

Spiders of the genus *Eboria* Falc. (Araneae: Erigonidae)

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Introduction

When describing the new genus *Eboria* with the new species *E. caliginosa* as the type species Falconer (1910) seemed doubtful about its taxonomical position. As the most closely related genera he suggested *Thyreostenius* Sim., *Lophomma* Menge, and *Pocadicnemis* Sim.

A comparison between Falconer's description and figures of *Eboria caliginosa* and *Microerigone lapponica* Holm (1939) led me to suspect a close relationship between these two species (Holm 1945). However, since *M. lapponica* also intimately resembles the members of the genus *Rhaebothorax* Sim. regarding the bulbus and to the occurrence of a strongly developed abdominal stridulating organ in the male I referred it to this genus, the more so as Falconer in his description of *Eboria* does not mention such an organ for the male. Later Locket and Millidge (1953) demonstrated that *Eboria*, too, is closely related to *Rhaebothorax* both concerning general features and in possessing an abdominal stridulating organ.

A characteristic distinguishing *Eboria caliginosa* from the only British species of *Rhaebothorax*, *Rh. morulus* (Cambr.), is the different position of the metatarsal trichobothria, in the former species in the middle, in the latter in the apical half of the segment. This difference is not a general distinguishing character between the two genera, however, for in the type species of *Rhaebothorax*, *Rh. paetulus* (Cambr.), the metatarsal trichobothria have the same position as in *Eboria*. However, though the two genera are no doubt most intimately related a retention of *Eboria* seems justified on a number of grounds. Thus *E. caliginosa* as well as the other species included in it here have a certain particular shape of the male palpal tibia and the embolic division as well as a specific structure of the epigynum.

To the genus *Eboria* Locket and Millidge (1953) also refer *Sintula fausta* Cambridge (1900). This species Simon (1926) placed in the genus *Rhaebothorax*, whereas I later made it the type species of the new genus *Latithorax* (Holm 1943).

Below there follow descriptions of the species I now refer to *Eboria*, viz. the Lapponian *Rhaebothorax lapponicus* (Holm), *Rh. assimilis* Holm, and

Rh. alticola Holm together with two new species, *Eboria angulata* n.sp. from Lapland and *E. convexa* n.sp. from Alaska.

Specimens of *E. convexa* were found in a material of spiders from Alaska, belonging to the American Museum of Natural History, New York, and kindly placed at my disposal by Dr. W. J. Gertsch. I am very much obliged to Mr. G. H. Locket, Stockbridge, for the gift of a male and a female of the rare British species *E. caliginosa*, thus enabling me to include the description of the type species as well. Finally, I want to thank Professor P. Palmgren, Helsinki, for the loan of specimens of the hitherto undescribed male of *Eboria alticola*.

Eboria Falconer

Eboria Falconer 1910, Naturalist, p. 83.

The genus *Eboria* Falc. belongs to the group of Erigonids characterized by having two spines on tibiae I—III, one spine on tibia IV and no trichobothrium on metatarsus IV. Metatarsi I—III with trichobothrium more or less in the middle (position in metatarsus I=0.45—0.56). Metatarsus of the first pair of legs moderately longer than tarsus, tibia of the fourth pair longer than metatarsus. Cephalic portion of the male carapace somewhat turgid being slightly convex dorsally and laterally behind the eyes; the dorsal convexity is more or less pronounced in different species. Immediately behind this part of carapace there is a narrow transverse groove from the dorsal side halfway down to the margin. Behind the dorsal convexity the dorsal side is slightly concave or straight to the fovea. Ocular area of the male about half as wide as carapace. Posterior median eyes separated by the diameter or somewhat more. Lateral eyes of each side on a common elevation, strongly protruding. Clypeus in the male rather high (0.07—0.16 mm), straight and in most species somewhat protruding. Ocular area with short hairs and clypeus with long hairs in the male. Chelicerae laterally almost straight, with stridulating ridges in both sexes; anterior margin of fang groove with 4—5 teeth. Abdominal stridulating organ in the male as strongly developed as in *Rhaebothorax* Sim. Patella of male palpus as long or longer than tibia, which is short, distally strongly widened, cup-shaped, with dorso-apical margin somewhat produced and in some species with a very short apophysis. Embolic division of bulbus consists of an elongated plate with 3 short processes: a dorso-apical tooth (Fig. 1d: *da*), a ventro-apical tooth which is the embolus (*em*), and a posterior tooth (*po*). In two of the species the embolus and the dorso-apical tooth form a common transversal piece (Figs. 5d and 6d). The epigynum is a transversely oval convex plate with a deep triangular or quadrangular notch in the posterior margin, enclosing a light plate. This plate is divided by a fine transversal furrow into a smaller anterior and a larger posterior portion.

TYPE SPECIES: *Eboria caliginosa* Falconer.

Although the forms of *Eboria* described below are admittedly very closely related I feel they merit the rank of species because of the distinct differences in the shape of the embolic division and the interior parts of the epigynum. Regarding the first-named character the species form two groups, one containing *caliginosa*, *lapponica*, *angulata*, and *assimilis* (with tooth-

shaped dorso-apical apophysis and embolus), the other comprising *alticola* and *convexa* (with the dorso-apical apophysis and embolus forming a trans-versal piece).

All the species of *Eboria* are Arctic or high-boreal except *E. caliginosa*, which only occurs in Britain at rather high altitudes. *E. caliginosa* is very closely related to *E. lapponica* concerning the shape of the palpal tibia and the embolic division and very probably the two species differentiated from a common form after the last glaciation. The Nearctic species *E. convexa* intimately resembles *E. alticola* from the Arctic region in Sweden and Finland, and it is of course not impossible that these two species are connected by intermediate forms in Northern Russia and Siberia.

Eboria caliginosa Falconer

(Figs. 1 a—g)

♂♀ *Eboria caliginosa* Falconer 1910, The Naturalist, p. 86, Figs. 1—10.

♂♀ *Eboria caliginosa* Falconer, Cambridge 1910, Proc. Dorset Field Cl. 31, p. 58, figs. 20—23.

♂♀ *Eboria caliginosa* Falconer, Locket and Millidge 1953, British Spiders 2, p. 317, figs. 191 E—G, 192 D.

MALE. Total length 1.86 mm, carapace 0.85 mm long, 0.67 mm wide, sternum 0.48 mm long, 0.48 mm wide.

Carapace brown with a narrow black median marking on the back of the cephalic portion and faint radiating dark lines on the thoracic portion. Sternum dark greyish brown, chelicerae, palpi and legs pale brown. Abdomen dark greyish, darker on the ventral side.

Carapace fairly broad (length-width index 1.28), cephalic portion broad, slightly turgid behind the eyes and with a slight depression midway between the eyes and the fovea; lateral margins of cephalic portion almost straight and strongly convergent forward, anterior margin evenly and rather narrowly rounded. Clypeus 0.15 mm high (=the length of the median ocular quadrangle), straight and slightly protruding and furnished with about 20 long hairs.

Eyes. Anterior eyes in a straight line, median eyes small, separated by a little less than the diameter, from laterals by almost 1.5 times the diameter. Posterior row of eyes procurved, eyes equal, separated by hardly more than the diameter.

Chelicerae straight, laterally with a distinct stridulating organ. Anterior margin of fang groove with 5 teeth.

Legs. Spines of tibiae I—III somewhat shorter than the diameter of the segment, spine of tibia IV 1.7 times as long as the diameter. Position of trichobothrium of metatarsus I 0.56.

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.65	0.23	0.48	0.47	0.4	2.23 mm
II	0.58	0.23	0.46	0.44	0.38	2.09 "
III	0.54	0.21	0.4	0.4	0.32	1.87 "
IV	0.71	0.23	0.65	0.55	0.38	2.52 "

Palpus. Patella twice as long as high; dorsal length of tibia somewhat shorter than its apical height (Fig. 1 a), apical margin dorsally with a very

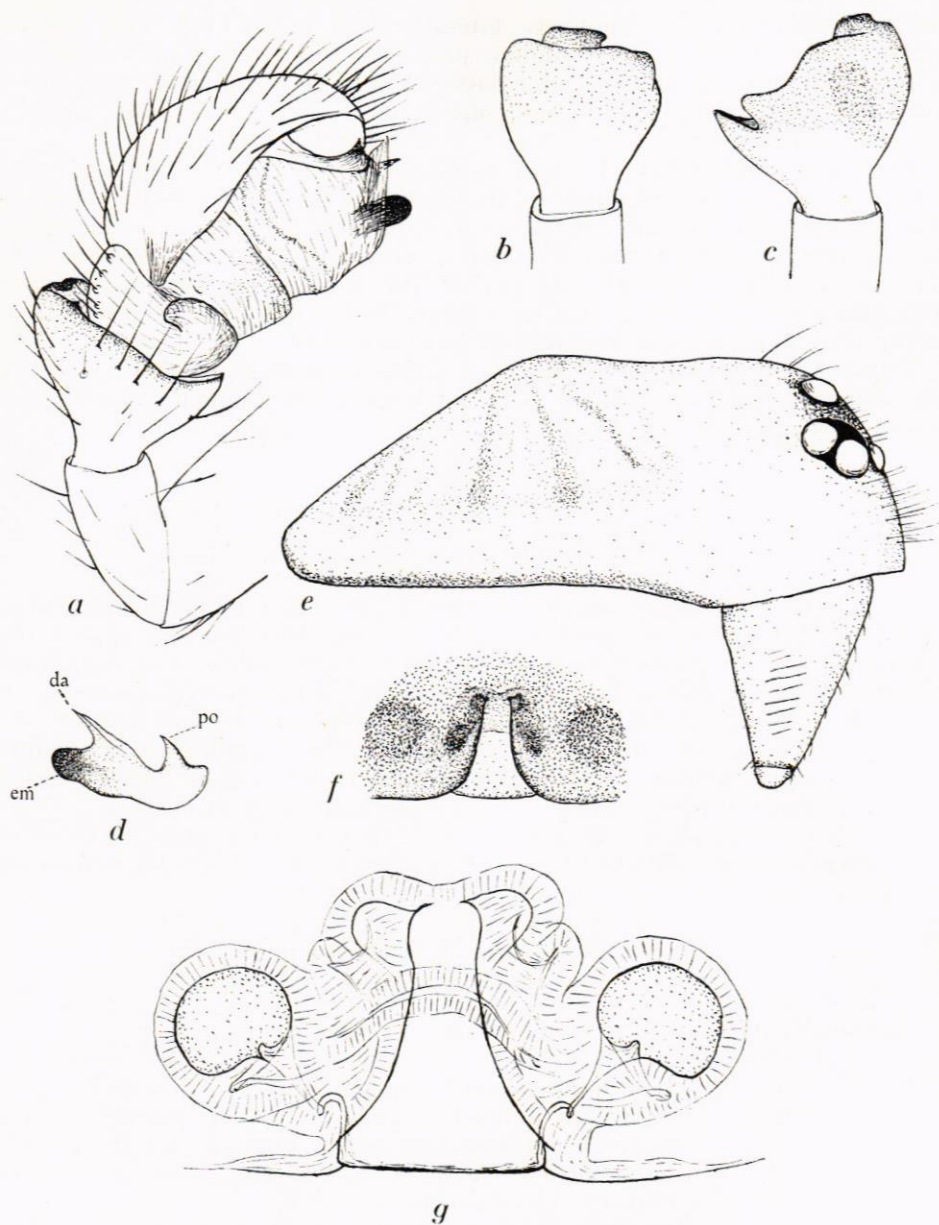


Fig. 1. *Eboria caliginosa* Falc. a ♂, right palp from outside; b ♂, right palpal tibia from above; c ♂, right palpal tibia from mesal side; d ♂, embolic division of right palp (da dorso-apical apophysis; em embolus, po posterior apophysis); e ♂, carapace and chelicerae from side; f ♀, epigynum; g ♀, vulva. (a—d, f: $\times 160$; e: $\times 105$; g: $\times 335$).

short, broad, truncate apophysis, laterally with notch (Fig. 1 b), ventromesal margin with a small triangular projection (Fig. 1 c). Embolic division (Fig. 1 d) with a pointed triangular posterior apophysis and a slender pointed antero-apical apophysis. Embolus consists of a short black tooth, broadly rounded at tip.

FEMALE. Total length 1.6 mm. Carapace 0.8 mm long, 0.64 mm wide.

Colour and general features as in the male. Carapace a little slenderer than in the male (length:width=1.25) and cephalic portion not turgid. Lateral margins very slightly intended at cervical grooves. Behind the eyes there is a slight convexity and behind this a slight depression. Clypeus 0.11 mm high, protruding, slightly concave below the eyes. Ocular area as in the male, but posterior row of eyes less procurved.

Legs. Spines of tibiae I—III about 1.5 times as long as the diameter of the segment, spine of tibia IV twice as long as the diameter. Position of trichobothrium of metatarsus I=0.55.

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.62	0.23	0.47	0.42	0.36	2.1 mm
II	0.57	0.23	0.44	0.4	0.32	1.96 "
III	0.54	0.21	0.39	0.38	0.29	1.81 "
IV	0.68	0.23	0.62	0.5	0.35	2.38 "

Epigynum. Median triangular area longer than its posterior width; at the anterior point of the area a pair of copulatory pockets appear (cf. the shape of these pockets and the embolus). In the vulva (Fig. 1 g) there are two widely separated receptacles at the sides of the triangular area.

TYPE LOCALITY: Marsden, Colne Valley, SW Yorkshire, England.

OCCURRENCE: "In wet moss and grass, in two localities in Yorkshire (Marsden and Scammonden, both at about 1,000 feet), and on Scawfell Pike; very rare. Adult in early spring." (Locket and Millidge 1953, p. 317).

The above description is based on one male and one female collected in Nov. 1953 at Beda Fell, Westmorland, England, at a height of 800 m by Mr. G. H. Locket.

Eboria lapponica (Holm)

(Figs. 2 a—g)

♂ *Microerigone lapponica* Holm 1939, Ark. Zool. 31 A: 8, p. 34, figs. 16 a—c.

♂ (not ♀) *Rhaebothorax lapponicus* (Holm) Holm 1945, Ibid. 36 A: 15, p. 15, fig. 4 b.

MALE. Total length 1.8 mm, carapace 0.8 mm long, 0.62 mm wide.

Carapace dusky brown with a black triangular median marking, black radiating lines on the thoracic portion and black ocular area and clypeus. Chelicerae pale brown, anteriorly suffused with black. Sternum blackish brown. Legs and palpi brown. Abdomen dark greyish.

Carapace very like that of the preceding species except that it is higher at the fovea than behind the ocular area. Eyes: anterior eyes in a straight line, median eyes much smaller than laterals, separated by a little less than the diameter, from laterals by almost twice the diameter. Posterior eyes in a slightly procurved line, equal and separated by 1.5 times the diameter.

Legs. Spines of tibia I as long as the diameter of the tibia, spine of tibia IV somewhat more than twice the diameter of the tibia. Position of trichobothrium of metatarsus I=0.54.

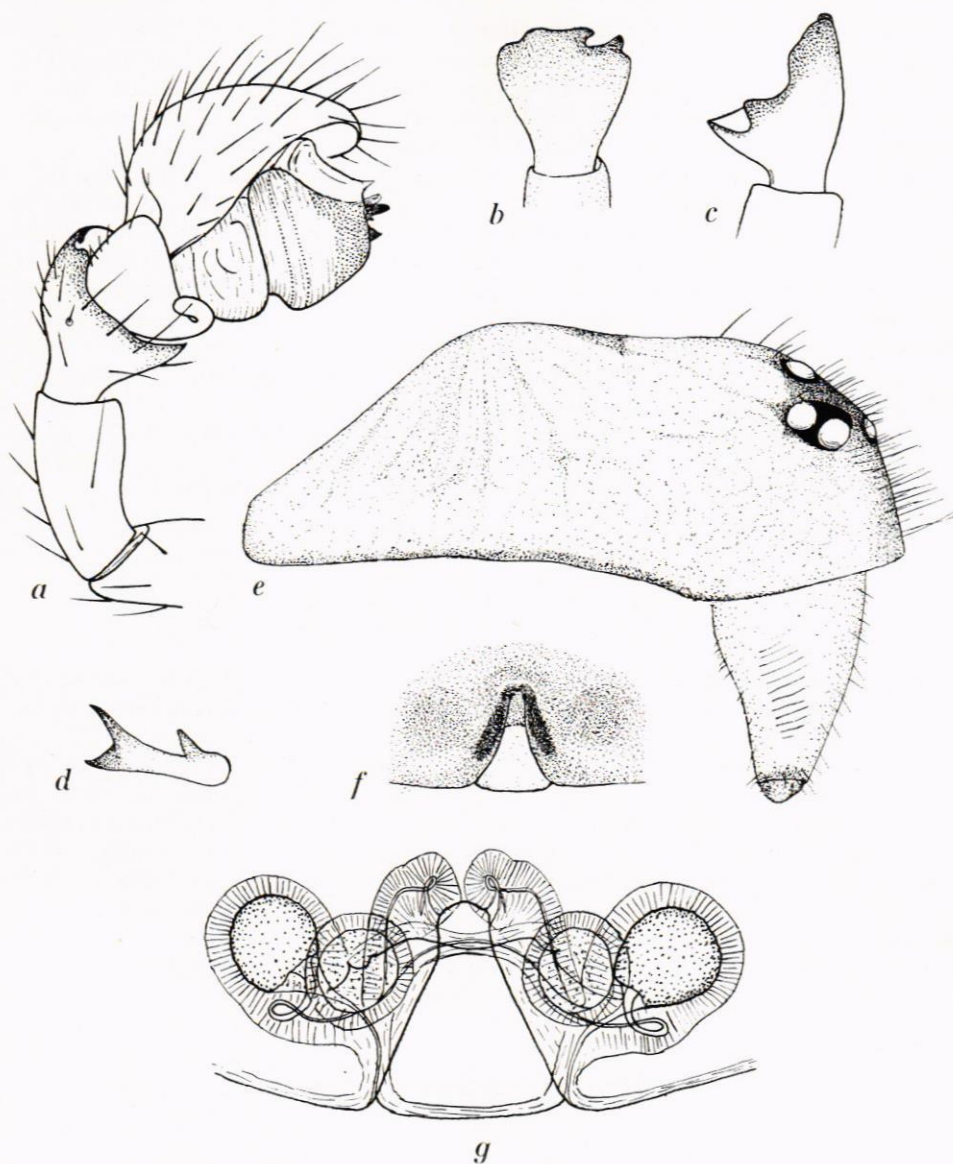


Fig. 2. *Eboria lapponica* (Holm). a ♂, right palp from outside; b ♂, right palpal tibia from above; c ♂, right palpal tibia from mesal side; d ♂, embolic division of right palp; e ♂, carapace and chelicerae from side; f ♀, epigynum; g ♀, vulva.

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.6	0.21	0.47	0.47	0.38	2.13 mm
II	0.58	0.21	0.43	0.42	0.36	2.0 "
III	0.53	0.2	0.39	0.39	0.3	1.81 "
IV	0.68	0.21	0.62	0.52	0.36	2.39 "

Palpus. Tibia longer dorsally than its apical height (6:5). Dorso-apical margin of tibia with a very short, truncate apophysis as in the preceding species; lateral notch deeper, however. Embolic division elongate, dorso-apical tooth long, slender, and pointed; embolus of similar shape, but shorter and somewhat stouter. Tooth and embolus diverge at an angle of about 70° .

FEMALE. Total length 1.75 mm, carapace 0.76 mm long, 0.62 mm wide. Colour as in male. Carapace lower and broader than in the male, lateral margins distinctly indented at cervical grooves. The profile shows a slight convexity behind the eyes and a depression between this and the fovea. Clypeus 0.11 mm high, straight, slightly protruding and furnished with a few long hairs. Eyes: anterior eyes in a straight line, median eyes small, separated by the radius, from laterals by 1.3 times the diameter. Posterior eyes in a slightly procurved line, about equal in size, medians separated by 1.6 times the diameter, from laterals by a little less.

Legs. Spines of tibia I longer than the diameter of tibia (4:3), spine of tibia IV somewhat longer than twice the diameter. Position of trichobothrium of metatarsus I=0.53. Position of the spine of tibia IV=0.36.

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.65	0.24	0.54	0.48	0.36	2.27 mm
II	0.61	0.24	0.48	0.44	0.35	2.12 "
III	0.55	0.23	0.42	0.42	0.31	1.93 "
IV	0.74	0.23	0.67	0.55	0.36	2.55 "

Epigynum very similar that of the preceding species. The copulatory pockets at the anterior end of the median plate are narrow, however. Vulva as shown in Fig. 2g.

TYPE LOCALITY: Raudojaure 3 km west of Harrå, Lule Lappmark.

OCCURRENCE: *Torne Lappm.*: Abisko, 2 ♀ June 26, 1955; 2 ♀ July 9, 1947. — Abisko National Park, 1 ♂ (described above), 1 ♀ (allotype) Aug. 27, 1945; 4 ♀ July 10, 1941. — Kopparåsen, 450 m, 1 ♀ June 8, 1945. *Lule Lappm.*: Raudojaure 3 km west of Harrå, male holotype July 3, 1930. *Lycksele Lappm.*: Laxfjället, 800 m, 1 ♀ July 8, 1937. *Norrb.*: 5 km north of Saittarova, 1 ♀ July 12, 1961.

The species was found among *Sphagnum* in bogs in the conifer and birch forest region and in the lower alpine region.

Eboria angulata n. sp.

(Figs. 3a—g)

MALE. Total length 1.83 mm, carapace 0.76 mm long, 0.66 mm wide, sternum 0.41 mm long, 0.47 mm wide.

Carapace brown with a narrow black saddle marking and black radiating lines on thoracic portion; eyes surrounded by black. Chelicerae pale brown, sternum blackish brown, legs yellowish and abdomen dark grey.

Carapace broad length-width index 1.18, anterior margin evenly rounded, lateral margins of anterior half straight, strongly convergent; cephalic portion strongly and slightly conically convex behind the eyes, then level to fovea; clypeus 0.13 mm high, slightly convex and somewhat retreating, superior half with numerous long and fine hairs. Chelicerae later-

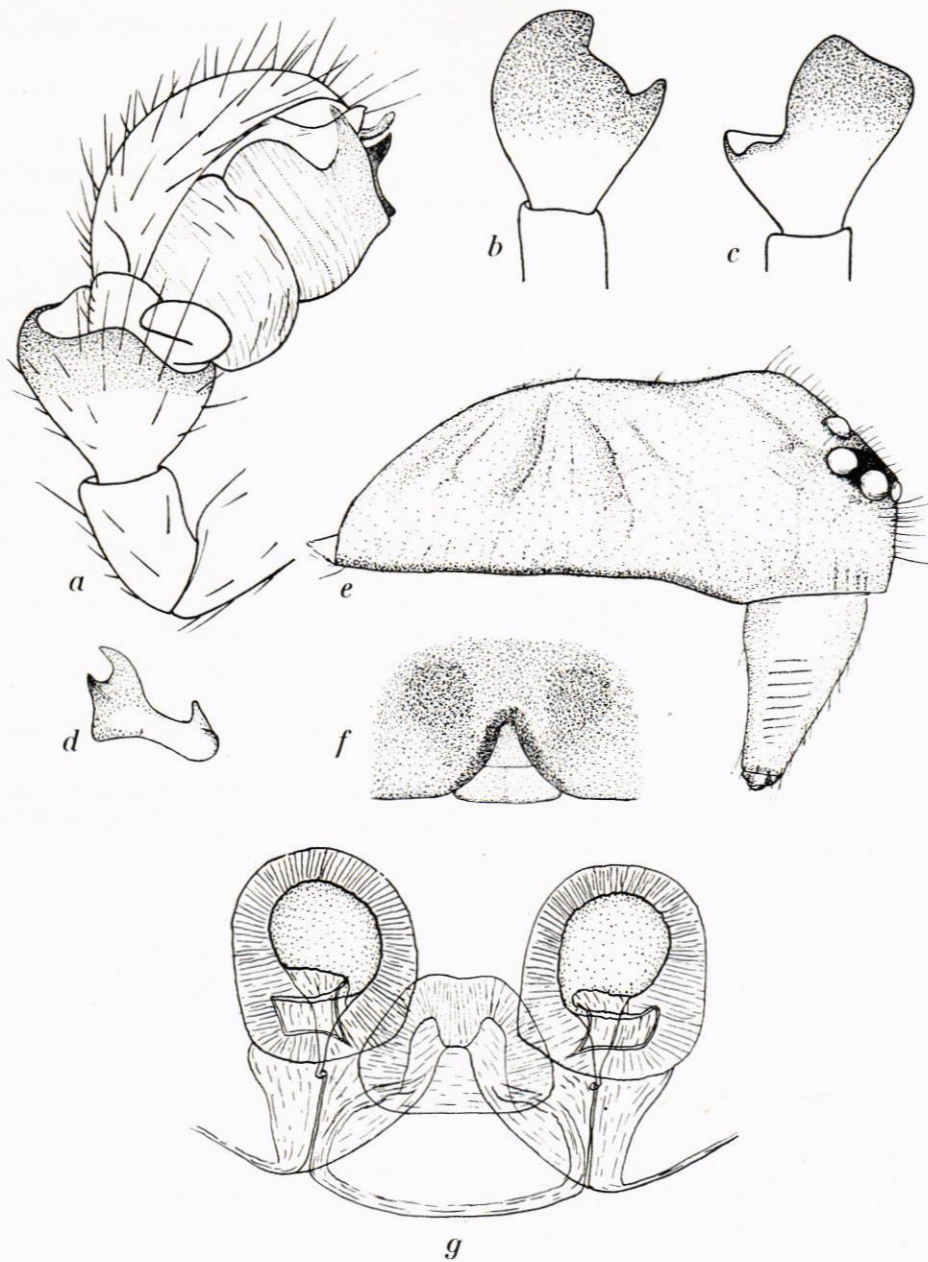


Fig. 3. *Eboria angulata* n.sp. a ♂, right palp from outside; b ♂, right palpal tibia from above; c ♂, right palpal tibia from mesal side; d ♂, embolic division of right palp; e ♂, carapace and chelicerae from side; f ♀, epigynum; g ♀, vulva.

Entomol. Ts. Arg. 84. H. 3-4, 1963

ally straight and with 6—7 distinct stridulating ridges, anterior margin of fang groove with 4 teeth.

Eyes. Anterior eyes in a slightly recurved line, anterior tangent being straight posterior recurved; median eyes much smaller than laterals, separated by a little less than the diameter, from laterals by 1.5 times the diameter. Posterior eyes in a strongly procurved line, equal; median interval somewhat larger, lateral intervals shorter than the diameter of the eyes. Lateral eyes on each side on a small elevation.

Legs. All the spines of the tibiae somewhat longer than the diameter of the segment; proximal spine of tibia I 0.15 mm, spine of tibia IV 0.12 mm. Position of the trichobothrium of metatarsus I=0.56.

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.58	0.22	0.47	0.4	0.34	2.01 mm
II	0.52	0.22	0.42	0.38	0.32	1.86 "
III	0.48	0.2	0.36	0.35	0.28	1.67 "
IV	0.67	0.2	0.61	0.47	0.34	2.29 "

Palpus: Apical height of tibia equal to its dorsal length. Dorso-mesal side of apical margin of tibia produced into a short apophysis with lateral side straight and antero-mesal side evenly rounded. Embolic division posteriorly and medially narrow, apically widened with ventral side angulate; dorso-apical tooth stout and curved, embolus short and pointed.

FEMALE. Total length 1.92 mm, carapace 0.77 mm long, 0.66 mm wide.

Colour as in the male. Carapace rounded-convex behind the eyes, then straight to the fovea. Clypeus 0.1 mm high, straight and vertical. Size and arrangement of the eyes as in the male.

Legs: Tibial spines longer than the diameter of the tibia. Proximal spine of tibia I 0.2 mm, spine of tibia IV 0.17 mm, its position=0.33. Position of trichobothrium of metatarsus I=0.49.

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.64	0.23	0.54	0.44	0.36	2.21 mm
II	0.60	0.23	0.48	0.42	0.34	2.07 "
III	0.53	0.21	0.41	0.36	0.30	1.81 "
IV	0.73	0.21	0.66	0.51	0.35	2.46 "

Epigynum similar to that of *E. lapponica* but posterior notch broader and median plate equilaterally triangular. In the vulva (Fig. 4 g) the copulatory pockets in the anterior corner of the plate are rather broad and directed forward.

TYPE LOCALITY: Kaisepakte, Torne lappmark.

OCCURRENCE: *Torne lappm.*: Kaisepakte, 345 mm, *reg. subalp.*, among *Polytrichum* and *Sphagnum* bordering a small tarn, June 21, 1945, male holotype and female allotype, 3 ♂ 54 ♀ paratypes. — Abisko National Park, *reg. subalp.*, 2 ♂ 10 ♀ among moss in alder-willow scrub, Aug. 28, 1946; among *Sphagnum* in a bog, 15 ♀ July 10, 1941; at Pallemjokk, among *Sphagnum*, 15 ♀ July 9, 1941, Nuolja, *reg. alp.*, 875 m, in a *Ranunculus acer* meadow, 2 ♀ July 6, 1947. — Stordalen, among *Sphagnum* bordering brook in birch forest, 2 ♀ July 12, 1943.

Jämtland: Undersåker, 1 ♀ among moss in conifer forest, June 30, 1941.

Eboria assimilis (Holm)

(Figs. 4 a—g)

♂♀ *Rhaebothorax assimilis* Holm 1945, Ark. Zool. 36 A: 15, p. 17, Figs. 3 b, 4 c—d.

MALE. Total length 1.5 mm, carapace 0.69 mm long, 0.56 mm wide.

Carapace greyish brown with a black median patch and short radiating lines; margins of thoracic portion with a narrow black seam, and eyes surrounded by black. Sternum black, chelicerae pale brown and legs yellowish. Abdomen dark grey.

Carapace moderately broad (length:width=1.23), anterior margin somewhat pointedly rounded, lateral margins of anterior half straight. Cephalic portion with a small convexity behind the eyes and then with slight depression (In another male, recorded below from Nuolja, the depression is more pronounced). Clypeus 0.16 mm high, straight and almost vertical, with numerous long and fine hairs.

Eyes: anterior eyes in a slightly recurved line (anterior tangent of the eyes straight, posterior recurved), medians small, separated by the radius, from laterals by the diameter. Posterior eyes in a procurved line, equal, separated by the diameter.

Legs. Spines of the tibia somewhat longer than the diameter of the segment. Position of the trichobothrium of metatarsus I=0.5.

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.55	0.21	0.41	0.39	0.33	1.89 mm
II	0.5	0.2	0.36	0.35	0.3	1.71 "
III	0.42	0.19	0.3	0.3	0.26	1.47 "
IV	0.6	0.19	0.52	0.42	0.34	2.07 "

Palpus. Tibia longer dorsally than its apical height. Apical margin dorsally broadly and evenly rounded, without apophysis. Embolic division like that of the preceding species except that embolus and dorso-apical tooth are of the same size and almost parallel.

FEMALE. Total length 1.8 mm, carapace 0.7 mm long, 0.56 mm wide.

Colour and general structure as in the male. Lateral margins of carapace with a marked indentation at the cervical groove. Dorsal profile line of carapace as in the male. Clypeus 0.09 mm high, straight and slightly protruding.

Legs. Spines of tibiae longer than the diameter of the segment. Basal spine of tibia I 0.14 mm. Position of trichobothrium of metatarsus I=0.45. (In 5 other specimens: 0.52, 0.5, 0.5, 0.47, 0.45).

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.57	0.22	0.45	0.41	0.33	1.98 mm
II	0.53	0.22	0.4	0.36	0.32	1.83 "
III	0.47	0.2	0.33	0.33	0.3	1.63 "
IV	0.63	0.2	0.56	0.45	0.34	2.18 "

Epigynum is distinguished from that of the three species described above by having an almost quadrangular median plate with a short and wide anterior portion. Copulatory pockets large and triangular (Fig. 3 g). The epigynum of this species closely resembles that of the following species, *E. alticola*; the copulatory pockets of the latter are of quite another shape, however.

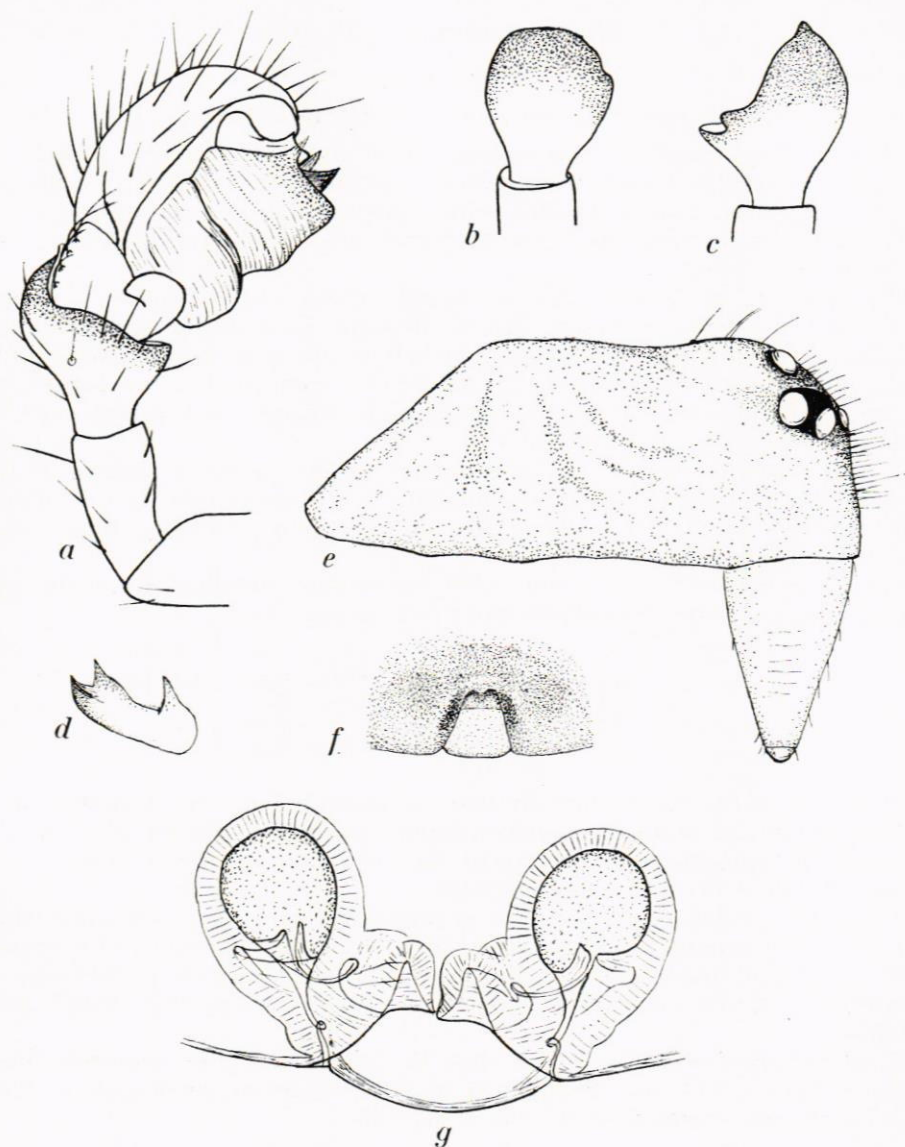


Fig. 4. *Eboria assimilis* (Holm). a ♂, right palp from outside; b ♂, right palpal tibia from above; c ♂, right palpal tibia from mesal side; d ♂, embolic division of right palp; e ♂, carapace and chelicerae from the side; f ♀, epigynum; g ♀, vulva.

TYPE LOCALITY: Pâtjovare, Torne lappmark.

OCCURRENCE: *Torne lappm.*: Nuolja, 770 m, moss in *Festuca* meadow, 3 ♀ June 23, 1949; 880 m, *r. alp.*, *Sphagnum* in a bog, 7 ♀ July 7, 1941; 1,000 m, moss in *Carex rigida* heath, 1 ♂ 2 ♀ July 10, 1947; 1,130 m, *Sphagnum* in moist heath, 1 ♂ 5 ♀ July 18, 1941. — Slättatjäkko, 775 m, *Sphagnum*

in a *Salix* bog, July 17, 1943. — Vuoskoäive, 840 m, moss in a moist *Cassiope tetragona* heath, 3 ♀ July 12, 1943. — Pâtjovare, 933 m, moss in *Betula nana* heath, ♂ holotype and ♀ allotype. July 11, 1941.

The species appears to be hygrophile and was only found above the tree limit, in the lower and middle zones of *regio alpina*.

Eboria alticola (Holm)

(Figs. 5 a—g)

♀ *Rhaebothorax alticola* Holm 1950, Zool. Bidr. Uppsala 29, p. 138, Fig. 10 a.

MALE. Total length 1.6 mm, carapace 0.7 mm long, 0.58 mm wide.

Carapace dusky brown with a black pentagonal saddle marking followed by a black triangular patch behind the fovea; thoracic portion with broad black radiating stripes. Sternum blackish brown, chelicerae brown, legs pale greyish yellow with coxae proximally with a black longitudinal line and distally suffused with black. Abdomen dark greyish brown. Carapace rather broadly oval, anterior margin evenly rounded, lateral margins of anterior half straight, strongly convergent; behind the eyes the cephalic portion is markedly convex, then almost straight and level to the fovea. Clypeus slightly convex, not protruding, 0.09 mm high. Eyes: Anterior row of eyes slightly recurved, median eyes small, (their diameter equal to the radius of the laterals), separated from laterals by almost 2 times the diameter. Posterior row of eyes procurved, median eyes somewhat larger than laterals, separated from each other by the diameter, from laterals by $\frac{3}{4}$ of the diameter. Chelicerae straight, with faint stridulating striae; fang groove with 4 promarginal and 5 very small retromarginal teeth.

Legs. Spines of tibia I shorter than the diameter of the segment (2:3). Position of the trichobothrium of first metatarsus=0.56.

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.53	0.21	0.40	0.35	0.32	1.81 mm
II	0.49	0.21	0.35	0.34	0.31	1.70 "
III	0.43	0.2	0.32	0.31	0.28	1.54 "
IV	0.61	0.2	0.52	0.43	0.31	2.07 "

Palpus: Tibia dorsally slightly exceeding its apical height; apical margin slightly produced, rounded-truncate. Embolic division (Fig. 5 d) rather broad, curved, embolus forms a transversal black branch of even breadth directed ventrally and truncate at tip. There is no dorso-apical apophysis, the embolic division dorso-apically being truncate.

FEMALE. Total length 1.8 mm, carapace 0.7 mm long, 0.58 mm wide.

Colour as in the male. Carapace seen dorsally broadly oval with anterior margin evenly rounded and lateral margins of anterior half straight, strongly convergent forward; the profile of carapace and the eyes in accordance with the male.

Legs. Proximal spine of tibia I longer than the diameter of the tibia (4:3), spine of tibia IV almost twice as long as the diameter of the tibia. Its position 0.35. Position of the trichobothrium of metatarsus I=0.56.

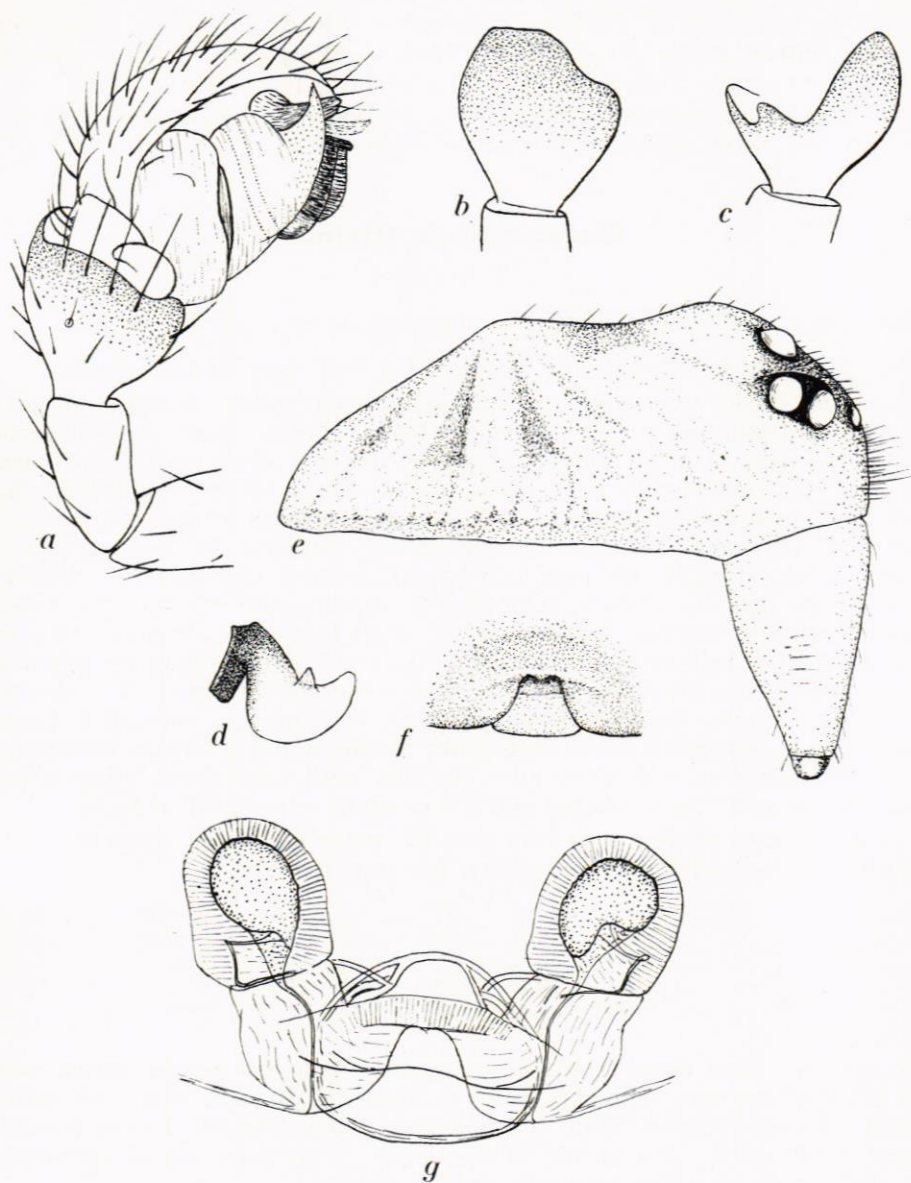


Fig. 5. *Eboria alticola* (Holm). a ♂, right palp from outside; b ♂, right palpal tibia from above; c ♂, right palpal tibia from mesal side; d ♂, embolic division of right palp; e ♂, carapace and chelicerae from the side; f ♀, epigynum; g ♀, vulva.

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.59	0.23	0.47	0.38	0.33	2.0 mm
II	0.55	0.22	0.42	0.37	0.32	1.88 "
III	0.5	0.21	0.37	0.35	0.29	1.72 "
IV	0.68	0.21	0.61	0.49	0.33	2.32 "

Epigynum. Very similar to that of the preceding species *E. assimilis*, but lateral margins of posterior notch not strongly chitinized. In the vulva (Fig. 5g) the receptacles are separated by much more than the diameter, and the copulatory pockets at the anterior end of the median plate are very narrow and directed laterally.

TYPE LOCALITY: Torne Lappm., Pallemvagge, 980 m, female holotype July 25, 1943.

OCCURRENCE: From Sweden this species is known only from the type locality, where the single specimen was collected by sieving moss in an alpine *Ranunculus acer* meadow. The male allotype, described above, was collected on the mountain Iso Malla at Kilpisjärvi, Finland, in a moist meadow, Aug. 28, 1961, together with typical females.

Eboria convexa n. sp.

(Figs. 6 a—g)

MALE. Total length 1.86 mm, carapace 0.74 mm long, 0.59 mm wide, sternum 0.38 mm long, 0.42 mm wide.

Carapace pale greyish brown with a black median marking longer than wide connected with the ocular area by two narrow lines to the lateral eyes and by two broader bands to the posterior median eyes. Interocular area black. Thoracic portion with faint radiating lines. Legs and chelicerae pale yellowish brown, sternum and abdomen black.

Carapace moderately broad (length/width=1.25). Lateral margins of anterior half very slightly indented, convergent forward. Dorsal profile shows a stronger convexity behind the ocular area; clypeus 0.07 mm high, more protruding than in the preceding species and with numerous long hairs.

Eyes: anterior eyes in a recurved line, median eyes small, separated by a little less than the diameter, from laterals by twice the diameter. Posterior eyes in a somewhat procurved line, equal, medians separated by slightly more than the diameter, from laterals by almost the diameter. Sternum wider than long, posterior tip very short and narrow. Chelicerae somewhat divergent apically, laterally with 4—5 stridulating ridges; fang groove with 5 promarginal and 5 very small retromarginal teeth.

Legs. Number of spines as typical of the genus, spines of tibiae as long as the diameter of the tibiae. Position of trichobothrium of metatarsus I=0.52. Length of tibia I 5.6 times its diameter.

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.59	0.21	0.47	0.39	0.35	2.01 mm
II	0.55	0.21	0.42	0.38	0.34	1.90 "
III	0.49	0.19	0.36	0.35	0.29	1.68 "
IV	0.65	0.20	0.58	0.47	0.34	2.24 "

Palpus: very similar to that of the preceding species with the exception of the embolic division which is larger; embolus and dorso-apical apophysis form a transversal black runnel, truncate at both ends.

FEMALE. Total length 1.68 mm, carapace 0.74 mm long, 0.55 mm wide. Carapace greyish brown with black median marking wider than long and

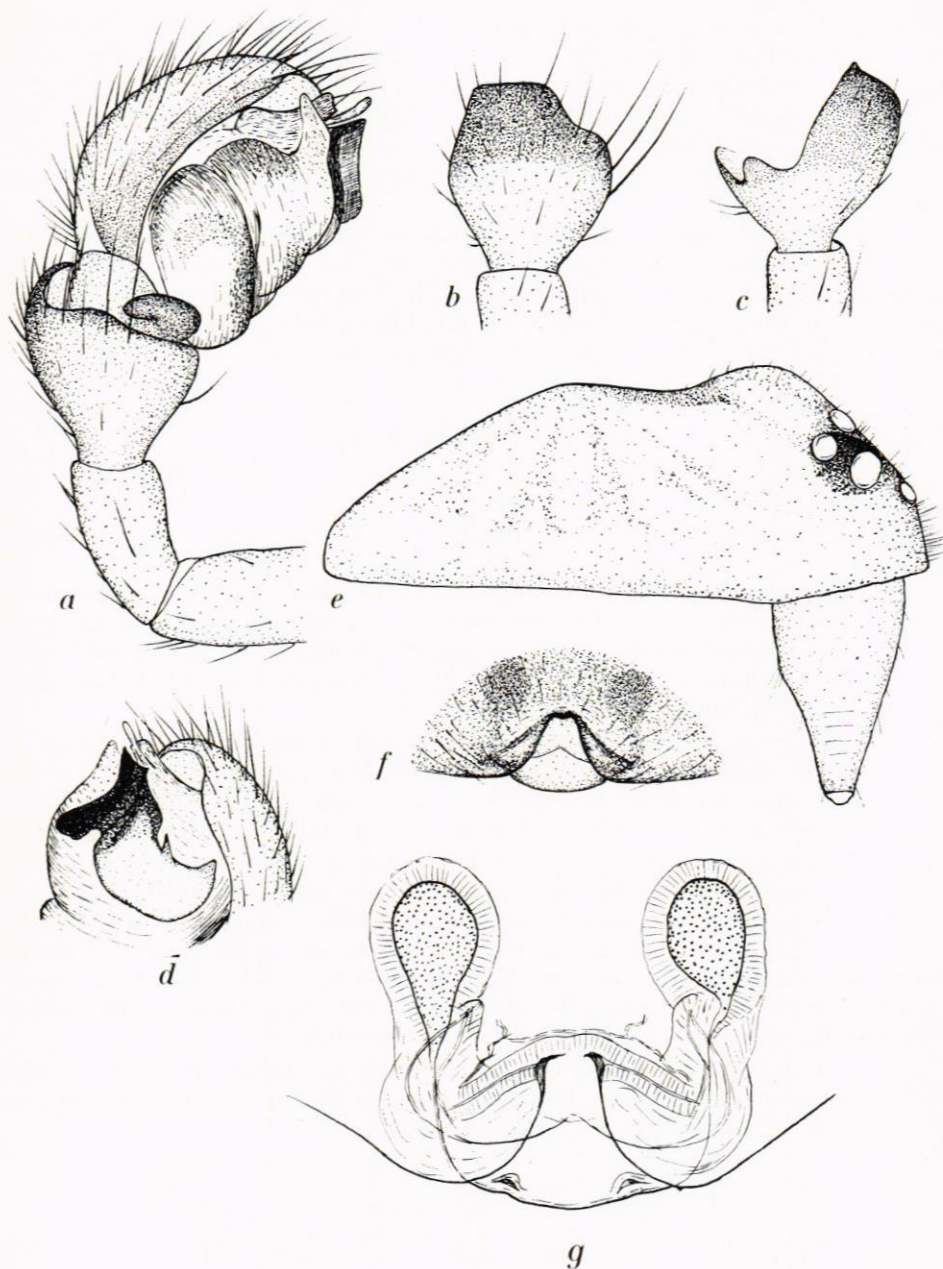


Fig. 6. *Eboria convexa* n.sp. a ♂, right palp from outside, b ♂, right palpal tibia from above; c ♂, right palpal tibia from mesal side; d ♂, embolic division of right palp; e ♂, carapace and chelicerae from the side; f ♀, epigynum, g ♀, vulva (of paratype).

dark radiating lines ocular area black, chelicerae, palpi and legs pale brownish, sternum and abdomen dark greyish brown.

Carapace with lateral margins of anterior half indented, anterior margin evenly rounded. Cephalic portion less convex behind the ocular area than in the male. Clypeus 0.08 mm high, straight and protruding, the upper half with long hairs. Eyes: anterior eyes in a slightly recurved line, median eyes small, separated by a little less than their diameter, from laterals by 1.5 diameter. Posterior eyes in a slightly procurved line, median eyes larger than laterals, separated by the diameter, from laterals by a little less. Median ocular quadrangle as long as its posterior width. Chelicerae and sternum as in the male.

Legs: Spines of tibiae longer than in the male and longer than diameter of tibiae (5:3). Proximal spine of tibia I=0.16 mm, spine of tibia IV 0.14 mm. Position of trichobothrium of metatarsus I 0.48 (in the female paratype 0.5).

Leg	Fe	Pt	Ti	Mt	Ta	Total
I	0.62	0.23	0.50	0.42	0.35	2.12 mm
II	0.58	0.23	0.46	0.39	0.34	2.00 "
III	0.52	0.20	0.40	0.36	0.29	1.77 "
IV	0.71	0.21	0.65	0.48	0.34	2.39 "

Epigynum similar to that of the preceding species, but the transversal furrow of the median plate makes an angular bend forwards, and at the posterior border of the plate two small "pockets" are present (Fig. 6f).

TYPE LOCALITY: Alaska, Anaktuvuk Pass (68°20'N, 151°30'W), male holotype, female allotype and female paratype July 10, 1949 (coll. N. A. Weber). (Holotype and allotype: The American Museum of Nat. History, New York, female paratype: Zoological Institute, Uppsala).

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