

Hover Flies of the Genus *Cheilosia* Meigen, 1822 (Diptera, Syrphidae)*

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Abstract. New records and five new species (*C. aenigmatosa*, *C. lukashovae*; *C. atypica*; *C. teberdensis*; *C. paragigantea*) are described. A key and numerous figures of anatomical details are presented.

Key words: Diptera; Syrphidae; *Cheilosia*; faunistics; systematics (key to species; new species: *C. aenigmatosa*, *C. lukashovae*, *C. atypica*, *C. teberdensis*, *C. paragigantea*).

Hover flies of the genera *Cheilosia* Meigen, 1822 in the system of Syrphidae belong to the tribe Cheilosini of the subfamily Eristalinae. They are easy to distinguish from other representatives of the tribe in the presence of well-developed genae and medial facial tubercle (Figs. 5, 6, etc.), and also by the completely black color of the abdomen (the only species with a red abdomen in ♀s, *C. rufiventris* Peck, lives in Tien Shan). The biology of most species of the genus has not been studied. It was found that in some species the larvae are phytophagous, living in and feeding on tissues of large plants. Several species feed on fungi and 1 species on the resin of coniferous plants. The flight of imagines in the study area continues from mid-April to mid-September.

Despite the existence of a number of papers in which attempts to investigate the syrphid fauna of the Caucasus, including the genus *Cheilosia*, were made, knowledge about flies in this region remains insufficient. In order to keep this paper brief I will not discuss most publications, but I will cite them in chronological sequence (Porchinskiy, 1875; Shtakel'berg, 1960; Zimina, 1960; Skuf'in, 1967; Shtakel'berg and Rikhter, 1968; Zimina, 1968; Dzhafarova, 1973; Skuf'in and Lysenko, 1975; Zimina, 1976; Skuf'in, 1979; Zimina, 1981; Kuznetsov, 1987). The total number of species recorded in these papers in the study area is 41.

This paper is based on materials collected at different times by workers of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg (ZIS), and also on materials of N. V. Lukasheva, Teberdinskiy Reserve, Teberda. I thank all of them and especially workers of the Laboratory of Systematics of Insects (ZIS) for permission to work with the collections. During preparation of this paper I obtained valuable comments on the taxonomy of some species from K. Klausen (Germany) and for that I thank him. Type species and some paratypes of new species are preserved in ZIS, and others in the collection of the Biological Institute of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk.

In the collection of ZIS I examined materials used by Shtakel'berg and Rikhter (1960, 1968). As a result some incorrect identifications of species were discovered. Thus, *C. grisella* Beck. is absent in

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the fauna of Caucasus, and materials cited in the 1968 paper belong to the new species *C. aenigmatosa*. The species name *C. conops* Beck. in this paper is reduced to a synonym of *C. vulpina* Mg., and therefore, material cited in the same paper under the former name should be considered as belonging to the latter species. Some species were impossible to determine without analysis of the type material. Thus, I am not certain whether *C. impudens* Beck., *C. melanura* Beck., and *C. zetterstedti* Beck. live in the Caucasus. Therefore, I did not include the *C. impudens* species in the key. Species close to *C. melanura* require a careful revision using materials from the mountainous part of West Europe, which unfortunately at present I do not have. Specimens determined as *C. zetterstedti* are very similar to those of *C. correctata* that I have in my collection from Western Europe. Even though I did not study types of these two species, I am assigning all examined specimens to *C. correctata*, and therefore, the second species is omitted. L. V. Zimina (1981) cited *C. illustrata* Harris in her work. Unfortunately I did not see these specimens. However, Shtakel'berg (1960, 1968) recorded *C. portschinskiana* Stack. from almost the same locality. These taxa are very close, which allowed me in 1981 to unite them into one species preserving the specific rank of differences. In the collection of ZIS there is extensive material on *C. illustrata portschinskiana* from different localities of the Caucasus. However, I did not find any specimens of *C. illustrata illustrata*. All this leads me to believe that in the Caucasus there was only one subspecies of *C. illustrata*, *C. illustrata portschinskiana*.

C. armeniaca Stack. is very close to *C. caerulescens* (Mg.). The structure of ♂ genitalia in these species, as well as other characters, at first glance does not indicate any major differences. However, the different pubescence of the scutellum, which seems an insignificant character, is strictly correlated with small differences in the genitalic structure. The same differences are found in 2 East Palearctic species, *C. sapporensis* Shr. and *C. albohirta* (Hell.). There was not enough material in my possession to confirm the variability of the pubescence and structure of the hypopygium of these 2 species, but in the available material, small differences in the shape of the apical sclerite of the aedeagus and upper lobes of the hypandrium (Figs. 63-65 and 192-194) permit, I think, retaining the specific status of *C. armeniaca* Stack.

C. gerstaeckeri Beck. was recorded in the Caucasian Reserve by Skuf'in and Lysenko (1975). But in natural habitats this species is not known; therefore I could not place it in the key to species.

In this paper I do not provide an entire checklist of species recorded, but will mention only the most interesting findings.

SPECIES NEW TO THE FAUNA OF RUSSIA

C. rhynchops Egger, 1860. 1 ♀, Dzhuga Mountain, Kuban Prov., Maykop Division, 15.VI.1911 (Volnukhin).

C. semifasciata (Becker, 1894). 1 ♀, Lars, Voyenno-Gruzinskaya Road, 13.V.1955 (Zhil'tsova).

SPECIES NEW TO THE FAUNA OF THE CAUCASUS

C. honesta Rondani, 1868. 1 ♂, NW Caucasus, Nazalykol Gorge, 5.VI.1978 (Lukasheva), forest clearing.

C. melanopa (Zetterstedt, 1834), 7 ♂s and 6 ♀s, Teberda Reserve, Severniy Kavkaz Resort, 23.IV-30.V.1964 (Gorodkov); 1 ♂ and 2 ♀s, Teberda River valley, 10-19.V.1978 (Lukasheva); 1 ♀, same locality, 30.VI.1982 (Narchuk); 2 ♂s and 1 ♀, Teberda, 19.IV-13.VI.1978 (Lukasheva); 1 ♂, same locality, 26.V.1981 (Galas'yeva); 1 ♀, Gonachkhir Gorge, 10.VI.1986 (Lukasheva); 1 ♂, Khadzhibey Gorge, 23.V.1989 (Lukasheva); 1 ♀, Ullu-Murudzhu Gorge, 8.VII.1986 (Lukasheva); 1 ♂ and 1 ♀,

Malaya Khatipara Mountain, 14.VII.1982 (Lukasheva); 1 ♀, Tumanlykel' Lake, N Klukhor valley, 25.VI.1982 (Narchuk); 1 ♂, Shishi River valley, Kuban Prov., Maykop Division, 19.VI.1911 (Volnukhin); 1 ♀, Karachayev-Cherkessia, 24.VI.1972 (Rikhter); 1 ♀, Armenia, Ankovan, 13.VII.1965 (Rikhter).

C. proxima (Zetterstedt, 1843), 2 ♂s and 4 ♀s, Teberda River Gorge, Teberda Reserve, 16-17.VII.1984 (Ovchinnikova); 1 ♀, Malaya Khatipara, 12.VII.1982 (Narchuk); 1 ♀, same locality, 14.VII.1982 (Lukasheva); 1 ♀, Nakhichevan Republic, Nasirvaz, 24.VI.1967 (Rikhter).

NEW SPECIES

Cheilosia aenigmata Barkalov, sp. n.

♂. Face sharply widening downward, black, and with dense black pollen (cf. Fig. 21, lateral view). Genae broad (width compared to that of 3rd antennal segment as 15:21), covered with dense, silvery pollen and short decumbent setae of same color. Cheeks narrow, pollinose and pubescent, as also genae. Frons wide and flat, with deep middle groove, covered with dense, gray pollen and long black and short white setae. Frontal angle blunt. Pit brown and antennal fossae fused. Antennae black, arista bare (Fig. 23). Eyes bare, contiguous, length of line of contact slightly greater than length of frons. Vertex weakly convex, triangle equilateral.

Mesonotum and scutellum black, finely punctate, shiny, without pollen, covered with dense, short, white and longer sparse, black setae. Scutellum on posterior margin with long, but thin, black setae. Sides of thorax with dense gray pollen and white setae. Legs black, with intermingled white and black pubescence. Wings slightly yellowish brown with brown veins. Squamae white, with yellow outer margin and with ciliae of same color. Halteres yellow, with dark club.

Abdomen cylindrical, black, opaque in middle and shiny on sides and on tergite IV, covered with pale yellow setae, erect on sides and decumbent in middle. Hypopygium as in Figs. 25-27.

♀. Face, genae, cheeks, and frons with dense gray pollen. Pubescence of genae short, decumbent in upper half and erect in lower half, pale. Pit pale brown. Antennae black, 3rd segment rounded, and arista bare (Fig. 24). Eyes bare. Frons sharply narrowing to vertex, densely pollinose only in anterior half, and in posterior half shiny (Fig. 28), covered with silver setae directed forward.

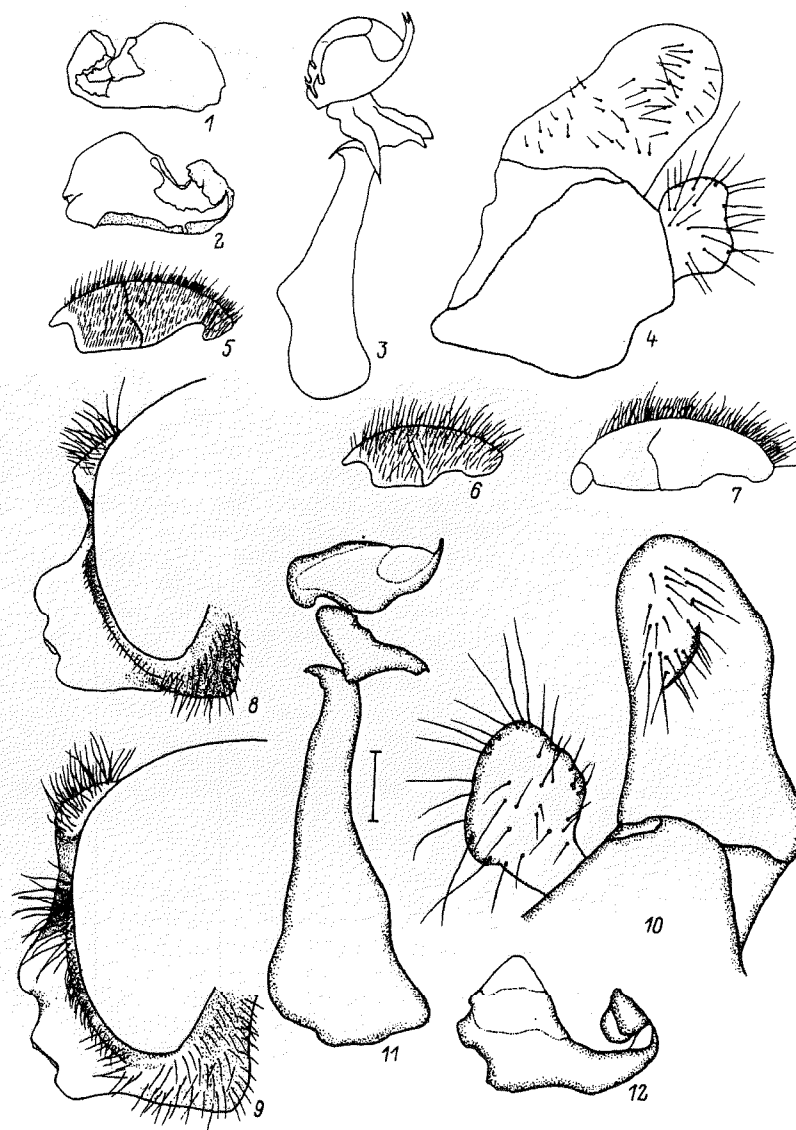
Mesonotum and scutellum relatively coarsely punctate, covered with decumbent white setae and occasional longer semidecumbent setae, latter sometimes black. Scutellum on posterior margin without black setae or stiff hairs. Halteres with yellow club. Wings yellowish, with pale brown veins.

Abdomen oval, opaque entirely or only in middle, covered with pale setae, longer erect setae on wings and tergites I-III and short decumbent ones in other parts.

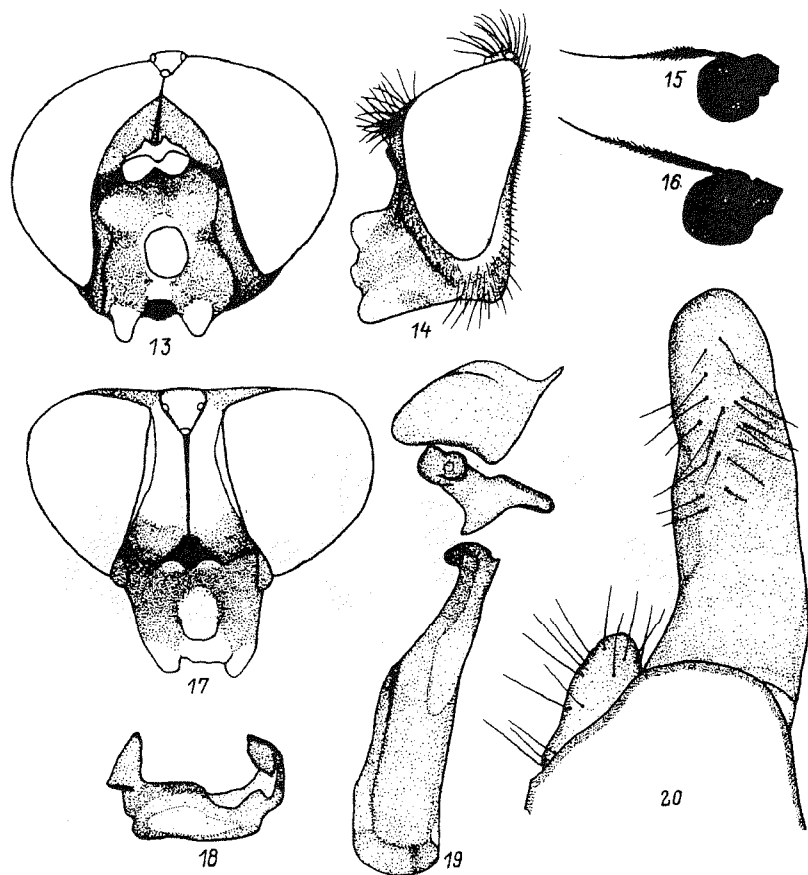
Length of body 8.2-9.2, and length of wing 7.5-8.5 mm.

Material. Holotype ♂, Teberda, N Caucasus, 28.VI.1957 (Arens). Paratypes: 1 ♂, Teberda, Muzu R. valley, 8.VI.1955 (Arens), 1 ♂, d Murudzhu R., Teberda, Kuban Prov., 21.VII.1915 (Kryzhanovskiy); 2 ♀s, alpine meadow, upper Tsetse R., Kuban Prov., 9-14.VI.1903 (Filipchenko); 1 ♀, Dzhuga Mt., Kuban Prov., Maykop Division, 17.VI.1911 (Volnukhin).

Systematic remarks. The new species is closest to *C. pollinifacies* Stack., from which it differs as follows:



Figs. 1-12 *Cheilosia* Mg. 1-4) *C. bakurianensis* Kuzn., part of hypopygium; 5-7) mesonotum: 5) *C. aenigmata* sp. n. (♂), 6) *C. lukashovae* sp. n. (♀), 7) *C. pollinifacies* Stack. (♂); 8, 9) head of ♂ in lateral view: 8) *C. nigripes* (Mg.), 9) *C. latifacies* Lw.; 10-12) *C. pollinifacies*, parts of hypopygium (after Kuznetsov, 1987 and orig.).



Figs. 13-20. *Cheilosia lukashovae* sp. n.: 13, 14) head of ♂ in anterior and lateral views; 15, 16) 2nd and 3rd antennal segments of both sexes; 17) head of ♀ in dorsal view; 18-20) parts of hypopygium.

- 1 (2). Frons with black setae. Pubescence of mesonotum black, with mixture of short, yellow setae along medial suture and in posterior half.
 Scutellum on posterior margin with robust black setae *C. pollinifacies* Stackelberg, 1968.
- 2 (1). Frons with intermingled white and black setae. Pubescence of mesonotum white with sparse, longer, black setae. Scutellum on posterior margin with black setate hairs. *C. aenigmatica* sp. n.

The new species belongs to the subgenus *Nigrocheilosia*.

*Cheilosia lukashovae** Barkalov, sp. n.

♀. Face black, strongly extended anteriorly (Fig. 14) without setae, except tubercle and oral margin, with weak gray pollen. Genae broad, in widest part slightly wider than 3rd antennal segment (Fig. 13), covered with gray pollen and moderately long semidecumbent, pale setae. Cheeks near eyes with reddish spot, elsewhere black, gray pollinose, and with intermingled white and black setae. Antennae black, 3rd segment round, with relatively short, weakly pubescent arista (Fig. 15). Eyes bare, length of line of contact less than length of frons. Triangle on vertex, ocellar triangle equilateral, shiny and with black setae.

Mesonotum and scutellum black, weakly punctate, with dense, brown pollen and sparse, relatively long setae, erect pale setae, and 1.5-2 times as long black setae. Scutellum on posterior margin with numerous, long, but slender, black setae. Sides of thorax with weak, gray pollen and black setae. Halteres long, yellow with dark club. Squamae white, with brown margin, and ciliae white.

Abdomen black, opaque, with setae mostly yellow, only on sides of tergites I-II and III and hypopygium with black setae. Hypopygium large, as in Figs. 18-20.

♂. Face in shape and color as in ♀. Frons moderately wide, in anterior 1/3 with dense, gray pollen (Fig. 17). 3rd antennal segment round and small (Fig. 16). Arista distinctly swollen in basal 1/3, in middle part with small setae.

Mesonotum finely punctate, with weak brown pollen covered with erect yellow setae of medium length, and 1.5-2 times as long, sparse, black setae. Scutellum on posterior margin with numerous black setae; sides weakly gray pollinose. Legs completely black, femora with intermingled light and black setae. Wings transparent and not darkened. Halteres pale yellow, with concolorous club; squamae white, with white margin and ciliae.

Abdomen weakly shiny, with yellow setae, erect on sides of tergites I and II and decumbent elsewhere.

Length of body 6.2-6.4 mm, and length of wing 6.0-6.2 mm.

Material. Holotype ♂, Stavropol' Terr., Teberda, forest, 29.V.1980 (Novikov). Paratype: 1 ♀, same locality, 29.V.1980 (Novikov).

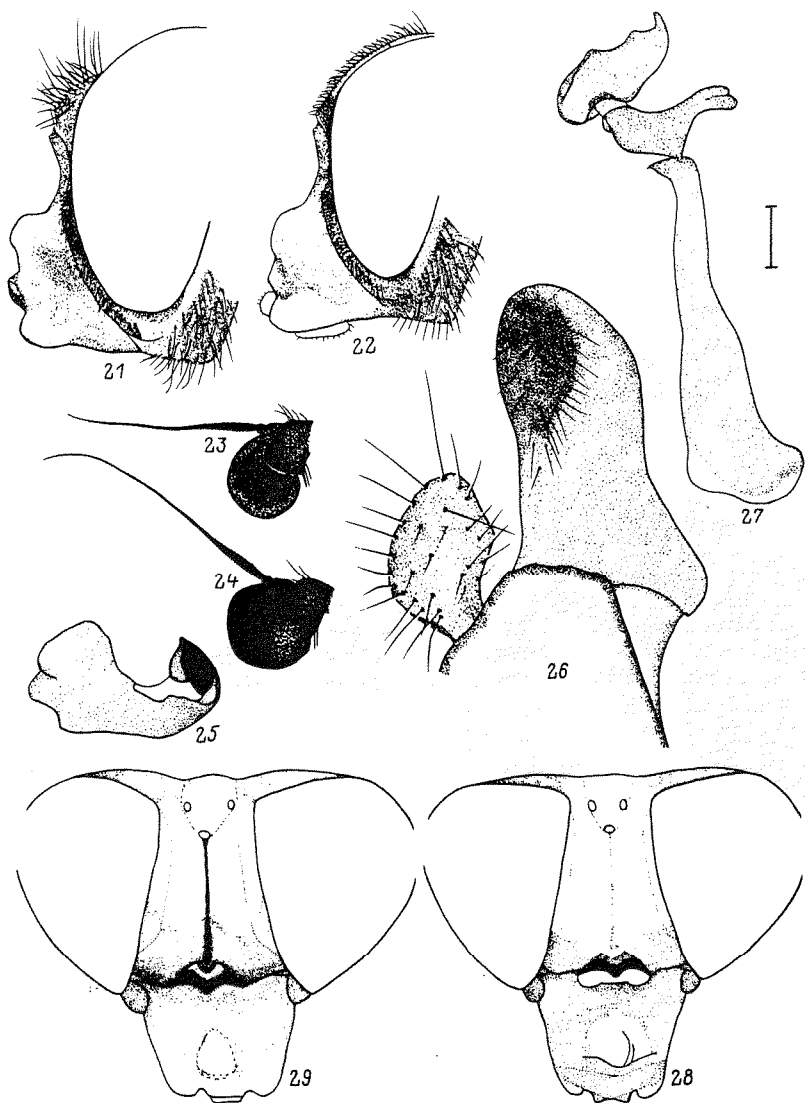
Systematic remarks. The new species belongs to the subgenus *Nigrocheilosia*, similar to *C. pollinifacies* and *C. aenigmatica*. It differs from both these species in dense, brown pollen of mesonotum in ♂ and erect pubescence of mesonotum in ♀. In structure of hypopygium it differs clearly in extended surstyli, shape of upper lobes of hypandrium, and apical sclerite of aedeagus.

The species is named in honor of a worker of the Teberda reserve, N. V. Lukashaeva.

Cheilosia atypica Barkalov, sp. n.

♀. Face broad, mostly black, with brown anterior oral margins, weakly shiny, on sides and under

*This is apparently a phonetic transcription of the name usually seen as Lukashaeva. There is apparently nothing against this in the International Code of Zoological Nomenclature.—*Transl. Ed.*



Figs. 21-29. 21-28) *C. aenigmatosa* sp. n.: 21, 22) head of ♂ and ♀ in lateral view; 23, 24) 2nd and 3rd antennal segments of ♂ and ♀; 25-27) parts of hypopygium; 28) head of ♀ in dorsal view; 29) *C. pollinifacies* Stak., head of ♀ in dorsal view.

base of antennae with weak gray pollen, in lateral view as in Fig. 190. Genae broad, brown, shiny in middle, ventrally, near antennae with weak gray pollen (Fig. 189), covered with pale setae, erect in middle part, decumbent in upper part, and semidecumbent in lower part. Cheeks black, with weak gray pollen and white setae. Along posterior ocular margin, beginning from lower margin with stripe of dense, silver-white pollen, broad below and gradually narrowing to vertex. Antennae bright orange, 3rd segment round (Fig. 191), and arista bare. Pit brown, antennal fossae divided. Frons broad, shiny, without pollen, with weakly developed lateral and medial grooves, covered with short, yellow setae, near ocellar tubercle with mixture of black setae. Ocellar triangle weakly convex, with yellow setae. Occiput with yellow setae intermingled with occasional black setae. Eyes bare.

Mesonotum and scutellum finely punctate, shiny and with relatively long, erect, pale yellow setae. Scutellum on posterior margin without black bristles or setae. Sides of thorax black, weakly shiny, and with pale yellow setae. Legs with coxae black; trochanters from yellow to brown; femora black with narrow yellow apices; tibiae yellow with indistinct dark ring in middle 1/3; tarsi dorsally mostly yellow, except 1st, 4th, and 5th segments of foretarsi and 5th segment of midtarsi. Pubescence of legs generally pale yellow. Halteres completely yellow. Wings pale, with yellow Se and R₁ veins, other veins brownish, Rs dorsally with setae.

Abdomen black, mostly, only in middle of tergites I-III matt, on sides covered with pale setae, erect long, decumbent in middle, and shorter. Widest part of abdomen at end of tergite II. Sternites black, shiny, weakly gray pollinose, with pale setae. Cerci yellow.

Length of body 8.5 mm; length of wing 6.9 mm.

♂ not known.

Systematic remarks. According to Sack (1932) key to Palearctic species of the genus *Cheilosia* the new species is most similar to *C. imperfecta* Beck., from which it differs in orange antennae and rather long, erect pubescence of mesonotum. In appearance and in many characters the new species is closest to *C. flavipes* Panz., which in Sack's key is shown erroneously with pubescent arista. In *C. flavipes* the arista is quite bare. These species differ as follows:

1 (2). Genae shiny in middle; 3rd antennal segment round (Fig. 191); mesonotum with erect setae; femora of all legs black, with narrow yellow apices; abdomen on sides with erect setae.....
.....*C. atypica* sp. n.

2 (1). Genae completely gray pollinose; 3rd antennal segment oblong-oval (Fig. 121); mesonotum with decumbent setae; femora entirely yellow or with dark posterior sides; erect setae developed on sides only on abdominal tergites I and II and on anterior part of abdominal tergite III.
.....*C. flavipes* (Panzer, 1798).

Because the specimen used for the description of the new species is very old, its dark color on wings and legs possibly has become faded. This must be taken into account in comparisons of the holotype with other representatives of this species. The new species belongs to the subgenus *Cheilosia* s. str. The absence of hairs on the eyes is not as important as the presence of a well-developed sclerotized bridge between antennae. The ♂ of this species is not known. It may have bare eyes (as in *C. pagana* Mg., *C. latifacies* Lw., etc.) or with eyes covered with setae (as in *C. albitarsis* Mg. and *C. flavipes* Panz.).

Material. Holotype ♀, summit of Belaya Mt., Caucasus, 18-21.VI.1903 (Filipchenko).

Cheilosia tebederdensis Barkalov, sp. n.

♂. Face sharply widening downward, without distinct setae, black, weakly gray pollinose, apex of middle tubercle, anterior margin, and lower part of face shiny, not pollinose, in lateral view as in Fig. 198. Genae broad, width slightly less than that of 3rd antennal segment, with dense, gray pollinose and small white setae, along ocular margin with narrow stripe without pollen. Genae medium sized, dense, silver pollinose, with relatively short white setae. Frons flat, with deep medial groove, weak gray pollinosity more densely pollinose along eyes, and with black setae. Pit dark brown, anterior part of pit dividing antennal fossae. 1st and 2nd antennal segments deep black, 3rd segment paler because of small and round gray pollen (Fig. 200). Arista long, bare, and black. Eyes along entire length with dense, rather short yellowish hairs. Length of line of contact of eyes distinctly longer than frons. Vertex convex and with black setae. Triangle of vertex equilateral.

Mesonotum black, shiny, with fine punctation, only in anterior part with weak gray pollen, covered with equally long black setae, which in anterior 1/4 intermingled with white setae half as long. Scutellum on posterior margin with longer and more robust black setae. Sides of thorax gray pollinose and with black setae. Legs black, femora with mixed setae. Wings evenly brownish and with black veins.

Squamae white, with similar lamellae and pale yellow outer margin. Halteres pale brown with black club.

Abdomen oblong-oval, black, matt in middle part and shiny on sides, covered with white, erect setae, remainder of lower abdomen with decumbent small setae. Hypopygium as in Figs. 202-204.

♀. Face and genae broad, black with dense silvery pollinosity, genae also with short, decumbent silvery setae. Genae as in ♂. Frons rather narrow, distinctly narrowing to vertex, covered with intermingled white and black setae, black setae somewhat longer. Pit pale brown. Antennae black, 3rd segment round, arista bare (Fig. 201).

Mesonotum finely punctate, with semidecumbent, short, pale and more erect, long, black setae. Scutellum on posterior margin with long, slender, black setae. Legs black, with narrowly reddish apices of femora and tibiae. Abdomen oblong-oval, black, with red sheen, on margins with long, erect pale setae, in middle with short decumbent black setae.

Length of body 9.9-10.4 mm; length of wing 9.3-9.5 mm.

Material. Holotype ♂, Teberda Reserve, N Caucasus, 31.V.1964 (Gorodkov), 2000 m, on flowers of *Draba* sp. Paratypes: 1 ♀, same locality, 31.V.1964 (Gorodkov); 1 ♀, NW Caucasus, Dzhemagat, 10.VI.1977 (Lukasheva), 1640 m, clearing.

Systematic remarks. The new species belongs to the subgenus *Cheilosia* s. str. According to the key to Palearctic species of the genus it is closest to *C. pascuorum* Beck., from which it differs in rounded shape of the 3rd antennal segment and entirely black pubescence of the mesonotum.

Cheilosia paragigantea Barkalov, sp. n.

♂. Face moderately wide, black, weakly gray pollinose or with glossy sheen, only under bases of antennae with silver pollen, in lateral view as in Fig. 205. Genae broad, width slightly less than that of 3rd antennal segment. Part of genae adjacent to face dark brown, bare, other part adjacent to eye densely gray pollinose. Color of pubescence of genae varying from white with occasional black setae

in lower part to entirely black in lower part and pale with occasional black setae in upper half. Cheeks narrow, gray-pollinose, and with mixture of occasional black setae. Frons flat, with deep medial groove, black, weakly gray pollinose and with black setae. Frontal angle rectangular. Pit brown, anterior parts of pit broadly divide antennal fossae. 1st and 2nd antennal segments black, 3rd segment brown or reddish brown. Arista black, with small setae (Fig. 207). Eyes covered with dense, rather long, pale hairs. Length of line of contact of eyes greater than length of frons. Vertex weakly convex; with black setae. Triangle of vertex equilateral.

Pronotum finely punctate, black, weakly gray pollinose and with slender, black setae of equal length. In one specimen, anterior part of mesonotum with narrow row of white setae. Scutellum on posterior margin with robust, black setae. Sides of thorax gray pollinose, with black setae, only lower parts of sternopleura covered with white setae. Legs entirely black, basal 1/3 and apex of tibia may be reddish. Stigma dark brown. Squamae white, with pale brown margin and white lamellae.

Abdomen oblong-oval, black, sparsely gray pollinose in anterior half of each tergite. Pubescence rather long, pale. Gray pollen in anterior half and black in remaining part of each tergite. Hypopygium as in Figs. 209-211.

♀. Face with rather dense gray pollen, in lateral view as in Fig. 206. Genae pollinose and pubescent as in ♂. Frons narrow, in anterior part, near eyes gray pollinose. Pubescence of frons short and pale and long and black. Pit yellow. 1st antennal segment entirely black, 2nd segment mostly black, 3rd segment reddish-orange, with darkened apex. Arista almost bare (Fig. 208). Tubercle of vertex weakly convex, triangle of vertex equilateral. Eyes evenly covered with pale hairs. Mesonotum narrowly pollinose only in anterior part; between humeral tubercles and with fine punctations; pubescence black, in middle part long, erect, and decumbent and shorter on lateral parts (especially in posterior part). Scutellum with decumbent setae, on margin with numerous long, but not robust setae. Sides pollinose and pubescent as in ♂. Legs black, with narrow yellow patella. Halteres with dark club. Wings slightly brownish with black veins. Abdomen broadly oval, pollinose and pubescent as in ♂, but pale, erect setae on tergites distributed somewhat extensively only on their margins; their length gradually declining to middle of abdomen, on tergites III and IV, posteriorly with erect, pale, decumbent setae of same color. In middle part of abdomen pubescence short, decumbent, and black.

Length of body 10.9-12.6 mm, length of wing 10-11 mm.

Systematic remarks. The new species belongs to the subgenus *Cheilosia* s. str. In the key to Palearctic species (Sack, 1932) it agrees with *C. pascuorum* Beck., but differs in the completely black mesonotal pubescence, peculiar abdominal pubescence and structure of hypopygium. It differs from *C. gigantea* Zett. in rather peculiar abdominal pubescence and especially in structure of upper lobes of hypandrium (Figs. 174-176, 209-211). Shtakel'berg and Rikhter (1968) placed specimens of *C. paragigantea* sp. n. in *C. gigantea* Zett.

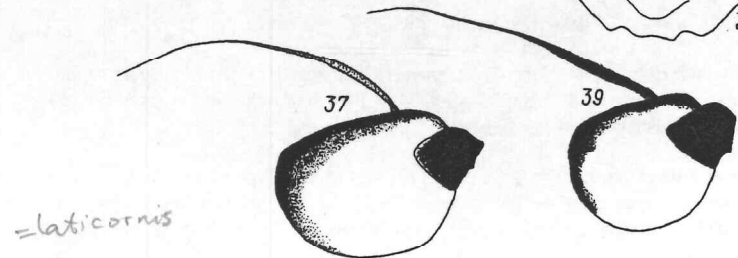
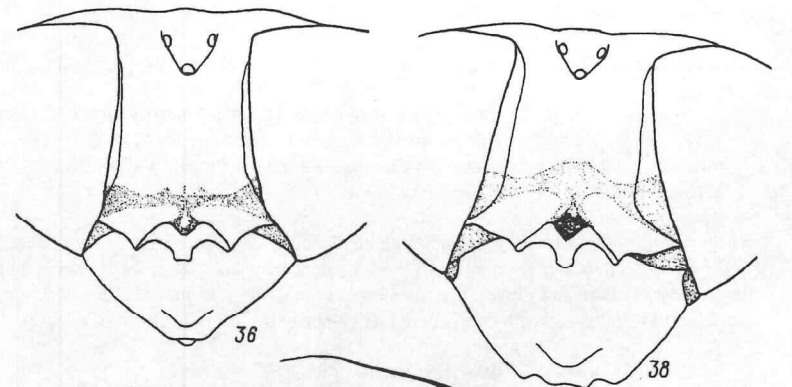
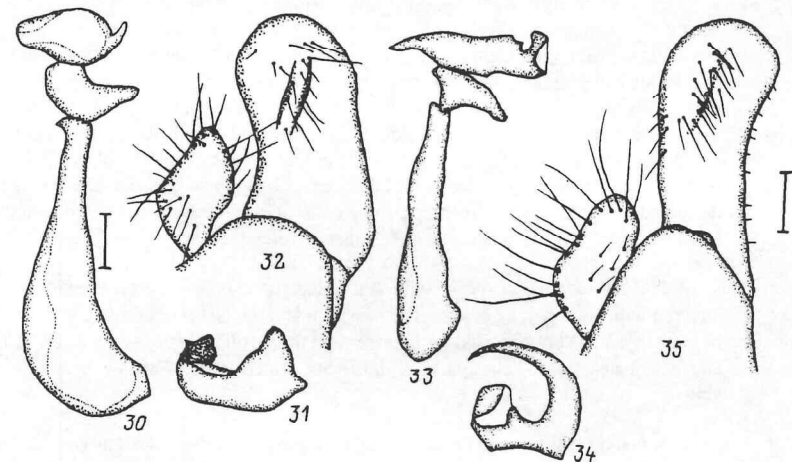
During preparation of the key I had serious difficulties caused by unusual variation in all characters used in specific diagnostics of this genus. In my opinion this indicates intensive speciation in this taxon and requires additional careful investigation. In some cases there are morphologically close, but valid species (the group of *C. pollinifacies* Stack., *C. aenigmatosa* sp. n., *C. lukashovae* sp. n.); in other cases the process of differentiation of forms is still not complete, and we see rather polymorphic species. This is true primarily of *C. illustrata portschinskiana*, *C. variabilis* (Panz.), *C. melanopa*, and *C. melanura*. Morphs of *C. illustrata portschinskiana* were described by Portchinskiy (1876) and Shtakel'berg (1960). In *C. melanopa* two forms also are widely distributed. One form has almost black legs and black pubescence of mesonotum and scutellum; the other form is pale, with yellow bases and

apices of tibia, and mostly yellow pubescence of mesonotum and scutellum, as a result of which on its posterior margin only the most robust setae are black. In the key such extremely variable species are mentioned several times at different points in order to take into account the entire range of variation. In all species the most contrasty differences are offered by the structure of the hypopygium, and therefore I use them for identification of each species. In the drawings are shown the surstylus of gonocerci, aedeagus with apodeme, and the upper lobe of the hypandrium (Figs. 10-12, respectively). The shape and pubescence of cerci are rather stable within groups of species, and their diversity in drawings often depends on the angle of view. In all drawings genitalia of actual specimens are shown without the diversity. This should be kept in mind, because great differences in structure of surstyli and aedeagus are possible even with one population. It should be noted that the drawings of the heads are sketchy. Only those characters necessary for the diagnostics of actual species are shown. All original drawings of antennae were prepared at magnification $\times 56$, and head $\times 32$. Parts of hypopygia of different species are presented at different magnifications. The scale is shown in form of a line 0.1 mm long in each figure. Arrows in drawings show the most typical details of the structure, which deserve special attention. Almost all drawings are original; cases when drawings were borrowed have references in the text.

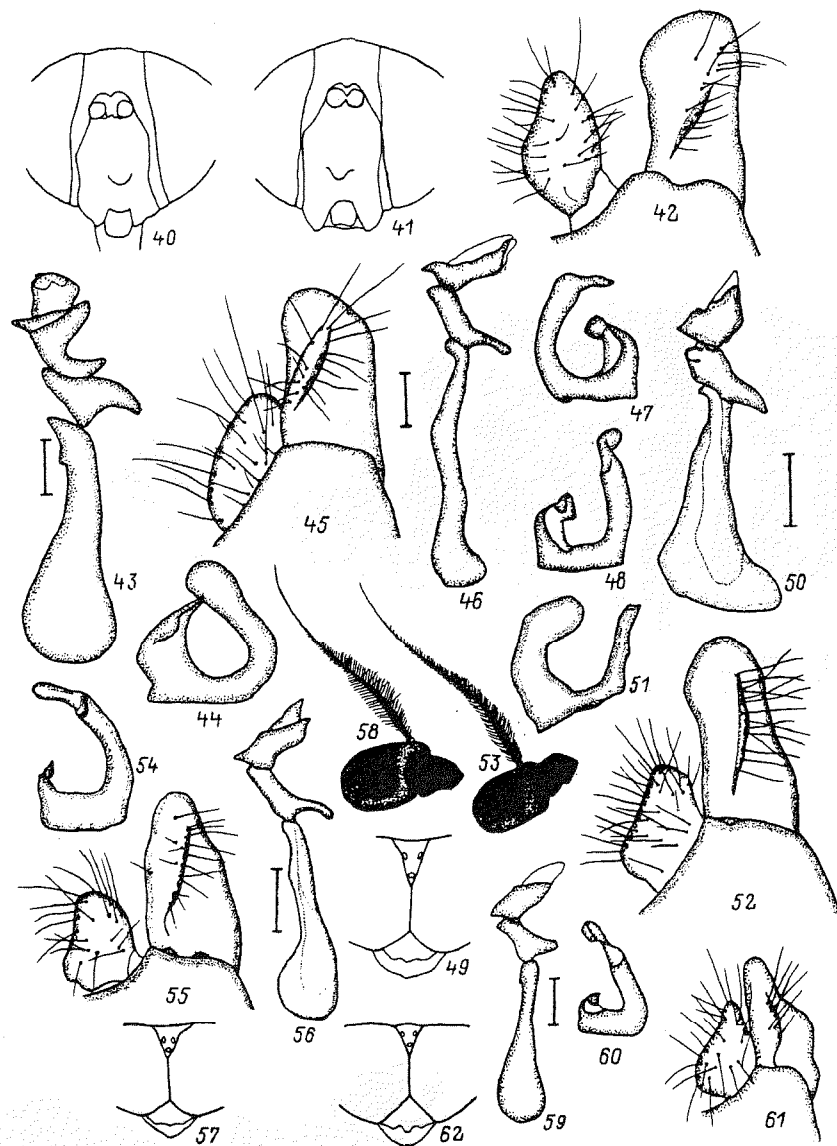
The division of the Caucasus into regions in the descriptions of species distribution is the same as that used in works of Shtakel'berg and Rikhter (1968): Armenian mountains; Great Caucasus; Transcaucasia, Caucasus; Minor Caucasus; Talysh.

KEY TO SPECIES OF *CHEILOSIA* MG.

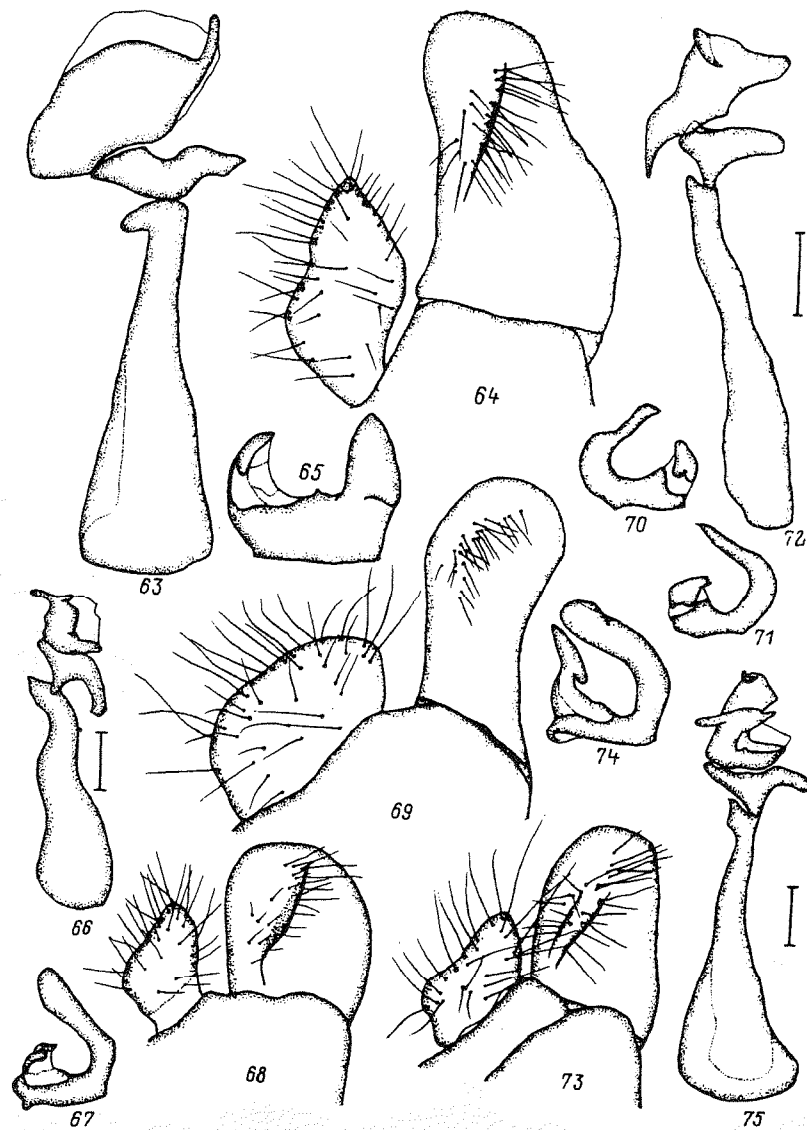
- 1 (36). Eyes bare.
- 2 (11). Legs entirely black, only tibia sometimes narrowly brownish or 2nd-4th segments of fore- and midtarsi yellow.
- 3 (4). Genae entirely shiny, very wide, distinctly wider than 3rd antennal segment. 5.9-6.1 mm. Hypopygium as in Figs. 1-4. Lesser Caucasus. *C. bakurianiensis* Kuznetsov, 1987.
- 4 (3). Genae partly or entirely covered with pollen (in dorsal view), no wider than 3rd antennal segment.
- 5 (10). Face distinctly extended anteriorly (Figs. 14, 21, 22). Frons with dense, gray pollen masking basic black color.
- 6 (7). Mesonotum of ♂ with dense brown pollen (in anterior view). Pubescence of mesonotum of ♀ erect (Fig. 6). 6.2-6.4 mm. Hypopygium as in Figs. 18-20. W Greater Caucasus. *C. lukashovae* Barkalov, sp. n.
- 7 (6). Mesonotum of ♂ without pollen or with barely developed pollen, not reaching transverse suture. Pubescence of mesonotum of ♀ decumbent.
- 8 (9). Mesonotum and scutellum of ♂ with black setae of different lengths (Fig. 4). Scutellum of ♀ on posterior margin with robust, black setae. Frons dorsally as in Fig. 29. 8-9.2 mm. Hypopygium as in Figs. 10-12. Greater and Lesser Caucasus. *C. pollinifacies* Stackelberg, 1968
- 9 (8). Mesonotum and scutellum of ♂ entirely covered with erect, pale setae intermingled with longer black setae (Fig. 5). Scutellum of ♀ on posterior margin without black setae, frons



Figs. 30-39. *Cheilosia* Mg.: 30-32) *C. nigripes* (Mg.), parts of hypopygium; 33-37) *C. latifacies* Lw.: 33-35) parts of hypopygium, 36) head of ♀ in dorsal view, 37) 2nd and 3rd antennal segments; 38, 39) *C. verae* Stack.: 38) head of ♀, 39) 2nd and 3rd antennal segments.

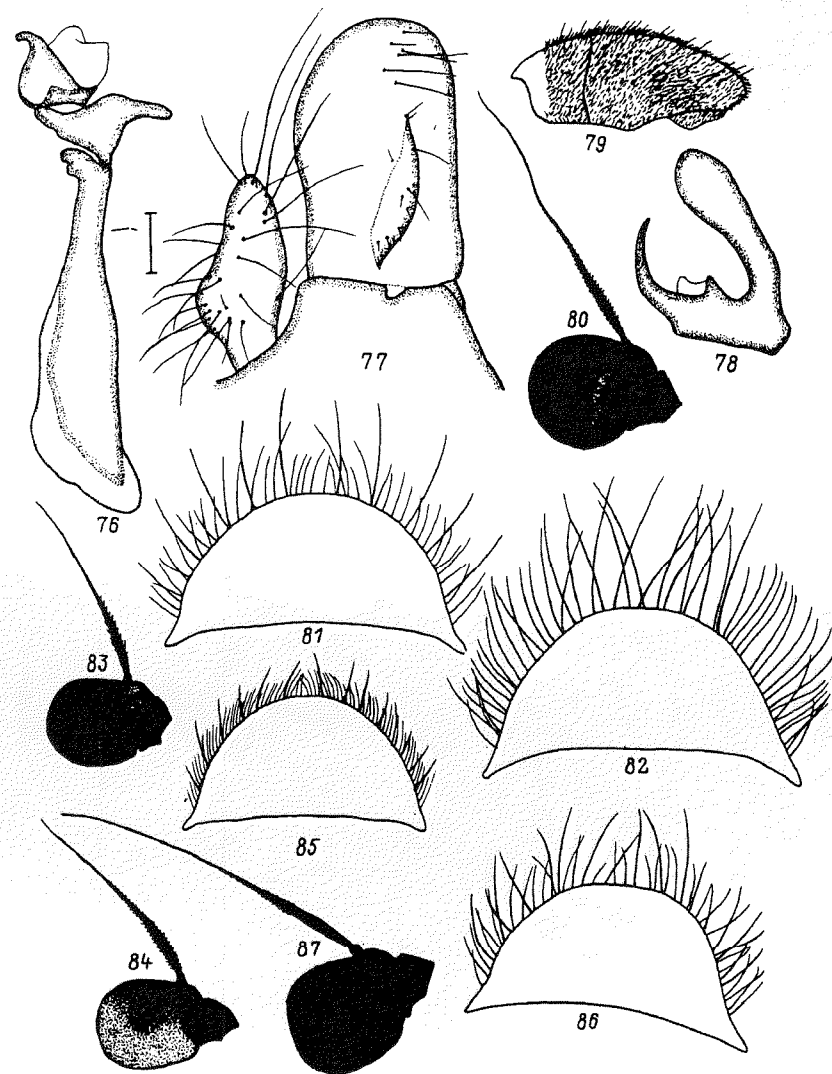


Figs. 40-62. *Cheilosia* Mg.: 40, 41) head of ♀ in anterior view: 40) *C. mutabilis* (Fall.), 41) *C. longula* (Zett.); 42-48) parts of hypopygium: 42-44) *C. rufipes* (Preys.); 49-52) *C. scutellata* (Fall.); 49) head of ♂ in dorsal view, 50-52) parts of hypopygium; 53-56) *C. longula*: 53) 2nd and 3rd antennal segments of ♂, 54-56) parts of hypopygium; 57-62) *C. pallipes* Lw.: 57) head of ♂ in dorsal views; 58) 2nd and 3rd antennal segments; 59-62) parts of hypopygium.



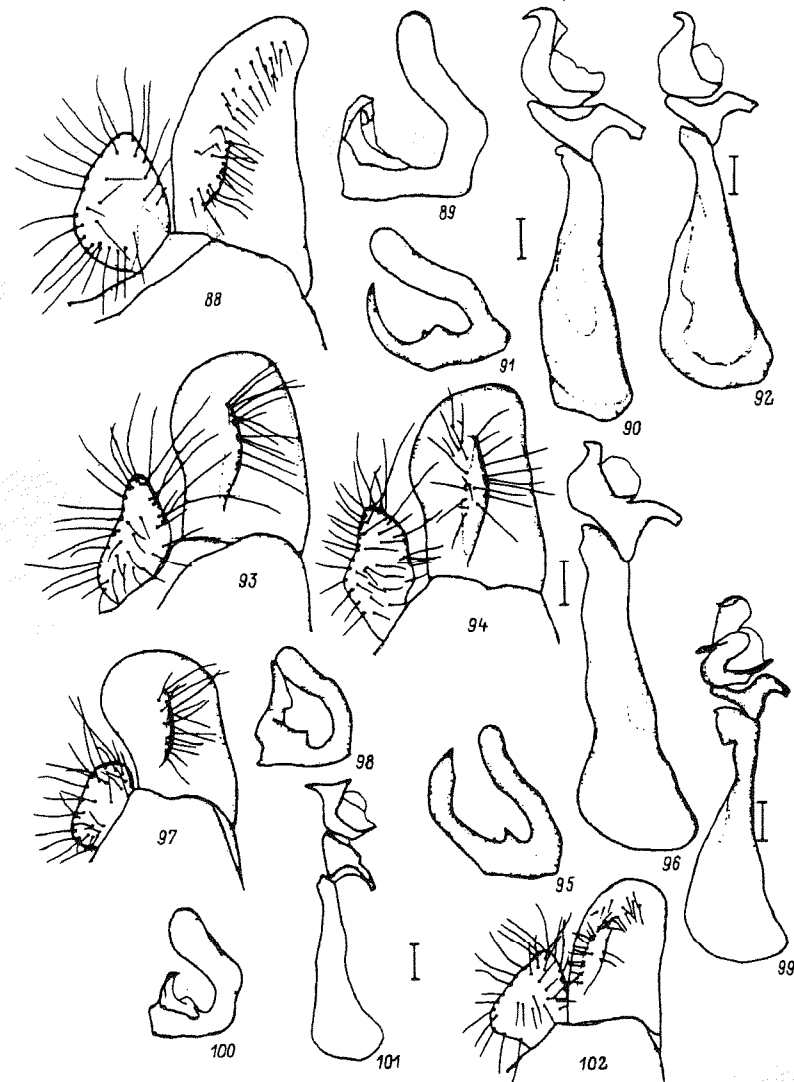
Figs. 63-75. *Cheilosia* Mg., parts of hypopygium. 63-65). *C. armeniaca* Stack., 66-68) *C. intonsa* Lw., 69-72) *C. verae* Stack., 73-75) *C. transcaucasica* Stack.

- dorsally as in Fig. 29. 8.2-9.2 mm. Hypopygium as in Figs. 25-27. W Greater Caucasus. ...
 *C. aenigmata* Stackelberg, 1968.
- 10 (5). Face weakly extended anteriorly (Fig. 8), frons with sparse, gray pollen not masking basic black background. 6-8 mm. Hypopygium as in Figs. 30-32. Entire Caucasus; entire temperate Palearctic zone. *C. nigripes* (Meigen, 1822).
- 11 (2). At least 2nd-4th segments of fore- and hindtarsi and/or patella and apices of tibia reddish yellow.
- 12 (27). Antennal fossae divided by well-developed sclerotized bridge (Fig. 40).
- 13 (14). Face with setae. 7-8 mm. ♀, ♂ as in rubric 38. Greater and Lesser Caucasus, Transcaucasia, Palearctic as far as entire W Siberia. *C. intonsa* (Loew, 1857).
- 14 (13). Face without distinct setae (pubescence of genae not considered).
- 15 (16). Legs black, only 2nd-4th segments of fore- and hindtarsi yellow. 7.5-9.0 mm. ♀ and ♂ as in thesis 71. W Greater Caucasus, Armenian Mts., and Talysh. Holarctic and in Palearctic widely distributed in W part, in the E as far as Baykal.
 *C. albitarsis* (Meigen, 1822).
- 16 (15). At least patella and apices of tibia reddish yellow.
- 17 (20). Genae of ♂ in lower half with decumbent setae of usual length, in upper part setae erect and very long (Fig. 9). In ♀ upper setae on genae shorter, face with dense gray pollen, 3rd antennal segment large and orange, distinctly darkened in apical part (Figs. 37, 39).
- 18 (19). ♀: frons narrower, as in Fig. 36; 3rd antennal segment larger (Fig. 37). Scutellum on posterior margin with weak, yellow setae. ♂: eyes bare; 8-10 mm. Hypopygium as in Figs. 33-35. Greater Caucasus, Armenian Mts., S Palearctic, E to Afghanistan.
 *Latifacies* Loew, 1857.
- 19 (18). ♀: frons wider, as in Fig. 38; 3rd antennal segment smaller (Fig. 39). Scutellum on posterior margin with robust black setae. ♂: eyes with hairs, see rubrics 60, 107. 6.0-9.0 mm. Entire Caucasus.
 *C. verae* Stackelberg, 1968.
- 20 (17). Genae along entire length with similar setae. If 3rd antennal segment of ♀ large and bright orange, then no darkening on apical part, and face shiny.
- 21 (24). Genae very wide, as in Fig. 189.
- 22 (23). Mesonotum and abdomen with decumbent setae. Femora entirely or mostly yellow. ♀ and ♂, see rubric 56. Armenian Mts. W Palearctic, E as far as W Sayan Mts.
 *C. flavipes* (Panzer, 1798).
- 23 (22). Mesonotum and abdomen with erect setae. Femora black, only apices narrowly yellow. 8.3 mm. ♀. Caucasus.
 *C. atypica* sp. n.
- 24 (21). Genae of usual width, or narrow.

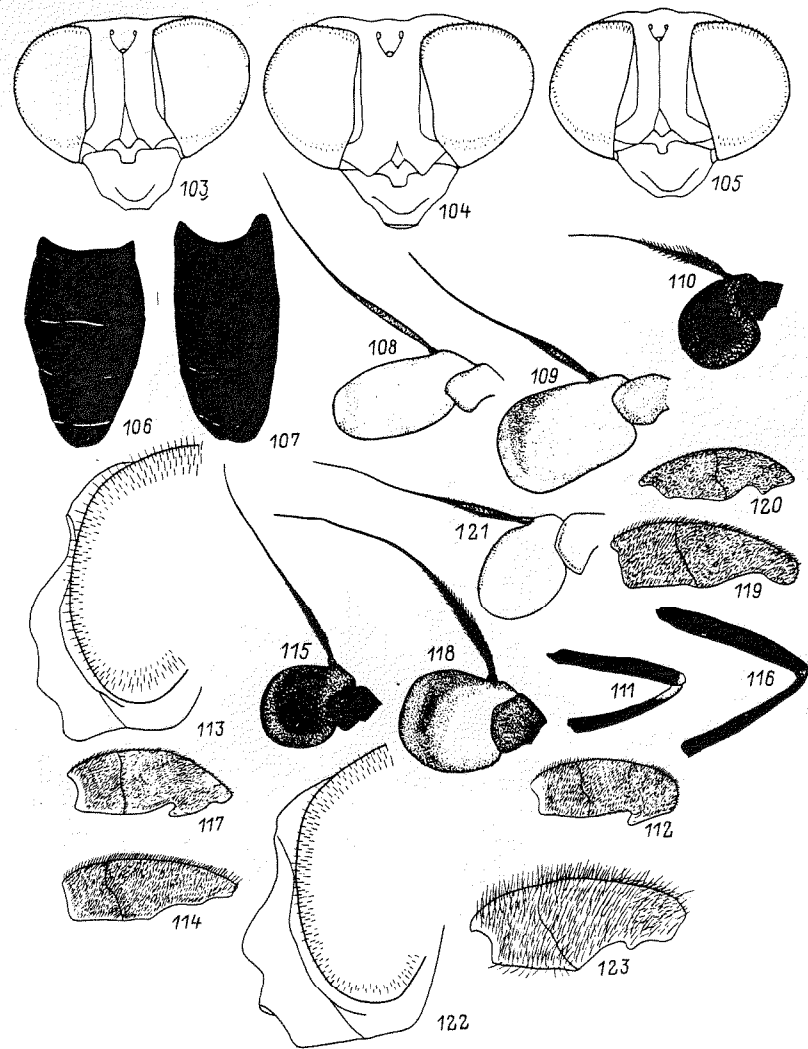


Figs. 76-87. *Cheilosia* Mg.: 76-82) *C. melanopa* (Zett.); 76-78) parts of hypopygium; 79) mesonotum of ♀; 80) 2nd and 3rd antennal segments; 81, 82) scutellum of ♀ and ♂; 83-86) *C. honesta* Rond.: 83, 84) 2nd and 3rd antennal segments of ♂ and ♀; 85, 86) scutellum of ♀ and ♂; 87) *C. vulpina* (Mg.), 2nd and 3rd antennal segments of ♀.

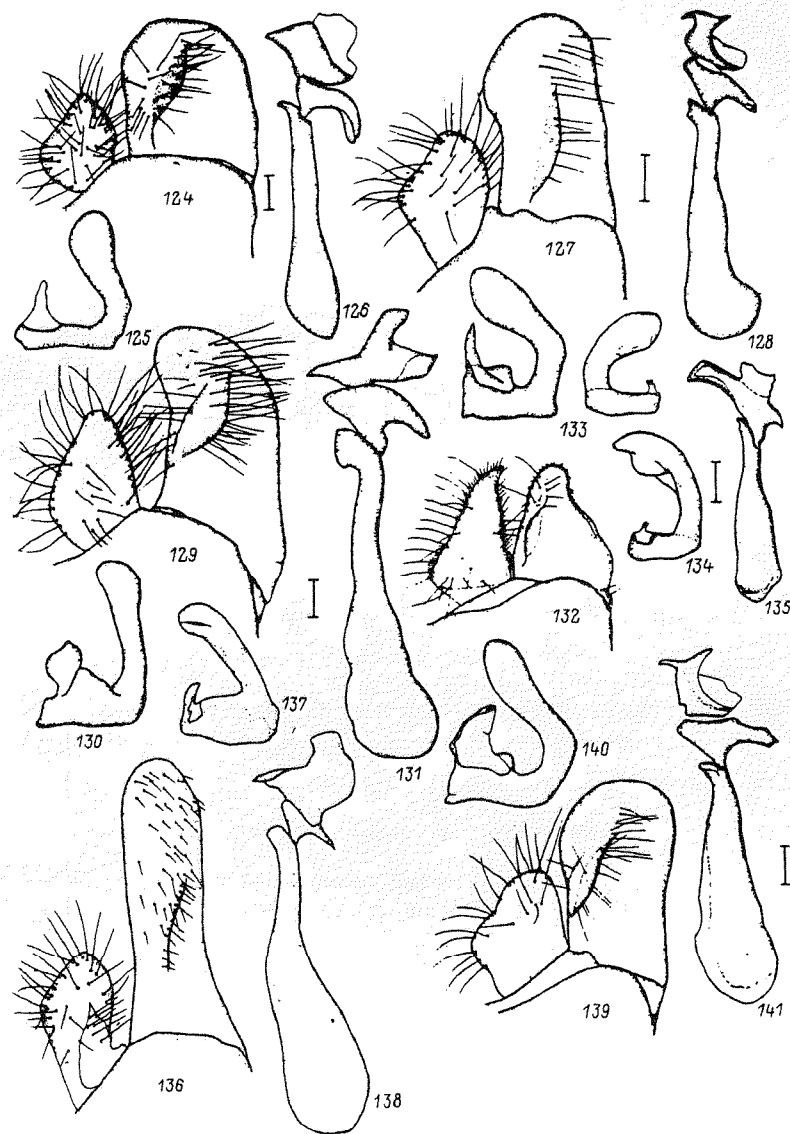
- 25 (26). 3rd antennal segment orange, in ♀s strongly enlarged, 5.0-8.0 mm. Hypopygium as in Figs. 42-44. Greater Caucasus and Transcaucasia. Holarctic, in Palearctic, except extreme S and N. *C. pagana* (Meigen, 1822).
- 26 (25). 3rd antennal segment black and not enlarged. ♀ and ♂, see rubric 78. 5.0-8.5 mm. Entire Caucasus. Entire Palearctic, except extreme S and N. *C. mutabilis* (Fallén, 1817).
- 27 (12). Antennal fossae connected, because sclerotized bridge underdeveloped (Fig. 41).
- 28 (29). Wings in middle with distinct brown spot, frons with dense, silvery setae directed anteriorly. 8.5-9.0 mm. Hypopygium as in Figs. 63-65. Greater Caucasus, Armenian Mts. *C. armeniaca* Stackelberg, 1960.
- 29 (28). Wings in middle without brown spot, frons with setae of different density and color.
- 30 (33). Middle facial tubercle broad, occupying face from margin to margin (Fig. 49).
- 31 (32). 3rd antennal segment bright orange. 7-10 mm. Hypopygium as in Figs. 45-48. 6.5-9.5 mm. Entire Caucasus. European Palearctic. *C. rufipes* (Preysler, 1793).
- 32 (31). 3rd antennal segment dark brown or black. 7-10 mm. Hypopygium as in Figs. 50-52. Entire Caucasus. Entire Palearctic, except extreme S and N. *C. scutellata* Fallén, 1817).
- 33 (35). Frons shiny, mesonotum not or only in anterior half pollinose, with stripes of brown pollen. Arista with medium pubescence (Fig. 53). Femora in ♀s black, with narrow yellow apices. 6.0-9.0 mm. Hypopygium as in Figs. 54-56. Greater Caucasus. Entire Palearctic, except extreme S. *C. longula* (Zetterstedt, 1838).
- 35 (34). Frons gray pollinose, mesonotum completely covered with brown pollen. Arista with long pubescence (Fig. 58). Femora in ♀s entirely yellow. 6.0-9.0 mm. Hypopygium as in Figs. 59-61. Talysh. Holarctic, in W Palearctic known from Finland. *C. pallipes* Loew, 1863.
- 36 (1). Eyes at least in apical half with hairs.
- 37 (52). Face somewhat covered with setae (setae on genae not considered).
- 38 (39). 3rd antennal segment bright orange, genae broad, slightly narrower than 3rd antennal segment. ♂ and ♀, see rubric 13. 7.0-8.0 mm. Hypopygium as in Figs. 66-68. *C. intonsa* Loew, 1857.
- 39 (38). 3rd antennal segment black or dark brown, genae of usual width, clearly narrower than 3rd antennal segment; if width approximately equalling width of 3rd antennal segment, then color deep black.
- 40 (45). Abdominal tergite I-IV covered with nearly equally long, erect, pale setae without mixture of black, at most pubescence of tergite IV on posterior margin with mixture of occasional black setae.
- 41 (42). Legs black, with narrow reddish patella and sometimes apices of tibia. Mesonotum and abdomen shiny. 9-10 mm. Hypopygium as in Figs. 73-75. Entire Caucasus. *C. transcaucasica* Stackelberg, 1960.



Figs. 88-102. *Cheilosia* Mg., parts of hypopygium. 88-90) *C. pseudogrossa* Stack., 91-93) *C. variabilis* (Panz.), 94-96) *C. honesta* Rond., 97-99) *C. vulpina* (Mg.), 100-102) *C. rhynchops* Egg.

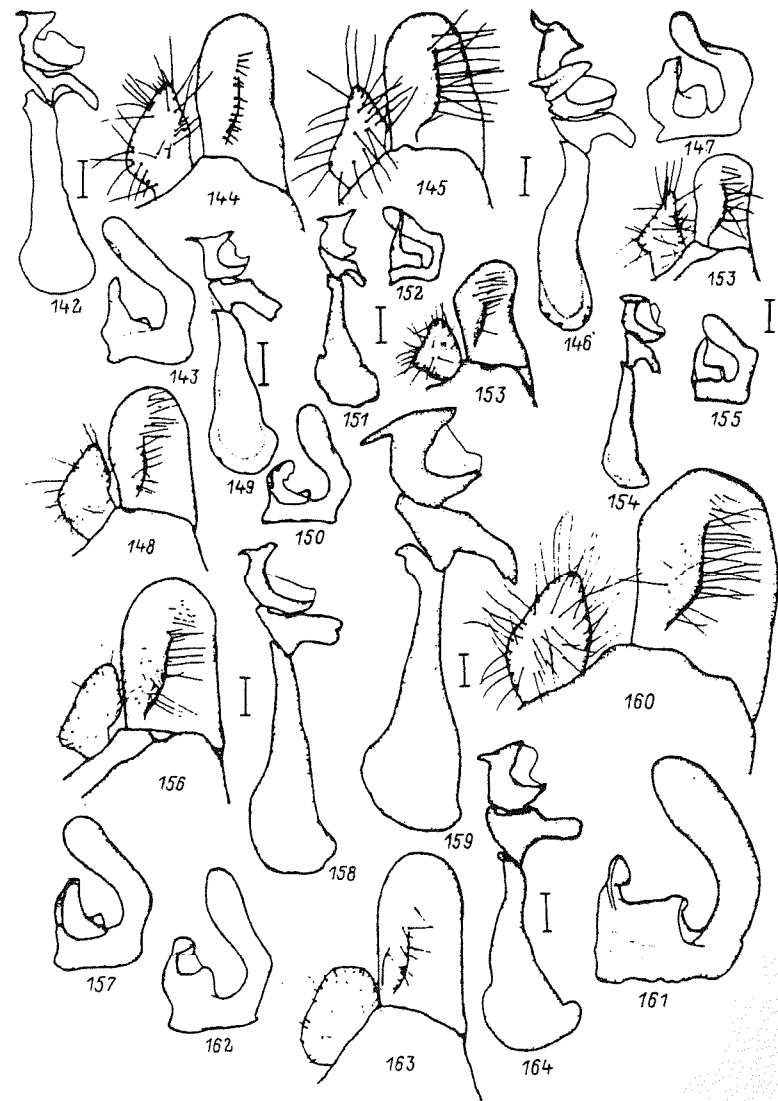


Figs. 103-123. *Cheilosia* Mg.: 103) *C. melanopa* (Zett.); 104, 107) *C. variabilis* (Panz.); 105, 106) *C. vulpina* (Mg.); 108, 109) *C. sareptana* (Beck.); 110-112) *C. semifasciata* (Beck.); 113, 114) *C. velutina* Lw.; 115-117) *C. rhynchops* Egg.; 118, 119) *C. correcta* (Beck.); 120) *C. impressa* Lw.; 121) *C. flavipes* (Panz.); 122, 123) *C. proxima* (Zett.). 103-105) Head of ♀ in dorsal view; 106, 107) abdomen of ♂; 108, 121) 2nd and 3rd antennal segments of ♂; 109, 110, 115, 118) same of ♀; 111, 116) femur and tibia; 112, 114, 117, 119, 120, 123) mesonotum of ♀; 122) head of ♂ in lateral view.

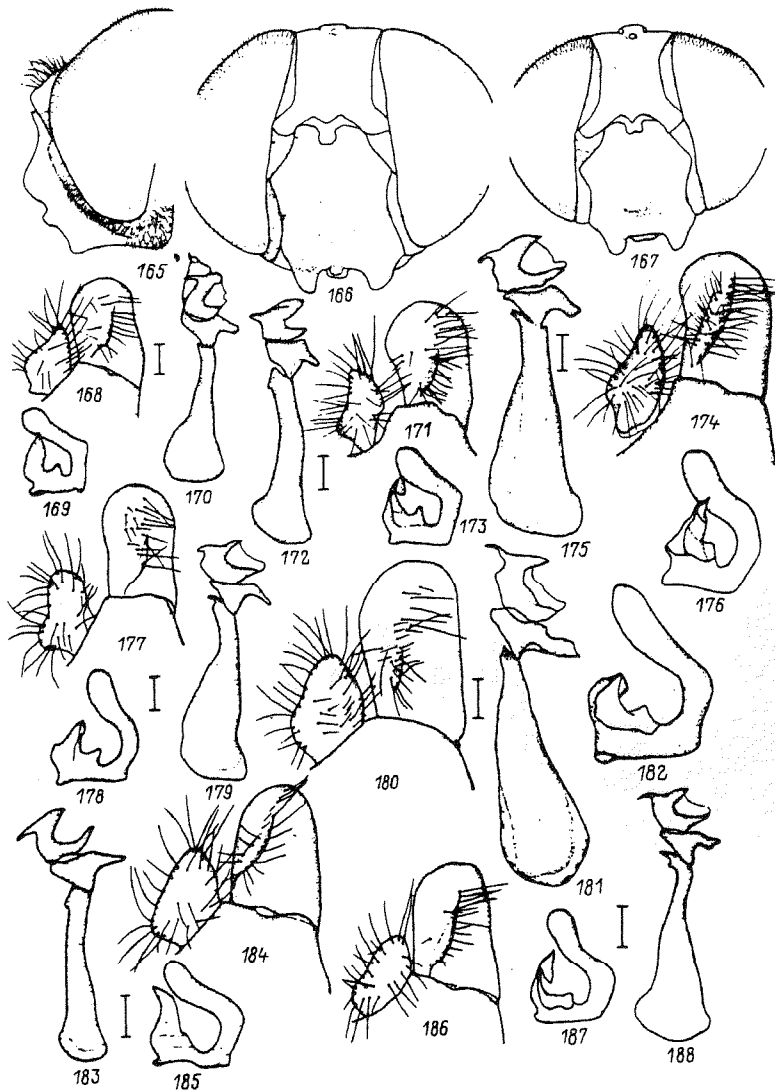


Figs. 124-141. *Cheilosia* Mg., parts of hypopygium. 124-126) *C. flavipes* (Panz.); 127, 128) *C. sareptana* (Beck.); 129-131) *C. illustrata portschinskiana* Stack.; 132-135) *C. semifasciata* (Beck.); 136-138) *C. pictipennis* Egg.; 139-141) *C. omissa* (Beck.).

- 42 (41). Fore- and midtibia in basal 1/3 yellow at tip. Mesonotum and abdomen with weak gray pollen (mesonotum sometimes may not be pollinose).
- 43 (44). Eyes with black setae, mesonotum mostly and scutellum entirely with long, yellow setae, scutellum on posterior margin without black setae. 11.5-12.0 mm. Hypopygium as in Figs. 88-90. W Greater Caucasus. *C. pseudogrossa* Stackelberg, 1968.
- 44 (43). Eyes with pale hairs sometimes dorsally brownish. Mesonotum and scutellum with intermingled yellow and black setae, scutellum on posterior margin with robust, black setae (Figs. 81, 82). 6.5-9.5 mm. Hypopygium as in Figs. 76-78. 6.5-9.5 mm. Greater Caucasus, Armenian Mts. Entire Palearctic, except extreme S and N. *C. melanopa* (Zetterstedt, 1843).
- 45 (40). At least in middle of tergites III-IV stripe of black semidecumbent setae present, and/or on posterior tegulae of tergites several erect, black setae present. Most often pubescence of tergites of abdomen anteriorly and on sides pale, and posteriorly in middle black.
- 45 (50). Scutellum on posterior margin with long, black setae, in ♂s (at least in some of them) longer than scutellum (Fig. 82), genae narrow or of medium length.
- 47 (48). ♂s: mesonotum with distinct stripes of gray-brown pollen (sometimes entirely central part of mesonotum with such pollen), extended to its middle. ♀s: 3rd antennal segment as in Fig. 80; mesonotum with erect, rather long, yellow setae with mixture of still longer black setae (Fig. 79), frons relatively broad (Fig. 103). See rubric 44. *C. melanopa* (Zetterstedt, 1843).
- 48 (47). ♂s: mesonotum without stripes of pollen or only with rudiments of them, developed in anterior 1/5. ♀s: 3rd antennal segment as in Fig. 87; mesonotum with decumbent setae, if setae erect, then equal length. Frons narrow (Fig. 104) or a little widened (Fig. 105).
- 49 (50). Body elongate, abdomen oblong-oval (Fig. 107). Larger, 9.0-12.5 mm. ♂s: legs black, at most basic 1/3 of tibia reddish brown. ♀s: frons narrow (Fig. 106). Hypopygium as in Figs. 91-93. Entire Caucasus. W Palearctic, E to SW Siberia. *C. variabilis* (Panzer, 1798).
- 50 (49). Body robust, abdomen short-oval (Fig. 106). Smaller, 9.0-11.0 mm. ♂s: tibia yellow, with black ring in middle. ♀s: frons broad (Fig. 105). Hypopygium as in Figs. 97-99. Greater Caucasus, Armenian Mts. Temperate zone of Palearctic, E. to Yakutia. *C. vulpina* (Meigen, 1822).
- 51 (46). Scutellum on posterior margin with short, black setae, but in ♂s shorter than length of scutellum (Fig. 86), in ♀s less than half length (Fig. 85). Arista short (Figs. 83, 84), genae relatively broad. 8.5-10 mm. Hypopygium as in Figs. 94-96. W Greater Caucasus. Temperate zone of Palearctic, E Yakutia. *C. honesta* Rondani, 1868.
- 52 (37). Face without distinct setae (setae on genae not considered).
- 53 (70). Scutellum on posterior margin without setae or black hairs (setae on scutellum itself not considered).
- 54 (55). Setae in central part of mesonotum and on abdominal tergite III completely black. 10.8-14.1 mm. Hypopygium (Figs. 129-131). Entire caucasus. *C. illustrata portschinskiana* Stackelberg, 1960.

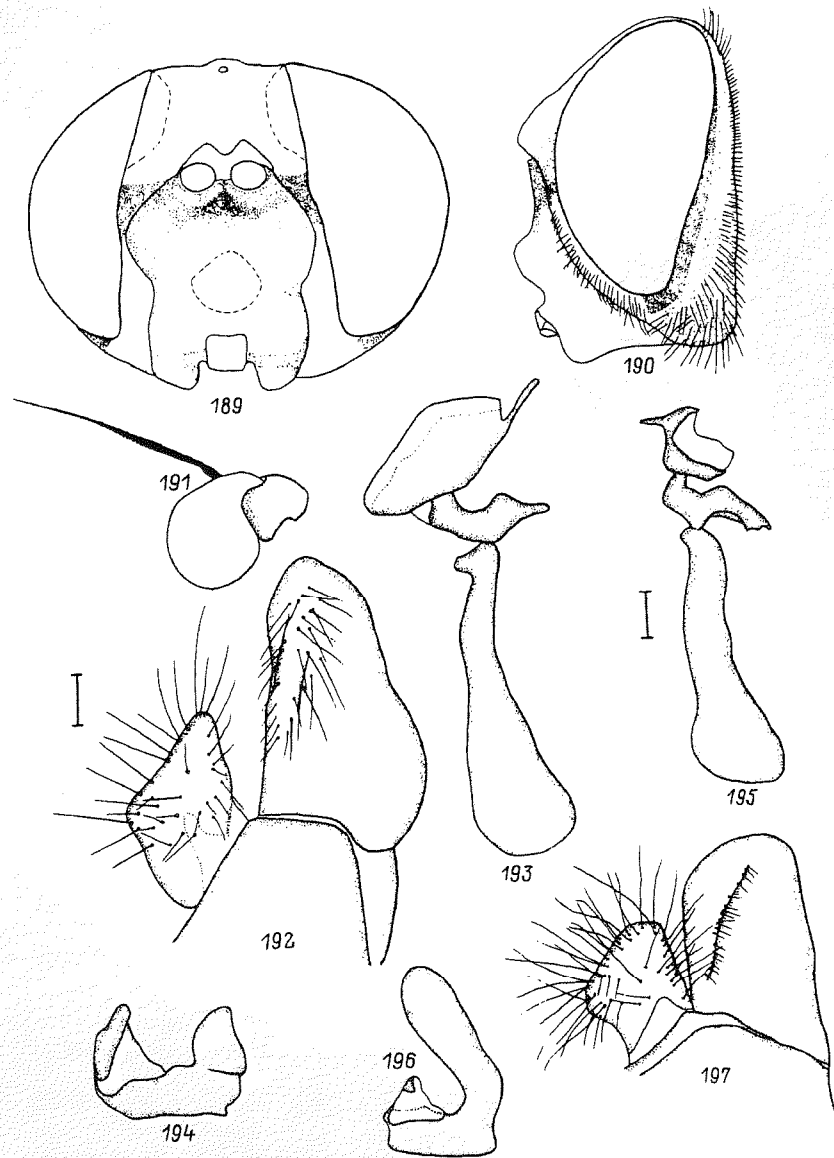


Figs. 142-164. *Cheilosia* Mg., parts of hypopygium. 142-144) *C. albipila* Mg.; 145-147) *C. albitarsus* (Mg.); 148-150) *C. vernalis* (Fall.); 151-153) *C. ruralis* (Mg.); 154, 155) *C. mutabilis* (Fall.); 156-158) *C. bergenstammi* (Beck.); 159-161) *C. canicularis* (Panz.); 162-164) *C. abagoensis* Skufjin.

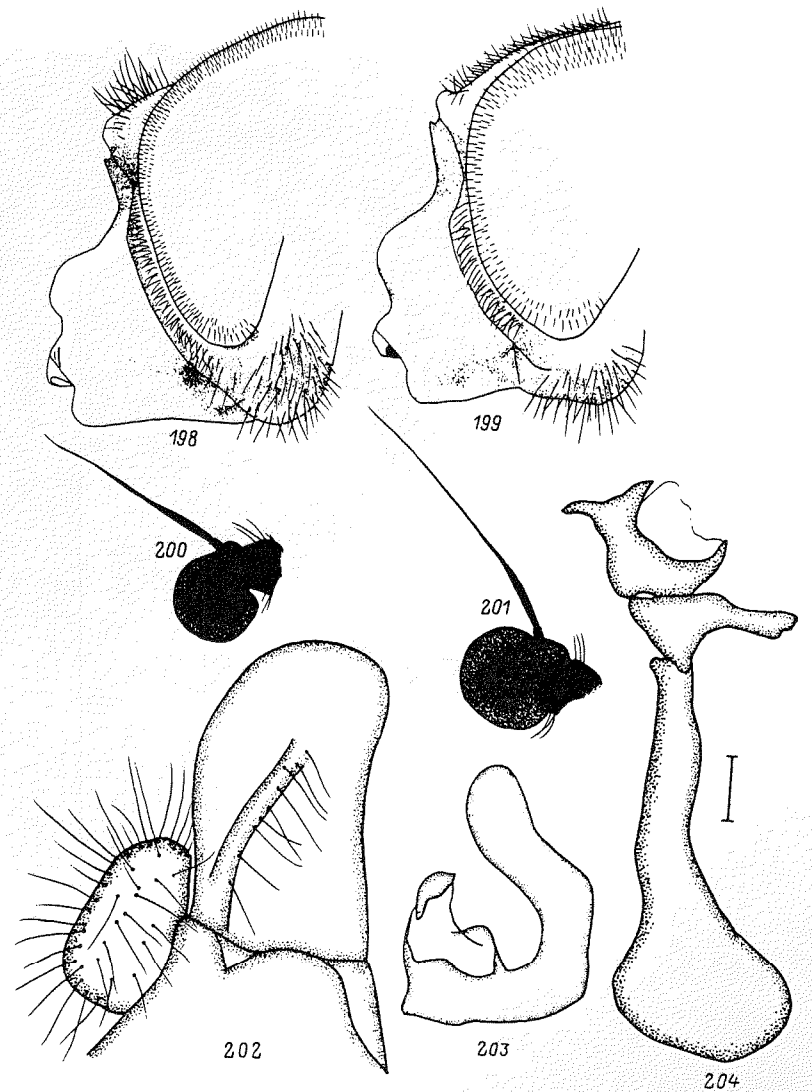


Figs. 165-188. *Cheilosia* Mg.: 165) *C. correcta* (Beck.), head of ♂ in lateral view; 166) *C. proxima* (Zett.), head of ♀ in anterior view; 167) *C. velutina* Lw., same; 168-188) parts of hypopygium: 168-170) *C. impressa* Lw., 171-173) *C. velutina*; 174-176) *C. gigantea* (Zett.), 177-179) *C. proxima*, 180-182) *C. melanura* (Beck.), 183-185) *C. schnabli* (Beck.), 186-188) *C. correcta*.

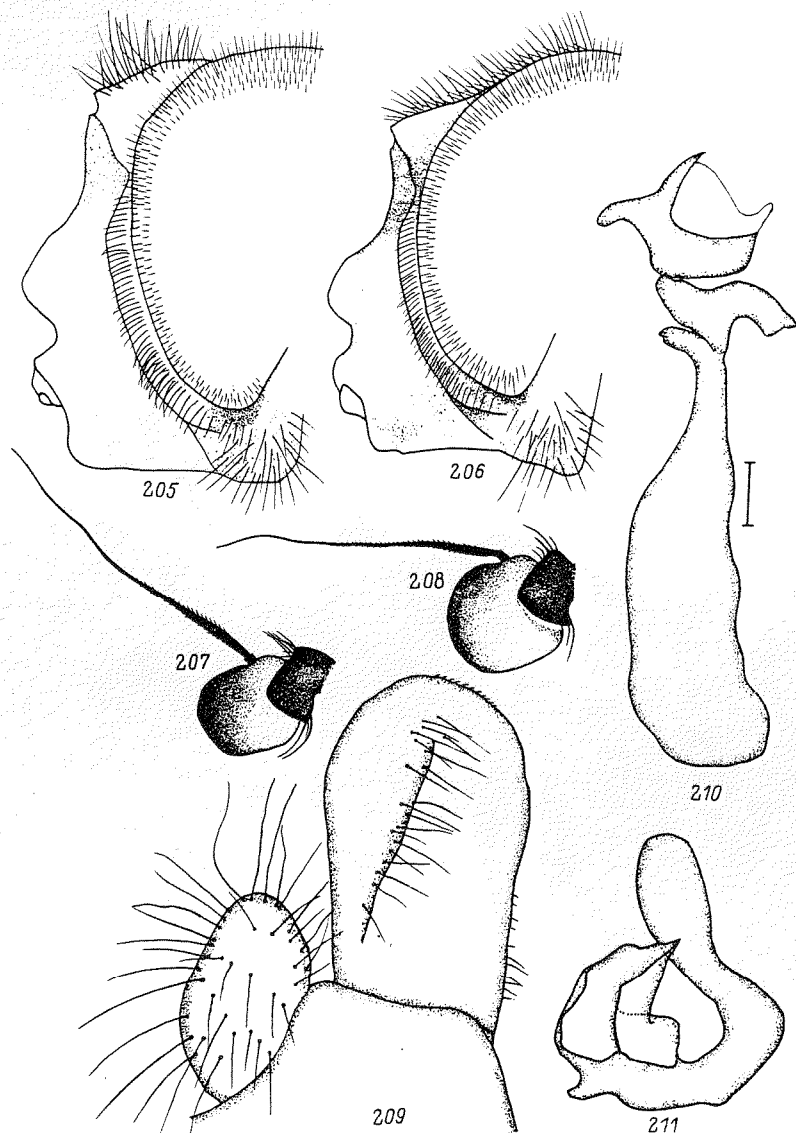
- 55 (54). Setae in central part of mesonotum and on abdominal tergite III never black at same time.
- 56 (57). Genae very broad, clearly wider than 3rd antennal segment. 3rd antennal segment small, oblong-oval (Fig. 121). Abdominal tergite IV entirely covered with yellow seta. ♀s, see rubric 22. 7-11 mm. Hypopygium as in Figs. 124-126. Armenian Mts., W Palearctic, E to W Siberia. *C. flavipes* (Panzer, 1798).
- 57 (56). Genae of usual width or wider, but narrower than 3rd antennal segment; if genae approximately as wide as 3rd antennal segment, then 3rd antennal segment oblong-oval (Figs. 108, 109) or with upper apical angle (Fig. 39), and abdominal tergite IV covered with black setae.
- 58 (59). Eyes and abdominal tergite IV with erect, black setate hairs, mesonotum and remainder of abdomen with pale setae, not intermingled with black setae. 11.0-12.0 mm. Hypopygium as in Figs. 195-197. E Greater Caucasus, Eurasia, in Palearctic E as far as W Siberia. *C. grossa* (Fallén, 1817).
- 59 (58). Pubescence otherwise, characters cited never occurring together.
- 60 (61). Genae in apical half with erect setae, length of which approximately 1.5-2 times length of setae in lower part. 6.0-9.0 mm. See rubrics 19 and 107. *C. verae* Stackelberg, 1968.
- 61 (60). Genae with more or less similarly long setae.
- 62 (63). 3rd antennal segment extended, length approximately 1.5 times as long as wide (Figs. 108, 109). 9.0-10.0 mm. Hypopygium as in Figs. 127 and 128. Armenian Mts. and S European Palearctic. *C. sareptana* (Becker, 1894).
- 63 (62). 3rd antennal segment round (Fig. 110), short-oval, or with upper apical angle.
- 64 (67). Eyes with black hairs (at strong magnification).
- 65 (66). 3rd antennal segment black (Fig. 110). Smaller, 6.5-7.3 mm. Hypopygium as in Figs. 132-135. W Greater Caucasus. Central European Palearctic. *C. semifasciata* (Becker, 1894).
- 66 (65). 3rd antennal segment orange-red. Larger, 8.0-11.0 mm. Hypopygium as in Figs. 139-141. W Greater Caucasus, C European Palearctic. *C. omissa* (Becker, 1894).
- 67 (64). Eyes with pale stripes.
- 68 (69). Wings in middle with distinct brown spot. Femora in ♀s black, with yellow apex. 10.3-13.0 mm. Hypopygium as in Figs. 136-138. W Greater Caucasus, Lesser Caucasus. Temperate zone of Palearctic, E to Yakutia. *C. pictipennis* Egger, 1860.
- 69 (68). Wings hyaline, without pale brown spots. Femora in ♀s entirely yellow. 7.2-11.0 mm. Hypopygium as in Figs. 142-144. Greater and Lesser Caucasus. Temperature zone of Palearctic, E to Lake Baikal. *C. albipila* Meigen, 1838.
- 70 (53). Scutellum on posterior margin at least with occasional black setae or bristles (sometimes setae may be yellow).
- 71 (72). Legs black, only 2nd-4th segments of fore- and midtarsi yellow. Wings distinctly dark-



Figs. 189-197. *Cheilosia* Mg.: 189-191) *C. atypica* sp. n.: 189) head in anterior view, 190) same in lateral view, 191) 2nd and 3rd antennal segments; 192-197) parts of hypopygium; 192-194) *C. caerulescens* (Mg.), 195-197) *C. grossa* Fall.



Figs. 198-204. *Cheilosia teberdenensis* sp. n.: 198, 199) head of ♂ and ♀ in lateral view; 200, 201) 2nd and 3rd antennal segments of ♂ and ♀; 202-204) parts of hypopygium.



Figs. 205-211. *Cheilosia paragigantea* sp. n.: 205, 206) head of ♂ and ♀ in lateral view; 207, 208) 2nd and 3rd antennal segments ♂ and ♀; 209-211) parts of hypopygium.

- ened. ♂ and ♀, see rubric 15. 7.5-9.0 mm. Hypopygium as in Figs. 145-147.
C. albitarsis (Meigen, 1822).
- 72 (71). Legs entirely black, or more or less pale, wings hyaline or darkened.
- 73 (84). 2nd and 3rd hindtarsal segments in dorsal view distinctly yellow or paler than remaining segments.
- 74 (79). Smaller: 5.0-8.6 mm.
- 75 (76). Eyes at least in apical part, with black hairs. 5.0-7.0 mm. Hypopygium as in Figs. 148-150. See rubrics 92 and 126. W Greater Caucasus and temperate zone of Palearctic.
C. vernalis (Fallén, 1817).
- 76 (75). Eyes entirely covered with pale hairs.
- 77 (78). ♂ s: mesonotum entirely covered with white setae. ♀ s: 3rd antennal segment at least ventrally reddish yellow. 5.3-8.6 mm. Hypopygium as in Figs. 151-153. Greater and Lesser Caucasus, Armenian Mts., Talysh, and temperate zone of Palearctic.
C. ruralis (Meigen, 1822).
- 78 (77). ♂ s: mesonotum with intermingled white and black setae. ♀ s: 3rd antennal segment entirely black, see rubric 26. 5.0-8.5 mm. Hypopygium as in Figs. 154-155.
C. mutabilis (Fallén, 1817).
- 79 (74). Larger, 9.0-13.0 mm.
- 80 (83). 3rd antennal segment at least ventrally reddish.
- 81 (82). Larger: 11.0-13.5 mm. Hypopygium as in Figs. 159-161. Entire Caucasus, W Palearctic, E to Lake Baikal.
bergenstammi (Becker, 1894).
- 83 (80). 3rd antennal segment entirely black. See rubric 81.
C. canicularis (Paz.).
- 84 (83). Hindtarsi in dorsal view completely black; as an exception only apices of 2nd and 3rd segments may be pale.
- 85 (87). Wings intensely darkened. Eyes with black setae. If wings somewhat hyaline (♀), then mesonotum with coarse punctation and very short black setae. 7.8-11.0 mm. hypopygium as in Figs. 162-164. W Greater Caucasus.
C. abagoensis Skufjin, 1979.
- 87 (86). Wings not darkened; if darkened, then eyes with pale hairs.
- 88 (93). Eyes, at least in apical half, with black hairs (at strong magnification).
- 89 (92). Legs entirely black; at most patella sometimes narrowly yellowish brown (Figs. 111, 116).
- 90 (91). Legs entirely black (Fig. 116), arista long (Fig. 115). ♂ s: mesonotum with black setae of equal length. ♀ s: mesonotum with decumbent setae (Fig. 117). Larger: 8.0-10.0 mm. Hypopygium as in Figs. 10-102. W Greater Caucasus. European Palearctic.
C. rhynchops Egger, 1860.

Non 2-eyes ca. fact near 106!

- 91 (90). Patella narrowly yellowish brown (Fig. 111), arista short (Fig. 110). ♂ s: mesonotum with short and long setae intermingled by color. ♀ s: mesonotum with erect setae (Fig. 112). Smaller: 6.5-7.3 mm. Hypopygium as in Figs. 132-135. See rubric 65. *C. semifasciata* (Becker, 1894).
- 92 (89). Tibia at least in basal part and at apex yellow. See rubrics 75 and 126. *C. vernalis* (Fallén, 1817).
- 93 (88). Eyes with pale hairs (white or pale brown).
- 94 (95). 2nd and 4th segments of fore- and midtarsi yellow in dorsal view. See rubrics 26 and 78. *C. mutabilis* (Fallén, 1817).
- 95 (94). 2nd-4th tarsal segments of fore- and midtarsi black in dorsal view.
- 96 (97). Wings in basal half bright yellow, mesonotum and scutellum entirely with black setae. 5.9-8.8 mm. Hypopygium as in Figs. 158-170. See rubric 114. W Greater Caucasus, Transcaucasia, and temperate zone of Palearctic. *C. impressa* Loew, 1840.
- 97 (96). With different complex of characters.
- 98 (99). Middle facial tubercle broad, but not high (Fig. 113). Pubescence of mesonotum in ♂ pale in middle and black on margins. Face in ♀ with parallel sides (Fig. 167), mesonotum with short, erect, pale setae (Fig. 114). 6.5-9.5 mm. Hypopygium as in Figs. 171-173. Greater Caucasus and temperate zone of Palearctic. *C. velutina* Loew, 1840.
- 99 (98). Middle facial tubercle narrower and higher (Fig. 122). Pubescence of mesonotum in ♂ s black along entire length, pale if intermingled. Face in ♀ s distinctly widening downward; if parallel-sided (Fig. 166), then mesonotum with erect black and pale setae intermingled by color (Fig. 123), or with predominantly decumbent black setae.
- 100 (101). Legs black, mesonotum in ♂ with black setae, and in ♀ with long black and half as long pale setae. 9.9-10.4 mm. Hypopygium as in Figs. 202-204. W Greater Caucasus. *C. teberdensis* sp. n.
- 101 (100). Fore- and midtibia at least in basal 1/3 and at apex brownish or orange-yellow, mesonotum with pale and intermingled black and pale setae.
- 102 (103). Mesonotum with coarse punctation and pale setae, hindlegs with only pale setae. 7.0-9.5 mm. Hypopygium as in Figs. 186-188. Talysh and SW Europe. *C. correcta* (Becker, 1894).
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- 103 (102). Mesonotum with fine punctation and intermingled pale and black setae, hindlegs with pubescence intermingled by color.
- 104 (105). Larger: 9.0-11.0 mm. Frons in ♂ shiny. Hypopygium as in Figs. 174-176. Entire Caucasus and temperate zone of Palearctic. *C. gigantea* (Zetterstedt, 1838).
- 105 (104). Smaller: 6.0-8.5 mm. Frons in ♂ at least along margins of eyes silvery pollinose. 7.0-9.5 mm. Hypopygium as in Figs. 177-179. W Greater Caucasus. *C. proxima* (Zetterstedt, 1843).

- 106 (85). 3rd antennal segment at least in lower posterior angle orange-yellow, or brown-red. *Fact!*
- 107 (108). Genae in apical half with erect setae, approximately 1.5-2 times length of setae in their lower part. See rubrics 19 and 60. *C. verae* Stack.
- 108 (107). Genae with setae of somewhat similar length.
- 109 (114). Mesonotum completely with black setae.
- 110 (111). Eye-spot of wing black, sharply contrasting with basic background of wing. Anterior halves of abdominal tergites II and III of ♂ s covered with white setae, posterior halves covered with black setae. Larger: 10.9-12.6 mm. Lesser Caucasus. *C. paragigantea* sp. n.
- 111 (110). Eye-spot of wing yellow or pale brown, not sharply contrasting with basic color background of wing. Abdomen of ♂ s on tergites II and III with pale and intermingled pale and black setae not forming regular bands.
- 112 (113). Eyes with long, black hairs. Both sexes as in rubric 125. 9.0-10.5 mm. Hypopygium as in Figs. 180-182. Greater Caucasus and temperate zone of Palearctic., E to Lake Baikal. *C. melanura* (Becker, 1894).
- 113 (112). Eyes covered with medium-length pale hairs.
- 114 (115). Mesonotum with coarse punctation. ♂ s: upper lobes of hypandrium different, as in Fig. 169. ♀ s: setae on mesonotum very short and decumbent (Fig. 120). Other parts of hypopygium as in Figs. 168-170. See rubric 96. *C. impressa* Lw.
- 115 (114). Mesonotum with fine punctation. ♂ s: upper lobes of hypandrium different, as in Fig. 185. ♀ s: setae on mesonotum of medium length and erect. 7.5-9.0 mm. Remaining parts of hypopygium as in Figs. 183 and 184. Entire Caucasus, Armenian Mts., and European Palearctic. *C. schnabli* (Becker, 1894).
- 116 (109). Mesonotum with pale or pale and black setae.
- 117 (122). Eyes in upper half with pale hairs (at strong magnification).
- 118 (119). Tibia black or with narrow yellow apices. Wings in basal half pale yellow. ♀ and ♂ see rubrics 96 and 114. *C. impressa* Lw.
- 119 (118). Tibia in basal 1/3 pale yellow. Wings in basal half brown.
- 120 (121). Medial facial tubercle broad, but not high (Fig. 113). Pubescence of mesonotum of ♂ in middle pale, and on sides black (sometimes black pubescence may be present only in form of narrow stripes along sides of mesonotum). 3rd antennal segment of ♀ small, width 0.30 width of frons at bases of antennae. See rubric 98. *C. velutina* Loew, 1840.
- 121 (120). Medial facial tubercle narrow and more extended forward (Fig. 165). Pubescence of mesonotum of ♂ entirely pale. 3rd antennal segment of ♀ s distinctly enlarged (Fig. 118), width 0.40-0.38 width of frons at bases of antennae. 7.5-9.0 mm. Hypopygium as in Figs. 186-188. Talysh and European Palearctic. *C. correcta* (Becker, 1894).
= *aerea*

- 122 (117). Eyes in upper half with black or dark brown hairs (at high magnification).
- 123 (124). Legs black, only patella narrowly reddish. See rubric 90. *C. rhynchops* Egg.
- 124 (123). At least basal 1/3 and apices of tibia yellow.
- 125 (126). Larger: 9.0-10.5 mm. See rubric 112. ♀ s. *C. melanura* (Beck.).
- 126 (125). Smaller: 5.0-7.0 mm. See rubrics 75 and 92. *C. vernalis* (Fall.).

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