PAP. & PROC. ROY. SOC. TASMANIA, 1944 (31ST DECEMBER, 1945)

Middle Miocene Limestones from King Island, Tasmania

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(Communicated by D. E. Thomas)

(Read 13th November, 1944)

The earliest reference to Tertiary limestones on King Island, Bass Strait, was made by the late Professor Sir Baldwin Spencer (1888) in an account of his expedition to the Island in 1887. He stated that limestone outcropped at Wickham lighthouse on the north-west corner of the Island and to the south between that point and Yellow Rock; on the east coast, just south of Lavinia Point, and at the Blowhole Creek; on the west coast between Pass and Ettrich Rivers and inland near Porky Lagoon and Fitzmaurice Bay. Debenham (1910) published notes on the geology of King Island, in which he gave a list of fossils determined by W. S. Dun from a limestone outcrop at Seal River. Chapman (1912) described the fossil content of limestones collected by J. A. Kershaw from an outcrop along the bank of the Seal River on the extreme south-east of the Island It is possible that this locality is the same as that recorded by Debenham.

The present collection was made by Mrs. A. J. Adams near her property, 'Avondale,' in the centre of the Island. The locations given for the sample are:—

No. 1 from a well 3½ miles from Mrs. A. J. Adams' property.
No. 2 from the same locality, underlying 14 feet of overburden.
No. 3 from the same locality, underlying No. 2.

Nos. 1 and 2 are cream coloured bryozoal and shelly, marly limestones. The material, when washed, shows the fossils to be poorly preserved. The fossils include foraminifera, echinodermata, bryozoa, brachiopoda, pelecypoda, and ostracoda. The assemblage listed below from these two samples indicates that the limestones are Middle Miocene in age and belong to the basal subdivision of the Balcombian, the Longford sub-stage, a name recently introduced by the writer (1943). Rocks of similar age are found near Marrawah and at Table Cape, Tasmania, in western Victoria, and in the Mount Gambier area, South Australia.

No. 3 is a bluish-grey, weathered to ochreous coloured, bryozoal limestone, which is partly recrystallized. Determination of fossil genera and species is difficult because nearly all specimens are coated with minute facets of calcite, which, in many places, completely replaces the organism.

A list of fossils determined in the samples is given below. This is incomplete because of the poor preservation of many specimens:—

Fossil	Samples 1	2	3
Foraminifera			
Trochammina sp.	x	....	....
Gaudryina (Pseudogaudryina) crespinae Cushman	....	x	....
Lagena favosopunctata Brady	....	x	....
Lagena globosa Montagu	....	x	....
Lagena laevis Montagu	....	x	....
Lagena marginata (W. & B.)	x	....	....
Frondicularia lorifera Chapman	....	x	....
Guttulina irregularis (d'Orb.)	....	x	....
Guttulina cf. *problema* (d'Orb.)	x	....	....
Spirillina vivipara Ehrenberg	....	x	....
Discorbis globularis (d'Orb.)	....	x	....
Cibicides lobatulus (W. & J.)	....	x	....
Eponides concentricus (P. & J.)	....	x	....
Eponides repandus (F. & M.)	x	x	x
Elphidium parri Cushman	....	x	....
Anthozoa			
Flabellum sp.	x	....	....
Echinodermata			
Fibularia gregata Tate	x	....	....
Club-shaped cidaroid spines	x	x	....
Bryozoa			
Cellaria robusta Maplestone	x	....	....
Cellaria gracilis Busk	x	....	x
Cellaria depressa Maplestone	x	....	....
Cellaria rigida McG.	x	....	x
Cellaria laticella Maplestone	x	x	x
Macropora clarkei (T.Wds.)	x	....	....
Macropora crassatina (Waters)	x	....	....
Melicerita angustiloba Busk	x	....	....
Acanthodesia simplex (McG.)	x	x	....
Ellisinidra cylindriformis (Waters)	x	x	....
Membranipora argus (d'Orb.)	x	....	....
Crateropora patula (Waters)	x	....	....
Gigantopora cribraria (McG.)	x	....	....
Bigemellaria pedunculata McG.	x	....	....
Adeonellopsis clavata (Stol.)	x	x	x
Porina gracilis (McG.)	x	x	....
Porina vertebralis Stol.	x	x	....
Smittinella tatei (T.Wds.)	....	x	x
Smittina elongata McG.	x	....	x
Smittina seriata Waters	x	....	....
Caberea grandis Hincks	....	x	....
Exochella grandis Canu & Bassler	....	x	....
Prostomaria gibbericollis McG.	....	x	....
Microporella pocelliformis Waters	....	x	....
Schizoporella clypeata Canu & Bassler	....	x	....
Schizoporella bombycina Waters	....	x	....
Gephyrophora marginopora (Reuss)	....	x	....
Menipea innocua Waters	....	x	....
Crasepodozum elongatum Canu & Bassler	....	x	....
Crasepodozum roboratum Hincks	....	....	....
Aspidostoma airensis Maplestone	x	....	x
Hippomonella abdita (McG.)	x	x	....
Bulbipora areolata McG.	x	x	....
Porella denticulata Waters	x	....	x

Fossil	Samples 1	2	3
Nellia sp.	x	....	....
Velumella depressa Canu & Bassler	....	....	x
Ketepora rimata Waters	x	....	....
Crisia acropora Busk	....	x	....
Idmonea milneana d'Orb	x	....	....
Idmonea triyona McG.	x	....	x
Mecynoecia proboscidea (M.Edw.)	....	x	....
Lichenopora australis McG.	....	....	x
Lichenopora radiata Aud.	....	x	....
Tecticava schnapperensis McG.	x	x	....
Heteropora nodulosa McG.	x	x	....
Brachiopoda			
Magellania sp.	....	x	....
Pelecypoda			
Chlamys praecursor (Chapman)	x	x	....
Ostracoda			
Macrocypris decora G.S.B.	x	....	....
Pseudocythere caudata G.S.B.	x	.	....
Bythocypris reniformis G.S.B.	x	x	....
Bairdia cf. *croskeina* G.S.B.	x	....	....
Bairdia sp.	x	....	....
Bairdia ovata G.S.B.	....	x	....
Pontocypris attenuata G.S.B.	....	x	....

Notes on the Fossil Assemblage

(1) *Foraminifera* are extremely scarce in samples 1 and 3 and, although fairly common in sample 2, they are not well preserved. The majority of species are not indicative of the age of the beds, but the assemblage generally, together with the typical Balcombian forms, *Gaudryina (Pseudogaudryina) crespinae* Cushman, *Frondicularia lorifera* Chapman, and *Elphidium parri* Cushman, is characteristic of the lower portion of the Balcombian stage and is referable to the Longford sub-stage, recently instituted by the writer (1943).

(2) *Echinodermata* are poorly represented. The small echinoid *Fibularia gregata*, recorded from sample 1, is typically Balcombian. Possibly the most interesting fossils in the collection are the numerous club-shaped cidaroid spines in samples 1 and 2. Chapman and Cudmore (1934) state that they were unable to correlate these club-shaped spines with any of the cidaroids examined, although they were recorded from several localities in Victoria, South Australia, and Western Australia belonging to the Balcombian stage.

(3) *Bryozoa* are the commonest fossils present. Many forms are determinable in samples 1 and 2, but, although sample 3 is composed almost entirely of them, few forms are recognisable on account of the incrustation of calcite. The assemblage is typically Balcombian (Middle Miocene). At the same time the assemblage is more typical of western Victoria and south-east South Australia than of Gippsland (eastern Victoria). *Aspidostoma airensis* is important as a zone fossil. It is characteristic of the Janjukian stage, but it is found ranging upwards into the basal Balcombian.

(4) The only representative of the *Brachiopoda* is a broken valve of a *Magellania*.

(5) *Mollusca* are rare, the only one present being that of the pelecypod *Chlamys praecursor* (Chapman), which is typical of the lower Balcombian in other localities.

(6) *Ostracoda* are fairly common and, though all species recorded are referable to recent species, they are typical of the lowest sub-stage of the Balcombian (Longford) horizon in western Victoria and south-eastern South Australia.

REFERENCES

CHAPMAN, F., 1912.—Notes on a Collection of Tertiary Limestones and their Fossil Contents from King Island. *Mem. Nat. Mus. Melb.*, 4, pp. 39-53.

————————, and CUDMORE, F., 1934.—The Cainozoic Cidaridae of Australia. *Mem. Nat. Mus. Melb.*, 8, pp. 126-149.

CRESPIN, IRENE, 1943.—The Stratigraphy of the Tertiary Marine Rocks in Gippsland, Victoria. *Pal. Bull. No. 4*, Min. Res. Survey, Canberra.

DEBENHAM, F., 1910.—Notes on the Geology of King Island, Bass Strait. *Journ. Roy. Soc. N.S.W.*, 44, pp. 560-576.

SPENCER, BALDWIN, 1888.—Expedition to King Island, November, 1887. *Vict. Nat.*, IV, Jan.