

The more recent naturalists who have given systematic surveys of the Actiniæ, and among them Fischer, Jourdan, Klunzinger (*Korallthiere des rothen Meeres*, Heft. i.), and above all Verrill (*Proc. Elliot Soc.*, vi., Comm., p. 69), sometimes follow Milne-Edwards more closely, sometimes Gosse; none of them have brought forward new or comprehensive points of view.

Although the existing systems of the Actiniæ undeniably require a complete remodelling on a new foundation, I have refrained from this at present, as the material investigated by me was insufficient. I only considered it absolutely needful to form some larger divisions anew, in order to express in some measure the conditions of relationship among the forms. I have taken the structure and arrangement of the septa as the fundamental principle, and distinguish six tribes of Actinaria: (1) Hexactiniæ, (2) Paractiniæ, (3) Monaulæ, (4) Edwardsiæ, (5) Zoantheæ, (6) Ceriantheæ.

I have followed Gosse as far as possible in fixing the limits of the families, but my great endeavour has been to define more sharply the meaningless characteristics hitherto in use, by bringing more emphatically forward the anatomical characteristics predominantly developed in the separate families, such, for example, as the nature of the septa and of the circular muscle, the presence of secondary tentacles and acontia (the latter may appropriately replace the cinclides), and the distribution of the reproductive organs. Thus, I have characterised the family of the Sagartiæ afresh, as I have laid down as essential that they should possess acontia and a mesodermal circular muscle, and that the six pairs of principal septa should be distinguished from the rest by being alone perfect, and not bearing reproductive organs. I found these conditions in a whole series of forms belonging to the *Sagartiæ*, and if other species hitherto placed among them do not agree in these respects, it is impossible that they should remain in one and the same family.

As regards the definition of the species, I found myself in a difficult position. All the specimens of the Challenger material before me were in a strongly contracted condition, so that I could only form a very imperfect idea of their natural shape. Many of them were, moreover, injured in being detached from the underlying substance or by the dredging apparatus. The colour had gone entirely, almost without exception, and the only information on this point was that given by Moseley about the few forms described by him in the *Transactions of the Linnean Society*. Thus, nearly all the characteristics on which former authors based their diagnoses of species were wanting. Verrill, who has a most comprehensive systematic knowledge of Actiniæ, declares that in such a case all specimens only known in a preserved condition are scientifically of no use; he has therefore laid down as a fundamental principle, that only living forms, or those from which drawings have been taken in a living condition, can be utilised for accurate systematic description.

From this point of view, the Challenger material would have been, on the whole, of