

In regard to the first of the above sections, the descriptive part of the Report, the Ascidiæ Salpiformes includes the single family Pyrosomatidæ, and forms the third suborder of the order Ascidiacea,—the first and second being the Ascidiæ Simplices and the Ascidiæ Compositæ,—and so completes that group. The Thaliacea is a second order, and includes the important genera *Salpa* and *Doliolum*, along with some less well-known allied forms. The third order, Larvacea, contains the Appendiculariidæ, and so completes the Tunicata. Consequently, although the forms discussed in this part of the Report are all pelagic free-swimming Tunicates, still they are not closely related, but fall into three distinct groups, which are less allied to one another than the Ascidiæ Salpiformes are to the Ascidiæ Simplices or to the Ascidiæ Compositæ.

By far the greater number of the pelagic Tunicata collected by the Challenger Expedition belong to the genus *Salpa*, and to a few of the more common and widely-distributed species of that genus, so that a great part of the work has consisted in the laborious examination of large numbers of specimens of a species from various localities in order to determine whether they were all the same. The specimens were all in rectified spirit, and were most of them well enough preserved for systematic and anatomical purposes; while some few were in an excellent state of preservation, and afforded material for the elucidation of some histological details.

Altogether the collection of pelagic Tunicata contains at least twenty-six species, of which nine are new to science. It has not been found necessary to establish any new genera; but a new family, the Octacnemidæ, has been formed for the reception of the remarkable deep-sea genus *Octacnemus*, Moseley. The plates illustrate the new species and new structural details in regard to some of those already known.

In the second section of this Report I have incorporated, with the sanction of Dr. John Murray, those theoretical conclusions at which I have arrived in regard to the relationships of the Tunicata and the course of their evolution, after nearly ten years' continuous study of the group, in the course of which I have examined for myself nearly every generic type, and by far the greater number of the known species.

A small number of pelagic Tunicates, collected during the cruises of H.M.S.S. "Porcupine," "Knight Errant," and "Triton," which had been sent to me for examination by Dr. Murray, are also described in this Report.

The Appendices include—

- A. A description of a few Simple Ascidiæ sent to me since the publication of the last part of this Report.
- B. An account of a remarkable Dorsal Tubercle found in a fragment of a large species of *Ascidia* from Kerguelen Island.