

formed, as all those which were seen in the second chamber consisted only of a central core and a layer of male cells, while those which were contained in the thick-walled third chamber had an outer enveloping capsule.

"I have found several specimens with a fully-developed spermatophore on one side of the body and none on the other side, and was thus enabled to thoroughly satisfy myself of the presence of two vasa deferentia, and two external openings.

"I was unable to discover how the spermatophore is transported to the body of the female, or what part the clasping organ upon the first pleopod of the male performs during the act of copulation.

"Upon several occasions I observed a male clinging to the basal joints of the first antennæ of a female, but as I never succeeded in getting the pair under a lens without separating them, I made no careful examination. Copulation usually takes place during the daytime, or at least this was the case in every instance which I observed. In several cases I found female specimens with a simple fresh spermatophore attached to the opening of the seminal receptacle. This opening is situated between and a little anterior to the basal joints of the third pair of thoracic limbs. As the spermatophore gradually discharged its contents, it was easy to see that both the central core and the investing layer of spermatozoa escaped from the outer sheath and passed into the seminal receptacle. In all the breeding females which I have observed the spermatozoa filled the posterior, and the transparent core of the spermatophore the anterior half of the spermatophore. The ovary is very long, and it lies under the intestine, reaching from the fifth abdominal (pleonic) somite to the posterior edge of the carapace, where it bends upon itself at right angles and runs down to its external opening, which is upon or close to the median line of the ventral surface, a little in front of the third pair of pereopods. The wall of the ovary is so very thin and delicate that I was not able to detect it at all except when it is filled with ripe ova. These are very much elongated, granular, and slightly opaque; and there does not seem to be any shell around them. They are very elastic, and undergo great changes of shape as they pass through the small oviduct.

"Oviposition occurs between 9 and 10 o'clock in the evening, and occupies only a few minutes.

"After the eggs are laid they are spherical, transparent, and each one has a rather thick shell. They are attached, in a loose bunch of twenty or more, to the last pair of thoracic limbs, and in order to save space I have shown them in fig. 74, although the specimen from which the figure was drawn had not laid any of its eggs.

"As I obtained very few ripe females, I was not able to sacrifice one of them to study the reproductive organs under pressure, and I am therefore unable to decide whether any parts of this system are double; but I feel confident that there is only one spermatophore receptacle, and the opening of the oviduct seems to be upon the median line." I have been induced to quote Professor Brooks' memoir on this subject very fully because of its