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A REVIEW OF THE DIAMESINAE (DIPTERA, CHIRONOMIDAE) FROM THE USSR, WITH NOTES ON SYSTEMATICS OF PSEUDODIAMESA G. AND PAGASTIA OL.

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ABSTRACT - List of species Diamesinae from the USSR and their distribution are provided. It includes II genera with 72 valid species and 26 species of nomena dubia. The distribution for the majority of species is confined to the Palaearctic and 22 species are characterized by the Holarctic ranges. Systematics of Pseudodiamesa and Pagastia is discussed and separation of Pagastia as the subgenus Pseudodiamesa is substantiated. Males of Pseudodiamesa (Pagastia) oliveri sp.n., Ps.(Ps.) latistyla sp.n. and Ps.(Ps.) vetusta sp.n. are described. Specimens of Ps.(P.) orientalis Tshern. from the Sakhalin and Kurile Islands are singled out as subspecies Ps.(P.) orientalis insularis subsp.n.

Key words: Diamesinae, Pseudodiamesa, Pagastia, systematics, distribution

Off 6 tribes of Diamesinae, 3 tribes (Boreoheptagyini, Protanypodini, Diamesini) including 98 species belonging to II genera are represented in the USSR fauna. Among them 72 species are valid: Arctodiamesa appendiculata (Lundstr.), Diamesa aberrata Ldb., D.alpina Tok., D.amplexivirilia Hansen, D.arctica (Boh.), D.baicalensis Tshern., D.bertrami G., D.bohemani G., D.caucasica Kown. et Kown., D.cinerella Mg., D.corrupta Makar.,* D.dactiloidea Makar.,*

D.davisi Edw., D.geminata K., D.gregsoni Edw., D.hamaticornis K., D.incallida (Walk.), D.insignipes K., D.japonica Tok., D.kasymovi Kown. et Kown., D.khumbugelida Saether et Willassen, D.latitarsis (G.), D.lavillei Ser.-Tos., D.leona Rob.,D.lindrothi G., D.longipes G., D.martae Kown. et Kown., D.moderata Ser.-Tos., D.pankratovae Makar. et Bulgak., D.sakartvella Kown. et Kown., D.sommermani Hansen, D.steinboecki G., D.tonsa K., D.thienemanni K., D.tomasi Ser.-Tos., D.tskomelidzei Kown. et Kown., D.tsutsuii Tok., D.vaillanti Ser.-Tos., D.vernalis Makar., D.zelentzovi Makar.*, D.zernyi Edw., D.zhiltzovae Makar.*, Kaluginia lebetiformis Makar., Lappodiamesa vidua (Kieff.),

Potthastia longimana K., P.montium (Edw.), Potthastia sp., Pseudodiamesa (Pseudodiamesa) branickii (Now.), Ps.(Ps.) nivosa (G.), Ps.(Ps.) gorodkovi Makar., Ps.(Ps.) subnivosa Linev. et Makar.*, Ps.(Ps.) stackelbergi (G.), Ps.(Pagastia) angarensis (Linev.), Ps. (Pagastia) oliveri sp.n.**, Ps.(P.) orientalis (Tshern.), Ps.(Ps.) latistyla sp.n.**, Ps.(Ps.) vetusta sp.n.**, Pseudokiefferiella parva (Edw.), Sympotthastia zavreli Pag.,S.khorensis Makar., S.fulva (Joh.), S.repentina Makar., Syndiamesa mira(Makar.), S.rara (Makar.), S.hygropetrica K., Protanypus caudatus Edw., P.gracilis Makar., P.morio (Zett.), P.pseudomorio Makar., P.tshereshnevi Makar., Boreoheptagyia brevitarsis Tok., B.legeri (G.).

Nomena dubia of Diamesinae from the USSR: Diamesa adumbrata Pankr., D.angustimentum Tshern., D.coronata Tshern., D.gemella Pankr., D.heterodentata Botn. et Cind.-Cure, D.impunctata K., D.inaequabilis Pankr., D.incisiolabiata Linev., D.longicapitis Linev., D.longipes Tshern., D.mohelnicensis Hrabe, D.nivalis Pankr., D.pseudostylata Tshern., D.punctata K., D.quadridens Linev., D.quingaesetosa Pankr., D.stylata Tshern., D.telezkensis Lip., Syndiamesa bathyphila Lip., S.fraterna Pankr., S.gelida K., S.jacutica Zver., S. komensis Zver., S.lepnevae Lip., S.monstrata Pankr.

The distribution for the majority of species is confined to the Palaearctic and 22 species are characterized by the Holarctic ranges.

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* Description of species are to be published soon.

** Description of species is in the present paper.

TYPES OF THE DIAMESINAE DISTRIBUTION

Types of distribution	Typical species
I.West Palaearctic	D.latitarsis, D.tonsa
2.Caucasian	D.caucasica
3.South European-Caucasian	D.tskomelidzei, D.lavillei, D.longipes, D.tomasi, D.vaillanti, Ps.gorodkovi
4.Mediterranean-Caucasian	D.kasymovi, D.moderata, D.sakartvella
5.Amphipalaearctic Arcto-Alpine	D.steinboecki
6.Euroasian Arctic	L. vidua (Kieff.),
7.Euroasian Arcto-Alpine	D.zernyi, Ps.nivosa
8.Endemics of Himalayas and Pamirs	D.khumbugelida
9.East Palaearctic(latitudinally)	D.tsutsuii, Ps.(P.)orientalis
I0.East Palaearctic Arctomontane	A.appendiculata
II.South Far East Palaearchearctic	D.alpina, D.vernalis, S.mira, S.rara, S.khorensis, S.repentina, K.lebetiformis
I2. Far East Beringian	P.gracilis, P.tshereshnevi
I3.Far East Boreomontane	B.brevitarsis
I4.Baikal	D.baicalensis
I5.Panholarctic Circumpolyzonal	P.longimana, Ps,branickii, D.aberrata, D.bohemani, D.cinerella, D.insignipes, D.bertrami,P.caudatus
I6.Circumpolar Arctomontane	D.arctica, D.geminata, D.gregsoni, D.davisi, Ps.parva
I7.Beringian	D.amplexivirilia, D.sommermani, P.pseudomorio
I8.Siberian-American Arctomontane	D.leona, S.fulva, Ps.(P.)angarensis
I9.Amphipacific	D.japonica

Pseudodiamesa and Pagastia from the USSR Diamesinae are poorly studied. Species Ps.gr.nivosa are widely spread but a lot of specialists for the time being, and me also (MAKARCHENKO I985) determine all formes as a Ps.nivosa. In revising Ps.gr.nivosa (the work has not finished yet) it turned out that Ps.stackelbergi occupies the European part of the country and many regions of the East Siberia and the Soviet Far East besides Ps.nivosa; Ps.gorodkovi occurs in the Caucasus (MAKARCHENKO I983), Ps.subnivosa in the Baikalterritory (LINEVICH and MAKARCHENKO I989), Ps.latistyla sp.n. in the Okhotsk coast of the Magadan region, Ps.vetusta sp.n. in Semipalatinsk re-

gion. At least two species Ps.gr.nivosa appear to occur in the Arctic regions, mountains of the Middle Asia and will be described in the near future. Most probably the same goes for Ps.branickii. This species widely spread in Holarctic. However, karyotypes of European and Middle Asian forms with 2n=6-8 chromosome number (ZACHARIAS 1984, MICHAILOVA and PETROVA in litt.) have been found to differ from those of East Siberia and Far East which have the chromosome number 2n=12 (KUBERSKAYA in litt.). The first three authors might have dealt with Ps.branickii larvae, and Kuberskaya with a new species.

In comparing species of Pseudodiamesa and Pagastia I have cometo the conclusion that at various stages of metamorphosis these two genera are very similar. Imago Pagastia is characterised by dorsomedial and ventrolateral antepronotals, a pupa has blades of anal segment in inner parts with a couple of setae split into 6 branches, a larva possessing a wide middle tooth of labium. The above mentioned features are not sufficient for genus status of Pagastia and, to my mind, it should be considered as subgenus of Pseudodiamesa. OLIVER (1959), while describing the genus Pagastia, was of the same opinion and he wrote "until the immature stages are described the genus Pagastia must be regarded as tentative as it well be a subgenus of Pseudodiamesa." Basing on the Oliver key of determination for males, subgenera can be currently identified by following features:

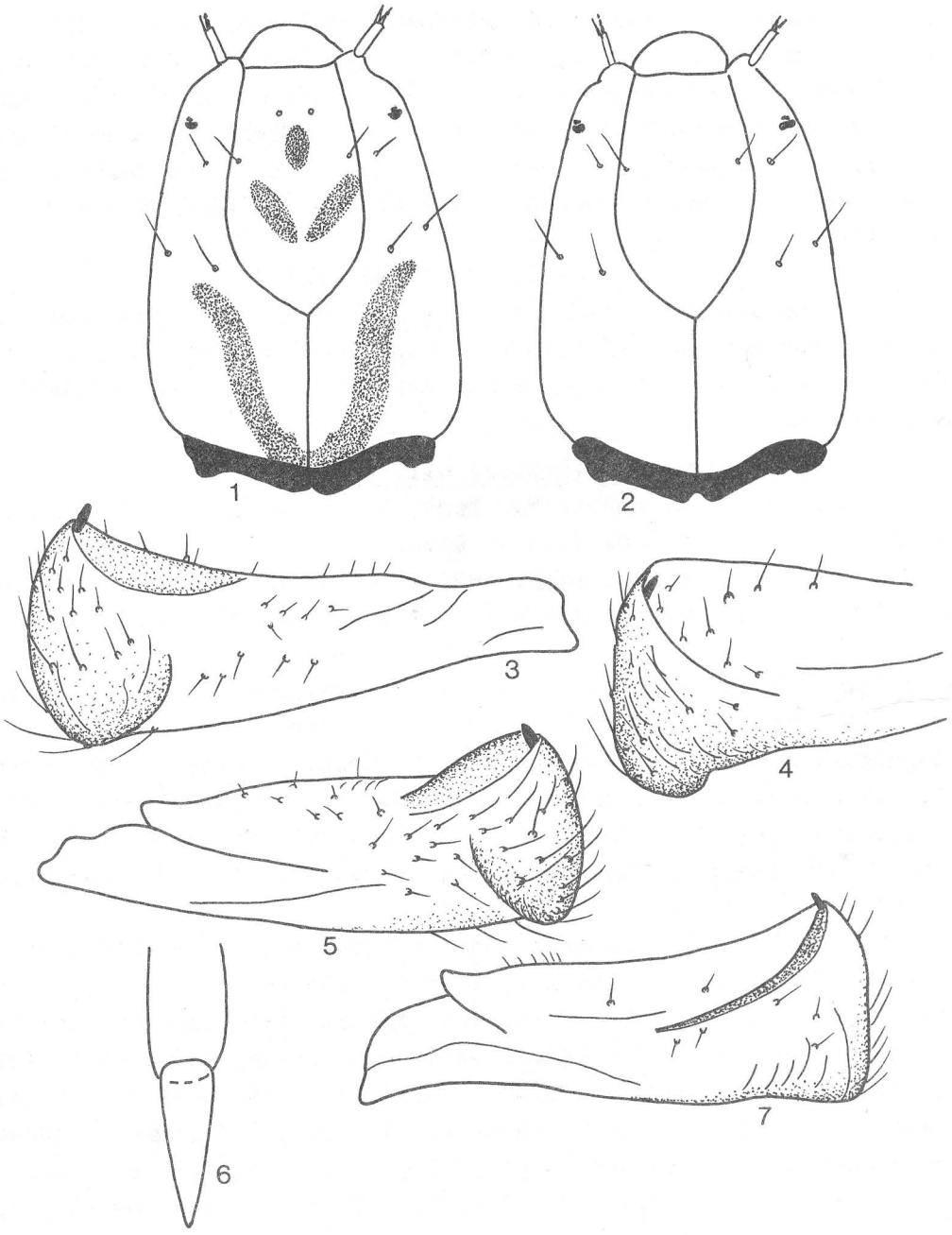
1(4). Ventrolateral antepronotals are present only.....2

2(3). LR_I more than 0.56.....Pseudodiamesa G.

3(2). LR_I less than 0.56.....Pachydiamesa Ol.

4(1). Dorsomedial and ventrolateral antepronotals are present ... .Pagastia Ol.

To my mind, Ps.(P.)orientalis, Ps.(P.)angarensis and Ps.(P.) oliveri sp.n. belong to subgenus Pagastia of the USSR. In my previous paper (MAKARCHENKO 1985) I have mentioned that larvae from the Sakhalin and Kurile Islands differ from the continental ones by spotted colouring of the head (fig.1-2). Later, comparing male hypopygiums from various populations, I have found, that island specimens differ from the continental ones by the form of gonostylus, namely, by a wided distal part in the form of a bulb (fig.3-5,7). As a result I have divided Ps.(P.)orientalis into 2 subspecies: Ps.(P.)orientalis orientalis and Ps.(P.)orientalis insularis subsp.n. A more detailed description of the subspecies will be given in a pa-



Figs.I-7. Pseudodiamesa (Pagastia) orientalis insularis subsp.n. (I,3-6) and Ps.(P.) orientalis orientalis (2,7). I-2 - head of larva, 3-5,7 - gonostylus, 6 - distal part of anal point.

per devoted to revision of Pseudodiamesa and Pagastia. LINEVICH (1953) described Ps.(P.)angarensis as Syndiamesa angarensis by a larva. Later, she considered it as Potthastia (LINEVICH 1984) and then as Pagastia (LINEVICH and MAKARCHENKO 1989). The male of this species has not been found yet. I think, the larva of Ps.(P.)angarensis is identical to Pagastia sp.A from Alaska (OLIVER and ROUSSEL 1982).

DESCRIPTIONS OF NEW SPECIES

The terminology follows SAETHER (1980). Holotypes and paratypes of the new species have been deposited in the Institute of Biology and Pedology Far East Branch Academy of Sciences of the USSR, Vladivostok.

Pseudodiamesa (Pagastia) oliveri sp.n.

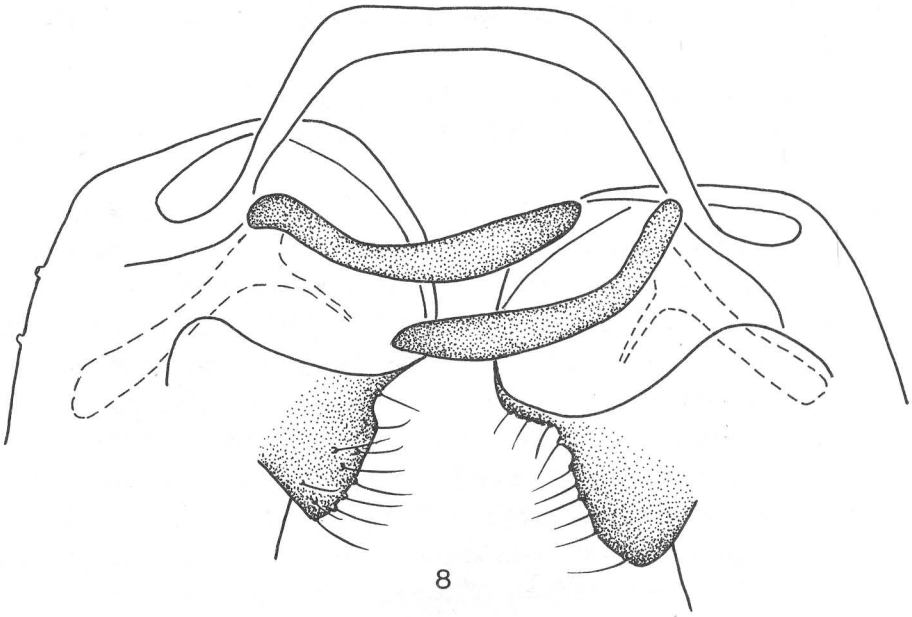
Type locality: USSR, Soviet Far East, Primorye Territory, the Sichote-Alyn reservation, the Jasnaja River.

Type material: Holotype, male,USSR, Soviet Far East, Primorye Territory, the Sichote-Alyn reservation, Jasnaja River, II.IX.1983, E. Poticha.

Etymology: Named in honour of Dr.D.R.Oliver from the Biosystematics Research Institute, Agriculture Canada, Ottawa.

Diagnostic characters:Ps.(Ps.) oliveri sp.n. is close to the species Ps.(P.) orientalis but can easily separated from them as follows: gonocoxite with small inferior volsella; superior volsella is simple, slender and long; gonostylus with wide basal part and apical arounded.

Male imago. Generelly color dark brown. Length 4.3 mm. Head. Verticals 6-7, coronals 4, postorbitals I4-I5, clypeals I5-I6. Antenna and maxillar palp are absent. Thorax. Antepronotum with 2 dorsomedial and 6 ventrolateral setae. Acrostichals 20, dorsocentrals I8, prealars I0. Wing. With microtrichia and without macrotrichia. Length 3.9 mm. R and R_I with 40 setae, R_{4+5} with I9 setae; RM/MCu= 2.5; squama with 37-39 setae. Legs. BR_{I-2}=2.3, BR_3=4.6, LR_I=0.78, LR_2=0.49, LR_3=0.6I, SV_I=2.33, SV_2=3.93, SV_3=3.08, BV_I=3.04, BV_2=3.36, BV_3=3.4I. Front tibial spur length 75.9 mkm, middle tibial spurs equal length 66 mkm, hind tibial spurs length 76 mkm and 60 mkm; hind tibial comb consisting of 9 spines. Hypopygium (figs.8-9). Anal point length 26.4 mkm. Tergite IX with I0-I3 setae, laterosternite IX with 9-II setae. Gonocoxite with small inferior volsella. Gonostylus with



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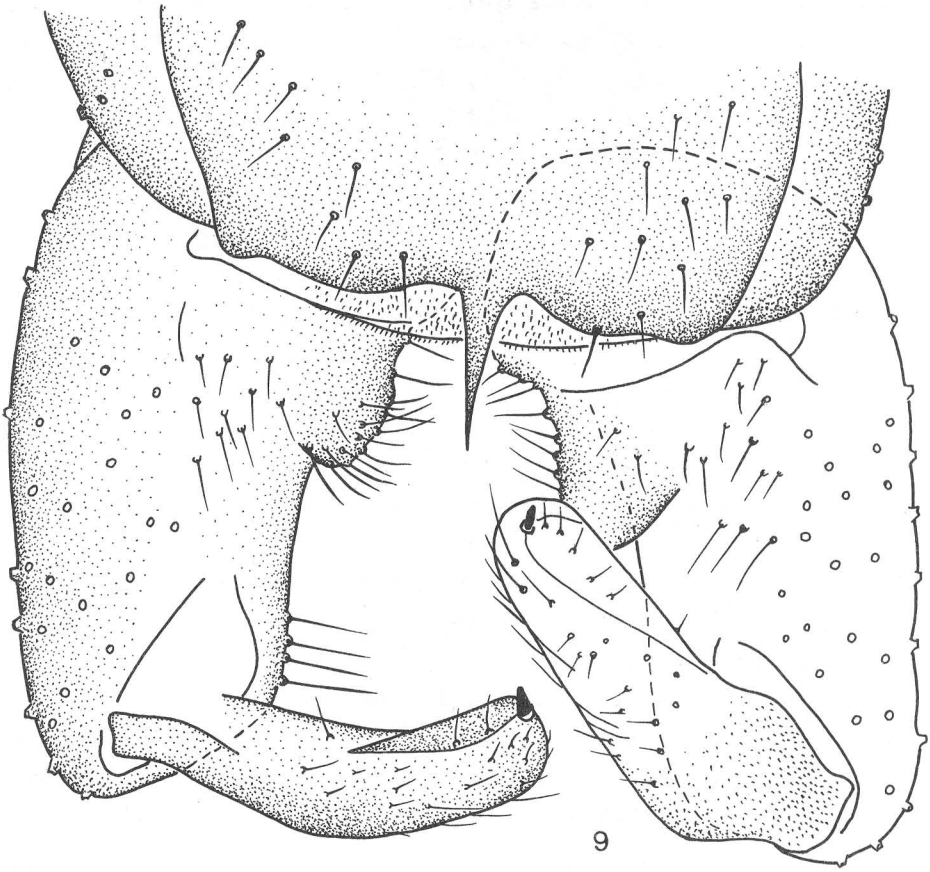

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Figs.8-9. Male hypopygium of Ps.(P.) oliveri sp.n.

wide basal and rounded apical parts, ending with short magaseta and yellow seta.

Pseudodiamesa (Ps.) latistyla sp.n.

Type locality: USSR, Soviet Far East, Magadan region, Ola River basin.

Type material: Holotype, male, USSR, Soviet Far East, Magadan region, Ola River basin, Uglican River, 3.V.1980, V.Samokhvalov. Paratypes: 6 males, same locality, 3.V.1980, V.Samokhvalov.

Diagnistic characters: Ps.(Ps.) latistyla sp.n. is close to the species Ps.nivosa and Ps.stackelbergi and differ from them as follows: gonostylus is typical of nivosa but very broad, AR=5.3.

Male imago. Generally color dark brown. Length 7.9 mm. Head. Preoculars 19-21, coronals 4, clypeals 56-58. Antennal plume well developed, subapical setae of terminal flagellomere length 72.6 mkm, AR=5.2-5.3. Last 4 maxillary palp segments length (mkm) - 247.5 : 283.8 : 270.6 : 250.8. Thorax. Antepronotum with 20-29 ventrolateral setae. Acrostichals absent, dorsocentrals 38-43, prealars 43-47, scutellars 68. Wing. Length 6 mm. R and R_1 with 18 setae, R_{4+5} with 3 setae. Legs. BR_1=6.5, BR_2=3.7, BR_3=4, LR_1=0.71, LR_2=0.44, LR_3=0.50, SV_1=2.68, SV_2=4.42, SV_3=3.71, BV_1=2.96, BV_2=3.51, $BV_3$3.51. Front tibial spur length 161.7 mkm, middle tibial spurs length 82.5 mkm and 85.8 mkm, hind tibial spurs length 158.4 mkm and 95.7 mkm; hind tibial comb consisting of 11 spines. Hypopygium (figs.10-11). Anal point long (148.5 mkm). Tergite IX with 21-25 setae, laterosternite IX with 5-8 setae. Gonostylus is typical of Ps.gr.nivosa but very broad, without megaseta in distal part.

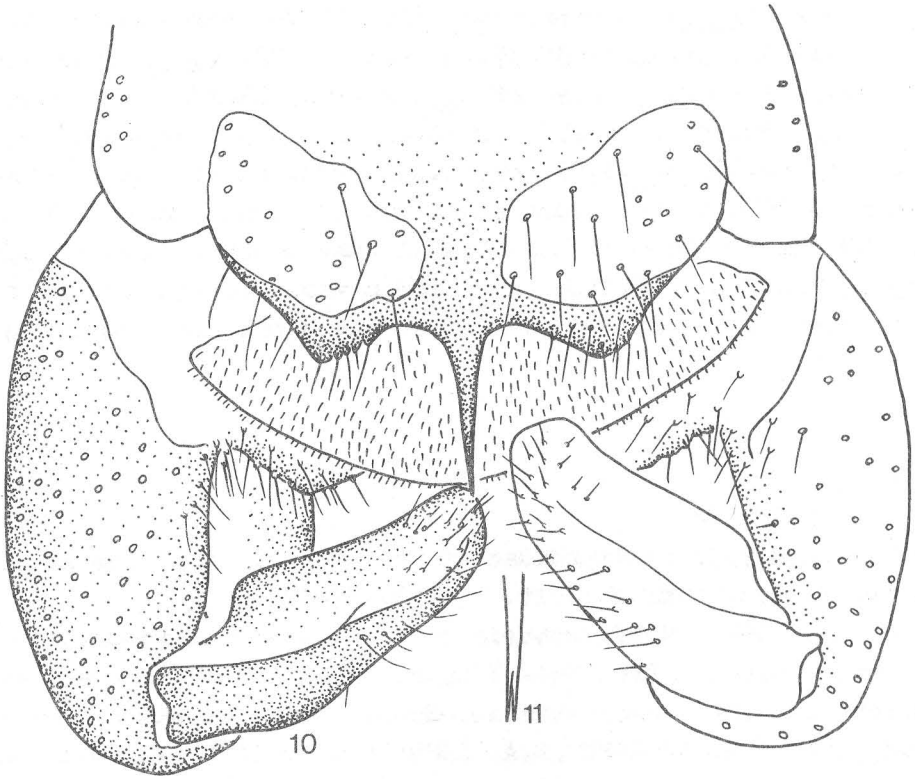
Pseudodiamesa (Ps.) vetusta sp.n.

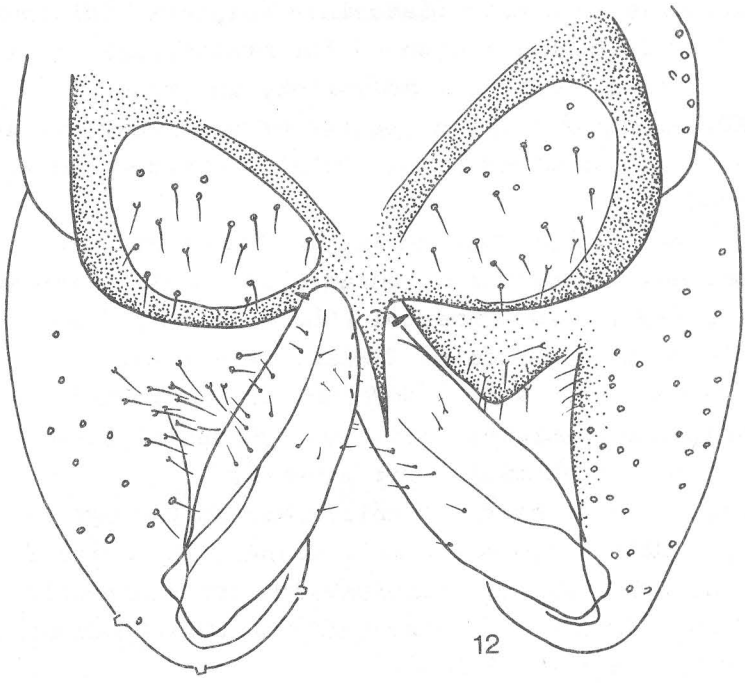
Type locality: USSR, Semipalatinsk region, Saur, Chagan-Obo village.

Type material: Holotype, male, USSR, Semipalatinsk region, Saur, Chagan-Obo village, 25.VIII.1910, B.Karavaev. Paratype: male, same locality, 25.VII.1910, B.Karavaev.

Diagnostic characters: Ps.(Ps.) vetusta is a typical species of Ps. (Ps.) gr.nivosa and differ from other species by the form of gonostylus and a small size of body.

Male imago. Generally color brown. Length 6.5 mm. Head. Preoculars 16, coronals 4, clypeals 31. Antennal plume well developed, subapical setae of terminal flagellomere length 42.9 mkm, AR=3.77. Last 4 maxillary palp segments length (mkm) - 168.3 : 280.5





Figs.10-12. Male hypopygium of Ps.(Ps.) latistyla sp.n. (10-11) and Ps.(Ps.) vetusta sp.n. (12).

: 268 : I87.2. Thorax. Antepronotum with I0 ventrolateral setae. Dorsocentrals 42, prealars 35-37, scutellars 72. Wing. Length 5.25 mm. R and R_I with I4 setae, setae of R_{4+5} absent; RM/MCu=3.5. Legs. BR_I= 6.5, BR_2=3.7, BR_3=4, LR_I=0.7I, LR_2=0.44, LR_3=0.50, SV_I=2.68, SV_2=4.42, SV_3=3.7I, BV_I=2.96, BV_2=3.5I, BV_3=3.5I. Front tibial spur length I7I.6 mkm, middle tibial spurs equal length 99 mkm, hind tibial spurs length I70 mkm and 98 mkm; hind tibial comb consisting of I4 spines. Hypopygium (fig. I2). Typical of Ps.gr.nivosa. Gonostylus is narrow, close to gonocoxite, lanceolate and of about the same thickness.

REFERENCES

LINEVICH, A.A. I953: Tendipedidae of the upper part of the Angara River. - Proc. Irkutsk Univ. 7(I-2):I53-I75.

LINEVICH, A.A. I984: Metamorphosis of two species chironomid (Diptera, Chironomidae) from Baikal Lake. - In: Systematics and evolution of Baikal invertebrates.-Nauka, Novosibirsk, p.I23-I29.

LINEVICH, A.A. - MAKARCHENKO, E.A. I989: New or little-knowen species of chironomid subfamily Diamesinae (Diptera, Chironomidae) from Baikal and Pribaikal region. - In: Systematics and ecology organisms of river. -Nauka, Vladivostok, in press.

MAKARCHENKO, E.A. I983: A new species of the genus Pseudodiamesa (Diptera, Chironomidae) from North Caucasus. - Zool. zh., 62 (I2):I909-I9II.

MAKARCHENKO, E.A. I985: Chironomids of Soviet Far East. Subfamilies Podonominae, Diamesinae, Prodiamesinae). Vladivostok, p.I-208.

OLIVER, D.R. I959: Some Diamesini (Chironomidae) from the Nearctic and Palearctic. - Entomol. Tidskr. 80: 48-64.

OLIVER, D.R. - Roussel, M.E. I982: The larval of Pagastia Oliver (Diptera, Chironomidae) with descriptions of three Nearctic species. - Can. Entomol. II4: 849-854.

SATHER, O.A. I980: Glossary of chironomid morphology terminology (Diptera, Chironomidae). - Ent. scand., Suppl.I4: I-5I.

ZACHARIAS, H. I984: Allocyclic behaviour and underreplication of the nucleolus chromosome in Pseudodiamesa (Chironomidae). - Chromosoma (Berl.) 89: 263-273.