MOLLUSCA.

PART I.

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BRACHIOPODA AND PELECYPODA.

PART I.

As explained by Mr. E. R. Waite in the Introduction to this Memoir, the object of the Trawling Expedition was primarily the capture of food fishes, biological investigation taking a second place. Except a few of great bulk, the Mollusca, by reason of their small size, escaped the meshes of the trawling net. At two stations only, Nos. 13 and 49, did our colleague succeed in procuring small quantities of the sea bottom. These have yielded most of the material dealt with in the following pages.

Since the "Thetis" reached in water from 20-80 fathoms, a region almost unknown to Australian investigators, it follows naturally that a high percentage of the species taken is new to science. The known species are those which extend upwards to the littoral zone on this coast, or those which frequent shoal water in Tasmania. To the latter apply the law enunciated by Forbes,* that "parallels in latitude are equivalent to regions in depth." This truth so amply demonstrated for the northern hemisphere, is here first established for Australian waters.

My acquaintance with Australian Tertiary mollusca is too slight to permit a full comparison, but I am within the mark in stating that the collection here dealt with presents a closer relation to the Tertiary fauna than any recent shells yet examined. Survivors specifically unchanged are *Trigonia margaritacea*, var. *acuticostata*, McCoy, *Nucula obliqua*, Lamarck, *Limopsis tenisoni*, Ten. Woods, and *Sarepta obolella*, Tate. The fossil *Pecten polymorphoides*, Zittel, is hardly to be distinguished from

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* Forbes—Rep. Brit. Assoc. for 1843 (1844), p. 175.

Chlamys fenestrata, Hedley. The Eocene *Dimya sigillata*, Tate, corresponds to the recent *D. corrugata*. Though not represented in the collection here discussed, two other recent New South Wales bivalves may be referred to: *Cardium bechei*, Reeve, which is barely separable from the Eocene *C. antisemigranulatum*, McCoy, by the reversed cardinal teeth; and *Cucullæa concamerata*, Martyn, doubtfully distinct from *C. corioensis*, McCoy.

The above facts suggest certain inferences. Firstly, that such beds as the Eocene of Muddy Creek, Victoria, represent a fauna of the hundred fathom zone; and that if the age of the Tertiary beds are to be calculated by Lyellian percentages, an exploration of the hundred fathom zone in existing Australian seas must precede an estimation of the dates of Australian Tertiaries. Secondly, that some living representatives of the Eocene Mollusca of Victoria now dwell six or seven degrees north of where their predecessors lie; a conclusion agreeable to the hypothesis that the Eocene climate was warmer than the present.

In this Report strange names frequently replace familiar ones. The Pelecypoda of New South Wales have heretofore been named according to the lists published by Angas, in the Proceedings of the Zoological Society, and by Smith, in the Reports of the Challenger Expedition. Neither of these writers paid much regard to priority of nomenclature, and many of the names they selected must now pass into synonomy.

In preparing this Report I have been greatly aided by the help of a volunteer assistant, Mr. H. L. Kesteven, to whom my thanks are due for the laborious work of separating and sorting the small shells from the dredgings.

BRACHIOPODA.

Family TEREBRATULIDÆ.

TEREBRATULINA, *D'Orbigny.*

TEREBRATULINA CANCELLATA, *Koch*, sp.

Terebratula cancellata, Koch, Conch. Cab., vii., 1843, p. 35, pl. 26*b*, f. 11-13. *Terebratulina cancellata*, Davidson, Trans. Linn. Soc., iv., 1886, p. 35, pl. vi., f. 1-8.

Station 46.

One specimen from 50-66 fathoms off Jibbon.