina lingulata</i> (B. & H.)	-	-	f	-	-
<i>H. wilsoni</i> (H. A. & E.)	-	-	f	f	f
<i>cf. Karreriella barbatii</i> Cushman	-	-	-	f	-
<i>Lagena hexagona</i> Williamson	-	f	f	f	-
<i>L. laevis</i> (Montf.)	-	f	-	-	-
<i>L. marginata</i> (A. & B.)	-	-	f	-	-
<i>L. sulcata</i> (A. & B.)	-	-	f	-	f
<i>Lenticulina articulata</i> (Reuss)	-	-	-	-	f
<i>L. gibba</i> (d'Orb.)	-	-	-	-	f
<i>L. rotulata</i> (Lam.)	-	-	-	f	-
<i>L. sp.</i>	-	f	-	f	-
<i>cf. Massilina torquayensis</i> (Chapm.)	-	-	-	f	-
<i>Planorbulina mediterraneensis</i> d'Orb.	-	f	f	f	-
<i>cf. Planulina wuellerstorfi</i> (Schw.)	-	-	-	f	-
<i>Planulinoides biconcavus</i> (P. & J.)	-	-	-	f	-
<i>Polystomellina miocenica</i> Cushman	f	f	f	-	-
<i>Pseudopolymorphina</i> sp.	-	-	f	-	-
<i>Pyrulina fusiformis</i> (Roemer)	-	-	-	f	-
<i>Pyrulina</i> sp.	-	-	f	-	-
<i>Pullenia bulloides</i> (d'Orb.)	-	-	f	-	f
<i>Quinqueloculina lamareckiana</i> (d'Orb.) ...	-	-	-	f	-
<i>Reussella spinulosa</i> (Reuss)	-	-	f	-	-
<i>Sherbornina atkinsoni</i> Chapman	c	c	c	f	-
<i>Sigomidella elegantissima</i> (P. & J.)	-	-	f	f	f
<i>Sigmomorphina</i> cf. <i>batesfordensis</i> Parr & & Collins	-	-	-	f	-
<i>S. chapmani</i> (H. A. & E.)	-	-	-	f	-
<i>Sphaeroidina bulloides</i> d'Orb.	-	f	-	-	-
<i>Spirillina inaequalis</i> Brady	-	-	c	f	-
<i>Textularia carinata</i> d'Orb.	-	-	-	f	-
<i>T. cf. flintii</i> Cushman	-	-	-	-	f
<i>T. sagittula</i> DeFr.	-	-	-	f	f
<i>Trifarina bradyi</i> Cushman	-	c	f	f	c
<i>Uvigerinella</i> sp.	-	-	-	-	f
<i>Vaginulina legumen</i> (Linne)	-	-	f	-	-
<i>Verneuilina triquetra</i> (Munster)	-	-	-	f	f

SPORIDIA

<i>Ecionema newberyi</i> (McCoy)	-	-	f	f	-
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ANTHOZOA

<i>Nopsea tenisoni</i> Chapman	f	f	f	f	-
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Species	Localities				
	1	2	3	4	5
BRYOZOA					
<i>Acanthodesia simplex</i> (McG.)	-	r	-	r	r
<i>Adeonellopsis clavata</i> (Stol.)	f	-	-	-	-
<i>A. obliqua</i> (McG.)	f	-	-	-	-
<i>A. symmetrica</i> (McG.)	f	-	-	-	-
<i>Cellaria contigua</i> McG.	f	-	f	f	-
<i>C. depressa</i> Maplestone	-	f	-	-	-
<i>C. gracilis</i> Busk	-	-	-	f	r
<i>C. rigida</i> var. <i>perampla</i> Waters	r	f	-	-	r
<i>Cellepora coronopus</i> M. Edws.	-	-	r	-	-
<i>Chiaetosella daedala</i> (McG.)	-	-	r	-	-
<i>Crisia acropora</i> Busk	r	-	-	f	r
<i>Ellisinidra profunda</i> (McG.)	r	-	-	-	-
<i>Escharoides erectus</i> Canu & Bassler	-	-	-	f	-
<i>Entalophora australis</i> Busk	-	-	r	r	-
<i>E. longipora</i> McG.	-	-	r	r	r
<i>Filiarsia orakeiensis</i> Stol.	-	-	-	r	r
<i>Hincksia geminata</i> (Waters)	-	-	-	f	r
<i>Hippomonella abdita</i> (McG.)	-	-	r	r	-
<i>Hornera frondiculata</i> McG.	r	-	r	-	r
<i>H. striata</i> Stache	r	-	-	-	-
<i>H. sulcata</i> McG.	-	-	-	f	r
<i>Idmidronea</i> sp.	-	-	-	r	-
<i>Idmonea bifrons</i> Waters	r	-	-	-	-
<i>I. contorta</i> Busk	-	-	-	r	-
<i>I. geminata</i> McG.	f	-	-	-	-
<i>I. milneana</i> d'Orb.	f	-	-	-	-
<i>I. trigona</i> McG.	-	r	-	-	-
<i>I. venusta</i> McG.	-	r	-	f	r
<i>Lichenopora australis</i> McG.	r	-	-	-	-
<i>Macropora clarkii</i> (T. Woods)	r	r	-	-	-
<i>M. crassatina</i> (Waters)	-	-	-	r	-
<i>Mezynoea proboscidea</i> (M. Edws.)	r	-	-	f	-
<i>Membranipora concamerata</i> Waters	-	-	-	r	-
<i>M. macrostoma</i> (Reuss)	-	-	-	r	-
<i>Mesonea hochstetteriana</i> (Stol.)	-	r	-	-	-
<i>Omoicosia elongata</i> Canu & Bassler	r	-	-	-	r
<i>Palmicellaria magna</i> Canu & Bassler	-	-	-	-	r
<i>Porina gracilis</i> (McG.)	r	r	f	f	r
<i>P. vertebralis</i> Stol.	r	-	-	r	r
<i>Retepora aciculifera</i> McG.	-	r	f	-	-
<i>R. porcellana</i> McG.	-	-	-	-	r
<i>R. rimata</i> Waters	-	f	-	f	-
<i>Schizolavella phymatopora</i> (Reuss)	-	-	f	-	-
<i>Smittina ordinata</i> McG.	-	-	r	-	-
<i>Smittinella tatei</i> (T. Woods)	-	-	f	-	-
<i>Trigonopora vermicularis</i> Maplestone	-	-	r	-	-
OSTRACODA					
<i>Bairdia amygdaloides</i> G.S.B.	-	-	f	-	-
<i>B. subdeltoides</i> G.S.B.	r	-	c	r	r
<i>Bythocypris tumefacta</i> Chapman	-	-	-	-	r
<i>Cythere demissa</i> G.S.B.	-	-	f	r	-
<i>C. dictyon</i> G.S.B.	-	-	-	r	-
<i>C. lactea</i> G.S.B.	-	-	r	-	-
<i>C. cf. lata</i> G.S.B.	-	-	-	r	f
<i>C. rastromarginata</i> G.S.B.	-	-	f	-	-
<i>C. seabrocuneata</i> G.S.B.	-	-	r	c	r
<i>Cytherella lata</i> G.S.B.	-	-	r	-	c
<i>C. pulchra</i> G.S.B.	-	-	r	-	-
<i>C. punctata</i> G.S.B.	-	-	r	-	r
<i>C. subtruncata</i> Chapman	-	-	-	c	r
<i>Lexoeconcha australis</i> G.S.B.	-	-	r	-	-
<i>Macrocypris decora</i> G.S.B.	-	-	-	-	f

Notes on the Micro-fauna.

The assemblage of species of foraminifera, sponge spicules, Mopsea, bryozoa and ostracoda in samples 1 to 5, is typical of that found in the Balcombian Stage of the Middle Miocene in the Victorian Tertiary deposits, certain species of the foraminifera indicating that the beds may be referred to the Longford substage of the Balcombian as developed in Gippsland.

Sir Douglas Dawson has intimated the stratigraphic sequence of samples 1 to 4 from Aldinga Bay, Sample 1 being the lowest in the sequence. It would appear that Sample 5 from Maslin's Beach, Blanche Point, with its glauconitic lithology forms the base of the section. It is impossible to distinguish any stratigraphic difference in age of the faunas between Samples 1 to 4 and 5 and it must be concluded that, based on the micro-faunas, the five samples should be referred to the same age, i.e. to the Longford substage of the Balcombian.

(a) Foraminifera.

The foraminiferal assemblage is distinctly Balcombian, although many of the species range throughout the Middle Miocene up to recent. Amongst the species of zonal value is an undescribed Cibicides referred to as Cibicides sp.2, a form which is very common in the sediments at Dowd's Quarry near Longford, Gippsland, the type locality for Longford substage, and which is present in all the Aldinga samples. An associated form is Polystomellina miocenica described by Cushman from Batesford, Victoria. It is typically Balcombian in Eastern Victoria.

One of the most distinctive foraminiferal species is Sherbornina atkinsoni, which is well represented in Samples 1, 2, 3 and 4. This form was described by Chapman from Table Cape, Tasmania. It is rare in the Victorian Tertiaries, one record being from the sample at 856 feet in No. 11 Bore, Ph. Colquhoun near Lakes Entrance, in beds referable to the Longford substage. It has also been found in South Australia in Culley's Bore, Hundred of Willunga, between the depths of 80 and 125 feet and in a bore at Sellick's Hill at 260 - 265 feet.

Other species characteristic of the Balcombian include Gaudryina (Pseudogaudryina) cressinae, Bolivina victoriana, Sigmomorphina charmani, Guttulina (Sigmoidina) silvestri, Carpenteria rotaliformis, Cibicides victoriensis, Heronellina lingulata and Spirillina inaequalis. All these forms except H. lingulata and S. inaequalis were originally described from Balcombian deposits.

(b) Neionema newbervi and Mopsea tenisoni are typical Balcombian fossils. At Dowd's Quarry near Longford, spicules of the sponge E. newbervi are very abundant.

(c) Bryozoa.

The bryozoa are fragmentary and not well preserved but many species can be determined. They are typical of the Balcombian deposits in Victoria. The only species which was not recorded in Gippsland above the underlying Janjukian is Trigonopora vermicularis which is present in Sample 3.

(d) Ostracoda. Although the majority of species of ostracoda are long ranging, the assemblage is typically Balcombian. Bythocypris tumefacta and Cytherella subtruncata are the only Miocene species recorded, both being described by Chapman from the Balcombian deposits in the Malle Bores.

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