

mentioned thirty (which is clearly a misprint for twenty) in Lamarck's type at Paris.¹ But the number of cirrus-joints in the original of *Asterias pectinata*, Retzius, was stated by Müller as only thirteen, and that of the cirri as sixteen.² I have lately examined a large number of specimens from eighteen different localities, all of which agree in having no more than sixteen cirri with a small number of joints, and in a generally less robust appearance than that of the type specimens of *Actinometra solaris*. In the majority of cases the number of cirrus-joints is eleven or twelve (Pl. LIII. fig. 15), but it may fall as low as nine, though it occasionally rises to fifteen. This reduction in number is not due to immaturity, as in the case of the small specimen represented in Pl. LIII. fig. 1, the very youthful condition of which is indicated by the shape of its arm-joints, as compared with those of the larger individual shown on the same plate (fig. 2). But it is a character of much constancy, accompanied by others which will be noticed immediately; and as such it will serve, I think, for the separation of the two species *Actinometra pectinata* and *Actinometra solaris*.

To those who know the extent of the variation in the number of cirrus-joints within the limits of individual species of *Antedon*, the difference between an average of twelve and another of eighteen or twenty may seem altogether insufficient to serve as a basis of specific distinction. But it must be remembered that as the number of cirrus-joints in *Actinometra* rarely exceeds twenty-five, it has but a very slight range of possible variations. The number does vary in each of these two types—from nine to fifteen in the one and from seventeen to twenty-three in the other,—while there are other characters which also help to separate them. There may be as many as twenty-five cirri in *Actinometra solaris*, which is a much more robust species than *Actinometra pectinata*, i.e., it has stouter joints, both in the cirri and in the arms and pinnules. Thus, for example, taking an immature individual of *Actinometra solaris* with about the same "spread" as an *Actinometra pectinata* from the same locality, I found the corresponding pinnules with nearly the same number of joints to be one-third longer in the former than in the latter, while the arm-joints were also wider.

The two species present a parallel series of colour-variations. They are sometimes a deep purple, and sometimes brown in various shades, greyish, reddish, and blackish, or occasionally more or less mottled purple and brown. Müller described the medio-dorsal line of the arms in *Actinometra pectinata* as marked by a white band with a dark one on either side. I have seen this also in examples of *Actinometra solaris* from Hong Kong and Billiton. In the dry state the arms of *Actinometra pectinata* have a slightly raised ridge in the medio-dorsal line which is hidden by the white band just mentioned, when this is present. But the ridge always exists and is very frequently visible in spirit specimens, though sometimes, as in that dredged by the Challenger, it is scarcely visible till the arm is dried. It is never so marked in *Actinometra solaris*, however, as it may be

¹ *Archiv f. Naturgesch.*, 1843, Jahrg. ix. Bd. i. p. 135.

² *Ibid.*, p. 133.