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New taxa for some species of the genus *Lepthyphantes* Menge sensu lato (Araneae, Linyphiidae, Micronetinae)

by Michael I. SAARISTO and Andrei V. TANASEVITCH*

Abstract

The following two new monotypic genera have been created: *Epigyphantes* gen. n. (type species: *Lepthyphantes epigynatus* Tanasevitch, 1988) and *Vagiphantes* gen. n. (type species: *Lepthyphantes vaginatus* Tanasevitch, 1983) as well as the following two new subgenera in *Mughiphantes* Saaristo & Tanasevitch, 1999: *Cornuphantes* subgen. n. (type species: *Lepthyphantes cornutus* Schenkel, 1927) and *Sachaliphantes* subgen. n. (type species: *Lepthyphantes sachalinensis* Tanasevitch, 1987). Further the following new combinations have been established: *Bolyphantes supremus* (Tanasevitch, 1986) comb. n., *Palliduphantes antroniensis* (Schenkel, 1933) comb. n., *Palliduphantes altus* (Tanasevitch, 1986) comb. n., and *Palliduphantes solivagus* (Tanasevitch, 1986) comb. n. (all ex *Lepthyphantes*).

Résumé

Deux nouveaux genres monotypiques sont créés: *Epigyphantes* gen. n. (espèce type: *Lepthyphantes epigynatus* Tanasevitch, 1988) et *Vagiphantes* gen. n. (espèce type: *Lepthyphantes vaginatus* Tanasevitch, 1983) ainsi que deux sous-genres de *Mughiphantes* Saaristo & Tanasevitch, 1999: *Cornuphantes* subgen. n. (espèce type: *Lepthyphantes cornutus* Schenkel, 1927) et *Sachaliphantes* subgen. n. (espèce type: *Lepthyphantes sachalinensis* Tanasevitch, 1987). De plus, de nouvelles combinaisons sont établies: *Bolyphantes supremus* (Tanasevitch, 1986) comb. n., *Palliduphantes antroniensis* (Schenkel, 1933) comb. n., *Palliduphantes altus* (Tanasevitch, 1966) comb. n. et *Palliduphantes solivagus* (Tanasevitch, 1986) comb. n., tous sortis du genre *Lepthyphantes*.

Introduction

This paper is the sixth contribution to our enterprise for the reclassification of the genus *Lepthyphantes* Menge, 1866 s.l. (SAARISTO & TANASEVITCH, 1993, 1996, 1999, 2000, and 2001). In our earlier papers we have almost exclusively studied *Lepthyphantes* species which are found in Europe but this time we will also include some Asian species. Of these the Central Asian species *L. vaginatus* Tanasevitch, 1983 and the Siberian *L. epigynatus* Tanasevitch, 1988, have each been placed in a new genus on account of their peculiar secondary genital organs while the European-Ancient-Mediterranean *L. cornutus* Schenkel, 1927 and the Far

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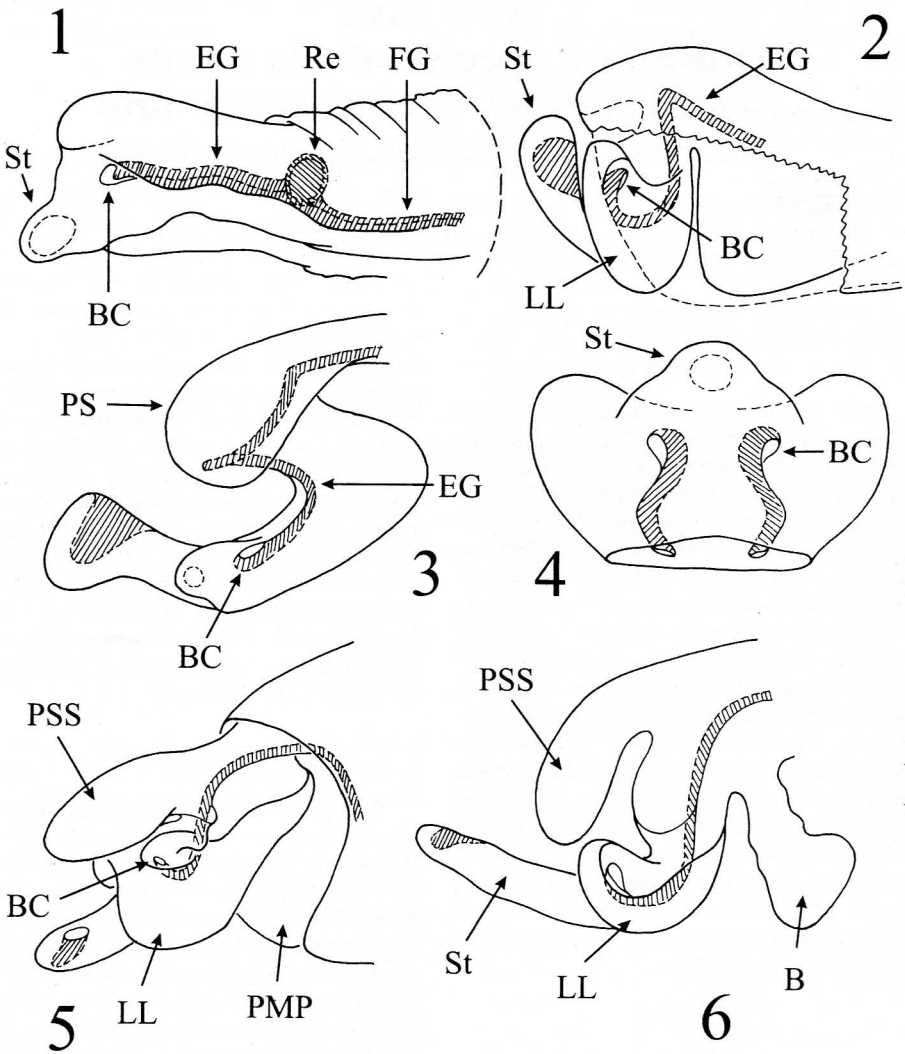


Figures 1-6. — Generalized drawings of epigyne. – **1**: *Epigyphantes epigynatus* (Tanasevitch, 1988). – **2**: *Vagiphantes vaginatus* (Tanasevitch, 1983). – **3**: *Mughiphantes* (*Sachaliphantes*) *sachalinensis* (Tanasevitch, 1987). – **4**: *Mughiphantes* (*Cornuphantes*) *cornutus* (Schenkel, 1927). – **5**: *Palliduphantes antroniensis* (Schenkel, 1933). – **6**: *Palliduphantes altus* (Tanasevitch, 1986), epigyne cleared in KOH.

Eastern *L. sachalinensis* Tanasevitch, 1987, have been transferred to *Mughiphantes* Saaristo & Tanasevitch, 1999, representing two new subgenera in that genus. In addition, the European *L. antroniensis* Schenkel, 1933, the Central Asian *L. altus* Tanasevitch, 1986, and *L. solivagus* Tanasevitch, 1986, have been transferred to *Palliduphantes* Saaristo & Tanasevitch, 2001, while the Central

Asian highlander *Lepthyphantes supremus* Tanasevitch, 1986, has been transferred to *Bolyphantes* C.L. Koch, 1837.

Abbreviations. Abbreviations used in the text and figures are:

E: embolus; – EP: embolus proper; – Th : thumb; – L: lamella characteristica; – TA: terminal apophysis; – M: membrane of terminal apophysis; – R: radix; – RA: radical apophysis; – PH: pit hook; – MM: median membrane; – PS: proscape; – PSS: pseudoscape; – LL: lateral lobes; – EG: entrance grooves ; – FG: fertilization grooves; – Re: receptacula; – B: "bag" of scape; – BC: bursa copulatrix; – St: stretcher; – LW: lateral wall; – BW: black wall; PMP: posterior median plate.

Description of new taxa

Epigyphantes gen. n.

(figures 1, 7-10)

Type species: *Lepthyphantes epigynatus* Tanasevitch, 1988.

Etymology: the generic name is derived from the specific name of the type species and the generic name *Lepthyphantes*.

Species included: only the type species.

Diagnosis. The new genus is characterized by having the epigyne and its basal area strongly protruding posteroventrally. The epigyne itself is outstretched, long and relatively narrow. There is no epigynal cavity and the only remnant of the scape is a triangular stretcher with a large and shallow pit (figures 1, 7 and 8).

Discussion. Compared with the putative basic plan of the micronetin epigyne (SAARISTO & TANASEVITCH, 1996: fig. 6), that of *Epigyphantes* is highly modified. The most remarkable features in its arrangement are the reduction of the scape so that only the stretcher is left, the total loss of the epigynal cavity, and the flattening of the posterior median plate. Due to all these modifications, the copulatory bursae are situated on the dorsal side of the apical part of the epigyne. The entrance grooves starting from them run more or less parallel to the seminal receptaculae. At this point, they merge smoothly with the fertilizing grooves which end close the vaginal opening (figures 1, 7 and 8). In general appearance, the epigyne of *E. epigynatus* much resembles both that of *Drapetisca socialis* (Sundevall, 1832) (fig. 11) and *Abiskoa abiskoensis* (Holm, 1945) (see SAARISTO & TANASEVITCH, 2000: fig. 27) but from the epigynes of the latter species also the whole scape has been totally reduced. On the other hand, when the embolic divisions of these three species are compared with each other, it can be noticed that those of *E. epigynatus* (fig. 10) and *A. abiskoensis* (see SAARISTO & TANASEVITCH, 2000: fig. 24) are very similar while that of *D. socialis* (fig. 12) is more complicated though of similar basic pattern.

Finally, the paracymbium of *E. epigynatus* fig. 9) is quite original being much simplified and especially by having on its middle part several upstanding hairs. Accordingly it appears that while all these three genera belong to same phylogenetic lineage, *Epigyphantes* and *Abiskoa* seem to be fairly closely related while *Drapetisca* Menge, 1866, is a more distant relative.

Distribution: Eastern Siberia.

Vagiphantes gen. n.

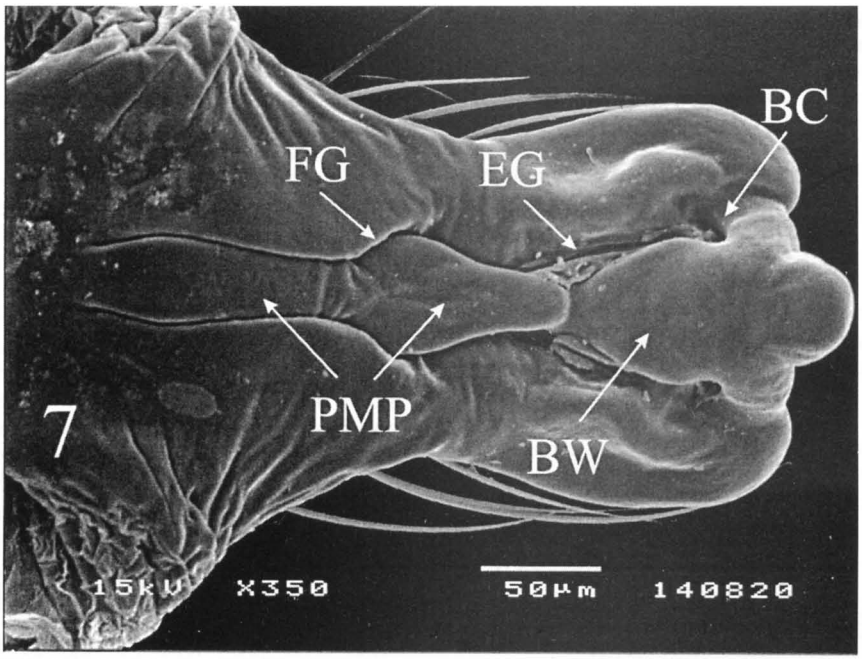
(figures 2, 13-16)

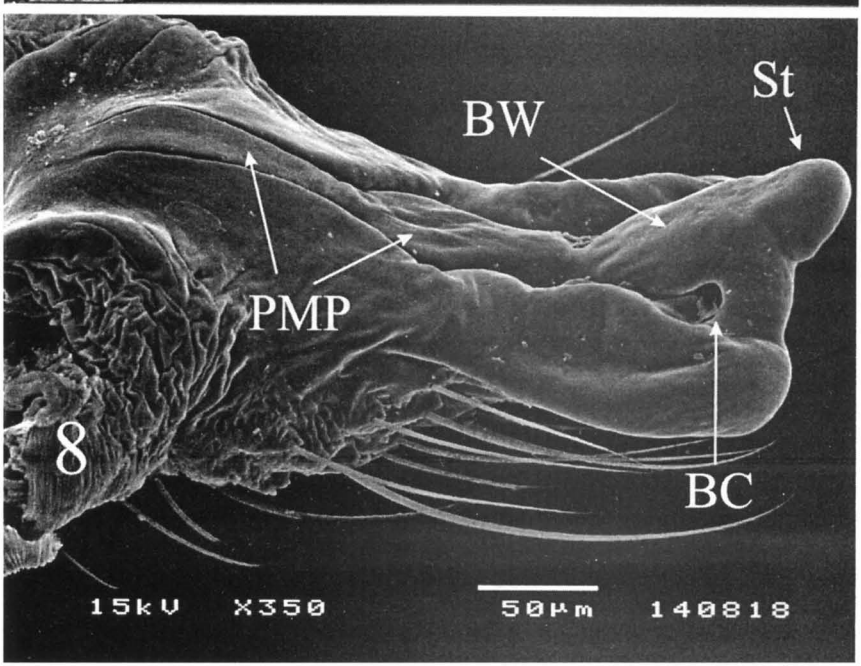
Type species: *Lepthyphates vaginatus* Tanasevitch, 1983.

Etymology: the generic name is derived from the specific name of the type species and the generic name *Lepthyphantes*.

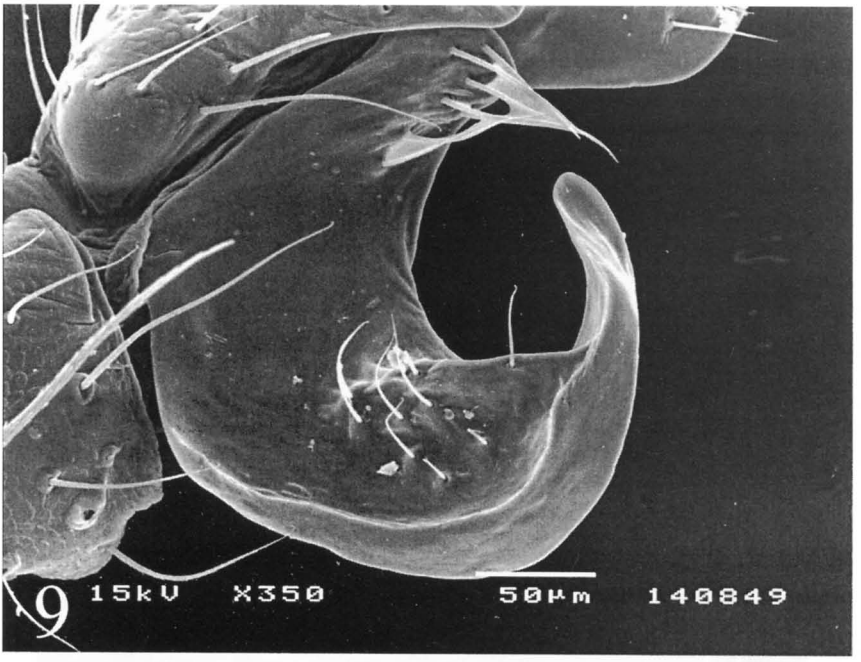
Species included: only the type species.

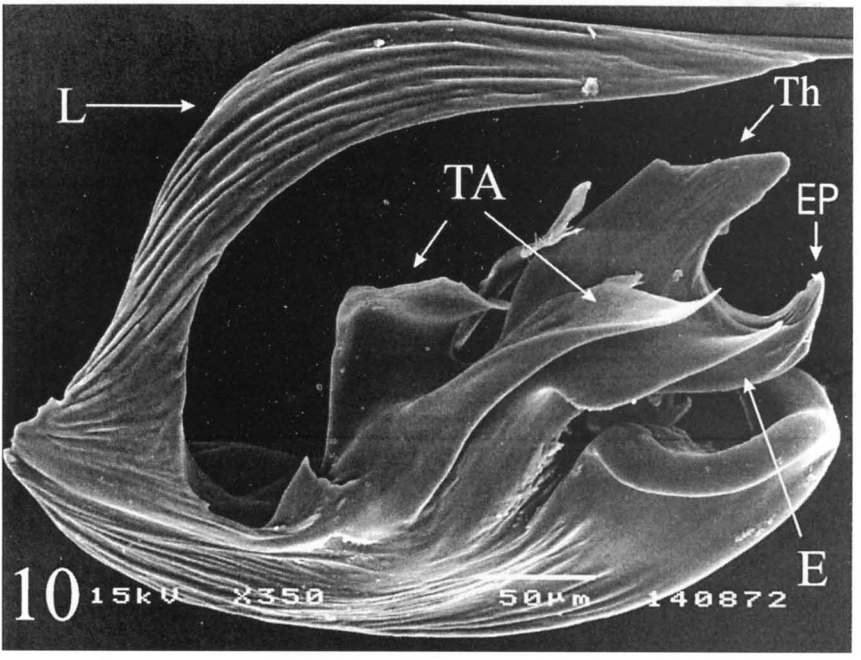
Diagnosis. The new genus is characterized by the long and relatively narrow,



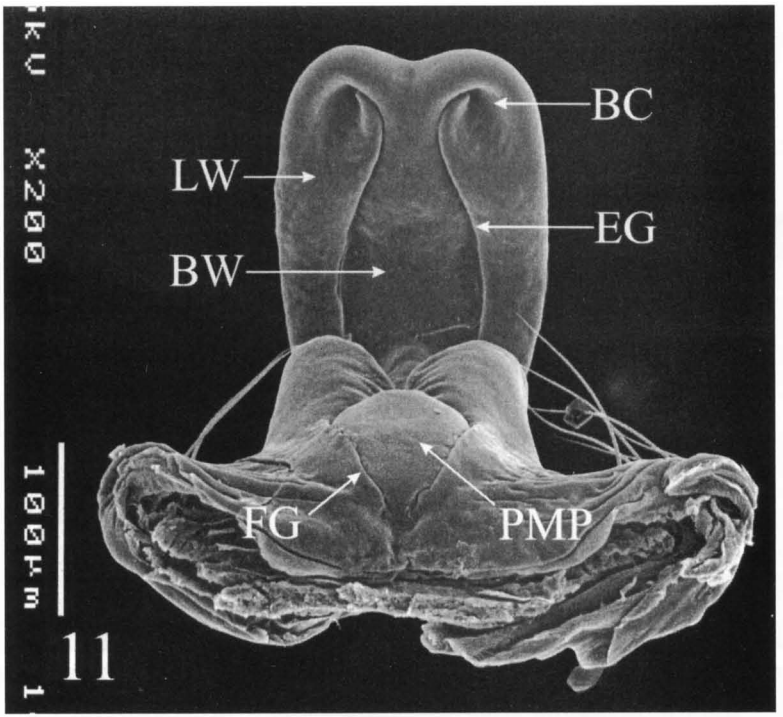


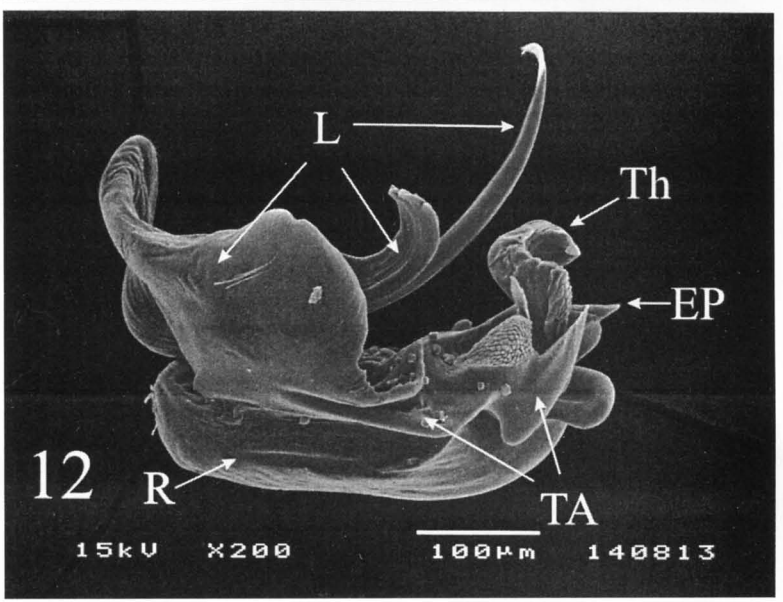
Figures 7-8. — Epigyne of *Epigyphantes epigynatus* (Tanasevitch, 1988). **7**, dorsal view, **8**, dorso-ventral view.



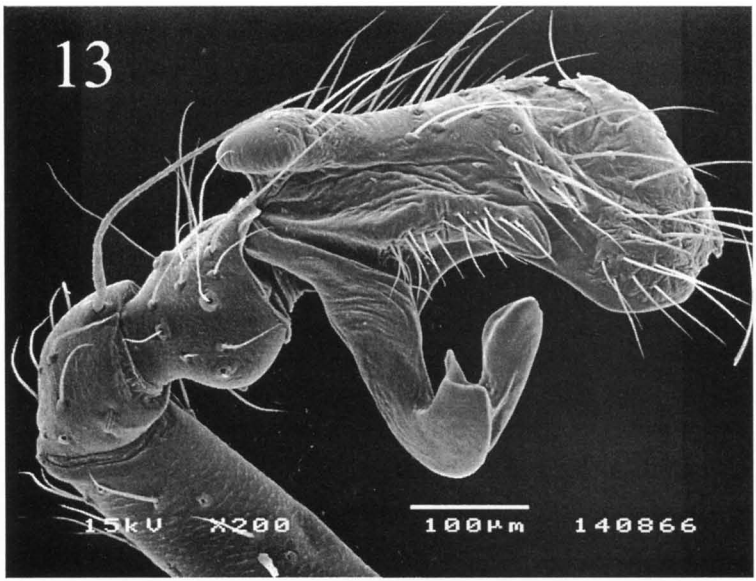


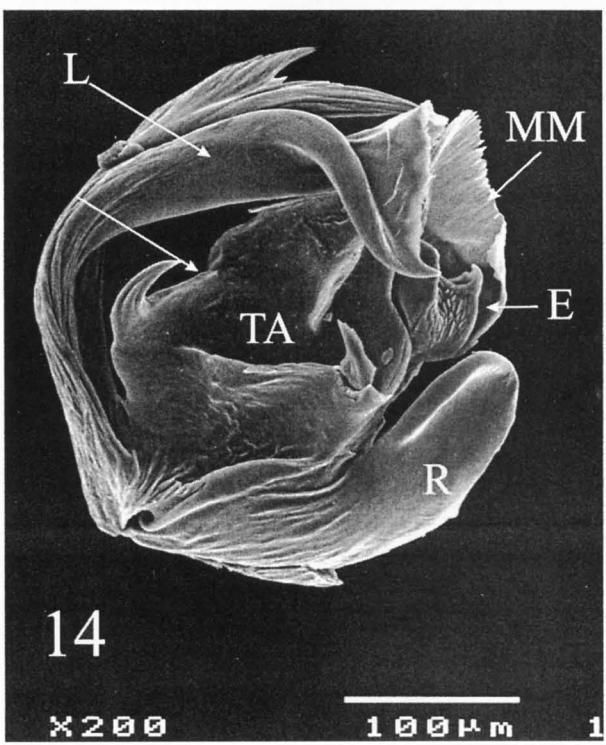
Figures 9-10. — Details of male palp of *Epigyphantes epigynatus* (Tanasevitch, 1988). **9**, paracymbium, **10**, embolic division.



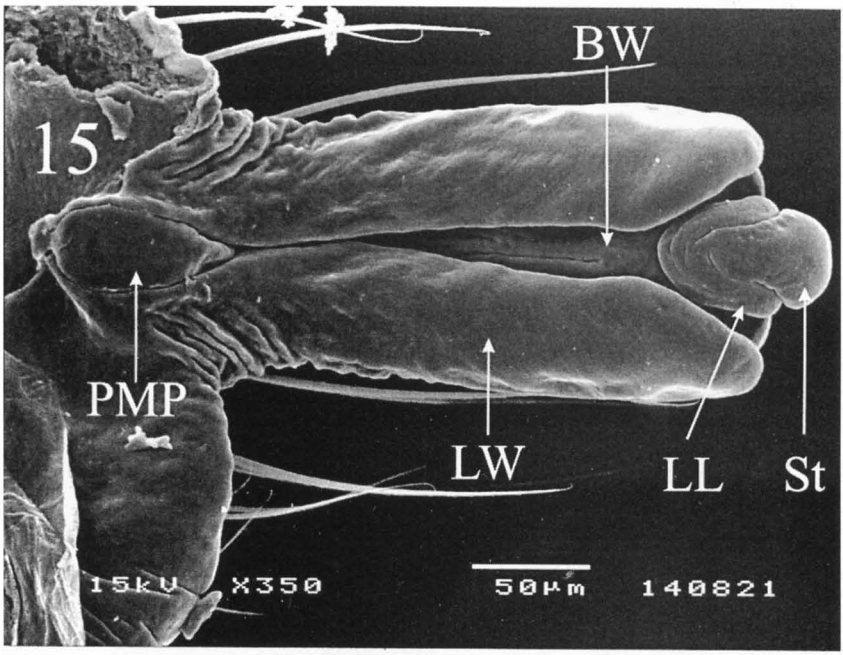


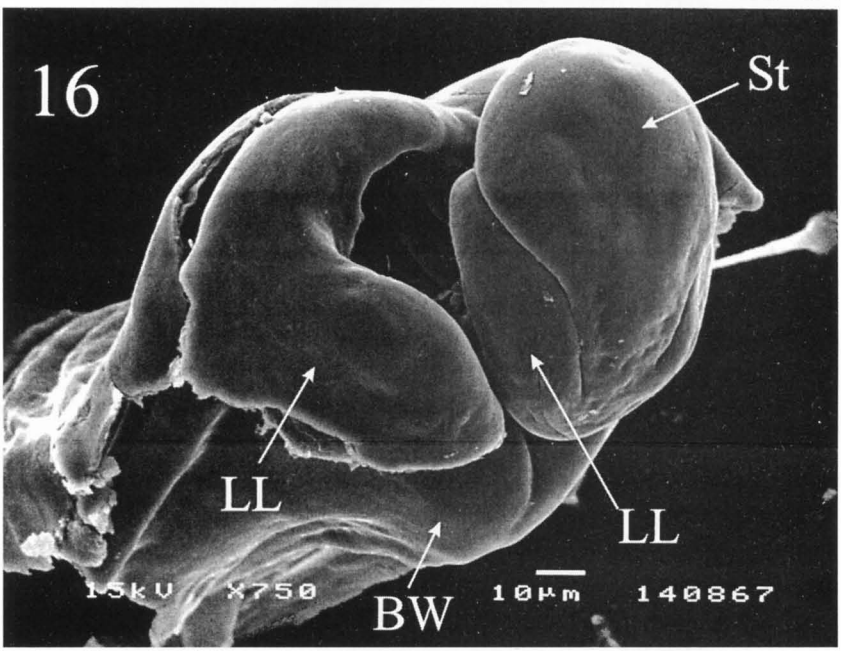
Figures 11-12. — Details of genital organs of *Drapetisca socialis* (Sundevall, 1832). **11**, epigyne, dorsal view. **12**, embolic division.



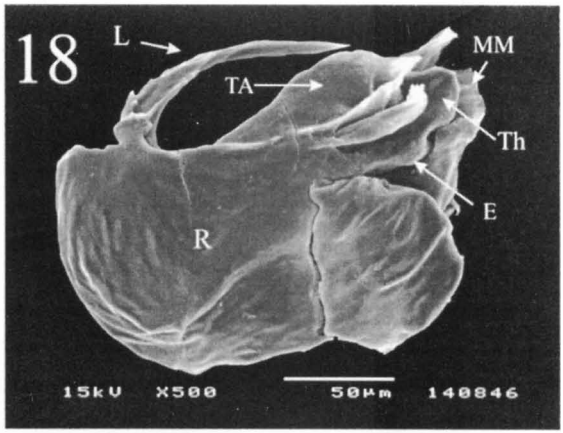


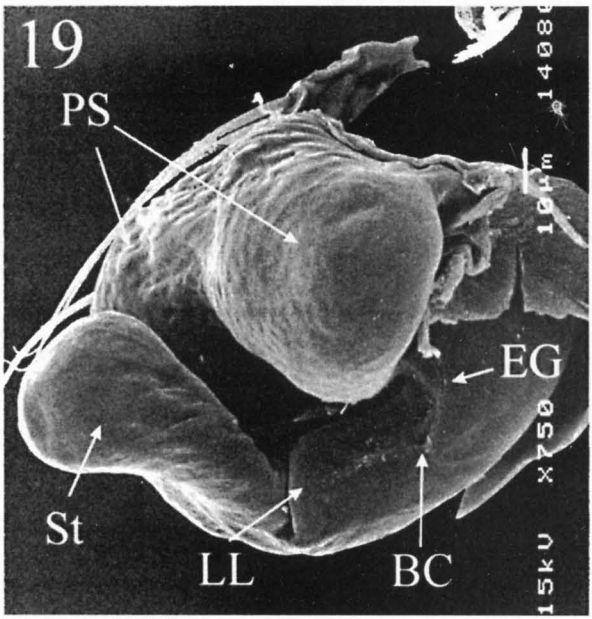
Figures 13-14. — Details of male palp of *Vagiphantes vaginatus* (Tanasevitch, 1983). **13**, cymbium and paracymbium. **14**, embolic division.



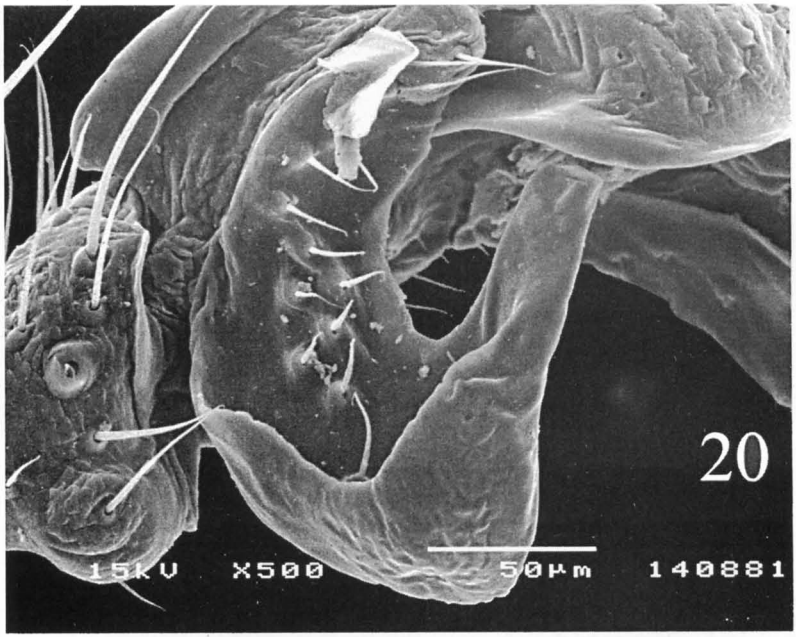


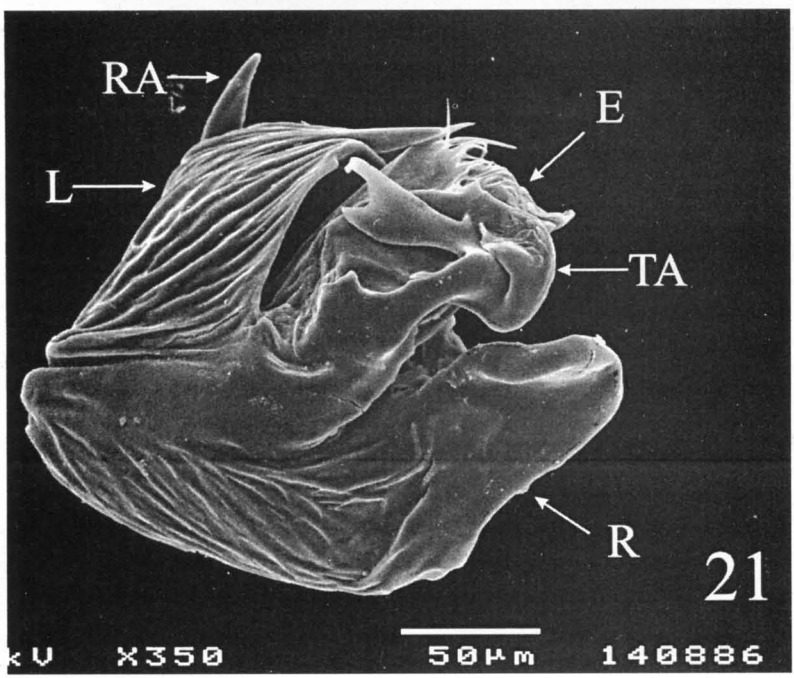
Figures 15-16. — Epigyne of *Vagiphantes vaginatus* (Tanasevitch, 1983). **15**, dorsal view. **16**, tip of epigyne.



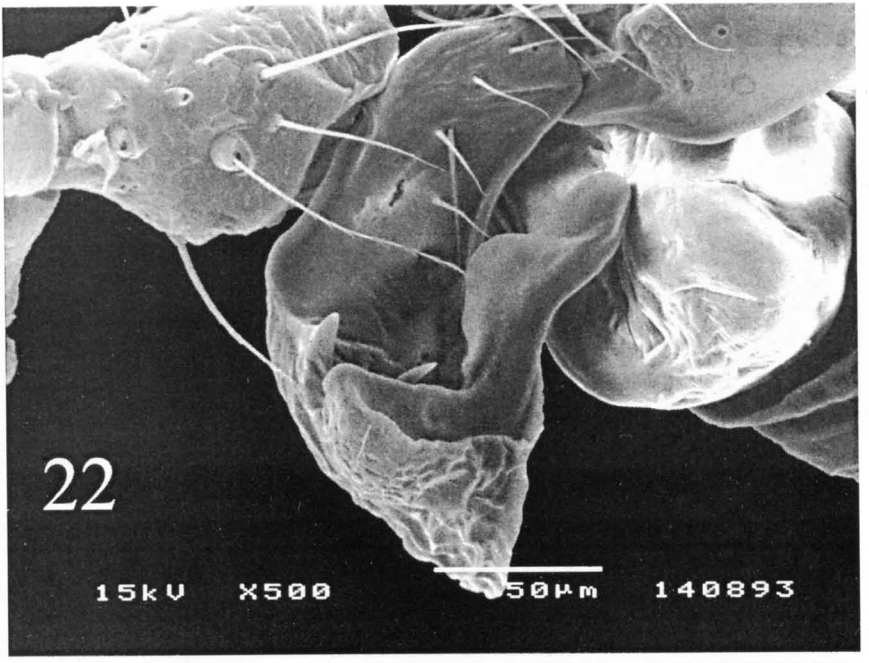


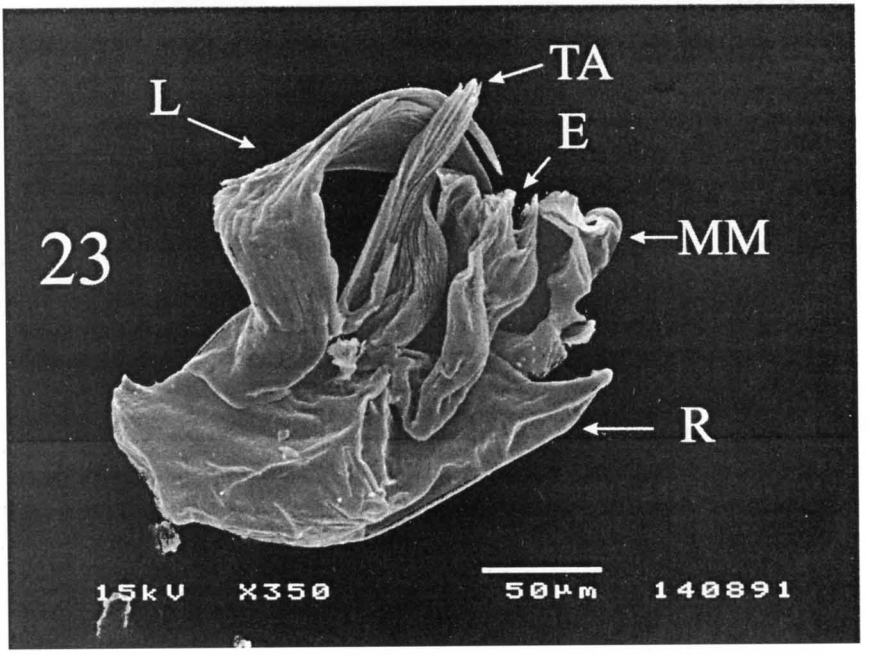
Figures 17-19. — Details of genital organs of *Mughiphantes* (*Sachaliphantes*) *sachalinensis* (Tanasevitch, 1987). **17**, paracymbium. **18**, embolic division. **19**, scape, lateral view.



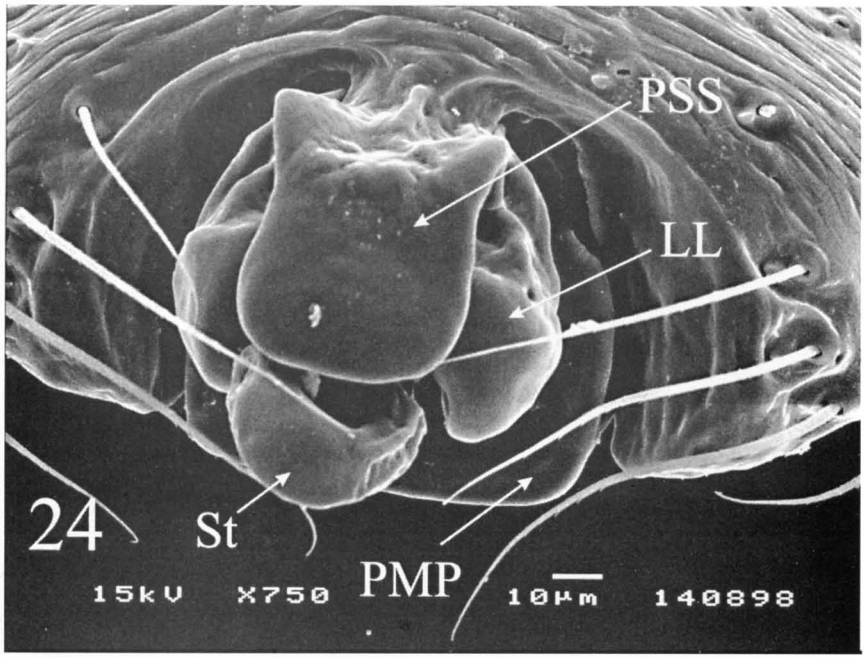


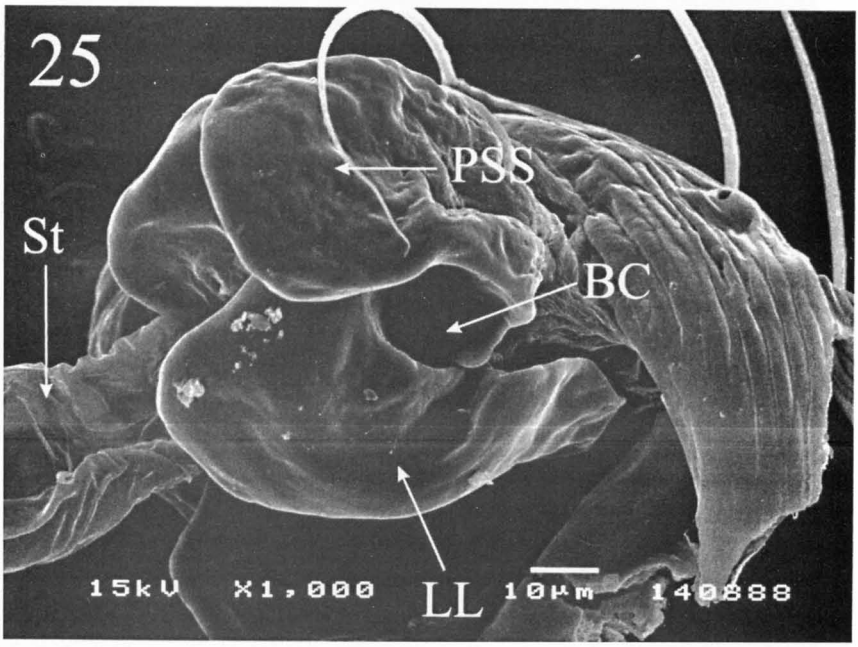
Figures 20-21. — Details of male palp of *Mughiphantes* (*Cornuphantes*) *cornutus* (Schenkel, 1927). **20**, paracymbium. **21**, embolic division.



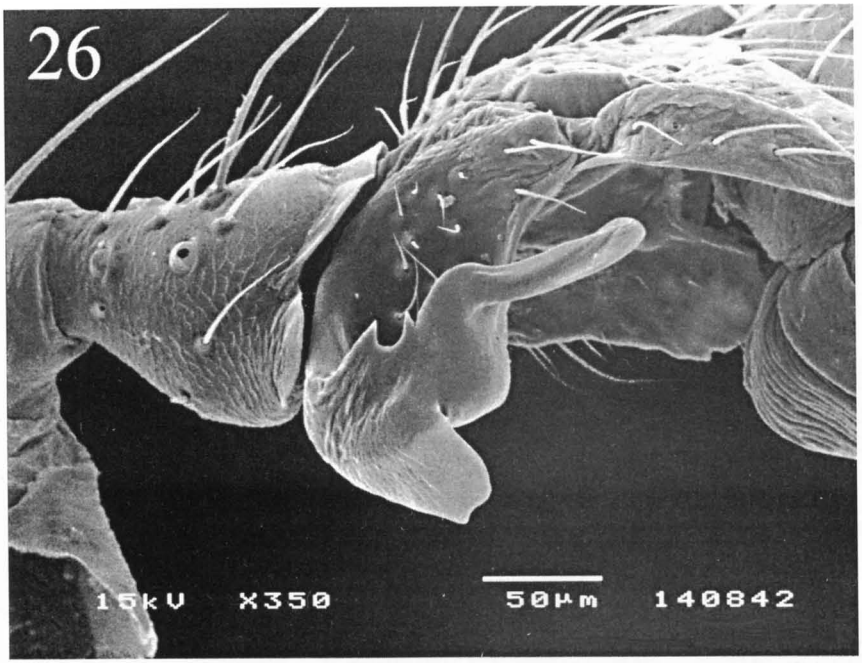


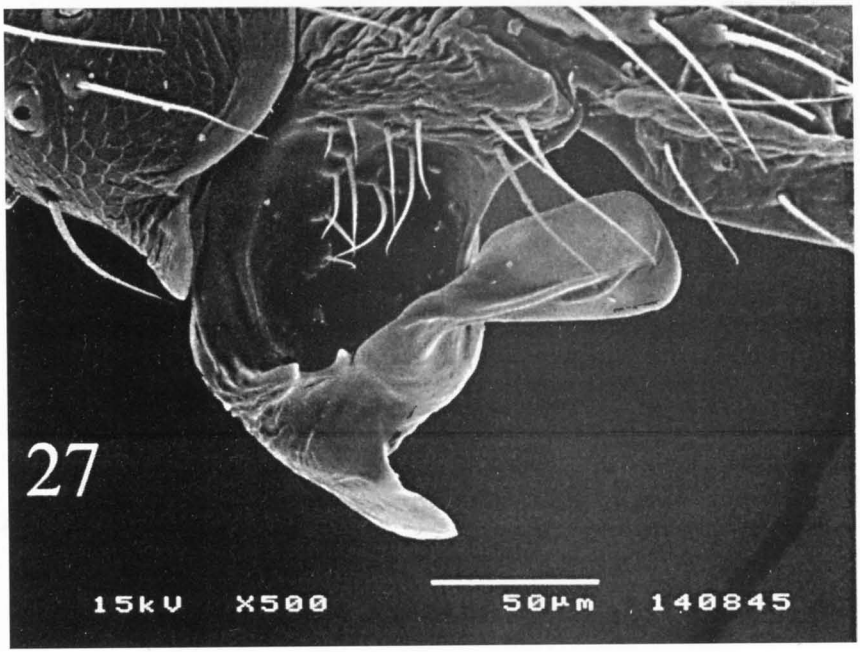
Figures 22-23. — Details of male palp of *Palliduphantes antroniensis* (Schenkel, 1933). **22**, paracymbium. **23**, embolic division.



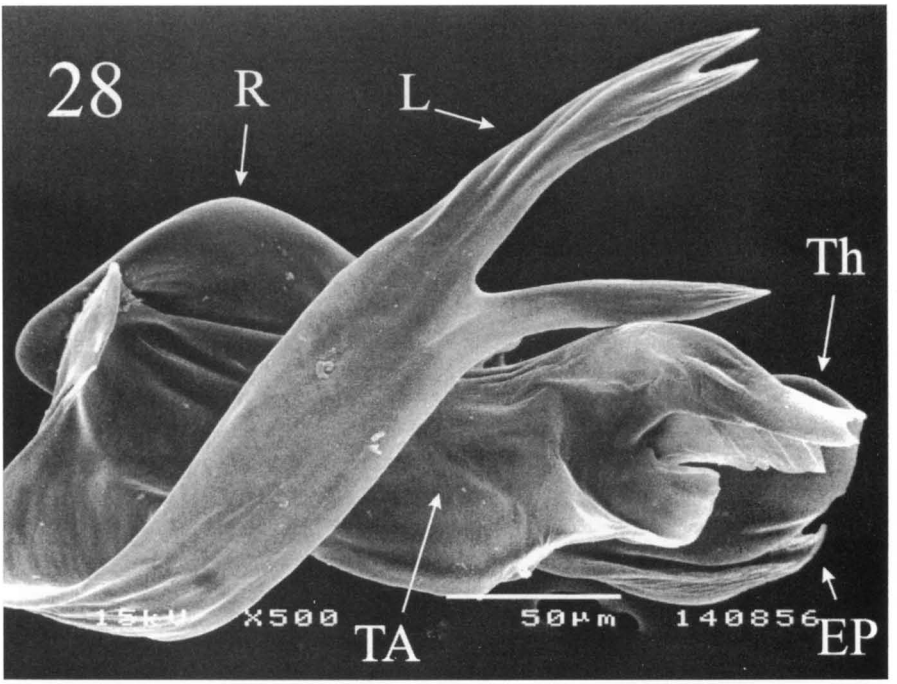


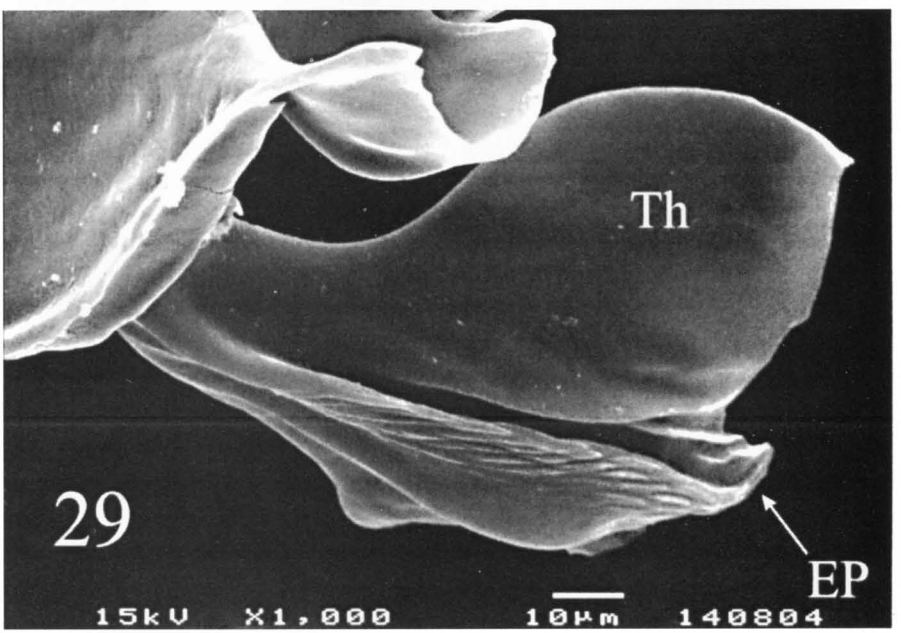
Figures 24-25. — Epigyne of *Palliduphantes antroniensis* (Schenkel, 1933). **24**, dorsal view. **25**, dorso-lateral view.



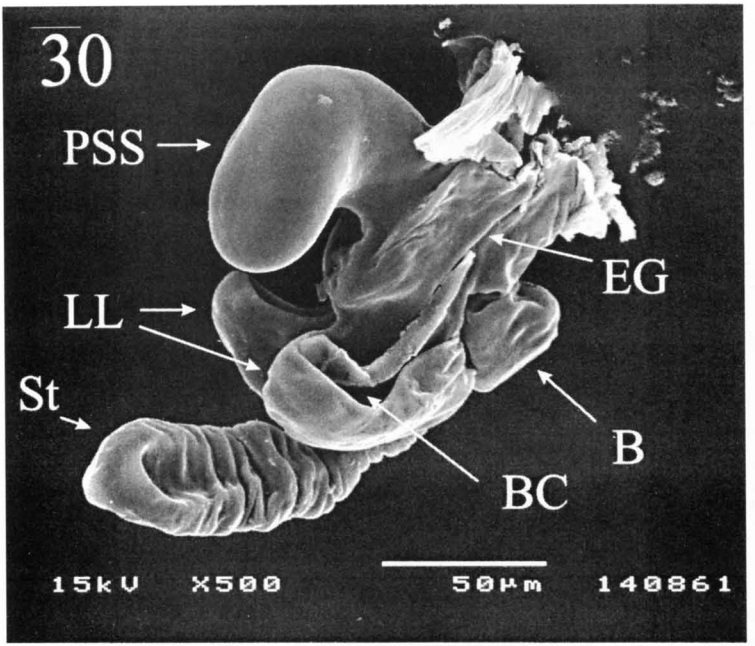


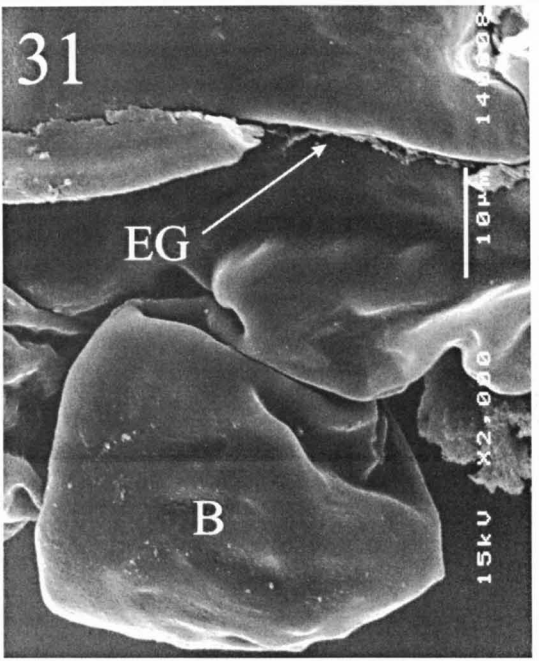
Figures 26-27. — Paracymbium of *Palliduphantes altus* (Tanasevitch, 1986). **26**, lateral view. **27**, view from above.



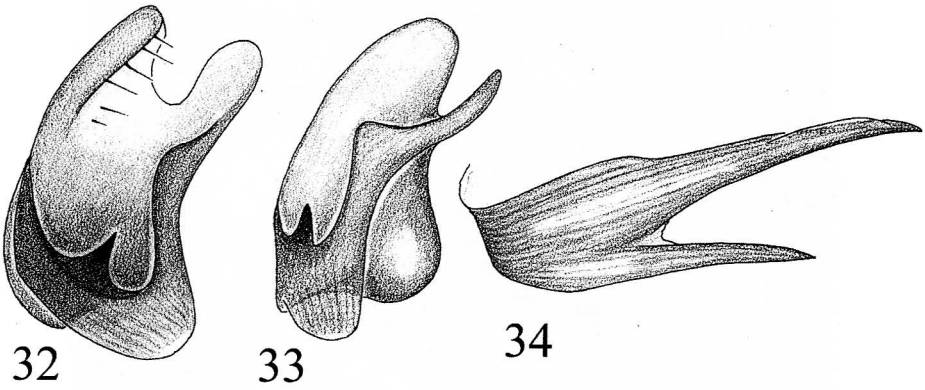


Figures 28-29. — Details of male palp of *Palliduphantes altus* (Tanasevitch, 1986). **28**, embolic division. **29**, embolus.





Figures 30-31. — Scape details of *Palliduphantes altus* (Tanasevitch, 1986). **30**, scape, lateral view. **26**, "bag" of scape.



FIgures 32-34. — Details of male palp of *Palliduphantes solivagus* (Tanasevitch, 1986). **32**, paracymbium, lateral view. **33**, paracymbium, frontally. **34**, lamella characteristica.

posteriorly pointing epigyne bearing at its apex the much reduced scape consisting of a very short proscapus and relatively large lateral lobes and stretcher (figures 2, 15 and 16).

Discussion. Due to its elongated form, the epigyne of *Vagiphantes* (figures 15 & 16) somewhat resembles that of *Epigyphantes* (figures 1, 7 & 8) and also that of *Oreonetides vaginatus* (Thorell, 1872) SAARISTO, 1972: figures 16 & 17). However, *Vagiphantes* differs from either of these two species by having a well discernible epigynal cavity. Further, *Epigyphantes* has its scape reduced to consist of merely the stretcher, while *O. vaginatus*, with a very short scape furnished with lateral lobes and stretcher, has a different construction. Also the embolic division of *Vagiphantes* (fig. 14) differs clearly from that of *Epigyphantes* (fig. 10) as well as from that of *O. vaginatus* (see SAARISTO, 1972: fig. 10). The structure of the paracymbium of *Vagiphantes* (fig. 13) is very conspicuous, its middle part being much elongated and the apical part strongly modified. At present its is not possible to indicate any particular genus to which *Vagiphantes* would be closely related, but together with all previously mentioned genera, it belongs to a group of micronetids which we (SAAISTO & TANASEVITCH, 2000) have called the *Bolyphantes-Poeciloneta* clade.

Distribution. Known from Central Asia: Tien-Shang Mts and Pamir-Altai Mts (TANASEVITCH, 1989).

Mughiphantes Saaristo & Tanasevitch, 1999

Sachaliphantes subgen. n.
(figures 3, 17-19)

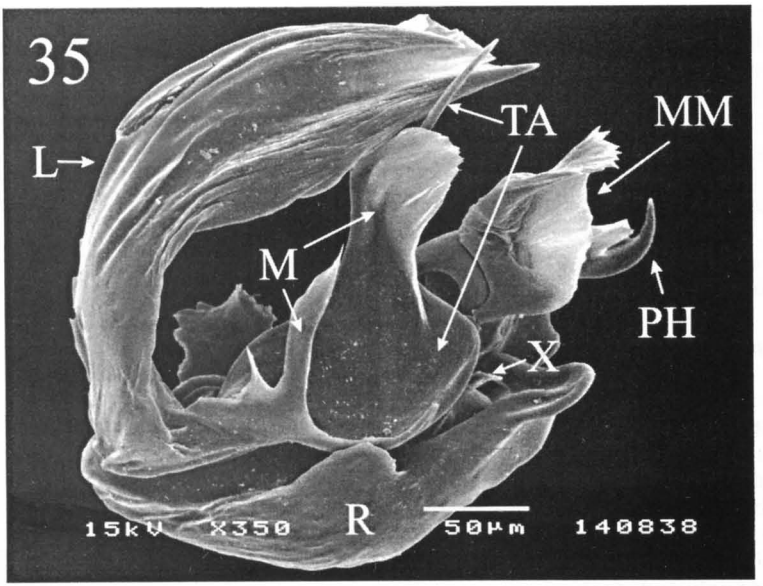
Type species: *Lepthyphantes sachalinensis* Tanasevitch, 1987.

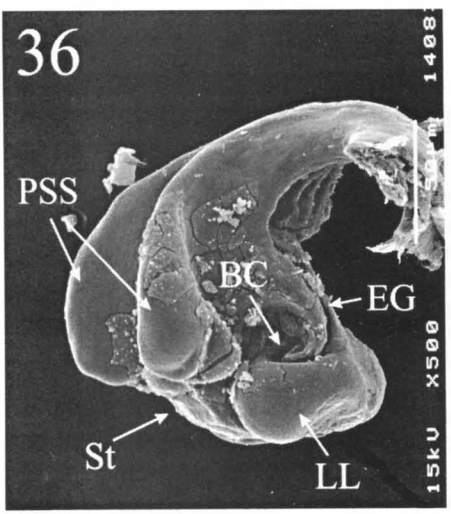
Etymology. The subgeneric name is derived from the type locality (Sakhalin Island) of the type species and the generic name *Lepthyphantes*.

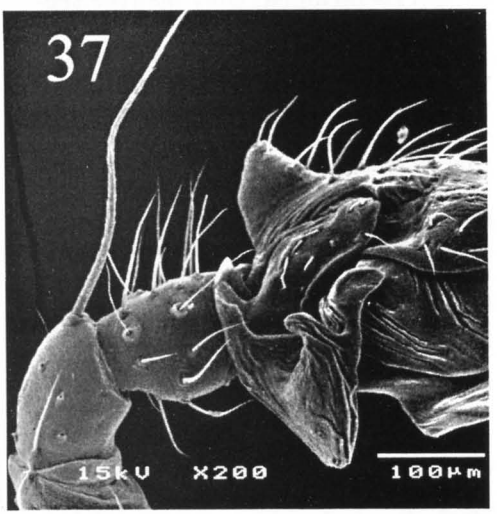
Species included. Only the type species, *Mughiphantes* (*Sachaliphantes*) *sachalinensis* (Tanasevitch, 1987), n. comb.

Diagnosis. The epigyne of this subgenus much resembles that of the subgenus *Aurantiphantes* Saaristo & Tanasevitch, 1999, but the bursae lie outside of the lateral pockets and the lateral pockets are very small, laying at the apex of the inwards turned lateral lobes (figures 3 and 19).

Discussion. The general arrangement of the secondary genital organs of *M.* (*S.*) *sachalinensis* is in accordance with the







Figures 35-37. — Genitalia of *Bolyphantes supremus* (Tanasevitch, 1986). **35**, embolic division. **36**, scape, lateral view. **37**, paracymbium.

situation found in *Mughiphantes* (see SAARISTO & TANASEVITCH, 1999). On the other hand, it differs to such an extent from the other members of the subgenera of *Mughiphantes* that a new subgenus is necessary. In addition to the disparity in the structure of the epigyne compared with the type species of existing subgenera of *Mughiphantes* (SAARISTO & TANASEVITCH, 1999: fig. 1 A-H), *Sachaliphantes* differs from them in several other respects, e.g. by having an almost flat paracymbium with a long and narrow groove at its apical part (fig. 17) and a

conspicuously large radix, while both lamella characteristica and terminal apophysis are exceptionally small (fig. 18). It has also lost the very characteristic colour pattern found in most *Mughiphantes* species (see SAARISTO & TANASEVITCH, 1999: fig. 6E) and the abdomen is uniformly dark colored. This character it shares with *Mughiphantes* (*Aurantiphantes*) *aurantiipes* (Simon, 1929).

Distribution. Far East, China.

Cornuphantes subgen. n.

(figures 4, 20, 21)

Type species. *Lepthyphantes cornutus* Schenkel, 1927.

Etymology. The subgeneric name is derived from the specific name of the type species and the generic name *Lepthyphantes*.

Species included. Only the type species.

Diagnosis. The new subgenus is characterized by the much reduced epigynal scape mainly consisting of a swollen, somewhat heart-shaped proscapus bearing a triangular stretcher. Copulatory bursae are situated on the dorsal side of the proscapus (fig. 4).

Discussion. Like *M.* (*S.*) *sachalinensis* above, *M.* (*C.*) *cornutus* has in principle similar secondary genital organs as found in *Mughiphantes* (SAARISTO & TANASEVITCH, 1999) but again they are so much derived that a new subgenus is necessary. Thus the epigyne (fig. 4) which somewhat resembles that of *M.* (*W.*) *whymperi* (F.O. Pickard-Cambridge, 1894) (see SAARISTO & TANASEVITCH, 1999: fig. 1 G & H) is composed of a heart-shaped proscapus broadly attached to the rest of the epigyne, while, of the other structures of the scape, only the triangular stretcher is left, and the copulatory bursae lie on the dorsal side of the scape. The paracymbium (fig. 20) is also modified and the area of the apical pocket does not project laterally. In the embolic division (fig. 21), a long, dagger-like radical apophysis stands on the posteroventral corner of the radix. This structure has not been found in any other *Mughiphantes* species. Finally, it should be noted that *M.* (*C.*) *cornutus* is exceptionally small and pale colored and the male has a strong, curved, almost horn-like macroseta standing in the middle of the ocular area.

Distribution. Europe, Caucasus (as *L. parvus* Tanasevitch, 1990 sensu Esyunin & Efimik, 1999: 227), Urals (ESYUNIN & EFIMIK, 1999), South Siberia (ESKOV, 1994; MARUSIK *et al.*, 2000), Mongolia (MARUSIK & LOGUNOV, 1999).

New combinations and synonyms

Palliduphantes antroniensis (Schenkel, 1933) comb. n.

Lepthyphantes antroniensis SCHENKEL, 1933, Rev. suisse de Zoologie, **40** (2) : 15.

Discussion. The species is tentatively placed in *Palliduphantes* Saaristo & Tanasevitch, 2001 as its epigyne (figures 5, 24 & 25) in certain respects resembles that of the *spelaeorum*-group (see SAARISTO & TANASEVITCH, 2001: fig. 3 B-E). However, it still has well-developped taleral lobes and pockets, and a very short proscapus. Further, the posterior edge of the proscapus is drawn out into a narrow, elongated pseudoscape. Although there is no well-defined pseudoscape in the other speies previously placed in *Palliduphantes* (SAARISTO & TANASEVITCH, 2001), these species may have the correspondig area otherwise modified. Also the male secondary genital organs are quite similar to those found in *Palliduphantes*. Thus in the paracymbium of *P. antroniensis* (fig. 22) there are two sharply pointed teeth (compare SAARISTO & TANASEVITCH, 2001: fig. 3) and the embolic division (fig. 23) is much like that found in *Palliduphantes* (see SAARISTO & TANASEVITCH, 2001: fig. 5).

P. antroniensis is the sole member of the *antroniensis*-group in *Palliduphantes*.

Distribution. This is a widespread species and commonly found from Northern Europe eastwards up to the Urals Mts.

Palliduphantes altus (Tanasevitch, 986) comb. n.

(figures 6, 26-31)

Lepthyphantes altus Tanasevitch, 1986, Senckenbergiana biol., **67** (1/3): 153.

Discussion. In general arrangement, the epigyne of this species (fig. 6, 30 & 31) is very similar to that of the preceding species but the pseudoscape is more pronounced, heart-shaped. Further, there is a bag-like structure (B in figures) on the inner side of the scape just in front of the lateral lobes. It presumably corresponds to the posteriorly pointing bulge found in the epigynes of other *Palliduphantes* species, a structure marked with X in SAARISTO & TANASEVITCH (2001: fig; 3). However, in *Palliduphantes* this structure is immovable while that of *P. altus* is expandable. The lateral edge of the paracymbium (figures 26 & 27) is furnished with two sharply pointed teeth at the edge of a very deep median depression. Different parts of the embolic division (figures 28 & 29) are similar to those found in *Palliduphantes*.

Together with the following species, *P. altus* forms the *altus*-group in *Palliduphantes*.

Distribution. The species was originally described from the North Tien-Shang Mts, Kirghizia and Kazakhstan (TANASEVITCH, 1986) and later recorded also from Saur Mts, Eastern Kazakhstan (ESKOV & MARUSIK, 1995).

Palliduphantes solivagus (Tanasevitch, 1986) comb. n.

(figures 35-37)

Lepthyphantes solivagus TANASEVITCH, 1986, Senckenbergia biol., **67** (1/3): 154.

Discussion. Only the male of this species is known. It is very close to *P. altus* but clearly differs from it in the shape of the distal part of the lamella characteristica and by having only one tooth at the middle part of paracymbium (figures 32-34).

Distribution. The species was described from a single male from the North Tien-Shang Mts, Kirghizia (TANASEVITCH, 1986) and later recorded also from Saur Mts, Eastern Kazakhstan (ESKOV & MARUSIK, 1995).

Bolyphantes supremus (Tanasevitch, 1986) comb. nov.

(figures 35-37)

Lepthyphantes supremus TANASEVITCH, 1986, Senckenbergiana biol., **67** (1/3): 152.

Discussion. This species is clearly a member of the genus *Bolyphantes* C.L. Koch, 1837, recently revised by SAARISTO & TANASEVITCH (2000). Thus the epigyne (fig. 36) has a short, rigid scape bearing a somewhat heart-shaped pseudoscape and the lateral lobes are close to each other containing the copulatory bursae at their median border (see SAARISTO & TANASEVITCH, 2000: fig. 5). The apical part of paracymbium (fig. 37) is twisted in the way that is so characteristic for *Bolyphantes* (see ROBERTS, 1987: fig. 75a and b). In principle the embolic division (fig. 35) is also much like in *Bolyphantes* (SAARISTO & TANASEVITCH, 2000: fig. 1) but the lamella characteristica is larger than usual while the terminal apophysis is less complicated.

Distribution. This species was described from the highlands of Central Tien-Shang Mts, Kirghizia (TANASEVITCH, 1986).

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