

die Priorität vor »*Curvipes* Koenike« und muß angewendet werden, sobald die alte Bezeichnung *Nesaea* aus irgend einem Grunde nicht mehr zulässig erscheint.

Annaberg, den 6. März 1901.

5. Bemerkung über Dybowsella.

Von Tad. Garbowsky.

eingeg. 8. März 1901.

In Bezug auf mein soeben erschienenenes Referat (Zool. Centralbl. Jhg. 1901. p. 95—96) über einen Aufsatz von J. N u s b a u m, in welchem der Verfasser zwei Arten einer Polychaetengattung aus dem Baikalsee (*Dybowsella*) als das erste Beispiel des Auftretens von Polychaeten im Süßwasser beschreibt, macht mich Herr Professor Giard, Paris, aufmerksam, daß derartige Fälle schon vor Jahren verzeichnet wurden. Es hat namentlich Herr Prof. Giard selbst bereits im Jahre 1893 über eine interessante, in *Melania*-Schalen lebende Sabellidengattung *Caobangia* aus Tonkin in den »Comptes rendus des séances de la Société de Biologie« berichtet. Außerdem wurden auch von einigen anderen Autoren Polychaeten als Süßwasserbewohner verzeichnet, so die nord-amerikanische Gattung *Manayunkia* von Leidy, *Haplobranchus* von Bourne u. a. m.

Diesbezüglich erlaube ich mir zu betonen, daß die in meinem Referat vorkommenden Worte »das überhaupt erste in der Litteratur bekannte Beispiel des Auftretens von Polychaeten im Süßwasser« nicht vom Referenten herrühren, sondern einem gesperrt gedruckten Passus der Originalarbeit entnommen sind, da jenes Referat, wie die meisten anderen von mir stammenden, sich lediglich auf eine genaue Wiedergabe des besprochenen Textes beschränkt — unter Vermeidung jedweder kritischen Bemerkung.

6. Preliminary Note on the Spermatophores of certain Earthworms.

By Frank E. Beddard, F.R.S., Zoological Society, London.

eingeg. 14. März 1901.

Our present knowledge of the spermatophores in the terrestrial genera of the Oligochaeta is limited. In the family Lumbricidae we are acquainted with the spermatophores of several species, the number of which has been lately extended by M. de Ribaucourt (»Étude sur la Faune Lombricide de la Suisse«, Rev. Suisse Zool. IV. 1896). In all the members of this family the spermatophores are fixed and immobile, more or less cupshaped cases, which adhere to, or are to some extent

imbedded in, the integument in the neighbourhood of the generative pores. Those of *Criodrilus* are substantially similar, though rather more elongated in form. I have lately succeeded in finding these structures in the African genus *Alma*, a near ally of *Criodrilus*, and have communicated the fact to the Zoological Society of London in a memoir which will be published shortly. In *Alma* — the species which I have examined appears to be Michaelsen's *A. Stuhlmanni* — the spermatophores are scattered about upon the anterior segments and are again substantially of the Lumbricid pattern. They are however flattened and somewhat disc-like receptacles; they do not stand out so prominently as in Lumbricids, a fact which led Morren to describe these organs as penes. The only other earthworms in which these structures have been found is in the genus *Polytoreutus*. In that genus I called attention to their existence in *P. magilensis* («On Two New Genera and some New Species of Earthworms», Quart. Journ. Micr. Sc. XXXIV. p. 250), and later in *P. violaceus* («A Contribution to our Knowledge of the Oligochaeta of Tropical Eastern Africa», Quart. Journ. Micr. Sc. XXXVI. p. 234). I erroneously stated in describing the spermatophores of the last mentioned species that they entirely resembled those of *P. magilensis*. A recent examination of a new species of *Polytoreutus* allied to *P. violaceus* has caused me to re-examine the spermatophores of *P. violaceus*, which I find to be exactly like those of the new species of *Polytoreutus*, but quite unlike those of *P. magilensis*. In the latter species they are extremely long and very slender, only widening out at the anterior end in a spoon-like fashion. The opposite extremity fines off into an exceedingly slender tip. Throughout its whole extent the spermatophore is densely covered with projecting spermatozoa. In the other two species of *Polytoreutus* the spermatophores have a remarkable likeness to those of the Tubificidae; I should say rather to those of *Tubifex* and *Psammoryctes*, for *Bothrioneuron* — as Stolč («Monografie Českých Tubificidů», Abh. Böhm. Ges. VII. 1888) has ascertained — has stalked spermatophores attached to the neighbourhood of the male pores, a state of affairs which I have myself been able to verify in a new species of the same genus from the Malay peninsula. It has been pointed out by several observers (Claparède, Lankester etc.) that the spermatophores of the Tubificidae (excluding of course *Bothrioneuron*) are mobile, the lashing of the free ends of the spermatozoa producing a movement of translation in a series of curves. I am of opinion that the spermatophores of *Polytoreutus violaceus* and its ally are also able to move about in the spacious spermathecal sac possessed by this genus; the reason which leads me to infer this is the coiling in the preserved

condition of the spermatophores; many of them look precisely as if the alcohol had fixed them while in a writhing state; indeed I can hardly doubt from their appearance that this is so. Like those of the genera *Tubifex* etc., the spermatophores of *Polytoreutus* are of various shapes and sizes. In every case however they are at least four or five times the diameter of the extremely slender spermatophores of *P. magilensis*. They vary from short oval bodies to long cylinders coiled regularly upon themselves several times. The form however was always regular and cylindrical. I noticed no spermatophores of the irregular and varying diameter of some of those of *Tubifex* figured by Vejdovsky ("System u. Morph. d. Olig.", 1884. Pl. X, fig. 16). There was no appreciable increase of diameter at the "head" end. There was however very often an aperture to be detected. There is some little divergence of opinion as to the minute structure of the spermatophores of *Tubifex*. But there is no dispute as to the comparative complexity of the minute structure of these singular bodies. I find that in *Polytoreutus violaceus* and its near ally, the new species to which I refer in the present communication, the interior is occupied by a granular mass in which spermatozoa are imbedded; outside of this is a more or less hyaline sheath which stains deeply with borax carmine, and which exhibits no minute structure that I could ascertain. Outside of this again is a layer of about the same thickness as the inner layer, and is plainly made up of densely set and relatively thick fibres; these however are left unstained by the borax carmine, or rather are tinted of a faint brownish yellow. The layer is so thick and coherent that it does not much resemble the projecting "tails" of spermatozoa. But it seems to be formed of spermatozoa. When sections through the spermatophores of the two species of *Polytoreutus* just mentioned are contrasted with sections through the spermatophores of *P. magilensis*, important differences are visible. In describing and figuring the latter I expressed the opinion that they might be immature from the fact that they somewhat resemble the immature spermatophores of *Tubifex* figured by Vejdovsky. I have however examined some fresh spermatophores, i. e. from another individual, and find that they are characterised by precisely the same structure that I have already delineated. As both these worms were in every respect fully mature and as I observed no intermediale forms I am now decidedly of opinion that the spermatophores of *P. magilensis* do really differ from those of *P. violaceus* in a number of points.

In section the spermatophores of *P. magilensis* were seen to consist merely of the central axis of those of *P. violaceus*; there were no layers outside of this, from which the spermatozoa projected freely.

It should be observed too that they projected not at right angles to the surface of the axis but in a curved direction, precisely as in *Tubifex*. In reviewing the characteristics of the spermatophores in the group Oligochaeta it is clear that they may be arranged in two classes: 1) shorter spermatophores consisting of a chitinous case enclosing a mass of spermatozoa, immobile, attached to body externally. Lumbricidae, *Criodrilus*, *Alma*, *Bothrioneuron*.

2) Long spermatophores, of more complicated structure, motile owing to projection of tails of spermatozoa, found in the spermathecae. Tubificidae, *Polytoreutus*.

It appears from the above list that the two formerly accepted divisions of the Oligochaeta, viz. Limicolae and Terricolae cannot be distinguished by their spermatophores, both types occurring in both divisions.

My discovery of the spermatophores in *Alma* lends fresh support to the view now generally adopted that the spermatophores are a product of the spermiducal glands or to the glandular tissue surrounding the orifice of the sperm ducts. *Alma*, it will be recollected, is a genus without spermathecae.

It does not necessarily follow however that the long spermatophores of the Tubificidae and *Polytoreutus* are not formed in the spermathecae. I have no facts in addition to those known to urge in favour of the formation of the spermatophores in the interior of the spermathecae in the Tubificidae; with regard to *Polytoreutus*, the length of the spermatophores is in accord with the long and glandular spermiducal glands. The lumen of the latter would just about contain a spermatophore, while the enormous spermathecae could hardly be responsible for the moulding of the relatively small spermatophores which crowd its interior.

II. Mittheilungen aus Museen, Instituten etc.

Zoological Society of London.

March 5th, 1901. — The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of February 1901, and called special attention to an example of the August Amazon (*Chrysotis augusta*) acquired by purchase on Feb. 11th, and to a specimen of the Guinea-fowl from Rabat in Morocco (*Numida meleagris*), presented to the Society by Mr. G. E. Neroutsos on Feb. 15th. — The report also contained a list of the specimens of the Quagga (*Equus quagga*), three in number, that had lived in the Society's Gardens since their establishment. — A report was read, drawn up by Mr. A. Thomson, the Assistant-Superintendent of the Society's Gardens, on the insects exhibited in the Insect-house during

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