

## THE CYSTS OF ANTEDON ROSACEA (PL. IV.).

In 1885 P. H. Carpenter<sup>1</sup> directed attention to peculiar swellings which he very frequently observed on the pinnules, and less frequently on the arms, of the *Antedon rosacea* of European seas. From the results of the study of deformities produced by Myzostomida on Crinoids, Carpenter could not but regard it as probable that the malformation was in this case also referable to the same cause.

From the abundant material entrusted to me, I have in figs. 1 to 3 represented some of these deformities, magnified five times. The pinnule malformations are extraordinarily numerous, and occur on *Antedon rosacea* from the most diverse localities, as Carpenter has noted. Sometimes they are hardly noticeable thickenings of a single joint, or of two, less frequently of three adjacent joints (figs. 3, *a* and 2, *b*), sometimes larger spherical dilatations towards the adambulacral side (fig. 1, *a*). Somewhat rarely dilatations occur like that represented in fig 2, *a*, which is really only a pit surrounded by a thickened wall. On the other hand there are not unfrequently two or three such swellings on one and the same pinnule, and on a single arm of an *Antedon rosacea* from Milford I counted seven of the malformations, and in all fourteen characteristic swellings on one individual.

Less numerous are the arm-swellings, such as that represented in fig 2, *c*. On that specimen (collected by the "Vettor Pisani" near Gibraltar), three distinct deformities occur in close approximation. The very slight arm-swelling extends over two joints, and is tolerably uniform on either side. I have observed, however, one-sided conical swellings of the arm-joints, sometimes combined with an enlargement of the basal joint of the attached pinnules.

I have opened fourteen of these malformations of *Antedon rosacea* under a lens, and, after decalcifying them, have cut longitudinal sections, but in no case have I found a *Myzostoma* or any other encysted organism. On the contrary, both in the various pinnule deformities and in the arm-swellings, I found a roundish brown foreign body, which was apparently the cause of the deformity, though it was not possible for me to determine anything definitely as to its nature or origin.

In fig. 4 one of these bodies is represented, which I removed from the pinnule swelling of an *Antedon* from Cumbrae. The diameter of the sphere measured 0.3 mm., and the substance was distinctly divisible into a strongly refracting cortical layer and an opaque granular internal mass. The former was radially divided into cell-like portions, and had quite the appearance of cylinder epithelium both in optical section (*a*) and on surface view (*c*). There was not however any sharp boundary between the outer layer and the central mass. The whole had thus the appearance of a superficially segmented ovum.

<sup>1</sup> *Nature*, 1885, vol. xxxii. p. 391 ; vol. xxxiii. p. 8.