

pointed and narrow extremity falling forwards ready for insertion when the opportunity occurs.

The second pair of pleopoda carries, attached to the base of the inner of the two rami, a rigid branch that is about a third of the length of the one to which it is attached. The object of this, which is only present in male animals, is not very obvious, and it is only a conjecture, when I say that it may be useful in adding power to retain the preceding pair in position during copulation.

When the spermatophore is liberated from the influence of the male animal, the smaller extremity is inserted into the oviduct and there retained, the ova being fertilised as they pass through the seminal receptacle, which opens on the inner side of the third pair of pereopoda (Pl. LXXXI. figs. 1♀, 2♀).

This latter organ I have not been able in the specimens at my command to determine to be of the inverted bottle-shaped form as figured by Professor Brooks; nor does it appear to open anterior to the third pair of pereopoda, but according to my observation it is only a slight enlargement with a constriction, or rather a series of constrictions, that forms a series of chambers in the oviduct.

Professor Brooks says that there is only one opening, and his opportunity and power of observation are so great that they demand assent, but I can only state, according to the opportunities of my own observation, that the neural cord, which consists of an elongated mass with bulbs increasing in size from the oral appendages to the third pair of pereopoda, whence it continues as a fine thread until it reaches the first pair of pleopoda, passes behind or rather on one side of the ovisac, and therefore the neural cord being in the median line the ovisac must be on one side; that on the opposite side, as in the males, is probably obsolete or only periodically in use.

The ovaries are very long, and in some specimens reach as far back as nearly to the middle of the sixth somite of the pleon (fig. 1♀), where they terminate in a gradually narrowing point; the posterior portion is full of simple granules, and the anterior with gradually ripening ova.

*Observations.*—So far as I can determine, there are only two species of *Lucifer*, and these are probably the same as recorded by Milne-Edwards in his short description. All other forms, of which I give several figures, are, I believe, only dependent upon variation in the progress of development. Even the two recognised species differ but little in important characters. The ophthalmopoda of one are longer than those of the other, and the form of the teeth on the lateral margins of the sixth somite of the pleon in the males varies but little. The other external features of difference are not very considerable. The last mentioned difference only exists in the male animals, whereas the females closely resemble one another in both species, except in the relative length of the ophthalmopoda.

Dana, in his Report on the Crustacea of the U.S. Exploring Expedition, describes