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Larva and female of Telmatopelopia nemorum (Goetghebuer, 1921)
(Diptera, Chironomidae)

by R. A. Rodova

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Larva and female of Telmatopelopia nemorum

(Goetghebuer, 1921) (Diptera, Chironomidae)

By: R.A. Rodova

In 1962 Fittkau isolated in the sub-family Tanypodinae a new genus Telmatopelopia with a single species nemorum (Tanypus nemorum Geotgh., 1921). The larva and female of this species were not described. Very brief and not altogether precise data on the larva were presented by Zavřel in 1943, and there is mention made by Goetghebuer (1927) and Lenz (1936).¹

In 1968 we succeeded in following the metamorphosis of T. nemorum. 70 females and 71 males were hatched. The larvae live in temporary ponds and are found in the Yaroslavsk area in May and June.

LARVA

Length 5-6 mm. The body is light, yellowish-rose with punctate markings while the head is light-brown, often rosey, elongated, and narrower at the front (fig. 1, A). The clypeus is slightly "sclerosed" (fig. 1, B), with lateral sclerites drawn out and tapering towards the middle, a narrow median on

¹Researched by A.I. Shilova, to whom I express my deepest gratitude.

a line with the upper labium and two pairs of pores. The frontal sclerite (fig. 1,A fsk) is pyriform with two pairs of slender and bright clustered setae: one close to the anterior margin, the other - at the base of the tapered section. Outlining it are sutures, thin and barely discernible. The coronary suture is very short. On either side there are one coarse (internal) and a finer (external) pore. The occipital sclerite is narrow, dark, but lighter beside the coronary suture (fig. 1,A zsk).

On the dorsal surface of the malar sclerite, on each side, there are three setae; the two in front being clustered, the one at the rear - single (fig. 1,A). Where the antennae emerge the anterior margin of the sclerite forms a hollow. On a line with the frontal sclerite, close to the anterior margin and on each side of it are two fine setae - clustered and single. Located on each side of the ventral surface are one pore and 5 setae, of which 2 are clustered in the frontal section, 2 clustered in the centre of the sclerite and 1 single seta between the front and rear clusters (fig. 2,A). Anterior angles of the sclerite, adjacent to the submentum, with small protuberances, on which very delicate, short setae are located (fig. 2,A uchshch).

Eyes usual for tanipodinae, one along each edge of the dorsal surface of the head, sinuate in front (fig. 1,A)

The antennae are quadrisegmented (fig. 1,V), retractile, as with all tanipodinae. Ratio of the segments: 65 : 16 : 2 : 1.5.

1st segment with ring-shaped organ located approximately in the middle of the length with the external side (fig. 1,V, ko), at the very top of the segment with a small pore (fig. 1,V, n), on the top with a bifurcate sensilla (fig. 1,D) which reaches the apex of the 3rd segment. The branches of the sensilla are equal in length but of differing thickness: the thick branch is /145-146 transparent, transversely striated, imperceptibly narrows towards the apex, the slim branch is darker, minus striations, blunt on top. The internal and external tips of the 2nd segment are extended on top and form flaps between which the 3rd segment is placed (fig. 1,E), alongside a stem bearing a wide transparent membrane (Lauterborn's organ?) (fig. 1,Zh). On examining the antenna from the side of this organ its stem merges with the 3rd segment, and the apical section of the membrane appears as a transverse band. It was probably this that led Zavřel (1943) into the mistaken belief that an antenna of this type was 5-segmented. The 4th segment of the antenna is small and conical.

The upper labrum (fig. 1,B), like the clypeus, is also slightly "sclerosed". Its anterior margin is straight. In the middle of it are two fine setae with large deep thecae, and along each verge three long setae with tall thecae; one of these setae is rod-shaped, two fine and flagelliform. The thecae of the flagilliform setae vary in height. The anterior margin of the upper labrum is dotted with varying in size chaetoids (fig. 1, B, khbg) with rounded-off tops. On the periphery of the labium

close to the posterior margin are three sets of large pores.

Along the sides of the clypeus are fine transparent large vesicles. Zavřel considers them homologues of premandibles of other sub-families of Chironomidae and named them "premandibular vesicles" (fig. 1,B prp).

The mandible (fig. 2,V) is chitinized with a large sharp brown apical tooth and small light basal. Beside it is a protuberance with a large pore. The outer edge of the mandible with two pores and a seta.

The maxilla (fig. 2,B) with a long single-segmented palp on a large cardo (2,B, shchup). The base of the cardo is strengthened with a slightly chitinized ring, on which a deplanate seta of irregular form is located in a lateral position. On the top of the palp a disegmented sensilla, four fine rod-shaped and one long, acuminate on top, achromatic in the central part (fig. 2,B, sm). The ring-shaped organ is large and located in upper half of the palp (fig. 2,B, ko). The internal flabellum is bilaciniate. One of the flabelli is reinforced with a dark, triangular sclerite, beside which is a sensilla with a high theca. The internal margin of the maxilla is fringed with petaliform chaetoids, reminiscent of the chaetoids of the upper labrum (fig. 2,B, khet). On the exterior side of the maxilla by the base of the palp's cardo there is a small sclerite with two large pores.

In contrast to examples of other sub-families Chironomidae,

which have a lower labium so severely reduced that usually the only part remaining is the submentum, in the larva, under examination it consists of well-defined parts: submentum; mentum in the form of a forward projecting triangular lamella which Zavřel (1916) calls a "labium", and Chernovskii (1949) -- a "tongue"; glossa; paraglosses and severely reduced labial palps located between the hypopharynx and the paraglosses.

The submentum is similar to that of other Chironomidae, but minus teeth, light in colour, in pigmentation does not differ from the remaining cephalic capsule (fig. 2,A, sub).

The mentum (fig. 3,A) is very "sclerosed", wide-triangular, with protuberances along the margin. At its base at each side are located transparent vesicular formations (fig. 3,A, pob). On the dorsal surface of the mentum (fig. 3,A, prad) is a wide strip of small chitinous barbs "Pseudoradula" (Zavřel, 1916).

The glossa (fig. 3,B) is five-toothed, strongly chitinized and brown. All the teeth are equal in length, the outer being somewhat wider than the inner. Paraglosses with two apical teeth, the inner being much shorter than the outer. The glossa together with the paraglosses and hypopharynx are strengthened with a basal chitinous formation and, as with the majority of tanipodae, can bend into the oral cavity.

The hypopharynx (fig. 3,G) is ^a/chitinized plate with two pectens. Each pecten consists of nine teeth, of which the first are larger than the rest. The ducts of the salivary glands

combine in the basal half of the head into one duct which approaches the base of the hypopharynx.

Between the glossa and hypopharynx is a soft, transparent dome-formation on which are located labial palpi (according to Zavřel - palpi hypopharyngeales). The palpus is severely reduced, short, with several sensillae on the end (fig. 3,V, shchup).

Prolegs of the 1st thoracic segment are long, transparent and compact at the base. The teeth are varie-shaped and bright yellow.

The clusters of the 9th segment consist of 7 strong setae. The supports of the clusters are narrow, tall, with two setae - short single and long dual-branched (fig. 4,G).

Four anal papillae are long and narrow. In front of them on the 10th segment are two setae, approximately equal in length to the papillae, and a row of 4 setae of small dimension (fig. 4,V).

The hooks of the "pushers" are all yellow and varied in form. Three hooks are wide and clearly pectinate, part of the long narrow hooks have weak crenulation (fig. 4,B). According to Zavřel this type has only two pectinate hooks. In the basal half of the "pushers" there is one long seta and at the top a row of small spines (fig. 4,A). The chetae of the thoracic and ventral segments are few, single and tufted. All the setae are clearly visible only on living larvae. /148

THE IMAGO

The female. Length 2 mm. General colouration - light

yellowish. Mouth parts brownish. Postclypeus with scattered sedentary setae (fig. 5,A, pkl). Labrum (fig. 5,A, vg) and hypopharynx at the apex with fine chaetoids. The surface of the hypopharynx covered with occasional very short sensillae (fig. 5,G). Maxilla severely reduced. A reduced lacinia, which is present in the sub-family type Chironominae, is absent. The maxillary palpus (fig. 5,D) is 4-membered, brown. The 2nd member is slightly shorter than the 3rd. Labium drawn out, of the usual structure of Chironomidae (fig. 5,V).

Eyes (fig. A,B, gl) from behind elongated, the very widest elongated part - 5 ocelli, the smallest - 3. 12-membered antennae (fig. 6,A), basal antenna ring with 3-4 setae (fig. 5,A, k). The 1st member of the usual form, with 6-8 setae (fig. 5,A,B, ant). The 2nd member twice as big as the following (apart from the final), sometimes with incomplete narrowing. 2-11th members in the widened part with long, strong setae, with bright sensillae at the ends. The last member (fig. 6,B) broad at the base and narrowing towards the top. On the wide part it has the same strong setae as those on the 2-11th members, on the apex with a shorter, strong seta, all dotted with bright sensillae.

The posterior sclerite (fig. A,B, zsk) with dark-brown sutures, with 2 short setae at the base of each side. Parietal area around the sutures of the posterior sclerite is brown. The parietal setae are distributed in one row (fig. 5,A,B, tishch).

Pronotum (fig. 6,V,G) is bright, with a small indentation in

front, with a protuberance at the base and 1-3 fine setae, covered with short pili. The mesonotum with bright brown stripes. The disposition and quantity of setae are about the same as on the male (Fittkau, 1962). The scutellum is light, with a row of hard setae and an irregular row of softer ones. Colouration of the metatergum is dark-brown, with a light suture in the middle and a bright band in the basal part.

Thoracic and wing brushes (fig. 6,D) are of the usual small structure (Rodova, 1968b).

The wing (fig. 7,A) is 2 mm in length and 0.8 mm wide, brownish-grey, the whole surface covered with macrotrichia, /149-151 the border thickly feathered. On the veins the macrotrichia are thicker. Veins are light. R_{2+3} is present, R_2 is very short and indistinct (fig. 7,V). r-m is sharply inclined, its tip almost meets with m-cu, f-cu more proximal to m-cu (fig. 7,B). On males the veining of the wings is the same. Occasionally males are found where r-m terminates more distal than m-cu. The manubrium of the radial vein is light, with 3 pores, 3 setae and 2 groups of fine pores in the basal and distal parts of the manubrium (fig. 7,G). The wing tegula is bordered with long hairs (Rodova, 1969). The balancer is light, with a rather large capitulum (fig. 7,D).

Legs are light-brown. The spur of the anterior tibia with a long major tooth and 4-5 supplementary (fig. 8,A). Close by the spur are three large, strong setae (fig. 8,B). The top of the

middle and posterior tibia with 2 spurs (fig. 8,V). Each spur consists of a major and 3-4 auxilliary teeth. The major tooth of the external spur is half as big as the tooth of the internal spur. Alongside the spur of the posterior tibia is a pecten consisting of 5 broad setae. The external setae are longer than the internal (fig. 8,G). The claws of the tarsus are long, black, with a broad complex base (fig. 8,D). The empodium is regular and there are no pulvilli.

The abdomen is yellow-grey, monochromatic, with a barely noticeable brownish band. Setae are located at random. The 8th sternite is coloured exactly like the preceding ones. Its posterior margin is curved, with an indentation in the centre (fig. 8,E, 8 st). The protuberances of the sternite (Rodova, 1968a) are not pronounced. The 10th tergum is thickly covered with hair and short setae (fig. 8,E,Zh, 10 ter). The latero-sternite (9th sternite), connate with the 9th tergum, is devoid of setae, but dotted with short spines (fig. 8,Zh, 1st). Apodema (9th sternite), light, narrow ramus, slightly chitinized (fig. 8, E, an). There are two spermatheca, light, piriform, located in the 7th segment (fig. 8,E, spt). The ducts of the spermatheca are long and slightly curved. The cerci are much smaller than the 10th tergum, and covered with hair and setae (fig. 8,E,Zh, tser).

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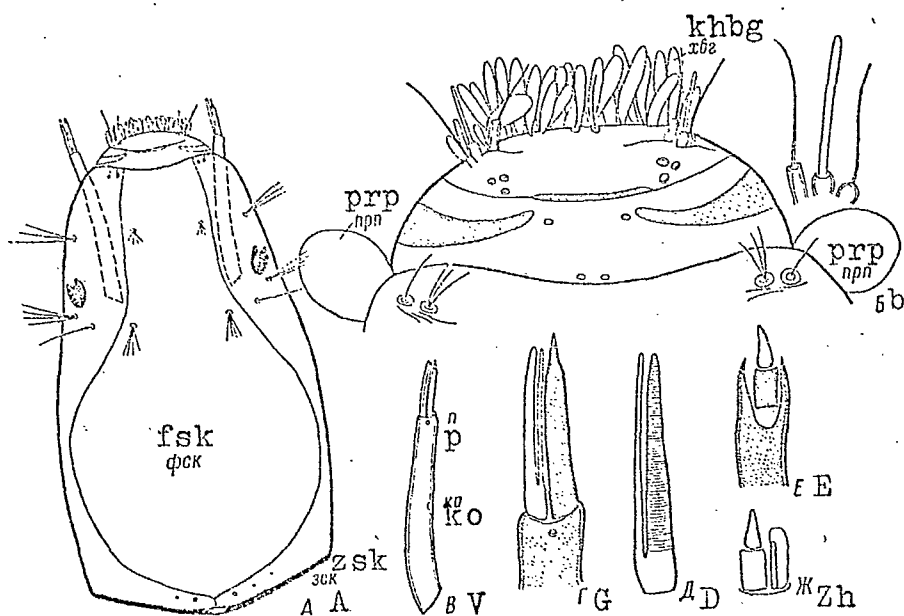


Fig. 1. Details of the head of the larva (top view).
 A - Head; B - clypeus and labium; V - antenna; G - tip of antenna;
 D - antenna sensilla; E and Zh - detailed structure of the antenna.
 Remaining symbols in the text.

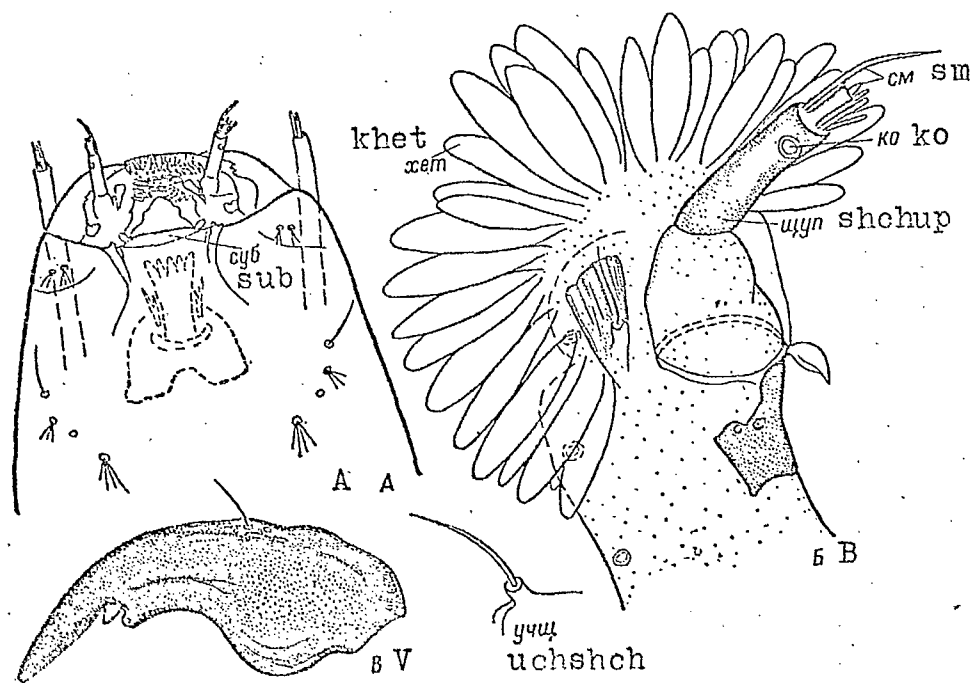


Fig. 2. Details of the head of the larva (bottom view)
 A - head; B - maxilla; V - mandibula.
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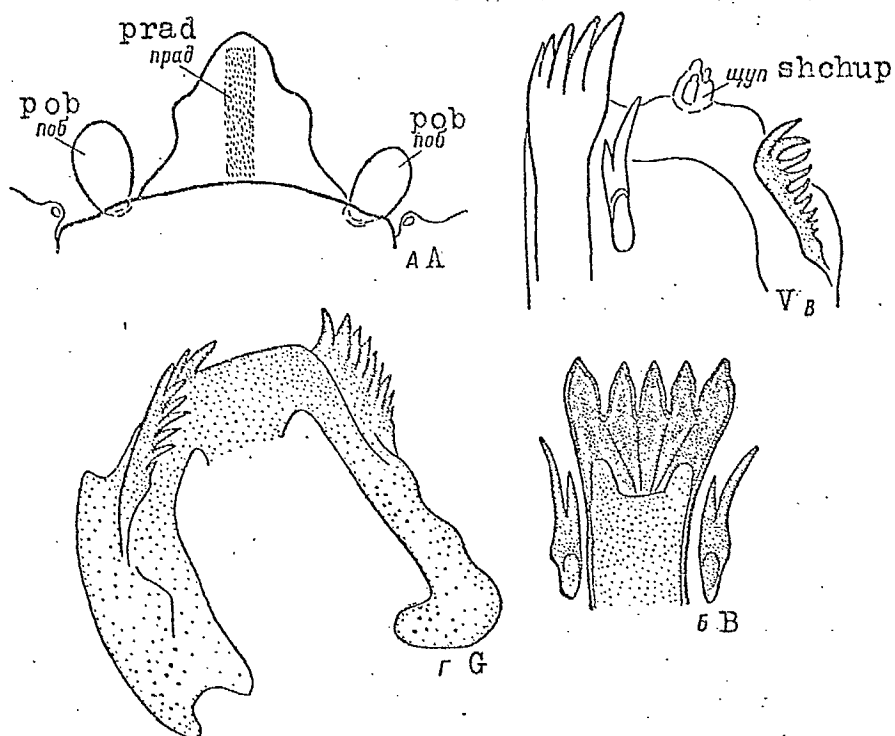


Fig. 3. Details of head of the larva (bottom view)
 A - mentum; B - glossa and paraglossa; V - details of mouth parts
 (side view); G - hypopharynx.

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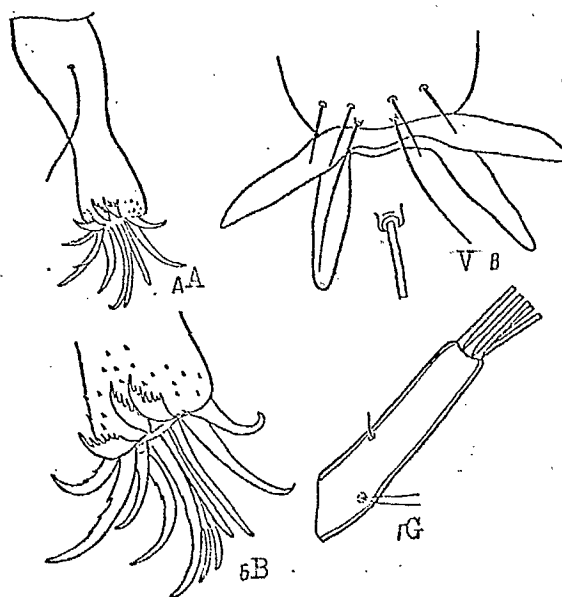


Fig. 4. Details of the end of the abdomen
 of the larva.

A - "pushers"; B - tip of "pusher"; V - papillae; G - racemule
 support.

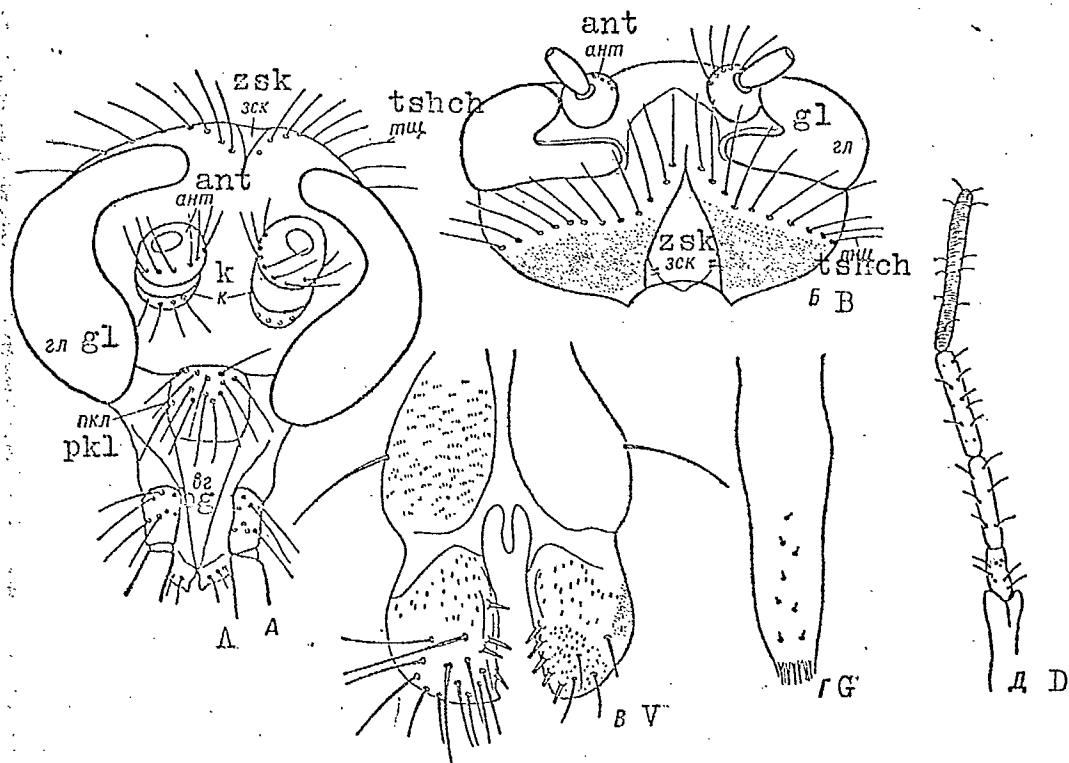


Fig. 5. Head of the female.

A - head from the front); B - head from above; V - labium;
G - hypopharynx; D - maxilliary palp. Remaining symbols in
the text.

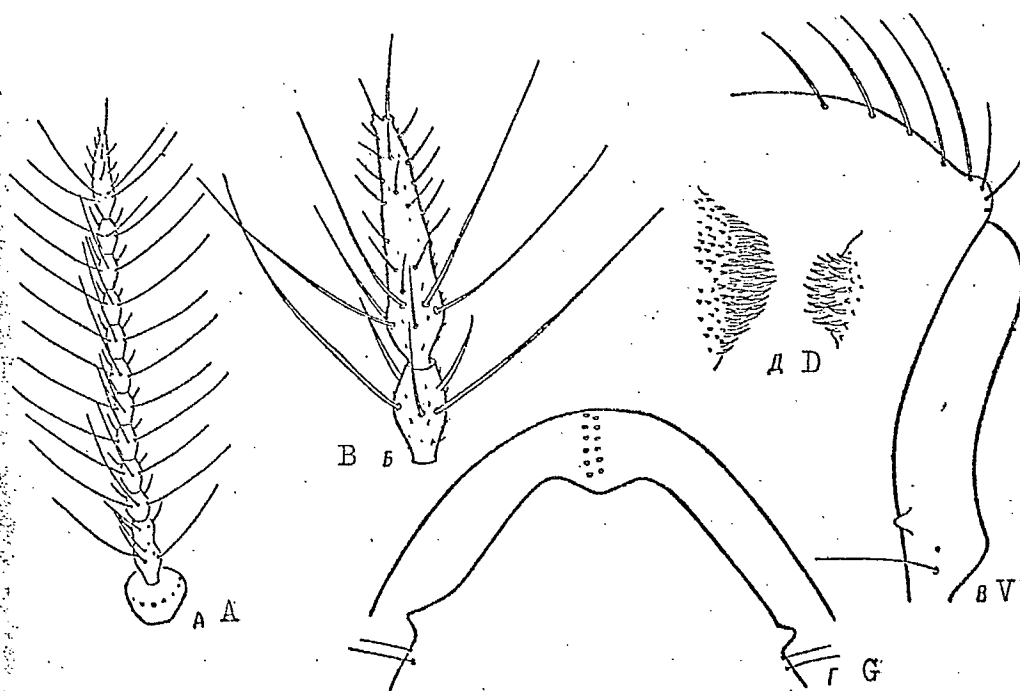


Fig. 6. Structural details of the female.
A - antenna; B - tip of antenna; V - pronotum (side view);
G - pronotum (frontal view); D - thoracic (minor) and wing
brushes.

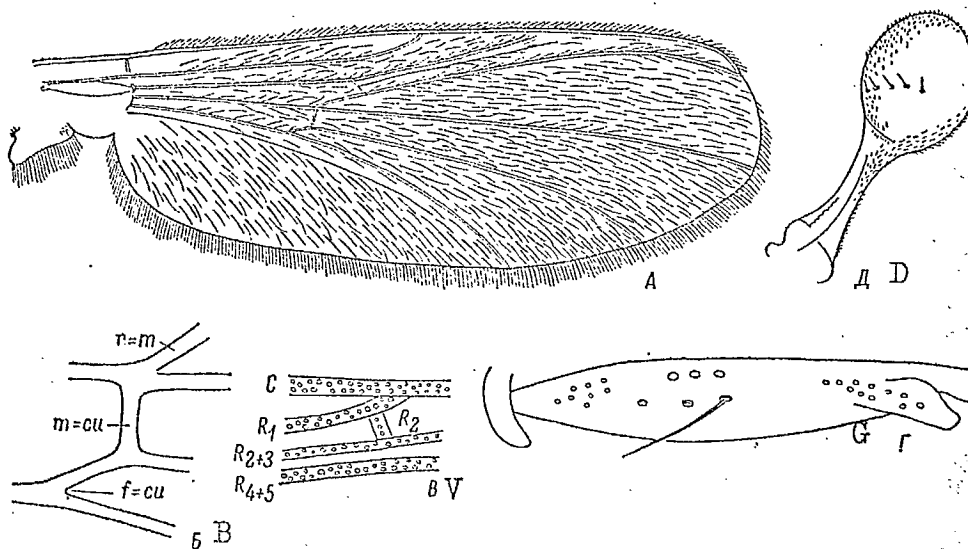


Fig. 7. The wing
 A - Wing; B, V - details of veining; G - manubrium of the radial vein; D - balancer.

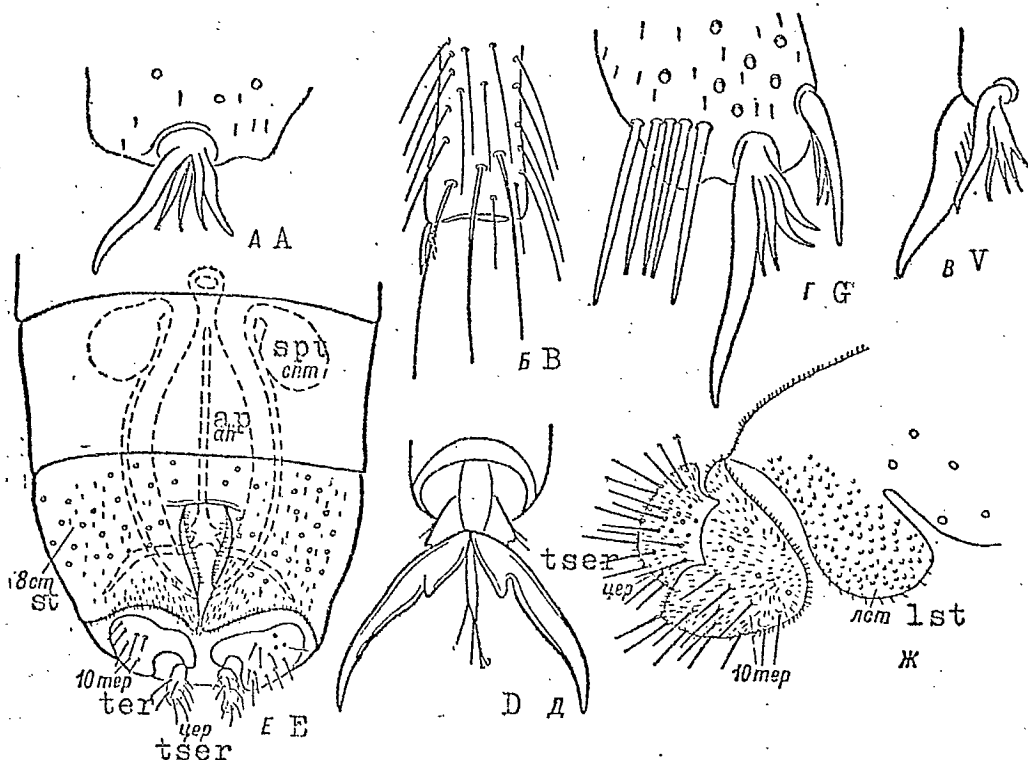


Fig. 8. Structural details of the female.
 A - top of the anterior tibia; B - spur of anterior tibia;
 V - spur of middle tibia; G - top of the posterior tibia;
 D - claws; E - end of venter (from below); Zh - end of venter
 (side view). Remaining symbols in the text.