

## HYDROZOA (HYDROID ZOOPHYTES AND STYLASTERINA).

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(Plates lxxxiv.-lxxxix., and fig. 126.)

Despite the fact that Hydroid Zoophytes were obtained by the "Thetis" at only eleven of the fifty-nine definite stations at which dredgings were made, the collection is one of great variety and of much interest. Most striking in a general survey of the collection, is the high percentage of forms the structures of which are markedly different from those of the species of any other region; for, in the total of thirty-eight species and varieties which the collection contains, fifteen have been found only in Australian seas.

On this account the main interest of the present Report lies in the additional information which it offers regarding the morphology of species of great rarity, and regarding the variations of structure to which these, and the more widely distributed forms here represented, are subject. The characters of several of the specimens are so distinct from those recorded that I have found it necessary to establish for them eight new species and varieties, distributed amongst the genera *Lictorella* (1 sp.), *Cryptolaria*, (1 sp. and 2 vars.), a genus not hitherto known from the Australian area, *Sertularella* (1 sp. and 1 var.), *Halicornaria* (1 sp.), and *Cladocarpus* (?) (1 sp.), also recorded for the first time from Australia. Of these the most interesting, from a general point of view, is the dimorphic variety of *Cryptolaria crassicaulis*, which throws light on the phylogenetic origin of *Cryptolaria*, and emphasises the close relationship that exists between that genus and *Lafoëa*. The gonosome of the widely distributed *Lafoëa serrata* has been described for the first time. The comparative rarity of Gymnoblastic forms and of minute epizoid species is noticeable.

As to the geographical significance of the collection:—Thirteen species and one variety, each indicated by an asterisk in the following list, have been added to the Hydroid fauna of Australian seas, one of which, *Cladocarpus bathyzonatus*, is particularly noteworthy in that it belongs to a well-marked section of the genus *Cladocarpus*, which has hitherto been regarded as confined to American waters. While it would be presumption to endeavour to deduce with minuteness the wider relationships of

the Hydroid fauna of South-east Australia, from a collection limited to about half the known species in that area, the general facts are clear. That, although an unusually large proportion of this fauna is peculiar to Australia, there are also many species common to it and other oceanic regions. These do not appear to bear out the statement of W. M. Bale<sup>1</sup> that "the Hydroida of the South-eastern province have more affinity with those of New Zealand than with these of any other part of the globe." For, of the twenty-two species concerned, thirteen have been found in the Indian Ocean, thirteen in the Atlantic, and ten in the Pacific, while only six occur in the neighbourhood of New Zealand. Miss L. R. Thornely has, however, justly drawn attention to the similarity which exists between the Hydroid fauna of Indian seas and that of Australia,<sup>2</sup> for it is probable the latter is more closely allied to the former than to any other.

As regards the local distribution:—The average number of species obtained at the productive Stations is slightly under five, the Stations at which larger numbers were obtained being 36 (8 spp.), 44 (13 spp.), 48 (9 spp.), 54 (9 spp.), 57 (6 spp.). Examination of the provenance of the specimens would lead one to suppose that the Hydroid fauna was most abundant in the coastal region which lies between Port Jackson and Bulgo (to the south of Port Hacking), but this supposition is discounted by the fact that it was precisely in this area that the collecting of the "Thetis" was most intense.

Besides the Hydroid Zoophytes proper, there has been included in this report *Stylaster eximius*, the only calcareous Hydrozoon received by me. It has not hitherto been recorded from Australia.

I cannot conclude this introduction to the description of a highly interesting Australian collection of Hydrozoa, without paying tributes to the unrivalled work accomplished for Australian Zoophytology by Mr. W. M. Bale in his admirable "Catalogue," published by the Trustees of the Australian Museum, supplemented by his later papers; and to the painstaking studies of Dr. Armand Billard, whose examinations of type specimens have done much to free the literature of Hydroids from mystifying synonyms.

Finally, I would express my thanks to the Trustees of the Australian Museum for entrusting to me, for examination, the collection brought together by the "Thetis."

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<sup>1</sup> Bale—Cat. Austr. Hydroid Zoophytes, Sydney, 1884, p. 32.

<sup>2</sup> Thornely—in Herdman, Rep. Ceylon Pearl Oyster Fisheries, Part ii., Suppl. Rep. viii.—Hydroida, p. 107.