In the Dendrobranchiata *Lucifer* is the only genus the development of which has been accurately determined, although the negative evidence arising from the absence of the attachment of ova in all known genera is suggestive of their being fertilised as in *Lucifer*, and hatched also in the Nauplius stage.

In the Phyllobranchiata the brephalos quits the ovum as a Zoea, but to this rule there are exceptions, and these may exist in nearly allied species, as in *Alpheus* and *Homaralpheus*, which are generically separated on the physiological grounds that *Alpheus* has the brephalos hatched in the form of a Zoea and *Homaralpheus* in the form of a Megalopa. Similar reasons suggested the separation of *Systellaspis* from *Acanthephyra* and *Crangon arctus* from *Crangon vulgaris*. Now if we turn to the genus *Oplophorus*, which Milne-Edwards has ranged among the Penæidea—chiefly it appears from its having a series of large basecphyses attached to the legs—there is nothing in its general form excepting the non-chelate character of the third pair of pereiopoda which prevents it from being considered a long-spined congener of *Sicyonia*,

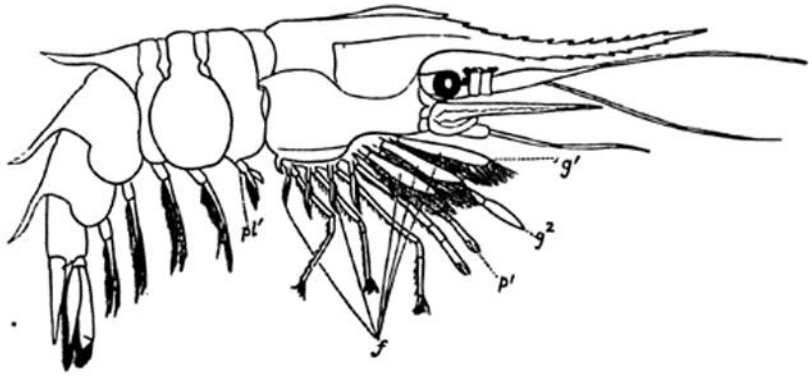

FIG. XVI.—*Oplophorus typus*, from a drawing by the late Dr. R. von Willemoes Suhm. *g'*, first gnathopod ; *g²*, second gnathopod ; *p'*, first pereiopod ; *f*, basecphyses ; *pl'*, first pleopod.

which it approximately resembles, yet we know that they differ in the manner of their development and in the structure of their respiratory organs, and therefore are widely separated in their genealogical history.

If therefore we utilise our observations on the external form of these recent Crustacea we may be able to read much of their internal structure and organisation, and determine the true relation of the fossil forms to their recent congeners. And I believe that I am near to the truth in asserting that nearly all, if not all, the Macrurous forms that are found in the earliest geological formations belong to the Trichobranchiata, either Normal or Aberrant.

There are some genera which have only been deciphered from such very distorted or injured fragments that it is impossible as yet to determine their perfect structure; such is the case with *Palæocrangon* (?) *socialis*, Salter, and of *Gilocrangon*, Ritchie, of which