

three new species, but from comparison with those I have figured I am convinced that they are only immature forms of the already known species.

Professor Brooks<sup>1</sup> says:—"We found a few adult specimens out at sea, but, while I was able to learn little about their habits, I think that they are not strictly pelagic, but that their proper home is the salt marshes close to the ocean.

"They were met with in the greatest abundance about half a mile inside Old Topsail Inlet, near a large marsh, during the first hour of the ebb tide, on calm evenings when the tide turned between 7 and 8 P.M.; and I infer that they leave the marshes at this time to breed in the ocean. All the mature females which we found, with one exception, were captured under these peculiar conditions; and we never failed to find them at this spot when the tide turned about sunset and the water was calm."

#### DEVELOPMENT OF LUCIFER.

The interest in the study of this genus has been maintained ever since its first discovery was made by Vaughan Thompson. This has been largely owing to the anomalous appearance of the animal, arising chiefly from the enormous longitudinal development of the regions between the anterior lip and the second pair of antennæ; the reduction of the pereopoda to three pairs, and the greater comparative development of the pleon and its appendages, herein exhibiting features the very opposite to those of the aberrant Amphipoda, where the pereion is increased in proportion and the pleon reduced to a rudimentary condition.

The difficulty of studying the history of the animal has been increased by the fact that the female does not carry the ova attached to the pleopoda, as among the Prawns, or in an ovisac as in other Crustacea. No one before Professor W. K. Brooks,<sup>2</sup> so far as I am aware, ever observed the female bearing ova at all, and he found them in the anomalous condition of being attached to the posterior pair of pereopoda instead of to the pleopods, and they appear to be retained in position by some adhesive property of the ovum instead of being linked together like a bunch of grapes by a tissue developed for the purpose. According to Professor Brooks the deposition of the ova takes place between nine and ten in the evening and occupies only a few minutes. After deposition, they are spherical, transparent, and have rather a thick case, and are loosely attached in a bunch of about twenty to the third or posterior existing pair of pereopoda, and so feeble is their attachment, that "even when great numbers of mature specimens are captured in the breeding season, with the greatest care and delicacy, very few of them, much less than one per cent., are found to have eggs attached to their limbs." About thirty hours after oviposition, the ocellus and appendages of the embryo become visible inside the outer envelope, and after thirty-six hours the brephalos is hatched in the

<sup>1</sup> *Loc. cit.*, p. 60.

<sup>2</sup> *Loc. cit.*, p. 64.