

but by mucous cells, and nematocysts, and to entirely obliterate the sucking papillæ from the list of systematic characters.

With regard to the cinclides or pores of the wall, which are so extensively used not only by Ehrenberg (Abhandl. d. Berliner Acad., 1832, Phys. Cl., p. 225), but also by Gosse, and still more by Milne-Edwards, I need only repeat what has been already said. They are only distinct in a few forms, are questionable in most cases, and therefore form a characteristic which is practically of no great use. The tentacles form a much more important characteristic than the two already discussed, less on account of their form and size, on which Ehrenberg lays such stress, than on account of their arrangement and relation to the intraseptal spaces, which have hitherto only exceptionally been taken into consideration.

Ehrenberg's system was first essentially improved by Milne-Edwards and Gosse. Milne-Edwards added, to those already made use of by Ehrenberg, some new systematic characters, which undeniably indicated progress. The extended knowledge of species which had meantime been acquired rendered it necessary to take the different nature of the pedal disk in the Minyadinæ, Cerianthidæ, and Ilyanthidæ into account in the formation of the system; we owe to a more exact anatomical knowledge the appreciation of the systematic value of the marginal spherules. On the other hand, it is difficult to understand how Milne-Edwards came to found two great groups, "actinines vulgaires" and "actinines verruqueuses," on such a character as the papillose or smooth nature of the surface of the body, which is in itself unimportant and in no case clearly marked. His mode of expression is by no means well chosen with regard to another point. When, for instance, Milne-Edwards divides the tentacles into retractile and non-retractile, he lays stress upon a secondary point, and overlooks the much more important behaviour of the upper margin of the wall which can be drawn over the oral disk in the former case but not in the latter. This varying action of the wall is the only point of importance, because it is anatomically founded on the structure of the circular muscle.

What I have said about Milne-Edwards is also true, on the whole, of Gosse, as the same distinguishing characters recur in his system, although he uses them in a different manner; in consequence of this last circumstance the genera of Gosse and Milne-Edwards are often not co-extensive. A step in advance is made, inasmuch as Gosse takes into consideration in his descriptions the acontia, which he himself had discovered, but, on the other hand, the inconsistencies of which he is guilty lay the English naturalist open to the gravest criticism. How, for example, does it happen that the smooth wall not pierced by cinclides is made the most important character of the Antheadæ, and in spite of this the genus *Aiptasia*, which has been separated from other genera chiefly on account of the presence of cinclides and acontia, is placed in this family? How can the genus *Phymactis*, whose diagnosis rests upon the character "skin warted," be placed among the Actiniadæ in which the wall ought to be smooth?