

may be part of the mechanism employed.¹ Observations are however very desirable on these points.

The absence of elytra and wings seems to be constant in *Halobates*, and on this account some authors formerly thought that the known specimens had not reached the adult condition. M. Fairmaire's discovery of eggs proved that this theory was erroneous, but an examination of the genital segments would have shown the same. The absence of wings and elytra is not unfrequent in many species of allied genera which live on the surface of fresh water;² and in their case the advantage, to the species, of the possession of these organs is intelligible, especially when they inhabit, as is often the case, small pools or marshes liable to be dried up in summer, or capable of supporting a limited number only of individuals. But to species which dwell on a practically inexhaustible surface as the sea the possession of wings would seem unnecessary, if not positively a disadvantage, as making their possessors and users liable to be carried off by the wind, and, if not blown to some inhospitable spot, separated at least from their companions, a probable disadvantage to gregarious species as the *Halobates* are.

Unless it has been derived from a fresh-water progenitor,—which is of course possible, but in view of its structure perhaps not very probable,—it seems likely that *Halobates* has never possessed wings. On the whole, there are good grounds for thinking that *Halobates*, if not the actual ancestor of its fresh-water allies, is much less differentiated from the common ancestor than they are. The small or *apparently* rudimentary condition of the abdomen which gives the adult *Halobates* so strong a resemblance to the immature *Gerris*, must not be lost sight of in this connection.

Amongst many points which require investigation in the life history, especial attention should be directed to the following:—

1. The food, and the manner in which it is seized and retained.
2. The manner of locomotion, and especially whether all the species have the power of diving beneath the water. Experiments may also be made as to the effect of compulsory submersion. As several writers have mentioned that specimens obtained by the tow-net have always been dead, it is probable that submersion means, in some cases, death by drowning.
3. What enemies they have; if they are eaten by any other animals; and what means of defence they have.
4. The use of the several peculiar organs or structures, such as the ocelli-like tubercles of the head; the perforated tubercle at the base of the ventral surface of the abdomen; the ribbon-like process connected with the claws of the tarsi,

¹ Though I am not yet quite certain, I think that in the species whose usual locality is the open sea the long fringe is longer than in those which dwell near the shore. The material at hand is not sufficient to clear up this point. If it be the case, the reason for it seems obvious.

² It is to be noted that this absence of wings is not necessarily due to an aquatic life, for most, if not all, of the *Hydrocorisa* have well-developed wings, which they not unfrequently use for aerial flight.