

recent discoveries have led to the exhaustion of the more comprehensive reforms of the system of Corallia, as up to the present time we only know the structure of the soft parts of the body, especially of the septa, from a comparatively small number of species, and our knowledge, even of such forms as have been most thoroughly investigated, is far from satisfactory.

This also holds good for the soft-membraned Anthozoa, the Actiniaria or Malacodermata. In this section the structure and arrangement of the septa are of the highest importance for the proper comprehension of the structure; they will probably require to be taken pre-eminently into consideration in the classification, not only of the Actiniæ but also of the other Hexacorallia. But how little do we know on this point. In a recently published work (*Studien zur Blättertheorie, Heft i., die Actinien, Jenaische Zeitschrift, Bd. xiii. p. 457, 1879*) my brother and I have tried to show that all the important characteristics have hitherto been properly estimated only in a treatise by Schneider and Röttken (*Ann. Mag. Nat. Hist., ser. iv., vol. vii. p. 437*), and that, on the other hand, both v. Heider (*Sitzungsber. d. Kaiserl. Acad. z. Wien, Math. Nat. Classe, Bd. lxxv., Abth. 1, p. 367, 1877*), in his otherwise very elaborate anatomy of *Sagartia troglodytes*, and Jourdan (*Annales d. Sciences Nat., Zool., ser. vi., t. x., No. 1, 1880*), in his treatise on the Actiniæ of Marseilles, remain far behind the two first-named naturalists. As, however, we have only a short report in a preliminary publication on the researches of Schneider and Röttken, which extend over a large number of species, it is impossible to make any systematic use of their material, and therefore the number of more detailed anatomical studies of Actiniæ, which, taken from different species, would enable us to form an exhaustive plan of the variations of the type common to all, is still incomplete. These anatomical studies we must have before we can deem it possible to settle an accurate point of view from which to determine the relations of the Actiniæ both to each other and to the other Anthozoa.

Since it appeared to me a grateful task to make a beginning myself in the direction just mentioned, I accepted with pleasure the offer made to me to undertake the working out of the Actiniæ collected by the Challenger Expedition. I wish at the same time to express my most hearty thanks to the late director of the Challenger Commission, Sir Wyville Thomson, and his first assistant and successor, Mr. John Murray, for the great liberality with which they placed the rich material collected at my free disposal.

Before going into a description of the separate species, I think it advisable to determine in a few words the requisites, which, according to my view, ought to be fulfilled by the anatomical description of an Actinia if this is to be of any systematic value. I shall therefore preface the description by a sketch of the structure of this animal, in which I shall lay stress upon the points which are most subject to variation, and to which the special attention of the describer must be directed. Such an attempt is also to be recommended for the further reason that in this way the reader will at the same time