

HOMOLOGIES OF THE RADIATA.

SECTION I.

GENERAL HOMOLOGIES.

IN order to compare the different systems of organs in animals whose natural attitudes in the surrounding elements may be extremely diversified, we must first bring them all into the same position; or, in other words, we must discriminate between their natural attitude and their normal position. No branch of the animal kingdom exhibits so great a diversity of attitudes as the Radiates. Some of them are always found mouth upwards, others mouth downwards, or lying upon one or the other side; and before they have been placed in a corresponding position, no accurate comparison between them can be instituted. It is, in my opinion, a mistake to place them, for such a purpose, in the position in which we are accustomed to describe animals of other branches. The very plan of their structure, characterized by radiation, forbids this. The main axis of their body is not a longitudinal axis, as in Vertebrates, but a vertical axis, around which the primary elements of their structure are symmetrically arranged. Most of them, moreover, assume in nature an attitude corresponding to this view of the subject. An attempt to place a Polyp, or a Jelly-fish, or a common Echinus on one side, with the mouth forward, does not modify the plan of their structure, and bring it in any way nearer to that of bilateral animals, with a distinct anterior and posterior end, an upper and a lower side, a right and a left. In whatever position a Radiate may be found, its structural elements retain their radiating arrangement around the main axis, and taking the bulk of the representatives of this type as our guide, that axis must be considered as a vertical axis. It remains so even in those Radiates which, like the Holothurians, move mouth forward, resting upon one side; for that side bears the same primary relations to the main axis, as in those which move or stand mouth upward or downward. The so-called dorsal or ventral side of an Holothuria, a Spatangus, or a Starfish, are neither homologous among themselves, nor do they correspond to the back or lower side of any Vertebrate, or Articulate, or Mollusk. Holothuria and Spatangus rest upon sides which are homologically