

both in the male and female, from specimens procured at Samboangan, one of the Philippine Islands, and in 1872 he gave a second memoir with illustrations on the same subject. In these he stated that the vas deferens has but one opening, and that in the median line on the ventral surface. This was confirmed by Anton Dohrn in 1871, who also demonstrated that the form of the adult animal corresponds with that of Vaughan Thompson's figure.¹

The fact of there being a single opening of the vas deferens, and that in the median line, is contested by Professor Brooks in his memoir on *Lucifer*,² where he asserts³ it has "two external openings; they are not on the median line, and their position in the body does not correspond to that of the female orifice; but in other respects my own observations show the correctness of" Semper's "description."

Professor Brooks appears to have had "an abundant supply of adult specimens of both sexes," and was consequently enabled to give a more complete account of the structure and relations of the reproductive organs. He says⁴:—"The body of the animal is so thin (narrow) that it is almost impossible to get a good dorsal view without crushing the specimen; but a very careful examination of the side view seems to show that there is only a single organ on the median line of the body, as Semper states. On each side of the intestine, along the line where the testis joins its wall, a small tubular vas deferens arises, and runs backwards along the side of the intestine nearly to the end of the first abdominal" (pleonic) "somite, to which it seems to be attached by a ligament. It then bends outwards and forwards upon itself to form a second much larger portion, which is parallel to and outside of the first portion, and reaches nearly to the anterior edge of the first abdominal somite. The third or terminal portion has a large cavity, thick walls, and it runs down to an external opening which is situated on the outer edge of the sternal surface of the thoracic" (perionic) "region, behind the basal joint of the third pereopod, and therefore in the position which would be occupied by the basal joints of the fourth or fifth pereopods if they were present.

"There is a vas deferens, made up of these three portions, on each side of the body, and the ventral nerve-chain passes between their external openings.

"The more anterior follicles of the testis are almost perfectly transparent, but the development of the male cells in the posterior ones gives to them a faint granulation. The first division of the vas deferens has a small cavity, thin walls, and as it usually seems to be entirely empty it is probable that the passage of the male cells from the testis through it to the second division takes place quickly. The second division has a very large cavity, and in it the male cells become arranged in a single layer around the surface of a central core, which is formed of some dense transparent adhesive substance.

"The spermatophore appears to pass into the third chamber before it is completely

¹ Zoological Researches, 1829.

² *Loc. cit.*, p. 58.

³ *Phil. Trans.*, p. 57, 1882.

⁴ *Loc. cit.*, p. 59, *et seq.*