

A New Genus of Bulgarian Cave Spiders
(Protoleoneta bulgarica n.g.,
n. sp., *Leptonetidae*)

by

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Drensky (1931) reports 41 species from 9 families of spiders inhabiting Bulgarian caves. The family *Leptonetidae* was not indicated in his list. Other investigations conducted intensively by Bulgarian biospeleologists, did not establish the presence of this family, although the geographical position indicated, that it might exist in Bulgaria. Two years ago, my colleague P. Beron gave me a collection including 1 ♂ representative of *Leptonetidae*, collected in "Dupna mogila" cave, the Balkan mountains. Later, 1 ♀ and 1 ♂ specimens were found in "Besimenna 22" cave near the village of Karlukovo, Bulgaria. This provided an opportunity for a more profound study which resulted in the establishment of a new genus, which I call *Protoleoneta*.

I am especially obliged to Dr. Brignoli of Rome for his advice and to Dr. Hubert of Paris for sending of comparative material.

PROTOLEONETA n.g.

Typus generis: *Protoleoneta bulgarica* n. sp.

Cephalothorax with a median dark line.

Eyes, well developed, surrounded by a black strip.

Chelicerae, armed with 7 teeth on anterior margin, equable and equidistant. Posterior row with 6 denticles.

Femora on male palp spineless. Patellar spine not very strong. Tibia with a few small spines. Tarsus nearly long as tibia. Near the top there is a thicker spot on the ectal side provided with a strong spine, longer than others. There is a shallow depression, in front of this thicker spot.

Bulbus is placed in the basis of tarsus and armed with elongated stylet.

The genus *Protoleoneta* unites features of the genera *Leptoneta* and *Paraleptoneta* but there are many differences, which divide it from these genera.

The genus *Protoleoneta* differs from genus *Leptoneta* as follows:

1. The tarsus of the male palp does not possess the characteristic apophysis of *Leptoneta*.

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2. The tarsus is less depressed and does not branch out.
3. The teeth of chelicerae are equable and equidistant.

The genus *Protoleoneta* differs from the genus *Paroleoneta* as follows:

1. The femora of male palp is spineless.
2. Near the top of tarsus, on the ectal side, there is a thicker spot, provided with a strong spine longer than others.
3. The tarsus is more depressed.

In *Protoleoneta* we must place the species *Paroleoneta italica* which possess all features and differences, differentiating *Protoleoneta* from *Leptoneta* and *Paroleoneta*. The view point of Komatsu (1970), that *P. italica* belongs to *Leptoneta* is not convincing, because it is very different from typical representatives of *Leptoneta* (Brignoli 1971).

PROTOLETONETA BULGARICA n. sp.

Description of male.

Total length – 2.01 mm. Cephalothorax, length – 0.82 mm, wide – 0.73, pale yellow, convexed with a toracal furrow.

Eyes (fig. 1) well developed, surrounded with a black strip. Anterior eyes almost equable, posterior nearly 1 diam. from anteriors and distant from anterior laterals ca. 1 diam. from anteriors.



Fig. 1. Eyes (σ from in front).

Chelicerae, length – 0.56 mm, wide – 0.21 mm, armed with 7 teeth, equable and equidistant. Posterior row with 6 denticles.

Sternum, length – 0.64 mm, wide – 0.54 mm.

Abdomen, length – 1.10 mm, wide – 0.82 mm, pale – yellow.

Legs yellowish, with spines. Femora I armed with 2 prolateral spines on apical half. Tibia II–IV with 1 prolateral and 1 retrolateral spines on apical half and 1 pr., 1 rt. and 2 ventral spines in the middle. Metatarsus II–IV with 1 pr., 1 rt. and 1 ventral spines in the middle.

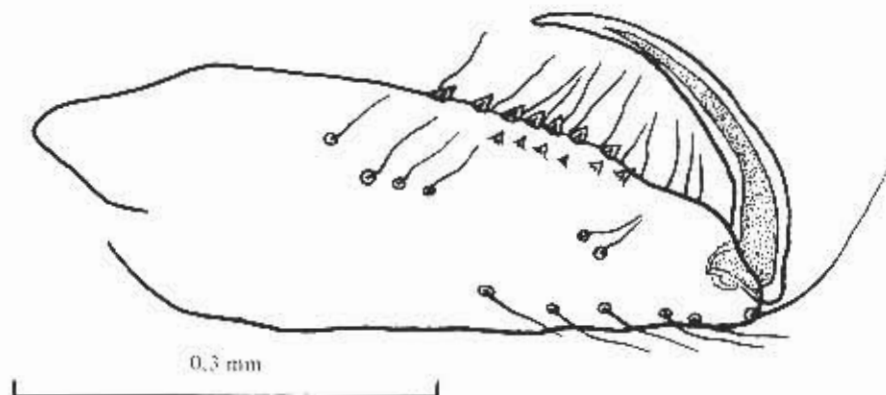


Fig. 2. Left ♂ chelicera, posterior view.

Measurements (in mm) of legs:

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	1.48	0.18				
II	1.25	0.18	1.20	1.00	0.56	4.19
III	1.04	0.18	0.91	0.82	0.46	3.41
IV	1.38	0.18	1.48	1.20	0.73	4.96

Palpus (fig. 3, 4, 5): Fe - 0.45, Pt - 0.18 mm, Tb - 0.28 mm, Tr - 0.28 mm. Femora spineless. Patellar spine not very strong. Tibia with a few not very strong spines. Near the top, there is a thicker spot, provided with a strong

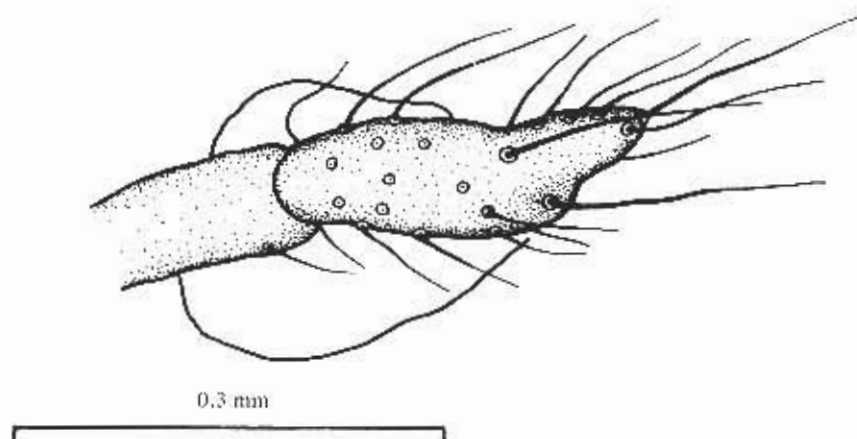


Fig. 3. Right ♂ palpus, the thicker spot.

spine, longer than others (fig. 3). There is a shallow depression, in front of the thicker spot. Bulbus (fig. 4, 5) is placed in the basis of tarsus and armed with elongated and sharpened stylet.

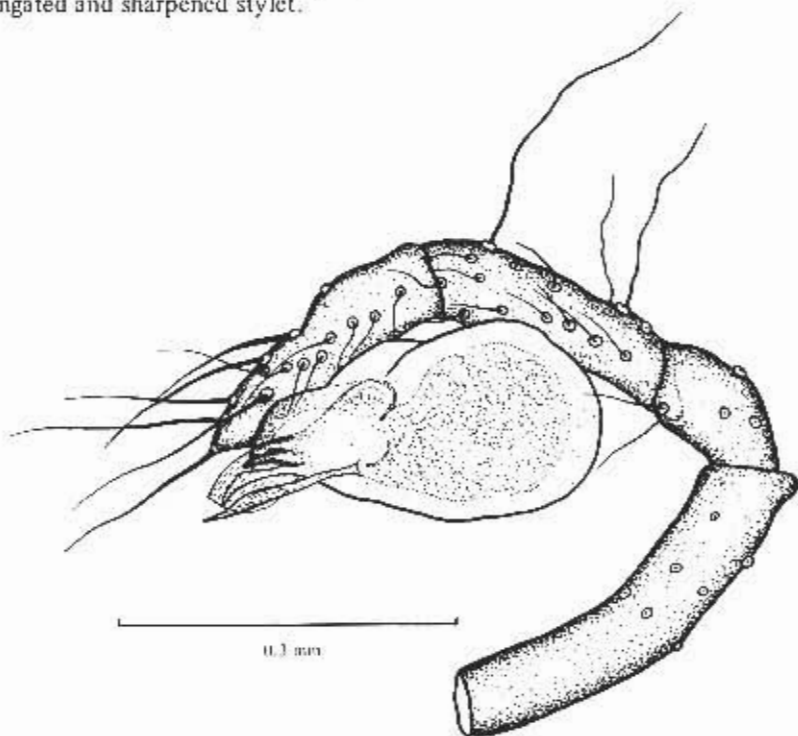


Fig. 4. Left ♂ palp, external view.

Description of female

Total length – 2.10 mm. Cephalothorax, length – 0.73 mm, wide – 0.56 mm, pale yellow.

Eyes well developed, surrounded by a black strip. Anterior eyes almost equable, posterior eyes nearly 1/3 diam. from anteriors and distant from anterior laterals by more than 1 diam. from anteriors.

Chelicerae, length – 0.56 mm, wide – 0.21 mm armed with 7 teeth on anterior margin, equable and equidistant. Posterior row with 6 denticles.

Sternum, length – 0.45 mm, wide 0.45 mm, heart-shaped form.

Abdomen, length – 1.20 mm, wide 0.91 mm.

Legs yellowish with spines. Femora I armed with 2 pr. and 1 rt. in apical half. Tibia III–IV with 1 pr. and 1 rt. spines in apical half and 1 pr., 1 rt. and 2 ventral spines in the middle. Metatarsus II–IV with 1 pr., 1 rt. and 1 ventral spines in the middle.

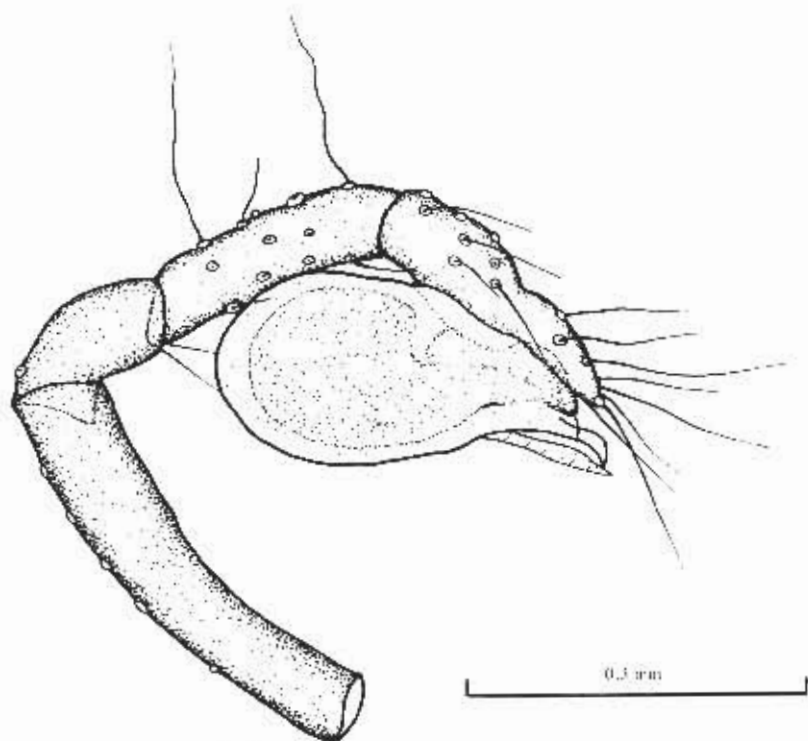


Fig. 5. Left δ palp, internal view.

Palpus (fig. 6, 7), Fc - 0.40 mm, Pt - 0.14 mm, Tb - 0.28 mm, Tr - 0.36, provided with sickle-shaped claw with a tooth (fig. 7).

Vulva simply built and presented on figure 8.

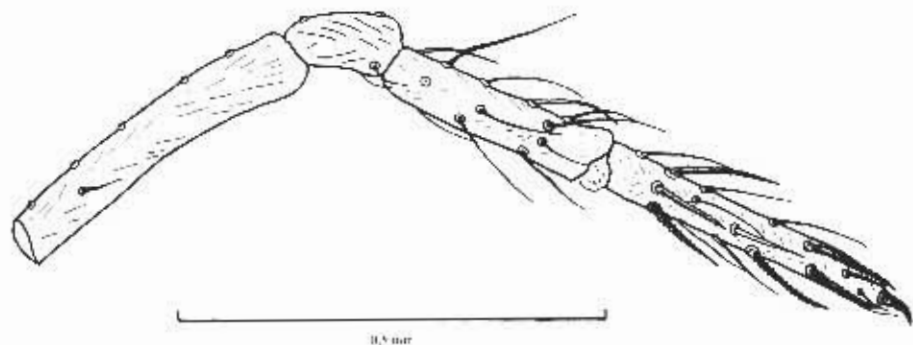


Fig. 6. Female palp, external view.

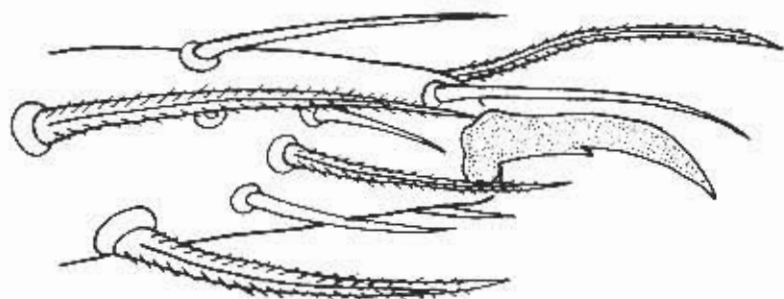


Fig. 7. Female palp, the claw.

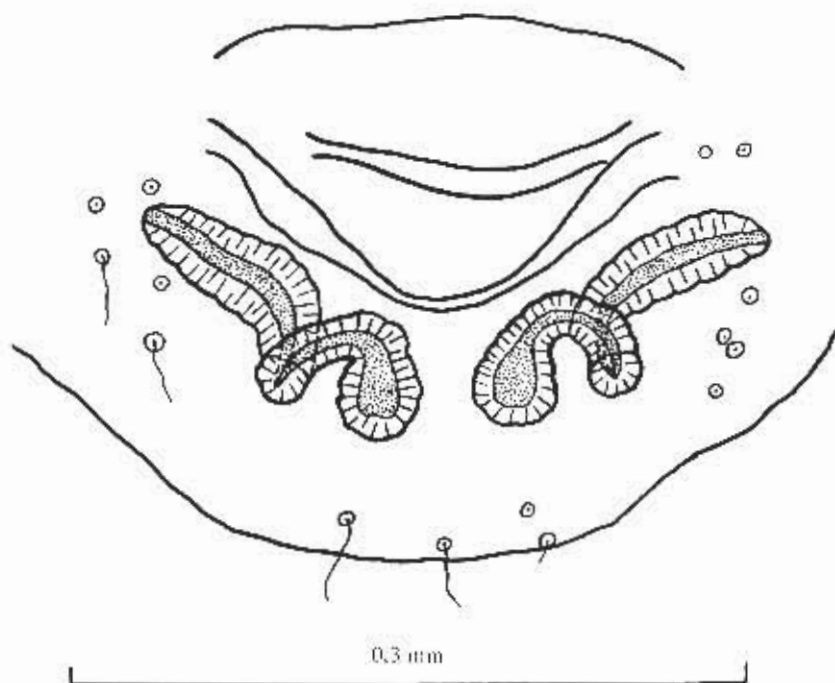


Fig. 8. Vulva.

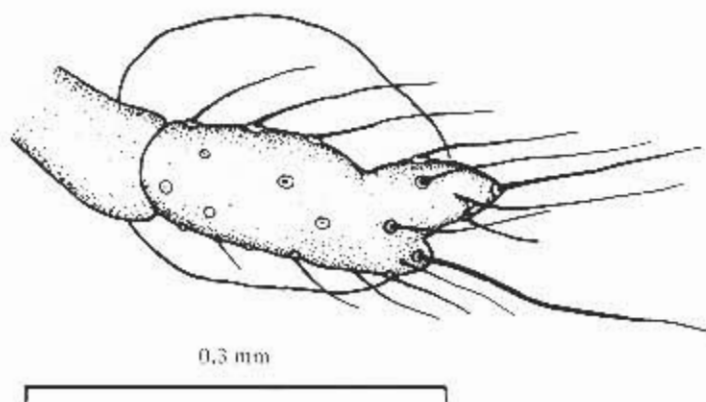


Fig. 9. *Protoleoneta italica*, right ♂ palp, the thicker spot.

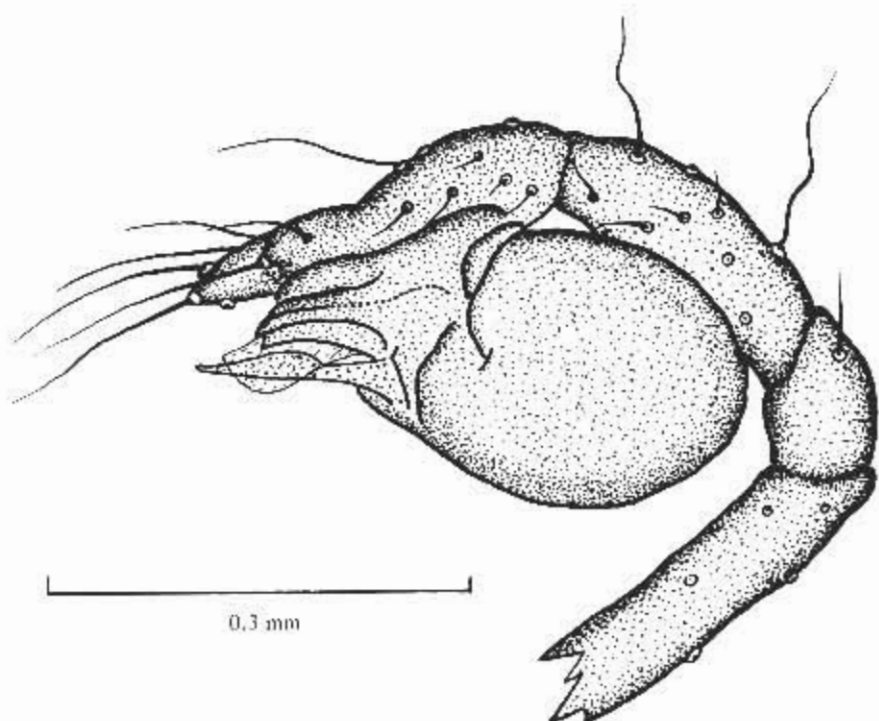


Fig. 10. *Protoleoneta italica*, left ♂ palp, external view.

MATERIAL AND LOCALITY

"Besimenna 22" cave near the village of Karlukovo (district of Loveč), 1 male lectotype and 1 female paratype, 19. VIII. 1968; "Dupna mogila" cave near the village of Dolna Bežovica (district of Vraca), 1 ♂, 7.II.1964 (leg. P. Beron and V. Bežkov); "Grebenic" cave near the village of Dolno Osirovo (district of Michailovgrad), 1 ♂, 16.VI.1970 (leg. P. Beron).

DISCUSSION

Protoleptoneta bulgarica is related to *P. italica* but both species are readily separated because:

1. Tarsus of *P. bulgarica* is shorter and less depressed. The thicker spot is smaller (fig. 3, 9).
2. Bulbus of *P. bulgarica* is smaller and more extended (fig. 4, 10).
3. There are differences in the terminal apophysis.
4. There are differences in the vulva (Brignoli in lit. 29.III.1972).

EVOLUTION NOTES

Fage (1913) expressed two hypotheses about the origin of the genera *Leptoneta* and *Paraleptoneta*. According to the first hypothesis, *Leptoneta* derived from *Paraleptoneta* on the basis of *Protoleptoneta italica*. According to the second hypothesis *Leptoneta* and *Paraleptoneta* had been developing as two independent phyletic groups. If we accept that *Protoleptoneta* is the oldest genus, we can complete the second hypothesis and create a new one. The genera *Leptoneta* and *Paraleptoneta* had been developing as independent phyletic groups and the origin of the two had been *Protoleptoneta*.

Of course this hypothesis needs more studies and data to gain full recognition.

Fage (1913) writes, that Leptonetidae had distributed from East to West. Brignoli (1970) claims the reverse, that *Paraleptoneta* had distributed from West to East. But if we assume that *P. bulgarica* is more primitive than *P. italica* (has a less depressed tarsus and less expressed ectal thickness) this fact confirms the assertion of Fage.

SUMMARY

A new genus *Protoleptoneta* (*P. bulgarica* n. g., n. sp.) is described, which was collected in caves of the Western Balkan mountains - Bulgaria. The new genus unites features of the genera *Leptoneta* and *Paraleptoneta* but there are many differences, which divide it from these genera. It differs from *Leptoneta* as follows: the tarsus of male palp does not possess the characteristic apophysis of *Leptoneta*; the tarsus is less depressed and does not branch out; the teeth of chelicerae are

equable and equidistant. It differs from *Paraleptoneta* as follows: the femora of male palp is spineless; near the top of tarsus, on ectal side, there is a thicker spot, provided with a strong spine longer than others; the tarsus is more depressed. *Paraleptoneta italica* is placed in the new genus *Protoleptoneta*. The origin and relationships between the genera *Protoleptoneta*, *Leptoneta* and *Paraleptoneta* are discussed; a hypothesis is that the genera *Leptoneta* and *Paraleptoneta* had been developing as independent phyletic groups and the origin of the two had been *Protoleptoneta*.

RESUME

Cet article décrit le genre nouveau *Protoleptoneta* (*P. bulgarica* n.g., n. sp.). L'Araignée est récoltée dans les grottes du Balkan Occidental - Bulgarie. Le nouveau genre réunit des caractères des genres *Leptoneta* et *Paraleptoneta*, mais il y a aussi plusieurs différences qui le séparent de ces genres. Il diffère de *Leptoneta* par: le tarse du palpe du mâle ne possède pas les apophyses caractéristiques de *Leptoneta*; le tarse est moins déprimé et n'est pas ramifié, les dents des chélicères sont égales et équidistantes. Il diffère de *Paraleptoneta*, car les fémurs des palpes du mâle sont privés d'épines; près du sommet du tarse, sur le côté extérieur, il y a une tache épaissie, pourvue d'une épine forte, plus longue que les autres; le tarse est plus déprimé.

Paraleptoneta italica est mise dans le nouveau genre *Protoleptoneta*. On discute l'origine et les relations entre les genres *Protoleptoneta*, *Leptoneta* et *Paraleptoneta*; une hypothèse est émise, selon laquelle les genres *Leptoneta* et *Paraleptoneta* se sont développés par groupes phylétiques indépendants et que leur base commune aurait été le genre *Protoleptoneta*.

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