

Thalassicolla, koloniebildende Radiolarien, Sapphirinen, Copilien, Ostracoden, Hyperinen, Pteropoden, Salpen.

4) Durch den Umstand, daß periodisch auftretende Planktonten in der südlichen Adria während viel längerer Zeit schwärmen oder im Süden geradezu zum perennierenden Plankton gehören: Pteropoden, Salpen.

Im einzelnen wird es freilich mitunter schwer sein, mit Sicherheit zu entscheiden, ob eine Form dem Triester Golfe deswegen fehlt oder hier nur selten angetroffen wird, weil sie ein rein ozeanischer Planktont ist, oder aber die hohe Breite ihrem Vordringen nach Norden vorzeitig ein Ziel setzt.

Es ist jedenfalls bemerkenswert, daß ich *Thalassicolla* im Mai 1902 in Gravosa und sogar schon im Hafen von Cigale (Lussin) fand, während dieses Radiolar in allen bisherigen Fängen aus dem Quarnero, von Rovigno und Triest fehlt. *Noctiluca* fand ich noch im Plankton von Rovigno, einen Monat (Mai) ausgenommen, das ganze Jahr über, fast immer in größeren Mengen, und von diesen vielen Exemplaren verirrt sich nur anscheinend recht wenige im September in den Golf von Triest.

Diese Beobachtungen lassen vermuten, daß in der horizontalen Verbreitung der adriatischen Planktonformen in nord-südlicher Richtung eine Anzahl von Zonen zu unterscheiden sind. Die erste, nördlichste Zone dürfte jedenfalls kaum viel weiter südwärts reichen als bis zum Kap Salvore, die Südgrenze der zweiten Zone vielleicht auf der Höhe des Kap Promontore liegen. Zur genaueren Feststellung der Verbreitungsgrenzen, namentlich in der südlicheren Adria, reichen die mir gegenwärtig zur Verfügung stehenden Daten noch nicht aus.

2. Notice on insects with a double receptaculum seminis.

By Jul. Wagner, Prof. of Zoology, Kiew, Polytechnicum.

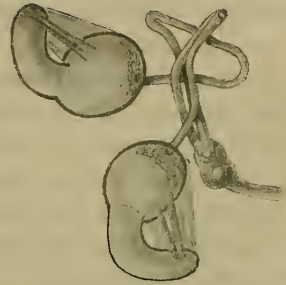
(With 1 fig.)

eingeg. 20. September 1903.

Being occupied with a systematization of the Aphaniptera, I discovered a fact which possesses a general importance for the knowledge of the insect-organisation — namely that some species and perhaps some genus of the Aphaniptera have a pair of receptacula seminis. I can constitute it now only in the genus *Hystrichopsylla* and namely by *H. talpae* Curt. In present time the genus *Hystrichopsylla* consists of five very large species: three european species (*H. talpae* Curt, *H. narbeli* G.-Val., and *H. tripectinata* Tirab.) and two american species (*H. americana* Baker and *H. dippiei* Rothschild) one of these

species — *narbeli*, which was described by one specimen ♂, is perhaps only a variety of the *talpae*. *H. tripectinata* is also described only by one specimen ♂, *H. americana* by one specimen ♀ and *H. dippiei* by one specimen ♂ and one ♀. Only *H. talpae* Curt. is in some places oftener to be found, but this species must be also referred to as to a rare specimen. I was able to examine the receptaculum seminis only by this last species, which lives mostly in the nests of moles. I think it possible that all *Hystrichopsylla* have a pair of receptacula seminis.

The receptaculum seminis was first more or less rightly described by Karsten in *Sarcopsylla penetrans* L.¹ and especially by Landois [in *Pulex canis* Dug.². Later, in the description of *Sarcopsylla penetrans* L.³, Bonnet roughly counted it for an ovary (!). After all the receptaculum seminis of the genus *Ceratopsyllus* was rather unpunctually figured by Rothschild; he calls it »the brown abdominal gland«⁴. That, as I know, exhausts all the references on the receptaculum seminis of the fleas. The work of Landois is to be counted till now for a ground-work.



Receptacula seminis of *Hystrichopsylla talpae* Curt.

Each receptaculum seminis from *H. talpae* Curt. is like by its form to the only one receptaculum of other *Pulicidae*; it is plainly seen from the comparison of my drawing with Landois's plates. As Landois says, the inferior (distal) globe-shaped division of the receptaculum in *Pulex canis* opens immediatly in the interior end of the duct of one accessory gland (»Kittdrüsen«); so, one of the accessory glands ends blindly, while the other prolongs itself to the receptaculum seminis. In *Hystrichopsylla talpae* Curt. each of the receptacula prolongs in its own duct. Both the ducts make a noose and join in a general duct. A thick, yellow-brown chitinous intima makes the receptacula very well seen. By some species of fleas this intima is nearly black, while others have it lighter. The chitinous cuticula in the superior (proximal) division is thinner and lighter. This division bears

¹ Karsten, Beiträge zur Kenntnis des *Rhynchoprion penetrans*, Bullet. d. Soc. Imper. des Natur. à Moscou. 1864. p. 149. Taf. II, f. 12.

² L. Landois, Anatomie des Hundeflohes (*Pulex canis* Dugès), Dresden, 1866. S. 37. Taf. IV, fig. 7.

³ Bonnet, Mémoire sur la puce pénétrante. Paris, 1867. p. 32, f. 19.

⁴ Rothschild, Notes on *Pulex avium* Tasch. Novitat. Zoologicae, Vol. VII. 1900. p. 541, pl. 9, f. 19 and 20.

the form of a bent cylinder or finger. Landois had already noted that the cylindrical division is ordinarily filled with spermatozoa. I looked over the receptaculum seminis in other genus' of fleas and came to the conclusion, that the functions of both divisions are quite different. As the cylindrical division fulfills the function of receptaculum seminis, the globe-shaped division serves as reservoir, in which infuse the secret of Landois's »Kittdrüsen«. Landois had already seen some openings of the small ducts in the walls of the base of the globe-shaped division. The crushing out of the spermatozoa from the cylindrical division in the globe-shaped division, where they mix with the secret of the »Kittdrüsen«, proceeds by means of special muscles, which Landois did not see, and which I show on my drawing. They hold by one end to the blind end of the cylindrical division, by the other end to the walls of the globe-shaped division. The degree of the contraction of these muscular fibres determines itself by the degree of the bent of the cylindrical division. —

The case of the double receptaculum seminis presents a rare exception among the insects. This distinction in the organisation of the genital organs of *Hystrihopsylla* can be considered, or as a manifestation of atavismus, or otherwise as a special independently arisen distinction, which mutilates the original tipe of the genital apparatus. In favour of each opinion could be found some arguments. I wish only to indicate that *Hystrihopsylla*, judging by her exterior character, presents a rather ancient type among other *Pulicidae*, but generally all the Aphaniptera possess a strongly special organisation, on which the conditions of their parasitic life have left their sharp trace. Personally, I am more inclined to the last opinion.

Kiew, 17. Sept. 1903.

3. Sulla respirazione cutanea e branchiale dei Diplopodi.

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ingeg. 22. September 1903.

I.

Nel 1901¹ io ammiisi nell' Iulo, in forma ipotetica, un' attiva respirazione cutanea per ragioni che possono riassumersi così:

1) Il dermascheletro calcarifero è reso permeabile ai gas da una infinità di poricanali che lo attraversano, a cominciare dallo epitelio sottostante fino alla sua superficie libera.

¹ Sulla resistenza dei Miriapodi all'asfissia. *Bullet. Soc. entom. ital.* anno XXXIII. 1901.

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