

buds from the position where they are formed to the dorsal sides of the parent Ascidi-zooids (see below, p. 33).

Pyrosoma, although pelagic in its habits, is not at all closely related to the other pelagic Tunicates—the Larvacea and the Thaliacea. Huxley at one time (1851) pointed out the similarity in some details of structure between *Pyrosoma* and *Salpa*; but that seems to have been more with the object of showing that the Tunicata could not be divided into two great groups, the Monochitonida and the Dichitonida, than for the purpose of demonstrating any close relationship between the two genera, since he at the same time recognised the similarity in structure between *Pyrosoma* and *Botryllus*. Savigny also had long before pointed out the resemblance of *Pyrosoma* to the Compound Ascidi-ans. In the second part of this Report¹ I insisted strongly on this as being the true relationship of the Ascidiæ Salpiformes, and I showed how the new family Cœlocormidæ, then created for the remarkable *Cœlocormus huxleyi*, formed a link connecting the aberrant *Pyrosoma* with such normal Compound Ascidi-ans as the Distomidæ.

Uljanin,² in discussing the relationship of *Pyrosoma*, has connected it with the Compound Ascidi-ans by means of *Distaplia*, his reason for so doing being apparently that gemmation is effected in *Distaplia* by means of a ventral stolon, as is the case in *Pyrosoma*. It is possible, however, that too much has been made of the peculiarities of *Distaplia*. It seems to me to be an ordinary typical Compound Ascidian, belonging to the family Distomidæ, and having no closer relationship to *Pyrosoma*, or to the Thaliacea, than is found in many other Ascidiæ Compositæ. As to the ventral stolon, many Compound Ascidi-ans produce buds upon a stolon or outgrowth which is ventral in origin. The vascular stolon of the Clavelinidæ, and the post-abdomen of the Polyclinidæ, from both of which buds are formed, are in part prolongations from, or contain, the heart, which is admitted to be a ventral vessel. Even the remarkable process of gemmation seen in the Didemnidæ and Diplosomidæ, where the body of the new Ascidi-zooid appears at first to be formed by the union of two distinct outgrowths from the body of the parent, is merely a modification of the same process, since the two bud rudiments are simply the divisions of a single ventral outgrowth or stolon. Consequently in most, if not in all, Compound Ascidi-ans, gemmation is effected by means of a more or less modified ventral stolon, and the probability is, that the process is the same in *Cœlocormus*. In other respects I regard *Cœlocormus* as being more nearly related in structure to *Pyrosoma* than is any other Compound Ascidian. The remarkable life-history of *Pyrosoma*, the formation of the Cyathozoid, from which the first four Ascidi-zooids of the colony are formed, at first seems to be quite peculiar to this genus, and unlike anything seen in the Compound Ascidi-ans; but after all it may be regarded as a form of embryonic blastogenesis,—a process which is already known to occur in the

¹ Zool. Chall. Exp., part xxxviii. 1886.

² Fauna u. Flora d. Golfes v. Neapel, Monogr. x. p. 123.