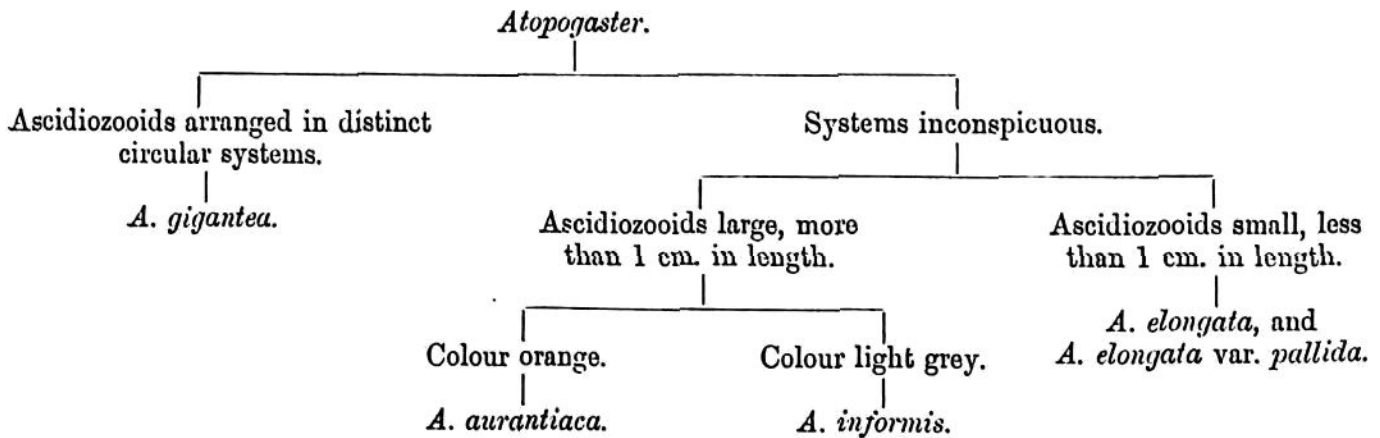


their transverse direction separates the group from *Polyclinoides*, *Amaroucium*, and *Sigillina* (see Table, p. 152); but in general appearance, and especially in size of Ascidiozoid, *Atopogaster aurantiaca* and *Atopogaster elongata* differ so remarkably that I am inclined to think that they ought to belong to distinct sections of the family. Then in some respects *Atopogaster aurantiaca* appears to be allied to *Tylobranchion speciosum*, from which, however, it differs totally in the condition of the branchial sac. *Atopogaster gigantea*, again, differs from the other members of the genus in the simple and conspicuous systems formed by the Ascidiozoids (see Pl. XXIII. fig. 2), and in this respect approaches some species of *Polyclinum* (see *Polyclinum pyriformis*). The relationships of the different Polyclinidæ are very complicated. They seem to form an irregular network, and it is very difficult to determine which characters indicate most clearly the genetic affinity.

In all the species of this genus, however, the colony is massive, the amount of test present is large, and it is tough and cartilaginous in its nature; the Ascidiozoids are greatly elongated antero-posteriorly, and the post-abdomen is large; and lastly, in all, the stomach is more or less distinctly folded in a transverse direction.

The species may be distinguished by means of the following table:—



This arrangement divides the genus into three sections which seem to be natural:— (1) With distinct systems, *Atopogaster gigantea*; (2) with very large Ascidiozoids, *Atopogaster aurantiaca* and *Atopogaster informis*; and (3) with small Ascidiozoids, *Atopogaster elongata*, and *Atopogaster elongata* var. *pallida*.

*Atopogaster gigantea*, n. sp. (Pl. XXIII. figs. 1–6).

*The Colony* is a very large mass of elongated form attached by the posterior end, and extending upwards with a slight curve to a considerable height. It narrows gradually above the middle, and the upper end is obtusely pointed. The colony is slightly compressed laterally. The colour is an opaque whitish-grey with a slight hyaline tinge in places. The surface is somewhat uneven, and is slightly rough all over.