

I. THE COMPLEMENTAL MALES OF SCALPELLUM.

Since 1851, when Darwin issued the first volume of his Monograph on the Sub-class Cirripedia, nothing has been published on the so-called complementary males of *Scalpellum*, though the subject was far from exhausted by his treatment of it. The truth of this assertion in no way diminishes the respect which we feel to be due to the labours of the great master in this department of investigation as well as in so many others. For when we consider that the methods of microscopic research have been greatly improved in the thirty years which have since elapsed, and that the male of *Scalpellum vulgare*, which Darwin investigated, has a size of only 0·7 mm., we can only wonder at the thoroughness of the information which he has given, and at the soundness of the conclusions at which he arrived.

When dissecting *Scalpellum vulgare*, Leach, Darwin observed one or more very minute parasites on the margins of both scuta, close to the umbones. He dissected one or two specimens and at first concluded that they belonged to some new class or order amongst the Articulata. By repeated and more careful dissection he was able to make out the general appearance of the animal, the form of the thorax and abdomen, the generative system, the antennæ and the mode of its attachment; he found that the prehensile antennæ of the little parasite showed an absolute correspondence with the same organs of the hermaphrodite *Scalpellum vulgare*, and that it belonged exclusively to the male sex. From this knowledge, together with its fixed condition and its short existence, he thought himself justified in provisionally considering the little parasite as the complementary male of the Cirriped to which it was attached.

The results of Darwin's investigation of the complementary males of the other species of *Scalpellum* known to him are, shortly, the following:—The complementary male of *Scalpellum ornatum*, Gray, sp., shows a close general resemblance to that of *Scalpellum vulgare*; but as Darwin had only dried specimens of that species, his description is not so exhaustive; he found males of *Scalpellum rutilum*, Darwin, also, but in so extremely decayed a condition that they could not be examined. What Darwin considered to be the complementary male of *Scalpellum rostratum*, Darwin, is a little animal constructed like an ordinary Cirriped and furnished with a mouth, thorax, and cirri, enclosed in a capitulum (with a carina and a pair of scuta), and supported on a peduncle of moderate size. Specimens were found attached to the integument of the hermaphrodite in a central line between the labrum and the adductor scutorum muscle. The complementary male of *Scalpellum peronii*, Gray, sp., is a pedunculated Cirriped with a capitulum of six valves, firmly cemented to the integument of the hermaphrodite in a fold between the scuta, in the middle line a little below the adductor scutorum muscle. Finally, the complementary male of *Scalpellum villosum*, Leach, sp., is attached in the same position as that of *Scalpellum peronii*; it is also six-valved, and it has a close general