

worms (Rotifera). The unknown, extinct, primary forms of the tribe of Sea-stars (Echinoderma), and of the tribe of the articulated animals (Arthropoda), were nearest akin to the Ring-worms. On the other hand, we must probably look for the primary forms of the great tribe of Molluscs in extinct Worms, which were very closely related to the Moss-polyps (Bryozoa) of the present day; and for the primary forms of the Vertebrata in the unknown Cœlomati, whose nearest kin of the present day are the Sea-sacs, especially the Ascidia.

The class of Sea-sacs (Tunicata) is one of the most remarkable among Worms. They all live in the ocean, where some of the Ascidiae adhere to the bottom, while others (the sea-barrels, or Thaliacea) swim about freely. In all of them the non-jointed body has the form of a simple barrel-shaped sack, which is surrounded by a thick cartilaginous mantle. This mantle consists of the same non-nitrogenous combination of carbon, which, under the name of cellulose, plays an important part in the Vegetable Kingdom, and forms the largest portion of vegetable cellular membranes, and consequently also the greater part of wood. The barrel-shaped body generally possesses no external appendages. No one would recognise in them a trace of relationship to the highly differentiated vertebrate animals. And yet this can no longer be doubted, since Kowalewsky's investigations, which in the year 1867 suddenly threw an exceedingly surprising and unmistakable light upon them. From these investigations it has become clear that the individual development of the adherent simple Ascidian Phallusia agrees in most points with that of the lowest vertebrate animal, namely, the Lancelet (*Amphioxus lanceolatus*).