

On *Bathyphantes canadensis* (Emerton) and
B. setiger F.O.P.-Cambridge (Araneae:
Linyphiidae)

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In the genus *Bathyphantes* Menge, many species of the *gracilis*-group (*Bathyphantes* s.str.) are very similar and it is difficult to distinguish between the small differences in the structure of the copulatory organs. The male palpal organ has a uniform structure within the group and in descriptions of the species, stress has been laid upon the shape of the lamella, the median apophysis and the paracymbium.

In his monograph on the North American species of the genus *Bathyphantes*, Ivie (1969) has synonymized *B. canadensis* (Emerton, 1882) (*B. josephus* Chamberlin & Ivie, 1947) and *B. setiger* F.O.P.-Cambridge, 1894, making the latter a junior synonym of the former. This could appear probable due to the structural similarity in the two species of both the male palp and the female epigyne. Thus the lamella with its terminal apophysis has exactly the same shape, and the paracymbium has the same outline and same arrangement of its setae in two separate groups. Also, the epigyne has a very similar structure in both species except for the clavus being narrower in *B. canadensis*, as figured by Chamberlin & Ivie (1947: Pl.9, Fig. 83: *B. josephus*) and Ivie (1969: Fig. 27), than in *B. setiger*. In the latter species, however, a considerable variation in the width of the clavus has been stated (Holm, 1950: 135).

To his description of *Diplostyla canadensis*, Emerton (1882: Pl.21, Fig. 1) has given a figure of the male palp as seen from the outside. In this figure a black, slightly curved, tooth is seen at the indentation of the tegulum, reaching half way between the paracymbium and embolus coil. In *B. setiger* this tooth is much longer and apparently there is, in this respect, a distinct difference in the bulb of the two species.

In this connection it ought to be pointed out that this "lateral tooth" ("Nebenapophyse": Wiehle, 1957) of the *Bathyphantes* bulb is an apophysis belonging to the radix. This apophysis is quite

different in other *Bathyphantes* species in which the palpal structure is otherwise very similar, e.g. in *Bathyphantes iviei* Holm and *B. pogonias* Kulczynski (Holm, 1970: 196-197).

By the courtesy of Dr. John A. L. Cooke, The American Museum of Natural History, New York, I had the opportunity to examine one male and four females of *B. canadensis*, collected on Manitoulin Island in Lake Huron and determined by Dr. Ivie. I have compared them with Swedish specimens of *B. setiger* from Uppsala and northern Sweden (Abisko, Karesuando).

The size of the carapace of the investigated specimens of *B. canadensis* is on average larger than in specimens from Uppsala, but more in agreement with specimens from northern Sweden. The position of the trichobothrium of the first metatarsus is the same in the two species, varying between 0.25 and 0.29.

An investigation of the palp of the male of *B. canadensis* showed that the difference in size of the lateral tooth of the two species is even more pronounced than was evident by comparison with Emerton's figure. In *B. canadensis* the tooth is short, claw-shaped and with the sharply pointed tip hardly reaching the base of the apophysis of the lamella (Fig. 1: T). In *B. setiger* the tooth is long, gently curved and gradually tapering to the tip that reaches the ventral extension of the terminal part of the tegulum (Fig. 3: T). The length and the shape of the tooth are similar in the males from Uppsala and northern Sweden.

There is also another difference in the bulb of the two species. The terminal curved part of the median apophysis, in the unexpanded bulb appearing in the terminal embolus coil, is much broader in *B. canadensis* (Fig. 2:M) than in *B. setiger* (Fig 4:M).

The four females of *B. canadensis*, compared with female specimens of *B. setiger*, show a more distinct dorsal abdominal dark pattern than the latter and the clavus of the epigyne seems to be narrower than in *B. setiger*, but within the variation range of the latter species. The material is too limited to allow any certain conclusions.

The results of this little investigation can be summarized as follows:

1) *Bathyphantes canadensis* (Emerton, 1882) and *B. setiger* F.O.P.-Cambridge, 1894, have, probably due to their different geographical distribution, developed differences in the structure of the bulb to such a

degree that they are to be regarded as separate species.

2) In the palpal organ of members of the *gracilis*-group of the genus *Bathyphantes*, the "lateral tooth" of the bulb is an apophysis of the radix that has a different shape, even in closely allied species, and therefore has a considerable taxonomic value.

References

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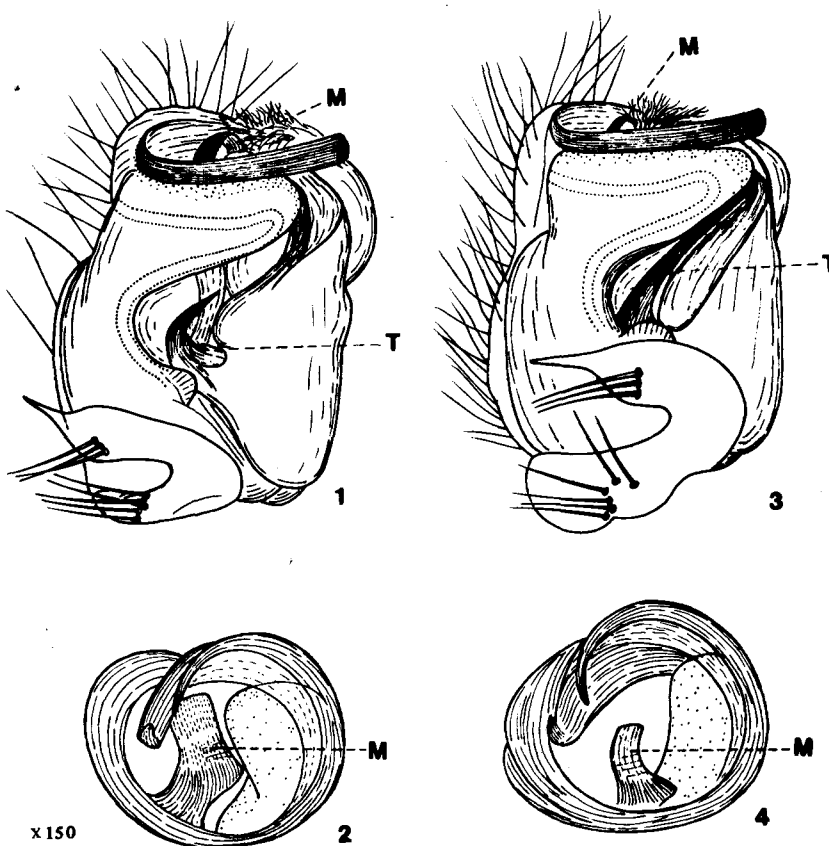
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Bathyphantes canadensis (Em.)

Fig. 1. Right male palpal tarsus, lateral view.

Fig. 2. Bulb of right male palp, frontal view.

Bathyphantes setiger F.O.P.-Cambr.

Fig. 3. Right male palpal tarsus, lateral view.

Fig. 4. Bulb of right male palp, frontal view.

M: median apophysis. T: lateral tooth.