

The family Didemnidæ is represented by nineteen species and at least four varieties. One of the species (*Leptoclinum albidum*) was previously known, the other forms are all new to science. Nearly all of these species are opaque white or grey; a few, however, are pigmented. *Didemnum savignii* is a chocolate-brown, *Didemnum aurantiacum* is orange, and *Leptoclinum rubicundum* is of a rust red colour. The Didemnidæ have a world-wide distribution.

Some of the Challenger species of *Leptoclinum* form remarkably calcareous colonies, the spicules being very numerous and densely crowded in the test (see *Leptoclinum moseleyi*, p. 272). The relation of these calcareous spicules to the test matrix and cells is discussed in the case of *Leptoclinum tonga* (p. 269).

Two new species belonging to the interesting family Diplosomidæ were obtained during the Challenger Expedition. For one of them, along with a previously described species of von Drasche's (*Diplosoma pseudoleptoclinum*), I have founded the new genus *Diplosomoides*.

Probably the single colony of *Cælocormus huxleyi*, which was obtained from a depth of 600 fathoms off the east coast of South America, is the most remarkable and important Compound Ascidian in the collection. It is an unattached massive colony, with an axial cavity. The branchial apertures of the Ascidiozooids are five-lobed, a condition not found in any other Ascidiæ. There are a few calcareous spicules in the upper layer of the colony, like those of the Didemnidæ; and the male reproductive organs are in an intermediate condition between those of the Distomidæ and of the Didemnidæ. On account of these and other remarkable peculiarities (see p. 317), I have found it necessary to establish a new family, the Cælocormidæ, occupying an intermediate position between the Diplosomidæ and the Pyrosomidæ (see also under Phylogeny, p. 394).

The Polystyelidæ, a group which I have raised to the rank of a family, has important relations with the Cynthiidæ amongst Simple Ascidiæ (see under Phylogeny, p. 398), and is well represented in the Challenger collection. This family was only known previously from a few species obtained on the shores of north-west Europe, and a single species (*Goodsiria coccinea*) from the Strait of Magellan. To these the Challenger investigations have added four new species and a variety.

One new genus has been formed for *Chorizocormus reticulatus*, a species from Kerguelen Island which exhibits particularly well the gradual union of Ascidiozooids to form a colony (see p. 346).

The relations of this family to the Simple Ascidiæ on the one hand, and to the Botryllidæ on the other, are discussed in connection with the phylogeny of the Compound Ascidiæ further on (p. 398).

The new Challenger Polystyelidæ are nearly all from southern latitudes. Some of them form very large colonies, and the Ascidiozooids are much larger than in the case of most Compound Ascidiæ.