The water is pressed from the tubes into a number of little hollow feet, which thereby become widely distended, and are then employed for walking and suction. The Sea-stars are moreover characterized by a peculiar calcareous formation in the skin, which in most cases forms a firm, well-closed coat of mail, composed of a number of plates. In almost all Echinoderma the body consists of five radii (counterparts, or antimera) standing round the main axis of the body, where they meet. It is only in some species of Sea-stars that the number of these radii amount to more than five—to 6—9, 10—12, or even to 20—40; and in this case the number of radii is generally not constant, but varies in different individuals of one species.

The historical development and the pedigree of the Echinoderma are completely revealed to us by their numerous and, in most cases, excellently preserved fossil remains, by their very remarkable individual developmental history, and by their interesting comparative anatomy; this is the case with no other tribe of animals, even the Vertebrata themselves are not to be excepted. By a critical use of those three archives, and by a careful comparison of the results derived from their study, we obtain the following genealogy of the Star-fishes, which I have already published in my General Morphology (vol. ii. Plate IV. pp. 62–77.)

The most ancient and original group of the Star-fishes, the primary form of the whole phylum, consists of the class of the true Sea-stars (Asterida). This is established by numerous and important arguments in anatomy and the history of development, but above all by the irregular and varying number of the radii, or antimera, which in all other