

The Alima Larva and the Metamorphosis of Squilla.

Although, as Claus has well shown in his classical monograph on the metamorphosis of the Stomatopoda,¹ the *Alima* larva is connected with the *Erichthus* larva by so many intermediate forms that it is difficult to draw an absolute line between them, it is nevertheless true that the *Alima* is more different from the *Erichthus* than any of the various modifications of the latter type are from each other, and in the description and discussion of the *Alima* larva which follows, I shall give my reasons for believing that all the *Alimæ* are the larvæ of adults which belong to the genus *Squilla*, and that all the species of this genus pass through an *Alima* stage, while all the other Stomatopods pass through their larval life as *Erichthi*. The *Alima* larva is undoubtedly a modified *Erichthus*, and some species deviate much more widely than others from the *Erichthus* type, but the group is on the whole sharply defined, and the rich supply of *Alima* larvæ brought home by the Challenger furnishes us with a very complete series of stages in the growth and development of several species of *Alima*, and thus shews that the history of all of them is essentially the same, and that they differ from all the other Stomatopods in the possession of numerous common characteristics which are also points of resemblance to the adult *Squilla*, a conclusion which receives added weight from the fact that Faxon has reared a young *Squilla empusa* from an *Alima* larva.

The complete history of the *Alima* which is furnished by the Challenger material is all the more valuable since Claus, who has given us, in his paper above quoted, a very complete history of the young stages of the *Erichthus* larva in all its more important modifications, had access to much more scanty material for studying the *Alima*. It is true that he gives figures and descriptions of many forms, but they are all well advanced and have the same number of somites and appendages as the adult Stomatopoda, and the fact that the Challenger collection contains consecutive series of several species of *Alima* from a very early stage up to the mature larva, with unmistakable characteristics of the genus *Squilla*, is therefore of great scientific interest.

The fully grown *Alima* is usually much larger than any of the *Erichthi*, and among the largest known pelagic larvæ. It leads an active swimming life, pursuing and capturing with the greatest rapacity the Copepods and other small Crustacea which form the chief part of its food. Its metamorphosis is slow, and the wide distribution of most of the species of *Squilla* is undoubtedly due to the fact that the larva is carried to distant localities by the winds and currents, but notwithstanding the great size, often 2 inches or more, which is attained by the fully-grown larva, the young *Alima*, even of the largest species, is very minute, and it is probable that all *Alimæ* hatch from the egg in the *Alima* form and that the *Erichthoidina* stage has been entirely dropped from their metamorphosis.

¹ Metamorphose der Squilliden, *Abhandl. d. k. Gesellsch. d. Wiss. Göttingen*, Bd. xvi. pp. 111-163, Tafs. i.-viii., 1871.