

Fig. 10 represents the abdomen of the male from the ventral surface, and is intended to illustrate the position of the male reproductive organs. The testes occupy the anterior segment of the abdomen, and the 1st portion of the vas deferens is dilated by the accumulated seminal elements. The 2nd portion is convoluted and beset with glandular tissue, till it opens into the pocket containing the spermatophore in course of formation. The ripe spermatophore may be studied in Fig. 11. No indication of the canal or capsule with which the spermatophore is attached to the female can be seen at this stage. The case of the spermatophore passes by a neck-like constriction into the case of the developing spermatophore, and it is through the aperture formed by the rupture of this constriction that the contents pass out. These correspond to the three elements described by Gruber for the Free Copepoda, viz., a globular central mass, .085 mm. in diameter, representing the axial cement in the free forms, numbers of rod-like spermatozoa (not more than 2μ in length), occupying the greater part of the rest of the axis of the spermatophore, and lastly, the refractive polygonal discharging corpuscles (the Austreibemasse of German Zoologists).

These I have only observed in preparations taken from alcoholic specimens of the male, and I have not had the opportunity of studying the mode of fixation of the spermatophore on the female. Two kinds of cement have been described in the Free Copepoda, (1) that situated in the spermatophoral dilation of the vas deferens, which serves to fix the ejected spermatophore to the female, and (2) that in the axis of the spermatophore, and which in *Canthocamptus*, e.g., forms a curved canal through which the spermatozoa are ejected.

That the former kind of cement exists also in *Achtheres* is readily seen from the pieces of it adhering to the post-abdomen of the female, and which I have referred to above as being often present in considerable quantity. It appears to be formed by the glands grouped round the lower part of the vas deferens. The second sort of cement is ejected from the spermatophore in the form of a somewhat globular mass, composed of a peripheral translucent layer with finely granular contents. It appears to me that this mass undergoes a change similar to what takes place in *Canthocamptus* only more complicated, viz., that after the fixation of the spermatophore to the

¹ Gruber Zeit. wiss. Zool. 32, Pl. 25, Fig. 15.