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ART. V.—*On a Gigantic Polyzoan referable to Lichenopora, from the Miocene of Airey's Inlet, Victoria.*

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(With Plate III.)

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Introduction.

A few months ago Miss Helen T. Paterson, B.A., kindly handed to me for determination a rather striking and curious limestone specimen which she had recently collected from the Miocene of Airey's Inlet. At first sight it called to mind the structure known as "cone-in-cone," but a thin section at once proved that the radii were of a tubular character, and that its relationship was that of a cyclostomatous polyzoan.

General Observations.

Of the two specimens found, the larger zoarium measures 11.5 cm. along its base, and it has a height of at least 9 cm. It is therefore amongst the largest of the Tertiary Australian polyzoa, exceeded probably only by *Cellepora coronopus* Busk, which often developed into huge tree-like forms, having stems that sometimes measure 20 cm. in diameter, with branches more than a metre in length.

The nearest related *Lichenopora* to the form here described, occurring in Victorian Tertiary strata, is the so-called *Tecticavea schnapperensis*, which MacGillivray described from the Upper Oligocene (Balcombian) of Balcombe Bay, Port Phillip. This species, as figured by MacGillivray has, however, a stem-like form with superposed plates of zooecial tubes (MacGillivray, 1895, p. 132, pl. xx., fig. 9).

The fossil from Airey's Inlet is more expanded and radial in its habit of growth. *Tecticavea* d'Orbigny, the genus used by MacGillivray, is now accepted by most authors as a synonym of *Lichenopora* (see Gregory, 1909, p. 246).

Turning to a paper by A. W. Waters, we find that he referred one of his species of cyclostomatous polyzoa from Aldinga, South Australia (Waters, 1884, p. 695, pl. xxxi., figs. 20, 21) to *Lichenopora boletiformis*, a form previously described by d'Orbigny from the Cretaceous. *Tecticavea boletiformis* from the Senonian Chalk, d'Orb., 1854, differs, however, from Waters' Aldingan fossil in many structural features, and I therefore propose to re-name the latter as *Lichenopora watersi*, sp. nov. The late Prof. J. W. Gregory (1909, p. 257), to whose careful and valuable work on Cretaceous Bryozoa I would here pay a

tribute, also pointed out that Waters' Aldingan species is not d'Orbigny's Senonian form. Waters' original description of the Aldingan species, as *Lichenopora boletiformis* (non d'Orbigny, non Reuss) is as follows:—

"There are two colonies of this species from Aldinga: one forms a globular mass, slightly hollow in the centre, of about 30 mm. in diameter; the other is growing on a Chilostomatous Bryozoan, and forms a conical mass of 14 mm. high. The fresh colonies commence by growing over the previous one in a tectiform manner, but afterwards they become confluent, forming continuous sheets over the previous growth. In the early stage, therefore this entirely corresponds with the Belgian fossil.

"The rays are biserial, with openings but little larger than the interradian and central cancelli. The apertures vary from 0.09 mm. to 0.13 mm."

The Aldingan horizon appears to be of Upper Oligocene age; that of Airey's Inlet may be as old as Lower Miocene.

LICHENOPORA PATERSONAE, sp. nov.

(Plate III., Figs. 1-4.)

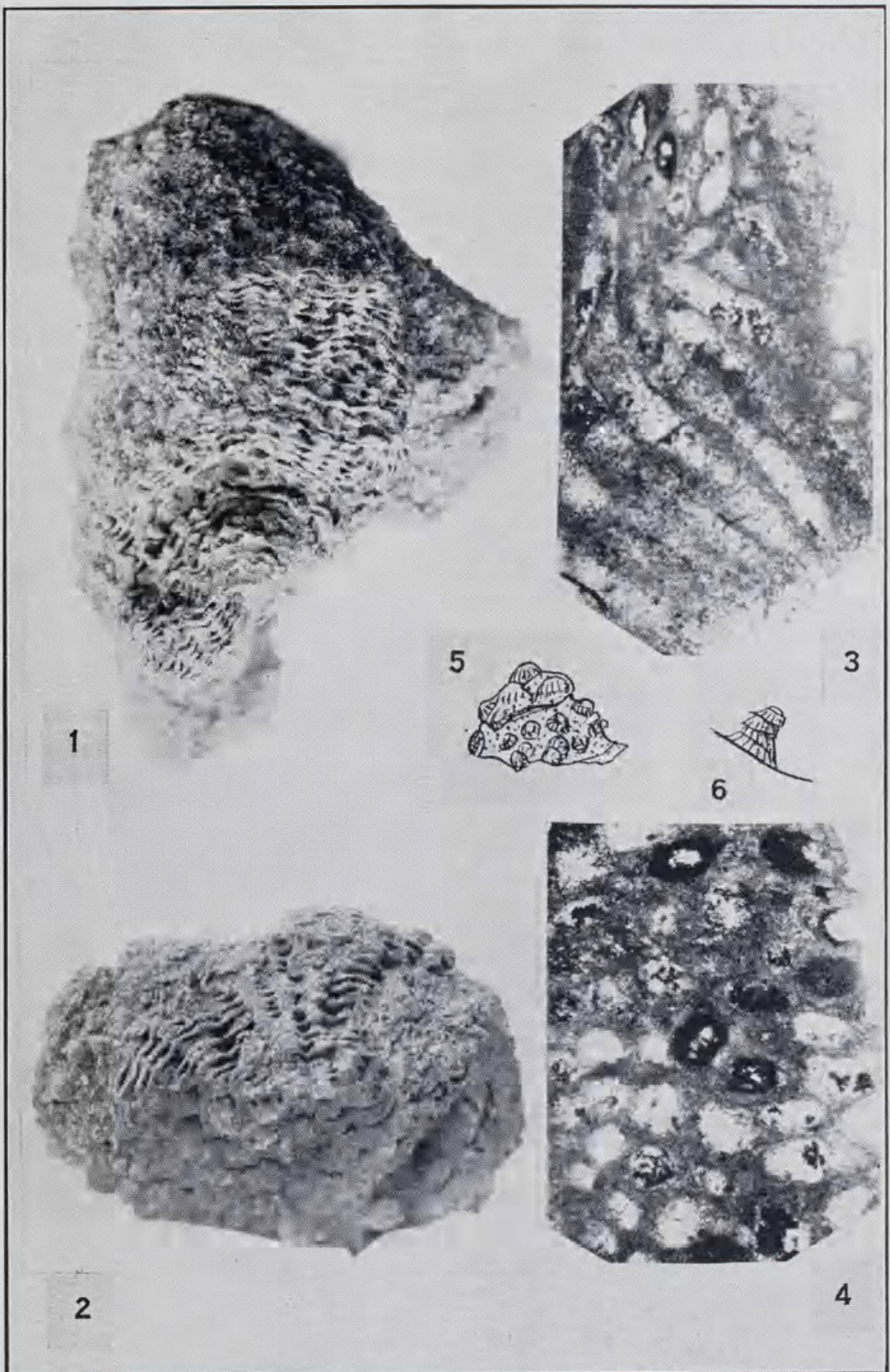
Description of Holotype.—Composite zoarium large, massive hemispherical; base tapering to original pedicel (wanting in specimen), formed of about 47 convex layers, 3 to 5 mm. apart. These layers are strengthened by fusion at intervals of 5 to 8 mm. in lateral distance, the points of contact forming vertical radial pillars. Upper surfaces of laminae carrying discoidal groups (simple zoaria) of radiating zooecial tubes as in solitary examples of *Lichenopora*.

Dimensions.—Height of composite zoarium, 11.5 cm.; width, 9 cm.

Description of Paratype—Smaller specimen.—Composite zoarium of a flattened mushroom shape, the sectional (vertical) aspect showing a divergent, radial character. Laminae of about 24 superposed layers, bearing on the upper surfaces innumerable clusters of zooecial tubes as in typical *Lichenopora*. Radial pillars of solid coenosteum, about 3 mm. in thickness.

Dimensions.—Height of composite zoarium, about 3 cm.; width, 6.2 cm.

Comparison of the diameters of the zooecial characters in the two species.—Waters gave the apertures of the Aldingan species (now *Lichenopora watersi*) as varying from 0.09 to 0.13 mm.; those of the Victorian species are larger, the tubes themselves measuring 0.2 mm. The radial pillars connecting the superposed growth laminae are a distinct feature in the Victorian species. Copies of Waters' drawings (Waters, 1884, *op. cit.*, pl. xxxi., figs. 20, 21) are reproduced here.



F. C. photo.]

New Species of Lichenopora: Miocene, Vict.

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Occurrence.—In Miocene limestone, at Airey's Inlet, West of Anglesea, Victoria. Collected by Miss H. T. Paterson, B.A., after whom the species is named. Holotype in the National Museum.

Bibliography.

- GREGORY, J. W., 1909. Fossil Bryozoa in the Department of Geology, British Museum (Natural History). The Cretaceous Bryozoa, Vol. II.
- MACGILLIVRAY, P. H., 1895. A Monograph of the Tertiary Polyzoa of Victoria. *Trans. Roy. Soc. Vic.*, iv.
- WATERS, A. W., 1884. Fossil Cyclostomatous Bryozoa from Australia. *Quart. Journ. Geol. Soc.*, xl. (4), pp. 674-697, pls. xxx., xxxi.

Explanation of Plate III.

- Fig. 1.—*Lichenopora patersonae*, sp. nov. Holotype. $\frac{2}{3}$ nat. size.
- Fig. 2.—*Lichenopora patersonae*, sp. nov. Paratype. Cir. nat. size.
- Fig. 3.—*Lichenopora patersonae*, sp. nov. Vertical section of zooecial tubes, $\times 30$.
- Fig. 4.—*Lichenopora patersonae*, sp. nov. Transverse section of zooecial tubes, $\times 30$.
- Fig. 5.—*Lichenopora watersi*, nom. mut. Reproduction of Waters' figure (nat. size) of *L. boletiformis* (non d'Orb.) from Aldinga, S. Australia.
- Fig. 6.—*Lichenopora watersi*, nom. mut. After Waters, "growing colonies." Circ., $\times 2$.
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Chapman, Frederick. 1934. "On a gigantic polyzoan referable to Lichenopora, from the Miocene of Airey's Inlet, Victoria." *Proceedings of the Royal Society of Victoria. New series* 46(1), 55–59.

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