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TRANSLATION

N.A. Violovitsh

Siberian Syrphidae (Diptera)

(Sirfidy Sibiri)

Novosibirsk, 1983

by

V.S. van der Goot & L. Verlinden

(foreword and keys only)

f 20,-

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Preface

Dr. Violovitsh has been seriously ill (from August 1982 until May 1983) during the preparations made for the editing of the book (November 1983). So some printing errors appeared in the Russian edition which otherwise probably would have been avoided. Van der Goot, with consent of Dr. Violovitsh, corrected these errors as well as he could in the Dutch and English translations.

We hope that this English translation will make the usage of Violovitsh's important book possible on a larger scale.

We are grateful to Dr. A. Diakonoff who did the Russian-Dutch translation of the foreword and assisted in solving several difficulties in the translation of the keys.

Dr. Violovitsh wants to express his profound gratitude for the exertions made by both translators and for the corrections of the Russian text.

The translation

Russian-Dutch: V.S. van der Goot

Dutch-English: L. Verlinden

Checking Russian-English: V.S. van der Goot

The Dutch translation followed precisely the Russian text. Mr. L. Verlinden allowed himself in his Dutch-English translation more variations, so that the keys became more legible (tubercle, central prominence he used for the facial knob in Russian; for spot (Russian) sometimes area, marking or cloud; for upstanding hairs (Russian) also erect or straight hairs etc.).

For some colourations Mr. L. Verlinden used one English word for several different expressions:

kaneelkleurig bruin (Dutch and Russian) (cinnamon-coloured brown)

kaneelkleurachtig bruin (D & R) (cinnamonish-coloured brown)

kaneelkleurig (D & R) (cinnamon-coloured)

burye (R), bruin (D) (brown)

All four expressions have been translated by "brown" as has been done in the American translations in Entom. Review (Entom. Obozr.).

The next is the result of a double translation by non-English-speaking people. Mr. L. Verlinden, however, is a professional linguist in English so the English will be up to standards. Van der Goot did several Russian-Dutch translations in more than 20 years time so he has some experience. Moreover both translators are amateur-Syrphidologists.

SIBERIAN SYRPHIDAE

by

N. A. Violovitsh

(Novosibirsk, 1983)

Foreword

The Syrphidae constitute one of the most representative families in the sub-order of Diptera Brachycera, the fauna of Siberia numbering about 600-700 species (the whole of the U.S.S.R. numbering about 1100). They occur practically everywhere and are of considerable economic importance, chiefly as pollinators of Angiosperm plants. Moreover the larvae of many species are predators of aphids and often reduce their numbers considerably, which has a noticeable useful effect. Only a small number of species are plant pests: especially bulb plants (onion, tulip, hyacinth, etc.) are damaged through boring in the bulbs. The usefulness of the Syrphidae as a whole, however, greatly exceeds the nocivity of these few harmful species. Recently, as a result of the growing concern about Nature Conservancy, numerous papers have been published on the part played by the Syrphidae as pollinators and as entomophagous insects.

For a long time the identification of Syrphidae had to be effected by means of obsolete keys by A.A. Stackelberg (1930) and P. Sack (1932-1935). For the identification of the Syrphidae of the Far East Shiraki's book (1930) was used. In 1970 at last appeared "Keys for the identification of insects of the European part of the U.S.S.R." in which A.A. Stackelberg treated the Syrphidae. We wish to stress the great merits of A.A. Stackelberg as a specialist of the Palaearctic Syrphidae, especially those of the Leningrad district, the Far East, Tadzhikistan and the Caucasus. He published many papers on the systematics of numerous genera of the Palaearctic region (*Sphegina*, *Neoascia*, *Orthonera*, *Eumerus*, *Mallota*, *Brachypalpus*, *Xylota*, etc.), in which some 200 new species were described. Most unfortunately, however, A.A. Stackelberg was not allowed the time for a fundamental treatment of the Syrphid fauna of Siberia, a gap which we are now intending to fill.

The material on which the present morphological study is based was accumulated by the author in the course of thirty years' collecting in many parts of Siberia: the forest-steppe and taiga regions of Western Siberia, in the Altay, in the Tuva Sayan Range, along the Ochotsk coast, in Kamchatka and on a number of islands: Sakhalin, the Greater and the Lesser Kuril Isles. Through the kind cooperation of the late Prof. A.A. Stackelberg we obtained additional material from the Zoological Institute of the Academy of Sciences of the U.S.S.R. (Leningrad) and from the Biological Institute of

the Siberian Department of the Academy of Sciences of the U.S.S.R. A considerable number of specimens, which proved to be a great help in writing this monograph, were lent to us by H. Takahashi (Japan), Tore R. Nielsen (Norway), F. Chr. Thompson (U.S.A.), J.R. Vockeroth (Canada), E. Torp Pedersen (Denmark) and J.A.W. Lucas (Netherlands). The author wishes to express his gratitude to all these persons.

Moreover the author has made ample use of the identification keys by A.A. Stackelberg, Sack and Shiraki, mentioned above, as well as separate papers from the hand of K.V. Skufyina, L.V. Zimina, L.V. Peck, Coe, Collin, Kanervo, Shannon, Vockeroth, Knutson, Thompson, Nielsen and many others. In the course of many years we received invaluable help in identifying Syrphid flies from Prof. A.A. Stackelberg personally. For a long time to come we shall retain a grateful memory of our lamented mentor.

This monograph does not claim to be complete. No doubt the immense territory of Siberia contains many species yet unknown to science, especially the little explored regions of the extreme NE, the mountains of Tuva, the northern taiga and the forest-tundra of Central and Eastern Siberia, the northern parts of the Maritime Region, the Amur, Kamchatka and several other districts. Several species are included in this book, which became known to the author while he was actually writing it.

In order to save space most species have been treated briefly. As a rule a more complete diagnosis is given for those species which are rare, or whose description is not readily accessible. A large number of figures illustrate this book: they were incorporated to make identification easier. Unfortunately, through no fault of the author, the order in which the figures appear in the supplement does not always tally. Many of the figures, especially on the morphology of the genitalia, are original; others were borrowed from various sources (sometimes slightly changed): the appropriate references are to be found in the legends to the figures.

The keys and the figures to the genus *Cheilosia* are from the hand of A.V. Barkalov.

IDENTIFICATION KEYS

Key to the identification of the sub-families

- 1 (2) Vein r_{4+5} with an appendix running rearward, which almost divides cell R_5 into two halves. Large, compact, uniformly black flies with prolonged antennae (longer than the head). Hind margin of scutellum as a rule with two small spines. VIII. MICRODONTINAE
- 2 (1) Vein r_{4+5} without such appendix.
- 3 (4) Humeri bare, more rarely with a few hairs at the hind margin. Femora slender and simple, without a patch of small black spines at the bases and without processes, spines or teeth apically. Transverse vein ta before the middle of cell D.

I. SYRPHINAE

- 4 (3) Humeri covered with dense pilosity.
- 5 (6) Arista densely plumose (fig. II). As a rule large, robust black flies which have their face prolonged downward and show yellow bands on the black abdomen. III. VOLUCCELLINAE
- 6 (5) Arista bare, more rarely covered with hairs which never form a ciliated comb.
- 7 (8) Antennae longer than the head, with apical bristle, implanted on a cylindrical process of the frons. Flies with a cylindrical abdomen, waisted basally, black with yellow bands. VII. CERIOIDINAE
- 8 (7) Antennae obviously shorter than the head (except the species of the genus *Callicera* Panzer (Cheilosinae): antennae longer than the head).
- 9 (10) At the bases of all femora a patch with fine black small spines. Large flies, variously patterned, often strongly pilose with fast and capricious flight. Wing as a rule hyaline, with looped vein r_{4+5} . IV. ERISTALINAE
- 10 (9) Femora without such a patch of fine black small spines.
- 11 (12) Transverse vein ta before or near the middle of cell D. II. CHEILOSIINAE
- 12 (11) Transverse vein ta obviously beyond the middle of cell D, more rarely in the middle.
- 13 (14) Top section of vein m recurrent inward. Face straight, without central prominence, sometimes slightly projected only at the mouth edge. V. MERODONTINAE
- 14 (13) Top section of vein m more or less parallel to hind margin of wing. Face with central prominence or distinctly projected at the mouth edge. VI. MILESIINAE

SUB-FAMILY SYRPHINAE

Identification key to the genera

- 1 (2) Antennae prolonged, often longer than the head, the third segment always considerably longer than deep (fig. 59). Abdomen arched and margined (fig. 58). 22. CHRYSOTOXUM Meigen
- 2 (1) Antennae always shorter than the head; if prolonged then abdomen neither arched nor margined.
- 3 (4) Face below antennae not receding, with weakly indicated median prominence (fig. III). Abdomen almost cylindrical, somewhat flattened along side margins. 1. PARAGUS Latreille
- 4 (3) Face receding below antennae (fig. III).
- 5 (6) Second abdominal segment narrow (at its narrowest less than half the width of scutellum). Abdomen narrow, club-shaped (fig. 7). Scutellum with metallic shine. Alula not developed. 2. BACCHA Fabricius
- 6 (5) Second abdominal segment broad (always broader than half the width of scutellum). Alula developed.

- 7 (16) Face and scutellum with metallic shine, black with greenish or bluish reflection.
- 8 (9) Abdomen oval, broad and flat with large yellow spots on tergites III and IV (confluent in the ♂, fig. 8). In the ♀ the spots on tergite II are often wanting. 6. XANTHANDRUS Verrall
- 9 (8) Abdomen narrow, with subparallel side margins or slightly broadened in the median part.
- 10 (11) Fore tarsus and fore tibia in the ♂ usually distinctly broadened (fig. 11). Fore tarsus in the ♀ relatively broad. 5. PLATYCHEIRUS Lepeletier et Serville
- 11 (10) Fore tarsus and fore tibia normal in both sexes; ♂ *Pyrophaena granditarsa* Först. Included (fig. 9a).
- 12 (13) Face strongly widened towards mouth edge, side margins not parallel. Thoracic dorsum and scutellum with coarse punctures. 4. ROHDENDORFIA Smirnov
- 13 (12) Face not widened towards mouth edge, side margins parallel. Thoracic dorsum and scutellum smooth, with very small punctures.
- 14 (15) Smaller: 4-9 mm. Abdomen with subparallel side margins (♂) or slightly broadened in the median part (♀), abdomen wholly black or black with yellow side spots on tergites II-V. 7. MELANOSTOMA Schiner
- 15 (14) Larger: 7-11 mm. Abdomen long, with subparallel side margins (♂) or slightly broadened in the median part (♀), abdomen black with whitish side spots on tergites III and IV or on tergite III only or for the greater part orange yellow (fig. 9 b). 2. PYROPHAENA Schiner
- 16 (7) Face and/or scutellum wholly or partly yellow or yellowish.
- 17 (32) Sides of thorax with brightly shining, yellow, non-transparent spots, or golden yellow somewhat translucent spots which are covered with dense golden dusting. Thoracic dorsum with yellow longitudinal stripes laterally.
- 18 (27) Face protruding more than frons.
- 19 (22) Abdomen broad and compact, elliptic or long oval, distinctly margined, ochreous with black stripes on the hind margins of the tergites and with moderately developed black median longitudinal stripes on the tergites. Spots on sides of thorax small, orange yellow (on posterior part of mesopleuron and on the pteropleuron), densely pollinose. Side stripes on thoracic dorsum of the same colour.
- 20 (21) Abdomen broad, elliptic, hind margins of tergites III and IV orange yellow, sternites II and III each with a broad black band on the hind margin, sternite IV with a broad black band across the middle. Vein r_{4+5} in cell R_5 strongly dipped. 14. ASIODIDEA Stackelberg
- 21 (20) Abdomen elongate oval. Hind margins of tergites III and IV black, sternites orange yellow. Vein r_{4+5} in cell R_5 weakly curved. 15. ASARKINA Macquart
- 22 (19) Abdomen narrow, not margined, elongate oval or with subparallel sides. Spots on sides of thorax lemon-coloured, non-transparent, clear, shining.

- 23 (24) Abdomen narrow, cylindrical in the ♂ and elongate oval, tapering towards the tip in the ♀.
19. SPHAEROPHORIA Lepeletier et Serville
- 24 (23) Abdomen in both sexes elongate oval and tapering towards the tip.
- 25 (26) Scutellum with black pile. Tergite I yellow, tergite II black with a broad yellow band across the middle. Hypopygium very large.
21. ALLOGRAPTA Osten-Sacken
- 26 (25) Scutellum with yellow pile. Tergite I black, tergite II black with large yellow spots covering most of tergite. Hypopygium small. Hind trochanter with a spine-like process.
20. ISCHIODON Sack
- 27 (18) Face not protruding further than frons.
- 28 (29) Abdomen waisted at the base, broadened at the tip, club-shaped, not margined.
18. DOROS Meigen
- 29 (28) Abdomen broad, oval, margined, flat, not waisted, with yellow spots or bands.
- 30 (31) Eyes hairy.
17. OLBIOSYRPHUS Mik
- 31 (30) Eyes bare.
16. XANTHOGRAMMA Schiner
- 32 (17) Sides of thorax without such yellow spots.
- 33 (38) Abdomen with whitish grey, yellowish grey or bluish grey spots on tergites II-IV or with a broad white band basally or uniformly black, if black then very broad and densely pilose.
- 34 (35) Abdomen short oval, broader than thorax, black with reddish tip, with dense bristle-like pilosity. Body large.
10. ERIOZONA Schiner
- 35 (34) Abdomen elongate oval with white or grey band across the base, whitish-bluish or yellowish-bluish spots on tergites II-IV.
- 36 (37) Abdomen with broad white or grey band at the base. Wing with dark cloud in the middle.
8. LEUCOZONA Schiner
- 37 (36) Abdomen with light spots on tergites II-IV. Wing hyaline, without dark cloud in the middle.
9. ISCHYROSYPHUS Bigot
- 38 (33) Abdomen black with mainly clear yellow bands or spots on tergites II-IV.
- 39 (40) Wing membrane bare. Frons strongly swollen, especially in the ♂. Eyes in the ♂ on the upper part with a clearly limited patch of considerably larger facets, covered with hairs.
12. SCAEVA Fabricius
- 40 (39) Wing membrane with microtrichiae. Frons flat or moderately swollen. Eyes bare or hairy.
- 41 (42) Vein r_{4+5} in cell R_5 strongly dipped. Abdomen always broad oval, flat, margined.
13. DIDEA Macquart
- 42 (41) Vein r_{4+5} in cell R_5 straight or weakly curved. Abdomen oval or narrow and strip-like, sometimes margined to a certain degree, or not margined.
11. SYRPHUS Fabricius sensu lato

1. PARAGUS Latreille, 1804

Type species of the genus: *Syrphus bicolor* Fabricius, 1794.

- 1 (2) Scutellum uniformly black. Face in the ♂ yellow, often with a rudimentary black median stripe, in the ♀ always with a marked broad black stripe down the middle of the face. Legs yellow, bases of femora black. Abdomen all black, the apical part or half mainly reddish, more rarely with a reddish triangular spot. 4-5 mm. Southern, Western and Central Siberia, the mountain steppe of Altay, Tuva, east to Sakhalin I.
P. tibialis (Fallen, 1817)
- 2 (1) Scutellum bicolorous: black with yellow hind margin.
- 3 (4) Abdomen black. Eyes with grey pilosity disposed in bands. Legs yellow, basal part of femora black (in the hind pair extending over 2/3 of their length), tibiae with brownish ring in the apical part. Sternites and hypopygium black. 5-6 mm. Tuva, Cis-Baikal, Trans-Baikal, Yakutia.
P. albifrons (Fallen, 1817)
- 4 (3) Abdomen black with tergites II and III entirely or mainly red. Third antennal segment five times as long as deep. Scutellum black, broadly light yellow in its hind part. Thoracic dorsum black, metallicly shining, with two whitish longitudinal stripes on its anterior half. Legs yellow, bases of femora black. 5-6 mm. Mountain steppes of Altay and Tuva, Cis-Baikal, Yakutia.
P. bicolor (Fabricius, 1794)

2. BACCHA Fabricius, 1805

Type species of the genus: *Syrphus elongata* Fabricius, 1775.

- 1 (4) Wing entirely darkened (from light brown to dark brown).
- 2 (3) Frons black, shining, with clear golden bronze reflection. Eyes meeting for a stretch approximately equalling height of frons. Antennae yellowish brown. 10 mm. Sakhalin I. See also couplet 9.
B. sachalinica Violovitsh, 1976, 0
- 3 (2) Frons black, weakly shining, without golden bronze reflection, mainly covered with whitish dusting and pilosity, except for a small part above antennal sockets. 8.5 mm. Tuva.
B. tuvinica Violovitsh, 1976, 0
- 4 (1) Wing hyaline with darkened stigma and with a pattern consisting of a dark spot or a dark band.
- 5 (6) Yellow pattern on tergite IV in the shape of narrow arched stripes (in the ♀) or spots (in the ♂). Frons black, above antennal sockets brownish, in the ♂ with grey dusted side spots. Antennae orange yellow. Sides of thorax shining, with pearly yellowish reflection, coloured pale yellow, yellow, yellowish brown, cinnamon brown and brown, covered with dense silvery dusting and delicate mainly silvery white pile. Legs yellow, mid and hind coxae, apical 1/3 of

- femora, bases and apical 1/3 of tibiae and upper side of hind tarsus dark brown. Wing hyaline with a pattern consisting of a dark apical spot and a dark cloud along the fore margin. Abdomen black, shining, with a pattern of yellow spots (fig. 7). 9-14 mm. Southern Pacific coastal region. *B. apicalis* Loew, 1858
- 6 (5) The yellow pattern on the tergites consists of square or rounded spots and a tape-like band.
- 7 (8) Antennae brown. Frons with silvery white dusting and ditto erect pilosity, in the ♀ with a narrow, bare, shining stripe down the middle of the upper part. 9-11 mm. Western Siberia.
B. sibirica Violovitsh, 1976
- 8 (7) Antennae yellow or orange yellow, more rarely with a brownish tinge.
- 9 (10) Wing slightly infuscated (brownish) with a small vaguely demarcated dark brown cloud near the stigma. Antennae with brownish tinge. See also couplet 2.
B. sachalinica Violovitsh, 1976, 0
- 10 (9) Wing entirely hyaline.
- 11 (12) Ocelli in both sexes arranged in an equilateral triangle. Frons and thoracic dorsum with barely noticeable golden bronze sheen. Ocellar triangle black. In the ♀ frons above antennae swollen, with bluish reflection, at the sides narrowly dusted. Thoracic dorsum in the ♀ with distinct bluish reflection. 10-12 mm. Sakhalin I.
B. pulla Violovitsh, 1976
- 12 (11) Ocelli in the ♂ arranged in an isosceles triangle. Frons, thoracic dorsum and ocellar triangle without distinct golden bronze sheen. Ocelli in the ♀ arranged in an equilateral triangle. Frons and vertex in the ♀ black, thoracic dorsum brownish black, sides of thorax light brown to brownish black. 8.5-10 mm. Southern Pacific coastal region, Sakhalin I. *B. eoa* Violovitsh, 1976

3. PYROPHAENA Schiner, 1860

Type species of the genus: *Syrphus rosarum* Fabricius, 1787 (orig. des.).

- 1 (2) Abdomen black, with two yellowish spots laterally on the anterior part of tergite III. 7-10 mm. Western and Central Siberia, Altay.
P. rosarum (Fabricius, 1787)
- 2 (1) At least tergites II and III largely reddish yellow.
- 3 (4) Tergites II and III almost entirely orange yellow. Wing blackish, with brown margin. 9-10 mm. From the Urals to Kamchatka and Chukotka, south extending to Tuva, Buryatia, north extending to the tundra zone.
P. platygastra (Loew, 1871)
- 4 (3) Tergites II, III and at least the basal part of tergite IV reddish yellow. Wing blackish, especially in the median part. First segment of fore tarsus very large with a process interiorly (fig. 9). 7-11 mm. All Siberia, eastward to the Kuril Isles and Chukotka.
P. granditarsa (Forster, 1771)

4. ROHDENDORFIA Smirnov, 1924

Type species of the genus: *Rohdendorfia dimorpha* Smirnov, 1924.

Median tubercle of face projecting somewhat further than mouth edge. Face shining black, at the sides with silvery grey dusting and white pilosity. Frons shining black, with long dense erect pile, near eye margins with silvery grey dusting. Antennae: first and second segment black, third segment light brown. Arista short, thickened at the base. Thoracic dorsum and scutellum bluish black with metallic shine, coarsely punctuated, with fairly dense, short, light yellow pile. Legs black, with short yellowish white pilosity, median segments of hind tarsus somewhat thickened. Fore tibia ventrally with short, adpressed, black or golden yellow hairs which are somewhat shorter than the width of fore tibia. Fore tarsus with short adpressed pile below. Hind femur with short, adpressed and mainly black hairs. Haltere yellow. Wing brownish yellow, stigma light brown. Abdomen shining black, with short black adpressed pilosity and long white hairs on the sides of the first tergites. In the ♀ frons on anterior half with white hairs. Tergites III and IV orange yellow or reddish yellow with black bands on the hind margins. 6-8.5 mm. Altay.

R. dimorpha Smirnov, 1924

5. PLATYCHEIRUS Lepeletier et Serville, 1828

Type species of the genus: *Syrphus scutatus* Meigen, 1822.

Males

- 1 (34) Fore tibia not broadened or hardly broadened towards the tip.
- 2 (19) Fore tarsus not at all or only little broadened.
- 3 (4) Fore femur posteriorly near the base with a long white hair, bent near the tip. Fore tibia and fore tarsus very slightly broadened. Abdomen with three pairs of spots on tergites II-IV, these spots with lead-coloured reflection. 6.5 mm. The tundra of Central Siberia. *P. angustitarsis* Kanervo, 1938
- 4 (3) Fore femur without such hair.
- 5 (10) Fore tibia exteriorly without long bristle-like hairs or bristles.
- 6 (7) Fore femur posteriorly on the apical half with two very long bristle-like hairs. Abdomen with small bronze-coloured side spots on tergites II-IV. 5 mm. Tuva. *P. sticticus* (Meigen, 1822)
- 7 (6) Fore femur without two such long bristle-like hairs.
- 8 (9) Face strongly projected, proportion between length of face and maximum width of eye (seen in profile) 3 : 5, covered with yellow pilosity. Abdomen with three pairs of yellow spots, triangular on tergite II, rectangular on tergites III and IV. Larger: 12-13 mm. Southern Pacific coastal region, Kunashir I. *P. dux* Violovitsh, 1957
- 9 (8) Face not strongly projected, of the normal shape for the genus. First and second segments of fore tarsus somewhat broadened (width of lower margin of second segment about 1.5 times the width of fore tibia at the tip). Abdomen broad and short, with three pairs of yellow spots, triangular on tergite II and subrectangular on tergites III and IV (fig. 16). Smaller: 8 mm. Tuva (mountain tundra of Tanu-Ola mountain range). *P. arat* Violovitsh, 1957
- 10 (5) Fore tibia exteriorly with a row of long bristle-like hairs or bristles.
- 11 (16) Abdominal spots yellow with light dusting or lead-coloured.
- 12 (13) Thoracic dorsum with whitish yellow pile. Fore femur apically with a stout, curved, black hair. 6-7 mm. Estuary of Yenisey River (Dudinka). *P. fjelbergi* Nielsen, 1974
- 13 (12) Thoracic dorsum with black pile or black pilosity with a number of light coloured hairs immixed. Fore femur apically with a stout, curved, black bristle.
- 14 (15) Face shining black with bluish sheen. Frons swollen, eyes meeting in an obtuse angle (more than 100°). Eyes in actual approximation for a stretch which is double the height of frons. Fore tarsus black, fore femur basally with 2-4 strong bristles (fig. 17 A-C). 7-7.5 mm Northern parts of all Siberia. *P. hirtipes* Kanervo, 1938

- 15 (14) Face black, with dense golden grey dusting. Fore tarsus black, first and second segments brownish yellow. Light coloured spots on tergites II-IV, more or less rectangular, yellow with light coloured pollinosity. 7-8 mm. Tuva (mountain tundra).
P. complicatus Becker, 1889
- 16 (11) Spots on tergites II-IV yellow, without any pollinosity.
- 17 (18) Fore tarsus not broadened, fore femur with a brush of five black, bristle-like hairs posteriorly at the base (fig. 14). Abdomen broad, black, with almost rectangular spots on tergites III and IV and semi-circular spots on tergite II. Inner process of surstyli short and broad (fig. 17 F). 7-8.5 mm. Yakutia.
P. jakuticus Violovitsh, 1978
- 18 (17) Fore tarsus hardly broadened, yellow, fore femur without such black, bristle-like hairs. 7 mm. Northern Siberia from the polar part of the Urals to Chukotka.
P. subordinatus Becker, 1916
- 19 (2) Fore tarsus obviously broadened, at least the first two segments (fig. 11).
- 20 (27) Eyes meeting in an obtuse angle, obviously over 90°.
- 21 (24) Thoracic dorsum and scutellum with light yellow pilosity.
- 22 (23) Second segment of fore tarsus three times as broad as long. Spots on tergites II-IV of metallic leaden hue, covered with greyish dusting. 6.5-9 mm. Western and Central Siberia, Altay, mountains of Tuva, Sayany, Cis-Baikal, Sakhalin I.
P. discimanus Loew, 1871
- 23 (22) Second segment of fore tarsus less than three times as broad as long. 5-5.8 mm. Estuary of River Yenisey (Dudinka, transition from taiga to tundra).
P. boreomontanus Nielsen, 1981
- 24 (21) Thoracic dorsum with black pilosity or light yellow pilosity with some black hairs immixed.
- 25 (26) Thoracic dorsum and scutellum with black pilosity. Face slightly dusted, on its lower part with shorter white pilosity, near the frons with longer black pilosity. Side spots on tergites II-V yellowish lead-coloured. 6-7.5 mm. Central Siberia.
P. fumosus Violovitsh, 1980
- 26 (25) Thoracic dorsum with light yellow pilosity into which black hairs are immixed. Fore femur with a stout, black, bristle-like hair basally, first two segments of fore tarsus light yellow, first segment nearly twice as broad as fore tibia at the tip. 6 mm. Estuary of Yenisey River (Dudinka, transition from taiga to tundra).
P. groenlandicus Curran, 1927
- 27 (20) Eyes meeting in a right or almost right angle.
- 28 (29) Face strongly projected, covered with yellowish dusting. Legs blackish, knees and first two segments of fore tarsus yellow; first two segments of fore tarsus greatly broadened (fig. 11). The large spots on tergites II-IV obviously longer than broad. 9-10 mm. Altay.
P. manicatus (Meigen, 1822)
- 29 (28) Face not strongly projected, of the usual shape of this genus.
- 30 (31) Second segment of fore tarsus approximately three times as broad

as long (fig. 11). Legs black, basal half of fore and mid tibiae, first segments of fore and mid tarsi and knees of hind legs yellow. 7.5-9 mm. Cis-Baikal.

P. tarsalis (Schummel, 1836)

31 (30) Second segment of fore tarsus not more than twice as broad as long.

32 (33) Eyes in actual approximation for a stretch approximately equalling height of frons. Dorsum and sides of thorax with mainly black or brown pilosity. Fore tibia exteriorly with a row of black, bristle-like hairs. The yellow spots on tergites II-IV rectangular. 8 mm. Altay. *P. latimanus* (Wahlberg, 1844)

33 (32) Eyes in actual approximation for a stretch approximately equalling half the height of frons. Dorsum and sides of thorax with whitish pilosity. Fore tibia exteriorly without black, bristle-like hairs. Yellow spots on tergites II-IV triangular. 8-9 mm. Yakutsk.

P. peckae Bagatshanova, 1980

34 (1) Fore tibia at least in its apical part greatly broadened.

35 (50) Antennae entirely black. Fore tibia gradually broadened towards the tip, either from the base onward or from the middle.

36 (37) Hind leg black with yellow knee. Fore tibia broadening from the base onward, reaching its maximum width in the apical 1/3, but somewhat tapering at the tip. 5-8 mm. Western and Central Siberia, Altay, Tuva, Yakutia, Cis-Kolyma, Sayany, Cis-Baikal, Kamchatka, Chukotka. *P. podagratus* (Zetterstedt, 1838)

37 (36) Hind leg yellow or with black tarsus and with more or less broad rings on femora and tibiae. Fore tibia at its broadest at the tip and not tapering apically.

38 (41) Fore femur posteriorly with a row of separate, erect, long, black, bristle-like hairs.

39 (40) At the base of fore femur a long, white, apically bent hair, on the posterior side six long, black, bristle-like hairs. Fore tibia exteriorly without incision (fig. 17 G-H). 8 mm. From the Urals to Yakutia, including Altay, Tuva, Sayany; Sakhalin I.

P. immarginatus (Zetterstedt, 1849)

40 (39) No such white hair at the base of fore femur, this posteriorly with five black, bristle-like hairs, fore tibia with a small incision exteriorly. 8-9 mm. From the Urals to Yakutia, including Altay, Tuva, Sayany; Kamchatka, Sakhalin I.

P. scambus (Staeger, 1845)

41 (38) Fore femur without long, black, bristle-like hairs.

42 (45) Femora entirely yellow.

43 (44) Fore femur posteriorly over its entire length with very dense, black, erect hairs. Fore tibia gradually widening from the base to the middle, apical half not greatly widened. Abdomen yellow with narrow black hind margins of tergites and a black longitudinal stripe down the middle. 8-9 mm. Southern Pacific coastal region.

P. fulviventris (Macquart, 1827)

- 44 (43) Fore femur posteriorly with moderate dense, light yellow, erect hairs. Fore tibia gradually widening from base to tip. 8 mm. Western Siberia, Altay, Southern Pacific coastal region.
P. perpallidus Verrall, 1901
- 45 (42) At least hind femur black in the median part.
- 46 (47) Spots on tergites II-IV lead-coloured. Fore and mid legs yellow, fore femur with black longitudinal stripe, hind leg black with yellow knee and yellow basal part of femur. 7 mm. Western Siberia, Sayany, Tuva, Cis-Baikal, Central Siberia, Yakutia, Cis-Kolyma, Kamchatka, Chukotka. *P. hyperboreus* (Staeger, 1845)
- 47 (46) Spots on tergites II-IV yellow or brownish yellow.
- 48 (49) Tergite II about as broad as long, tergite III a little less long than broad. The yellow spots on tergite III hardly longer than broad. 7-8 mm. From the Urals to Cis-Kolyma, south in Altay, Tuva and Sayany.
P. clypeatus (Meigen, 1822)
- 49 (48) Tergites II and III obviously longer than broad. The yellow spots on tergite III about twice as long as broad. 7 mm. Western and Central Siberia, Altay, Tuva, Cis-Baikal, Yakutia, Sakhalin I.
P. angustatus (Zetterstedt, 1843)
- 50 (35) Third antennal segment yellow or reddish ventrally. Fore tibia usually markedly broadening in the apical part.
- 51 (52) Mid tibia obviously bent, in its basal half quite near the middle there is a bulge interiorly, covered with dense black and light yellow pile, mid femur with a corresponding excavation. Fore femur posteriorly almost over its entire length with dense, black, erect, bristle-like hairs. First segment of fore tarsus much broader than the next segments. 8-11 mm. From the Urals to the Kuril Isles, Kamchatka and Chukotka, south in Altay, Tuva, Sayany, Buryatia.
P. peltatus (Meigen, 1822)
- 52 (51) Mid tibia almost straight, the bulge and the excavation on mid femur are lacking. Fore femur posteriorly with long, woolly (not bristle-like) hairs.
- 53 (56) Fore femur posteriorly near the base with two brushes of long black hairs which are curved near the tip.
- 54 (55) First segment of fore tarsus about six times as long as the second. Fore tibia exteriorly before it widens with a brush of black hairs, mid trochanter with a long process. Abdomen with yellow spots. 7-10 mm. Western Siberia, Altay, Tuva, Cis-Baikal, Yakutia, Oblast Magadan, southern Pacific coastal region, Sakhalin I.
P. scutatus (Meigen, 1822)
- 55 (54) First segment of fore tarsus about 2.5 times as long as the second segment. Fore tibia exteriorly before it widens with a few black hairs, mid trochanter simple. Abdomen with metallic lead-coloured spots. 7-10 mm. From the Urals to the Kuril Isles, Chukotka.
P. albimanus (Fabricius, 1781)
- 56 (53) Fore femur posteriorly near the base without brushes of long black hairs which are curved near the tip, second segment of fore tarsus

about three times as broad as long (fig. 17 D-E). 8-10 mm. Eastern Cis-Ural, Western Siberia, Altay.

P. ovalis Becker, 1921

Females

- 1 (30) Third antennal segment entirely black.
- 2 (11) Face in its lower part, including central protuberance, strongly jutting forward.
- 3 (6) Abdomen with yellow spots.
- 4 (5) Width of head about 3.3 times the width of vertex near the hind ocelli. Thoracic dorsum dull.
P. manicatus (Meigen)
- 5 (4) Width of head about 4.4 times the width of vertex near the hind ocelli. Thoracic dorsum shining as if polished.
P. tarsalis (Schummel)
- 6 (3) Abdomen with lead-coloured spots.
- 7 (10) Thoracic dorsum and scutellum with light pilosity.
- 8 (9) Pilosity of thoracic dorsum, scutellum and abdomen short. First segment of fore tarsus black. Smaller: 7 mm.
P. discimanus Loew
- 9 (8) Thoracic dorsum and scutellum with long, dense, delicate, light yellow pile; the hairs on the scutellum are particularly long and curly at the tip. Fore tarsus brown, first segment lighter with orange tinge. Head as in fig. 12. Larger: 9 mm. Altay.
P. rarus Violovitsh, 1973
- 10 (7) Thoracic dorsum and scutellum with black pilosity. Abdomen with four pairs of yellowish leaden, somewhat grey pollinose spots on tergites II-V. Width of frons near antennal sockets about half the width of head, width of vertex scarcely more than 1/3 of width of head. 5.5 mm.
P. fumosus Violovitsh
- 11 (2) Face flat or little projecting.
- 12 (15) Hind leg entirely yellow or with darkened tarsus.
- 13 (14) Width of head about three times the width of vertex. Third antennal segment obviously longer than deep. Face weakly dusted. Frons shining black with small well-demarcated side spots of golden yellow dusting, above antennae shining. Spots on tergites yellow.
P. fulviventris (Macquart)
- 14 (13) Width of head about five times the width of vertex. Third antennal segment hardly any longer than deep. Face densely pollinose. Frons with large vague side spots of greyish dusting, above antennae dusted.
P. perpallidus Verrall
- 15 (12) Hind femur entirely black, or black with narrowly yellow tip, or at least with a black or dark brown ring in the middle.
- 16 (17) Hind femur entirely black.
P. fjelbergi Nielsen
- 17 (16) Hind femur black with narrowly yellow tip (light coloured knee), or mainly yellow, often with dark brown (black) ring in the middle.
- 18 (23) Hind femur with narrowly yellow tip or with light coloured knee.

- 19 (20) Abdomen with three pairs of whitish yellow spots. Frons grey dusted, vertex shining black. Abdomen broader than in the ♂.
P. latimanus (Wahlberg)
- 20 (19) Abdomen with four pairs of light coloured spots.
- 21 (22) Abdomen with lead-coloured spots. Width of head about twice the width of frons near antennal sockets and about three times the width of vertex near hind ocelli. Legs black, tips of femora, basal 1/3 of fore and mid tibiae, and base of hind tibia yellowish. 7 mm.
P. boreomontanus Nielsen
- 22 (21) Abdomen with yellow spots. Third antennal segment about 1.5 times as long as deep. Width of head about four times the width of vertex. The yellow spots on tergite III larger than the others, almost square, the spots on tergite II small and round. 7 mm.
P. podagratus (Zetterstedt)
- 23 (18) Hind femur mainly yellow or with a brown ring in the middle.
- 24 (25) Abdomen narrow, pointed towards the tip. Tergite V without yellow spots. Smaller: 6-7 mm. *P. angustatus* (Zetterstedt)
- 25 (24) Abdomen moderately broad, not pointed towards the tip. Tergite V with yellow spots. Larger: 8 mm.
- 26 (27) The hairs on the posterior surface of fore femur longer near the base than towards the tip. Hind femur and hind tibia each with a distinct dark ring in the middle. Tergite VI usually black.
P. clypeatus (Meigen)
- 27 (26) The hairs on the posterior surface of fore femur of about the same length, hind femur and hind tibia usually with a weakly demarcated dark ring in the middle. Tergite VI as a rule partly yellow.
- 28 (29) Fore femur with a long erect white hair near the base. Tergite II with small yellowish spots.
P. immarginatus (Zetterstedt)
- 29 (28) Fore femur without such a hair near the base. Tergite II with large yellow spots. *P. scambus* (Staeger)
- 30 (1) Third antennal segment reddish yellow underneath.
- 31 (36) Abdomen with yellow spots.
- 32 (33) Abdomen with four pairs of spots, the ones on tergite V well developed. Larger: 7.5-12 mm.
P. peltatus (Meigen)
- 33 (32) Abdomen with three pairs of yellow spots.
- 34 (35) The yellow spots on tergite II more or less rectangular. 7-10 mm.
P. scutatus (Meigen)
- 35 (34) The yellow spots on tergite II more or less triangular. 8-9 mm.
P. peckae Bagatshanova
- 36 (31) Abdomen with bluish grey spots, lead-coloured pollinose.
P. albimanus (Fabricius)

6. XANTHANDRUS Verrall, 1901

Type species of the genus: *Musca comtus* Harris, 1780.

Abdomen broad, elliptic, black with yellow round spots on tergite II, tergites III and IV in the ♂ with broad yellow bands which are deeply incised in the middle posteriorly, in the ♀ these tergites with large broadly oval yellow spots. 10-12 mm. Western and Central Siberia, Cis-Amur, Pacific coastal region.
X. comtus (Harris, 1780)

7. MELANOSTOMA Schiner, 1860

Type species of the genus: *Musca mellina* Linnaeus, 1758.

- 1 (2) Abdomen uniformly black, in the ♂ dull, in the ♀ shining. Antennae black. 4-6 mm. Northern part of Western and Central Siberia, Yakutia. M. dubium (Zetterstedt, 1838)
- 2 (1) Abdomen with metallicly shining, grey or yellow spots.
- 3 (4) Abdominal spots grey in the ♂, metallicly shining in the ♀. Exteriorly at the tip of fore femur in the ♂ a stout, long bristle, which is curled in the shape of a spiral at the tip. 6.5-7.5 mm. From the Urals to Yakutia. M. ambiguum (Fallen, 1817)
- 4 (3) Abdominal spots yellow, more or less developed. Antennae in any case yellow ventrally.
- 5 (8) Face and frons with obvious yellowish dusting. Arista visibly pubescent. Abdomen in the ♂ with square spots, in the ♀ with triangular ones.
- 6 (7) Upper mouth edge strongly projecting (seen in profile). Abdomen narrow, with subparallel sides. Larger: 8-9 mm. From the Urals to the Kuril Isles, Kamchatka, Chukotka. M. scalare (Fabricius, 1794)
- 7 (6) Upper mouth edge weakly projected (seen in profile). Abdomen in the ♀ shorter and broader, tapering at the tip. Smaller: 5-8 mm. For the rest like M. scalare (Fabr.). Southern Pacific coastal region, Sakhalin I. M. orientale (Wiedemann, 1824)
- 8 (5) Face and frons undusted, shining, more rarely slightly dusted. Arista practically bare. Smaller: 5-7 mm. For the rest like M. scalare (Fabr.). The entire Holarctic region, except the far north. M. mellinum (Linnaeus, 1758)

8. LEUCOZONA Schiner, 1860

Type species of the genus: *Musca lucorum* Linnaeus, 1758 (orig. des.).

Abdomen black, at the base a broad whitish grey semi-transparent band in the ♂ and a broad white band, often interrupted in the middle by a narrow

black line, in the ♀. 1-12 mm. Fig. 10. From the Urals to Sakhalin I., the Kuril Isles, Kamchatka, Chukotka. *L. lucorum* (Linnaeus, 1758)

9. ISCHYROSYPHUS Bigot, 1882

Type species of the genus: *Musca glaucia* Linnaeus, 1758.

- 1 (4) Face yellow with a broad black non-transparent stripe down the middle. Scutellum yellow.
- 2 (3) Abdomen black, weakly shining, with large triangular side spots on tergite II: they occupy about 1/3 of the side margin of the tergite and nearly touch in the middle; tergites II and III in the anterior 1/3 with narrow, vaguely demarcated transverse stripes of grey dusting. Sternites black, except for sternites I and II which are yellow and a yellow hind margin on sternite III. Tergites with relatively short white pilosity, sternites with somewhat longer white pile. Legs yellow: coxae and basal half of femora black, upper side of hind tarsus dark brown. Wing hyaline, a little infuscated; wing stigma black brown. 10 mm. Southern Pacific coastal region.
I. ussuriensis Stackelberg, 1929
- 3 (2) Abdomen black, strongly shining as if polished, with small narrow ochreous side spots on tergite II; with very narrow reddish brown stripes which are interrupted in the middle and are covered with bluish grey dusting on tergites III and IV and on the fore margins of these tergites relatively narrow stripes of bluish grey dusting. Sternites black except for a light yellow stripe on the hind margins of sternites II and III. Abdomen dorsally with very dense long golden yellow pile, ventrally with longer, delicate and sparse white pilosity. Legs: coxae, trochanters, basic 3/4 of femora, top 2/3 of hind tibia and hind tarsus black; fore and mid tarsi dark brown, the other parts of the legs ochreous. Wing hyaline, the fore margin darkened: yellowish. Wing stigma dark brown (fig. 106). 12 mm. Northern part of Central Siberia. *I. beybienkoi* Violovitsh, 1982
- 4 (1) Face all yellow or yellow with a dark transparent (brown to black) narrow stripe down the middle. Scutellum black or yellow, in the latter case the face always lacks a dark median stripe.
- 5 (6) Face uniformly yellow, without a dark median stripe. Scutellum yellow. Legs yellow; coxae, trochanters, basic half of fore and mid femora and basic 3/4 of hind femur black. Abdomen with grey bands in the anterior part of tergites II-IV, often interrupted in the middle, the band on tergite II is considerably broader (fig. 18 A). 10-14 mm. All Siberia, east to the Kuril Isles and Chukotka, north to the tundra zone. *I. glaucius* (Linnaeus, 1758)
- 6 (5) Face yellow with a darker (yellow, brown, more rarely almost black) translucent stripe down the middle, its width varying between 1/5 and 1/7 of the width of the face. Scutellum black, sometimes (more often in the ♀) with yellow hind margin. Legs black (more rarely dark brown), the apical 1/4-1/3 of fore and mid femora and the basal 1/3 - 1/2 of fore and mid tibiae yellow.

Abdomen black with three pairs of spots on tergites II-IV, the spots on tergite II large and square, on the anterior part of tergites III and IV narrow; the colour of the spots varies from white and yellowish to bluish grey (fig. 18 B). 7-14 mm. Distribution the same as former species. *I. laternarius* (O.F. Müller, 1776)

10. ERIOZONA Schiner, 1860

Type species of the genus: *Syrphus oestriformis* Meigen, 1838.

Body black, with long dense erect pile: black in the middle of the thoracic dorsum, yellow on the anterior part of the thoracic dorsum and before the scutellum, on the scutellum yellow, on the abdomen greyish anteriorly, black in the middle and reddish at the tip (fig. 19). 12-15 mm. From the Urals to the Pacific coastal region, Sakhalin I., Kamchatka, Chukotka.

E. syrphoides (Fallen, 1817)

11. SYRPHUS Fabricius, 1775 (sensu lato)

Most of the contemporary Syrphidologists split the genus *Syrphus* Fabr. (s.l.) into a number of genera: e.g. *Dasysyrphus* Enderlein, *Episyrphus* Matsumura, *Meligramma* Frey, *Betasyrphus* Matsumura, etc. (Matsumura, 1916, 1918 a, 1918 b; Shiraki, 1930; Stone a.o., 1965; Hippa, 1968 a; Vockeroth, 1969, etc.). As I consider the characters used by these authors to create genera insufficiently motivated I regard what they call genera as subgenera of the genus *Syrphus* Fabr. s.l., including the genus *Epistrophe* Walker, all this quite in concord with A.A. Stackelberg (1970).

Type species of the genus: *Musca ribesii* Linnaeus, 1758 (Rondani, 1844).

- 1 (2) The light coloured bands on tergites III and IV narrow (occupying about 1/6 of length of tergite), bluish yellow with bluish grey dusting (mainly in the median part), shining; the band on tergite II narrower, nearly all bluish grey, in the ♂ often interrupted in the middle. On the back of the occiput, behind the mouth edge and behind the eyes a row of long coarse clear light yellow bristle-like hairs. 8-12 mm. Southern Pacific coastal region.

S. (Betasyrphus) serarius Wiedemann, 1830

- 2 (1) The light coloured bands on tergites III and IV broader, yellow.
 3 (12) Thoracic squama with long yellow hairs dorsally.
 4 (5) Eyes in the ♂ with short dense pile, in the ♀ with rather sparse pilosity. Hind femur black at least on the basal half. Abdomen with moderately broad yellow bands (figs. 21 D and 26 D). 10 mm. From the Urals to the Kuril Isles, Kamchatka, Chukotka.

S. (s. str.) torvus Osten-Sacken, 1875

- 5 (4) Eyes bare or rarely with very delicate sparse pilosity in the ♂.

- 6 (7) Abdomen with yellow side spots on tergites III and IV. Antennae dark yellow, third segment with brownish upper rim. Legs yellow, in the ♂ the basal 1/4 of fore and mid femora and the basal half of hind femur black, in the ♀ the femora are entirely yellow. Fore margin of the yellow spots on tergites II and III straight, sub-parallel to the fore margin of the tergite (figs. 21 E and 26 E). 8-10 mm. Western Siberia, Altay, Tuva, Cis-Kolyma, Oblast Magadan, Kamchatka.

S. (s. str.) sexmaculatus (Zetterstedt, 1838)

- 7 (6) Abdomen with yellow bands on tergites III and IV.
8 (9) Hind femur in the ♂ entirely yellow, fore and mid femora black at the bases. The yellow abdominal bands broad, occupying 2/3-3/4 of the length of each tergite, often with a relatively deep incision in the middle of their hind margin. The ♀ cannot be reliably identified. Figs. 21 B and 26 B. 10-12 mm. Western Siberia, Altay.

S. (s. str.) pilisquamis Ringdahl, 1930

- 9 (8) Hind femur in the ♂ black at the base. The yellow bands on tergites III and IV moderately broad.
10 (11) Apical half of hind femur exteriorly with short black bristly hairs. Hind femur in the ♂ black in the basal half, in the ♀ it is entirely yellow. Figs. 21 A and 26 A. 10-12 mm. From the Urals to the Kuril Isles, Kamchatka, Chukotka.

S. (s. str.) ribesii (Linnaeus, 1758)

- 11 (10) Apical half of hind femur exteriorly with short fine yellow hairs, rarely with a number of separate black hairs among these. In the ♂ the basal 3/4 of hind femur black, in the ♀ the basal 2/3. Figs. 21 C and 26 C. 8-10 mm. From the Urals to the Kuril Isles, Kamchatka, Chukotka.

S. (s. str.) vitripennis Meigen, 1822

- 12 (3) Thoracic squama without long yellow hairs on the upper surface.
13 (52) Eyes shortly, but densely, hairy.
14 (19) Thoracic dorsum with longitudinal stripes of yellowish grey dusting.
15 (18) Thoracic dorsum with two stripes of light coloured dusting.
16 (17) The yellow spots on tergites III and IV distinctly concave in the middle of their hind margin. Larger: 13-17.5 mm. Thoracic dorsum slightly shining, covered with inconspicuous pollinosity, the longitudinal stripes are poorly marked. The yellow spots on tergites III and IV in the ♂ very broad, with fluently concave hind margin, in the ♀ these spots are approximately half as broad and deeply concave on tergites II-IV. Figs. 22 E and 26 O. 12-15 mm. Southern Pacific coastal region, the islands Sakhalin, Kunashir and Shikotan.

S. (Dasysyrphus) bilineatus Matsumura, 1917

- 17 (16) The yellow bands (spots) on tergites III and IV with straight hind margins (not concave), with nearly parallel sides. Smaller: 8-12 mm. Thoracic dorsum shining with conspicuous longitudinal stripes in the anterior half. The yellow bands on tergites III and IV are placed obliquely, in the ♂ they are broader and almost inter-

rupted in the middle. Figs. 22 A and 26 K. Western Siberia, Altay, Tuva, Sayany, Cis-Baikal.

S. (D.) albostriatus (Fallen, 1817)

- 18 (15) Thoracic dorsum with four stripes of dense yellowish dusting, almost reaching to the scutellum, shining black. 8-11 mm. Tuva.
S. (D.) eggeri Schiner, 1862
- 19 (14) Thoracic dorsum unicolorous, without longitudinal stripes, shining black, sometimes with bluish or bronze sheen.
- 20 (21) The yellow band on tergite III at least 2.5-3 times as broad as the band on tergite IV. Antennae entirely dark brown, almost black. Face with broad black longitudinal stripe (its width about 1/3 of width of face). Laterally on tergite II two small narrow transverse yellow spots. Figs. 22 F and 26 P. 9-13 mm. From the Urals to the Kuril Isles, Kamchatka, Chukotka.
S. (D.) tricinctus (Fallen, 1817)
- 21 (20) The yellow bands on the tergites are approximately of the same width.
- 22 (23) Tergites III and IV with yellow bands. Face with dark brown, brown or black longitudinal stripe. Eyes densely hairy. Thoracic dorsum shining black. Sides of thorax black with slight yellowish dusting, anterior part of mesopleuron and upper part of sternopleuron yellowish, especially in the ♀. Pilosity of upper and lower part of sternopleuron shows a particular pattern: broadly separated anteriorly, nearly meeting posteriorly. Metasternum with numerous black hairs. Wing hyaline with slightly brownish tinge, vein r_{4+5} slightly arched. 8-11 mm. Western and Central Siberia, Altay, Tuva, Sayany, Cis-Baikal, Yakutia, Cis-Amur, Pacific coastal region, the islands Sakhalin and Kunashir; Kamchatka.
S. (Megasyrphus) annulipes (Zetterstedt, 1838)
- 23 (22) Tergites III and IV with pairs of yellow spots, which sometimes meet in the middle.
- 24 (29) Antennae mainly yellow.
- 25 (26) Face as a rule yellow, more rarely with more or less developed black median stripe. Frons in the ♀ laterally with well-demarcated spots of grey pollinosity. The yellow side spots on the tergites broader. Sternite II in the ♀ yellow. Surstyli longer. Larger: 10-13 mm. Altay, Sayany, Cis-Baikal, Yakutia, Cis-Amur, Pacific coastal region, Sakhalin I., Kamchatka.
S. (Dasysyrphus) hilaris (Zetterstedt, 1843)
- 26 (25) Face always with black longitudinal stripe. The yellow spots on the tergites narrower. As a rule smaller.
- 27 (28) The yellow side spots on the tergites straight, their fore margin subparallel to the fore margin of the tergite. Hind femur in the ♀ black on the basal half, hind tibia as a rule entirely yellow. Frons in the ♀ with vague side spots of grey dusting. Sternite II in the ♀ with a black band along the hind margin. Figs 22 B and 26 L. 8-11 mm. All Siberia, east to the Kuril Isles, Kamchatka and Chukotka. *S. (D.) venustus* Meigen, 1822

- 28 (27) The yellow side spots on tergites II-IV with concave fore margin, towards the middle of the tergite they are broadened like raindrops, their fore margin not parallel with fore margin of tergite. Hind femur in the ♀ mainly (2/3-3/4) black, hind tibia yellow with more or less broad dark ring. 8-11 mm. Altay, Tuva, Sayany, Cis-Baikal, Cis-Kolyma, Oblast Magadan, Kamchatka, Chukotka. S. (D.) friuliensis van der Goot, 1960
- 29 (24) Antennae black, the third segment sometimes reddish yellow ventrally.
- 30 (39) Abdomen margined (a raised bead at the sides of tergites II-IV).
- 31 (36) The yellow spots on tergite II or on tergites III and IV do not reach across the side margin.
- 32 (33) The black stripe down the middle of the face about half as broad as the face. Smaller: 7-8 mm. Frons black-haired, eyes in the ♂ meeting at an angle somewhat over 90°. Eyes with brownish yellow pilosity. Thoracic dorsum shining black with dark golden yellow pile. The yellow spots on tergite II round in the ♂, narrow transverse stripes in the ♀ (fig. 37). Cis-Baikal, Oblast Magadan, Chukotka. S. (D.) kegalii (Violovitsh, 1975)
- 33 (32) Width of black stripe down the middle of the face not more than 1/3 the total width of the face.
- 34 (35) Scutellum yellow, with black hairs or at least a preponderance of black pilosity. Fore and hind margins of the yellow spots on tergite II straight. The inner ends of the yellow spots on tergite IV do not reach the hind margin of tergite III. Fore margin of the yellow spots on tergites III and IV slightly concave and sloping, their inner end little widened, the spots on tergite II not arched (figs. 22 C and 26 M). 9-11 mm. From the Urals to Yakutia.
S. (D.) lunulatus Meigen, 1822
- 35 (34) Scutellum black, more rarely brown, with light yellow pilosity only. Fore margin of spots on tergite II concave. The inner ends of the yellow spots on tergite IV broadly reach hind margin of tergite III. Fore margins of spots on tergites III and IV deeply concave, their inner ends pronouncedly broadened like raindrops, the spots on tergite II slightly arched. Abdomen in the ♀ rounded, arched. 9-11 mm. Altay, Tuva, Cis-Baikal.
S. (D.) rotundiventris (Peck, 1966)
- 36 (31) The yellow spots on tergite II or the ones on tergites III and IV reaching across the side margin.
- 37 (38) The yellow spots on tergite II do not reach the side margin, their fore margins slopingly concave, the spots on tergites III and IV reach across the side margin. Black median stripe on the face about 1/3 of total width of face. Legs yellow, basal 1/3 of fore and mid femora, basal 2/3 of hind femur and tips of tarsi black. Larger: 10-12 mm. Altay.
S. (D.) carpathicus (Stys et Moucha, 1962)
- 38 (37) The yellow spots on tergite II reach across the side margin, those on tergites III and IV do not. The yellow spots on tergites II-IV placed obliquely with regard to the fore margins of these tergites (fig. 26 N). Black median stripe on the face broad in the

♀ (about 1/3 of width of face), narrower in the ♂ (about 1/5 of width of face). Hypopygium as in fig. 22 D. Smaller: 5-7 mm. Western Siberia, Tuva.

S. (D.) nigricornis Verrall, 1898

- 39 (30) Abdomen not margined, with square or semicircular (not sickle-shaped) yellow side spots, which reach across the side margin.
 40 (43) Face yellow, without black stripe down the middle of the face.
 41 (42) Frons greatly swollen in the ♂, with long and dense pile. Face very broad in both sexes: near the excavation below antennae twice as broad as one eye, at the sides with very dense erect pile. Figs. 23 B and 27 J. 8-10 mm. Tundras of Western and Central Siberia, Yakutia.

S. (Mesosyrphus) dryadis (Holmgren, 1869)

- 42 (41) Frons not swollen in the ♂, with moderately long and less dense pilosity. Face not so broad in both sexes: near the excavation below antennae only 1.5 times as broad as one eye. Frons and face at the sides not so densely and long pilose. Figs. 23 A and 27 I. 7-8 mm. All Siberia and the Far East, except for the southernmost parts.

S. (M.) tarsatus (Zetterstedt, 1838)

- 43 (40) Face with black stripe down the middle.
 44 (47) Frons distinctly swollen, eyes meeting at an obtuse angle.
 45 (46) Abdomen in the ♂ with two pairs of small yellow spots on tergites III and IV, in the ♀ the abdomen is uniformly black, without spots. Figs. 25 G and 26 Q. 8-9 mm. Yakutia, Sakhalin I.

S. (Melangyna) quadrimaculatus (Verrall, 1873)

- 46 (45) Abdomen with three pairs of large yellow spots on tergites II-IV. 8.5-9 mm. Fig. 42. Sayany.

S. (M.) stackelbergi (Violovitsh, 1980)

- 47 (44) Frons not swollen: eyes meeting at an angle of 90° or less.
 48 (49) Abdomen with two pairs of yellow spots (on tergites III and IV). Eye angle almost 90°. Sides of thorax with white pilosity. Figs. 25 H and 26 R. 7-9 mm. Sakhalin I.

S. (M.) pavlovskiyi Violovitsh, 1956

- 49 (48) Abdomen with three pairs of yellow spots (on tergites II-IV).
 50 (51) Eyes with distinct dense short pilosity. Apical 2/3-1/2 of fore and mid femora and apical 1/3 of hind femur yellowish brown, all tibiae yellowish brown, but with a dark ring in the middle. Figs. 25 D and 26 S. 10-11 mm. Sakhalin I.

S. (M.) olsufjevi Violovitsh, 1956

- 51 (50) Eyes with very short pilosity, barely visible. Legs dark brown or black, fore leg with broadly dull yellow knee, base and tip of fore tibia, first segments of fore tarsus dull yellow, hind leg with dull yellow knee (colouring of legs variable). Figs. 25 C and 26 T. 9-11 mm. All Siberia and the Far East, except the northernmost parts.

S. (M.) lasiophthalmus (Zetterstedt, 1843)

- 52 (13) Eyes bare.
 53 (84) Tergite III with side margin with raised bead (i.e. margined) over its entire length, tergites II and IV margined for the greater

- part, the side margins not rolled down. Abdomen oval, relatively broad.
- 54 (61) Thoracic dorsum on its anterior half with two longitudinal stripes of grey dusting (when looked at from behind). Fore and mid tarsi mainly or entirely yellow.
- 55 (58) Antennae black.
- 56 (57) At least fore femur black at the base. Frons yellow, with darkened median part, black-haired. At least fore and mid femora black basally, hind femur black on the basal 1/3. Abdomen with broad yellow bands on tergites III and IV, their width about half the length of the tergite. Figs. 24 A and 27 A. Larger: 12-14 mm. Taiga zone and transitional zone between woodland and steppe in Siberia and the Far East, north to Kamchatka.
S. (*Epistrophe*) *grossulariae* Meigen, 1822
- 57 (56) All femora entirely yellow. Frons yellow-haired (the vertex in the ♀ black-haired). The yellow bands on tergites III and IV very broad, occupying about 3/4 of the length of the respective tergites. Figs. 24 F and 27 F. Smaller: 10-11 mm. Taiga zone of Western and Central Siberia, Pacific coastal region.
S. (*E.*) *diaphanus* (Zetterstedt, 1843)
- 58 (55) Antennae yellow.
- 59 (60) Hind tarsus yellow with sharply demarcated narrow black rings at the base of the first segment and at the tips of all five segments. Scutellum black-haired. Abdomen with broad yellow bands on tergites III and IV. Figs. 24 B and 27 B. 12-13 mm. Western and Central Siberia, Pacific coastal region.
S. (*E.*) *annulitarsis* Stackelberg, 1918
- 60 (59) Hind tarsus black. Scutellum yellow-haired. Abdomen with very broad yellow bands on tergites II-IV, with broad and sloping incisions in the middle of the hind margin. Figs. 24 E and 27 E. 11-13 mm. Western and Central Siberia, Altay, Yakutia.
S. (*E.*) *melanostomoides* Strobl, 1880
- 61 (54) Thoracic dorsum entirely with metallic lustre. If only slightly shining (*S. nigratarsis* (Zett.)) then all tarsi black.
- 62 (75) Tergites III and IV with more or less broad bands.
- 63 (68) Scutellum black-haired.
- 64 (65) Tergites III and IV with undulating yellow bands which reach across the side margins only in the anterior part, fore margin of the bands not parallel with fore margins of tergites. Figs. 21 F and 26 F. 10-11 mm. All Siberia and the Far East, not in the northernmost parts.
S. (*Posthosyrphus*) *nitens* (Zetterstedt, 1843)
- 65 (64) Tergites III and IV with straight yellow bands which reach across the side margins in their entire width, or almost so, fore margin of bands subparallel with fore margin of tergites.
- 66 (67) Fore and mid tarsi yellow. Figs. 24 G and 27 G. Larger: 11-12 mm. Western Siberia, Cis-Baikal, Cis-Amur, Kamchatka, Sakhalin I.
S. (*Epistrophe*) *nitidicollis* Meigen, 1822
- 67 (66) All tarsi black. Smaller: 7-10 mm. See couplet 92.
S. (*M.*) *nigratarsis* (Zetterstedt, 1843)

- 68 (63) Scutellum yellow-haired.
- 69 (72) Fore margin of the yellow bands on tergites III and IV undulating, not parallel with fore margins of tergites.
- 70 (71) Hypopygium of the ♂ large, protruding beyond abdomen (seen from behind). Frons in the ♀ with grey dusted side spots. Abdomen with broad yellow spots on tergites III and IV, which are often connected to form an uninterrupted band. Fig. 33. 9-12 mm. See also couplet 80. All Siberia and the Far East, except in the north.
- S. (*Metasyrphus*) *corollae* (Fabricius, 1794)
- 71 (70) Hypopygium of the ♂ small, not protruding (seen from behind). Frons in the ♀ entirely shining, without grey dusted side spots. The yellow bands on tergites III and IV broad, their fore margin concave at the sides and in the middle, their hind margin with a rounded incision in the middle, which is particularly deep in the band on tergite III: tergite V yellow with a black rectangular spot in the middle. Figs. 21 G and 26 G. 8-10 mm. All Siberia and the Far East, except in the north; Cis-Kolyma, Kamchatka, Chukotka, Sakhalin I. and the Kuril Isles.
- S. (*Posthosyrphus*) *latifasciatus* Macquart, 1827
- 72 (69) Fore margin of the yellow bands on tergites III and IV straight, subparallel to the fore margin of the tergite. Scutellum always yellow-haired.
- 73 (74) Frons above antennae broadly yellow. Face yellow, more rarely the mouth edge narrowly black laterally. Eyes in actual approximation for a stretch about equalling the length of the ocellar triangle. Face at the excavation below antennae obviously broader than one eye. Femora in both sexes entirely yellow. The yellow bands on tergites III and IV broader. Figs. 24 C and 27 C. 8-9 mm. Taiga zone and transitional zone between forest and steppe in Western and Central Siberia, Cis-Baikal, Yakutia.
- S. (*Epistrophe*) *ochrostoma* (Zetterstedt, 1849)
- 74 (73) Frons black down to antennal sockets, with grey dusting. Face black at the sides of the mouth edge. Face at the excavation below antennae obviously broader than one eye. Femora in both sexes entirely yellow. The yellow bands on tergites III and IV moderately broad, separated from fore margin of tergite by a black stripe. Figs. 24 H and 27 H. From Altay to Yakutia.
- S. (*E.*) *melanostoma* (Zetterstedt, 1843)
- 75 (62) Tergites III and IV with yellow side spots, as a rule in the form of lunules. Scutellum black or yellow-haired.
- 76 (77) Vein r_{4+5} above cell R_5 distinctly dipped. Abdomen with three pairs of lunules. Fig. 21 K. 10-12 mm. All Siberia and the Far East.
- S. (*Posthosyrphus*) *lapponicus* (Zetterstedt, 1838)
- 77 (76) Vein r_{4+5} above cell R_5 straight or almost so.
- 78 (79) Face broad, especially halfway down (towards mouth edge tapering a little). Frons in the ♂ distinctly swollen, eyes meeting at an angle which obviously exceeds 90°, frons in the ♀ not so much swollen, its anterior half yellow, seemingly translucent.

The lunules on tergites III and IV do not reach across the side margin. Figs. 21 H and 26 H. 10-12 mm. Known from the entire taiga zone and from the transitional zone between forest and steppe in Siberia and the Far East, except in the extreme northeastern parts (Cis-Kolyma, Kamchatka, Chukotka).

S. (P.) *lundbecki* Soot-Ryen, 1946

79 (78) Face relatively narrow. Frons in both sexes not swollen, eyes in the ♂ joining at an angle of less than 90°.

80 (81) The yellow spots on tergites III and IV reach across the side margin for a considerable part of their width, the side margin therefore mainly yellow. Pre-genital segment in the ♂ large and consequently the hypopygium is obviously protruding (seen from behind). Scutellum usually yellow-haired. Frons in the ♀ mainly yellow (2/3-3/4 of the distance between antennal sockets and front ocellus). 7-10 mm. See also couplet 70.

S. (Metasyrphus) *corollae* (Fabricius)

81 (80) The yellow spots on tergites III and IV do not reach across the side margin or do so only with their anterior corner; side margin mainly black. Pre-genital segment in the ♂ small, therefore hypopygium hardly protruding (seen from behind). Scutellum as a rule black-haired. Frons in the ♀ largely black (approximately half or more of the distance between antennal sockets and front ocellus).

82 (83) Face in the ♂ mainly black-haired; black hairs on the upper part of the occiput lacking; fore and mid femora with black hairs behind. In the ♀ fore and mid femora black over half their length, hind femur mainly (2/3) black. Mouth edge in both sexes broadly black margined. The yellow spots on tergites III and IV considerably narrower than half the length of tergite. Figs. 21 J and 26 J. 8.5-10.5 mm. Tuva, Cis-Baikal, Central Siberia, Cis-Amur, Kamchatka, Sakhalin I.

S. (Posthosyrphus) *punctifer* Frey et Kanervo, 1934

83 (82) Face in the ♂ mainly light-haired, black hairs on upper part of the occiput present, fore and mid femora with mainly yellow hairs behind. In the ♀ fore and mid femora are only black at the bases, hind femur black on about the basal 1/3. In both sexes mouth edge yellow or with narrow black margin. The yellow spots on tergites III and IV broad, as a rule obviously broader than half the length of the respective tergites. Figs. 21 I and 26 I. 10-12 mm. All Siberia reaching to Chukotka and the Kuril Isles.

S. (P.) *luniger* Meigen, 1822

84 (53) Tergites not with a raised bead laterally, the side margins rolled down. Abdomen as a rule narrow, with subparallel sides, more rarely oval.

85 (102) Mesopleuron on the anterior flattened part behind anterior spiracle with long sparse hairs.

86 (89) Hind margin of wing with sclerotised strips (appearing at high magnification as stripes and dots), which are placed alternately on the upper and lower side of the wing.

- 87 (88) The yellow band on each tergite is doubled transversely. Frons, face and antennae yellow (third antennal segment black dorsally). Thoracic dorsum shining with three grey dusted longitudinal stripes which are confluent posteriorly and form a spot. Legs yellow, except for the darkened hind tarsus and sometimes also the tibiae. Fig. 32. 9-12 mm. All Siberia, east to Kamchatka (except the tundra and the transitional zone from tundra to taiga).

S. (Episyrphus) balteatus (De Geer, 1776)

- 88 (87) The yellow bands on the tergites simple. Frons above antennal sockets with a black spot. The yellow bands on tergites III and IV straight or with a shallow sloping incision in the middle of the hind margin. Legs yellow, hind femur with a broad black ring in the apical half, hind tibia mainly black. Fig. 38. 9-10 mm. All Siberia (except in the north), east to the Kuril Isles and Chukotka.

S. (Meliscaeva) cinctellus (Zetterstedt, 1843)

- 89 (86) Hind margin of wing without sclerotised strips.
90 (91) Tergites III and IV with yellow semicircular spots that do not touch as a rule. Eyes with short pilosity, in the ♀ very sparse. Face with black median stripe. Fore and mid legs mainly yellow, hind leg mainly black. 6-8 mm. Altay.

S. (Mesosyrphus) punctulatus Verrall, 1873

- 91 (90) Tergites III and IV with yellow bands.
92 (93) Face yellow, without black median stripe. Femora in the ♀ entirely yellow. Tarsi all black. Abdomen with broad transversal bands on tergites III and IV. Figs. 23 C and 27 K. 7-10 mm. The northern parts of Central and Western Siberia, Yakutia, Cis-Amur, Chukotka.

S. (M.) nigritarsis (Zetterstedt, 1843)

- 93 (92) Face usually with black median stripe. Hind femur in the ♀ largely black basally. At least the base of fore and mid tarsi as a rule yellow. If face without black median stripe, then fore and mid tarsi mainly yellow.

- 94 (97) Thoracic dorsum black, metallicly shining, sides of thorax shining.

- 95 (96) Antennae black, third segment brownish yellow ventrally at the base. Sides of thorax blackish green, metallicly shining. Fig. 23 G. 8-9 mm. Yakutia, Cis-Amur.

S. (M.) malinellus Collin, 1952

- 96 (95) Antennae brown, darker dorsally. Sides of thorax slightly grey dusted, moderately shining. Fig. 40. 5.5-10 mm. Altay.

S. (M.) leviniae (Violovitsh, 1975)

- 97 (94) Thoracic dorsum dark metallic green, dull, coarsely punctured, sides of thorax of a metallic green, dull.
98 (99) Fore and mid tarsi and fore and mid tibiae entirely yellow. Third antennal segment at the base brownish yellow ventrally. Hind femur in the ♀ bicolorous: the basal half yellow, the apical half black. Figs. 23 F and 27 N. 6-8 mm. All Siberia, east to the Kuril

Isles and Chukotka.

S. (M.) annulatus (Zetterstedt, 1838)

99 (98) Fore and mid tarsi darkened apically, tibiae often with dark ring. Antennae black.

100 (101) Wing stigma dark brown. Hind femur black. The yellow bands on tergites III and IV moderately broad. Aedeagus as in fig. 23 E. 8-10 mm. From the Urals to Sakhalin I., Kamchatka, Chukotka.

S. (M.) lineola (Zetterstedt, 1843)

101 (100) Wing stigma light brown or grey. Hind femur broadly yellow apically, hind tibia yellow with brown ring near the middle. Figs. 23 D and 27 L. 8-9 mm. Northern Central Siberia, Cis-Baikal, Yakutia.

S. (M.) vittiger (Zetterstedt, 1843)

102 (85) Mesopleuron on the anterior flattened part, behind anterior spiracle, only with microtrichae, without long hairs.

103 (118) Tergite III and as a rule also tergite IV with an uninterrupted yellow band.

104 (113) Thoracic dorsum on the anterior half with two longitudinal stripes of grey pollinosity (seen from the rear).

105 (110) Antennae black.

106 (107) All femora, at least on their basal half, black. The light bands on tergites III and IV narrow, occupying approximately 1/5 of the length of tergite. Figs. 24 D and 27 D. 12.5-14.5 mm.

Sakhalin I. *S. (Epistrophe) angustifasciatus* Virolovitsh, 1956

107 (106) Fore and mid femora entirely yellow, or yellow with some black basally.

108 (109) At least femora black basally. Frons black-haired. 12-14 mm. See couplet 56.

S. (E.) grossulariae Meigen

109 (108) All femora entirely yellow. Frons yellow-haired (in the ♀ vertex black-haired). See couplet 57.

S. (E.) diaphanus (Zetterstedt)

110 (105) Antennae mainly yellow or brown orange.

111 (112) Hind tarsi yellow with well-delineated narrow black rings: on the first segment basally, on first to fifth segments apically. Scutellum black-haired. Abdomen with broad yellow bands on tergites III and IV. See also couplet 59.

S. (E.) annulitarsis Stackelberg

112 (111) Hind tarsi black. Scutellum yellow-haired (see couplet 60). Face yellow. The yellow bands on tergites III and IV placed on the fore margin of the tergite, their width 2/3 of width of tergite. See also couplet 60.

S. (E.) melanostomoides Strobl

113 (104) Thoracic dorsum all shining, without grey dusted longitudinal stripes.

114 (115) Scutellum black-haired. See couplet 66.

S. (E.) nitidicollis Meigen

115 (114) Scutellum yellow-haired.

116 (117) Face entirely yellow, more rarely the mouth edge narrowly black. Frons yellow on the anterior 1/3 above the antennal sockets.

- Face at the excavation below antennae obviously broader than one eye (seen in front). Femora in both sexes yellow. Abdomen with broad yellow bands on tergites III and IV. See also couplet 73.
S. (E.) ochrostoma (Zetterstedt)
- 117 (116) Face laterally black at the mouth edge. Frons black up to the antennal sockets. Face at the excavation below antennae not broader than one eye. The femora in the ♂ black basally. The yellow bands on tergites III and IV moderately broad. See couplet 74.
S. (E.) melanostoma (Zetterstedt)
- 118 (103) Tergites III and IV with yellow side spots.
- 119 (122) Antennae mainly yellow. Fore tarsus and fore tibia entirely light yellow. Scutellum yellow-haired.
- 120 (121) The yellow spots, at least those on tergites III and IV, not reaching across side margin. Face protruding further than frons. Hind leg in the ♂ mainly yellow. Frons in the ♀ shining black, without purple tinge. Fig. 30. 8-10 mm. Cis-Baikal, Yakutia.
S. (Meligramma) euchromus Kowarz, 1885
- 121 (120) The yellow spots on tergites III and IV reaching across side margin. Face hardly protruding more than frons. Hind leg in the ♂ mainly black. Frons in the ♀ black, metallicly shining, with purple tinge. Fig. 31. 8-10 mm. Western Siberia, Altay, Cis-Baikal, Yakutia, Sakhalin I., Kamchatka.
S. (M.) triangulifer (Zetterstedt, 1843)
- 122 (119) Antennae black. At least fore tarsus obviously darkened. Scutellum yellow-haired, with some black hairs immixed into them. Face yellow. Thoracic dorsum in the ♀ always, in the ♂ as a rule also, with clearly delineated yellow stripes along side margins and light yellow oval spots in front of scutellum. Fig. 29. 8-10 mm. Southern taiga and transitional zone between forest and steppe in Western and Central Siberia, Cis-Baikal, Yakutia, Cis-Amur, Kamchatka, Sakhalin I.
S. (M.) guttatus (Fallen, 1817)
- 123 (138) Eyes touching on frons: ♂♂.
- 124 (125) The yellow spots on tergite II absent. Eyes bare. Frons arched, as if swollen, shining black, with very dense, long, black pile. Eyes meeting at obtuse angle: approximately 120°. Eyes in actual approximation for a distance about 1.5 times less than height of frons. The yellow side spots on tergites III and IV with rather sparse yellowish grey pollinosity, which becomes visible when looked at from the front. Figs. 25 F and 26 U. 7-9 mm. Altay, mountain region of Tuva, Sayany, Cis-Baikal, Yakutia, Sakhalin I.
S. (Melangyna) barbifrons (Fallen, 1817)
- 125 (124) The yellow spots on tergite II present.
- 126 (127) The yellow spots on tergites III and IV sub-triangular. Frons and lower part of face black. Fore tarsus and tibiae yellow. Thoracic dorsum and scutellum with long yellowish pilosity. Cis-Baikal.
S. (M.) nielseni (Violovitsh, 1982)
- 127 (126) The yellow spots on tergites III and IV of a different shape.
- 128 (129) Face entirely yellow (without black median stripe). Frons yellow, the upper part dark brown, nearly black. Eyes meeting for

a distance longer than vertical triangle. Thoracic dorsum with distinct brownish yellow longitudinal stripes laterally. Haltere bright lemon-coloured. Legs dark brown, almost black, bases of fore and mid tibiae yellowish. Abdomen of a dull black, with four pairs of yellow side spots, triangular on tergite II, rectangular on tergites III and IV and very small triangular spots on tergite V. Surstyli relatively short and broad. Figs. 28 F and 36 C. 7 mm. Altay, Tuva, Sayany.

S. (M.) savtshenkoi Violovitsh, 1965

In "Keys to the identification of insects of the European part of the U.S.S.R., V (2): 33" a species wrongly features under the name of *S. savtshenkoi* Violovitsh: this entry concerns a species which is not known to the author.

129 (128) Face at least with a black median stripe.

130 (131) Thoracic dorsum dull, especially in the ♂, more rarely weakly shining with noticeable bronze dusting, with long black pilosity. Frons in the ♂ with dense golden grey dusting, in the ♀ with dusted side spots of moderate size. Eyes meeting for a distance which is a bit shorter than or almost of the same length as height of frons. Figs. 25 B and 26 V. 8-11.5 mm. From the Urals to the Kuril Isles, Kamchatka, Chukotka.

S. (M.) compositarum Verrall, 1873

131 (130) Thoracic dorsum shining, sometimes with a bright bluish sheen.

132 (133) The yellow side spots on tergite II as a rule broader than the ones on tergites III and IV, more rarely they are of the same width. The black median stripe down the face reaches at the central prominence, but does not reach the antennal sockets. Sides of thorax with dense whitish grey dusting and long and dense pilosity of the same hue. Figs. 25 A and 26 W. 7.5-11 mm. Western and Central Siberia, Altay, the mountainous regions of Tuva, Sayany, Cis-Baikal, Kamchatka, Chukotka.

S. (M.) umbellatarum (Fabricius, 1794)

A closely related species, *S. (M.) labiatarum* Verrall cannot be distinguished morphologically from *S. (M.) umbellatarum* (Fabr.). The differences in the construction of male genitalia are insignificant, therefore I consider *S. (M.) labiatarum* Verr. synonymous with *S. (M.) umbellatarum* (Fabr.).

133 (132) The yellow spots on tergite II are narrower than the ones on tergites III and IV.

134 (135) Eyes in the ♂ meeting for a distance obviously greater than height of frons. Face yellow with black median stripe. The yellow side spots on tergite III large, trapezoid. Fig. 28 D. 8 mm. In the mountains of Tuva.

S. (M.) kolomyietzi Violovitsh, 1965

135 (134) Eyes in the ♂ meeting for a distance the same as or less than height of frons. Face mainly black or with yellow parts at the sides.

136 (137) Face obviously projecting, proportion between length of face and maximum width of an eye (seen in profile) about 1: 1.5. Eyes meeting at an almost right angle. Face only slightly receding

below antennae. The yellow side spots on tergite II small, irregularly rounded, very near to side margins of tergite. Haltere yellowish brown. Hairs on side margins of abdomen mainly light coloured. Figs. 25 E and 26 X. 7-9 mm. In the north of Western and Central Siberia, Altay, mountains of Tuva, Cis-Baikal, Yakutia, Kamchatka.

S. (M.) arcticus (Zetterstedt, 1838)

- 137 (136) Face not projecting, proportion between length of face and maximum width of an eye (seen in profile) is 1 : 2. Eyes meeting at an obtuse angle, somewhat over 90°. Face obviously receding below antennae. The yellow round side spots on tergite II quite variable in size, sometimes hardly visible. Haltere yellow with darker base and stem. Pilosity on side margins of abdomen black with an inconsiderable number of whitish hairs. Fig. 28 E. 6.5-7.5 mm. Mountain tundra of Tuva, in the north of Western and Central Siberia, Chukotka.

S. (M.) tsherepanovi Violovitsh, 1965

- 138 (123) Eyes separated on frons: ♀♀.
 139 (144) Eyes with obvious if short pilosity.
 140 (141) Abdomen uniformly black (without yellow side spots on tergites). *S. (M.) quadrimaculatus* (Verrall)
 141 (140) Abdomen black with yellow side spots on tergites II-IV.
 142 (143) Scutellum with long black pilosity. The black median stripe down the face narrow (its width at facial tubercle about 1/6 of width of face) and long (it almost reaches up to the antennal sockets).

S. (M.) lasiophthalmus (Zetterstedt)

- 143 (142) Scutellum with shorter light pilosity. The black median stripe down the face relatively broad (its width at facial tubercle about 1/4 of width of face) and short (it covers only mouth edge and median prominence of face).

S. (M.) pavlovskyi Violovitsh

- 144 (139) Eyes bare.
 145 (146) Black median stripe down the face broad (its width not less than 1/3 of width of face). Frons, ocellar triangle and vertex shining black. 6-9 mm. The ♀♀ cannot be separated by means of exterior features and can be identified only if accompanied by the ♂.

S. (M.) arcticus (Zetterstedt),

S. (M.) barbifrons (Fallen)

- 146 (145) Black median stripe down the face narrow, not broader than 1/4 of width of face.
 147 (148) Width of black median stripe down the face approximately 1/4 of width of face. The yellow side spots on tergite II broader than side spots on tergites III and IV.

S. (M.) umbellatarum (Fabricius)

- 148 (147) Width of black median stripe down the face approximately 1/6 of width of face. The yellow side spots on tergite II of about the same width as the ones on tergites III and IV.

S. (M.) compositarum Verrall

12. SCAEVA Fabricius, 1805

Type species of the genus: *Musca pyrastri* Linnaeus, 1758.

- 1 (4) Mesopleuron all black. Scutellum mainly black-haired. The yellow spots on tergites III and IV narrow and curved. Figs. 43 A and 43 C.
- 2 (3) The anterior rim of the yellow spots on tergite III and particularly on tergite IV are strongly curved and placed obliquely. Their inner extremities are much nearer to the anterior margin of the tergite than their outer extremities, their side edges are almost parallel to the side margins of the abdomen. 10-16 mm. From the Urals to the Kuril Isles, Kamchatka and Chukotka.
S. pyrastri (Linnaeus, 1758)
- 3 (2) The anterior rims of the yellow side spots on tergites III and IV are only weakly curved and - at either extremity - about equidistant from the fore margins of the tergites. Face wholly covered with light yellow hairs. The ocelli of the ♂ are arranged in a more or less equilateral triangle. The eyes are in actual approximation over a distance that is 1.5 times as long as the height of the ocellar triangle. Frons of the ♀ with long hairs, the dark brown or black spot on the vertex is clearly broader than long. 11-16 mm. From the Urals to Cis-Baikal, Sakhalin I., Kuril Isles.
S. selenitica (Meigen, 1822)
- 4 (1) Mesopleuron light yellow in its hind top part. Scutellum mainly light yellow haired (black hairs at the hind edge). The yellow spots on tergites III and IV are broad, almost rectangular. Fig. 43 B. 10-16 mm. Tuva.
S. albomaculata (Macquart, 1842)

13. DIDEA Macquart, 1834

Type species of the genus: *Didea fasciata* Macquart, 1834.

- 1 (2) Haltere with yellow knob. Face all yellow, without a black median stripe. Abdomen with three (♂) or four (♀) relatively narrow yellow bands, which are deeply incised in the middle of the hind margin. Fig. 45 B. 11-13 mm. From the Urals to the Kuril Isles, Kamchatka.
D. fasciata Macquart, 1834
- 2 (1) Haltere with a black or brown black knob.
- 3 (4) The light bands on the tergites greenish or bluish. The loop in vein r_{4+5} where it borders cell R_5 is relatively shallow. Scutellum mainly black-haired. Tergite V of the ♀ without yellow spots. Fig. 45 A. Larger: 12-16 mm. From the Urals to the Kuril Isles, Kamchatka, Chukotka.
D. alneti (Fallen, 1817)
- 4 (3) The light bands on the tergites yellow or dark yellow. The loop in vein r_{4+5} bordering cell R_5 deep. Anterior half of the scutellum

yellow-haired, the posterior half with black hairs. Tergite V of the ♀ with yellow spots. Fig. 45 C. Smaller: 7-9 mm. From the Urals to Kamchatka.

D. intermedia Loew, 1854

14. ASIODIDEA Stackelberg, 1930

Type species of the genus: *Brachyopa nikkoensis* Matsumura, 1916.

Frons yellow, semi-transparent, with dense long erect hairs, the width of the frons around the antennal sockets about 3/7 of the total width of the head in the ♂, 7/15 in the ♀. Antennae orange yellow. The eyes in actual approximation for less than the length of the vertical triangle. Sides of thorax black, the posterior half of the mesopleuron orange yellow. Thoracic dorsum, sides of thorax and scutellum with golden yellow hairs. Legs orange yellow. Tergite I black, tergite II black with large orange side spots which do not reach the margins of the tergite, tergite III with very large rectangular spots along the fore margin of the tergite and broadly reaching its side margins (fig. 47), the remaining black parts in the shape of a broad undulating band on the posterior part and an equally broad band down the middle; the hind margins of this tergite completely yellow (♀) or narrowly yellow in the middle (♂); tergite IV with a similar design, which is, however, less developed, and broad yellow hind margin; the next tergites orange yellow. 11-14 mm. The islands Kunashir and Shikotan.

A. nikkoensis (Matsumura, 1916)

15. ASARKINA Macquart, 1842

Type species of the genus: *Scaeva rostrata* Wiedemann, 1824.

Frons and face with dense golden dusting, central prominence bare. Face with delicate light pilosity, frons with thicker black hairs. The actual approximation of the eyes in the ♂ shorter than the height of frons (1.5 : 2); in the ♀ the width of the frons about the antennal sockets is about 1/3 of the total width of the head (3:5 : 9), the width of the vertex at the hind rim of the eyes is about 1/10 of the width of the head. Thoracic dorsum and scutellum with yellow hairs, interspersed with some longer black hairs at the lateral parts of the hind rim of the scutellum. Sides of thorax with dense yellowish grey dusting and long dense light yellow pilosity. Halteres and alar and thoracic squamae light yellow. Wing hyaline, in the ♀ light brown all over. Legs yellow, upper surface of tarsi darkened: brown to black. Abdomen yellow, hind margins of tergites I-V narrowly black, as well as

the central part of the fore margins of tergites III and IV; in the ♂ the posterior parts of the side margins of segments III and IV are also black. Sternites all light yellow, almost transparent. 14-17 mm. Cis-Baikal, Cis-Amur, southern Pacific coastal region. *A. porcina* Coquillett, 1898

16. XANTHOGRAMMA Schiner, 1860

Type species of the genus: *Syrphus ornatus* Meigen, 1822.

- 1 (2) Pleurotergite black. Sides of thorax with a single well-developed yellow spot on the posterior half of the mesopleuron. Wing with darkened fore margin, ending in a dark brown extended stigma. Yellow side spots on tergite II large, shaped like an almost equilateral triangle (fig. 48), the base of these spots occupying about half the side margin. 10-12 mm. Western Siberia, Altay.
X. pedissequum (Harris, 1776)
- 2 (1) Pleurotergite yellow.
- 3 (4) The yellow band on tergite III not interrupted. Frons yellow with a dark brown stripe down the middle, with long black pilosity: the width of the frons about 1/3 of the total width of the head. Antennae dark orange yellow. Thoracic dorsum blue black, with long light brown pilosity and two conspicuous greyish brown stripes down the middle. Top third of the scutellum orange yellow, the pilosity brown. Abdomen velvet black, the hind margins of the tergites somewhat shining, tergite II with two more or less broad oval yellow spots, tergite III with along the fore margin a broad band showing an incision in the middle of its hind margin; tergite IV with a band along the fore margin which is much narrower towards the middle, the middle of the hind margin of this tergite is largely yellow, tergite V yellow with a dark figure (shaped like an inverted V) in the middle. 11-13 mm. Southern Pacific coastal region.
X. coreana Shiraki, 1930
- 4 (3) The yellow band on tergite III broadly interrupted in the middle, appearing as two large spots.
- 5 (6) Sides of thorax with two yellow spots (on the mesopleuron and on the pleurotergite). The yellow bands on tergites II and III of approximately the same width (fig. 49). Thoracic dorsum with dense short semi-adpressed pilosity. Wing somewhat darkened, more so along the fore margin. 10-12 mm. Western Siberia.
X. citrofasciata (De Geer, 1776)
- 6 (5) Sides of thorax with four yellow spots. Eyes meeting over a distance which is only 1/3 of the height of the frons, and 1.5 times shorter than the ocellar triangle. Scutellum brown anteriorly, semi-transparent in the centre and dark brown or black at the side corners, the posterior third of a clear yellow. Coxae, trochanters and the upper surface of the base of the femora of

all legs black, fore and mid femora and tibiae light yellow and the tarsi brown yellow, darkened at the upper surface, the distal half of hind femur and hind tibia as well as the hind tarsus brownish yellow or brown; the tarsi may be black on their upper surface. Abdomen dorsally dull black with three pairs of large clear yellow dull side spots on tergites II-IV, the first pair broadly passing over the side margins, the next two much less so. The side spots on tergite V, which are small, reach beyond the hind margin of the previous tergite; hind margins of tergites IV and V yellow, of tergite III with a contrasting yellowing. 14-15 mm. Southern Pacific coastal region.

X. sichotana Violovitsh, 1975

17. OLBIOSYRPHUS Mik, 1897

Type species of the genus: *Syrphus laetus* Fabricius, 1805.

- 1 (4) The yellow band on tergite IV and as a rule also on tergite III uninterrupted.
- 2 (3) Notopleuron and sternopleuron with yellow spots. The hind margin of the yellow spots on tergite II more or less straight. Aedeagus as in fig. 50. 12 mm. Southern Pacific coastal region.
O. udege (Violovitsh, 1975)
- 3 (2) Notopleuron and sternopleuron black, without yellow spots. The hind margin of the yellow spots on tergite II rounded. The actual approximation of the eyes is about 1.5 times shorter than the height of frons. Sides of thorax black with large yellow spots on the posterior part of the mesopleuron and on the pleurotergite. Front and mid legs as well as hind femur dull, light yellow, all coxae and trochanters black, hind tarsus and hind tibia light ochre. Abdomen black, shining, with yellow side spots on tergite II; tergites III and IV with bands along the front margin, these bands incised in the middle of their hind margin; tergite V with side spots which reach under tergite IV, there are yellow bands on the hind margins of tergites IV and V. Aedeagus as in fig. 50 B. 11-14 mm. Cis-Amur, Pacific coastal region.
O. eoa (Violovitsh, 1975)
- 4 (1) The yellow bands on tergites III and IV interrupted in the middle.
- 5 (6) Frons and face with black hairs. Eyes with longer pilosity. In the ♀ the width of the occiput equals about 1/8 of the total width of the head, frons with light yellow hairs. Aedeagus as in fig. 50 D. 9-14 mm. Southern Pacific coastal region, the islands Sakhalin and Kunashir.
O. sapporensis (Matsumura, 1916)
- 6 (5) Frons and face with yellow hairs. Eyes with shorter pilosity. Aedeagus as in fig. 50 C. 9-13 mm. Sakhalin I.
O. sachalinicus (Violovitsh, 1975)

18. DOROS Meigen, 1803

Type species of the genus: *Syrphus conopseus* Fabricius, 1775.

Head for the larger part black. Thoracic dorsum black with broad bright yellow side stripes. Legs yellow. Wing darkened on anterior half, brown. Abdomen with three narrow yellow bands (fig. 44). 14-17 mm. Cis-Baikal, southern Pacific coastal region.

D. conopseus (Fabricius, 1775)

19. SPHAEROPHORIA Lepeletier et Serville, 1828

Type species of the genus: *Musca scripta* Linnaeus, 1758 (Rondani, 1844).

Males

- 1 (20) The yellow stripes on the sides of the thoracic dorsum reach the base of the scutellum.
- 2 (5) The yellow bands on tergites II and III are interrupted in the middle. Surstyli usually strongly sclerotised (fig. 51).
- 3 (4) The top of the front part of the surstyli with two equal short processes. Top of hypandrium with stout short spines (fig. 51 J). 8-11 mm. Tuva, Sakhalin I., Kamchatka.
S. kaa Violovitsh, 1960
- 4 (3) The top of the front part of the surstyli with two dissimilar processes, the outer one long and slightly curved, the inner one at the ventral side forms together with the outer one a figure shaped like a lady's boot (fig. 51 I). Top of hypandrium with fine delicate hairs. 8-9 mm. Siberia, eastward as far as Cis-Baikal; Kamchatka. *S. menthastri* (Linnaeus, 1758)
- 5 (2) The yellow bands on tergites II and III uninterrupted (fig. 51). Surstyli weakly sclerotised.
- 6 (11) The dark band along the hind margins of the tergites pronounced only on tergites I and II where they are black; on tergite III and next it is brown, straw-coloured or yellowish.
- 7 (10) Smaller: 7 mm. The hind part of the surstyli end in two tufts of parallel hairs.
- 8 (9) Both parts of the surstyli relatively fragile, front lobe at the top with a sloping incision (fig. 51 M). The hairs on the hind lobe very long. 6-7 mm. Southern Pacific coastal region.
S. macrogaster Thomson, 1869
- 9 (8) Front part of surstyli relatively fragile, its top edge straight without incision, the hind part broad, with shorter hairs (fig. 46). 7 mm. Southern Pacific coastal region.
S. krocha Violovitsh, 1976

- 10 (7) Larger: 8-9 mm. Both parts of surstyli broad, short, the inner one with a shallow incision, the hind one with a tuft of shorter and widely spread hairs (fig. 51 B). The base of the aedeagus very broad. 7-9 mm. Western Siberia, Altay, Tuva, Central Siberia, Cis-Amur, Pacific coastal region, the islands Sakhalin and Kunashir.

S. indiana Bigot, 1889

- 11 (6) The dark band bordering the hind edge of all tergites black.
12 (13) Abdomen very long, its top usually exceeds the wing tips. Femora with dark bristles. Surstyli broad, semicircular (fig. 51 C). 9-12 mm. All Siberia except the northernmost parts.

S. scripta (Linnaeus, 1758)

- 13 (12) Abdomen shorter, its top not exceeding the wing tips. Surstyli different.
14 (15) The yellow band on tergite II usually narrowed in the middle. Front part of surstyli broad, relatively short (fig. 51 E), the inner process incised, shaped like a hood. Upper lobe of the hypandrium oval, rounded at the top 7-8 mm. In the north of Western and Central Siberia, Altay, Cis-Baikal, Oblast Magadan, Kamchatka.

S. philanthus (Meigen, 1822)

- 15 (14) The yellow band on tergite II not narrowed in the middle. Front part of surstyli long. Upper lobe of hypandrium different.
16 (17) The front part of the surstylus in its top part with a boot-shaped process, which is more slender than in *S. menthastri* (L.). Upper lobe of hypandrium pointed at the top (fig. 51 F). 8-10 mm. Altay, Trans-Baikal, Kamchatka.

S. abbreviata (Zetterstedt, 1859)

- 17 (16) Surstylus different. Upper lobe of hypandrium with a tooth-shaped process on the straight top part.
18 (19) Front part of surstylus strongly extended and delicate, tapering towards the top. Upper lobe of hypandrium with a swollen outer rim. 7-9.5 mm. Central Siberia, Cis-Baikal, Cis-Amur, Pacific coastal region.

S. chongjini Bankowska, 1964

- 19 (18) Front part of surstylus widening somewhat towards the top, always forked (fig. 51 G). Upper lobe of hypandrium with a straight outer rim. 8-10 mm. All Siberia, east as far as Sakhalin I. and Kamchatka.

S. taeniata (Meigen, 1822)

- 20 (1) The yellow band bordering thoracic dorsum reaches only to the transverse suture.
21 (26) Face with a broad black median stripe.
22 (23) Hind margins of tergite III and the following ones black. Surstyli broad, axe-shaped (fig. 51 L). 7-9 mm. Trans-Baikal, the islands Sakhalin and Kunashir.

S. shirchan Violovitsh, 1957

- 23 (22) Hind margins of tergite III and the following ones brownish or dark yellow.
24 (25) Surstyli with a single long and thin process on the hind part

- (fig. 51 K). 8-10 mm. Altay, Trans-Baikal, Yakutia.
S. viridaena Brunetti, 1915
- 25 (24) Surstyli with two long and thin processes on front and hind lobes (fig. 51 A). 6 mm. The mountains of Tuva, Central Yakutia, Cis-Amur. *S. tuvinica* Violovitsh, 1966
- 26 (21) Face all yellow, at the utmost with a dark central prominence and a dark mouth edge. The dark parts of all tergites black. The front part of the surstyli broad, tapering towards the top, the inner processes of the surstyli are missing (fig. 51 D). 5-8 mm. Altay, Tuva, Sayany, Cis-Amur, Pacific coastal region, the islands Sakhalin and Kunashir.
S. rueppellii (Wiedemann, 1830)

20. ISCHIODON Sack, 1913

Type species of the genus: *Scaeva scutellaris* Fabricius, 1805.

Face bright yellow, antennae reddish orange. The posterior part of the mesopleuron and the upper part of the sternopleuron bright yellow. Metasternum bare. Legs for the greater part yellow, hind femur at the tip and hind tibia in the middle with a broad blackish or brownish ring, fore leg and mid leg wholly yellow, except for the brown fourth tarsal segment. Wing shorter than abdomen, hyaline, the basal part without microtrichae. Tergite II black with yellow spots, the remaining tergites yellow. Male terminalia large, obviously projecting beyond tip of abdomen (fig. 52). 10-11 mm. Pacific coastal region, the islands Sakhalin and Kunashir.

I. scutellaris (Fabricius, 1805)

21. ALLOGRAPTA Osten-Sacken, 1875

Type species of the genus: *Scaeva obliqua* Say, 1823.

Frons and face in both sexes yellow with a small black shining spot between antennal sockets, in the ♀ moreover with a large black median spot connected with the black vertex by a short narrow stripe. Frons covered with a dense erect black pilosity, which is longer in the ♂. Antennae brownish orange with dark upper margin, arista darker, almost black, especially on the apical half. Eyes bare. Thoracic dorsum black, shining, with bright bluish or greenish reflection, with a dense light pilosity on the anterior part, and a black pilosity on the posterior part, which is longer in the ♂. Scutellum lemon-coloured with black

pile. Sides of thorax black, shining, with five large bright lemon-coloured spots. Legs lemon-coloured, tip of hind femur, apical 1/3-1/2 of hind tibia and hind tarsus dark brown, fore and mid tarsi brown. Abdomen black, with broad yellow bands on tergites II-IV, in the ♂ the band on tergite II broadly interrupted in the middle, tergite I yellow, tergite V yellow with five black spots in the corners and in the middle. Hypopygium as in fig. 53. 8-12 mm. Southern Pacific coastal region.

A. javana (Wiedemann, 1824)

22. CHRYSOTOXUM Meigen, 1803

Type species of the genus: *Musca bicincta* Linnaeus, 1758.

Males

- 1 (2) Hind trochanters with a well developed process, which is blunted at the top. The antennal segments are proportioned, measured dorsally, 2 : 3.5 : 8. Scutellum brownish, transparent, with yellow non-transparent fore and hind rims. Wings hyaline. Hypopygium as in fig. 59 D. 14-15 mm. Cis-Amur.
C. amurense Violovitsh, 1973
- 2 (1) Hind trochanters simple.
- 3 (6) Hypopygium very large, clearly protruding beyond-below tip of abdomen (fig. 59).
- 4 (5) Face yellow, without a black median stripe. Mesothoracical disc black, shining, with relatively narrow stripes of whitish dusting, hardly visible beyond the middle. Scutellum yellow with a brown transparent spot in the middle. Hind femora somewhat swollen underneath near their base (fig. 56 A). 11-14 mm. Tuva.
C. lydiae Violovitsh, 1964
- 5 (4) Face yellow with a shining black median stripe. Antennae black, shorter than the head, its segments proportioned 3 : 4 : 9. Eyes with dense white pilosity. The back half of the mesopleuron and the upper part of the sternopleuron lemon-coloured. Scutellum yellow with a large transparent spot in the middle and with black corners. Hypopygium as in fig. 59 E. 12-15 mm. Altay.
C. cautum (Harris, 1782)
- 6 (3) Hypopygium small, not protruding beyond tip of abdomen.
- 7 (8) Face yellow, without black median stripe. Eyes hairy. Face with brownish transparent median stripe. Mesothoracical disc black, grey dusted in the middle, shining on the sides. The median whitish dusted stripes narrow. Scutellum light brown, transparent. Wing hyaline, yellowish along the fore margin, in the top part with a small longitudinal spot which is only vaguely limited. Face, legs and spots on mesothoracical disc and abdomen

ochreous yellow (fig. 57 D). 14-19 mm. Southern Pacific coastal region, islands Sakhalin and Kunashir.

C. grande Matsumura, 1911

- 8 (7) Face with a black median stripe.
 9 (14) The yellow band on tergite III is obviously narrower than the band on tergite II, it may be completely lacking.
 10 (13) Wing with a dark brown band along the fore margin. Frons, mesothoracical disc and scutellum with black or brownish red pilosity.
 11 (12) Frons, mesothoracical disc and scutellum with brownish red pilosity. The dark brown band along the wing margin does not reach to the wing top. Abdomen with two broad trapeziform yellow side spots on tergite II, a less broad band along the fore margin of tergite IV, sometimes two narrow spots in the middle of tergite III; tergite V is all black or shows a narrow, interrupted band. 10-12 mm. Western and Central Siberia, Altay, Tuva, Cis-Baikal, Yakutia.

C. bicinctum (Linnaeus, 1758)

- 12 (11) Frons, mesothoracical disc and scutellum black-haired. The dark brown band along the fore margin of the wing reaches to the wing top. The yellow spots on tergite II are somewhat narrower; on tergite III there is a narrow yellow band which is hardly interrupted in the middle; tergite IV has an uninterrupted band about half as broad as the one on tergite II; tergite V has two narrow yellow side spots and a yellow band on the hind margin. 9-14 mm. Southern Pacific coastal region, islands Sakhalin and Kunashir. *C. subbicinctum* Violovitsh, 1956

- 13 (10) Wing without a dark brown band along the fore margin. Frons with long sparse light yellow hairs; mesothoracical disc and scutellum with light grey, almost white hairs, which are faintly yellowish on the scutellum. 11 mm. Oblast Chitinsk, along the River Ingoda.

C. rasilum Violovitsh, 1981

- 14 (9) The yellow bands on tergites II-IV of approximately the same width.
 15 (16) Frons on front part clearly protruding anteriorly (fig. 59 B). Frons black, with black hairs. Antennae dull black, the proportions of the segments are 2 : 1 : 2.5. Face yellow, with yellow hairs, the median black stripe occupying 2/5 of the total width. Eyes with dense brown pilosity. Scutellum dark yellow or brown with long black and light yellow hairs. Legs black; tarsi, tibiae and apical parts of femora (1/5 of hind femur; 1/2 of fore and middle femora) yellow. Fore margin of wing brownish with a clearly delineated brown spot in the wing tip. 16-20 mm. Southern Pacific coastal region.

C. coreanum Shiraki, 1930

- 16 (15) Frons of the usual shape, the front part not protruding anteriorly.
 17 (18) The yellow bands on tergites III and IV uninterrupted (fig. 58 C). Frons black, with black hairs. Antennae black, as long as the

head, third segment longer than the first and second together (proportion 5 : 4). Posterior half of mesopleuron and a small spot on the top part of the pteropleuron lemon yellow. Scutellum lemon-coloured with a transparent spot in the middle. Legs ochre; coxae, trochanters and the base of mid and hind femora black. A dark brown band borders the fore margin of the wing: it reaches to the point where veins r_1 and r_{2+3} meet; moreover the other veins are also shadowed yellowish, so that only the central parts of the cells in the hind half of the wing are hyaline.

Abdomen ovate, inflated, with very dense semi-adpressed pilosity; there are lemon-coloured side spots on tergites II-V and broad bands on tergites III and IV. Hypopygium as in fig. 59 F. 12-14 mm. Tuva.

C. ladakense Shannon, 1926

18 (17) The yellow bands on tergites III and IV always interrupted in the middle.

19 (20) Side margins of the abdomen yellow (fig. 58 G). Frons black or dark brown. Third antennal segment hardly longer than the first and second together: proportions 1 : 1 : 2.2. Frons brown to black, somewhat lighter near the antennal sockets, with light yellow hairs. Mesothoracical disc black, with ginger coloured hairs. Scutellum yellow with a transparent spot in the middle. Legs yellow, except for the coxae and trochanters, which are dark brown or black. Wing completely hyaline or with a variable (in intensity as well as in size) brown spot in the middle. Abdomen black with three pairs of lemon-coloured spots, which vary in size and shape; these are often to a variable degree enclosed by ochreous colourings and side margins of the same hue. 9-13 mm. Altay, Tuva. *C. hamaeleon* Violovitsh, 1973

20 (19) Side margins of abdomen all black or black and yellow alternately.

21 (30) Side margins of abdomen black.

22 (23) Scutellum black or brownish black with narrow yellow edge. Wing with a large sharply delineated dark cloud in the middle. Frons black. Antennae brown: their segments proportioned 1.5 : 1 : 2. The hind half of the mesopleuron and the pre-alar callus bright lemon-coloured. Abdomen elongate, black with four broad yellow bands which are narrowly interrupted in the middle; its pilosity short and black and - in the interruptions - light yellow (fig. 58 B). 14-16 mm. Western and Central Siberia, Tuva, Cis-Baikal, Trans-Baikal, Cis-Amur, Pacific coastal region.

C. sibiricum Loew, 1856

23 (22) Scutellum all yellow, or yellow with a dark area in the middle. Wing without a large sharply defined dark cloud.

24 (27) Scutellum all yellow.

25 (26) The yellow spots on tergite III more or less triangular, broad, at their broadest occupying almost half the length of the tergite (fig. 58 F). Mesothoracical disc with short semi-adpressed pilosity. Frons black, shining, yellow along the eye margins, with

dense silvery yellow dusting and black and golden hairs. Antennae black, third segment obviously shorter than the first and second together. Scutellum lemon-coloured. Sides of thorax black, with light hairs and yellow spots on the posterior top half of the mesopleuron, on the sternopleuron and on the posterior part of the pleurotergite. Wing with a somewhat darkened fore margin over the basal 2/3. Abdomen with three pairs of broad, more or less triangular lemon-coloured spots on tergites II, III and IV, and hardly visible spots on tergite V. 12 mm. Tuva.

C. lanulosum Violovitsh, 1973

- 26 (25) The yellow spots on tergite III narrow and with parallel margins: their width at their broadest about equalling 1/4 of the length of the tergite. Mesothoracical disc with long straight hairs. Antennae black, the third segment about as long as the first two together. Mesothoracical disc with golden or foxy-tawny hairs. The scutellum brown or yellow with longer hairs than on the mesothoracical disc, but of the same colour. Upper part of the mesopleuron with a yellow spot. Wing with a faint brownish cloud in the middle. Abdomen black, shining, with similar (as well in shape as in size) oblique lemon-coloured side spots on tergites II-IV and smaller side spots on tergite V. The hind margins are not yellow laterally. 12-14 mm. Altay, Tuva, Central Siberia, Cis-Baikal, Cis-Amur, Pacific coastal region.

C. rossicum Becker, 1921

- 27 (24) Scutellum yellow with a dark spot in the middle.
28 (29) All femora yellow. Antennae black, their third segment somewhat shorter than the first two together. Scutellum yellow with a black spot in the middle, which varies in size and intensity. On the notopleuron, mesopleuron, sternopleuron and pleurotergite there are yellow spots that vary in size. Wing with yellowish fore margin and a small vague brown spot. Abdomen black, with four more or less similar yellow bows that are interrupted in the middle (figs. 56 B and 57 B). 11-15 mm. All Siberia, except the northernmost region.

C. festivum (Linnaeus, 1758)

- 29 (28) At least the base of fore and middle femora dark brown or black. Closely related to *C. festivum*, it may be distinguished from this species by the dark bases of the fore and middle femora and the narrower bows on the tergites. 11-14 mm. From the Urals to the Pacific coastal region.

C. vernale Loew, 1841

- 30 (21) Side margins of abdomen alternately yellow and black (the yellow bands and hind margins reaching over the side margin). Exceptionally only the corners of the hind margins of tergites II-IV are yellow, or even more exceptionally this is the case with the corners of the hind margin of tergite IV only.
31 (32) Scutellum yellowish brown or brown, semi-transparent, with a narrow strip of light yellow non-transparent chitin along its fore margin. Antennae black. Legs yellow; the coxae, trochanters and the posterior part of the sides of the femora

(especially the fore and middle femora) are brown to black. Wing with a yellowish brown fore margin. Abdomen with long dense pilosity; this is mainly golden yellow, but there are also black hairs among the golden ones over most of the tergites, principally on tergite V and the following ones. 13-18 mm. All Siberia.

C. fasciolatum (De Geer, 1776)

- 32 (31) Scutellum yellow with a dark spot in the middle.
 33 (38) Third antennal segment longer than the first and second together.
 34 (35) Third antennal segment 1.5 times as long as the first two (or almost as long). Antennae shorter than the head, the proportion between the third segment and the first two is 4 : 3. Scutellum lemon-coloured with a large transparent area in the middle. There are lemon-coloured spots on the notopleuron and the sternopleuron, over the larger part of the mesopleuron and on the pleurotergite. Wing hyaline. Abdomen relatively broad, dully black, with dense longer yellow hairs and shorter black ones; on tergites II-IV there are broad yellow bows, narrowly interrupted in the middle, as well as yellow hind margins, tergite V yellow with a black pattern (fig. 58 I). 14-16 mm. Buryatia, Cis-Baikal, Southern Pacific coastal region.

C. fratellum Shannon, 1926

- 35 (34) Third antennal segment 1.5 times to twice as long as the first two segments.
 36 (37) The yellowish band along the fore margin of the wing not reaching the wing top. Eyes with long dense dark brown pilosity. Mesopleuron with a small yellow spot, the anterior part of the pteropleuron yellow. Scutellum lemon-coloured with a very large transparent area in the middle. Abdomen very short in comparison to other species of the genus (fig. 57 C), broad, covered with a dense upstanding reddish yellow pilosity (mixed with a reduced number of dark hairs), with narrow yellow bows, interrupted in the middle and not reaching the side margins and with yellow bands on the hind margins of tergites III and IV (the bow on tergite II lemon-coloured and broadly interrupted; its hind margin black, except for the ochreous corners). 8-12 mm. From the Urals to Kamchatka.

C. arcuatum (Linnaeus, 1758)

- 37 (36) The dark band along the fore margin of the wing reaching the wing top. Antennae black, the segments proportioned 2 : 1.5 : 6.5. Mesothoracical dorsum with dense yellowish red pilosity and faint grey dusted lines down the middle. Scutellum lemon-coloured, black-haired and with a small transparent dark area in the middle. Sides of thorax black with delicate golden red pilosity; posterior half of mesopleuron with a lemon-coloured spot. Legs yellow, basal half of tibiae light yellow, base of fore and middle femora dark brown. Fore margin of the wing with a brown band over its entire length. Abdomen black, shining, punc-

tuated, with lemon-coloured narrow bows which are interrupted in the middle and do not reach the side margins of tergites III and IV; tergite II with large, more or less triangular side spots and small side spots on tergite V; the posterior 1/3-1/4 of the side margins of tergites III and IV yellow, as well as the hind margin of tergite V (fig. 57 E). 13-14 mm. Trans-Baikal.

C. bajkalicum Violovitsh, 1973

- 38 (33) Third antennal segment shorter than the first two together.
 39 (44) The spot in the middle of the scutellum transparent, dark brown or brown, rarely almost black.
 40 (41) Wing with a dark brown cloud before the tip. Abdomen with four orange yellow bows as in *C. festivum* (L.). 15-18 mm. Southern Pacific coastal region.

C. sapporensis Matsumura, 1916

- 41 (40) Wing without a dark brown cloud before the tip.
 42 (43) Eyes bare. Antennae black, shorter than the head (proportions 3.5 : 4.5), third segment almost as long as the first two together. There are lemon-coloured spots on propleuron, metapleuron, sternopleuron and mesopleuron. Scutellum with brownish transparent median area. Abdomen broadly oval, black, with relatively broad lemon-coloured bands which are narrowly interrupted in the middle and with yellow bands (which broaden towards the middle) on the hind margins of tergites II-V (fig. 59 C). 13-14 mm. In the mountains of Tuva.

C. radha Violovitsh, 1971

- 43 (42) Eyes covered with conspicuous dense light pile. The proportions between third antennal segment to the first two together is 2 : 2.5-3. Scutellum yellow with a dark brown semi-transparent spot (with black reflection) in the middle. Yellow spots on notopleuron, sternopleuron, mesopleuron (covering a large part of it) and pleurotergite. Wing with a somewhat yellowish fore margin. Abdomen black, with bands that are narrowly interrupted in the middle and yellow bands on the hind margins of tergites II-IV, the latter widening towards the middle; tergite V yellow with a black pattern shaped like an inverted V or a remnant of it. Pacific coastal region.

C. japonicum Shiraki, 1930

- 44 (39) Scutellum yellow with a black chitinous and non-transparent spot in the middle.
 45 (48) Abdomen yellow with black patterns. The black bands on tergites III and IV do not reach the side margin at all or their upper corners do, at least on tergite IV.
 46 (47) The fore margin of the yellow interrupted band on tergite II is almost parallel to the fore margin of the tergite, receding only just before the side margins. The black band on tergite III and as a rule also on tergite IV reaches the side margin (uninterruptedly). Scutellum with dark hairs. The yellow band along the hind margin of tergite III broader than on tergite II, and about 1.5 times narrower than on tergite IV; tergite V yellow with

short yellow pile and a broad narrowly broken lemon-coloured band. 11-14 mm. Altay, Khakassia.

C. verralli Collin, 1931

- 47 (46) The fore margin of the yellow interrupted band on tergite II not parallel to the fore margin of the tergite, but gradually receding from it as it approaches the side margins. The black band on tergite IV and as a rule also on tergite III separated from the side margin by a yellow spot. Scutellum with long reddish yellow hairs. Abdomen with three narrow yellow bands (fig. 57 A), a broadly yellow hind margin on tergite III, towards the side margins connected with the median band; the posterior part of tergite IV with a large triangular yellow marking (with a triangular incision in its top) which is also connected with the median band; tergite V yellow with a black pattern shaped like an inverted V, connected with the middle of the fore margin of the tergite by means of a thin black line. 12-14 mm. From the Urals to Sayany.

C. octomaculatum Curtis, 1837

- 48 (45) Abdomen black with yellow markings. Proportion of antennal segments 1 : 1.5 ; 1.75. Mesothoracical dorsum black, with light hairs. Scutellum with yellow hairs. Wing along the fore margin pale yellow without a dark spot. Abdomen with four pairs of yellow interrupted bands. Hind margin of tergites with yellow markings: narrow on tergite II, on tergites III and IV triangularly widened towards the middle, on tergite V in the shape of a big median spot. Sternites black with yellow bands along the fore margins on segments II-IV. Abdomen elongated as in *C. lineare* Zett. 14 mm. Far East.

C. asiaticum Becker, 1921

Females

- 1 (4) Face yellow without black median band.
- 2 (3) Eyes bare. The longitudinal grey dusted stripes on the mesothoracical disc broad, reaching the hind margin. Smaller: 11-14 mm. Frons near the antennal sockets covered with delicate black semi-adpressed pile; ocellar triangle with erect black hairs. The part of the frons adjacent to the vertex dark brown, brownish or black with two large side spots of dense silvery yellow dusting; separated from the part before it by means of a dark curved band. Hind femora near the base somewhat thickened ventrally, hind tibiae weakly curved and with golden hairs only. Scutellum yellow with a large transparent area centrally.

C. lydiae Violovitsh

- 3 (2) Eyes hairy. The median stripes of greyish dusting on the meso-

thoracical disc narrow, not reaching beyond the middle. Larger: 16-19 mm.

C. grande Matsumura

- 4 (1) Face with a black band down the middle.
 5 (8) The yellow band on tergite II at least four times as broad as the band on tergite III, if the latter is present.
 6 (7) Frons, mesothoracical dorsum and scutellum with brownish red pilosity. The dark brown band along the fore margin of the wing not reaching the wing tip. The yellow spots on tergite II somewhat narrower than in the ♂.

C. bicinctum (Linnaeus)

- 7 (6) Frons, mesothoracical dorsum and scutellum black-haired. The dark brown band along the fore margin of the wing reaching the wing tip. *C. subbicinctum* Violovitsh

- 8 (5) The yellow bands on the tergites of about the same width.
 9 (10) The foremost part of the frons clearly protruding (fig. 59 D). 16-19 mm. *C. coreanum* Shiraki

- 10 (9) Frons simple, the foremost part not protruding.

- 11 (12) Side margins of abdomen yellow. Frons black. Width of face about equalling half the width of the head, the distance between the eyes where they approach most closely equalling about 1/5 of the width of the head. The yellow markings on the tergites somewhat bigger than in the ♂. The side margin of the abdomen variable from yellow to partly and even (in specimens from Tuva) wholly black. 9-13 mm.

C. hamaeleon Violovitsh

- 12 (11) Side margins of abdomen black, or alternately black and yellow.
 13 (24) Side margins of abdomen black.
 14 (17) Scutellum black or brown black with a narrow yellow rim.
 15 (16) Wing with a large brown well delineated cloud in the middle (fig. 54). 16 mm.

C. sibiricum Loew

- 16 (15) Wing with a yellowish fore margin, wing tip darkened, without a large brown cloud in the middle. Sides of thorax shining black with yellow spots, a large one on the mesopleuron and a small one on the sternopleuron. Scutellum nearly all black. The yellow bands on the abdomen broad, the first one considerably broader than the last ones. The yellow markings on the hind margins of the tergites narrow, not connected with the bands. Sternites black with narrow yellow bands on the hind margins of sternites I, III and IV and two yellow transverse spots on the anterior part of sternites III and IV. 12-13 mm. Southern Pacific coastal region. *C. biguttatum* Matsumura, 1911

- 17 (14) Scutellum all yellow or yellow with a dark median spot.

- 18 (21) Scutellum all yellow.

- 19 (20) The yellow markings on tergite III narrow, parallel sided, their width about 1/5 of the width of the tergite. Mesothoracical disc

with short pile, shorter than in the ♂, the yellow, widely interrupted bands on the tergites are considerably narrower.

C. rossicum Becker

- 20 (19) The yellow spots on tergite III broad, more or less triangular, about half as broad as the length of the tergite. Mesothoracal disc with relatively long hairs. The yellow spots on sternite III narrower than in the ♂, placed widely apart.
- C. lanulosum* Violovitsh
- 21 (18) Scutellum yellow with a dark, usually non-transparent, median area.
- 22 (23) All femora yellow. Yellow bows on abdomen broad.
- C. festivum* (Linnaeus)
- 23 (22) At least fore and middle femora dark brown or black at the base. Yellow bows on abdomen narrower.
- C. vernale* Loew
- 24 (13) Side margins of abdomen alternately yellow and black. Sometimes there are only yellow markings on the hind corners of tergites II-IV.
- 25 (26) Hind trochanters with a black conspicuous blunt toothlike process. Scutellum with a very large dark yellow semi-transparent area in the middle.
- C. amurense* Violovitsh
- 26 (25) Hind trochanters simple.
- 27 (28) The yellow band on tergite II, and as a rule also on tergite III uninterrupted. Scutellum all yellow or with a small dark spot in the middle. Antennae black, the third segment narrow, a little more than twice the length of the first two segments together. A yellowish brown band along the fore margin of the wing, darker (brownish) at the top. The yellow band on tergite III may exceptionally be narrowly interrupted. 11-13 mm.
- C. ladakense* Shannon
- 28 (27) The yellow bands on all tergites interrupted. Scutellum with a dark median area, or brown with a yellow fore margin.
- 29 (30) Scutellum yellowish brown or brown, semi-transparent and with a narrow light yellow non-transparent stripe along the fore margin.
- C. fasciolatum* (De Geer)
- 30 (29) Scutellum yellow with a dark median area.
- 31 (34) Third antennal segment longer than the first two together.
- 32 (33) Third antennal segment less than 1.5 times the length of the first two together. All femora yellow. The yellow markings along the hind margins of the tergites narrow, weak.
- C. fratellum* Shannon

- 33 (32) Third antennal segment more than 1.5 times the length of the first two together. Basal half of hind femora brownish to black. The yellow markings on the hind margins of the tergites III-V broad, well-developed. *C. arcuatum* (Linnaeus)
- 34 (31) Third antennal segment as long as or shorter than the first two together.
- 35 (42) Wing hyaline without a coloured front margin or spot in the wing tip.
- 36 (39) Antennae shorter than the head or of the same length.
- 37 (38) Scutellum with a semi-transparent dark median area. Sternites II-V black. Trans-Baikal. *C. lanatum* Violovitsh, 1973
- 38 (37) Scutellum with a large transparent light median area. Sternites II-V with yellow spots. *C. cautum* (Harris)
- 39 (36) Antennae longer than the head.
- 40 (41) The central area of the scutellum semi-transparent. The yellow spots on tergite II reach the side margin over their entire width. *C. japonicum* Shiraki
- 41 (40) The central area of the scutellum black, non-transparent. The yellow spots on tergite II are separated from the side margin by a black line. Khakassia. *C. chakassicum* Violovitsh, 1973
- 42 (35) Wing darkened along the fore margin only or with a spot in the tip as well.
- 43 (48) Wing only darkened along the fore margin.
- 44 (45) Scutellum yellow-haired. Abdomen more or less elongated, sternites black with yellow bands along the hind margins. Resembles *C. lineare* Zett. *C. asiaticum* Becker
- 45 (44) Scutellum black-haired.
- 46 (47) The band on tergite II is relatively narrow, parallel sided and interrupted in the middle, its fore margin not parallel with the fore margin of the tergite, but receding gradually towards the sides. Colouration of abdomen highly variable. *C. octomaculatum* Curtis
- 47 (46) The fore margin of the large, almost triangular side spots on tergite II almost parallel to the fore margin of the tergite, receding only near the side margin. Tergites IV and V preponderantly yellow, the black parts are reduced, especially in specimens collected in the South. *C. verralli* Collin
- 48 (43) Wing with a dark spot near the tip as well as a darkened fore margin.
- 49 (50) Scutellum with a black transparent area in the middle, tergite V only narrowly black with broad yellow side spots and a yellow hind margin. Smaller: 14 mm. *C. sapporensis* Matsumura
- 50 (49) Scutellum with an almost transparent central area, tergite V yellowish brown with an interrupted yellow band and a black hind margin. Larger: 18-19 mm. Pacific coastal region. *C. graciosum* Violovitsh, 1975

ii. SUB-FAMILY CHEILOSIINAE

Key to the identification of the genera

- 1 (4) Arista on the tip of the third antennal segment.
 2 (3) Antennae longer than the head, their second and third segments conical (fig. II, E). 11. CALLICERA Panzer
 3 (2) Antennae shorter than the head, third segment more or less triangular, compact. 15. PELEOCOCERA Meigen
 4 (1) Arista on the dorsum of the third antennal segment, placed nearer to its base.
 5 (16) Face straight, showing neither a central prominence nor a protruding mouth edge. Eyes always hairy.
 6 (7) Tergites II and III large, of equal length; tergite IV reduced, practically invisible from above.
 6. TRIGLYPHUS Loew
 7 (6) Tergites II, III and IV of subequal length.
 8 (9) On the anterior part of the mesopleuron, between the anterior thoracic spiracle and the inflated posterior area of the mesopleuron there are some long hairs.
 4. PARAPENIUM Collin
 9 (8) There are no long hairs on the anterior part of the mesopleuron between the anterior thoracic spiracle and the inflated posterior area of the mesopleuron.
 10 (13) Third antennal segment elongate: 1.5-2 times longer than deep.
 11 (12) The anterior outer angle of cell R_5 (near the conjunction of veins m and r_{4+5}) 90° or nearly 90° , vein sc joining vein c opposite transverse vein ta or a bit before (i.e. nearer to the wing base).
 3. PIPIZELLA Rondani
 12 (11) The anterior outer angle of cell R_5 (near the conjunction of veins m and r_{4+5}) acute, vein sc joining vein c beyond transverse vein ta (i.e. nearer to the wing tip).
 2. HERINGIA Rondani
 13 (10) Third antennal segment short: hardly longer than deep, or not at all.
 14 (15) Frons prominent, when seen in profile, somewhat conical. Middle coxae and hind trochanters of the σ simple, without processes. Frons of the ϕ as a rule with well-developed grey dusted side spots.
 1. PIPIZA Fallen
 15 (14) Frons, when seen in profile, somewhat prominent but rounded. Middle coxae and hind trochanters of the σ as a rule with long thin spurs. Frons of the ϕ usually with weakly-developed grey dusted side spots; these may be lacking.
 5. NEOCNEMODON Goffe
 16 (5) Face with central prominence or a projecting mouth edge or both.
 17 (18) Face on the lower part extended into a long porrect snout (fig. III, D). Vein r_{4+5} and costa meeting below apex of wing.
 20. RHINGIA Scopoli

- 18 (17) Face not extended into a snout. Vein r_{4+5} and costa meeting near apex of wing or before it.
- 19 (22) Abdomen russet or brown. Vein r_5 above with fine bristles. Legs russet or brown.
- 20 (21) The upper marginal cross-vein (i.e. the top section of vein m) joins vein r_{4+5} in a right angle. Face of σ with a slight median tubercle. Abdomen relatively long, elongate-oval.
21. HAMMERSCHMIDTIA Schumme1
- 21 (20) The upper marginal cross-vein joins vein r_{4+5} in an acute angle. Face of σ without a median tubercle. Abdomen short-oval.
22. BRACHYOPA Meigen
- 22 (19) Abdomen black, bronze-green or golden, with a metallic sheen or more or less dull, sometimes with yellow spots or bands. Vein r_5 above without (or more rarely with) fine bristles. Legs as a rule largely black.
- 23 (24) The common stem of veins $r_1 + r_s$ above on posterior side with fine bristles; fore and middle femora ventrally with strong spines on the apical half. 18. MYIOLEPTA Newman
- 24 (23) The common stem of veins $r_1 + r_s$ without bristles; fore and middle femora without spines.
- 25 (30) Hind femora strongly swollen; ventrally with spines.
- 26 (27) Abdomen somewhat constricted in its basic half, with sub-parallel side margins, not club-shaped, vein r_s with fine bristles above. The eyes of the σ meet on the frons.
23. SPHEGINOIDES Szilady
- 27 (26) Abdomen strongly constricted in its basic half, in the top half broadened, the outline club-shaped, vein r_s above without bristles. The eyes of the σ widely separated.
- 28 (29) The upper marginal cross-vein (top section of vein m_{1+2}) rounded towards vein r_{4+5} . So this section shows only one right angle, namely where it meets vein r_{4+5} .
24. SPHEGINA Meigen
- 29 (28) The upper marginal cross-vein (top section of vein m_{1+2}) runs towards vein r_{4+5} after forming a right angle. So the section shows two right angles: one in vein m_{1+2} and one where it joins vein r_{4+5} .
25. NEOASCIA Williston
- 30 (25) Hind femora not or only slightly swollen, sometimes with bristle-like hairs underneath.
- 31 (38) Cheeks well-developed, reaching beyond the facial median tubercle or almost up to the level of the antennal sockets.
- 32 (33) Face yellow. Sides and hind margin of mesothoracical dorsum and also scutellum and hind margin of mesopleuron with stout and long bristles; vein r_s above with small fine bristles. Abdomen with a golden sheen. Eyes densely hairy.
10. FERDINANDEA Rondani
- 33 (32) Face black. Long and stout bristles at the most on the post-alar

- calli and along the hind margin of the scutellum. Vein rs above bare or (rarely) with small bristles.
- 34 (35) The eyes of the ♂ do not meet on the frons. Frons projecting further than the median tubercle of the face. Eyes bare. Abdomen black with large red spots on the tergites II and III.
9. PSAROCHILOSIA Stackelberg
- 35 (34) The eyes of the ♂ meet on the frons.
- 36 (37) Abdomen black, often with a steel bluish or greenish olive sheen. If the face is partially or mainly yellow, then the eyes are bare.
7. CHEILOSIA Meigen
- 37 (36) Abdomen black with very large yellowish densely grey dusted spots on tergites I-IV in the ♂, in the ♀ completely dusted with narrow black longitudinal stripes on tergites II-IV, a more or less broad stripe on the hind margin of tergite II and a small transverse spot in the middle of the fore margin of tergite I. Face deeply concave below the antennae, the lower half massive, square (with rounded exterior top corner), strongly jutting forward.
8. PORTEVINIA Goffe
- 38 (31) Cheeks not developed or barely indicated on the lower part of the face.
- 39 (40) Vein rs with small bristles above. Median tubercle of the face not developed.
19. LEJOTA Rondani
- 40 (39) Vein rs without small bristles above. Median tubercle often developed.
- 41 (42) Eyes densely hairy. Median tubercle not developed; face and mouth edge projected forward.
16. PSILOTA Meigen
- 42 (41) Eyes bare.
- 43 (44) Eyes of the ♂ broadly separated. Abdomen: tergites all shining.
13. LIOGASTER Rondani
- 44 (43) Eyes of the ♂ meeting on frons. Abdomen as a rule dull on the disc.
- 45 (46) Body bronze-green. Face of the ♂ without median tubercle.
14. ORTHONEURA Macquart
- 46 (45) Body black. Face of the ♂ with median tubercle.
- 47 (48) Frons of ♂ more or less swollen, frons of ♀ relatively broad, with pairs of transverse grooves.
12. CHRYSOGASTER Meigen
- 48 (47) Frons of ♂ not swollen, frons of ♀ relatively narrow, without transverse grooves. Face of ♂ with, face of ♀ without median tubercle.
17. CHRYSOSYRPHUS Sedman

1. PIPIZA Fallen, 1810

Type species of the genus: *Musca noctiluca* Linnaeus, 1758.

Males

- 1 (4) Fore tarsi all yellow. Mesothoracical dorsum and scutellum with light hairs.
- 2 (3) Fifth joint of middle tarsi black, hind tarsi brown black to black on the upper surface. Wing hyaline. Abdomen with one pair of light coloured spots (on tergite II), sternites I-III brownish or reddish yellow, sternite IV black. 8-11 mm. Europe. Not found in Siberia.
P. fasciata Meigen, 1822
- 3 (2) All tarsi yellow, sometimes with somewhat darkened top segments. Wing with a barely visible cloud in the middle. Abdomen with a single pair of light coloured spots (on tergite II), sternites black, except for sternite II which is brownish yellow. 8-10 mm. Western Siberia, Tuva, Khakassia, southern Pacific coastal region, Sakhalin I.
P. festiva Meigen, 1822
- 4 (1) Fore and middle tarsi darkened over a considerable distance, brown or blackish.
- 5 (6) Abdomen with two pairs of light-coloured spots (exceptionally with a single pair on tergite II). Antennae placed lower than half-way down the head, third segment not longer than deep. Wing almost completely tinged brownish, but without a distinct cloud in the middle. Abdomen short and broad (length and width proportioned approximately 7 : 5). 5-9 mm. Western and Central Siberia, Altay, Sayany, Tuva, Sakhalin I.
P. quadrimaculata (Panzer, 1802)
- 6 (5) Abdomen all black or with two light spots on tergite II.
- 7 (8) Hind femur greatly thickened, club-shaped, ventrally with a distinct bulge in the apical third. Face black, shining, with long dense whitish hairs; width of face about 2/5 of total width of the head. Frons with black hairs, mesothoracical disc and scutellum with dense long upstanding greyish white pile. Wing with a brown cloud in the middle. Abdomen all black. 7-9 mm. Western Siberia, Altay, Tuva, Sayany.
P. austriaca Meigen, 1822
- 8 (7) Hind femur not thickened; if moderately thickened, then not club-shaped and without a distinct bulge towards the top.
- 9 (12) Mesothoracical dorsum and scutellum with black hairs only, or with black and light hairs.
- 10 (11) Mesothoracical dorsum and scutellum with black hairs only. Antennae black, third segment axe-shaped. Eyes in actual approximation over a distance which is distinctly shorter than the ocellar triangle. Frons, face, ocellar triangle, occiput, dorsum of thorax and scutellum with a long dense upstanding black pilosity. Abdomen shining black, with short semi-adpressed black hairs.

7-8 mm. Western Siberia.

P. bimaculata Meigen, 1822

- 11 (10) Mesothoracical dorsum and scutellum with black and greyish yellow hairs. Antennae dark brown, third segment rounded. Eyes in actual approximation for a distance which is as long as or a little longer than the ocellar triangle. Abdomen brown or blackish brown, weakly shining. 8-10 mm. Altay, Sakhalin I.
- P. carbonaria* Meigen, 1822
- 12 (9) Mesothoracical dorsum and scutellum with light-coloured hairs only.
- 13 (14) Wing with a brown cloud in the middle (sometimes only faint).
- 14 (13) Wing with a large well-delineated dark brown spot in the middle. Third segment of antennae somewhat longer than deep. Hind femora greatly but evenly thickened. Abdomen black; without yellow spots, white-haired. 7-9 mm. Western Siberia, Altay, Cis-Amur, Pacific coastal region, the islands Sakhalin and Shikotan.
- P. lugubris* (Fabricius, 1775)
- 15 (18) Wing with a weakly-developed, diffused, sometimes faint cloud in the middle.
- 16 (17) Face white-haired, frons black-haired. Legs black, fore knee yellowish, fore tarsi blackish, but the first two segments yellowish. Hind femora somewhat thickened, hind metatarsus distinctly swollen. Wing hyaline, somewhat yellowish, with a brownish cloud across the middle. Abdomen elongate, black, weakly punctuated, with two narrow elongated yellowish or reddish side spots. Abdomen with yellowish and, in places, black pilosity. 6-9 mm. Western Siberia, Altay.
- P. signata* Meigen, 1822
- 17 (16) Face and frons with black hairs. Legs black, tip of fore femur and base of fore tibia yellowish or reddish, fore tarsi black or brownish black, first two segments more or less lighter, hind femur thickened on basal half. Wing on the basic half hyaline, sometimes yellowish, on the top half brownish. Thoracical and alar squamae whitish or brownish with dark margin and white ciliation. Abdomen metallic black, strongly punctuated, with two fairly broad large yellowish or reddish spots on tergite II. 6-10 mm. Western Siberia, Altay, the islands Sakhalin and Kunashir.
- P. noctiluca* (Linnaeus, 1758)
- 18 (15) Wing without a dark cloud in the middle. Frons and face black-haired. Antennae black, third segment axe-shaped. Sides of thorax with delicate silvery white hairs, except for the upper parts of mesopleuron and pteropleuron which are covered with long dense black hairs. Abdomen black, largely dull. 7-9 mm. Altay, Tuva, Pacific coastal region, the islands Sakhalin and Kunashir.
- P. dubia* Lundbeck, 1916

Females

- 1 (4) Front tarsi all yellow, or only metatarsus darkened on the upper side.
- 2 (3) Third segment of antennae hardly any longer than deep (1: 1.25). The light yellow spots on tergite II very large, sometimes joined to form a broad band. Wing with a well-developed brown median cloud. *P. festiva* Meigen
- 3 (2) Third segment of antennae about 1.5 times longer than deep. Sternites II and III light coloured. 8-12 mm. *P. fasciata* Meigen
- 4 (1) Fore and middle tarsi largely brown or blackish.
- 5 (6) Abdomen with two pairs of light spots. Frons at antennal sockets about 1/3 of total width of the head. Antennae placed low, lower than half-way down the head, third segment brownish yellow and brown, rounded, hardly any longer than deep or as long as it is deep. Abdomen short and broad (proportion between length and width approximately 8 : 6). 5-8 mm. *P. quadrimaculata* (Panzer)
- 6 (5) Abdomen all black or with a single pair of light-coloured spots on tergite II.
- 7 (8) Hind femur club-shaped, greatly thickened, with a distinct bulge ventrally on the top third. Frons at antennal sockets a little more than 1/3 of total width of head. Width of vertex about 1/3 of width of head. Face and frons white-haired, above the antennal sockets and below the front ocellus with black hairs. Dorsum of thorax and scutellum with dense erect short white hairs, sides of thorax with longer white hairs. At least first and second segments of tarsi orange yellow. Wing with a large well delineated dark brown median cloud. Abdomen all black, punctuated, weakly shining and with whitish hairs. 9-11 mm. *P. austriaca* Meigen
- 8 (7) Hind femur not thickened, or, if thickened, then it is not club-shaped and there is no pronounced bulge ventrally on the top third.
- 9 (10) Dorsum of thorax covered with light and black pile. Legs black, the base of the fore tibia and the knees narrowly yellow. Wing hyaline. Abdomen all black. 6-8 mm. *P. carbonaria* Meigen
- 10 (9) Dorsum of thorax exclusively light-haired.
- 11 (14) Wing hyaline, without a dark median cloud.
- 12 (13) Abdomen black, with a pair of light spots on tergite II. Frons, vertex and occiput shining black with longitudinal side spots of white dusting on the upper part of the frons. There are black hairs on the frons, immediately above the antennae and below the ocelli, the central part, vertex and occiput with white hairs. Proportions between width of frons, width of vertex and width of head 7 : 5 : 18. Basal 1/3-1/2 of fore tibia and middle tibia and also the first two segments of at least the middle

tarsus yellow. Abdomen with fairly long white hairs and shorter black hairs. 6-8.5 mm.

P. bimaculata Meigen

- 13 (12) Tergites all black. Frons, vertex and occiput shining black, with small side spots of greyish white dusting on the upper part of the frons. Face and eyes with white hairs, knees somewhat lighter than in the ♂. Abdomen with short black and white pilosity. 7-8 mm.

P. dubia Lundbeck

- 14 (11) Wing with a dark or light brown median cloud.

- 15 (16) Abdomen all black, without light spots on tergite II. Frons shining black with side spots of grey dusting, pilosity white except for a small number of black hairs above the antennae and below the ocelli; proportions between the width of frons, vertex and head 4 : 3 : 10. Third antennal segment brown, more than 1.5 times longer than deep. Wing with a distinct, well-delineated brown cloud. Fore and middle tibiae on the basal 1/3 and first two segments of fore and middle tarsi yellow. Abdomen elongate-oval, about twice as long as broad. 8-10 mm.

P. lugubris (Fabricius)

- 16 (15) Abdomen with two light yellow spots on tergite II.

- 17 (18) Frons bluish black, shining, without dust spots, black-haired above the antennae and below the ocelli, for the rest whitish haired. Abdomen with light and black hairs, the light yellow spots on tergite II larger than in the ♂.

P. signata Meigen

- 18 (17) Frons black, with distinct grey dusted side spots. Proportion between width of frons (near antennae) and width of head 4.5 : 10. Frons (except for the parts above antennae and below the ocelli, which are black-haired), occiput, face, dorsum and sides of thorax, scutellum with silvery hairs. Wing with a large brown cloud. Abdomen with relatively long silvery hairs on the sides of the median part of tergites II and III and on a large part of tergites IV and V, the rest covered with short black pile. 7-10.5 mm.

P. noctiluca (Linnaeus)

2. HERINGIA Rondani, 1856

Type species of the genus: *Pipiza heringi* Zetterstedt, 1843.

Frons with long black hairs, face with shorter black and some white hairs. Eyes in actual approximation for a distance that is a little more than half as long as the height of the frons. Eyes with dense brownish pile. Dorsum and sides of thorax and scutellum with long light hairs. Legs black, but the basal third of the tibiae and the first two segments of the middle tarsus reddish yellow. Hind tibia with black hairs. Wing hyaline, vein m_{1+2} curved in the apical third. Abdomen with longer light hairs and very short black pile. Width of frons in the ♀ about half the width of the head, frons black with small more or less

triangular grey dusted side spots, frons covered with dense short whitish pile except for a narrow band of black hairs below the ocellar triangle. Face, dorsum and sides of thorax, and scutellum white-haired. These hairs are shorter than in the ♂. 5.5-7.5 mm. Tuva. *H. heringi* (Zetterstedt, 1843)

3. PIPIZELLA Rondani, 1856

Type species of the genus: *Mulio virens* Fabricius, 1805.

- 1 (2) Third antennal segment about four times longer than deep. Hypopygium as in fig. 60. Southern Pacific coastal region.
P. antennata Violovitsh, 1981
- 2 (1) Third antennal segment not more than three times longer than deep.
- 3 (12) Fore metatarsus orange yellow all over, or with an inconsiderable brownish spot on the upper side.
- 4 (7) Frons at least three to four times longer than the actual approximation of the eyes.
- 5 (6) The eyes nearly touch in one point only (they are in fact still separated by a fairly broad seam), with a relatively long dense light-coloured pile. Third antennal segment elongate oval (fig. 69 A), underneath brownish yellow near the base. The anterior paramere on the upper part of the hypandrium is a notchy small hook, upper paramere in the shape of a disc (fig. 78). Tuva, Central Siberia. *P. mongolorum* Stackelberg, 1953
- 6 (5) The eyes actually touch over a distance equalling 1/4-1/3 of the length of the frons, with a long dense dark brown pile. Third antennal segment at the tip broadened in the shape of a raindrop (fig. 69 B), uniformly dark brown, almost black. Surstyli subcircular with a small lateral process at its base, the anterior paramere on the upper part of the hypandrium shapeless, covered with small teeth, upper paramere rounded with very fine teeth in the anterior top part (fig. 63). Western Siberia, Altay. *P. certa* Violovitsh, 1981
- 7 (4) Eyes touching over a distance equalling about half the length of the frons.
- 8 (11) Frons, occiput, dorsum of thorax, scutellum and a large part of tergites with bright golden hairs.
- 9 (10) Antennae quite black. Anterior paramere on the upper part of the hypandrium rounded with fine teeth anteriorly, upper paramere oval, finely dentated (fig. 65). Altay. *P. altaica* Violovitsh, 1981
- 10 (9) Antennae with third segment, at least on the inner side at the base, orange yellow. Anterior paramere on the upper part of the hypandrium a hook, upper paramere with seven long, pointed forward bent teeth (fig. 66). Southern Pacific coastal region. *P. barkalovi* Violovitsh, 1981

- 11 (8) Frons, occiput, dorsum of thorax, scutellum and a large part of the tergites with dull light yellow hairs. Eyes wholly with dark brown pile. Surstyli distinctly narrowed apically, top paramere on the upper part of the hypandrium a disc with numerous fine teeth, the anterior paramere irregularly axe-shaped, its anterior margin notchy, its posterior margin with a peculiar wing-like excrescence (fig. 67). Western Siberia, Altay.
P. inversa Violovitsh, 1981
- 12 (3) Fore metatarsus all dark brown, or at least on the upper surface dark brown, black or dark brown with narrow brownish or orange margins.
- 13 (16) Wing with a distinct dark brown cloud in the middle.
- 14 (15) Dorsum of thorax, scutellum and a large part of the tergites I-IV with light yellow hairs. Third segment of antennae about three times longer than deep. Surstyli relatively broad, more or less crescent-shaped with an exterior elevated ridge at the base. Top paramere on the upper part of the hypandrium a disc with 4-5 forward directed teeth, the anterior paramere a small hook with an excrescence at the anterior part of its base (fig. 61). South-eastern slopes of the Urals.
P. maculipennis (Meigen, 1822)
- 15 (14) Dorsum of thorax, scutellum and a large part of tergites I and II with white hairs. Third segment of antennae about twice as long as deep. Surstyli longer and narrower, top paramere on the upper part of the hypandrium with 4-5 teeth, anterior paramere shaped like a tooth, finely dentated (fig. 62). Western Siberia, Altay.
P. sibirica Violovitsh, 1981
- 16 (13) Wing without a dark brown cloud: hyaline or somewhat infuscated.
- 17 (20) At least dorsum and sides of thorax and scutellum with white hairs.
- 18 (19) Antennae all black, third segment elongate-oval, about twice as long as deep. Frons covered with silvery white and black hairs. Surstyli with a well-developed excrescence dorso-laterally, anterior paramere on the upper part of the hypandrium a deformed hook, upper paramere a disc with 5-6 teeth (fig. 72). Altay.
P. cauta Violovitsh, 1981
- 19 (18) First and second segments of antennae shining black, third segment broadly oval (about 1.5 times as long as deep), dull, dark brown, orange yellow underneath basally for about 1/3 of its length. Frons with fine whitish hairs. Surstyli long with parallel side margins, without an excrescence dorsally (seen from behind), anterior paramere on the upper part of the hypandrium almost a crescent (fig. 74). Southern Pacific coastal region.
P. ussuriensis Violovitsh, 1981
- 20 (17) Dorsum of thorax and scutellum with golden to yellowish hairs, exceptionally mixed with some white hairs.
- 21 (22) Tergite IX narrower at the base than at the top part (i.e. the part just before the hind margin). Anterior paramere on the

- upper part of the hypandrium a hook, upper paramere a comb with seven teeth, the first four bent inward. Surstyli as in fig. 77. Western Siberia. *P. absurdens* Lucas, 1976
- 22 (21) Tergite IX tapering towards the top.
- 23 (24) Third antennal segment orange yellow underneath. Surstyli long, with subparallel side margins, upper paramere on the upper part of the hypandrium subcircular with six small teeth, anterior paramere irregularly axe-shaped, notchy anteriorly (fig. 73). Southern Pacific coastal region.
P. surstilonga Violovitsh, 1981
- 24 (23) Antennae uniformly dark brown or black.
- 25 (26) Frons about three times longer (or more) than the actual approximation of the eyes. Dorsum of thorax, scutellum and abdomen with light yellow to golden hairs. Surstyli irregularly ovate (pointed at the tip), upper paramere on the upper part of the hypandrium a comb with seven teeth, anterior paramere a strongly downward bent hook (fig. 68). Western Siberia.
P. varipes (Meigen, 1822)
- 26 (25) Frons about 2-2.5 times as long as the actual approximation of the eyes.
- 27 (28) Eyes with short pile. Smaller: 6 mm. Upper paramere on the upper part of the hypandrium a disc with fine teeth on the outer margin, anterior paramere (in profile) rounded, with fine teeth anteriorly. Aedeagus, surstyli and gonocerci as in fig. 70. Altay.
P. adentata Violovitsh, 1981
- 28 (27) Eyes with long hairs.
- 29 (30) Body stout and broad (proportion between length of abdomen and width of tergite II at its hind margin 14 : 9). Dorsum of thorax and abdomen with light yellow hairs which have a distinct golden sheen. Upper paramere on the upper part of the hypandrium a comb with seven teeth, anterior paramere a short thick hook, inner margins of surstyli hollow apically (fig. 75). Southern Pacific coastal region.
P. opaca Violovitsh, 1981
- 30 (29) Body slender, narrower (proportion between length of abdomen and width of tergite II at its hind margin 14.5 : 8.5). Pilosity of mesothoracical dorsum and abdomen light yellow, without a golden sheen. Upper paramere on the upper part of the hypandrium a comb with nine teeth, anterior paramere a hook, surstyli long, the inner margins almost straight (fig. 64). Western Siberia, Altay. *P. dentata* Violovitsh, 1981

4. PARAPENIUM Collin, 1952

Type species of the genus: *Pipiza carbonaria* Meigen, 1822 (orig. des.).

Frons, face and ocellar triangle shining black with bluish reflections, covered with long black erect hairs. Eyes with long

dense dark brown pile. Antennae dark brown, first and second segment nearly black, third segment elongate (about 1.5 times as long as deep), its top with a sloping rounded upper part and a somewhat pointed lower part. Dorsum and sides of thorax and scutellum shining black, with bluish reflection, covered with long dense (especially on the pleurae) black hairs. Legs black, mainly black-haired, the tips of fore and middle tibiae and the first two segments of middle tarsi orange yellow, fore metatarsus and second segment of hind tarsi orange brown, hind knees dark brown. Wing almost hyaline. Thoracic and alar squamae light yellow with a brownish tint, ciliation very long, light golden yellow. Haltere bright light yellow. Tergites black with bluish reflection, with mainly short black semi-adpressed hairs, mixed with some long white hairs on the sides of the tergites. Abdomen of ♀ black with rounded whitish yellow side spots on tergite II. Body length 6.5 mm. Hypopygium as in fig. 79. Tuva, Sayany, Southern Pacific coastal region.

P. flavitarsis (Meigen, 1822)

5. NEOCNEMODON Goffe, 1944

Type species of the genus: *Cnemodon latitarsis* Egger, 1865.

- | | | |
|---|------|---|
| 1 | (6) | Middle coxae and hind trochanters without spurs. |
| 2 | (3) | Legs all black. Dorsum of thorax, scutellum, sides of thorax and dorsum of abdomen covered with black pile. Haltere yellow with brownish stem. Wing infuscated brownish. Pre-genital segment black-haired. 6-7 mm. Sakhalin I.
<i>N. nox</i> Violovitsh, 1978, ♂ |
| 3 | (2) | At least the basal 1/4-1/3 of fore and middle tibiae yellow. |
| 4 | (5) | Eyes, vertical triangle, scutellum and sides of thorax with light yellow hairs. Antennae brown black, brownish yellow below, third segment hardly longer than the first two together. Legs black; knees, the basal 1/3 of fore and middle tibiae and second and third segment of fore and middle tarsi yellow. Thoracic and alar squamae dark brown with light ciliation. Abdomen black, sternites simple, without excrescence or keel. 7 mm. Southern Pacific coastal region.
<i>N. simplicipes</i> (Stackelberg, 1952) |
| 5 | (4) | Eyes, vertical triangle, scutellum, sides of thorax, frons and face with black hairs. Dorsum of thorax black, weakly shining, with relatively short black and whitish hairs, mixed with very long black hairs on the posterior half. Legs black, first and second segments of the tarsi, the knees of all legs, the basal 1/4-1/3 of fore and middle tibiae yellow. Haltere light yellow. 7 mm. Western Sayany. <i>N. buka</i> Violovitsh, 1978, ♂ |
| 6 | (1) | Middle coxae and hind trochanters with a spur. |
| 7 | (10) | Sternite III or IV with a distinct wart-like or keel-shaped |

- excrescence.
- 8 (9) A well-developed pointed process in the middle of sternite III. Antennae black, third segment hardly longer than deep. Dorsum and sides of thorax and scutellum with long fine brown black hairs. Legs black, knees and base of fore and middle tarsi brown. The spurs on mid coxae and hind trochanters short. Wing somewhat infuscated, brownish. 6-7 mm. In the northern part of the Krasnoïarsk region, Oblast Irkutsk, Yakutia.
N. jakutorum (Stackelberg, 1952)
- 9 (8) Sternite IV with an inconsiderable wart-like process. First segment of fore tarsi in the ♂ straight, cylindrical, without excrescence or excision. Legs slender. Fig. 96. 5-5.5 mm. Altay.
N. verrucula (Collin, 1931)
- 10 (7) Sternite III and IV without wart-like or keel-shaped excrescence. First segment of fore tarsi all yellow, externally (fig. 96 E) with an excision. Sternite III beside the middle with an inconsiderable excrescence covered with a longer and denser pilosity. Dorsum of thorax with fairly long and dense pile: grey in the typical form, dark brown in the variety *fulvimanus* Zetterstedt, black in the variety *morionellus* Zetterstedt. Thoracic and alar squamae and halteres yellowish white in the typical form and in the variety *fulvimanus* Zett., black brown in the variety *morionellus* Zett. Length of body 6-7 mm. Cis-Baikal, Yakutia, Cis-Amur, Pacific coastal region, Sakhalin I.
N. vitripennis (Meigen, 1822)

6. TRIGLYPHUS Loew, 1840

Type species of the genus: *Triglyphus primus* Loew, 1840.

- 1 (2) Dorsum of thorax and scutellum black, shining, with long upright pile: yellowish, whitish, black, or mixed light and black. The dull patches on tergites II and III with short black pile, rarely mixed with light (shining white) hairs. Surstyli long and slender, the number and position of the spines on the upper paramere of the top part of the hypandrium is strongly variable. Height of frons about double the length of the actual approximation of the eyes. Legs black, knees and base of fore and middle tibiae brownish or yellowish, first segment of mid tarsi dull yellow, the second joint dull yellow to near black. Wing slightly infuscated. Pilosity of dorsum of thorax shorter, white. First segment of fore tarsi orange yellow (fig. 80). 4-6 mm. From the Urals to Sakhalin I.
T. primus Loew, 1840
- 2 (1) Dorsum of thorax and scutellum with short semi-addressed golden yellow pile. Eyes with short dark brown pilosity. First segment of fore tarsi in the ♂ orange yellow. Dorsum of abdomen with short semi-addressed golden yellow pile. Surstyli short and broad (fig. 81). 6.5-7.5 mm. Southern Pacific

coastal region, Kunashir I.

T. aureus Violovitsh, 1981

7. CHEILOSIA Meigen, 1822

Type species of the genus: *Syrphus flavipes* Panzer, 1798.
(the keys to this genus are by A.V. Barkalov)

Key to the species-groups (after Sack, 1932)

- | | | | |
|----|----|---|---------|
| 1. | a. | Eyes bare. | Group A |
| | b. | Eyes hairy. | 2 |
| 2. | a. | Face with long hairs. | Group B |
| | b. | Face without long hairs. | 3 |
| 3. | a. | Scutellum without bristles on the hind margin. | Group C |
| | b. | Scutellum with bristles on the hind margin. | Group D |

Remark: a number of species are not included as they are unknown to the author in natura (*C. acutilabris* Becker, *C. chipsanii* Matsumura, *C. diminuta* Shiraki, *C. nudifacies* Becker, *C. ochripes* Shiraki, *C. okunii* Shiraki, *C. reniformis* Hellen, *C. superba* Becker, *C. tumidilabris* Becker).

GROUP A

Males

- | | | |
|---|------|---|
| 1 | (4) | Face hairy on the lower part. |
| 2 | (3) | Legs uniformly black. Hypopygium as in fig. 82 A. 6-8 mm. Altay. <i>C. aratica</i> Barkalov, 1978 |
| 3 | (2) | At least tips of femora and tibiae yellowish. Hypopygium as in fig. 82 B. 7-7.5 mm. All Siberia. <i>C. angustigena</i> Becker, 1894 |
| 4 | (1) | Face bare (the hairs on genae not taken into account). |
| 5 | (12) | Legs uniformly black. |
| 6 | (7) | Dorsum of thorax shining, with large and coarse punctures. 6-8 mm. From the Urals to the southern Pacific coastal region. <i>C. nigripes</i> (Meigen, 1822) |
| 7 | (6) | Dorsum of thorax with weak grey dusting in the middle, punctuation small and fine. |
| 8 | (9) | Face strongly projecting forward (fig. 83 A). Hypopygium as in fig. 82 C. 6-8 mm. Tuva, Western Sayany. <i>C. nasutula</i> Becker, 1894 |

- 9 (8) Face moderately projecting forward (fig. 83 B).
- 10 (11) Face and frons covered with dense grey dusting. Hypopygium as in fig. 82 D. 7-8.5 mm. Western Siberia, Sayany, Tuva.
C. sibirica Becker, 1894
- 11 (10) Face and frons shining or with weak grey dusting. Hypopygium as in fig. 82 E. 7.5-9 mm. North-West Siberia.
C. violovitshi Barkalov, 1979
- 12 (5) At least the tips of femora and tibiae yellowish.
- 13 (14) Femora and tibiae yellow. Hypopygium as in fig. 82 F. 7-11 mm. Southern Pacific coastal region, the islands Kunashir and Moneron.
C. matsumurana Shiraki, 1930
- 14 (13) At least the basal part of femora black.
- 15 (16) Genae broad, broader than the depth of the second antennal segment. Eyes meeting for a distance which is obviously shorter than the height of the frons. 7.2-11 mm. Cis-Amur, Southern Pacific coastal region.
C. zinovievi Stackelberg, 1963
- 16 (15) Genae narrow, narrower than the depth of the second antennal segment. Eyes meeting for a distance which is clearly longer than the height of the frons.
- 17 (18) Wing strongly infuscated, antennae black. Hypopygium as in fig. 82 G. 8-11 mm. Pacific coastal region.
C. nox Stackelberg, 1952
- 18 (17) Wing hyaline, antennae black or orange.
- 19 (30) Central prominence of face broad, occupying the whole width of face, broadly rounded at the top (fig. 84 A).
- 20 (21) Arista with delicate pubescence, visible on great magnification. Antennae orange. Hypopygium as in fig. 82 H. 7.5-9.3 mm. The islands Sakhalin and Moneron.
C. moneronica Violovitsh, 1971
- 21 (20) Arista with relatively long pubescence, if weakly pubescent the third antennal segment dark brown.
- 22 (27) Frons with dense silvery grey dusting.
- 23 (24) Sides of thorax glittering-shining, frons with light yellow pile. Hypopygium as in fig. 82 I. 8 mm. Southern Pacific coastal region.
C. posjetica Barkalov, 1981
- 24 (23) Sides of thorax grey dusted, frons with black pile.
- 25 (26) Dorsum of thorax with stripes of silvery yellow dusting, humeral calli yellow. Hypopygium as in fig. 82 J. 6-9 mm. All Siberia.
C. pallipes Loew, 1863
- 26 (25) Dorsum of thorax shining, humeral calli largely black. Hypopygium as in fig. 82 K. 9-12 mm. Southern Pacific coastal region, the islands Sakhalin and Kunashir.
C. josankeiana Shiraki, 1930
- 27 (22) Frons shining.
- 28 (29) Dorsum of thorax and tergite IV with yellow or black and yellow pile. 7-10 mm. From the Urals to the Southern Pacific coastal region.
C. scutellata (Fallen, 1817)

- 29 (28) Dorsum of thorax and tergite IV with black pile. Hypopygium as in fig. 82 L. 7-10.5 mm. The islands Sakhalin and Kunashir.
C. kunashirica Violovitsh, 1956
- 30 (19) The central prominence of the face narrower, pointed at the tip (fig. 84 B).
- 31 (32) Third antennal segment black or light brown, dorsum of thorax black-haired. 6-9 mm. All Siberia.
C. longula (Zetterstedt, 1838)
- 32 (31) Third antennal segment orange, darkened at the tip, dorsum of thorax light-haired.
- 33 (34) Facial tubercle narrower, pointed at the tip. 5-8 mm. All Siberia.
C. pagana (Meigen, 1822)
- 34 (33) Facial tubercle broader, rounded at the tip. See couplet 20.
C. moneronica Violovitsh

Females

- 1 (6) Face hairy on the lower part.
- 2 (3) Legs and antennae all black.
C. aratica Barkalov
- 3 (2) Femora and tibiae yellow or yellowish brown apically, third antennal segment orange yellow at least basally.
- 4 (5) Genae broad, exceeding half the depth of third antennal segment. Western Siberia. *C. intonsa* Loew, 1857
- 5 (4) Genae narrow, less than one third of the depth of third antennal segment.
C. angustigena Becker
- 6 (1) Face bare.
- 7 (16) Legs all black, only the knees narrowly reddish or the segments 2-4 of fore and middle tarsi yellow.
- 8 (9) Segments 2-4 of fore and middle tarsi yellow. Western Siberia.
C. albitarsis (Meigen, 1822)
- 9 (8) Tarsi all black.
- 10 (11) Frons with silvery grey dusting. Third antennal segment large, its depth equalling about half the width of frons measured at the antennal sockets. *C. sibirica* Becker
- 11 (10) Frons shining, third antennal segment small, less deep than half the width of frons.
- 12 (13) Dorsum of thorax and abdomen with coarse and dense punctuation.
C. nigripes (Meigen)
- 13 (12) Dorsum of thorax and abdomen with finer and less dense punctuation.
- 14 (15) Face strongly projecting, hairs on dorsum of thorax adpressed.
C. nasutula Becker
- 15 (14) Face not much jutting forward, hairs on dorsum of thorax erect.
C. violovitshi Barkalov
- 16 (7) At least tips of femora and bases and tips of tibiae reddish brown or yellow.

- 17 (22) Femora yellow.
- 18 (19) Lower part of face, humeral calli and scutellum yellow.
C. pallipes Loew
- 19 (18) Face, humeral calli and scutellum black.
- 20 (21) Hind tarsi black above. *C. matsumurana* Shiraki
- 21 (20) Hind tarsi, except the fifth segment, yellow. Western Siberia,
Western Sayany. *C. flavipes* (Panzer, 1798)
- 22 (17) Basal half of femora black.
- 23 (32) Arista bare.
- 24 (29) Scutellum with black bristles or bristly hairs on hind rim.
- 25 (28) Third antennal segment bright orange or brownish orange,
somewhat darkened above. Wing hyaline.
- 26 (27) Third antennal segment very large (fig. 85 C), bright orange,
hind parts of tergites II and III with adpressed black hairs.
C. pagana (Meigen)
- 27 (26) Third antennal segment moderately large (fig. 85 A), brownish
orange, abdomen white-haired. Southern Pacific coastal region.
C. pollinosa Becker, 1894
- 28 (25) Third antennal segment black or dark brown, wing much
infuscated. *C. nox* Stackelberg
- 29 (24) Scutellum without black bristles or bristly hairs on hind rim.
- 30 (31) Genae very broad, third antennal segment squarish above at tip
(fig. 85 D). *C. zinovievi* Stackelberg
- 31 (30) Genae normal, third antennal segment oval, not squarish above
at tip (fig. 85 A). *C. pollinosa* Becker
- 32 (23) Arista with very short or well-developed pubescence.
- 33 (38) Central prominence of face broad, occupying the whole median
part of the face, broadly rounded when seen from above.
- 34 (35) Top half of scutellum yellow.
C. scutellata (Fallen)
- 35 (34) Scutellum black.
- 36 (37) Sides of thorax glittering-shining, third antennal segment
yellow. *C. posjetica* Barkalov
- 37 (36) Sides of thorax dulled (sometimes only in part - the rest then
shining) by grey dusting, third antennal segment brown.
C. josankeiana Shiraki
- 38 (33) Central prominence of face narrower, pointed at tip.
- 39 (42) Third antennal segment and scutellum black.
- 40 (41) Third antennal segment large, oval (fig. 85 B), wing strongly
infuscated. *C. nox* Stackelberg
- 41 (40) Third antennal segment small, pointed towards tip (fig. 85 E),
wing hyaline. Smaller: 5.5-8 mm. Western Siberia, Tuva.
C. mutabilis (Fallen, 1817)
- 42 (39) Third antennal segment all brownish or brownish below,
scutellum with yellow or brown tip.
C. longula (Zetterstedt)

GROUP B

Both sexes

- 1 (36) Arista bare or with short pubescence. CHEILOSIA (s. str.)
- 2 (21) Wing hyaline, sometimes infuscated on the top or all brownish. Body with sparser and shorter hairs. Does not resemble bumblebees.
- 3 (10) Third antennal segment black.
- 4 (5) Genae broad, arista short, less than 1.5 the length of the antennae; in the ♂ the black bristles on the hind rim of scutellum shorter than the scutellum itself, in the ♀ the bristles are less than half the length of the scutellum. Hypopygium as in fig. 86 A. 8.5-10 mm. Western Siberia.
C. honesta Rondani, 1868
- 5 (4) Genae relatively narrow, arista more than 1.5 times the length of the antennae; in the ♂ the black bristles or bristly hairs on the hind rim of the scutellum are longer than the scutellum, in the ♀ these bristles are more than half the length of the scutellum.
- 6 (9) Legs mainly black, at most basal third of fore and mid tibiae brownish red. Upper part of hypandrium with a narrow pointed anterior process (fig. 86 B).
- 7 (8) Wing obviously infuscated; in the ♂ there are 10-14 stout black bristles on the hind rim of the scutellum, in the ♀ 6-8. Hypopygium as in fig. 86 B. Larger: 10-12 mm. Western Siberia.
C. variabilis (Panzer, 1798)
- 8 (7) Wing hyaline or somewhat brownish; in the ♂ there are numerous particularly long black bristles on the hind rim of the scutellum, in the ♀ 10-12 black or black-and-yellow bristles. Hypopygium as in fig. 86 C. Smaller: 8.2-9.5 mm. Kamchatka, Chukotka.
C. kamtschatica Hellen, 1930
- 9 (6) Fore and mid tibiae reddish yellow with a broad black ring in the middle. Hypopygium as in fig. 86 E. 9-11 mm. Western Siberia.
C. conops Becker, 1894
- 10 (3) Third antennal segment red-orange, at least so on the basal half, if the third antennal segment is reddish brown the frons of the ♂ is extended and covered with dense grey dusting.
- 11 (14) Third antennal segment elongate, about 1.5-2 times longer than deep.
- 12 (13) Femora yellow. Hypopygium as in fig. 86 D. 9-9.5 mm. Kunashir I.
C. aterrima Sack, 1927
- 13 (12) Femora black with yellow tip. Hypopygium as in fig. 86 F. 6.5-7.5 mm. Southern Pacific coastal region.
C. ussuriana Barkalov, 1980
- 14 (11) Third antennal segment broadly oval, almost circular.
- 15 (16) Face hairy in the upper part only, near the genae. Dorsum of thorax with black pile. Hypopygium as in fig. 86 G. 6-7.3 mm.

- Pacific coastal region. *C. mutini* Barkalov (in litt.)
- 16 (15) Face hairy all over, or below the central prominence only. Dorsum of thorax with light hairs only or with light and black hairs mixed.
- 17 (18) Frons of the ♂ moderately swollen, eyes set in an angle that is obviously less than 90°. Eyes of the ♀ bare or with fine and sparse hairs on the upper part only. Hypopygium as in fig. 86 H. 7.8-8.5 mm. Western Siberia.
- C. intonsa* Loew, 1857
- 18 (17) Frons of the ♂ much swollen, eyes set in an angle that is about 90° or more. Eyes of the ♀ uniformly hairy.
- 19 (20) Frons and face covered with grey dusting. Face near the median tubercle 1.5-2 times broader than one eye. Hypopygium as in fig. 86 I. 7-10.5 mm. All Siberia.
- C. sapporensis* Shiraki, 1930
- 20 (19) Face and frons shining, face near the median tubercle 2.5-3 times broader than one eye. Hypopygium as in fig. 87 A. 6.7-8 mm. Altay, Yakutia.
- C. scanica* Ringdahl, 1937
- 21 (2) Wing with a dark median cloud, body with dense long pile. Resembles bumblebees.
- 22 (29) Eyes meet on frons: ♂♂.
- 23 (24) Tergite III with light hairs only. All femora, except the tips, with white hairs. Frons and face with dense dusting. 9.5-14 mm. All Siberia.
- C. motodomariensis* Matsumura, 1916
- 24 (23) Tergite III at least on the sides with a few black hairs; if these are lacking then on the femora a large number of black hairs with the white ones. Frons and face with relatively weak dusting.
- 25 (28) Face with white, or black and white hairs, more rarely bare. The pilosity on tergites I and II always coloured different from the hairs on tergites IV and V. Mainly light hairs on the legs.
- 26 (27) Tergites I-II largely white-haired, tergite III with black hairs only or with white and some black hairs, tergites IV-V red-haired. Face with relatively sparse hairs or bare. Hypopygium as in fig. 90 G. 10-13.8 mm. Western Siberia, West-Sayany.
- C. illustrata illustrata* (Harris, 1776)
- 27 (26) The whole abdomen (except for inconsiderable parts of tergite III, which are black-haired) with orange pile. Face always with dense woolly hairs. 10.5-13.5 mm. ? Pacific coastal region, Kamchatka.
- C. illustrata magnifica* Hellen, 1930
- 28 (25) Face black-haired. Tergites I-II and IV-V with white pile, on tergites IV-V often mixed with black hairs. Legs with black hairs, fore femur with long hairs of mixed colours. Hypopygium as in fig. 87 B. 10.5-11 mm. The islands Sakhalin and Kunashir, ? Kamchatka.
- C. eurodes* Shiraki, 1930
- 29 (22) Eyes separated by part of the frons: ♀♀.
- 30 (33) Abdomen with dense long erect hairs of approximately the same length.
- 31 (32) Tergite III, at least on the sides, with some black hairs. Face either bare or with relatively sparse hairs.

- C. illustrata illustrata* (Harris)
- 32 (31) Tergite III with light hairs only, without any black ones. Face always with dense pile. *C. illustrata magnifica* Hellen
- 33 (30) Abdomen with long erect hairs on the side margins, short adpressed or semi-adpressed hairs in the middle.
- 34 (35) Abdomen with unicolourous pile. Larger: 11-14 mm.
- C. motodomariensis* Matsumura
- 35 (34) Abdomen with light hairs on the side margins and black hairs in the middle. Smaller: 9.5-10.7 mm.
- C. eurodes* Shiraki
- 36 (1) Arista plumose. Hypopygium as in fig. 95 C. 8.5-9 mm. Southern Pacific coastal region, the islands Sakhalin and Kunashir.
- C. (Endoiasimyia) formosana* (Shiraki, 1932)

GROUP C

Males

- 1 (54) Face moderately projected forward and downward (fig. 83 C), eye margins less than half the width of third antennal segment; if the face is unusually prolonged forward (fig. 83 D) and the eye margins are 2.3 times narrower than the third antennal segment, then hind femora yellow at the base.
- 2 (19) Frons with dense silver grey dusting (sometimes less dense towards the median groove).
- 3 (10) Third antennal segment black (if reddish brown, then the wing with obvious brown cloud and tergite III with erect black pile).
- 4 (7) Wing with a dark cloud across the middle.
- 5 (6) Tergite III without black hairs; all femora white-haired except at the tips. 9.5-14 mm. All Siberia.
- C. motodomariensis* Matsumura
- 6 (5) Tergite III with at least a few black hairs on the sides, all femora with a large number of black hairs among the others. Hypopygium as in fig 90 G. 10-13.8 mm. Western Siberia, Western Sayany. *C. illustrata illustrata* (Harris)
- 7 (4) Wing clear.
- 8 (9) Eyes and tip of abdomen with black pile. Hypopygium as in fig. 87 C. 11-12 mm. Western Siberia.
- C. grossa* (Fallen, 1817)
- 9 (8) Eyes and abdomen white-haired. Hypopygium as in fig. 87 D. 6.5-9.3 mm. Southern Pacific coastal region.
- C. pollinata* Barkalov, 1982
- 10 (3) Third antennal segment orange yellow or brownish red (if third antennal segment is black, reddish orange at the base, then the wing is hyaline).
- 11 (12) Third antennal segment black or dark brown and reddish orange at the base. Smaller: 6.5-9.3 mm. See couplet 9.
- C. pollinata* Barkalov

- 12 (11) Third antennal segment bright orange, yellow or brownish red. Larger: 9-12 mm.
- 13 (16) Surstyli greatly lengthened (fig. 87 G). Third antennal segment often squarish above at tip.
- 14 (15) Face shining, without dusting; thoracic dorsum and abdomen with bright orange pile. Hypopygium as in fig. 87 E. 9-11 mm. Western Siberia, Cis-Baikal.
C. chrysocoma (Meigen, 1822)
- 15 (14) Face with silvery grey dusting; thoracic dorsum and abdomen yellow-haired. Hypopygium as in fig. 87 G. 11-12 mm. Altay, Cis-Baikal, Yakutia. *C. zmilampis* Violovitsh, 1975
- 16 (13) Surstyli not at all or only little elongate (fig. 88 A). Third antennal segment not squarish above at tip.
- 17 (18) Face broad, much widening below. Arista bare (fig. 85 H). Hypopygium as in fig. 87 F. 9-11.5 mm. Sakhalin I.
C. subalbipila Violovitsh, 1956
- 18 (17) Face narrow, not much widening below. Arista pubescent (fig. 85 I). Hypopygium as in fig. 87 H. 7.5-11.5 mm. Southern Siberia from Altay to Pacific coastal region, Kamchatka, the islands Kunashir and Shikotan. *C. annulifemur* Stackelberg, 1930
- 19 (2) Frons shining, without dusting or with narrow patches of dusting along the eye-rims.
- 20 (27) Antennae black.
- 21 (22) Thoracic dorsum with yellow pile. Hypopygium as in fig. 88 A. 9-10.5 mm. Western Siberia, Cis-Baikal.
C. alpina (Zetterstedt, 1838)
- 22 (21) Thoracic dorsum with black pile or with a mixture of yellow and black hairs.
- 23 (24) Thoracic dorsum black-haired. Hypopygium as in fig. 88 B. 10-11 mm. Altay. *C. balu* Violovitsh, 1966
- 24 (23) Thoracic dorsum with mixed black and yellow pile.
- 25 (26) Body black with bluish sheen. Abdomen slender, with parallel margins. Hypopygium as in fig. 88 C. 11-12 mm. Sakhalin I., Kuril Isles. *C. urakawensis* Shiraki, 1930
- 26 (25) Body black with greenish tinge. Abdomen oval. Hypopygium as in fig. 88 D. 10-11 mm. ? North-west Siberia.
C. montana Egger, 1860
- 27 (20) At least the third segment of antennae reddish yellow below.
- 28 (35) Eyes with black or dark brown pile (when seen at high magnification).
- 29 (30) Thoracic dorsum with longitudinal stripes of grey dusting, arista thinly but obviously hairy. Hypopygium as in fig. 88 F. 11-14 mm. The islands Sakhalin and Kunashir.
C. japonica Hervé-Bazin, 1914
- 30 (29) Thoracic dorsum shining, without stripes of grey dusting; if there are traces of such stripes then the arista is bare.
- 31 (32) Eye-margins with dense grey dusting (when seen in profile). Hypopygium as in fig. 88 G. 9-12.8 mm. Altay, Cis-Baikal, Pacific coastal region, Sakhalin I.
C. sichotana Stackelberg, 1930

- 32 (31) Eye-margins not at all, or only weakly dusted.
- 33 (34) The right hand process on the superior part of the hypandrium bent sharply inward. Aedeagus and surstyli as in fig. 87 I. 8-11 mm. Western Siberia, Cis-Baikal.
C. albipila Meigen, 1838
- 34 (33) The right hand process on the superior part of the hypandrium gradually and evenly bent inward. Aedeagus and surstyli as in fig. 89 A. 9-11 mm. Western Siberia.
C. chloris (Meigen, 1822)
- 35 (28) Eyes with light-coloured hairs.
- 36 (37) Eye-margins broader than the width of the third antennal segment. Hypopygium as in fig. 88 E. 7-11.5 mm. Western Siberia, Cis-Baikal. *C. flavipes* (Panzer, 1798)
- 37 (36) Eye-margins narrower than the width of the third antennal segment.
- 38 (43) Third antennal segment squarish above at tip (fig. 85 J).
- 39 (40) Thoracic dorsum and abdomen with dense bright orange pile. Surstyli long and straight, without longitudinal keel (fig. 87 E). See couplet 14. *C. chrysocoma* (Meigen)
- 40 (39) Thoracic dorsum and abdomen with sparser yellow or whitish pile. Surstyli moderately long, with a longitudinal keel (fig. 89 D-G); if not keeled then strongly curved.
- 41 (42) Surstyli strongly curved, without a longitudinal keel. Aedeagus and top of hypandrium as in fig. 89 B. 7.5-10 mm. Western Siberia, Cis-Amur. *C. nudiseta* Becker, 1894
- 42 (41) Surstyli only slightly bent, with longitudinal keel. Aedeagus and top of hypandrium as in fig. 89 C. 8.3-10.8 mm. Western Siberia, Yakutia, Oblast Magadan.
C. gorodkovi Stackelberg, 1963
- 43 (38) Third antennal segment not squarish above at tip, oval or round (as in fig. 85 K).
- 44 (45) Central prominence of the face with a small knob. Tarsi yellow. Hypopygium as in fig. 89 D. 11-13 mm. Altay, Cis-Baikal.
C. canicularis (Panzer, 1801)
- 45 (44) Central prominence of the face simple. At least the fifth tarsal segment black.
- 46 (47) The right hand process on the upper part of the hypandrium considerably broader than the left, sharply bent inward (fig. 87 I). See couplet 33. *C. albipila* Meigen
- 47 (46) The right hand process on the upper part of the hypandrium narrower than or of the same width as the left, not sharply bent inward (fig. 89 E).
- 48 (49) Sternite III with adpressed black hairs in the middle. The lateral processes on the upper part of the hypandrium of equal length and sclerotised to the same degree. Aedeagus and surstyli as in fig. 89 E. 10-13 mm. Western Siberia, ? Cis-Baikal.
C. pictipennis Egger, 1860
- 49 (48) Sternite III in the middle with yellow or yellow and black erect hairs. The left hand process on the upper part of the hypandrium is obviously broader and more sclerotised than the right.

- 50 (51) The left hand process on the upper part of the hypandrium is longer than the right, at the top without a tooth or with a barely marked tooth. Aedeagus and surstyli as in fig. 89 G. 8.5-11 mm. Altay, Northern West-Siberia.
C. lutea Barkalov, 1979
- 51 (50) The left hand process on the upper part of the hypandrium is shorter than the right, at the top with a marked tooth (fig. 88 A).
- 52 (53) The apical part of the aedeagus with a sharply marked asymmetrical process on the top. Surstyli and upper part of the hypandrium as in fig. 89 F. Southern Pacific coastal region.
C. edashigei Shiraki, 1930
- 53 (52) The apical part of the aedeagus with a symmetrical process on the top. Surstyli and upper part of the hypandrium as in fig. 88 A. See couplet 21. *C. alpina* (Zetterstedt)
- 54 (1) Face strongly projected forward and downward (fig. 83 E). Eye-margins more than 2.5 times narrower than the third antennal segment; if eye-margins are twice as narrow as the third antennal segment, then the face is extended to the fore conically.
- 55 (56) Antennae black. Hypopygium as in fig. 90 A. 9-11 mm. The islands Kunashir and Shikotan.
C. longiptera Shiraki, 1968
- 56 (55) Antennae yellow or reddish brown.
- 57 (58) Wing hyaline. Hypopygium as in fig. 90 C. 7-8 mm. Cis-Amur, Southern Pacific coastal region.
C. conifacies Stackelberg, 1963
- 58 (57) Wing with a dark cloud across the middle.
- 59 (60) Thoracic dorsum with long dense orange yellow hairs. Hypopygium as in fig. 90 B. Larger: 13-16 mm. Cis-Amur, Southern Pacific coastal region. *C. sachtlebeni* Stackelberg, 1963
- 60 (59) Thoracic dorsum with shorter and sparser light yellow or white hairs. Smaller: 9-11 mm. See couplet 52.
C. edashigei Shiraki

Females

- 1 (54) Face moderately projected forward and downward. Eye-margins wide or moderately wide.
- 2 (19) Wing with a dark cloud across the middle.
- 3 (4) Tergite III, at least at the sides, with black pile.
C. illustrata illustrata (Harris)
- 4 (3) Tergite III uniformly light-haired.
- 5 (18) Foremost part of thoracic dorsum shining, without grey dusting.
- 6 (9) Third antennal segment black.
- 7 (8) Fore and middle tarsi for a large part reddish yellow or reddish brown. *C. alpina* (Zetterstedt)
- 8 (7) All tarsi black. *C. montana* Egger
- 9 (6) Third antennal segment brown red or orange.

- 10 (13) Third antennal segment squarish above at tip (fig. 85 J).
Thoracic dorsum and abdomen with dense bright orange pile.
- 11 (12) Third antennal segment bright orange, hairs on the abdomen of
approximately the same length.
C. chrysocoma (Meigen)
- 12 (11) Third antennal segment brown red, the hairs on tergite II
obviously longer than on the other tergites.
C. zmilampis Violovitsh
- 13 (10) Third antennal segment rounded apically. Thoracic dorsum and
abdomen with sparser golden yellow or white pile.
- 14 (17) Face near antennal sockets 2.5 times narrower than the total
width of the head, frons shining; thoracic dorsum with erect
golden yellow pile.
- 15 (16) Third antennal segment orange yellow.
C. pictipennis Egger
- 16 (15) Third antennal segment brown red.
C. lutea Barkalov
- 17 (14) Width of frons at antennal sockets three times less than width
of head, frons with grey dusting along eye-rims; thoracic
dorsum with semi-addressed white pile.
C. edashigei Shiraki
- 18 (5) Anterior part of thoracic dorsum with dense silvery grey
dusting. *C. motodomariensis* Matsumura
- 19 (2) Wing hyaline without dark median cloud, yellowish on the basal
part or uniformly and weakly infuscated.
- 20 (21) Eyes with dense long black pile.
C. grossa (Fallen)
- 21 (20) Eyes with light-coloured pile, if the eyes are covered with
brown hairs, then these are short and sparse.
- 22 (29) Third antennal segment squarish above at tip (fig. 85 F).
- 23 (26) Third antennal segment dark brown, sometimes orange
ventrally.
- 24 (25) Face with dense dusting. Larger: 11.8-12.3 mm.
C. zmilampis Violovitsh
- 25 (24) Face without dusting, shining. Smaller: 8.2-9.8 mm.
C. gorodkovi Stackelberg
- 26 (23) Third antennal segment bright orange.
- 27 (28) Hind femur black-haired inside towards the tip.
C. chrysocoma (Meigen)
- 28 (27) Hind femur yellow-haired. *C. subalbipila* Violovitsh
- 29 (22) Third antennal segment not squarish above at tip, oval or round
(fig. 85 I).
- 30 (31) All tarsi orange yellow, sometimes the first segment of fore
and hind tarsi brown dorsally.
C. canicularis (Panzer)
- 31 (30) Tarsi darker, at least the fifth segment black.
- 32 (35) Hind femur, at least near the base, yellow.
- 33 (34) Eye-margins shining, not or hardly dusted. Frons near antennal
sockets 2.5 times narrower than the head.
C. albipila Meigen

- 34 (33) Eye-margins heavily grey pollinose. Frons near antennal sockets three times narrower than the head.
C. annulifemur Stackelberg
- 35 (32) Hind femur black near the base.
- 36 (41) Third antennal segment black.
- 37 (38) Frons with dense silvery grey dusting. See couplet 47.
C. pollinata Barkalov
- 38 (37) Frons shining, not pollinose.
- 39 (40) Thoracic dorsum with erect hairs.
C. balu Violovitsh
- 40 (39) Thoracic dorsum with adpressed hairs.
C. urakawensis Shiraki
- 41 (36) Third antennal segment orange red, at least near the base.
- 42 (45) Arista with short, but distinct pubescence (seen at high magnification): fig. 85 G.
- 43 (44) Eye-margins narrow, less than $1/3$ the width of third antennal segment.
C. edashigei Shiraki
- 44 (43) Eye-margins normal, clearly more than $1/3$ the width of third antennal segment.
C. japonica Hervé-Bazin
- 45 (42) Arista bare: fig. 85 J.
- 46 (49) Thoracic dorsum, at least on posterior half, with adpressed and semi-adpressed pile.
- 47 (48) Frons on the anterior part and at the sides with silvery grey dusting. Southern Pacific coastal region.
C. pollinata Barkalov
- 48 (47) Frons shining, undusted. Western Siberia.
C. chloris (Meigen)
- 49 (46) Thoracic dorsum with erect hairs.
- 50 (53) Face covered with silvery grey dusting, thoracic dorsum with golden or orange pile.
- 51 (52) Abdomen wholly covered with orange pile, the hairs on the sides of tergites I and II not much longer than the hairs on the other parts of these tergites.
C. subalbipila Violovitsh
- 52 (51) The sides of tergites I and II with long orange hairs; the hairs on the other parts of these tergites much shorter and light yellow.
C. alpina (Zetterstedt)
- 53 (50) Face shining, thoracic dorsum with white or light yellow pile.
C. sichotana Stackelberg
- 54 (1) Face strongly projected forward and downward. Eye-margins narrow.
- 55 (56) Antennae black. Wing without dark median cloud.
C. longiptera Shiraki
- 56 (55) Antennae orange yellow or reddish brown. Wing with dark median cloud.

- 57 (58) Thoracic dorsum with very dense erect yellow pile. Larger: 11.5-15 mm. *C. sachtlebeni* Stackelberg
 58 (57) Thoracic dorsum with more sparse semi-adpressed light yellow pile, on the posterior part mixed with black hairs. Smaller: 9.8-10.5 mm. *C. edashigei* Shiraki

GROUP D

Males

- 1 (16) Eyes with black hairs on the upper half.
 2 (7) Larger: 10-14 mm. If somewhat smaller than 10 mm, then third antennal segment black.
 3 (6) Third antennal segment orange red.
 4 (5) Eye-margins broad, frons with grey dusting, eyes with long hairs. Abdomen white-haired. Hypopygium as in fig. 90 F. 13-14 mm. The islands Sakhalin and Kunashir.
C. yesonica Matsumura, 1905
 5 (4) Eye-margins moderately broad, frons shining, eyes with short hairs. Abdomen orange-haired. Hypopygium as in fig. 88 F. 11-13 mm. The islands Moneron and Kunashir.
C. japonica Hervé-Bazin, 1914
 6 (3) Third antennal segment black. Hypopygium as in fig. 88 C. 10-12.5 mm. The islands Sakhalin and Kunashir.
C. urakawensis Shiraki, 1930
 7 (2) Smaller: 5-11 mm. If somewhat larger than 10 mm, then third antennal segment yellow.
 8 (11) Wing strongly infuscated.
 9 (10) Abdomen narrow with parallel sides. Hypopygium as in fig. 90 D. 9-10 mm. Western Siberia, Cis-Baikal.
C. carbonaria Egger, 1860
 10 (9) Abdomen broad, oval. Hypopygium as in fig. 90 E. 8-9.8 mm. All Siberia.
C. fraterna (Meigen, 1830)
 11 (8) Wing hyaline, somewhat brownish or yellowish on the basal part.
 12 (15) Abdomen with yellow pile, sometimes in the middle and along the margins mixed with a few black hairs.
 13 (14) Eyes meeting in an angle exceeding 90°. Larger: 7.8-11 mm. Hypopygium as in fig. 91 A. Western Siberia, Cis-Baikal.
C. melanura Becker, 1894
 14 (13) Eyes meeting in an angle less than 90°. Smaller: 4.2-7.2 mm. Hypopygium as in fig. 92 A. From the Urals to the southern Pacific coastal region. *C. vernalis* (Fallen, 1817)
 15 (12) At least tergite IV completely covered with black pilosity. Hypopygium as in fig. 91 B. 7-8 mm. Western Siberia.
C. cynocephala Loew, 1840
 16 (1) Eyes with light-coloured pile.

- 17 (20) Humeral calli yellow. Femora, at least on the basal parts and at the tips, yellow.
- 18 (19) Face strongly jutting forward and downward (fig. 93 B). Thoracic dorsum with short semi-addressed and long upstanding hairs. Hypopygium as in fig. 91 C. 8.5-11 mm. The islands Sakhalin and Kunashir.
C. nikkoensis Shiraki, 1968
- 19 (18) Face moderately jutting forward and downward (fig. 93 C). Thoracic dorsum with erect hairs of the same length. Hypopygium as in fig. 91 D. 6.5-8.8 mm. Southern Pacific coastal region.
C. tokushimaensis Shiraki, 1968
- 20 (17) Humeral calli black. Femora black or black with yellow tips.
- 21 (24) Legs black or only the middle segments of fore tarsi yellow.
- 22 (23) Median segments of fore tarsi yellow. Hypopygium as in fig. 91 E. 7.5-9 mm. Western Siberia.
C. albitarsis (Meigen, 1822)
- 23 (22) Tarsi all black. Hypopygium as in fig. 91 L. 5.9-8.8 mm. All Siberia.
C. impressa Loew, 1840
- 24 (21) At least tips of femora and tibiae at both ends yellow or reddish yellow.
- 25 (36) Segments 2-4 of fore and middle tarsi yellow.
- 26 (27) Fifth segment of tarsi yellow. Larger: 11-13 mm. Hypopygium as in fig. 89 D. Western Siberia, Cis-Baikal.
C. canicularis (Panzer, 1801)
- 27 (26) Fifth segment of tarsi black. Smaller: 5.5-9.5 mm.
- 28 (35) Frons with dense silver dusting.
- 29 (32) Thoracic dorsum and abdomen light-haired. Third antennal segment varying from orange red to dark brown.
- 30 (31) Third antennal segment long-oval, eye-angle less than 90°. Hypopygium as in fig. 91 F. 6-8.6 mm. From the Urals to the Pacific coastal region. *C. ruralis* (Meigen, 1822)
- 31 (30) Third antennal segment oval, almost circular, eye-angle 90° or more. Hypopygium as in fig. 91 G. 7.5-8.3 mm. Southern Pacific coastal region. *C. pollinosa* Becker
- 32 (29) Thoracic dorsum with black and yellow hairs mixed. Abdomen in the middle with black addressed pile.
- 33 (34) Face shining, weakly grey dusted, median tubercle placed low. Third antennal segment distinctly elongate. Thoracic dorsum with hairs of the same length on the posterior half. Hypopygium as in fig. 91 H. 5.5-8 mm. The southern part of Western Siberia, Tuva.
C. mutabilis (Fallen, 1817)
- 34 (33) Face densely silvery pollinose, median tubercle nearer to the middle of the face. Third antennal segment almost circular (fig. 94 A). Thoracic dorsum with short light and longer black hairs on the posterior half. Hypopygium as in fig. 91 I. 8.7-9.5 mm. The islands Sakhalin, Kunashir, Shikotan and Yuriy.
C. iwawakiensis Shiraki, 1930
- 35 (28) Frons shining, undusted. Hypopygium as in fig. 89 F. 7-11 mm. Southern Pacific coastal region.
C. edashigei Shiraki, 1968

- 36 (25) Segments 2-4 of fore and middle tarsi black (sometimes only second and third segment of middle tarsi yellowish).
- 37 (46) Antennae black or brown black.
- 38 (39) Frons wholly shining. Larger: 9-11 mm. Hypopygium as in fig. 92 B. All Siberia. *C. gigantea* (Zetterstedt, 1838)
- 39 (38) Frons, at least along the eye-rims, with silvery dusting. Smaller: 6.5-9.5 mm.
- 40 (41) Frons completely densely dusted. Third antennal segment cut obliquely dorsally. Hypopygium as in fig. 87 D. 6.5-9.3 mm. Yakutia, southern Pacific coastal region.
C. pollinata Barkalov
- 41 (40) Frons only dusted along the eye-rims, shining in the middle (if frons is largely dusted then third antennal segment square).
- 42 (43) Central prominence of face broad and flat (fig. 93 D). Thoracic dorsum with unicolorous light pile on the disc, black pile along the margins. Hypopygium as in fig. 91 J. 6.5-9.5 mm. All Siberia.
C. velutina Loew, 1840
- 43 (42) Central prominence of face shaped like a nose (fig. 93 A). Thoracic dorsum with white hairs only, or with black-and-white pile.
- 44 (45) Face relatively strongly projected forward, the central prominence nearer to the mouth edge (fig. 93 A). See couplet 10.
C. fraterna (Meigen)
- 45 (44) Face weakly projected forward, central prominence placed centrally (fig. 93 E). Hypopygium as in fig. 91 K. 6-8.5 mm. From the Urals to Kamchatka. *C. proxima* (Zetterstedt, 1843)
- 46 (37) Third antennal segment yellow or brownish red.
- 47 (52) Frons completely covered with dense silvery grey dusting.
- 48 (51) Third antennal segment round, thoracic dorsum with hairs of the same length.
- 49 (50) Thoracic dorsum with light-coloured pile. 7.5-9.5 mm. Tuva.
C. morio (Zetterstedt, 1838)
- 50 (49) Thoracic dorsum with black pile. Hypopygium as in fig. 92 C. 7.2-7.7 mm. Trans-Baikal, Pacific coastal region.
C. convexifrons Stackelberg, 1963
- 51 (48) Third antennal segment elongate oval. Thoracic dorsum with short yellow and longer black hairs. See couplet 34.
C. iwawakiensis Shiraki
- 52 (47) Frons undusted, shining, or with a narrow band of dusting along the eye-rims.
- 53 (54) Median prominence of face broad and flattened (fig. 93 G). Thoracic dorsum with yellow hairs in the middle, black hairs at the sides. See couplet 42. *C. velutina* Loew
- 54 (53) Median prominence of face shaped like a nose. Thoracic dorsum in the middle with black pile, or with yellow and black hairs, or wholly with yellow pile.
- 55 (56) Thoracic dorsum black-haired. See couplet 23.
C. impressa Loew
- 56 (55) Thoracic dorsum with light-coloured hairs or mixed black and yellow pile.

- 57 (58) Facial tubercle in the middle of the face. Third antennal segment square. See couplet 38.
C. gigantea (Zetterstedt)
- 58 (57) Facial tubercle placed lower down (fig. 93 A). Third antennal segment rounded. See couplet 10.
C. fraterna (Meigen)

Females

- 1 (52) Femora all black, or black with a yellow tip.
- 2 (3) Legs all black or only the knees narrowly yellowish.
C. impressa Loew
- 3 (2) At least the tibiae at both extremities yellow or reddish brown.
- 4 (19) Third antennal segment black or dark brown.
- 5 (10) Eyes black-haired on upper half or at the sides (seen at high magnification).
- 6 (7) Wing yellow on basal part, with a brownish median cloud.
C. cynocephala Loew
- 7 (6) Wing hyaline or weakly infuscated all over.
- 8 (9) Larger: 9.5-11.8 mm. *C. urakawensis* Shiraki
- 9 (8) Smaller: 4.8-7.2 mm. *C. vernalis* (Fallen)
- 10 (5) Eyes with light hairs only.
- 11 (14) Third antennal segment oval (fig. 94 A,B). Face projected relatively strongly forward (fig. 93 F).
- 12 (13) The black bristles on the hind margin of scutellum longer than the scutellum itself. Smaller: 7.2-9.5 mm.
C. iwawakiensis Shiraki
- 13 (12) The black bristles on the hind margin of scutellum shorter than the scutellum. Larger: 9.5-11.8 mm.
C. urakawensis Shiraki
- 14 (11) Third antennal segment oval or somewhat squarish (fig. 94 C). Face moderately or only little projected forward (fig. 93 G).
- 15 (16) Facial tubercle broad and flattened (fig. 93 G). Face becoming only little narrower towards vertex.
C. velutina Loew
- 16 (15) Facial tubercle shaped like a nose. Frons becoming considerably narrower towards vertex.
- 17 (18) Scutellum with 10-12 robust black bristles on hind rim. Larger: 7.8-12.8 mm. *C. gigantea* (Zetterstedt)
- 18 (17) Scutellum with 6-8 robust black bristles on hind rim. Smaller: 6.5-8.5 mm. *C. proxima* (Zetterstedt)
- 19 (4) Third antennal segment yellow, brown red or dark with orange-red base.
- 20 (33) Median segments of tarsi yellow.
- 21 (22) Tarsi all yellow. *C. canicularis* (Panzer)
- 22 (21) At least fifth segment of tarsi black.
- 23 (26) Frons becoming considerably narrower towards vertex, its anterior part grey dusted.

- 24 (25) Face projected forward (fig. 93 H). Thoracic dorsum with erect pile. Wing uniformly but only slightly infuscated. Larger: 10.8-14 mm.
C. japonica Hervé-Bazin
- 25 (24) Face strongly projected downward. Thoracic dorsum with semi-addressed pile. Wing with dark median cloud. Smaller: 9-10 mm.
C. edashigei Shiraki
- 26 (23) Frons becoming only little narrower towards vertex, its anterior part undusted.
- 27 (28) Eyes with black hairs on the upper part.
C. melanura Becker
- 28 (27) Eyes with light coloured hairs.
- 29 (30) Third antennal segment elongate oval (fig. 94 D).
C. ruralis (Meigen)
- 30 (29) Third antennal segment round (fig. 94 B).
- 31 (32) Scutellum at the hind rim with long black bristles, which are longer than the scutellum itself.
C. iwawakiensis Shiraki
- 32 (31) Scutellum at the hind rim with short black bristles, which are obviously shorter than the scutellum itself.
C. fraterna (Meigen)
- 33 (20) Median segments of tarsi black or dark brown, or first two segments of fore and middle tarsi yellow.
- 34 (35) Eye-margins very broad, their width obviously exceeding half the width of third antennal segment.
C. yesonica Matsumura
- 35 (34) Eye-margins moderately broad, their width obviously less than half the width of third antennal segment.
- 36 (41) Eyes black-haired on upper part or at sides.
- 37 (38) Wing intensely infuscated. Abdomen reaching its maximum width at the hind margin of tergite III.
C. carbonaria Egger
- 38 (37) Wing hyaline or slightly infuscated. Abdomen reaching its maximum width at hind margin of tergite II.
- 39 (40) Eyes with relatively long pile. Larger: 7.5-9.5 mm.
C. melanura Becker
- 40 (39) Eyes with short pile. Smaller: 4.8-7.2 mm.
C. vernalis (Fallen)
- 41 (36) Eyes with light hairs on upper part and at sides.
- 42 (43) Anterior half of frons with dense grey dusting and very short black hairs. Thoracic dorsum for the greatest part black-haired.
C. convexifrons Stackelberg
- 43 (42) Frons undusted, pilosity on frons and thoracic dorsum relatively long, light-coloured or with some black hairs among the light ones.
- 44 (45) Central prominence of face broad and flattened (fig. 93 G). Lunula dark brown or black.
C. velutina Loew
- 45 (44) Central prominence of face shaped like a nose (fig. 93 F). Lunula light brown.

- 46 (51) Central prominence of face placed nearer to mouth edge (fig. 93 F). Thoracic dorsum with erect hairs.
- 47 (48) Arista short, obviously thicker in the middle. Frons near antennal sockets broader than one eye.
C. morio (Zetterstedt)
- 48 (47) Arista long, thickened at the base and then gradually getting thinner towards the tip. Frons near antennal sockets narrower than one eye.
- 49 (50) Bristles on the hind margin of scutellum longer than scutellum.
C. iwawakiensis Shiraki
- 50 (49) Bristles on the hind margin of scutellum shorter than scutellum.
C. fraterna (Meigen)
- 51 (46) Facial tubercle nearer to the middle of the face. Thoracic dorsum with adpressed hairs.
C. impressa Loew
- 52 (1) Femora at least at both extremities yellow.
- 53 (54) Third antennal segment black, arista with obvious hairs.
C. nikkoensis Shiraki
- 54 (53) Third antennal segment orange yellow, arista almost bare.
C. tokushimaensis Shiraki

8. PORTEVINIA Goffe, 1944

Type species of the genus: *Eristalis maculatus* Fallen, 1817.

- 1 (2) Thoracic dorsum with dense grey dusting and black hairs. Hypopygium as in fig. 95 A. 7-7.5 mm. Altay, Tuva, South-Buryatia.
P. altaica (Stackelberg, 1925)
- 2 (1) Thoracic dorsum without grey dusting and white-haired. Hypopygium as in fig. 95 B. 6.3-7.5 mm. Southern Pacific coastal region.
P. dispar (Hervé-Bazin, 1929)

9. PSAROCHILOSIA Stackelberg, 1952

Type species of the genus: *Psarochilosia djakonovi* Stackelberg, 1952.

Frons with dense whitish grey dusting and sparse fairly long adpressed white hairs, the small median pit reddish brown. Ocelli arranged in a sort of isosceles triangle. Face shining black, bare, with some weak greyish dusting at the sides. Eye-margins broad, developed over 2/3 of the height of the face, strongly punctate and with moderately long white hairs. Third segment of antennae reddish brown. Thoracic dorsum and scutellum with short semi-adpressed yellowish white pile. Sides of thorax shining black, with light hairs in the middle,

the hind margin of the mesopleuron with two black bristles. Wing almost hyaline, stigma somewhat darkened. Haltere white. Abdomen of the ♂ with round reddish brown spots occupying the larger part of tergites II and III. Legs black, tips of femora, the basic 1/4-1/3 and the tips of the tibiae reddish yellow. Abdomen orange red, tergite I, the fore margin of tergite II and a narrow band along the side margins of tergites II-V black (fig. 97 D). 6.5-8 mm. Southern Pacific coastal region.

P. djakonovi Stackelberg, 1952

10. FERDINANDEA Rondani, 1844

Type species of the genus: *Conops cuprea* Scopoli, 1763 (Rondani, 1856).

- 1 (2) Frons brown yellow, semi-transparent, with a narrow band of golden dusting along eye-rims. Arista brown. Ocellar triangle equilateral. Thoracic dorsum black with four broad longitudinal stripes of silvery grey dusting and at least four long and strong bristles in front of the fore margin of the scutellum. Abdomen with a golden sheen with dullish narrow black bands along the hind margins of tergites II and III (fig. 98 A-E), long dense (especially on tergites IV and V) golden pile. 10-13 mm. Western Siberia, southern Pacific coastal region.
F. cuprea (Scopoli, 1763)
- 2 (1) Frons dark brown to black, not transparent, in the ♂ with a narrow band of silvery grey dusting along the eye-rims, in the ♀ with a broad band of dusting on the superior part. Arista brownish yellow. Ocelli arranged in an isosceles triangle. Thoracic dorsum black with four narrow longitudinal stripes of silvery grey dusting; no strong bristles in front of scutellum; if there are some bristles there, they are hardly visible: fine and relatively short. Abdomen black, shining, with metallic reflection and less shining bands along the hind margins of tergites II and III (fig. 98 F-G). 10-12 mm. Altay, Tuva, Cis-Baikal, Cis-Amur, Pacific coastal region, Kamchatka.
F. ruficornis (Fabricius, 1775)

11. CALLICERA Panzer, 1809

Type species of the genus: *Bibio aenea* Fabricius, 1777.

Frons and face shining black, frons bare, face with long golden hairs at the sides. Antennae long (almost twice the length of the head), black with white arista shaped like a style implanted at the tip. Median prominence of face weakly developed, sloping, the excavation below antennae hardly noticeable. Eyes with dense long dark hairs, the eyes in the ♂ meeting for a

distance which obviously exceeds height of frons. Thoracic dorsum black, shining, with long woolly light yellow hairs and an inconsiderable number of yellow hairs, in the middle of the anterior part hardly visible grey dusted longitudinal stripes. Scutellum black, shining, with dense woolly light yellow pile and a very typical dense fringe of short golden hairs on the hind margin. Legs brownish yellow, coxae, trochanters and the basic 2/3-3/4 of femora dark brown to black. Haltere orange yellow. Abdomen black, strongly shining, with conspicuous bronze sheen, covered with long dense golden yellow pile. Tergite I shining black, the anterior part of tergite II largely dull black (fig. II and 134). 11-14.5 mm. Tuva, Sayany, Cis-Baikal, Cis-Amur, southern Pacific coastal region, Sakhalin I.

C. aenea (Fabricius, 1777)

12. CHRYSOGASTER Meigen, 1803

Type species of the genus: *Musca cemiteriorum* Linnaeus, 1758.

- 1 (6) Antennae black or brown.
- 2 (3) Sides of thorax lightly grey dusted. Haltere yellow. Antennae black. Face of the ♂, except on central prominence and mouth edge, densely grey dusted. Frons moderately wide, tapering towards top, in the upper part about half the width of one eye, with hardly marked transverse grooves, on thoracic dorsum with relatively short pile with a number of longer erect light hairs. 8.5 mm. Sakhalin I.
C. pollinifacies Violovitsh, 1956
- 3 (2) Sides of thorax, except for propleuron and pleurotergite, shining black. Haltere dark, dark brown or black.
- 4 (5) Venter of ♂, at least sternite II, with long erect light hairs, thoracic dorsum and scutellum with relatively long black pile (seen from the front). Thoracic dorsum and scutellum of ♀ with short dense adpressed hairs. Wing obviously infuscated in the middle. 6-8 mm. From the Urals to Cis-Baikal.
C. macquarti Loew, 1843
- 5 (4) Venter of ♂ not with long erect light pile, thoracic dorsum and scutellum with very short black pile, often mixed with dark golden hairs, in the ♀ thoracic dorsum and scutellum with somewhat longer and denser pile, which is all golden. Dorsum of abdomen dull on the disc in both sexes. Wing in the ♂ brown with a dark brown, weakly delineated cloud in the middle of the fore margin, in the ♀ somewhat infuscated, without median cloud. Hypopygium as in fig. 100. 8-9 mm. Altay, Tuva.
C. stackelbergi Violovitsh, 1978
- 6 (1) Antennae yellow, more rarely reddish brown. Frons of ♂ large, strongly swollen, shining black with long black erect hairs on the upper part; width of frons at antennal sockets half as broad as the head. Eyes meeting in an obtuse angle (about 100°). Frons

of ♀ half as broad as the head, black, shining, curved, with two well-developed longitudinal grooves and 8-10 transverse grooves between the eye-rims and the longitudinal grooves. The median part of abdominal dorsum dull in both sexes. Wing somewhat infuscated. 6-9 mm. Western Siberia, Altay, Tuva, Sayany, Cis-Baikal, Cis-Amur.

C. chalybeata Meigen, 1822

13. LIOGASTER Rondani, 1857

Type species of the genus: *Chrysogaster tarsata* Meigen, 1822.

- 1 (2) Legs entirely bronze green, metallicly shining. Third antennal segment in the ♂ all dark, blackish brown to black. Width of vertex in the ♀ about 1/3 of width of head, frons at antennal sockets about half as broad as the head; third antennal segment circular, dark brown or black, reddish yellow ventrally near the base. Hypopygium as in fig. 107. 6-8.5 mm. From the Urals to the Pacific coastal region.

L. metallina (Fabricius, 1777)

- 2 (1) Legs black, at least fore and middle tarsi with the first three segments yellow. Third antennal segment in the ♂ orange yellow ventrally near the base. Width of vertex in the ♀ in proportion to width of head about 6 : 17, width of frons near antennal sockets in relation to width of head 7-7.5 : 17; third antennal segment oval, largely yellow with an orange sheen. Hypopygium as in fig. 99. 4.5-7 mm. Western and Central Siberia, Altay, Tuva, Cis-Baikal, southern Pacific coastal region, Kamchatka.

L. splendida (Meigen, 1822)

14. ORTHONEURA Macquart, 1829

Type species of the genus: *Chrysogaster elegans* Meigen, 1822

- 1 (16) Legs completely black.
- 2 (3) Scutellum trapezium-shaped, its width at the base about 1.5 times its length. Well-developed triangular spots of whitish grey dusting (consisting of microtrichae) on face. Thoracic dorsum with fine punctures and microscopic grooves. The top section of vein m sharply recurrent. Surstyli narrow, long, not widened at the bases (fig. 113). 6-7 mm. Cis-Baikal, Trans-Baikal.
- 3 (2) Scutellum of the usual crescent type with broadly rounded hind rim; its base more than 1.5 times its length.

O. recurrens (Loew, 1871)

- 4 (5) Height of frons about four times the length of the actual approximation of the eyes. Third segment of antennae about twice as long as deep (fig. 112). Body bronze green. 4.5-6 mm. Western Siberia, Altay, Tuva, Sayany.
O. nobilis (Fallen, 1817)
- 5 (4) Height of frons less than four times the distance the eyes actually touch.
- 6 (9) Third segment of antennae twice or more times as long as deep.
- 7 (8) Eyes in actual approximation for a distance that is about the same as the height of the frons. Third antennal segment about three times longer than deep (fig. 111). Body metallic green, dorsum of abdomen, except for the side margins, velvet black. 5 mm. Western and Central Siberia, Altay, Tuva, Sayany, Cis-Baikal, Cis-Amur. *O. ceratura* Stackelberg, 1952
- 8 (7) Height of frons about 1.5 times the distance the eyes actually touch. Third antennal segment 1.5-2 times as long as deep. Thoracic dorsum shining with numerous fine punctures, dorsum of abdomen dull. Wing with yellow base and yellow stigma. Surstyli long, narrow (fig. 104). 5.5-6 mm. Altay, Tuva, Cis-Baikal. *O. plumbago* Loew, 1843
- 9 (6) Third antennal segment 1.3 times as long as broad.
- 10 (11) Height of frons about three times the distance the eyes actually meet. Top section of vein m clearly recurrent. From the junction of vein m and vein r_{4+5} to the wing margin there is a distance which is a little more than three times the shortest distance between vein m and the wing margin. Hypopygium as in fig. 103. 6-6.5 mm. Tuva.
O. inundata Violovitsh, 1979
- 11 (10) Height of frons obviously shorter than three times the actual approximation of the eyes. Vein m only little recurrent.
- 12 (13) Upper half of frons and the ocellar triangle with coarse black hairs. Height of frons about twice the actual approximation of the eyes. Width of head about 2.7 times the width of the frons near the antennal sockets. Thoracic dorsum with very short, mainly dark, pile. Tip of wing largely infuscated (fig. 117). 6-7.5 mm. Sakhalin I. *O. sachalinensis* Violovitsh, 1956
- 13 (12) Frons and ocellar triangle whitish haired. Height of frons less than twice the actual approximation of the eyes.
- 14 (15) Width of frons near antennal sockets about three times the height of the ocellar triangle. Eyes meeting in an acute angle (somewhat less than 90°). Ocellar triangle only weakly rounded. The triangular whitish dust spots on the face narrow, reaching the mouth edge. Tip of aedeagus appearing three-lobed, owing to the well-developed apical process and two lateral processes (fig. 101). 5.5 mm. Tuva. *O. subincisa* Violovitsh, 1979
- 15 (14) Width of frons near antennal sockets about four times the height of the ocellar triangle. Eyes meeting in an obtuse angle. Ocellar triangle strongly rounded. The triangular whitish dust

spots on the face broad, short, isosceles, by far not reaching the mouth edge. Aedeagus showing the usual build-up of the genus, long with relatively narrow lateral processes which do not exceed tip of aedeagus (fig. 109). 6 mm. Tuva.

O. varga Violovitsh, 1979

- 16 (1) At least the knees yellowish brown or reddish brown.
 17 (20) Eyes with a brown transverse band. Third antennal segment about four times as long as deep.
 18 (19) Tibiae all reddish yellow. Vein r_{2+3} with an appendix (fig. 114). The top section of vein m and transverse vein ta with narrow brown hems. Wing slightly brownish infuscated. 5 mm. Cis-Amur, southern Pacific coastal region.

O. karumaiensis (Matsumura, 1916)

- 19 (18) Tibiae largely black. Vein r_{2+3} without appendix. Top section of vein m and transverse vein ta without brown hems. Body, legs included, bronze green. Vein m showing a weak S-shaped curve, recurrent, the distance from the junction of vein m and vein r_{4+5} to the wing margin three times the shortest distance between vein m and the wing margin (fig. 110). 5-6 mm. All Siberia.

O. elegans (Meigen, 1822)

- 20 (17) Eyes without transverse band.
 21 (22) Third antennal segment about three times (or more) as long as deep. Body bronze green. Top section of vein m nearly straight or slightly recurrent. Aedeagus and surstyli as in fig. 105. 5-7 mm. Western Siberia, Cis-Baikal, Yakutia, Cis-Amur, Pacific coastal region, Sakhalin I., Kamchatka.

O. intermedia Lundbeck, 1916

- 22 (21) Third antennal segment 2.5 times longer than deep.
 23 (26) Eyes in actual approximation for a very short stretch, less than 1/4 the height of frons.
 24 (25) Hind tarsi all black. Knees and bases of tarsi narrowly yellowish brown. Surstyli long, narrow, curved like a sickle, with similar margins (fig. 102), relatively sparsely pilose. 5-6 mm. Western and Central Siberia, Tuva, Cis-Baikal, Cis-Amur, Kamchatka.

O. erythrogonia Malm, 1863

- 25 (24) At least one segment of hind tarsi reddish brown. Knees, tips of tibiae and at least one segment of the tarsi yellowish brown. Surstyli relatively broad, but the top third narrow, not curved (fig. 116), with numerous hairs. 6 mm. Western Siberia, Tuva.

O. vagabunda Violovitsh, 1979

- 26 (23) Eyes meeting for a considerable distance, height of frons not more than 2-2.5 times this distance.
 27 (28) Cross-vein ta with narrow brown hems, wing stigma darkened basally. Frons, face, sides of thorax, scutellum and the dark parts of the legs with bright greenish reflection. Aedeagus of the customary shape for this genus (fig. 115). 5-6 mm. Western Siberia, Tuva, Cis-Baikal, Trans-Baikal, Yakutia, Cis-Amur.

O. geniculata Meigen, 1830

- 28 (27) Cross-vein ta without brown hems, wing stigma not darkened. Frons, face, sides of thorax, scutellum and the dark parts of the legs with bright bluish sheen. Aedeagus of intricate construction with very large side processes (fig. 108). 5 mm. Western Siberia. *O. gemmula* Violovitsh, 1979

Females

- 1 (6) Legs uniformly black.
- 2 (3) The greater part of the frons (excepting the shining black transverse band above the antennae) with bright bronze sheen. Frons at the sides with four pairs of deep transverse grooves. Width of head about four times width of vertex near the hind corners of the eyes. *O. nobilis* (Fallen)
- 3 (2) Frons shining black, without bronze hue. Head about three times as broad as vertex at hind corners of the eyes.
- 4 (5) Third antennal segment elongate oval, 1.5-2 times as long as deep. Frons with coarse punctuation, with deep transverse grooves at the sides. Tergite IV with a weak wart-like process in the middle of the hind margin, tergite V with a deep incision almost reaching the fore margin. *O. plumbago* Loew
- 5 (4) Third antennal segment elongate oval, 2.5-3 times as long as deep. Body metallic green. Dorsum of abdomen velvet black, dull. In the middle of tergite IV a tooth-shaped process, tergite V with a deep, acute triangular incision seemingly dividing the tergite. *O. ceratura* Stackelberg
- 6 (1) At least the knees yellow or brownish yellow.
- 7 (10) Third antennal segment 1.5-2 times as long as deep.
- 8 (9) Third antennal segment 1.5 times as long as deep, largely orange yellow below. First to third segments of fore and middle tarsi orange yellow. In the middle of tergite IV, considerably before hind margin, a distinct process. Body for a large part shining metallic with a bluish tinge, hairs light. 5 mm. Tuva. *O. tuvensis* Violovitsh, 1980
- 9 (8) Third antennal segment about twice as long as deep, uniformly black or reddish brown at the base. First to third segment of tarsi black. Hind margins of tergites IV and V simple, without incisions or processes. *O. erythrogonia* Malm
- 10 (7) Third antennal segment more than 2.5 times as long as deep.
- 11 (12) Tibiae all yellow. Vein r_{2+3} with an appendix near the tip. *O. karumaiensis* (Matsumura)
- 12 (11) At least apical half of tibiae black. Vein r_{2+3} without appendix.
- 13 (14) Eyes with transverse band. Third antennal segment about four times as long as broad. *O. elegans* (Meigen)
- 14 (13) Eyes without transverse band. Third antennal segment about three times as long as deep.
- 15 (16) Wing stigma darkened basally, dark brown, transverse vein ta with brown hems. A well-developed wart in the middle of the

- hind margin of tergite IV. *O. geniculata* Meigen
 16 (15) Wing stigma unicolorous, transverse vein ta without brown
 hems. A distinct wart is clearly away from the middle of the
 hind margin of tergite IV. *O. intermedia* Lundbeck

15. PELEOCERA Meigen, 1822

Type species of the genus: *Peleocera tricineta* Meigen, 1822.

Frons, vertex and occiput shining black, with short and sparse (especially so on frons) yellowish pile. Frons at its narrowest point about 1/9 of width of head, near antennal sockets about 1/3 of width of head, breadth of vertex approximately 1/4 of breadth of head. Ocelli arranged in an equilateral triangle, the hind ocelli are visibly (about twice) bigger than the front ocellus. Third segment of antennae almost triangular, yellow with black upper margin and a short thick arista. Face light lemon-coloured with hardly noticeable short light yellow pile and a narrow black, shining, bare median stripe. Thoracic dorsum and scutellum black, shining with sparse short light yellow hairs; humeral calli yellowish white with silvery grey dusting. Sides of thorax black with dense brownish grey dusting, which is darker posteriorly, sternopleuron and a large part of pteropleuron and hypopleuron shining black, undusted. Wing hyaline. Legs yellow, hind femur with a shining black ring apically, dorsal and exterior surface of hind femur and first segment of hind tarsi dorsally brown to dark brown. Abdomen black, with broad yellow narrowly interrupted bands occupying the basal half of tergites II and III and scarcely 1/3 of tergite IV. The ♀ has a wider frons and vertex; the median facial stripe occupying about 1/3 of the width of face. 4-6 bristle-like hairs on hind rim of scutellum. The yellow markings on abdomen appear like square spots. 5-6 mm. Cis-Baikal.

P. tricineta Meigen, 1822

16. PSILOTA Meigen, 1822

Type species of the genus: *Psilota anthracina* Meigen, 1822

Males

- 1 (2) Eyes with long dense white pile. Face projected forward, relatively broad at mouth edge, rounded and without depression above the base of the projection (fig. 125 B). Thoracic dorsum and scutellum with long erect dense light yellow hairs, without any black hairs. Wing hyaline with a brownish cloud just before the tip. Hypopygium as in fig. 122. 6 mm. Pacific coastal region.

P. dersu Violovitsh, 1980

- 2 (1) Eyes with long dense yellowish pile. Face projected forward, relatively narrow at mouth edge, with an acute angle and a depression above the base of the projection. Thoracic dorsum with long erect dense light to brownish yellow hairs anteriorly; posteriorly and laterally with black hairs. Wing without brown cloud just before the tip (fig. 125 A and 124). 7-8 mm. Western Siberia, Sayany, Cis-Baikal, Cis-Amur, Sakhalin I.
P. sibirica Violovitsh, 1980

Females

- 1 (2) Antennae all black. Mouth edge laterally white dusted. Thoracic dorsum and abdomen with light yellow hairs (mixed with black hairs on abdomen). Wing hyaline with a brownish cloud just before the tip. The section of vein m before the wing tip somewhat shorter than the top section of vein m. First to third segments of fore tarsi orange yellow. 7 mm.
P. dersu Violovitsh
- 2 (1) Antennae black, third segment orange yellow ventrally near the base. Mouth edge at the sides black, bare, shining. Width of frons at antennal sockets somewhat less than half the width of head. Thoracic dorsum and scutellum with white hairs, yellowish in places, on abdomen some black hairs among the light ones. Wing hyaline, the section of vein m before the wing tip longer than the top section of vein m. 6-8.5 mm.
P. sibirica Violovitsh

17. CHRYSOSYRPHUS Sedman, 1965 (= Helleniola Stackelberg, 1965)

Type species of the genus: *Psilota nigra* Zetterstedt, 1843.

Males

- 1 (2) Central prominence of the face hardly developed. Surstyli very strongly chitinised, black, when seen in profile irregularly rectangular (fig. 119). 6-8 mm. North-west and Central Siberia, Kamchatka, Chukotka. C. nigrum (Zetterstedt, 1843)
- 2 (1) Central prominence of the face well-developed. Surstyli weakly chitinised, narrow, curved like a sickle (fig. 118). 7.5-8 mm. Northwest and Central Siberia.
C. alaskensis (Shannon, 1922)

Females

- 1 (2) Thoracic dorsum nearly all covered with a comparatively long dense black pile. 9 mm. Tuva.
C. montanus Violovitsh, 1978

- 2 (1) Thoracic dorsum with comparatively short light pile.
- 3 (4) Frons with somewhat deeper broad side stripes, with transverse small grooves in the lower part. Antennae brownish. The upper part of mouth edge only little produced. Thoracic dorsum, scutellum and abdomen nearly all covered with whitish hairs (with a very small number of black hairs in the median part of the hind margin of tergite IV), hind rim of scutellum with long fine white hairs. 7-8.5 mm.
- C. nigrum* (Zetterstedt)
- 4 (3) Frons with a short shallow somewhat deeper median stripe. Thoracic dorsum and scutellum with light lemon-coloured pile, among these at the hind rim of scutellum a number of relatively short black bristly hairs. 8-8.5 mm.
- C. alaskensis* (Shannon)

18. MYIOLEPTA Newman, 1838

Type species of the genus: *Musca luteola* Gmelin, 1788 (mon.).

- 1 (2) Antennae wholly yellowish brown. Thoracic dorsum and scutellum with short semi-adpressed brownish yellow pile. Tibiae light yellow with a dark ring apically. Wing with a brownish or dark brown cloud in the middle of the fore margin and a light brownish smudge near the wing tip (fig. 132). 9-12 mm. Southern Pacific coastal region.
- M. vara* (Panzer, 1798), ♂, ♀
- 2 (1) First and second segment of antennae black. Thoracic dorsum and scutellum with dense yellow hairs of uneven length and a number of black hairs among these. Wing hyaline. Legs black, knees and bases of fore and middle tibiae brownish, hind femur swollen, about four times as long as deep. Abdomen black with an inconspicuous lead-coloured tinge. 9 mm. Altay.
- M. perplexa* Violovitsh, 1978, ♀

19. LEJOTA Rondani, 1857

Type species of the genus: *Psilota ruficornis* Zetterstedt, 1843.

Males

- 1 (2) Eyes separated by a part of the frons occupying about 1/8 of width of head. Thoracic and alar squamae white. In the middle of the hind margin of sternite IV a small trapezoid process, its width at the base about 1/5 of width of sternite (fig. 121 B). Hypopygium as in fig. 123. 7-10 mm. Altay, Far East (Isle Shantar), Sakhalin I. *L. ruficornis* (Zetterstedt, 1843)
- 2 (1) Eyes touching for a certain stretch (fig. 120). Thoracic and alar

squamae bright yellow. In the middle of the hind margin of sternite IV a large trapezoid process, its width at the base about 1/3 of width of sternite (fig. 121 A). 8 mm. Southern Pacific coastal region. *L. korsakovi* Stackelberg, 1952

Females

- 1 (2) Head about 2.5-3 times as wide as frons near antennal sockets and 4.5-5 times as wide as vertex. Antennae all orange yellow. Hind femur weakly swollen, about four times as long as deep. 7.5-10.5 mm. *L. ruficornis* (Zetterstedt)
- 2 (1) Head about 1.8 times as broad as frons at the level of antennal sockets and 2.7 times as broad as vertex. Antennae brown, first and second segments nearly black. Hind femur distinctly swollen, about three times as long as deep. 9-10.5 mm. Cis-Amur. *L. femorata* Violovitsh, 1980

20. RHINGIA Scopoli, 1763

Type species of the genus: *Conops rostrata* Linnaeus, 1758.

- 1 (6) Scutellum yellow brown or brownish yellow, transparent.
- 2 (3) The bill-shaped projecting lower part of the face obviously longer than the transversal diameter of an eye (seen in profile). Abdomen brownish yellow with dark (black) hind margins of tergites and a black longitudinal stripe down the middle, whose dimension is very variable. Proportion between width of vertex and width of head in the ♀ is 1.5 : 6.5. Thoracic dorsum with dense and relatively long black pile. 7-11 mm. All Siberia. *R. campestris* Meigen, 1822, ♂, ♀
- 3 (2) The bill-shaped projecting lower part of the face is as long as or a little shorter than the transversal diameter of an eye (seen in profile). Proportion between width of vertex and width of head in the ♀ is 1.5 : 5.5.
- 4 (5) Legs uniformly yellow except for the first segment of the hind tarsus, which is black dorsally. Abdomen orange yellow with narrowly black hind margins of tergites. Arista of ♀ bare. Thoracic dorsum with relatively long pile. 8-9 mm. Western Siberia, Altay, Tuva. *R. rostrata* (Linnaeus, 1758)
- 5 (4) At least hind tarsi black. Arista with barely visible pubescence. Thoracic dorsum with short pile. The black hind margins of tergites somewhat broader. 6-8 mm. Altay, Sayany, Tuva. *R. austriaca* Meigen, 1830, ♀
- 6 (1) Scutellum black or dark brown, normally not transparent.
- 7 (8) Tergite IV yellow with a narrow shining black stripe along hind margin. Thoracic dorsum and scutellum shining black, with long dense black pile; among the black hairs on the hind rim of the

scutellum longer black bristle-like hairs may be distinguished. Abdomen yellow with shining black stripes, broader ones on the side margins of tergites II-IV and very narrow ones on the hind margins of these tergites. 5.5-9 mm.

R. austriaca Meigen, ♂

- 8 (7) At least tergite IV black. Thoracic dorsum shining black, with black pile. Scutellum brown to shining black, with black pile and inconspicuous black bristles at the sides and on the hind rim. Colour of abdomen very variable; so tergites III and IV and the posterior half of tergite II may be black. 7.5-10 mm. Cis-Amur, Pacific coastal region, the islands Sakhalin, Kunashir and Shikotan.

R. laevigata Loew, 1858, ♂, ♀

21. HAMMERSCHMIDTIA Schummel, 1834

Type species of the genus: *Hammerschmidtia vittata* Schummel, 1834.

- 1 (2) Arista plumose (fig. 129 C). Tergite I reddish brown. Thoracic dorsum of ♂ reddish brown with hardly noticeable longitudinal stripes. Width of vertex in the ♀ near hind corners of eyes about 1/7 of width of head. Base and top part of aedeagus (when seen in profile) of approximately the same width. 10-13 mm. Western Siberia, Altay, Tuva, Sayany, northern Central Siberia, Yakutia.
- H. ferruginea* (Fallen, 1817)
- 2 (1) Arista with short pubescence. Tergite I reddish brown, rarely somewhat darker in the middle of the hind margin. Thoracic dorsum of ♂ black brown with visible longitudinal stripes. Width of vertex in the ♀ near hind corners of eyes approximately 1/5 of total width of head. Hypopygium as in fig. 128. 5.5-7.5 mm. Western Siberia, Altay, Tuva, Sayany, Cis-Baikal, Cis-Amur, Pacific coastal region.
- H. ingrlica* Stackelberg, 1952

22. BRACHYOPA Meigen, 1822

Type species of the genus: *Musca conica* Panzer, 1798 (Westwood, 1840).

- 1 (12) Abdomen yellow, reddish yellow, orange yellow, colouration uniform or with a pattern of black stripes.
- 2 (5) Arista plumose: diameter of pubescence approximately equals the depth of the third antennal segment.
- 3 (4) Upper part of sternopleuron covered with sparse long light hairs. At the hind rim of the upper part of the mesopleuron, on the post-alar calli, on the part of the thoracic dorsum just before the scutellum and on the hind rim of the scutellum there

are numerous long and strong black bristles. Scutellum twice as broad as long. Hypopygium as in fig. 129 B. Larger: 8-9 mm. Altay, Tuva, Sayany, Kunashir I.

B. vittata Zetterstedt, 1843

- 4 (3) Upper part of sternopleuron bare. Mesopleuron, post-alar calli, the part of the thoracic dorsum just before the scutellum without strong black bristles. Scutellum a little less than twice as broad as long, at its hind rim there are 4-6 shorter and more delicate bristles. Hypopygium as in fig. 129 A. Smaller: 6-7 mm. Altay, Tuva, Sayany, Cis-Baikal, Yakutia, Cis-Amur, Pacific coastal region, Chukotka.

B. testacea (Fallen, 1817)

- 5 (2) Arista pubescent or bare.
6 (7) Thoracic dorsum brownish yellow. Abdomen brownish yellow with brown (to black) hind margins of tergites II-IV and a more or less developed interrupted broad brownish longitudinal stripe. Hypopygium as in fig. 192. 6-9 mm. Western Siberia, Altay, Sayany, Cis-Baikal, southern Pacific coastal region.

B. dorsata Zetterstedt, 1838

- 7 (6) Thoracic dorsum dark brown with bluish grey pollinosity, or black.
8 (9) Sides of thorax uniformly dark brown with grey pollinosity. Scutellum yellow or the basic part dusted grey. Eyes of ♂ meeting over a considerable distance (approximately equalling height of frons), hind femur not thickened, long, yellow. Abdomen yellow. 6-9 mm. Western Siberia, Altay, Cis-Baikal, southern Pacific coastal region.

B. bicolor (Fallen, 1817)

- 9 (8) Sides of thorax orange yellow, the lower parts of sternopleuron and hypopleuron dark brown or black with grey dusting.
10 (11) Thoracic dorsum and scutellum with golden yellow hairs. On the hind rim of scutellum a few (about 8) longer and thicker hairs. Legs yellow, fourth and fifth segments of fore and middle tarsi jet black, hind tarsi completely dark brown, nearly black. Aedeagus and surstyli as in fig. 191. 7-8 mm. Southern Pacific coastal region, Iturup I. (Kuriles).

B. maritima Violovitsh, 1980

- 11 (10) Thoracic dorsum and scutellum black-haired, with a few longer hairs at the hind rim of scutellum. Legs yellow with uniformly dark brown tarsi, middle tarsus with at least fourth and fifth segments black. 6-9 mm. Cis-Baikal.

B. sibirica Violovitsh, 1982

- 12 (1) Abdomen black, or black with yellow band on hind margins of tergites.

- 13 (14) Scutellum yellow. Abdomen uniformly black. 6-8 mm. Western Siberia, Tuva, Cis-Baikal, Cis-Amur, southern Pacific coastal region. *B. cinerea* Wahlberg, 1844
- 14 (13) Scutellum for two-thirds black, sides of hind rims yellow. Abdomen black with yellow bands along hind margins of tergites. 6-8.5 mm. Southern Pacific coastal region. *B. ornamentosa* Virolvitsh, 1977

23. SPHEGINOIDES Szilady, 1939

Type species of the genus: *Spheginoides obscura* Szilady, 1939.

Body black with dark bronze coloured reflections, weakly shining. Legs black, knees, bases of fore and middle tibiae and bases of fore and middle tarsi yellowish brown. Wing base yellowish brown. Surstyli broad. 6-9 mm. Eastern slopes of the Urals, Altay, Sayany, there locally numerous, Cis-Baikal, Pacific coastal region. *S. obscura* Szilady, 1939

24. SPHEGINA Meigen, 1822

Type species of the genus: *Milesia clunipes* Fallen, 1816.

- 1 (2) Metasternum beyond hind coxae narrow, with a deep rounded or triangular excision in which a broad subcircular, heart-shaped or pentagonal well-chitinised first sternite (fig. 137 A).
Subgenus SPHEGINA Meigen (s. str.)
- 2 (1) Metasternum beyond hind coxae broad with an almost straight hind margin. Sternite I either present in the form of a narrow weakly chitinised longitudinal stripe, not inserted in an excision of the hind margin of the metasternum, or this sternite quite reduced (fig. 137 B). Subgenus ASIOSPHEGINA Stackelberg

Subgenus SPHEGINA Meigen, 1822 (s. str.)

Males

- 1 (10) Fore and mid legs uniformly black, black with yellowish knees and bases of tibiae, or with white basal tarsal segments.
- 2 (3) Face below antennae not receding. Knees and basic third of tibiae yellowish. Width of frons at antennal sockets about 1/5 of total width of head, width of vertex at posterior ocelli 1/4 of width of head. Wing as in fig. 146 B. Abdomen usually with a yellow band on tergite III. 6-7 mm. Western and Central Siberia, Tuva, Yakutia, Pacific coastal region, Kamchatka.
S. (s. str.) *spheginea* (Zetterstedt, 1838)

- 3 (2) Face receding below antennae.
- 4 (5) Legs all black. Frons with dense black pollinosity and long erect black pile. Antennae black. Thoracic dorsum with hardly noticeable grey dusting and long erect black brown pile. Sides of thorax shining, though completely covered with barely visible dark grey pollinosity, mesopleuron and pteropleuron with fairly long black brown pile. Hind femur moderately thickened. Wing somewhat infuscated, the top section of vein m with a small appendix where it curves. Abdomen relatively narrow, tergite IV of the usual shape, not swollen. Hypopygium as in fig. 151 A. 6-8.5 mm. Western and Central Siberia, Altay, Tuva, Sayany. *S. (s. str.) aterrima* Stackelberg, 1953
- 5 (4) Fore and mid legs black and yellow.
- 6 (9) Face on the lower projecting part yellow or yellowish white.
- 7 (8) Fore and hind legs black with knees narrowly brown or yellow, hind femur little thickened. 8-9 mm. Sakhalin I.
S. (s. str.) melancholica Stackelberg, 1956
- 8 (7) Apical one-third of fore and middle femora and apical half of fore and middle tibiae light yellow or brownish yellow, hind femur obviously thickened (length and depth proportioned approximately 17 : 5). 8-8.5 mm. Altay, Trans-Baikal.
S. (s. str.) hodosa Violovitsh, 1981
- 9 (6) Face quite black. Frons with long black pile. Hind femur shorter, considerably thickened. Arista brown, visibly pubescent. Face only little receding below antennae. Thoracic dorsum shining, with long dense black pilosity. Sides of thorax shining black with barely noticeable whitish grey pollinosity. Aedeagus and surstyli as in fig. 141. 7.5 mm. Tuva.
S. (s. str.) tuvina Violovitsh, 1980
- 10 (1) Fore and mid legs light yellow or brownish yellow with darker (going to black) spots, tarsi all black or only the apical segments black.
- 11 (12) Antennae bright yellow. Apical half of sternite III and the greater part of sternite IV with short black spines. Frons with very short light pile. Hind tarsi blackish brown, but second and third segments yellow. Tergite III with broad brownish yellow band on basal half. 6-7 mm. Altay, Cis-Baikal, southern Pacific coastal region. *S. (s. str.) spiniventris* Stackelberg, 1953
- 12 (11) Antennae black or dark brown (not yellow).
- 13 (16) Sternopleuron shining as if polished, without dusting. Frons completely covered with dark grey or black dusting, dull, with fairly long erect hairs. Thoracic dorsum with short dense semi-addressed pile mixed with sparse long erect hairs.
- 14 (15) Thoracic dorsum with short delicate semi-addressed black pile. The bristles on the hind rim of scutellum delicate, black. Hind femur shining black with brownish base. Thoracic dorsum with short semi-addressed black pile, among which some hardly visible golden yellow hairs. Scutellum with short addressed black pilosity and two longer delicate bristles in the middle of the hind margin. Fore and mid legs brownish yellow, apical

segments of tarsi brown to black (fifth segment), hind leg black, bases of femur and tibia brownish, hind tarsus dark brown. Wing strongly infuscated, brown, stigma blackish brown. Dorsum of abdomen uniformly black with short adpressed golden yellow and black pilosity. Parts of hypopygium as in fig. 139. 8 mm. Altay, Cis-Baikal, southern Pacific coastal region.
S. (s. str.) *eo*a Stackelberg, 1953

- 15 (14) Thoracic dorsum with longer thicker hairs and erect golden yellow pile. The bristles on the hind margin of the scutellum long, robust and golden yellow. Basal 1/3-1/2 of hind femur light yellow. Wing hyaline, not infuscated. Face obviously projecting, brownish, the lower part whitish yellow. Thoracic dorsum, sides of thorax and scutellum with golden yellow pile (particularly long on hind part of mesopleuron, on pteropleuron and along hind margin of scutellum). Hind femur black, its basal 1/3 light yellow, hind tibia dark brown, its basal 1/3 light yellow exteriorly. Abdomen uniformly black or with a yellowish band occupying the anterior 1/3-2/3 of tergite III. Parts of hypopygium as in fig. 126. 7.5-9 mm. Altay, Sayany, the islands Sakhalin and Kunashir.

S. (s. str.) *violovitshi* Stackelberg, 1956

- 16 (13) Sides of thorax, sternopleuron included, with a fine greyish or whitish pollinosity.
- 17 (18) Face quite black, grey dusted. Frons with light grey dusting and very short adpressed light-coloured pile. Fore and middle tibiae somewhat darkened. Sternite IV short, trapezoid, its length approximately equalling its width at the hind margin. Tip of abdomen greatly swollen. 5.5 mm. Cis-Amur.

S. (s. str.) *obscurifacies* Stackelberg, 1956

- 18 (17) Lower part of the face whitish yellow.
- 19 (20) Tergite IV about as broad as long; sternite IV subrectangular, somewhat widening towards the top, about twice as long as broad. Dorsum of abdomen completely black or with a reddish yellow band on tergite III only or with similar bands on tergites III and IV (the latter usually interrupted in the middle). Fig. 138. 6-7.5 mm. Southern Pacific coastal region.

S. (s. str.) *clunipes* (Fallen, 1816)

- 20 (19) Tergite IV clearly broader than long.
- 21 (22) Diameter of hind femur (seen from above) about three times less than the length of tergite II. Sternite IV a broad trapezium with concave fore and hind margins. Antennae brown. Thoracic dorsum black, shining, with short semi-adpressed bright golden yellow pile. Fore and mid legs light yellow, fifth segment of tarsi brown or dark brown. Abdomen black with a yellow band or yellow side spots occupying the anterior half of tergite III, sometimes a median transparent brown spot on the posterior part of tergite II. Parts of hypopygium as in fig. 142. 6.5-8 mm. Southern Pacific coastal region, Sakhalin I., West-Sayany.

S. (s. str.) *claviventris* Stackelberg, 1956

- 22 (21) Diameter of hind femur (seen from above) about half the length of tergite II. Sternite IV rectangular with straight margins (at least hind margin straight). Parts of hypopygium as in fig. 127. 6.5-8 mm. Southern Pacific coastal region.
S. (s. str.) *stackelbergi* Violovitsh, 1980

Females

- 1 (6) Fore and mid legs for the greater part black or dark brown.
2 (5) Fore and mid legs completely black, or yellow and black.
3 (4) Legs uniformly black. Frons black with dark golden dusting and delicate, more or less short golden yellow pile, width of frons at antennal sockets somewhat less than 1/3 of width of head, width of vertex almost 2/7 of same. Antennae black, shining, third segment large, rugose, weakly shining. Thoracic dorsum with very short semi-adpressed golden yellow pilosity. Sides of thorax with faint greyish dusting. Hind femur much thickened. Top section of vein m straight, joining vein r_{4+5} in an almost right angle. Abdomen black, shining. 6.5-8 mm.
S. (s. str.) *aterrima* Stackelberg
- 4 (3) Fore and mid legs black, base (up to 1/3) of tibiae yellow. Face below antennae not receding, perpendicular. Fore and middle tarsi uniformly black. Top section of vein m joining vein r_{4+5} in an acute angle. Abdomen all black or with a broad yellow band on the anterior part of tergite III. 7-8 mm.
S. (s. str.) *spheginea* (Zetterstedt)
- 5 (2) Fore and mid legs dark brown with knees and base of fore tibia light yellow. Frons and face black, whitish pollinose. Tergites II and III brownish yellow with broad black bands on the hind margins. Sternites as in fig. 140. 6.5 mm. Western Siberia.
S. (s. str.) *atra* Violovitsh, 1980
- 6 (1) Fore and mid legs, often with the exception of the darker apical tarsal segments, yellow or light yellow.
7 (12) Sides of thorax or at least the sternopleuron shining black.
8 (9) Third antennal segment yellow, second segment brownish yellow. The apical two segments of fore and middle tarsi contrasting black, second and third segments of hind tarsus brownish yellow. Frons greyish pollinose, above antennal sockets bare, shining, with short light yellow pile. Thoracic dorsum and scutellum with short semi-adpressed golden yellow pile, at the hind rim of scutellum two long golden yellow bristles which are placed wide apart. Wing infuscated, vein m joining vein r_{4+5} in a right angle. Fore and mid legs light yellow, apical tarsal segments black. Hind femur thickened, the basal 1/3-1/2 yellow, the rest shining black, hind tibia light yellow, somewhat brownish basally and with a dark brown, almost black half ring at the tip, hind tarsus dark brown, with brownish yellow middle segments. Abdomen

brownish black, shining, with a brownish band on the anterior half of tergite III. 6.5-8 mm.

S. (s. str.) spiniventris Stackelberg

- 9 (8) Third antennal segment black or dark brown.
 10 (11) Sternite IV clearly broader than long. Width of frons at antennal sockets and width of vertex near hind ocelli about 1/3 of width of head. Frons shining black, usually with barely visible transverse grooves. Thoracic dorsum with short semi-adpressed golden yellow pilosity. Sides of thorax and scutellum with very short golden yellow pile, two black hairs in the middle of the hind rim of scutellum hardly noticeable. Hind legs black, basal 1/4 of hind femur, base and top of hind tibia brownish yellow, hind tarsus dark brown. Wing with inconspicuous brownish tinge. 7 mm.

S. (s. str.) eoa Stackelberg

- 11 (10) Sternite IV clearly longer than broad. Width of frons about 2/7, width of vertex about 2/9 of width of head. Hind femur moderately thickened, its apical half black, hind tibia with a broad dark brown ring in the middle, hind tarsus yellowish brown. On the apical half of the hind femur there are, ventrally, besides a row of fine black spines, two lateral rows of 7-14 stout long spines each. The yellow band on tergite III occupying approximately 2/3 of length of tergite. 8-9 mm.

S. (s. str.) violovitshi Stackelberg

- 12 (7) Sides of thorax, including sternopleuron, finely grey or whitish pollinose.
 13 (14) Sternite I rectangular, placed transversally, more than 2.5 times as broad as long. Frons, antennae and face black with greyish white dusting. Tergite II short and broad (width at hind margin about twice the length of tergite). 7.5 mm. Tuva.

S. (s. str.) brevisterna Violovitsh, 1980

- 14 (13) Sternite I crescent-shaped with straight fore margin and truncated top, its width basally proportioned to its length as 2 : 1.3. Frons black, greyish dusted, width of frons at antennal sockets 1/3 of width of head. Antennae brownish black or black. The lower part of the face whitish yellow, tergite II long, its anterior part narrow, length of tergite about three times the width at hind margin. Top section of vein m joining vein r_{4+5} in a right angle. 6-7.5 mm.

S. (s. str.) clunipes (Fallen)

Subgenus ASIOSPHEGINA Stackelberg, 1953

Males

- 1 (6) Sternite IV with on the left of hind margin a massive trapezoid, triangular or tooth-like process.
 2 (3) Dorsum and sides of thorax, scutellum and abdomen all yellow. Thoracic dorsum with three dark longitudinal stripes. Sternite

- IV with a fairly long tooth-like process. Kuril Isles (Kunashir I.).
S. (A.) hennigiana Stackelberg, 1956
- 3 (2) Dorsum and sides of thorax, scutellum and abdomen black (abdomen may show a yellow band on tergite III). Face, genae included, whitish yellow. Width of frons somewhat over 1/5 of width of head. Fore and middle tarsi yellow with fourth and fifth segments black.
- 4 (5) The process on the hind margin of sternite IV narrow, longer, finger-shaped, somewhat pointed at the tip (fig. 136). Antennae dark brown. Frons black, faintly dark grey pollinose, with very short adpressed light-coloured pilosity. Lower part of face quite strongly projecting. Hind femur faintly swollen, dark brown, nearly black, its basal 1/3 light yellow, with two rows of long sharp spines distributed over its entire length ventrally. Basal 2/3 of tibiae light yellow, the rest dark brown, nearly black. Abdomen black, tergite III with a yellow band occupying its anterior half. 7-8.5 mm. Southern Pacific coastal region.
S. (A.) grunini Stackelberg, 1953
- 5 (4) The process on the hind margin of sternite IV broad, flat, irregularly triangular, with broadly rounded top part. Antennae brown, nearly velvet black, third segment short, almost circular, somewhat deeper than long. Thoracic dorsum black, with short semi-adpressed golden yellow pile, humeral calli and sides of thorax dark brown, sternopleuron brightly shining, the other parts of the pleura faintly greyish pollinose and with short light yellow pilosity. Abdomen black with a brownish yellow band occupying 1/3 of tergite III. Hind leg black, basal 1/3 of femur and basal 2/3 of tibia light yellow. Hypopygium as in fig. 151 B. 8.5 mm. Kuril Isles (Kunashir I.).
S. (A.) freyana Stackelberg, 1956
- 6 (1) Hind margin of sternite IV simple, without asymmetric process.
- 7 (8) Frons entirely shining black. Last sternite exteriorly with a row of 3-6 stout long yellow bristles. Top section of vein m joining vein r_{4+5} in a right angle. Antennae yellow brown, apical half of second segment yellow. Thoracic dorsum and scutellum black, shining with short semi-adpressed golden yellow pilosity. Sides of thorax black, dusted greyish. Fifth segment of fore and middle tarsi black. Abdomen shining black with a broad yellow band on tergite III a bit away from its fore margin, the width in the middle somewhat less than half the length of tergite. Hypopygium as in fig. 151 C. 5-6 mm. The islands Sakhalin and Kunashir.
S. (A.) nitidifrons Stackelberg, 1953
- 8 (7) Frons entirely or at least its anterior half grey dusted. The last sternite without long stout bristles laterally. Top section of vein m joining vein r_{4+5} in an acute angle.
- 9 (10) Fore and middle tarsi whitish yellow. Sternopleuron with delicate grey dusting. Surstyli large, shaped like the scales of a fish. 5-6 mm. Sakhalin I.
S. (A.) macrocerca Stackelberg, 1956

- 10 (9) Fore and middle tarsi light yellow, fourth and fifth segments dark or black.
- 11 (12) Sides of thorax black, grey pollinose. Frons black, grey pollinose, its width a little over 1/5 of width of head. Abdomen black, with metallic sheen, reddish brown bands on tergites III and IV, a stripe of the same colour on the hind margin of tergite IV, tergite V brown. 6 mm. Kuril Isles (Kunashir I.).
S. (A.) japonica Shiraki et Edashige, 1953
- 12 (11) Sides of thorax black, upper half of sternopleuron, posterior half of mesopleuron and pteropleuron brightly shining. Frons shining black. Abdomen black with a brownish red band on the anterior part of tergite III, or tergite III entirely reddish yellow. Last sternite with short black spines. Hypopygium as in fig. 151 D. 6.5-8.5 mm. Colouration very variable. Western and Central Siberia, Altay, Tuva, Sayany, Cis-Baikal, Yakutia, Cis-Amur, Pacific coastal region, Kamchatka, Chukotka.
S. (A.) sibirica Stackelberg, 1953
- a. Face, antennae, dorsum and sides of thorax, scutellum and larger part of abdomen black.
S. (A.) sibirica sibirica Stackelberg
- b. Face and first antennal segments yellow. Dorsum and sides of thorax and scutellum reddish yellow, thoracic dorsum usually with three dark longitudinal stripes.
S. (A.) sibirica flavescens Stackelberg

Females

- 1 (4) Body yellow.
- 2 (3) Thoracic dorsum with three black longitudinal stripes. Tergite I laterally with 4-6 stout long light-coloured bristles. Kuril Isles.
S. (A.) hennigiana Stackelberg
- 3 (2) Thoracic dorsum as a rule with light brown, rarely dark brown, longitudinal stripes. Tergite I laterally with fairly long, but thin light-coloured bristles. Fore and mid legs light yellow. Fourth and fifth tarsal segments black or dark brown. Top section of vein m curved and joining vein r_{4+5} in an almost right angle. 6-8.5 mm. S. (A.) sibirica flavescens Stackelberg
- 4 (1) Body black or black with reddish brown bands or spots.
- 5 (6) Frons entirely shining black.
S. (A.) nitidifrons Stackelberg
- 6 (5) Frons anteriorly grey pollinose.
- 7 (8) Sternopleuron shining black, undusted. Width of head about three times width of frons at antennal sockets and 3.5-4 times width of vertex. Face black, the tip of the projecting part whitish yellow or brown dorsally. Thoracic dorsum and scutellum black, shining, with very short adpressed golden yellow pilosity, in the middle of the hind margin of the scutellum two long light yellow bristle-like hairs. Fore and mid legs light yellow, fourth and fifth tarsal segments dull black. Hind

leg black, but base of femur and basal 1/3-2/3 of tibia yellow. Abdomen: sternite I and basal 2/3-3/4 of sternite II black, the following ones dark brown.

- 8 (7) Sides of thorax, also sternopleuron, faintly brownish grey pollinose.
S. (A.) sibirica sibirica Stackelberg
S. (A.) macrocerca Stackelberg,
S. (A.) japonica Shiraki et Edashige

25. NEOASCIA Williston, 1887

Type species of the genus: *Syrphus podagricus* Fabricius, 1775.

- 1 (2) Metasternum constituting a narrow sclerotised bridge (junction) behind the hind coxae (fig. 133 A).
 Subgenus NEOASCIA Williston (s. str.)
- 2 (1) Metasternum not forming a sclerotised junction behind hind coxae, there are only two triangular lateral processes, the tops of which approach each other but do not meet (fig. 133 B).
 Subgenus NEOASCIELLA Stackelberg, 1970

Subgenus NEOASCIA Williston, 1887 (s. str.)

- 1 (4) The cross-veins of the wings infuscated, at least in the apical part of the wing (top section of vein m and the posterior outer cross-vein).
- 2 (3) Third antennal segment about 1.5 times as long as deep. Frons in the ♂ weakly punctuated-rugose in the anterior part, shining; in the ♀ the anterior half sparsely punctuated, not rugose, brightly shining, with a distinct longitudinal groove reaching almost to the vertex. 5-6 mm. The Islands Sakhalin and Kunashir.
N. (s. str.) longiscutata Shiraki, 1930
- 3 (2) Third antennal segment about 2.5 times as long as deep (fig. 148 A). Frons in the ♂ rugose on anterior half, densely punctuated, dull; in the ♀ faintly rugose, weakly shining. The lower part of the face projecting for a distance about half the diameter of an eye (fig. 147 A). Hypopygium as in fig. 150 A. 5-6 mm. Western Siberia, Altay, Sayany, Cis-Baikal.
N. (s. str.) podagrica (Fabricius, 1775)
- 4 (1) Wing cross-veins not infuscated.
- 5 (6) The lower part of the face projecting for a distance approximately equal to the diameter of an eye. Abdomen in both sexes uniformly black. Legs black, tips of fore and middle femora, base of hind femur, fore and middle tibiae or knee of hind leg yellowish. Wing faintly yellowish, top section of vein m rounded, joining vein r_{4+5} in a right angle (fig. 152). 3.5-5.5 mm. Trans-Baikal, Yakutia, Oblast Magadan.
N. (s. str.) subchalybea Curran, 1925

- 6 (5) The projecting part of the face obviously shorter than the diameter of an eye. Antennae as in fig. 148 B. Abdomen in the ♂ with yellow bands on tergite II and III, the one on tergite II tapering towards the side margins, abdomen in the ♀ with two pairs of dark yellow spots (fig. 149 A). Hypopygium as in fig. 150 B. All Siberia, except the Kuril Isles.

N. (s. str.) *dispar* (Meigen, 1822)

Subgenus NEOASCIELLA Stackelberg, 1970

- 1 (2) Wing cross-veins, at least in the apical part of the wing, infuscated. The punctuated part of the frons in the ♂ occupying the entire width, in the ♀ not reaching to the eye margins. Frons not rugose, entirely shining. Abdomen dark bronze-coloured, nearly black (fig. 149 B). Pre-genital segment black-haired (fig. 150 C). 5-6 mm. Western Siberia.
N. (N.) *interrupta* (Meigen, 1822)
- 2 (1) Wing hyaline, cross-veins not infuscated.
- 3 (4) Abdomen in the ♂ with a distinct large bulge on the anterior half of tergites II and III. Face whitish pollinose and white-haired. On the lateral parts of tergite II a pair of reddish yellow spots. Fore and mid legs yellowish brown with dark parts in the middle of the femora, a more or less developed ring on the apical part of the tibiae, the first three tarsal segments brown exteriorly, last two segments black. Hind leg shining black, basal 1/4 of femur and basal half and apex of tibia yellow, first three tarsal segments yellowish brown. Abdomen with golden yellow pile. Hypopygium as in fig. 144. 6-6.5 mm. Yakutia, Cis-Amur, Pacific coastal region, Sakhalin I.
N. (N.) *tuberculifera* Violovitsh, 1957
- 4 (3) Abdomen smooth, without bulges on tergites II and III.
- 5 (8) Third antennal segment short oval, hardly any longer than deep.
- 6 (7) Third antennal segment dark brown, black, at its base reddish brown ventrally. Abdomen black, bronze coloured, tergite III with a broad reddish yellow band, sometimes interrupted in the middle so as to create a pair of spots, posterior half of tergite III in the ♀ as a rule black. Surstyli short, broad, gonocerci single-lobed (fig. 147 C, 148 C and 150 D). 4-5 mm. From the Urals to Yakutia.
N. (N.) *geniculata* (Meigen, 1822)
- 7 (6) Third antennal segment entirely reddish brown. Abdomen black, without yellow bands or spots. Gonocerci bi-lobed (fig. 143). 4.5-6.5 mm. From Yakutia to Chukotka.
N. (N.) *sphaerophoria* Curran, 1925
- 8 (5) Third antennal segment elongate oval, 1.5-2 times as long as deep.

- 9 (10) Frons in the ♂ on the anterior half densely punctuated and rugose, dull. Abdomen in the ♀ with yellow side spots. Third antennal segment about 1.5 times as long as deep. Fore and mid legs yellow with relatively broad black bands beyond the middle of the tibiae and sometimes also on the femora, hind leg yellow with broad black ring on the femur and the tibia, tarsus black with yellowish brown second and third segments. Abdomen in the ♀ with reddish yellow side spots on tergite II (fig. 149 C). Hypopygium as in fig. 150 E. 5-6 mm. Western Siberia. N. (N.) *carinicauda* Stackelberg, 1955
- 10 (9) Frons in the ♂ sparsely punctuated on the anterior half, not rugose, shining. Abdomen in the ♀ as a rule uniformly black. Third antennal segment about twice as long as deep. Fore and mid legs yellow, basal half of femora and tibiae black, hind leg black, basal 1/3 and tip of femur, basal half and tip of tibia and also second and third tarsal segments yellow. Abdomen as in fig. 149 D. Hypopygium as in fig. 150 F. 4-5.5 mm. Western Siberia, Altay, Sayany, Tuva, Central Siberia, Cis-Baikal. N. (N.) *aenea* (Meigen, 1822)

III. SUB-FAMILY VOLUCELLINAE

Key to the identification of the genera

- 1 (2) First radial cell closed, with short stalk at the tip before joining the costa. Top section of vein m_{1+2} recurrent.
1. VOLUCELLA Geoffroy
- 2 (1) First radial cell open. Top section of vein m_{1+2} more or less parallel to hind margin of wing.
- 3 (4) Side and hind margin of thoracic dorsum with long stout black bristles. Wing patterned with a few broad dark transverse stripes. Smaller: 5-8 mm. 2. GRAPTOMYZA Wiedemann
- 4 (3) Side and hind margins of thoracic dorsum without such bristles. Wing without dark pattern (except Pseudovolucella). Larger: 12-22 mm.
- 5 (6) Tergite I and much of the anterior of tergite II light yellow. Wing with a large dark brown cloud in the middle near the fore margin. 3. PSEUDOVOLUCELLA Shiraki
- 6 (5) Tergite I black, tergites II-IV, more rarely tergites II and III only, with yellow transverse bands. Wing without dark brown cloud in the middle near the fore margin.
- 7 (8) Face short, not extended downward, its length (seen in profile) from the lower eye margin to the lowest tip of the face (i.e. the mouth margin) approximately half the height of the eye. Central prominence of the face well-developed.
4. SERICOMYIA Meigen
- 8 (7) Face very much extended downward: length of face (seen in

profile) from the lower eye margin to the mouth edge approximately equalling the height of the eye, or only a little less (fig. III A). The central prominence of the face has a flat outline.

5. CONOSYRPHUS Frey

1. VOLUCELLA Geoffroy, 1764

Type species of the genus: *Musca pellucens* Linnaeus, 1758.

- 1 (8) Scutellum without stout bristles on the hind rim. Body long and densely pilose. Abdomen round, distinctly arched.
- 2 (3) Face yellow. Third antennal segment yellow or brownish yellow. Eyes in the ♀ bare. Resembles a bumblebee. Three colour varieties are known from Siberia.
 - a. Thorax and abdomen with black or blackish brown pile, tergites IV and V with reddish pilosity. Western Siberia, Altay, Tuva, Sayany. *V. bombylans* (Linnaeus, 1758)
 - b. Thorax and abdomen with mainly black pile, the sides and posterior part of thoracic dorsum with yellow pile, tip of abdomen white-haired. From the Urals to the Kuril Isles (Kunashir, Iturup, Paramushir), Kamchatka, Chukotka. *V. bombylans bombylans* (Linnaeus, 1758)
 - c. Thorax and abdomen with mainly black hairs, thoracic dorsum yellow-haired with a median area of black pile (often lacking in the ♀), scutellum yellow-haired, large yellow side spots on abdomen, these yellow-haired, the posterior parts of tergites III-V red-haired. Western Siberia, Altay, Tuva, Sayany. *V. bombylans plumata* (De Geer, 1776)
- 3 (2) Face black.
- 4 (5) Thoracic dorsum uniformly black. Tarsi reddish brown, with golden hairs. Parts of hypopygium as in fig. 153. 14-15 mm. Yakutia. *V. plumatoides* Hervé-Bazin, 1923
- 5 (4) Thoracic dorsum black with a yellow pattern. Tarsi black, with black hairs.
- 6 (7) Thoracic dorsum and scutellum in the ♂ with very long dense golden yellow pilosity, a yellow spot preceding scutellum and broad yellow bands along the side margins. The width of one such band hardly less than approximately half the width of the black median part of the thoracic dorsum. Eyes with long dense dark brown pilosity, face with short light yellow hairs. Parts of hypopygium as in fig. 154 B. 16-18 mm. Southern Pacific coastal region, the Islands Sakhalin, Kunashir and Shikotan. *V. jeddona* Bigot, 1875
- 7 (6) Thoracic dorsum and scutellum in the ♂ with short and sparser light yellow pilosity, without yellow spot preceding scutellum and narrower yellow bands on the side margins. The width of one such band about 1/5 of the width of the black median area of thoracic dorsum. Eyes with short and sparser hairs, face

with somewhat longer whitish hairs. Parts of hypopygium as in fig. 154 A. 16 mm. Southern Pacific coastal region.

V. abdita Violovitsh, 1978

- 8 (1) Scutellum with stout black bristles on the hind margin. Body with shorter, less woolly and sparser pilosity.
- 9 (10) Abdomen black with light-coloured tergite II. Thorax in the ♂ uniformly black, in the ♀ brown laterally and with brown scutellum. Legs black. Abdomen black with a broad translucent white band on tergite II, black-haired, except for the anterior 2/3 of the tergite which is yellow haired. 14-19 mm. Sayany, Altay, Cis-Baikal, Central Siberia, Cis-Amur, Pacific coastal region, Sakhalin I., Kuril Isles.

V. pellucens (Linnaeus, 1758)

Sides of thorax, a spot before scutellum and scutellum itself reddish yellow, pilosity of thoracic dorsum and scutellum yellow. 13-20 mm. From Altay to the islands Sakhalin, Kunashir, Shikotan and Iturup.

V. pellucens tabanoides Motschulsky, 1859

- 10 (9) Abdomen without light band on tergite II; yellow or yellowish brown with dark bands or spots.
- 11 (12) Abdomen with dark side spots on tergites II and III. Face and antennae yellow, a small black spot above antennal sockets. Thoracic dorsum brownish black, humeral calli golden, two grey dusted stripes down the anterior half of thoracic dorsum; a yellow spot before scutellum. Scutellum brownish black, with black pilosity. Abdomen yellow with black side spots on tergites II and III, the spots on tergite IV not always developed. 15-20 mm. Southern Pacific coastal region.

V. nigropicta Portschinsky, 1884

- 12 (11) Abdomen with dark bands.
- 13 (16) Pre-genital segment yellow. Hind margins of tergites IV and V with yellow pilosity in the ♀.
- 14 (15) Jowls yellow with brown stripe. Sternite II either all shining black or with yellowish hind corners. Scutellum reddish brown, with relatively long golden yellow pilosity. On the hind margin of mesopleuron four long and stout black bristles. Pilosity of thoracic dorsum and abdomen golden yellow, black on the black abdominal bands. 16-22 mm. Altay, Tuva, southern Pacific coastal region.

V. zonaria (Poda, 1761)

- 15 (14) Jowls uniformly yellow. Sternite II with a light-coloured band on the anterior part. Scutellum brown, black-haired. Pilosity of tergites II and III yellow, of tergites IV and V reddish, hind margins of tergites II and III black-haired. 17-23 mm. Southern Pacific coastal region.

V. coreana Shiraki, 1930

- 16 (13) Pre-genital segment black. Hind margins of tergites IV and V black, with black pilosity. Thoracic dorsum black with broad yellow side stripes and a spot before scutellum. Abdomen light yellow with a black tergite I, broad black bands on the hind margins of tergites II and III and narrower ones on tergites IV and V. 14-16 mm. From the region west of the River Ob and

Tuva to Cis-Amur, Sakhalin I., the Kuril Isles, Kamchatka and Chukotka. *V. inanis* (Linnaeus, 1758)

2. GRAPTOMYZA Wiedemann, 1820

Type species of the genus: *Graptomyza longirostris* Wiedemann, 1820 (orig. des.).

- 1 (2) Arista bare or almost bare. Third antennal segment uniformly yellow. Sides of thorax and legs light yellow. Legs sometimes somewhat darkened exteriorly on middle and hind tibiae and middle and hind tarsi. Surstyli and gonocerci as in fig. 155. Smaller: 4-5 mm. Southern Pacific coastal region.
G. alabeta Séguy, 1948
- 2 (1) Arista distinctly plumose. Third antennal segment brown, with a light yellow part underneath (fig. 156 B). Sides of thorax shining black, posterior part of mesopleuron yellow. Legs dark brown to black; coxae, trochanters and basal half of all femora light yellow. Surstyli as in fig. 156 C. Larger: 5-7 mm. Southern Pacific coastal region, Kunashir I.
G. takeuchii Shiraki, 1954

3. PSEUDOVOLUCELLA Shiraki, 1930

Type species of the genus: *Pseudovolucella mimica* Shiraki, 1930.

Face pale yellow, side parts below antennae black. Frons black. Thoracic dorsum, sides of thorax and scutellum with dense erect light yellow pilosity, which is longer and denser on the pleura. Scutellum yellow, darker on anterior half. Abdomen broad, black with short adpressed light yellow pilosity, tergite I and a large part (anteriorly) of tergite II light brown, tergites III and IV with narrow (especially on tergite IV) bands of the same colour. 14-17 mm. Southern Sakhalin, the islands Kunashir and Moneron. *P. decipiens* (Hervé-Bazin, 1914)

4. SERICOMYIA Meigen, 1803

Type species of the genus: *Musca lappona* Linnaeus, 1758.

- 1 (2) Face lemon-coloured without black median stripe, mouth edge and genae brownish, frons and antennae orange yellow, arista brown with very long hairs. Frons, face and occiput with long dense golden yellow pile. Thoracic dorsum black with golden

- dusting and dense erect golden yellow pile, a band of black hairs between wing bases, scutellum orange-brown, with long golden yellow and black pilosity, short in the middle. Legs orange yellow, with black and golden yellow pile, hind femur in the ♂ somewhat thickened with a blackish brown longitudinal stripe. Fourth and fifth segments of all tarsi dark brown. Abdomen black, weakly shining with bronze reflection, tergites II and III with bright yellow band, interrupted in the middle, tergite IV in the ♂ bright yellow with a narrow black band on the fore margin, in the ♀ tergites IV and V are darker, orange-brown or orange yellow. 18-20 mm. Southern Pacific coastal region. *S. dux* Stackelberg, 1930
- 2 (1) Face with dark brown or black median stripe.
- 3 (4) Tip of abdomen yellow. Width of median stripe of face about 1/3 of width of face. Anterior half of thoracic dorsum with dense short erect delicate yellow pilosity, the posterior half with similar but black pilosity. Legs orange yellow, all femora on basal 1/3-3/4 black. Abdomen with broad, in the middle narrowly interrupted, yellow bands on tergites II-IV and a yellow hind margin on tergite IV (fig. 159 A). 13.5-16 mm. From the Urals to Kamchatka. *S. silentis* (Harris, 1776)
- 4 (3) Tip of abdomen black.
- 5 (8) Haltere (or at least knob of haltere) black brown or brown.
- 6 (7) Smaller: 9-14 mm. Hind femur in the ♂ almost straight and not thickened. Width of vertex in the ♀ about 1/4 of width of head. Scutellum brown, dark brown or black. The yellow bands on tergites II-IV in the ♂ distinctly interrupted in the middle (fig. 159 B). From the Urals to Sakhalin I., Kamchatka and Chukotka, north as far as the tundra. *S. lappona* (Linnaeus, 1758)
Specimens with black scutellum, placed by A.A. Stackelberg in the subspecies *S. lappona orientalis* Stackelberg, 1925, occur in the same area as *S. lappona* (L.); there are specimens with light brown scutellum with transitory forms to completely black; therefore I do not consider these specimens to be an independent subspecies.
- 7 (6) Larger: 15-18 mm. Hind femur distinctly thickened and curved. The yellow bands on tergites II and III in the ♂ usually with a narrow dark band in the middle. Fourth and fifth tarsal segments dark brown or black. All legs reddish yellow or orange yellow. The last tergite in the ♀ mostly light-haired. Hypopygium as in fig. 210. The islands Sakhalin and Kunashir.
S. sachalinica Stackelberg, 1925
- 8 (5) Knob of haltere yellow.
- 9 (12) All femora, except at the tips, black.
- 10 (11) Tibiae, except at their bases, and tarsi black. Thoracic dorsum with short yellow pile, except for a broad band of black hairs between the wing bases. Scutellum black, with black pile on the disc and longer hairs on the hind margin. Hind trochanters without tooth-like process, tibiae, except for a narrow ring basally, and tarsi black. Abdomen dull black, tergite IV with metallic

sheen, the narrow yellow bands on tergites II-IV interrupted in the middle. 12-14 mm. Yakutia.

S. jakutica Stackelberg, 1927

- 11 (10) Tibiae and bases of tarsi orange yellow. Scutellum brown, with short black pile on the disc and long light yellow hairs on the hind margin. The yellow band (interrupted in the middle) on tergite II broader than the following ones, and, especially in the ♂ broadened towards the sides, on tergites III and IV the bands are narrowed and not so much broadened sideways, with broadly concave fore margin (fig. 159 C). In the ♀ the bands are more broadly interrupted. 12-14 mm. All northern Siberia.

S. arctica Schirmer, 1913, ♂

- 12 (9) All femora reddish yellow and orange yellow. The yellow abdominal bands not interrupted or rarely and then narrowly interrupted on tergite II. Tergite V in the ♀ with a yellow band. 12-14 mm. The northern part of Western and Central Siberia, Cis-Baikal, Yakutia, Cis-Amur, North-east Siberia, Chukotka.

S. nigra Portschinsky, 1871

5. CONOSYRPHUS Frey, 1915

Type species of the genus: *Conosyrphus tolli* Frey, 1915.

Frons in the ♂ with dense golden dusting, in the ♀ darker and less dense, with yellow pilosity. Face yellow, semi-translucent, jowls and mouth edge shining black. Vertex with long pilosity, black in the ♂, yellow in the ♀. Thoracic dorsum black, shining, with obvious clear bronze coloured reflection, with dense erect golden yellow pile. Scutellum dark brown, with short black pile on the disc and longer light yellow pile on the margins. Legs black, fore and mid knees and adjacent parts of tibiae brown. Abdomen in the ♂ black, more rarely with yellow, in the middle broadly interrupted bands, with long semi-adpressed black and light yellow pile; abdomen in the ♀ with yellow, in the middle broadly interrupted bands which are broadening towards the side margins on tergites II-IV, with mainly light yellow pile which is shorter than in the ♂ (fig. 160). 11.5-13.5 mm. In the tundras and the transition zones from taiga to tundra of all Siberia, eastward to Chukotka.

C. tolli Frey, 1915

IV. SUB-FAMILY ERISTALINAE

Key for the identification of the genera

- 1 (8) First radial cell (R_1) closed, with a short stalk before joining the costa.

- 2 (5) Eyes unicolorous, without spots.
- 3 (4) Above antennal sockets a large coarsely punctuated yellowish brown spot covered with short, almost adpressed golden yellow pilosity. Arista with long hairs, as if plumose. Scutellum large, with more or less straight distinctly impressed hind margin.
5. MEGASPIS Macquart
- 4 (3) No such spot above antennal sockets. Arista with shorter and sparser hairs. Scutellum with rounded hind rim, not margined.
1. ERISTALIS Latreille
- 5 (2) Eyes light brownish yellow with distinct dark spots.
- 6 (7) Eyes with large, often confluent spots, the eyes touching in the ♂. Knees light yellow. 3. LATHYROPHTHALMUS Mik
- 7 (6) Eyes with small separate dots, eyes separated in the ♂. Knees not light yellow. 2. ERISTALINUS Rondani
- 8 (1) Cell R_1 open.
- 9 (12) Thoracic dorsum without yellow or grey stripes and spots.
- 10 (11) Eyes in the ♂ separated on frons. Lower part of face extended forward and downward. Body black, shining, without yellow pattern, with short pilosity.
12. ARCTOSYRPHUS Frey
- 11 (10) Eyes in the ♂ touching on frons. Face normal, not extended. Abdomen usually with distinct light coloured (yellow) spots, in most species with long and dense pile.
13. MALLOTA Meigen
- 12 (9) Thoracic dorsum with longitudinal or transverse stripes, or with spots (bands). Body always with short pilosity,
- 13 (16) Eyes hairy.
- 14 (15) Thoracic dorsum with broad yellow or grey transverse spots (bands), which show a peculiar pattern. Vein r_{4+5} above cell R_5 arched. Eyes in the ♂ meeting.
4. MYIATROPA Rondani
- 15 (14) Thoracic dorsum with narrow yellow longitudinal stripes. Vein r_{4+5} above cell R_5 weakly curved. Eyes in the ♂ separated.
14. PLESKEOLA Stackelberg
- 16 (13) Eyes bare.
- 17 (18) Face short, strongly receding below antennae, third antennal segment extended downward, obviously deeper than long. Abdomen long and narrow, with pairs of grey longitudinal markings on tergites II-IV.
11. LIOPS Rondani
- 18 (17) Face prolonged, either moderately receding below antennae or not. Third antennal segment somewhat elongate. Abdomen oval with yellow and/or grey spots and/or markings on tergites II-IV, or on tergite II.
- 19 (20) Eyes in the ♂ touching in one single point on frons (fig. 175). First segment of hind tarsi covered with apically thickened (club-shaped) hairs, feature which can only be seen at high magnification. Face straight, without median longitudinal stripe, with golden dusting and long golden yellow pilosity.

10. MESEMBRIUS Rondani

20 (19) Eyes separated in the ♂. First segment of hind tarsi with pilosity of the normal type.

21 (22) Face with black or yellow shining stripe down the middle, usually reaching from antennal sockets to mouth edge.

6. HELOPHILUS Meigen

22 (21) Face without such stripe or with a vestigial one.

23 (24) Distance between each of the hind ocelli and the nearest compound eye equal or smaller than diameter of ocellus. Body relatively broad, abdomen oval.

7. PARHELOPHILUS Girschner

24 (23) Distance between each of the hind ocelli and the nearest compound eye obviously greater than diameter of ocellus. Body narrower, abdomen with sub-parallel side margins.

25 (26) Face strongly projecting forward, its tip conically tapering (fig. 176 A). Stigmatic cross-vein vaguely delineated.

9. EURIMYIA Bigot

26 (25) Face not much jutting forward, its tip truncated. Stigmatic cross-vein clearly delineated.

8. ANASIMYIA Schiner

1. ERISTALIS Latreille, 1804

Type species of the genus: *Musca tenax* Linnaeus, 1758.

1 (14) Thoracic dorsum and abdomen with long woolly pilosity.

2 (9) The yellow side spots on tergite II or the area where they should be (if the yellow colouration is lacking) dull.

3 (4) Hind tibia with long dense pilosity (as if plumose) anteriorly and posteriorly. Scutellum whitish. Thoracic dorsum and basal part of abdomen black-haired, apical part of abdomen with reddish pile. 12-15 mm. From the Urals to Western Siberia, Altay. *E. oestraceus* (Linnaeus, 1758)

4 (3) Hind tibia not densely plumose. Scutellum yellow. Hind tarsi black.

5 (6) Arista plumose. Fore and middle tarsi partly yellow. Wing with only weakly developed dark cloud across the middle. Thorax and abdomen in the ♂ with reddish yellow pile, somewhat lighter towards tip of abdomen, pilosity of abdomen in the ♀ reddish yellow basally, black in the median part, white apically. 11-14 mm. All Siberia. *E. intricarius* (Linnaeus, 1758)

6 (5) Arista with short pubescence. Fore and middle tarsi black.

7 (8) Tergite IV yellow with a broad black longitudinal stripe in the middle, or black with yellow side spots and yellow hind margin. The yellow spots on tergites II and II large, also well-developed in the ♀ (except in ♀♀ from Kamchatka and Chukotka, which may lack these spots). Hypopygium as in fig. 162 I. 10.5-13.5 mm. All Siberia.

E. anthophorinus (Fallen, 1817)

- 8 (7) Abdomen in the ♀ uniformly black, without yellow spots. Pilosity of head, thoracic dorsum, scutellum and abdomen silvery white, width of vertex hardly more than 1/3 of width of head (3 : 8). 10.5 mm. Tuva *E. argentatus* Violovitsh, 1982, ♀
- 9 (2) Yellow side spots on tergite II entirely or partly (at the edges) shining. Tergite IV entirely or for the greater part shining black, as if polished.
- 10 (13) Wing hyaline.
- 11 (12) Eyes in the ♂ in actual approximation for a distance more than twice the height of frons (5 : 2). Width of frons in the ♀ about half the width of head. Tergites IV and V brassy yellow, weakly shining, entirely or mainly black-haired. Parts of hypopygium as in fig. 162 H. 12-15 mm. Lower reaches of rivers Ob and Yenisey, Cis-Kolyma, Kamchatka, Chukotka.
E. valleii Kanervo, 1939
- 12 (11) Eyes in the ♂ in actual approximation for a distance almost equalling height of frons. Width of frons in the ♀ approximately 1/3 of width of head. Tergites III and IV shining black, in the ♂ a large part of tergite III with dense long black pile, tergite IV with equally dense and long whitish yellow pile, in the ♀ these are respectively black and yellowish. 12-14 mm. Central Yakutia. *E. tammensis* Bagatshanova, 1980
- 13 (10) Wing with brown cloud across the middle. Eyes in the ♂ in actual approximation for a distance which is about double the height of frons (4 : 2), width of head more than twice the width of face near the lower eye margins (8.5 : 4). Width of head in the ♀ a bit less than three times width of frons at antennal sockets (9 : 3.5) and almost four times the width of vertex; tergite III with golden reddish pile. Parts of hypopygium as in fig. 163 B. 9.5-13.5 mm. Lower reaches of river Ob, Cis-Kolyma, Iturup I. (Kuril Isles). *E. pacificus* Violovitsh, 1977
- 14 (1) At least abdomen with relatively short pile. Resembling bees.
- 15 (54) Eyes meeting on frons or separated only by a very narrow stripe (only in *E. abusivus* Collin): ♂ ♂.
- 16 (17) Eyes in the ♂ separated by a very narrow stripe (therefore not actually touching), tergites II and III with developed yellow spots, hind margins of tergites II-IV with broad yellow stripe. Surstyli relatively long (fig. 162 B). 9-11 mm. From Altay to Pacific coastal region. *E. abusivus* Collin, 1931
- 17 (16) Eyes actually touching.
- 18 (23) Face without black median stripe (exceptionally there is a very narrow shining black stripe in *E. cerealis* Fabr. and *E. rabidus* Viol.).
- 19 (20) Thoracic dorsum velvet black, with bluish dusted margins and a similar transverse band between wing bases. Face with narrow black longitudinal stripe, or lacking this. Scutellum yellow. Hind margins of tergites with bright yellow stripe. Parts of hypopygium as in fig. 197. 11-13 mm. Pacific coastal region, the islands Sakhalin, Kunashir, Iturup, Shikotan and Zelenyi.

E. cerealis Fabricius, 1805

- 20 (19) Thoracic dorsum without greyish blue margins and transverse band.
- 21 (22) Width of black spot in the middle of tergite II about 1/4-1/5 of width of tergite, tergite III dark yellow with a black spot in the middle (fig. 167). 10-14.5 mm. Cis-Amur.

E. rabidus Violovitsh, 1977

- 22 (21) Width of black spot in the middle of tergite II about 1/3 of width of tergite, tergite III black with yellow side spots (which are variable in size) on fore margins. Yellow spots on abdomen dull. Hypopygium as in fig. 162 C. 9-11 mm. All Siberia, except the far north, eastward to Sakhalin I.

E. arbustorum (Linnaeus, 1758)

- 23 (18) Face with well-developed shining black median stripe.
- 24 (25) Eyes with two vertical bands of denser pilosity. Arista bare. Hind tibiae anteriorly and posteriorly with dense plumosity of long hairs. Abdomen with large yellow side spots or (ab. *hortorum* Meigen) uniformly brownish black, femora for the greater part black or (ab. *campestris* Meigen) hind femur yellow on basal half. Parts of hypopygium as in fig. 163 H. 14-16 mm. Cosmopolite. Common everywhere except in the far north.

E. tenax (Linnaeus, 1758)

- 25 (24) Eyes without such bands of dense pilosity, uniformly pilose.
- 26 (31) Arista bare or with barely noticeable short pilosity.
- 27 (28) Antennae uniformly orange yellow. Thoracic dorsum and scutellum with dense coarse golden yellow pile. Scutellum semi-translucent, brownish. All tibiae ochreous yellow with a slight orange tinge, apical 1/2-2/3 of fore and middle femora and base of hind femur black. Side spots on tergites II and III yellow with orange brown tinge, spots on tergite III very small, not reaching side margins. Hypopygium as in fig. 162 A. 11-13 mm. Altay, Sayany, Tuva.

E. cryptarum (Fabricius, 1794)

- 28 (27) Antennae brown, third segment dark brown, pollinose. Thoracic dorsum and scutellum with dense delicate light yellow pile. Scutellum light yellow, almost translucent. Legs brownish black, with dense long golden yellow pilosity, basal 1/3 of fore and middle tibiae light yellow. Side spots on tergites II and III broadly crossing side margins (fig. 164). 13 mm. Altay.
E. rubix Violovitsh, 1976
- 29 (30) Frons with long erect black pilosity, face with whitish pilosity. Thoracic dorsum with a broad band of black hairs between wing bases. Hypopygium as in fig. 165. 12-14 mm. Kamchatka.
E. kamtshaticus Violovitsh, 1977
- 30 (29) Frons with long light yellow pilosity, face with shorter hairs. Thoracic dorsum without a band of black hairs between wing bases. Parts of hypopygium as in fig. 163 F. 10 mm. Yamal peninsula.
E. corymbus Violovitsh, 1975
- 31 (26) Arista plumose.
- 32 (39) Wing with a dark brown transverse cloud in the middle, a vague marking or a zig-zag stripe, sometimes very narrow.
- 33 (34) Hind femur thickened and obviously arched. Frons black-haired (exceptionally with some yellow hairs among the black ones), eyes with dark brown pilosity. Hind femur black, more rarely yellow at the base. Hypopygium as in fig. 162 G and 163 C. 10-14 mm. From the Urals to Sakhalin I. and Kamchatka.
E. alpinus (Panzer, 1798)
- 34 (33) Hind femur neither thickened nor arched.
- 35 (38) Tergite III without yellow side spots.
- 36 (37) Frons black-haired. The yellow spots on tergite II inconsiderable, tapering towards the middle of the tergite. Colour of hind femur varying from all black to black with a yellow base (1/4) (ab. hybrida Kanervo), first segment of hind tarsus sometimes largely black (ab. nigratarsis Kanervo). Hypopygium as in fig. 162 E and 163 A. 10-13 mm. All Siberia.
E. rupium Fabricius, 1805
- 37 (36) Frons with black and yellow or exclusively yellow pilosity. Eyes with dense and relatively long brown pilosity. Thoracic and alar squamae brown. Abdomen shining black with two yellow side spots on tergite II, broad at the side margins and strongly tapering inwards, a black brightly shining as if polished band, interrupted in the middle, on tergite III, and an uninterrupted similar band on tergite IV. Hypopygium as in fig. 166. 10.5 mm. Altay, Cis-Amur.
E. pigaliza Violovitsh, 1977, ♂
- 38 (35) Tergite III with yellow spots. The yellow spots on tergite II large, broadly rounded in the middle, on tergite III small rectangular spots laterally on the fore margin. Parts of hypopygium as in fig. 163 D. 11-15 mm. Sakhalin I.
E. horticola (De Geer, 1776)
- 39 (32) Wing without dark brown cloud, band or marking.
- 40 (49) Frons yellow haired, rarely with an inconsiderable number of black hairs among the yellow ones (E. tundrarum Frey).

- 41 (42) Hind tibiae black. Wing stigma about twice as long as broad. Eyes in the ♂ meeting for a distance equalling half the height of the frons. Thoracic dorsum dull, brownish black with bronze coloured tinge and hardly visible grey dusted stripes anteriorly, with long dense golden yellow pile. Scutellum yellow, weakly shining, with golden yellow pile. Tergite II with yellow triangular side spots. Hypopygium as in fig. 170. 9-9.5 mm. Chukotka.
E. gomojunovae Violovitsh, 1977, ♂
- 42 (41) Hind tibiae light yellow basally.
- 43 (44) Tergite III yellow with a black spot in the middle. See couplet 21.
E. rabidus Violovitsh
- 44 (43) Tergite III black with yellowish side spots or without these.
- 45 (46) Thoracic dorsum weakly shining, almost undusted. Tergites III and IV, also their hind margins, shining, with relatively long erect black pilosity. Wing hyaline. Surstylus short, pointed (fig. 169). 10-13 mm. Altay, tundra zone of Western and Central Siberia, Cis-Kolyma, Kamchatka, Chukotka.
E. tundrarum Frey, 1946
- 46 (45) Thoracic dorsum dull.
- 47 (48) Scutellum with yellow hairs only. Surstylus broader, with convex fore margin (fig. 163 G). 13-14 mm. From Western Siberia to the Pacific coastal region.
E. rossicus Stackelberg, 1958
- 48 (47) Scutellum with black hairs in the middle. Tergites III and IV either only along the fore margin or on the greater part of the tergite with rather long, erect yellow pilosity. Hypopygium as in fig. 162 J. 10-13 mm. All Siberia.
E. nemorum (Linnaeus, 1758)
- 49 (40) Frons all or mainly black-haired.
- 50 (51) Thoracic dorsum with bicolorous pile: on the dusted part long and brownish, on the remaining part short and black. Legs black, basal half of fore and hind tibiae and basal segments of mid tarsus yellow, mid tibia yellow, except for the apical 1/4, which is black. 11-14 mm. The Islands Kunashir and Shikotan.
E. nigricans Matsumura, 1904
- 51 (50) Thoracic dorsum with uniform yellowish or brownish pilosity.
- 52 (53) Face with golden yellow dusting and golden yellow pilosity. Arista with long hairs. Fore and mid tarsi largely (the apical segments) black. Abdomen broad, tergites III and IV with mainly black pilosity. Parts of hypopygium as in fig. 163 E. 13-15 mm. Altay.
E. pratorum Meigen, 1822
- 53 (52) Face whitish pollinose with whitish pilosity. Arista with delicate and sometimes hardly visible pubescence, only near the base there are some long hairs. The two basal segments of all tarsi whitish yellow. The colour of abdomen and antennae quite variable: from reddish brown to black. Parts of hypopygium as in fig. 161. 11-12 mm. All Siberia.
E. vitripennis Strobl, 1893
- 54 (15) Eyes not meeting on frons, clearly separated by a broad stretch of the frons: ♀ ♀.

- 55 (62) Face without black longitudinal median stripe or with a hardly visible and very narrow shining black stripe.
- 56 (57) Thoracic dorsum with bluish grey pollinosity, with two broad stripes of golden brown dusting which do not reach the side margins. *E. cerealis* Fabricius
- 57 (56) Thoracic dorsum without dusting in the shape of either spots or stripes or a combination of these two.
- 58 (59) Basal half of arista with short and more dense pilosity. Mid tibia and as a rule also fore tibia entirely dull yellow. Thoracic dorsum with two poorly visible grey dusted longitudinal stripes. *E. abusivus* Collin
- 59 (58) Basal half of arista with long and more sparse pilosity. Fore and mid tibiae yellow with dark brown or black apical part (1/4-1/2). Thoracic dorsum without grey dusted stripes.
- 60 (61) Upper part of frons and anterior half of ocellar triangle with black pilosity. The black median stripe down the face usually absent. Smaller: 8-12 mm. *E. arbustorum* (Linnaeus)
- 61 (60) Frons and ocellar triangle entirely with light yellow hairs. Face usually with a very narrow median stripe. Larger: 12-14 mm. *E. ravidus* Violovitsh
- 62 (55) Face with well-developed shining black stripe down the middle.
- 63 (64) Eyes with two vertical bands of more dense pilosity. Arista bare. Hind tibia anteriorly and posteriorly long densely plumose. Abdomen with large yellow side spots or (*ab. hortorum* Meigen) uniformly brownish black, femora mainly black or (*ab. campestris* Meigen) hind femur yellow on the basal half. 14-16 mm. *E. tenax* (Linnaeus)
- 64 (63) Eyes with uniform pilosity, without such bands of more dense pile.
- 65 (66) Arista bare or with hardly noticeable short pubescence. Antennae, legs (except black tips of femora, black coxae and trochanters) and side spots on tergite II reddish yellow. *E. cryptarum* (Fabricius)
- 66 (65) Arista with long hairs (plumose).
- 67 (72) Wing with dark brown cloud: a transverse median spot, a vague cloud, or a zigzag band, sometimes quite narrow.
- 68 (69) Hind femur swollen and somewhat arched. Basal half of hind femur yellow. Wing stigma almost black, the dark brown median spot distinct, broad, stretching from the bifurcation of veins r_{2+3} and r_{4+5} almost to transverse vein ta (rm). *E. alpinus* (Panzer)
- 69 (68) Hind femur neither swollen nor arched.
- 70 (71) The yellow side spots on tergite II very large, hind margins of tergites II-IV broadly yellow, tergites III and IV with yellow pile. *E. horticola* (De Geer)
- 71 (70) The yellow side spots on tergite II either very small or completely absent, hind margin of tergites II-IV narrowly yellow, tergites III-IV mainly black-haired. *E. rupium* Fabricius
- 72 (67) Wing without dark band, cloud or stripe, completely hyaline.

- 73 (78) Frons yellow-haired, sometimes (*E. tundrarum* Frey) with a number of black hairs among the yellow ones.
- 74 (77) Thoracic dorsum dull, with greyish yellow dusting.
- 75 (76) Tergites III and IV with very short adpressed black pilosity. Tergites II-IV dull black with shining median bands.
E. rossicus Stackelberg
- 76 (75) Tergites III and IV with longer erect black and partly also light pile. All tergites shining black or with barely noticeable dull bands along fore and hind margins of tergites II-IV.
E. nemorum (Linnaeus)
- 77 (74) Thoracic dorsum weakly shining, undusted. Tergites III and IV entirely shining, with relatively long erect black pile.
E. tundrarum Frey
- 78 (73) Frons entirely or mainly black-haired.
- 79 (80) Thoracic dorsum with bicolorous pilosity: yellowish on the anterior half and black on the posterior half (sometimes a patch of light pilosity before the scutellum), scutellum usually for the greater part with dense black pile. Legs black, except for the basal 1/3 of hind femur, the basal half of fore and mid tibiae, the basal 2/3-3/4 of hind tibia and the greater part of the first two segments of mid tarsus, all of which are yellow.
E. nigricans Matsumura
- 80 (79) Thoracic dorsum with unicolorous pilosity: yellowish or brownish.
- 81 (82) Face with golden yellow dusting and pilosity. Arista with very strong pilosity. Fore and mid tarsi largely (the apical segments) black. Abdomen broader and shorter. Pilosity on tergites III and IV mainly black.
E. pratorum Meigen
- 82 (81) Face with whitish dusting and pilosity. Arista less hairy, sometimes with barely visible pubescence: there are only long hairs on the basal part. *E. vitripennis* Strobl

2. ERISTALINUS Rondani, 1857

Type species of the genus: *Musca sepulchralis* Linnaeus, 1758.

- 1 (2) Thoracic dorsum and abdomen black with bronze reflection, pilosity light yellow. Aedeagus and surstyli longer and narrower (fig. 162 K). 5-10 mm. All Siberia, east to the Pacific coastal region and Kamchatka, except in the tundra and the transitional zone from taiga to tundra.
E. sepulchralis (Linnaeus, 1758)
- 2 (1) The shining surface of thoracic dorsum and abdomen black with olive green tinge. Aedeagus and surstyli thicker and shorter. 7-9 mm. Sakhalin I. *E. riki* Violovitsh, 1957

3. LATHYROPHTHALMUS Mik, 1897

Type species of the genus: *Conops aeneus* Scopoli, 1763.

- 1 (2) Body black, shining, with distinct bluish reflection. Width of frons at antennal sockets in the ♀ about 1/5 of width of head. 10-12 mm. Tuva. *L. velox* Violovitsh, 1966
- 2 (1) Body black, shining, mostly with olive green reflection. Width of frons at antennal sockets in the ♀ about 1/3-1/4 of width of head. Hypopygium as in fig. 162 L. 10-12 mm. Southern Pacific coastal region. *L. aeneus* (Scopoli, 1763)

4. MYIATROPA Rondani, 1844

Type species of the genus: *Musca florea* Linnaeus, 1758.

- 1 (2) Abdomen with three pairs of yellow spots on tergites II-IV. Aedeagus and surstyli as in fig. 188 A. 11-15 mm. From the Urals to the southern Pacific coastal region.
M. florea (Linnaeus, 1758)
- 2 (1) Abdomen with yellow spots on tergite II and narrow yellow bands along the fore margins of tergites III and IV. Aedeagus and surstyli as in fig. 188 B. 11-14 mm. Tuva.
M. semenovi Smirnov, 1924

5. MEGASPIS Macquart, 1842

Type species of the genus: *Eristalis chrysopygus* Wiedemann, 1819.

Face black with very dense sulphur yellow or golden yellow dusting and with light yellow pilosity, silvery on the lower part. Frons black with similar dense golden dusting and dense short golden pilosity. Antennae brown, arista ochreous. Thoracic dorsum black, dull, with dense orange brown dusting, anteriorly and laterally golden orange, with very dense short erect golden orange pilosity. Scutellum and postalar calli jet black, weakly shining, with dense short black pile, a narrow band of somewhat longer orange golden hairs along the hind margin of scutellum. Upper parts of mesopleuron and pteropleuron with very dense long pile, orange with some black hairs immixed, or entirely black. Legs black, basal 1/3-1/2 of fore and mid tibiae and basal 1/5 of hind tibia whitish yellow with whitish pilosity; mid and hind tarsi orange, with short golden yellow and black pilosity; fore tarsus short and broad, with black and orange brown pilosity. Abdomen ovate, black, with very dense golden pile, tergite II bright yellow with a black stripe on hind margin, tergites III and IV with narrow, side-

ways somewhat broadening yellow bands or completely black (specimens from Japan, Ryukyu I.). 14-19 mm. Southern Pacific coastal region. *M. zonata* (Fabricius, 1787)

6. HELOPHILUS Meigen, 1822

Type species of the genus: *Musca pendulus* Linnaeus, 1758.

- 1 (14) The median yellow grey or grey stripes down the thoracic dorsum narrow, sometimes vague or weakly developed on the posterior half, exceptionally they may be clear throughout and easy to see.
- 2 (3) Third antennal segment orange yellow. Mid tibia entirely yellow. 11-14.5 mm. Southern Pacific coastal region, the islands Sakhalin, Kunashir, Shikotan, Iturup and Urup.
H. virgatus Coquillett, 1889
- 3 (2) Third antennal segment black or brown. Mid tibia yellow and black (dark brown).
- 4 (7) The yellow spots on tergite II very large, the larger part of the tergite yellow, grey bands on tergites III and IV absent. Abdomen short and broad.
- 5 (6) Sides of thorax yellow-haired. Mid femur black, the apical part (1/4-1/6) yellow. Abdomen, surstyli and gonocerci as in fig. 130 B. 10-15 mm. Mountains of Tuva, River Ob estuary, the islands Sakhalin and Iturup; Kamchatka, Chukotka.
H. lapponicus Wahlberg, 1864
- 6 (5) Sides of thorax black-haired. Mid femur: basal half black, apical half yellow. Abdomen, surstyli and gonocerci as in fig. 130 A. 12-13 mm. Altay. *H. altaicus* Violovitsh, 1973
- 7 (4) The yellow spots on tergite II of moderate size, the greater part of the tergite black. Grey bands on tergites III and IV well-developed.
- 8 (13) Thoracic dorsum yellow-haired.
- 9 (10) Tergite III without yellow spots, tergites II-IV with narrow bands of greyish dusting, sometimes narrowly interrupted in the middle (fig. 173 A). 10-12 mm. Altay, Trans-Baikal, Yakutia, Chukotka. *H. bottnicus* Wahlberg, 1844
- 10 (9) Tergite III with yellow side spots or rudiments of these, the grey dusted interrupted bands on tergite II-IV weakly developed, sometimes hardly noticeable.
- 11 (12) Black median stripe on face at central prominence occupying half the width of face. Arista light brownish. Aedeagus as in fig. 187. See also fig. 173 B. 11-14 mm. Northern Siberia from the Urals to Chukotka. *H. borealis* Staeger, 1844
- 12 (11) Black median stripe on face at central prominence occupying about 1/3 of width of face. Arista shining black. 13.5-15 mm. Islands in the Barentsz Sea and Laptow Sea.
H. limosus Violovitsh, 1977

- 13 (8) Thoracic dorsum yellow-haired with a broad band of black hairs between wing bases. The yellow triangular side spots on tergite II with a grey spot on the inner side. 12-14 mm. Northern Siberia from the Urals to Sakhalin I., Chukotka.
H. groenlandicus (Fabricius, 1780)
- 14 (1) The median longitudinal stripes on the thoracic dorsum broad, well-developed.
- 15 (16) Face with yellow median stripe. Abdomen with large yellow spots on tergites II and III and a band of grey dusting on tergite IV (♂) or on tergites IV and V (♀). Fig. 173 C. 14-16 mm. From the Urals to Sakhalin I. *H. trivittatus* (Fabricius, 1775)
- 16 (15) Face with black median stripe.
- 17 (18) Hind femur yellow on basal 1/3-1/2. The yellow side spots on tergites II and III large, a transverse band of grey dusting in the ♂ on tergite IV, in the ♀ on tergites III and IV. 12-14 mm. Tuva, Cis-Baikal, southern Pacific coastal region, Kamchatka.
H. continuus Loew, 1854
- 18 (17) Hind femur black basally.
- 19 (20) Hind margins of tergites black. Head of ♂ as in fig. 176 E. Fore tarsus yellow, yellowish brown, more rarely (in the ♀) black brown. The yellow spots on tergites II and III large, on tergite III with a grey dusted smudge on the inner part, in the ♂ with a grey transverse band on tergite IV, in the ♀ on tergites IV and V. 13.5-16.5 mm. All Siberia.
H. affinis Wahlberg, 1844
- 20 (19) Hind margins of tergites yellow.
- 21 (24) Antennae brownish yellow, reddish yellow or light yellow.
- 22 (23) Hind femur in the ♂ strongly swollen, ventrally bulged before the middle, hind tibia correspondingly curved ventrally (fig. 171). 11-13 mm. Southern Pacific coastal region, the islands Sakhalin, Kunashir, Iturup, Shikotan and Yuriy.
H. sapporensis Matsumura, 1916
- 23 (22) Hind femur moderately swollen, ventrally not bulged, hind tibia only weakly curved (fig. 172 D). Fore tarsus and tip of fore tibia black dorsally. The yellow pattern on tergite III in both sexes consisting of side spots presenting at the inner margins yellow dusted spots (larger in the ♀) which are clearly separated. Hypopygium as in fig. 172. 10-14 mm. Tuva, Buryatia, southern Pacific coastal region. *H. sibiricus* Smirnov, 1923
- 24 (21) Antennae black.
- 25 (26) Hind femur black, narrowly yellow at the tip, hind tibia yellow on the basal 1/3 (fig. 173 D). All Siberia.
H. hybridus Loew, 1846
- 26 (25) Hind femur yellow on the apical part (1/3-1/2), hind tibia yellow at least on the basal half (figs. 173 E and 177). 11-13 mm. All Siberia. *H. pendulus* (Linnaeus, 1758)

7. PARHELOPHILUS Girschner, 1897

Type species of the genus: *Syrphus frutetorum* Fabricius, 1775.

- 1 (2) Apical 1/3-1/4 of fore tibia black at least anteriorly. The grey dusted spot on tergite I broadly interrupted in the middle. Face pronouncedly concave below antennae, frons with black pilosity (fig. 176 C). All femora usually yellow basally, fore and mid femora also yellow on the apical half, hind femur also yellow at the tip (1/5-1/6). 8-11 mm. From the Urals to Cis-Baikal.
P. consimilis (Malm, 1863)
- 2 (1) Fore tibia entirely yellow or with a brown smudge at the tip interiorly. The grey dusted spot on tergite I not interrupted in the middle.
- 3 (4) Mid tarsus yellow, fourth and fifth segments black. Abdomen brown with a pattern of golden yellow arched side spots on tergites II and III, black fore margin and median stripe on tergite II, a brown median spot on a background of dense golden yellow dusting on tergite V. Aedeagus and surstyli as in fig. 182. 9-10.5 mm. Southern Pacific coastal region.
P. insignis Violovitsh, 1979
- 4 (3) Mid tarsus entirely yellow.
- 5 (6) Hind femur in the ♂ with a wart-like process on the anterior surface near the base, this process with a brush of long bristly black hairs on the top (fig. 181). Basal 1/3-1/2 of fore femur and basal 3/4-4/5 of hind femur black. Occiput in its upper part (behind the eyes) usually with long dense black pilosity. Abdomen in the ♂ with long erect golden yellow pile, mixed with black hairs on the hind parts of tergites II and III, in the ♀ the hairs are shorter and there are more black ones (fig. 173 F). 8-10 mm. From the Urals to Yenisey River, north to 63° N.L.
P. frutetorum (Fabricius, 1775)
- 6 (5) Hind femur in the ♂ without such process with a brush of hairs on the top. Abdomen in the ♀ with short semi-addressed or addressed pilosity.
- 7 (8) Hind femur exteriorly black in its basal 1/3-2/3 or with black spot in the middle. Bases of fore and mid femora (as much as 1/3 of their length) and approximately the basal half (or less) of hind femur (the dark part may be reduced to a small spot on the outer surface) black. Head of the ♂ as in fig. 176 B. Abdomen in the ♂ with shorter and light erect pilosity, in the ♀ with very short addressed yellow pilosity with a considerable number of black hairs on the hind portions of tergites II-IV. 9-11 mm. From the Urals to the River Ob.
P. versicolor (Fabricius, 1794)
- 8 (7) Hind femur yellow exteriorly.
- 9 (10) Hind trochanter shining black, basal 1/3 of fore and mid femora shining black posteroventrally. Hind femur irregularly

swollen, more so in its apical half. Hypopygium as in fig. 180 A. 8-9 mm. The islands Sakhalin and Kunashir.

P. obscurior Violovitsh, 1960

- 10 (9) Hind trochanter yellow, brown or sometimes almost black, dull, covered with greyish dusting, fore and mid femora yellow or with a vague brown smudge posteriorly near the bases. Hind femur swollen in a regular fashion. Hypopygium as in fig. 180 B. 9-12 mm. Southern Pacific coastal region, the islands Sakhalin and Kunashir.

P. kurentzovi Violovitsh, 1960

8. ANASIMYIA Schiner, 1864

Type species of the genus: *Musca transfuga* Linnaeus, 1758.

- 1 (2) The light coloured spots on tergites II-IV sharply bent, obviously recurrent inwardly and broadened at the tip like raindrops (fig. 174 A). Antennae yellow. Hind femur in the ♂ with a tubercle ventrally near the base. The stripes down the thoracic dorsum narrower. 8-10 mm. Western Siberia, Tuva.
A. transfuga (Linnaeus, 1758)
- 2 (1) The light coloured spots on tergites II-IV weakly curved, not recurrent inwardly; if somehow recurrent, then not extended at the tip.
- 3 (10) Antennae entirely yellow.
- 4 (7) Thoracic dorsum in the ♂ with broad longitudinal stripes in the middle. The light coloured side spots on tergite II in the ♀ more or less of the same width and regularly curved.
- 5 (6) Abdomen in the ♂ with large yellow irregularly triangular side spots on tergite II, the spots on tergite III are smaller and show round patches of golden yellow dusting at the top (fig. 174 B). The bluish grey side spots on tergite II narrow, tooth-shaped, their hind margin broadly rounded, the posterior half of the side margin black. Surstyli and gonocerci as in fig. 185. 9-11 mm. From the Urals to the Kuril Isles, Kamchatka, south to Kirghizia, Tuva.
A. lunulata (Meigen, 1822)
- 6 (5) Abdomen in the ♂ with relatively small yellow oval side spots on tergite II, these with bluish grey patches of dusting at the top, on tergite III the yellow spots appear in the shape of small longitudinal stripes in the front corners whereas the bluish grey dusted spots are large and kidney-shaped. Surstyli and gonocerci as in fig. 184. 8 mm. Tuva.
A. oblonga Violovitsh, 1979
- 7 (4) Thoracic dorsum in the ♂ with narrow light longitudinal stripes in the middle. The light side spots on tergite II in the ♀ obviously widened at the side margin and with at least their fore margin straight.
- 8 (9) The light side spots on tergite II in the ♂ long, narrow, hardly receding inwardly. The dust spots on tergites II-V in the ♀

golden yellow or golden greyish. Aedeagus, surstyli and gonocerci as in fig. 179. 8-11 mm. From the River Ob to the Pacific coastal region, Kamchatka, Chukotka.

A. inundata Violovitsh, 1979

- 9 (8) The light side spots on tergite II in the ♂ short and broad. The dust spots on tergites II-V in the ♀ bluish grey. Aedeagus, surstyli and gonocerci as in fig. 178. 7.5-9 mm. The islands Sakhalin and Kunashir.

A. pygmaea Violovitsh, 1979

- 10 (3) Antennae with first and second segments shining black, third segment reddish yellow. Width of head in the ♂ 4.7-5 times width of frons at its narrowest and 3.2-3.4 times width of vertex at hind corners of eyes; width of head in the ♀ 2.6 times width of frons at antennal sockets and 3 times width of vertex. In both sexes tergites II and III with yellow side spots or their remnants. Surstyli and gonocerci as in fig. 183. 7.5-9 mm. Tuva, Buryatia.

A. smirnovi (Stackelberg, 1924)

9. EURIMYIA Bigot, 1883

Type species of the genus: *Eurimyia rhingioidis* Bigot, 1883.

- 1 (2) Antennae black. The lower part of the face somewhat arched downwards. Hind femur narrowly yellow at the base, exteriorly black for over half its length. Tergite VI in the ♂ with black pilosity. Surstyli and gonocerci as in fig. 168 A. 8-9 mm. The islands Sakhalin, Iturup, Kunashir and Zelenyi.

E. japonica (Shiraki, 1930)

- 2 (1) Third antennal segment yellow. The lower part of the face as a rule not arched downwards. Hind femur broadly yellow at both extremities, the black spot on the exterior surface as a rule not more than half as long as the femur. Tergite VI in the ♂ with yellow pilosity. Surstyli and gonocerci as in fig. 168 B. 8-10 mm. From the Urals to Sakhalin. I.

E. lineata (Fabricius, 1787)

Pleskeola sibirica Stack., abdomen of the male (after Stackelberg). Page 123-124.



10. MESEMBRIUS Rondani, 1857

Type species of the genus: *Helophilus peregrinus* Loew, 1846.

Abdomen in the ♂ with large yellow spots on tergites II and III, in the ♀ large yellow spots on tergite II and broad grey dusted bands on the hind margins of tergites II-IV. 10-14 mm. From the River Ob to Lake Khasan (common), Central Asia to the frontiers of Afghanistan and China.

M. peregrinus (Loew, 1846)

11. LIOPS Rondani, 1857

Type species of the genus: *Mallota vittata* Meigen, 1822.

Width of frons in the ♂ at its narrowest point 1/7 of width of head, in the ♀ a little less than 1/3. Thoracic dorsum with short (particularly so in the ♀) light yellow pilosity. Sides of thorax with dense yellowish grey dusting. Scutellum yellowish brown, semi-transparent, fore margin with a black rim. Abdomen black with yellow rectangular side spots on tergite II in the ♂, rudimentary in the ♀, two longitudinal smudges of grey dusting on each of the tergites II-IV, yellowish grey ones laterally. 11-13.5 mm. Western and Central Siberia, Altay, Pacific coastal region. *L. vittatus* (Meigen, 1822)

12. ARCTOSYRPHUS Frey, 1918

Type species of the genus: *Arctosyrphus nitidulus* Frey, 1918.

Thoracic dorsum with dark grey longitudinal stripes. Legs black, knees brownish yellow. Abdomen black, entirely shining or with a small dull black patch in the middle of tergite II. 8-10 mm. Central Siberia, Yakutia, Pacific coastal region.

A. willingii (Smith, 1912)

13. MALLOTA Meigen, 1822

Type species of the genus: *Syrphus fuciformis* Fabricius, 1794 (Rondani, 1844).

- 1 (10) Eyes bare.
 - 2 (7) Abdomen with long woolly pile. Resembles bumblebee.
 - 3 (4) Pilosity of the body unicolorous. Thoracic dorsum, scutellum and abdomen with whitish yellow, brownish yellow or russet yellow pilosity. 9-16 mm. From the Urals to Sakhalin I.
- M. megilliformis* (Fallen, 1817)

- 4 (3) Pilosity of the body tricolorous.
- 5 (6) Hind trochanter with thorn-like process, fore and mid femora posteriorly for the greater part and hind femur anterodorsally with dense long light yellow or whitish pilosity. Anterior half of thoracic dorsum, scutellum, tergite I and a large part of tergite II with white pile; posterior half of thoracic dorsum, hind part of tergite II, the entire tergite III and the anterior 1/3-1/2 of tergite IV with black pile, remaining parts and tergite V with bright foxy pilosity. Aedeagus, surstyli and gonocerci as in fig. 193 B. 12-18 mm. Western Siberia, Altay, Khakassia, Buryatia, southern Pacific coastal region, Sakhalin I.
M. tricolor Loew, 1871
- 6 (5) Hind trochanter simple, all femora with black pilosity. First and second antennal segments black, third segment and arista reddish brown. Thoracic dorsum and scutellum of a dull black, slightly pollinose, with long dense erect pale yellowish grey pilosity, a band of black hairs between wing bases. Hind femur considerably swollen, with long dense erect black pile. Abdomen black, shining (hind margin of tergite IV light yellowish orange), with dense long semi-adpressed pile: yellowish grey on tergites I and II, black on tergite III and pale greyish yellow with orange tinge on tergite IV. Aedeagus, surstyli and gonocerci as in fig. 193 A. 14 mm. Sakhalin I.
M. inopinata Violovitsh, 1976
- 7 (2) Abdomen with short pilosity. Resembles bee.
- 8 (9) Hind femur not swollen. Vein an is curved towards the wing tip. Thoracic dorsum and scutellum with distinct golden yellow dusting and dense erect bright golden yellow pilosity which gradually becomes very long and semi-adpressed towards the sides, on the posterior part and on the scutellum. Abdomen black with three pairs of greyish dusted spots (dusting visible when viewed from rear) and not very dense short semi-adpressed golden yellow pilosity, becoming black towards tip of abdomen. 12-14 mm. Kunashir I.
M. unicolor (Shiraki, 1930)
- 9 (8) Hind femur much swollen. Vein an not curved towards wing tip. Thoracic dorsum with dark grey dusting and long woolly grey pilosity into which a considerable number of black hairs are immixed, which often form a dark band between wing bases. Abdomen dark brown, almost black with reddish brown, sometimes vague side spots on tergites II-IV (more rarely these are absent) and with narrowly white hind margins on the same tergites. Legs black or black brown, base of mid femur, fore and mid tibiae, basal 1/3-1/2 of hind femur, a ring close to the middle of hind tibia and as a rule also the basal part of hind tarsus yellow. 12-14 mm. From Western Siberia to Pacific coastal region.
M. eurasiatica Stackelberg, 1950
- 10 (1) Eyes with long dense pile.
- 11 (12) Fore tibia posteroventrally with a comb of dense long black

hairs. Thoracic dorsum and abdomen with dense long reddish yellow (rust-coloured) pile among which an inconsiderable number of black hairs near the wing bases and laterally on tergites II-IV. Wing with brownish infuscated cloud. 11-19 mm. From the Urals to the Kuril Isles, north to Kamchatka.

M. auricoma Sack, 1910

12 (11) Fore tibia posteroventrally without a comb of dense long black hairs.

13 (14) Abdomen with short pile, partly bare. Closely resembles *M. cimbiciformis* (Fall.), from which species it may be separated by means of the hairy eyes. Thoracic dorsum and scutellum black, with dense golden yellow pile. Abdomen black with brown round side spots on tergite II, with short golden yellow pile. The pilosity on abdomen is irregularly distributed in connection with the background colour: there are black hair bands on the hind margins of tergite II and the following, and on the fore margins of tergites III and IV. 19 mm. Southern Pacific coastal region. *M. eristaliformis* Sack, 1910
This species is in natura not known to the author. Quoted from A.A. Stackelberg (1950: 293) and Sack (1932: 334).

14 (13) Abdomen with long woolly pilosity.

15 (18) Hind tarsus dorsally entirely reddish yellow.

16 (17) Hind femur and hind tibia relatively slender and straight. Abdomen black with orange brown tergite III and orange yellow tergite IV; no black hairs on tergites II and III. Surstyli brown with subparallel straight side margins and broadly rounded tips (fig. 209 A). 17-19 mm. Kunashir I.

M. munda Violovitsh, 1955

17 (16) Hind femur and hind tibia swollen and arched. Posterior part of tergite II and anterior part of tergite III with black pilosity, tergites II and IV black. Surstyli black somewhat tapering towards tip (fig. 209 B). 16-19 mm. Southern Pacific coastal region, the islands Sakhalin and Kunashir.

M. japonica (Matsumura, 1916)

18 (15) Hind tarsus dorsally entirely brown or reddish yellow with black fourth and fifth segments.

19 (20) Hind femur in the ♂ much swollen and arched, ventrally towards tip a well-developed bulge. Thoracic dorsum with a broad band of black pilosity, in the ♂ broader and occupying the greater part of thoracic dorsum, in the ♀ only occupying the posterior half. A band of black pilosity on the abdomen: in the ♂ occupying posterior half of tergite II and nearly the entire tergite III, in the ♀ the posterior 1/3 of tergite II and lateral parts of tergite III. Surstyli broader (fig. 208 A). 17-20 mm. Southern Pacific coastal region, the islands Sakhalin and Kunashir.

M. bicolor Sack, 1919

20 (19) Hind femur in the ♂ moderately swollen and arched, the bulge, on the ventral side of the femur towards the tip, sloping.

21 (22) Thoracic and alar squamae of a light greyish yellow. The band of black pile on tergite II in the ♂ broad, occupying most of the

tergite, absent in the ♀. Thoracic dorsum and abdomen in the ♀ with olive green yellowish grey pilosity with a limited number of black hairs among these in the hind corners of tergites III and IV. Surstyli narrow (fig. 208 B). 16-20 mm. Southern Pacific coastal region, the islands Sakhalin and Kunashir.

M. dimorpha (Shiraki, 1930)

- 22 (21) Thoracic and alar squamae nearly black, with golden yellow ciliation. The band of black pilosity on tergite II in the ♂ reduced to an inconsiderable patch in the middle of the hind margin.
- 23 (24) The light body hairs are bright lemon-coloured. Surstyli broader (fig. 189). Larger: 17-20 mm. Southern Pacific coastal region.
- M. citrea* Violovitsh, 1978
- 24 (23) The light body hairs are of a drab whitish yellow. Surstyli narrower (fig. 190). Smaller: 16-17 mm. Southern Pacific coastal region.
- M. subcitrea* Violovitsh, 1978

14. PLESKEOLA Stackelberg, 1924

Type species of the genus: *Pleskeola sibirica* Stackelberg, 1924.

Frons yellow, trapezoid (at antennal sockets twice as wide as at its narrowest point); vertex black, same width and shape. Antennae reddish yellow, third segment round; arista long, light brownish. Face yellow, projecting as in *A. lunulata* (Mg.), but somewhat truncated, jowls and mouth edge black. Frons and face with fairly long delicate yellow pilosity, vertex with longer and black pilosity. Thoracic dorsum black with three hardly noticeable longitudinal stripes, a very narrow one in the middle, a broader and more conspicuous one at each side; these stripes join before scutellum and form a rectangular dusted spot. Sides of thorax shining black, with whitish yellow pilosity. Scutellum of a drab yellow, hardly translucent. Legs black and shining, hind femur somewhat swollen, with a tubercle covered with black bristles ventrally on the basal fourth; fore tarsus, hind knee and base of hind femur yellowish brown. Wing brownish, transverse vein r_4 situated somewhat beyond the middle of cell D, vein r_{4+5} dipping less deeply than in *Eristalis* Latr. or *Helophilus* Mg. Haltere whitish. Abdomen a dull black, side margins of tergites II and IV, all margins of tergite III and posterior margin of tergite IV shining black, laterally on tergite II two triangular yellow spots joined in the middle by means of a large ellipsoid grey dusted spot; tergite III with two large transverse ovate grey dusted spots and a triangular spot on the hind margin. Pilosity of abdomen moderately long, mainly black, along the margins white and on pre-genital segment yellow. 8.5 mm. Yeniseisk.

P. sibirica Stackelberg, 1924

The species, being unknown to the author in natura, quoted from the description of the only known ♂ specimen (Stackelberg, 1924).

V. SUB-FAMILY MERODONTINAE

Key to the identification of the genera

- 1 (2) Face and mouth edge produced. Hind femur ventrally on the apical third with a strong triangular tooth. Vein r_{4+5} above cell R_5 strongly arched. **MERODON** Meigen
- 2 (1) Face flat, not produced at mouth edge. Hind femur ventrally on the apical third without a triangular tooth, and, at least on the apical half, provided with spines; vein r_{4+5} above cell R_5 straight or weakly (slopingly) arched. **EUMERUS** Meigen

1. MERODON Meigen, 1803

Type species of the genus: *Syrphus clavipes* Fabricius, 1781.

Frons black with yellowish dusting and pilosity of the same colour, eyes meeting at an acute angle, height of frons 1.5 times the actual approximation of the eyes, width of frons in the ♀ 1/3 of width of head. Thorax and abdomen nearly dark brown, with mainly light yellow pilosity; legs, especially hind leg, with short golden pilosity. The anterolateral parts of thoracic dorsum (including the humeri) bronze-coloured. Abdomen with large yellowish brown spots on the anterolateral part of tergite II and with narrowly interrupted bands of whitish (bluish) dusting on tergites III and IV. 11-13.5 mm. Altay, Tuva, Sayany. **M. alexeji** Paramonov, 1925

2. EUMERUS Meigen, 1822

Type species of the genus: *Syrphus tricolor* Fabricius, 1798.

Males

- 1 (4) Abdomen red for a certain length or reddish yellow or with side spots in this colour on tergites II and III.
- 2 (3) Thoracic dorsum and scutellum with very short pilosity. All tarsi black. Abdomen red, the base, a more or less developed median stripe down tergites II and III and the entire tergite IV black. There are lunules of grey dusting on tergites II-IV. 7-10 mm. Western Siberia. **E. tricolor** Meigen, 1822

- 3 (2) Thoracic dorsum and scutellum with long downy pilosity. Fore and mid tarsi, the basal 1/3-1/2 of tibiae and knees brownish yellow. Tergites II and III with large brownish red spots laterally. 9-10 mm. Western Siberia.
E. sinuatus Loew, 1855
- 4 (1) Abdomen entirely blue, black or metallic green, sometimes with a brownish stripe on the hind margin of tergite IV, or with translucent side spots on tergite II. The stripes of greyish, bluish grey or whitish dusting laterally on tergites II, III or IV may be present or absent.
- 5 (6) Hind femur with a sloping tubercle at the base and two rows of delicate spines ventrally on the apical 1/3-1/2. Antennae reddish yellow or reddish brown. The stripes of light coloured dusting down the thoracic dorsum are well-developed and reach beyond the transverse suture. Abdomen bronze green, tergite IV with clear well-developed grey dusted stripes. Gonocoxites straight, not hooked. 5-6 mm. All Siberia.
E. tuberculatus Rondani, 1857
- 6 (5) Hind femur without tubercle at the base.
- 7 (18) Antennae black or black brown.
- 8 (11) The first three segments of fore tarsus whitish, laterally at their tips one or two long stout black bristles longer than width of segment, second and third segments of fore tarsus ventrally near the base with a well-marked black spot.
- 9 (10) Eyes with dense fairly long whitish pilosity. Vertical triangle broader, the ocelli placed in an equilateral triangle, vertex with long yellowish white pilosity. Face whitish grey dusted. Abdomen relatively broad with three pairs of oblique spots of grey dusting, sternite IV with a sloping arched incision. 8-11 mm. Cis-Amur, southern Pacific coastal region.
E. ussuriensis Stackelberg, 1952
- 10 (9) Eyes with short and sparse light pilosity. Vertical triangle narrower, ocelli in an isosceles triangle, vertex with long brown pilosity. Face metallically shining, undusted. Abdomen longer than in *E. ussuriensis* Stack., almost black, hind margin of tergite IV reddish, or reddish yellow. 8-11 mm. Cis-Amur, southern Pacific coastal region.
E. djakonovi Stackelberg, 1952
- 11 (8) Fore tarsus all black or black brown, without long black bristles basally; if first three segments yellow brown then ventrally without well-marked black spots.
- 12 (13) Second to fourth segments of hind tarsus short, second segment about twice as broad as long, third and fourth segments about three times as broad as long. Eyes nearly bare. Frons and face with white dusting and long white pilosity. Vertical triangle relatively narrow, black-haired, the ocelli placed in an isosceles triangle. The spots of light coloured dusting on the abdomen are placed obliquely, they are narrow on tergite II, moderately broad on tergite III; sternite IV with deep rectan-

gular incision in hind margin. Pre-genital segment black-haired. 8-10 mm. Pacific coastal region.

E. chrysopygus Sack, 1941

13 (12) Second, third and fourth segments of hind tarsus not shortened, at least second segment longer than broad.

14 (15) Eyes with moderately long dense pilosity. Vertical triangle narrow. Tergite IV without spots of greyish dusting. Vertical triangle shining, ocelli in an equilateral triangle. Abdomen with lunules of grey dusting on tergites II and III; sternite IV with a shallow arched incision in hind margin. 7 mm. Cis-Baikal.

E. sibiricus Stackelberg, 1952

15 (14) Eyes with sparse short pilosity. Vertical triangle broad. Tergite IV as a rule with distinct spots of whitish grey dusting.

16 (17) Vertical triangle, occiput, thoracic dorsum and scutellum black with distinct bronze reflection. Sternite IV with a triangular incision in hind margin. Surstyli as in fig. 202. Vertical triangle metallic green. Legs blackish green, shining, basal 1/3 of tibiae yellow. Abdomen with three pairs of white dusted lunules, sternite IV with a more or less sloping triangular incision in hind margin. Larger: 6-8 mm. From the Urals to Sakhalin I., Kamchatka and Chukotka.

E. strigatus (Fallen, 1817)

17 (16) Vertical triangle, occiput, thoracic dorsum and scutellum black with blue reflection, sternite IV with a broad shallow subrectangular incision in hind margin. Surstyli of more or less the same width. Eyes in actual approximation for a distance which is proportioned to height of frons approximately as 1.5 : 2. Smaller: 4.5-5.5 mm. Tuva. See also couplet 25.

E. arat Violovitsh, 1981

18 (7) Antennae yellow, reddish yellow or reddish brown.

19 (24) Hind tibia broadened either over its entire length or its apical 1/4-1/3, with long dense white pile.

20 (21) Hind tibia much broadened, exteriorly with dense snow white pilosity all the way. Frons with light yellow dusting and long light yellow pilosity. Face metallic green, undusted, with brownish yellow pilosity. Antennae of a light reddish yellow. Vertical triangle narrow and long, the ocelli placed far to the fore, forming an equilateral triangle. Thoracic dorsum without light longitudinal stripes, with long dense light yellow pile. Hind femur black, fore and mid tibiae of a light yellowish brown, fore and mid tarsi white, except basally. Abdomen with three pairs of narrow white lunules. Pre-genital segment black and also black-haired. Surstyli relatively large, yellow. 7 mm. Southern Pacific coastal region.

E. elegantissimus Stackelberg, 1930

21 (20) Hind tibia somewhat broadened, only in the basal 1/4-1/3; with dense white pilosity.

22 (23) Second segment of hind tarsus much widened (hardly any longer than broad). The light lunules or subtriangular side spots on tergite II moderately large. Thoracic dorsum, scutellum, sides

of thorax and legs with golden yellow pile. 7 mm. Altay, Tuva, Pacific coastal region, Cis-Amur.

E. flavitarsis Zetterstedt, 1843

- 23 (22) Second segment of hind tarsus moderately widened (1.5 times as long as broad). The light, somewhat translucent round spots on tergite II large, occupying about half the width of tergite. Dorsum and sides of thorax, scutellum and legs with light yellow, almost whitish pilosity. 6-9 mm. Southern Pacific coastal region, Sakhalin I.

E. japonicus Matsumura, 1915

- 24 (19) Hind tibia and hind tarsus normal, not widened, with short golden yellow pilosity.

- 25 (26) The greyish dusted spots on tergite IV about as broad as the ones on tergites II and III. Smaller: 4.5-5.5 mm. See also couplet 17.

E. arat Violovitsh

- 26 (25) The greyish dusted spots on tergite IV at least twice as broad as the spots on tergite II. Larger 8.5-11 mm.

- 27 (28) Scutellum, hind femur and hind tibia with white pilosity. Eyes nearly bare, eyes joining for a distance equalling height of frons. Antennae reddish brown. Tergites II-IV with oblique, somewhat arched greyish white dust spots: the ones on tergite IV more than twice as broad as the ones on tergite II. Hind margin of sternite IV with a deep rectangular incision (fig. 201). 8.5-9 mm. Southern Pacific coastal region.

E. dux Violovitsh, 1981

- 28 (27) Scutellum, hind femur and hind tibia with golden yellow pilosity. The grey dust spots on tergite IV broader than in *E. dux* Viol. On the hind margin of sternite IV, next to the rectangular incision, a rounded process. Larger: 11 mm (fig. 200). Southern Pacific coastal region.

E. inopinatus Violovitsh, 1981

Females

- 1 (8) Abdomen entirely or partly red or with reddish or yellow brown spots on tergites II and III.

- 2 (5) First three segments of fore and mid tarsi yellowish white underneath; second and third segments of these tarsi with a sharply delineated black spot at the base ventrally.

- 3 (4) Eyes with fairly long dense pilosity. Thoracic dorsum with longer erect pile. Hind tibia on the basal 1/3 brownish yellow. Abdomen with orange or light brown triangular side spots on tergites II and III. 8-11 mm.

E. ussuriensis Stackelberg

- 4 (3) Eyes almost bare. Thoracic dorsum with shorter erect pile. Hind tibia brown only at the base. Abdomen for the greater part red or with red side spots on tergite II. 8-10 mm.

E. djakonovi Stackelberg

- 5 (2) Fore and mid tarsi mainly black or black brown.
- 6 (7) Thoracic dorsum with short semi-adpressed pilosity. Third antennal segment small, its width nearly twice less as width of frons. The stripes of white dusting down thoracic dorsum only noticeable anteriorly. Abdomen as a rule entirely red, lunules of white dusting inconspicuous. 7-10 mm.
E. tricolor Meigen
- 7 (6) Thoracic dorsum and scutellum with fairly long erect pile, finely punctuated and strongly shining. Hind femur only little swollen.
E. sinuatus Loew
- 8 (1) Abdomen entirely metallic green, blue or black, without red or yellow side spots on tergites II and III, sometimes only with a more or less broad yellow or brownish stripe along hind margin or tergite IV.
- 9 (18) Antennae black or black brown.
- 10 (15) Face undusted or with barely noticeable pollinosity, metallically shining.
- 11 (12) Fore tarsus entirely brown, third segment as long as broad or a little broader than long. Eyes almost bare. 8-10 mm.
E. chrysopygus Sack
- 12 (11) First three segments of fore tarsus, at least underneath, yellowish white, third segment longer than broad, second and third segments with a black spot underneath basally.
- 13 (14) Eyes with long dense light coloured pile. Thoracic dorsum and abdomen with longer erect pilosity, the abdomen mainly with light coloured pile. Abdomen dark olive green, metallically shining, hind tibia brownish yellow on the basal 1/3. 8-11 mm.
E. ussuriensis Stackelberg
- 14 (13) Eyes almost bare. Thoracic dorsum and abdomen with shorter semi-adpressed pilosity, abdomen with mainly black pilosity. Abdomen black, with faint metallic shine or (see couplet 4) with red side spots on tergite II or mainly red. Hind tibia brown only at the base. 8-10 mm.
E. djakonovi Stackelberg
- 15 (10) Face with dense greyish white dusting.
- 16 (17) The lunules of whitish dusting only appear on tergites II and III. Body dark bronze or olive green. Thoracic dorsum finely and densely punctuated, faintly shining. 7 mm.
E. sibiricus Stackelberg
- 17 (16) The lunules of whitish dusting appear on tergites II-IV. Third antennal segment broad, about 1.5 times as long as broad. Eyes sparsely pilose, almost bare. Tarsi for the major part black or black brown. 6-8 mm.
E. strigatus (Fallen)
- 18 (9) Antennae reddish yellow or reddish brown.
- 19 (20) The stripes of light coloured dusting down thoracic dorsum absent.
E. japonicus Matsumura,
E. elegantissimus Stackelberg
- 20 (19) The stripes of light coloured dusting down thoracic dorsum present.

- 21 (22) Third antennal segment round (hardly longer than broad).
Fourth segment of hind tarsus broad (about 1.5 times as broad
as long). *E. flavitarsis* Zetterstedt
- 22 (21) Third antennal segment oval, obviously longer than broad.
- 23 (26) Legs black and shining, knees brown. Larger: 9-12 mm.
- 24 (25) Width of vertex about 1/4 of width of head. Sides of thorax,
scutellum, hind femur and hind tibia with white pilosity.
Smaller: 9 mm. *E. dux* Violovitsh
- 25 (24) Width of vertex about 1/5 of width of head. Sides of thorax,
scutellum, hind femur and hind tibia with golden yellow pilo-
sity. Larger: 12 mm. *E. inopinatus* Violovitsh
- 26 (23) At least basal 1/3 of all tibiae and a large part of fore and mid
tarsi orange yellow. Small flies, body length 4.5 mm.
E. arat Violovitsh

VI. SUB-FAMILY MILESIINAE

Key to the identification of the genera

- 1 (32) Antennae shorter than the head.
- 2 (7) Hind femur ventrally at the tip with strong triangular (1 or 2)
tooth/teeth.
- 3 (6) Hind femur swollen with large strong triangular tooth ventrally
at the tip.
- 4 (5) Face straight with longitudinal keel, not projecting. In the ♂
sternite IV of the usual shape.
1. *TROPIDIA* Meigen
- 5 (4) Face without a longitudinal keel, on the lower part conically
projecting. In the ♂ sternite IV turned downwards, in the shape
of a sloping roof on the sides of which two brushes of coarse
bristle-like bright golden hairs, directed inwards.
2. *RHINOTROPIDIA* Stackelberg
- 6 (3) Hind femur almost not swollen, with two distinct teeth inte-
riorly and ventrally on the apical part. Abdomen dull, the
median part yellow, with parallel sides.
9. *MACROZELIMA* Stackelberg
- 7 (2) Hind femur ventrally towards the tip without triangular teeth,
though often with spines or small teeth.
- 8 (17) Body with long woolly pilosity.
- 9 (10) Hind femur ventrally with strong spines. Face without median
prominence. 6. *BRACHYPALPUS* Macquart
- 10 (9) Hind femur without spines ventrally. Face with a well-
developed median prominence.
- 11 (12) Top section of vein m_{1+2} joining vein r_{4+5} at a considerable
distance from wing margin. Eyes in the ♂ not meeting on frons.
4. *CRIORHINA* Meigen

- 12 (11) Top section of vein m_{1+2} joining vein r_{4+5} near wing margin, final section of vein r_{4+5} therefore very short. Eyes in the ♂ meeting on frons.
- 13 (14) Thoracic and alar squamae whitish.
5. BLERA Billberg
- 14 (13) Thoracic and alar squamae blackish.
- 15 (16) Wing with conspicuous dark transverse median cloud and darkened tip. Abdomen uniformly black, brightly shining, with very dense long pilosity. Smaller: 12-14 mm.
3. POCOTA Lepeletier et Serville
- 16 (15) Wing without dark cloud and darkened tip. Abdomen black, with shorter pilosity and with yellowish bands, interrupted in the middle, on tergites II-IV. Larger: 15-22 mm.
7. MATSUMYIA Shiraki
- 17 (8) Body with short pilosity.
- 18 (25) Thorax black, without yellow pattern, sometimes with only yellow humeri.
- 19 (20) Hind femur without spines. Abdomen mainly metallicly shining, elongate oval. Face (seen in profile) straight, not projecting at mouth edge. Frons conical, strongly projecting. Eyes in the ♂ in very close approximation (separated by a very narrow stripe), humeri yellow, hind femur not swollen.
11. CALIPROBOLA Rondani
- 20 (19) Hind femur, at least on apical part, with spines.
- 21 (22) Face with longitudinal keel. Hind femur very much swollen, with rows of strong small spines.
10. SYRITTA Lepeletier et Serville
- 22 (21) Face without longitudinal keel. Hind femur as a rule moderately swollen.
8. XYLOTA Meigen
- 23 (24) Anterior half of wing (as far as anal and medial veins) brownish. Hind femur hardly swollen, ventrally on the apical 1/3 with delicate bristle-like spines.
12. CHRYSOSOMIDIA Curran
- 24 (23) No brown cloud on anterior half of wing. Hind femur usually distinctly swollen, with stout spines.
- 25 (18) Thorax with distinct well-developed yellow pattern.
- 26 (27) Cell R_1 closed, with short stalk to wing margin.
13. MILESIA Latreille
- 27 (26) Cell R_1 open.
- 28 (29) Hind femur with small tooth ventrally on apical 1/3. Top section of vein an sinuate.
14. SPILOMYIA Meigen
- 29 (28) Hind femur without tooth ventrally on apical 1/3. Top section of vein an short, almost straight.
- 30 (31) Abdomen conical, waisted basally, broadened apically.
16. TAKAOMYIA Hervé-Bazin
- 31 (30) Abdomen elongate oval, not waisted in basal half.
15. TEMNOSTOMA Lepeletier et Serville

- 32 (1) Antennae obviously longer than head.

17. SPHECOMYIA Latreille

1. TROPIDIA Meigen, 1822

Type species of the genus: *Eristalis milesiformis* Fallen, 1817.

- 1 (2) Antennae reddish yellow. Thoracic dorsum greenish black with whitish humeri and two stripes down the middle. Fore and mid femora blackish, their apical part, fore and mid tibiae and tarsi reddish yellow. 8-10 mm. Kunashir I.

T. fasciata Meigen, 1822

- 2 (1) Antennae brownish or black. Legs shining black, the basal 2/3 of fore and mid femora, tips of fore and mid tibiae, and tarsi (except the dull black fourth segment) reddish yellow. Hind leg black, except the reddish yellow base of tibia. Hypopygium as in fig. 221 I. 8-9 mm. Sakhalin I.

T. scita (Harris, 1782)

2. RHINOTROPIDIA Stackelberg, 1930

Type species of the genus: *Tropidia rostrata* Shiraki, 1930.

Face and frons light yellow, almost white, with yellowish golden dusting, at the sides with yellowish pilosity. Vertex shining black, with relatively long yellow hairs. Frons bare. Jowls yellow. Antennae light yellow. Thoracic dorsum black, shining, with relatively broad grey stripes down the middle. Scutellum shining black with narrowly yellow rim. Legs yellow, fore and mid femora with black longitudinal stripe, hind femur, except for the basal 1/4, black; fore tibia brownish at the tip, basal half of hind tibia yellow with a black ring, apical half quite black. Wing hyaline, stigma light brown on basal half. Abdomen mainly yellow, tergite I black, tergites II and III with black median stripe and relatively broad bands along hind margins, tergite IV black with yellow spot anteriorly and yellow hind margin. The black pattern on abdomen more extended in the ♀. 8 mm. Southern Pacific coastal region.

R. rostrata (Shiraki, 1930)

3. POCOTA Lepeletier et Serville, 1828

Type species of the genus: *Musca apiformis* Schrank, 1781

Antennae black. Scutellum entirely with golden yellow pilosity. Legs black, tips of femora, basal 1/3 of tibiae and first two segments of mid tarsus yellow. Abdomen broad, ovate, with

golden sheen; tergite I, a small spot in the middle of tergite II, the apical tergites and pre-genital segment black, shining. 14-15 mm. Sakhalin I. *P. stackelbergi* Violovitsh, 1967, ♂

4. CRIORHINA Meigen, 1822

Type species of the genus: *Syrphus asilicus* Fallen, 1816

- 1 (4) Fore and mid tibiae posteriorly, hind tibia at least in the median part ventrally with long erect pilosity.
- 2 (3) Abdomen entirely covered with dense long woolly black pile. The black stripe down the face in the ♀ occupying a large part of the width of the face. Legs black, knees brown, femora largely with very long dense black pile, tibiae with shorter and moderately dense black pile. Wing brownish, the basal sections of veins $r_{2+3} + r_{4+5}$ and the transverse venal system of veins m and cu with smoky brown borders. Haltere black brown. Abdomen black, shining, with very dense black pile, tergite I and two small oval spots near the middle of tergite II covered with grey dusting (fig. 203). 17 mm. Kuril Isles (Urup I).
C. konakovi Stackelberg, 1955, ♀
- 3 (2) Abdomen with light coloured pilosity either for the greater part or only at the tip. Face in both sexes without black median stripe, entirely dusted. Legs black; knees, the bases of fore and hind tibiae and mid tarsus brownish yellow; legs largely covered with long woolly light yellowish grey pilosity, apical half of hind femur and the median section of tibiae as a rule with black pilosity. Abdomen of a dark bronze hue, shining, with long woolly light yellowish grey pilosity, tip of abdomen as a rule with black pile (fig. 204). 13-17 mm. Southern Pacific coastal region. *C. sichotana* Stackelberg, 1955
- 4 (1) Tibiae entirely covered with short adpressed pilosity.
- 5 (8) Distance between the eyes in the ♂ approximately equal to the distance between the antennal sockets (*C. aino* Stack. ♂ unknown). Tergite V in the ♀ with a band of grey dusting which is interrupted in the middle.
- 6 (7) Mid and hind femora in the ♀ black. Head as in fig. 205 A. Pilosity on thoracic dorsum yellowish with reddish tinge. Abdomen black, faintly shining without steely reflection, tergites II-IV in the ♂ and tergites II-V in the ♀ with narrow, as a rule interrupted, bands of grey dusting, which in tergite II does not at all approach the side margin. Pre-genital segment black-haired. 13-15 mm. Southern Pacific coastal region, Urup I. (Kuril Isles). *C. ussuriana* Stackelberg, 1955
- 7 (6) Mid and hind femora in the ♀ yellow. Very closely related to *C. ussuriana* Stack. Can be separated from this species by the stronger grey pollinosity of the lateral parts of the face and on the frons and by the reddish yellow mid and hind legs. Fore leg

- black brown with lighter knee, fifth segment of tarsus black. 14 mm. Sakhalin I. *C. aino* Stackelberg, 1955, ♀
- 8 (5) Distance between eyes in the ♂ about half as much as the distance between the antennal sockets. Tergite V in the ♀ as a rule without a band of light coloured dusting.
- 9 (12) Fore leg black with brownish yellow knee.
- 10 (11) Vertex with light yellow pilosity, sometimes mixed with a small number of dark hairs. Hind margins of tergites II and III black. Face with dense golden yellow dusting and with a shining black median longitudinal stripe: its width in the ♂ 1/3, in the ♀ 1/4 of width of face. Fore leg black or dark brown with yellow knee and yellow base of tibia; mid and hind legs, except for coxae, trochanters and fifth segment of mid tarsus, yellow or brown, more rarely yellow brown. Wing somewhat brownish infuscated, especially on the pre-apical part, with a darker narrow band near the bifurcation of vein r_{2+3} and the transverse venal system of vein cu. Abdomen black, with light pilosity, three pairs of thin oblique stripes of dense golden yellow dusting laterally on tergites II-IV, the stripes on tergite II being more oblique and twice as broad as the ones on tergite III, the side parts and hind margin of tergite I with less dense dusting. 10-14 mm. Southern Pacific coastal region.
C. stackelbergi Violovitsh, 1973
- 11 (10) Vertex with black pilosity. Hind margins of tergites II and III with narrow whitish grey stripe. Face with whitish dusting. Frons shining black, with narrow stripe of whitish dusting along eye margins. Fore leg, except for the yellow knee, black or dark brown, mid femur entirely and hind femur partly black brown to black, as well as fourth and fifth segments of mid and hind tarsi, the remaining parts of the legs reddish brownish yellow. Haltere light yellow. Abdomen black with thin oblique narrowly interrupted bands of dense white dusting on tergites III and IV, subtriangular side spots on tergite II and a narrow stripe along the hind margins of tergites II and III. 15 mm. Lesser Kuril Isles (Shikotan I.).
C. tsherepanovi Violovitsh, 1974, ♂
- 12 (9) Fore tibia and first segment of fore tarsus yellow. Head as in fig. 205 B. Thoracic dorsum in the ♀ with reddish yellow pile, very dense and long. Abdomen black, faintly shining, tergites II-IV with narrow bands of grey dusting, as a rule interrupted in the middle. The band on tergite II may be rudimentary or altogether absent. 12-14 mm. Western Siberia, including Altay, Krasnoyarsk, Cis-Baikal, Trans-Baikal, southern Pacific coastal region.
C. brevipila (Loew, 1871)
Examination of a large number of specimens of *C. montana* Violovitsh collected in Western Siberia, Altay, Trans-Baikal and the southern Pacific coastal region showed they were completely identical with *C. brevipila* (Loew). Therefore *C. montana*

Violovitsh, 1973 is obviously synonymous with *C. brevipila* (Loew, 1871).

5. BLERA Billberg, 1820

Type species of the genus: *Musca fallax* Linnaeus, 1758.

- 1 (4) Face with black median longitudinal stripe.
- 2 (3) The yellow spots on tergite II small, triangular, separated by about 5/7 of the width of tergite (at the level of the spots). Abdomen black, shining, with faint golden tinge, the yellow spots on tergites III and IV in the ♂ smaller and narrower than on tergite II, in the ♀ this is the case for tergite III; the yellow pattern consists of narrow bands, broadly interrupted in the middle, widening towards the sides of the tergites; on tergites IV and V the bands somewhat wider and not so broadly interrupted, especially on tergite V. 11-13 mm. Altay, southern Pacific coastal region, Sakhalin I.
B. nitens (Stackelberg, 1923)
- 3 (2) The yellow spots on tergite II very large, transversely rectangular, strongly widened towards side margins, separated by 1/6 of width of tergite (at the level of the spots). Abdomen black, shining, with distinct golden purple tinge, the yellow narrowly interrupted bands on tergites III-V broad (about half as broad as the tergite is long). 11-13 mm. Southern Pacific coastal region, the Islands Sakhalin and Kunashir.
B. japonica (Shiraki, 1930)
- 4 (1) Face yellow, unicolorous, without black median stripe.
- 5 (6) Tergite III and the following orange yellow. Hypopygium as in fig. 221 G. 10-13 mm. The entire taiga belt in Siberia, including Sakhalin I. and Kamchatka.
B. fallax (Linnaeus, 1758)
- 6 (5) Tergite III and the following black.
- 7 (10) Dorsum of abdomen entirely black.
- 8 (9) Ocellar triangle, occiput, thoracic dorsum and scutellum with golden yellow pilosity, obviously mixed with black hairs. Base of aedeagus, surstyli and upper lobe of hypandrium narrower (fig. 199). 11.5 mm. Altay.
B. velox Violovitsh, 1976, ♂
- 9 (8) Ocellar triangle, occiput, thoracic dorsum and scutellum with uniformly golden yellow pilosity (no black hairs among them). Base of aedeagus and upper lobe of hypandrium broader, surstyli shorter and broader (fig. 198). 10-12 mm. Southern Pacific coastal region, Sakhalin I., Kamchatka.
B. eoa (Stackelberg, 1928)
- 10 (7) Abdomen black with a yellow translucent, medially interrupted band. Thoracic dorsum black, humeri yellow. 10-11 mm. Southern Pacific coastal region.
B. ochrozona (Stackelberg, 1928)

6. BRACHYPALPUS Macquart, 1834

Type species of the genus: *Brachypalpus tuberculatus* Macquart, 1834.

Frons and face black, face separated from frons by a yellow transverse stripe below antennal sockets, lower part of face yellow anteriorly. Body with long dense light yellow pilosity, tergite III and the following tergites in the ♂ with a number of black hairs among the yellow ones, in the ♀ with white hairs among the yellow ones. Legs orange yellow, fore femur, except base and tip, black, mid femur sometimes black anterodorsally for the apical half, hind femur with black apical half, hind tibia on the median part mainly brownish, the other tibiae more or less brownish. Abdomen uniformly black. Hypopygium as in fig. 221 H. 12-15 mm. Western Siberia, Cis-Amur, Pacific coastal region, the islands Sakhalin and Kunashir.

B. nipponicus Shiraki, 1952

7. MATSUMYIA Shiraki, 1949

Type species of the genus: *Priomerus jesoensis* Matsumura, 1911.

Males

- 1 (2) Face strongly jutting forward and downward. Face as a rule with a well-developed black median longitudinal stripe. The ventral side of the less swollen hind femur almost straight (fig. 207 A). Hypopygium as in fig. 221 K. 12-21 mm. The islands Sakhalin and Kunashir.

M. nigrofacies Shiraki, 1949

- 2 (1) Face only projected forward (axe-shaped), without black median stripe. The more swollen hind femur concave ventrally (fig. 207 B). Hypopygium as in fig. 221 L. 16-22 mm. The islands Sakhalin and Kunashir.

M. jesoensis (Matsumura, 1911)

Females

- 1 (2) Face below antennal sockets black, without spots of silvery grey dusting, face shaped almost as in the ♂, conical. 15-21 mm. *M. nigrofacies* Shiraki
- 2 (1) Face below antennal sockets with broad spots of silvery grey dusting, face shaped almost as in the ♂, axe-like. 17-22 mm. *M. jesoensis* (Matsumura)

8. XYLOTA Meigen, 1822

Type species of the genus: *Musca sylvarum* Linnaeus, 1758.

- 1 (2) Sternite IV in the middle of the hind margin with two leaf-like processes and in the upper side corners two folded processes. Legs black, the basal half of the much swollen hind femur reddish yellow. Abdomen black, shining, with thin transverse grooves (shagreened), the anterior half of tergite IV arched (fig. 227). 12 mm. Southern Pacific coastal region.
X. unica Violovitsh, 1977
- 2 (1) Sternite IV without such processes.
- 3 (4) The much swollen hind femur ventrally with three processes distributed over its entire length (fig. 223 C). Legs black, fore and mid knees and base of hind tibia brownish yellow. Hind coxa with a small sloping tooth. Abdomen black, tergites II and III of a dull yellow or of a light reddish brown, tergite II a little narrower than the hind margin of tergite III and a little narrower than tergite IV. Sternites II and III entirely dull yellow, sternite IV black, shining. Hypopygium as in fig. 221 A. 9-11 mm. From the Urals to Chukotka.
X. tuberculifemur Stackelberg, 1963
- 4 (3) Hind femur ventrally without such processes.
- 5 (20) Fore and mid femora reddish yellow, more rarely brown or black at the base.
- 6 (9) Antennae black, more rarely third segment brownish.
- 7 (8) Hind leg entirely black. Thoracic dorsum shining black with short reddish yellow pilosity, on the posterior half long and erect hairs of the same colour are mixed with the short ones. Hind trochanter without tooth, hind femur a little swollen, somewhat more on the apical third, with two rows of small spines ventrally on the apical part. Abdomen black, shining, dorsally with short adpressed pilosity, light on tergites I-III, black on tergite IV; laterally, especially on tergites I and II, the pilosity is long, erect and whitish. 11-12 mm. The islands Sakhalin and Kunashir. X. nox (Violovitsh, 1966)
- 8 (7) Hind leg reddish yellow, apical half of the femur black, the tibia usually with a brown ring or smudge medially. Hind leg as in fig. 223 D. Abdomen black, tergites I and II and the anterior part of tergite III dull, the remainder shining as if polished, with side spots of golden pile on tergites III and IV. 11-14 mm. From the Urals to the Pacific coastal region.
♂ see couplet 21. X. eumera Loew, 1869, ♀
- 9 (6) Antennae reddish or reddish brown. Abdomen uniformly black with bluish or violet tinge, faintly shining or almost dull.
- 10 (11) Hind femur black. Fore and mid legs reddish brown. Abdomen uniformly black with bluish tinge, almost dull. Wing stigma and

- haltere black brown. 14 mm. Cis-Amur, southern Pacific coastal region. *X. amurensis* (Stackelberg, 1925)
- 11 (10) Hind femur bicolorous: yellow and black.
- 12 (13) Hind femur at least on basal half black. All tarsi and the apical half of hind femur orange yellow. Abdomen black with distinct golden bronze tinge, with golden yellow adpressed pilosity, which is short on tergites I and II, long on the following ones. 15-20 mm. Kunashir I.
X. flavifacies (Shiraki, 1930)
- 13 (12) Hind femur, at least on basal half, reddish yellow.
- 14 (17) Haltere yellow or yellowish brown.
- 15 (16) Hind femur much swollen in its median part, reddish yellow, with narrowly black tip, hind tibia strongly curved, with a sharp tooth-like process at the tip (fig. 223 B). Mid femur entirely reddish yellow. 15-18 mm. From the Urals to Chukotka.
X. curvipes Loew, 1854
- 16 (15) Hind femur moderately swollen in its median part, its basal half reddish yellow, the apical half black, hind tibia moderately curved, at the tip with a small tooth-like process, mid femur sometimes and fore femur always brown or blackish on their basal half. 16-18 mm. Cis-Amur, southern Pacific coastal region, Kunashir I. *X. sapporoensis* (Shiraki, 1930)
- 17 (14) Haltere black or black brown.
- 18 (19) Arista yellow, lighter towards tip. Hind femur black only at its tip. Wing stigma light brown. The last tergite in the ♂ 1.5 times as long as the one preceding it. 11-14 mm. From the Urals to Chukotka. *X. femorata* (Linnaeus, 1758)
- 19 (18) Arista entirely brown. Distal half of hind femur black. Wing stigma dark brown. Last two tergites in the ♂ of the same length. 12-14 mm. Altay, Tuva, Cis-Baikal, southern Pacific coastal region. *X. rufipes* Loew, 1873
- 20 (5) All femora black, at the most with yellow tip, basal half of hind femur neither red nor reddish yellow.
- 21 (22) Vein r_{4+5} above cell R_5 obviously curved. Tarsi entirely reddish yellow. Femora black, hind femur very much swollen, ventrally and exteriorly with stout spines (fig. 223 D). Basal third and tip of all tibiae whitish yellow, black on the remaining parts. 12-14 mm. See couplet 8, ♀.
X. eumera Loew, ♂
- 22 (21) Vein r_{4+5} straight or almost so. At least the two apical segments of tarsi black. If tarsi are entirely reddish yellow then vein r_{4+5} is quite straight and the abdomen yellowish red in its median part.
- 23 (34) Legs black, or black with yellowish or brownish knees.
- 24 (29) Legs entirely black.
- 25 (28) Abdomen entirely black.
- 26 (27) Larger: 16-19 mm. Hind femur swollen, hind tibia with sharp

tooth-like process at tip. Abdomen black, mainly with short light yellow pilosity, large subtriangular side spots near the hind margins of tergites II and III, tergites I and IV entirely shining black as if polished, median part of tergites II and III dull. Southern Pacific coastal region, Kunashir I.

X. longa Coquillett, 1898

- 27 (26) Smaller: 10-13 mm. Hind femur not swollen, hind tibia without sharp tooth-like process at the tip. Colour and pilosity of abdomen as in *X. longa* Coq., but the shining black side spots on tergites II and III are relatively smaller and the posterolateral parts of these tergites may be dull. Altay, Sayany, Ob and Yenisey estuaries, Chukotka.

X. suecica (Ringdahl, 1943)

- 28 (25) Abdomen as a rule red, including tip. Thoracic dorsum black, dull, coarsely punctuated, with short pilosity. Hind femur much swollen (fig. 223 E). 11-13 mm. From the Urals to Chukotka.

X. pigra (Fabricius, 1794)

- 29 (24) Legs black with brownish or yellowish knees.
30 (31) Ocellar triangle an isosceles triangle, hind femur much swollen (about 2.5 times as thick as hind tibia), on the apical part with sharp spines of different sizes, hind tibia obviously curved. Height of frons about 2.5 times the actual approximation of the eyes. Abdomen with large shining black, seemingly polished, side spots on tergites II and III, with long erect white pilosity on tergite II, short golden yellow and black pilosity on tergite III, tergite I and anterior 3/4 of tergite IV shining black, the posterior part of tergite IV brownish, tergite IV with mainly black pilosity. Hypopygium as in fig. 226 A. 10-12 mm. Cis-Amur.

X. carbona Violovitsh, 1975

- 31 (30) Ocellar triangle equilateral or almost so.
32 (33) Hind trochanter with small delicate spines underneath, hind femur much swollen, about 3.5-4 times as thick as hind tibia (fig. 223 A). The shiny black spots on tergites II and III large, almost square. 9-11 mm. Yakutia, Cis-Amur.

X. nigripes Zetterstedt, 1838

- 33 (32) Hind trochanter with delicate pilosity underneath, hind femur moderately swollen, about twice as thick as hind tibia. The shining black spots on the sides of tergites II and III relatively short (each about twice as broad as long). 10-12 mm. From Altay to Sakhalin I.

X. japonica (Shiraki, 1930)

- 34 (23) At least basal 1/3 of fore and mid tibiae and the basal segments of fore and mid tarsi yellow or brownish yellow.
35 (46) Abdomen not with reddish yellow or reddish brown tergites II and III.
36 (37) Hind femur underneath with two rows of long stout straight spines: 14-16 exteriorly, spread over the entire length of the femur, interiorly with 6-8 spines on the apical part. Surstyli and gonocerci as in figs. 221 B and 228. 9-11 mm. Altay, Sayany, Tuva, Cis-Amur, southern Pacific coastal region, the islands Sakhalin and Kunashir.

X. coquilletti (Hervé-Bazin, 1914)

- 37 (36) Hind femur without long stout straight spines over the entire length of the femur.
- 38 (45) Hind trochanter with a tooth-like process (spine) underneath.
- 39 (40) Hind trochanter with two obtuse spines: larger in the ♂, smaller and more sloping in the ♀. Tergite IV with very bright long thick coarse golden pile which almost completely obscures the colour of the tergite except at its fore margin; tergite III with large bright spots of similar pilosity. First three segments of hind tarsus yellow in both sexes. 15-18 mm. From the Urals to Sakhalin I.

X. sylvarum (Linnaeus, 1758)

- 40 (39) Hind trochanter with one spine, hind femur hardly swollen.
- 41 (42) Tergite IV with short adpressed black pilosity (mixed with an inconsiderable number of longer golden or white hairs on the anterolateral parts of the tergite). Abdomen faintly shining with hardly noticeable shining black spots on the sides of tergites II and III. Hypopygium as in fig. 226 B. 9-12 mm. Cis-Amur, Pacific coastal region, Sakhalin I.

X. umbrosa Violovitsh, 1975

- 42 (41) Tergite IV with mainly long golden yellow pilosity, which does not obscure the colour of the tergite.
- 43 (44) First two segments of hind tarsus orange yellow. Thoracic dorsum and scutellum with relatively long delicate light coloured erect pilosity, a broad band of black hairs between wing bases. Abdomen with large shining golden spots on tergites II and III in the ♂ and on tergites II-IV in the ♀. Pre-genital segment with golden yellow pilosity. 12-15 mm. All Siberia.

X. triangularis Zetterstedt, 1838

- 44 (43) Hind tarsus black, thoracic dorsum without transverse band of black pile. Abdomen without (sometimes barely visible) shining spots on tergites II-IV. Pre-genital segment black-haired. 11-14 mm. From Altay to Kunashir I.

X. sibirica Loew, 1871

- 45 (38) Hind trochanter without tooth-like process, hind femur swollen, with short spines on its apical half. Abdomen with golden sheen all over. Hypopygium as in fig. 221 C. 9-10 mm. In the mountains of Tuva, Altay, Sayany, Cis-Amur, Pacific coastal region, the islands Sakhalin, Kunashir and Iturup.

X. nitida Portschiński, 1897

- 46 (35) At least tergites II and III yellowish brown or reddish brown.
- 47 (48) Hind femur underneath with well-spaced stout long spines. Hind trochanter in the ♂ with long process. Frons in the ♀ metallically shining and with grey dust spot in the middle. Hypopygium as in fig. 215. 10-13 mm. From the Urals to Cis-Baikal.

X. segnis (Linnaeus, 1758)

- 48 (47) Hind femur underneath with delicate, closely ranged spines. Hind trochanter in the ♂ with a tooth-like process.

- 49 (50) Larger: 11-13 mm. Abdomen black, tergites II and III orange red, tergite IV of a steely blue, slightly shining. Hind trochanter in the ♂ with a large sharp tooth. Frons down to the antennal sockets and the face with dense golden dusting, thoracic dorsum with relatively long pile. In the ♀ face with golden dusting, frons with a broad transverse stripe of grey dusting. 10-14 mm. All Siberia.
X. ignava (Panzer, 1789)
- 50 (49) Smaller: 9-11 mm. Abdomen black, tergites II and III brownish yellow, tergite IV with strong metallic shine. Hind trochanter with small tooth. Basal 1/3 of tibiae and first three segments of fore and mid tarsi yellow. From Altay to the Kuril Isles.
X. tarda Meigen, 1822
- 51 (66) ♂ ♂.
- 52 (61) Hind trochanter with a more or less developed tooth-like process.
- 53 (54) Hind tibia yellow only at the base; on all tibiae the transition between yellow and black is vague. Abdomen with brownish yellow side spots on tergites II and III. Pre-genital segment white-haired (fig. 224 A). 8-11 mm. From the Urals to Sakhalin I.
X. abiens Meigen, 1822
- 54 (53) Hind tibia whitish yellow on basal 1/3; the yellow and black parts on all tibiae are sharply defined.
- 55 (56) Mesopleuron entirely covered with delicate grey pollinosity, more or less dull. Hind femur anterodorsally with short adpressed pilosity. Abdomen with brownish yellow or lead-coloured spots on the sides of tergites II and III (these spots may be very faint). Hypopygium as in fig. 224 F. 10-12 mm. All Siberia.
X. coeruleiventris (Zetterstedt, 1838)
- 56 (55) At least the anterior part of mesopleuron shining, hind femur on its basal half with erect white pile anterodorsally.
- 57 (58) Hind femur anterodorsally with short erect subequal white pilosity. Hind trochanter with short tooth-like process. Pre-genital segment with whitish yellow hairs. Surstyli and gonocerci as in fig. 224 E. 9-11 mm. All Siberia.
X. meigeniana Stackelberg, 1970
- 58 (57) Hind femur anterodorsally with short dense erect white pile mixed with a limited number of much (2-3 times) longer erect white hairs; hind trochanter with a fairly long more or less slender tooth.
- 59 (60) First three segments of hind tarsus orange yellow. Tergites II and III more or less unicolorous, with hardly visible brownish yellow or lead-coloured spots. Hypopygium as in figs. 221 D and 224 D. 11-14 mm. Southern Pacific coastal region.
X. filipjevi (Stackelberg, 1952)
- 60 (59) Hind tarsus entirely black. Tergites II and III with large rectangular brownish yellow spots. Surstyli and gonocerci as in fig. 224 B. 11-14 mm. All Siberia.
X. florum (Fabricius, 1805)
- 61 (52) Hind trochanter without tooth-like process.

- 62 (63) Thoracic dorsum shining with four brown dusted longitudinal stripes (fig. 222). The spots on tergites II and III metallicly shining. Wing with transverse veins infuscated, except for borders and confluence of veins r_{2+3} and r_{4+5} . Hypopygium as in fig. 221 E. 8-10 mm. Altay, Tuva, Pacific coastal region, the islands Sakhalin and Kunashir; Kamchatka.
X. jacobsoni (Stackelberg, 1921)
- 63 (62) Thoracic dorsum entirely shining, without four brown dusted longitudinal stripes. The spots on tergites II and III yellow.
- 64 (65) Thoracic dorsum with relatively long erect pile. The light side spots on tergites II and III do not reach across the side margins. Veins m and r_{4+5} joining in an almost right angle, hind femur less swollen than in X. arsenjevi Viol. Hypopygium as in figs. 224 C and 225 A. 7-11 mm. All Siberia.
X. nemorum (Fabricius, 1805)
- 65 (64) Thoracic dorsum with short semi-adpressed golden yellow pilosity. The light spots on tergites II and III as a rule broadly reaching across side margins. Veins m and r_{4+5} meeting in a more or less acute angle. Hind femur very much swollen. Aedeagus, surstyli and gonocerci as in figs. 196 and 225 B. 8 mm. Southern Pacific coastal region.
X. arsenjevi Violovitsh, 1980
- 66 (51) ♀ ♀.
- 67 (72) Legs unicolorous black or with narrowly yellow knees.
- 68 (69) Abdomen of a dull black with broad shining bands on the anterior part of tergites II-IV, tergite I shining black, further two reddish brown spots in the middle of tergite II (which become visible in strong light). Hind femur three times as thick as hind tibia (fig. 195). 7 mm. Altay.
X. rerichi Violovitsh, 1975
- 69 (68) Abdomen black, with spots.
- 70 (71) Scutellum weakly margined. The spots on tergites II and III short and broad, lead-coloured, somewhat grey dusted, faintly shining. 7.5-9 mm. X. japonica (Shiraki)
- 71 (70) Scutellum with raised beaded margin. The spots on tergites II and III large, metallicly shining. Face in the middle strongly concave, frons and mouth edge strongly projecting. 9-11 mm. X. nigripes Zetterstedt
- 72 (67) Basal 1/3 of fore and mid tibiae and first three segments of fore and mid tarsi yellow.
- 73 (74) Thoracic dorsum and tergite V with dense grey dusting, thoracic dorsum with four brown dusted longitudinal stripes. The spots on tergites II and III grey dusted without any metallic shine. 8-11 mm. X. jacobsoni (Stackelberg)
- 74 (73) Thoracic dorsum and tergite V shining, undusted, thoracic dorsum without longitudinal stripes. The spots on tergites II and III yellow, light brown or metallicly shining.
- 75 (78) Tibiae brownish yellow or only yellow brown at the base. The yellow or brownish yellow spots on tergites II and III rectangu-

- lar, large.
- 76 (77) Hind femur evenly swollen, three times as thick as the tip of hind tibia, hind tibia little curved.
X. nemorum (Fabricius)
- 77 (76) Hind femur most swollen in apical 1/3, there about four times as thick as tip of hind tibia, hind tibia strongly curved.
X. arsenjevi Violovitsh
- 78 (75) Basal 1/3 of tibiae yellow or whitish. Body slender, abdomen long. Hind femur moderately swollen. The spots on tergites II and III of various shapes and colours.
- 79 (80) The spots on tergites II and III dull, with golden shine and golden yellow pilosity. Thoracic dorsum and scutellum with short erect light yellowish brown pilosity among which a considerable number of black hairs between the wing bases. 12-13 mm.
X. triangularis Zetterstedt
- 80 (79) The spots on tergites II and III yellow, brownish yellow or lead-coloured. Thoracic dorsum with short yellowish white pilosity.
- 81 (82) Mesopleuron entirely covered with delicate greyish dusting, more or less dull. Hind femur anterodorsally with relatively short, as a rule adpressed pilosity. Tergites II and III with brownish yellow or lead-coloured spots. 10-12 mm.
X. coeruleiventris (Zetterstedt)
- 82 (81) Anterior part of mesopleuron brightly shining, without any dusting.
- 83 (84) All tarsi: tip of first segment, second and third segments entirely yellow. 10-12 mm.
X. filipjevi (Stackelberg)
- 84 (83) Hind tarsus black or black brown.
- 85 (88) Hind femur anterodorsally with short erect white pilosity.
- 86 (87) Frons with triangular grey dust spots at eye margins.
X. meigeniana Stackelberg
- 87 (86) Frons with transverse band of grey dusting.
X. abiens Meigen
- 88 (85) Hind femur anterodorsally with short dense erect white pilosity among which a limited number of white hairs which are 2-3 times longer. 10-13.5 mm.
X. florum (Fabricius)

9. MACROZELIMA Stackelberg, 1930

Type species of the genus: *Macrozelima bidentata* Stackelberg, 1930.

Face light yellow, frons and antennae dark yellow, arista twice as long as an antenna. Legs yellow with a slight orange tinge, hind coxa and femur dark brown. Hypopygium as in fig. 221 F. 16-21 mm. Kunashir I. *M. hervei* (Shiraki, 1930)

10. SYRITTA Lepeletier et Serville, 1828

Type species of the genus: *Musca pipiens* Linnaeus, 1758.

In the ♂ the hind femur is smooth, without spine at the base, hind femur much swollen. Legs yellow, hind femur and hind tibia with a broad dark ring across the middle; tergites II and III with medially interrupted light bands, tergite IV with small spots at the fore margin. 7-9 mm. All Siberia.

S. pipiens (Linnaeus, 1758)

11. CALIPROBOLA Rondani, 1844

Type species of the genus: *Syrphus speciosus* Rossi, 1790.

Frons and face ochreous yellow, laterally with golden dusting. Antennae and arista ochreous yellow. Sides of thorax black, slightly shining, in part with long delicate erect light yellow pilosity, the upper hind corner of the mesopleuron with a patch of coarse bright golden hairs. The protruding sclerite of the pre-alar depression of a dull black. Wing with the anterior half brown yellow and a dark brown apical cloud. Legs ochreous yellow, coxae, trochanters, basal half of fore and mid femora and basal 2/3 of hind femur black. Abdomen in the ♂ black, metallicly shining with bluish to greenish reflection, dull black bands on the hind margins and in the middle of tergites II-IV and bands of adpressed coarse bright light yellow hairs on the hind margins of tergites I-III as well as on the posterior half of tergite IV, the rest of the tergites with long delicate erect light yellow pilosity. Abdomen in the ♀ dorsally of the same pattern, however the shining surfaces of a bright golden bronze tint, the pilosity of the abdomen golden yellow, the golden bands on the hind margins of the tergites very bright. Hypopygium as in fig. 212. 14-18 mm. Trans-Baikal.

C. speciosa (Rossi, 1790)

12. CHRYSOSOMIDIA CURRAN, 1934

Type species of the genus: *Caliprobola crawfordi* Shannon, 1916.

Frons ochreous yellow, at the base dark brown, laterally with golden dusting. Antennae and arista brownish yellow. Face yellow, laterally in places with golden dusting, jowls black. Eyes in actual approximation for a distance equalling about 2/3 of height of frons. Ocellar triangle equilateral, almost

isosceles, with long yellow hairs pointing to the fore. Width of frons in the ♀ a little more than 1/3 of width of head, width of vertex 1/4 of width of head. Thoracic dorsum black, grey pollinose, with dense erect light yellow pile (mixed with black hairs in the middle), scutellum with longer and exclusively light yellow pilosity, mesopleuron and sternopleuron with long light yellow pilosity. Anterior half of wing dark brown. Legs orange yellow, except for the black coxae and trochanters and the darkened fourth and fifth segments of the tarsi. Abdomen shining black with bright golden bronze reflection (brighter in the ♀), with narrow dull black bands on the fore margins and in the middle of tergites II and III in the ♂ and on tergites II and IV in the ♀. 14-16 mm. Tuva, Trans-Baikal, southern Pacific coastal region. *C. cimbiciformis* (Portschinsky, 1881)

13. MILESIA Latreille, 1804

Type species of the genus: *Musca diophthalma* Linnaeus, 1758 (Rondani, 1844).

Also: *Syrphus crabroniformis* Fabricius, 1775 (Williston, 1887). The latter awaiting a resolution of the Commission for International Zoological Nomenclature.

Head shining yellow with a black spot on the occiput. Thoracic dorsum yellow with a black spot in the middle; tergite II yellow with a black broken transverse line resembling the letter W, and with black stripe on the hind margin. 22-23 mm. Sakhalin I. ? *M. undulata* Vollenhoven, 1863

14. SPILOMYIA Meigen, 1803

Type species of the genus: *Musca diophthalma* Linnaeus, 1758.

- 1 (4) Pleurotergite yellow (fig. 219 B).
- 2 (3) Thoracic and alar squamae grey with darker margin and golden ciliation. Antennae brownish yellow. Tarsi brownish yellow, except for the black basal segments and fore tarsus. Face in the ♀ as in fig. 217 A, sides of thorax as in fig. 219 B. Side margins of abdomen as a rule largely black. Coxae brown or black. In the ♀ the dark median longitudinal stripe on the frons tapering posteriorly, not reaching the ocelli. Surstyli and gonocerci as in fig. 211. 17-19 mm. Southern Pacific coastal region, Kunashir I. *S. suzukii* Matsumura, 1915
- 3 (2) Thoracic and alar squamae white with white ciliation. Antennae black brown. Fore and hind tarsi entirely black, mid tarsus black except for the basal part. Side margins of abdomen entirely yellow. In the ♀ the dark median stripe down the frons reaching the ocellar triangle (figs. 217 and 218). 14 mm.

Southern Pacific coastal region.

S. panfilovi Zimina, 1952

- 4 (1) Pleurotergite black (fig. 219 A).
- 5 (6) Posterior half of thoracic dorsum (behind transverse suture) without yellow pattern (fig. 216 A). The yellow spot on the fore margin of thoracic dorsum just inside the humeri shows a distinct lateral excrescence pointing backward towards the yellow spot on the notopleuron. 20-23 mm. The islands Sakhalin and Kunashir.
- 6 (5) Posterior half of thoracic dorsum with distinct yellow pattern of curved longitudinal stripes from the postalar calli to the transverse suture, and small oblique stripes before the scutellum.
- 7 (8) The protruding sclerite of the pre-alar depression yellowish red or red. Face as a rule without dark median stripe. Abdomen with broader reddish yellow transverse bands. Tergite IV reddish yellow with a rather dark vague pattern. 20-24 mm. Western Siberia, Altay, Tuva, Cis-Baikal, southern Pacific coastal region, the islands Sakhalin and Kunashir; Kamchatka.
- 8 (7) The protruding sclerite of the pre-alar depression black brown. Face as a rule with black (dark) median longitudinal stripe. Abdomen (particularly tergite V) with narrower, clearly demarcated yellow transverse bands (figs. 216 B and 220). 15-17 mm. From the Urals to Sakhalin I.

S. permagna Stackelberg, 1958

S. maxima Sack, 1910

S. diophthalma (Linnaeus, 1758)

15. TEMNOSTOMA Lepeletier et Serville, 1828

Type species of the genus: *Milesia bombylans* Fabricius, 1805.

- 1 (2) Thoracic dorsum with a golden yellow triangular spot next to the postalar callus, its base reaching the postalar callus. Abdomen black with golden yellow transverse bands, placed in the middle of the tergites and on the hind margins: these are six in number in the ♂ to eight in the ♀ - or 3-4 in T. *vespiforme sericomylaeformis* Portschinsky. Sometimes the bands are confluent and cover tergites III-V almost entirely, leaving narrow black stripes in the middle of the tergites, the one on the last tergite divided into two spots. 12-18 mm. All Siberia.
- 2 (1) Thoracic dorsum without a yellow spot next to the postalar callus.
- 3 (4) At the hind margin of the thoracic dorsum, before the scutellum, a golden yellow spot, sometimes weakly golden (fig. 216 D). The hind margins, at least of tergites IV and V, with golden yellow or greyish yellow bands. Aedeagus and surstyli as in fig. 214 A. 12-16 mm. All Siberia.

T. vespiforme (Linnaeus, 1758)

T. apiforme (Fabricius, 1794)

- 4 (3) Posterior half of thoracic dorsum black (without yellow spot before scutellum). Abdomen narrow, in the ♂ with subparallel sides (fig. 216 E), in the ♀ somewhat broadening on the posterior 1/2-2/3. Hind margins of all tergites always black; in the ♂ yellow bands in the middle of tergites II-IV, in the ♀ in the middle of tergites II-V. Upper lobe of hypandrium as in fig. 214 B. 11-17 mm. All Siberia.

T. bombylans (Fabricius, 1805)

16. TAKAOMYIA Hervé-Bazin, 1915

Type species of the genus: *Takaomyia johannis* Hervé-Bazin, 1915.

Antennae yellow, third segment oval. Proportions between width of frons at antennal sockets and width of head in the ♀ as 2 : 5, for the vertex these proportions are 6 : 25. Face black, with dense greyish yellow or golden yellow dusting with undusted median longitudinal stripe. Thoracic dorsum black, dull, with a sulphur yellow narrow median stripe of dense pollinosity, diverging before the scutellum into stripes placed at an angle, with short stripes along the sides on posterior half of the thoracic dorsum, and with spots on the humeri and before the wing bases. On the black sides of thorax there are similar spots on the propleuron, the mesopleuron and the sternopleuron. Abdomen black, faintly shining, with broadly interrupted bands of very dense sulphur yellow dusting on tergites III and IV in the ♂ and on tergites III-V in the ♀. Tergite II in both sexes with small triangular side spots. 10-14 mm. Kunashir I.

T. sexmaculata (Matsumura, 1916)

17. SPHECOMYIA Latreille, 1829

Type species of the genus: *Chrysotoxum vittatum* Wiedemann, 1830 (Coquillett, 1910: 607).

Antennae black, third segment four times shorter than the second, with short black arista. Face yellow with black longitudinal stripe. Thoracic dorsum with two narrow yellow stripes, very broadly interrupted in the middle. Mesopleuron and sternopleuron posteriorly with large yellow spots. Abdomen with yellow bands (interrupted in the middle) and yellow hind margins of the tergites. Hypopygium as in fig. 221 J. 11-15 mm. From the Urals to Cis-Baikal.

S. vespiformis Gorski, 1852

VII. SUB-FAMILY CERIOIDINAE

Key to the identification of the genera

- 1 (2) Process on frons shorter than first antennal segment, eyes bare, vein r_{4+5} almost straight.
SHAMBALIA Violovitsh
- 2 (1) Process on frons longer than first antennal segment, vein r_{4+5} above cell R_5 much curved.
CERIANA Rafinesque

1. CERIANA Rafinesque, 1815

Type species of the genus: *Ceria clavicornis* Fabricius (aut.) = *C. conopsoides* (Linnaeus, 1758).

- 1 (4) Scutellum entirely black.
- 2 (3) Frons yellow with broad black longitudinal stripe. Sides of thorax black with yellow spots: large ones on posterior half of mesopleuron, small ones on upper part of sternopleuron. Humeri yellow. Hind femur light yellow to dark yellow. 12 mm. Southern Pacific coastal region.
C. nigerrima Violovitsh, 1970, ♂
- 3 (2) Frons black with two small yellow spots on the upper part and two larger spots near the eye margins on the level of the antennal sockets. Sides of thorax entirely black. Humeri black with yellow median spot. Hypopygium as in fig. 213. 13 mm. Southern Pacific coastal region.
C. gibbosa Violovitsh, 1980
- 4 (1) Scutellum black with yellow rim.
- 5 (6) Scutellum black with narrow reddish yellow hind rim. 12 mm. Southern Pacific coastal region.
C. pleuralis Coquillett, 1898
- 6 (5) Scutellum black with yellow fore rim. Humeri black. Width of black stripe down the face in the ♂ about 1/4 of width of face, 1/3 in ♀. Thoracic dorsum and sides of thorax black. 10-15 mm. All Siberia except the northernmost parts.
C. conopsoides (Linnaeus, 1758)

2. SHAMBALIA Violovitsh, 1981

Type species of the genus: *Shambalia rachmaninovi* Violovitsh, 1981.

Face yellow with a pattern of brown, dark brown and black stripes (fig. X). Process on frons about $1/5$ of length of first antennal segment. Antennae more than twice as long as head ($7.2 : 3$), first segment brown, second dark brown with fawn tinge, third raspberry pink, towards the top linked with the arista, which is covered with minute silvery hairs. Width of vertex about $1/3$ of width of head. Occiput arched, light orange brown with two vague yellow spots. Thoracic dorsum black, faintly shining, coarsely punctuated, with very short yellow pilosity, humeri and pre-alar calli lemon-coloured: the postalar calli, longitudinal stripes laterally on the posterior half of the thoracic dorsum and two oval spots before scutellum are ochreous yellow, medially on the anterior half of the thoracic dorsum two yellowish grey dusted stripes. Scutellum broad and short (length $4/15$ of width), black dorsally with a broad lemon-coloured stripe across the middle. Sides of thorax with large lemon-coloured spots which are oval on the posterior part of the mesopleuron and round on the upper half of the sternopleuron. Legs entirely orange brown, bases of coxae darker, fore coxa black. Wing hyaline, the anterior part (as far as the spurious vein and vein r_{4+5}) infuscated brownish, darker hems bordering the veins. Abdomen strongly waisted, because of the slender anterior half of segment II, posterior part of segment II as well as the following segments broad; tergite I light brown; tergite II brown and in places black, the anterolateral parts lemon-coloured, the hind margin brownish yellow; tergites III and IV brown and in places black, with broad brownish yellow stripes along the hind margins and bow-shaped side stripes of a yellowish grey dusting; tergite V orange brown with a dark brown fore margin. Abdomen with short semi-adpressed golden yellow pilosity. Body length: 13.5 mm. Southern Pacific coastal region.

S. rachmaninovi Violovitsh, 1981, ♀

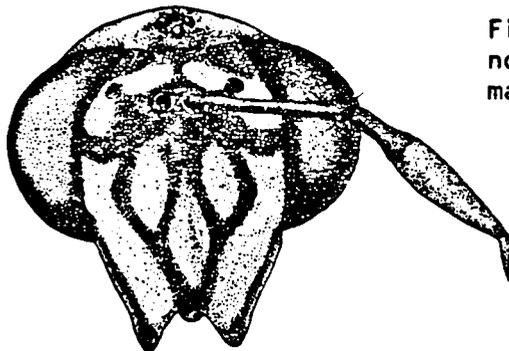


Fig. X. *Shambalia rachmaninovi* Viol. Head of the female. After Violovitsh.

VIII. SUB-FAMILY MICRODONTINAE

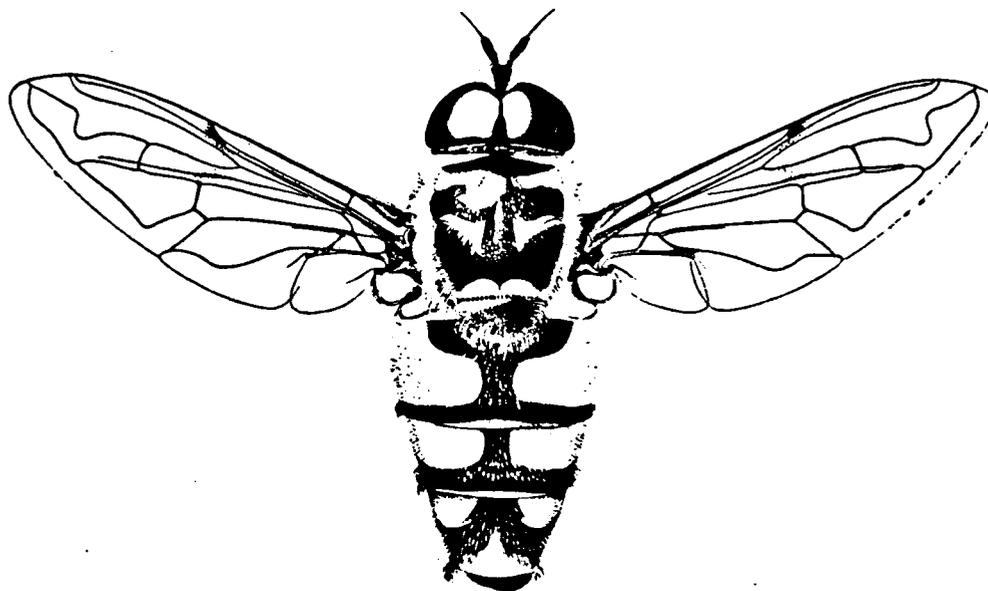
1. MICRODON Meigen, 1803

Type species of the genus: *Musca mutabilis* Linnaeus, 1758.

- 1 (4) Scutellum without spines on hind margin.
- 2 (3) Width of face in the ♂ about 1/2 of width of head. Legs black, basal half of tibiae brownish yellow. Frons above antennae bare, width of frons on the level of the transverse suture between frons and vertex about 1/4 of width of head, width of face about 1/2 of width of head. Lengths of antennal segments proportioned as 25 : 7 : 25 (1 : 2 : 3) for a length of head of 35. Face with silvery yellowish pilosity; frons, vertex, thoracic dorsum and scutellum with golden yellow pilosity. Thoracic dorsum with faint bronze reflection. Scutellum with two sloping knobs instead of spines. Sides of thorax dark brown, upper part of mesopleuron and pteropleuron in the fore and hind corners, and the hind corner of the upper part of the sternopleuron with coarse punctures, shining and with bronze reflection, with long erect golden yellow pilosity. Surstyli and gonocerci as in fig. 229 F. 9.5 mm. Tuva, Cis-Baikal.
M. lateus Violovitsh, 1975
- 3 (2) Width of face in the ♂ about 3/4 of width of head. Fore and hind legs golden yellow with dark brown femora. Frons black, shining, with long golden yellow pilosity, separated from vertex by a transverse groove. Vertex black, shining, coarsely punctuated, widening towards occiput, in this place width of vertex equals about 1/3 of width of head. Face with golden yellow pilosity, width of face about 3/4 of width of head. Wing somewhat infuscated, particularly along the veins. Abdomen black, shining, coarsely punctuated, with long golden yellow pilosity (fig. 230). 8 mm. Altay.
M. mysa Violovitsh, 1971
- 4 (1) Scutellum with two spines at hind margin.
- 5 (8) Scutellum reddish yellow.
- 6 (7) Tarsi simple, not broadened. Width of frons about 1/5 of width of head, width of face 1/2 of width of head. Face, sides of thorax and lateral posterior parts of tergites II-IV with pale yellow pilosity; vertex, occiput and thoracic dorsum with golden yellow pile, scutellum with reddish yellow pilosity. Legs black, tarsi yellow, fore and mid tibiae yellow with narrow black transverse stripe, hind tibia entirely yellow. Surstyli and gonocerci as in fig. 229 A. 9-12 mm. Altay.
M. mutabilis (Linnaeus, 1758)

- 7 (6) Tarsi obviously broadened. Body brown, except for the black coxae, trochanters, femora and tibiae; pilosity long, reddish yellow and golden yellow. Spines at hind margin of scutellum large, cylindrical, hardly pointed. 13 mm. Southern Pacific coastal region. *M. ursitarsis* Stackelberg, 1925
- 8 (5) Scutellum black, exceptionally its hind rim may be brownish, spines brownish yellow (see *M. maritimus* Viol.).
- 9 (10) Thoracic dorsum with a more or less extensive patch of black pilosity on its posterior half beside the median line. Frons at its narrowest about 1/6 of width of head. Coxae, trochanters and femora black, tarsi and tibiae reddish yellow, the latter with a narrow black transverse stripe in the middle. 9-12 mm. Western and Central Siberia, Cis-Baikal. *M. devius* (Linnaeus, 1761)
- 10 (9) Pilosity on thoracic dorsum unicolorous, without patches of black pilosity.
- 11 (14) Third antennal segment three times longer than second, or even more.
- 12 (13) First antennal segment slightly longer than the third (11 : 9). Below the antennal sockets a bare shining black spot. Proportions of antennal segments 1 : 2 : 3 = 11 : 3 : 9. Legs black, except for the reddish yellow tibiae, which have a relatively broad black transverse stripe in the middle, and the brown tarsi. Surstyli slightly longer and narrower (fig. 229 C). 12 mm. Pacific coastal region. *M. ignotus* Violovitsh, 1975
- 13 (12) First and third antennal segments of equal length. No shining black spot below antennal sockets. Proportions of antennal segments 1 : 2 : 3 = 11 : 3 : 11. Face, frons and vertex with obvious bronze reflection. Surstyli relatively shorter and broader (fig. 229 D). 9-12 mm. Southern parts of Western and Central Siberia, southern Pacific coastal region, Sakhalin I. *M. latifrons* Loew, 1856
- 14 (11) Third antennal segment about twice as long as the second.
- 15 (16) Width of frons in the ♂ at its narrowest about 1/4 of width of head, width of face (in both sexes) half the width of the head. Face, frons, vertex, occiput, thoracic dorsum, scutellum, certain parts of sides of thorax and the abdomen in the ♂ with bright golden yellow pilosity. In the ♀ the pilosity is lighter and there are considerable numbers of silvery yellow or whitish hairs. Face and scutellum entirely with silvery yellow pile. Tibiae brownish yellow with a narrow black transverse stripe in the middle. Surstyli and gonocerci as in fig. 229 B. 8-11 mm. Altay, Tuva, Cis-Baikal, Pacific coastal region. *M. eggeri* Mik, 1897
- 16 (15) Width of frons in the ♂ about 1/5 of width of head, width of face (in both sexes) somewhat less than half the width of the head. Frons, face, vertex, thoracic dorsum, sides of thorax and abdomen black with an obvious bluish sheen, with pale yellow pilosity, the pilosity on tergite IV almost white. Legs black,

except for the reddish yellow tibiae (which have a relatively broad black transverse stripe in the middle) and the brown tarsi. The ♀ differs from the ♂ by the preponderantly golden yellow pilosity on tergites I-III and by the somewhat larger size of the body, which is longer and broader than in the ♂. Surstyli as in fig. 229 E. 12-14 mm. Southern Pacific coastal region.
M. maritimus Violovitsh, 1975



Myiatropa florea (L.), male (page 114). After a Dutch specimen.
A. Veltman del.

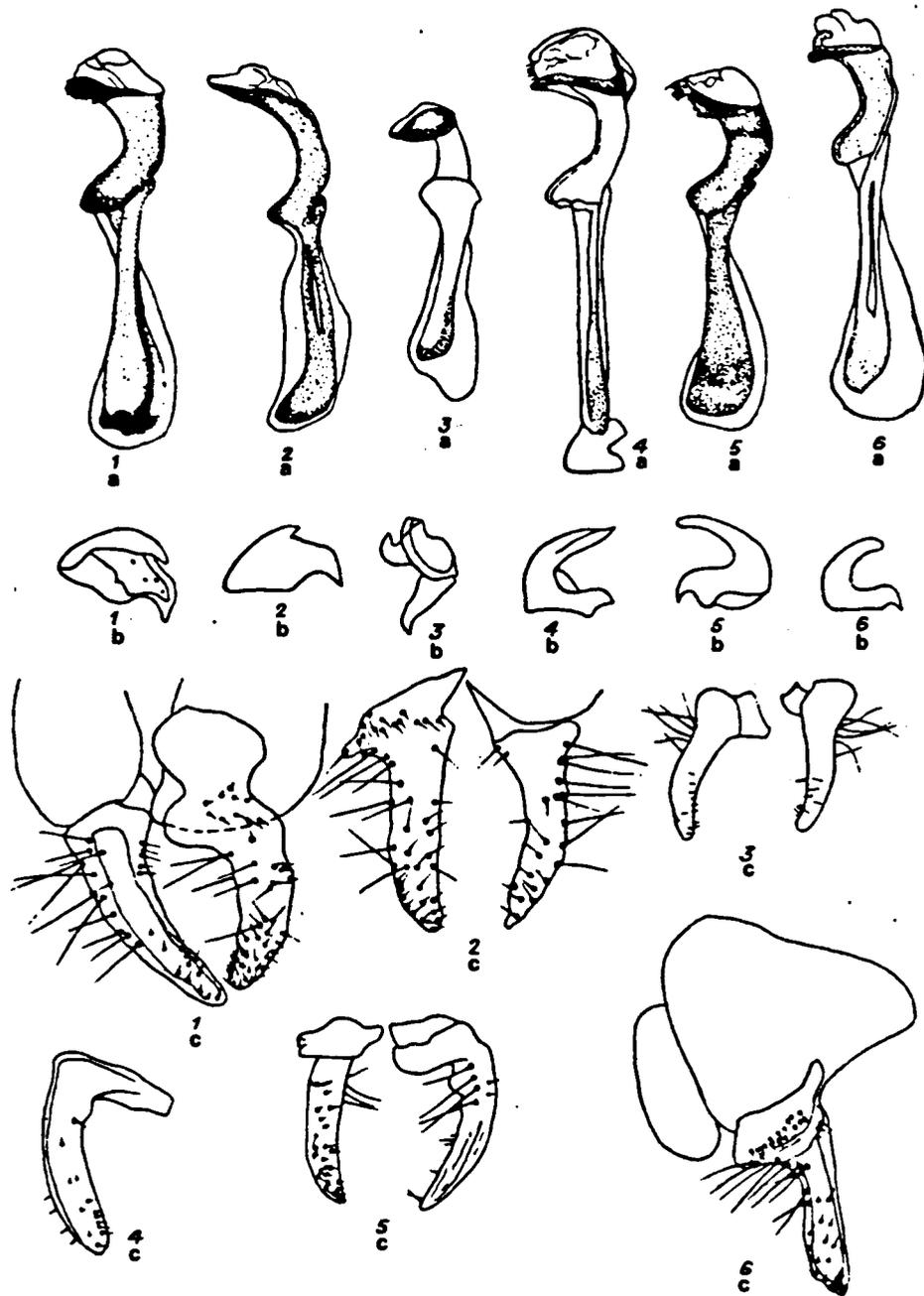


Fig. 1. *Baccha obscuripennis* (Mg.). Parts of hypopygium: a - aedeagus; b - upper lobe of hypandrium; c - surstyli. Fig. 2. *B. tuvunica* Viol., do. Fig. 3. *B. sibirica* Viol., do. Fig. 4. *B. eoa* Viol., do. Fig. 5. *B. sachalinica* Viol., do. Fig. 6. *B. pulla* Viol., do. (after Violovitsh).

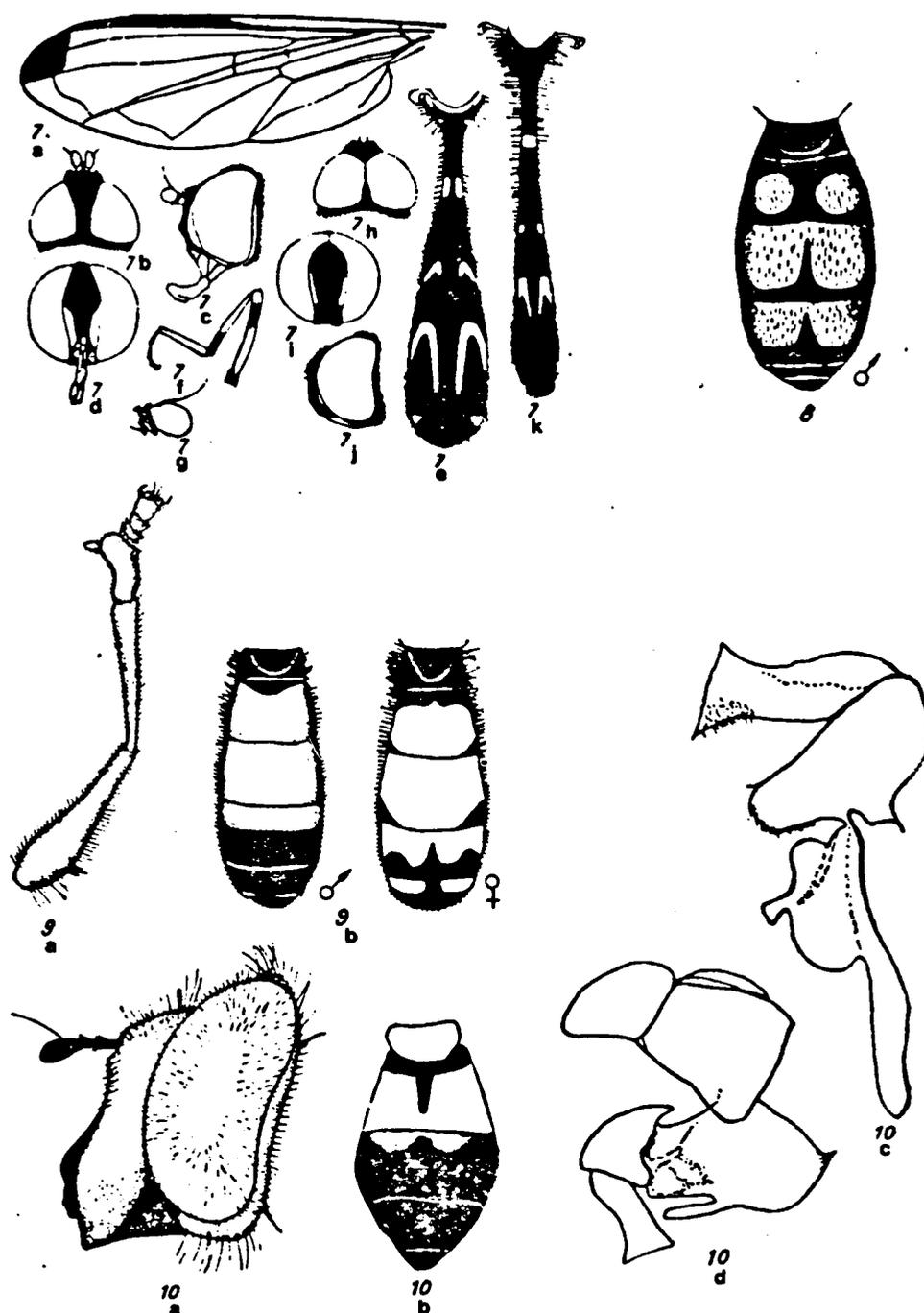


Fig. 7. *Baccha apicalis* Lw., ♀: a - wing; b-d: head; e - abdomen; f - hind leg; g - antenna; ♂: h-j: head; k - abdomen (after Shiraki). Fig. 8. *Xanthandrus comtus* (Harr.), ♂: abdomen. Fig. 9. *Pyrophaena granditarsa* (Först.): a - front leg of the ♂; b - abdomen (after Sack). Fig. 10. *Leucozonia lucorum* (L.), ♂: a - head; b - abdomen; c - aedeagus; d - hypopygium (after Bankowska and Hippa, with corrections).

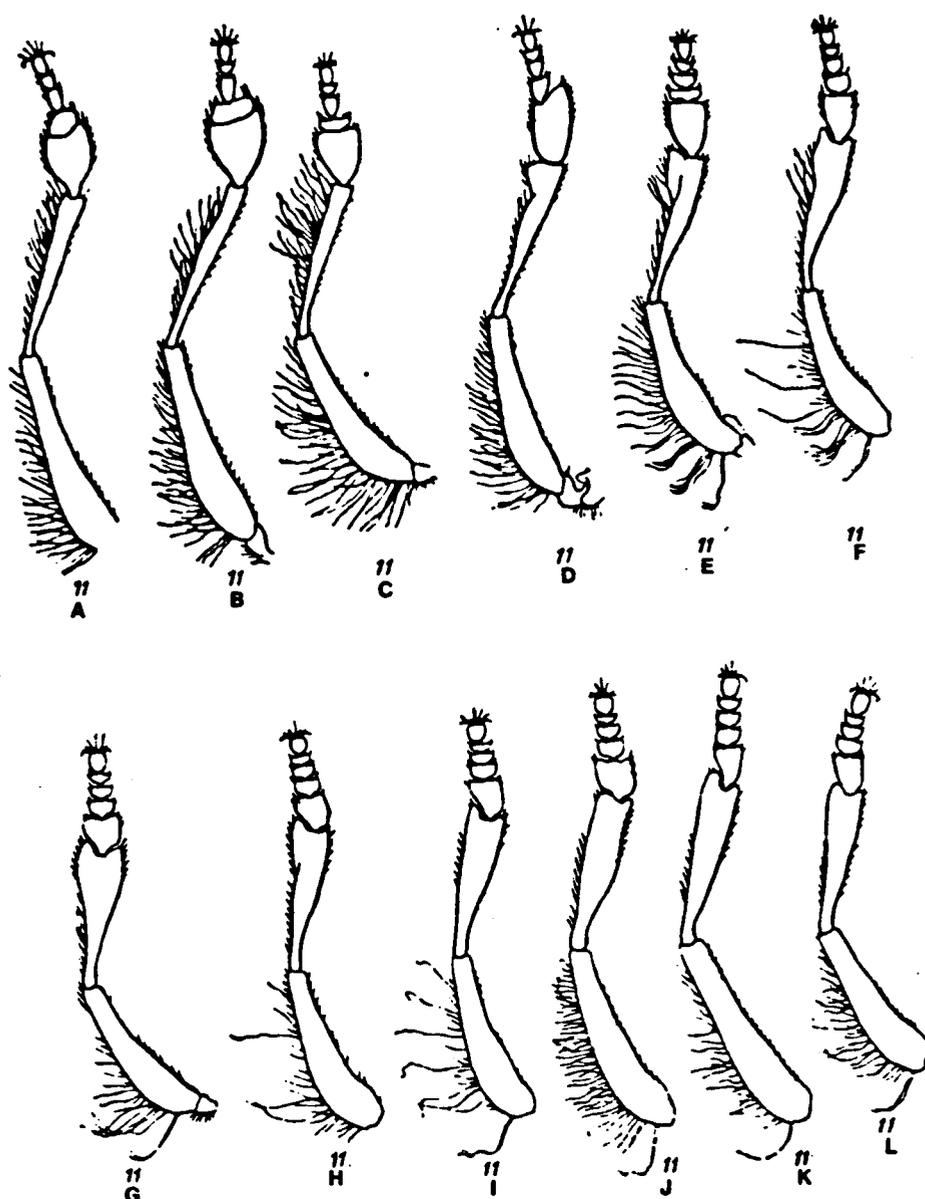


Fig. 11. ♂♂, front legs (after Verrall, with corrections).

A - *Platyschelus manicatus* (Mg.); B - *P. tarsalis* (Schummel); C - *P. discimanus* Lw.; D - *P. peltatus* (Mg.); E - *P. scutatus* (Mg.); F - *P. albimanus* (Fabr.); G - *P. podagratus* (Zett.); H - *P. scambus* (Staeger); I - *P. immarginatus* (Zett.); J - *P. fulviventris* (Macq.); K - *P. perpallidus* Verrall; L - *P. clypeatus* (Mg.).

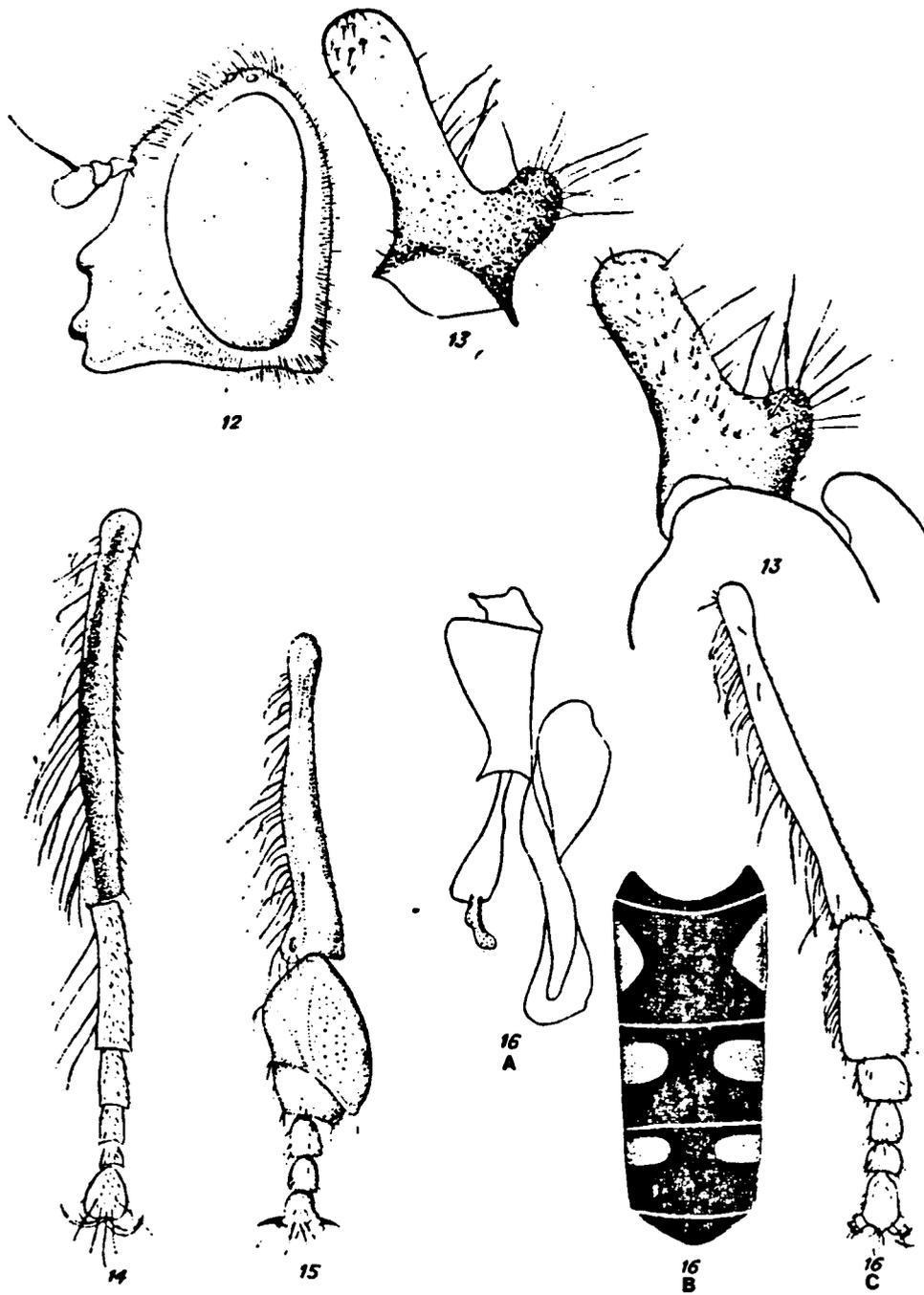


Fig. 12. *Platycheirus rarus* Viol., ♀, head. Fig. 13. *P. tarsalis* (Schummel). Surstyli, lateral and median view. Fig. 14. *P. jakuticus* Viol. Front tibia and tarsus. Fig. 15. *P. ovalis* Beck., do. Fig. 16. *P. arat* Viol., ♂: A - aedeagus; B - abdomen, dorsal view; C - front tibia and tarsus (orig.).

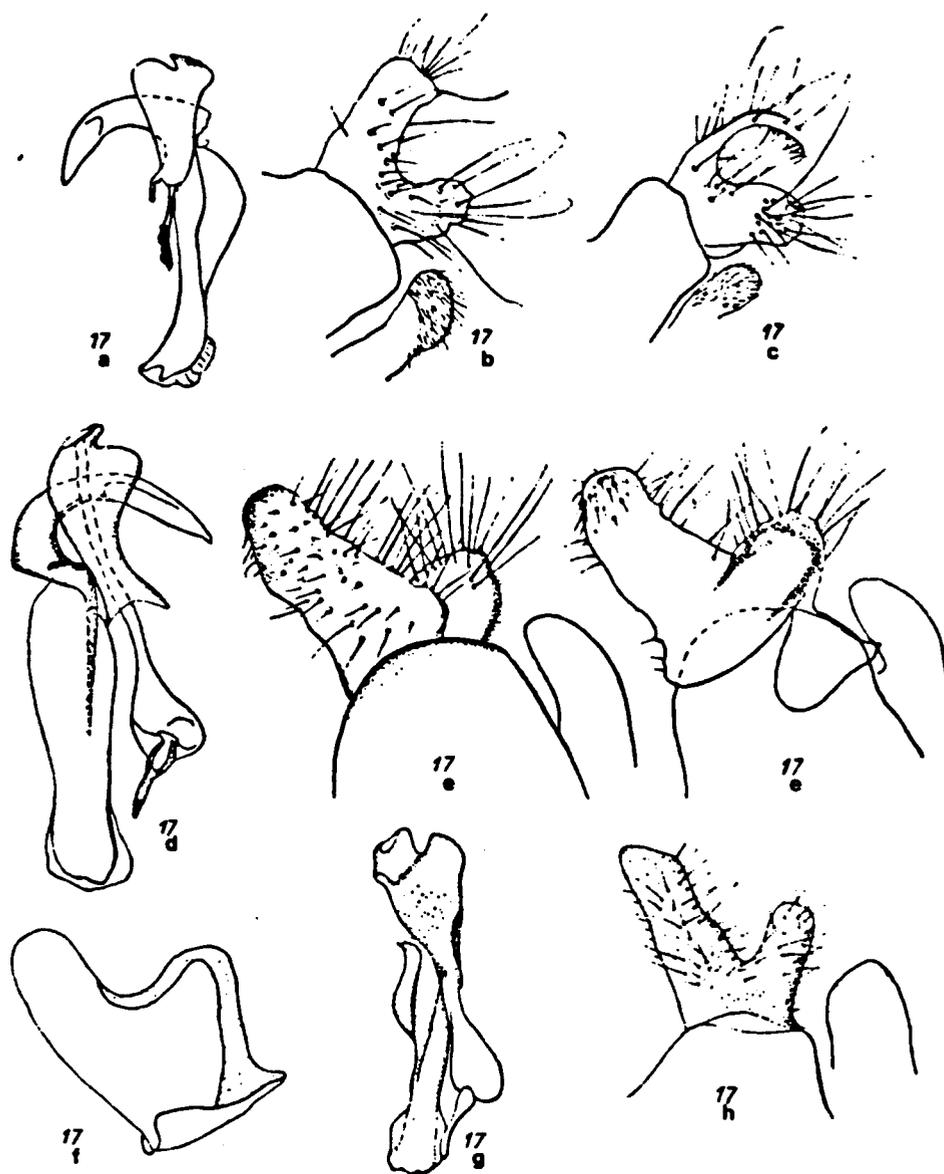


Fig. 17. Parts of hypopygium of *Platycheirus* spp. (orig.).

P. hirtipes Kan.: a - aedeagus with upper lobe of hypandrium; b, c - surstyli and gonocerci, lateral view and posterior view; *P. ovalis* Beck.: d - aedeagus with upper lobe of hypandrium; e - surstyli, lateral and median view; f - *P. jakuticus* Viol.: surstylus; *P. immarginatus* (Zett.): g - aedeagus; h - surstylus, lateral view.

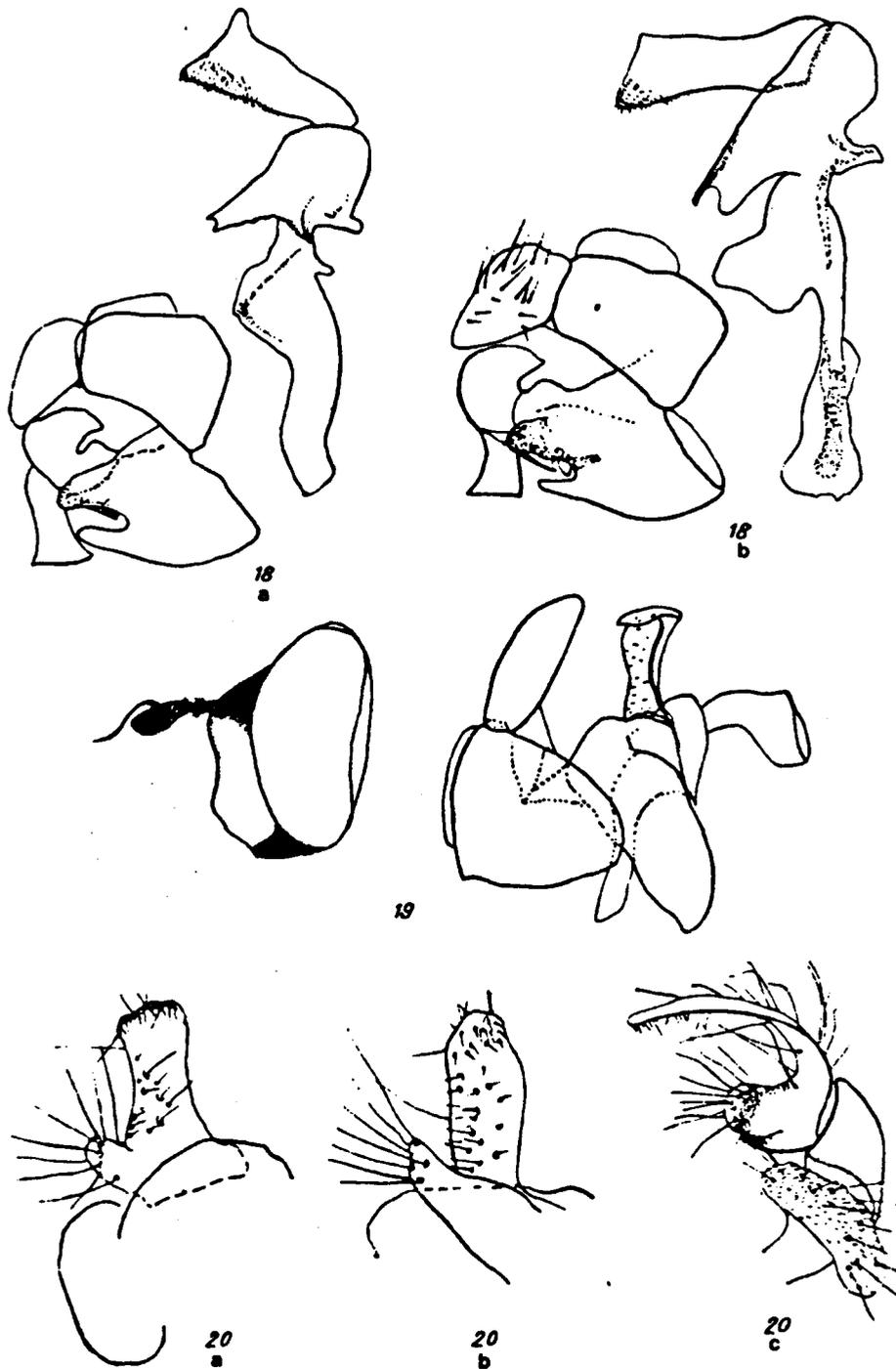


Fig. 18. Hypopygium and aedeagus: a - *Ischyrosyrphus glaucius* (L.); b - *I. laterarius* (O.F.M.) (after Hippa, with corrections). Fig. 19. *Eriozona syrphoides* (Fall.), ♂: head and hypopygium (after Bankowska and Vockeroth, with corrections). Fig. 20. *Melanostoma ambiguum* (Fall.): a, b - surstylus, lateral view and ventral view; c - surstylus and gonocercus, posterior view. (Orig.).

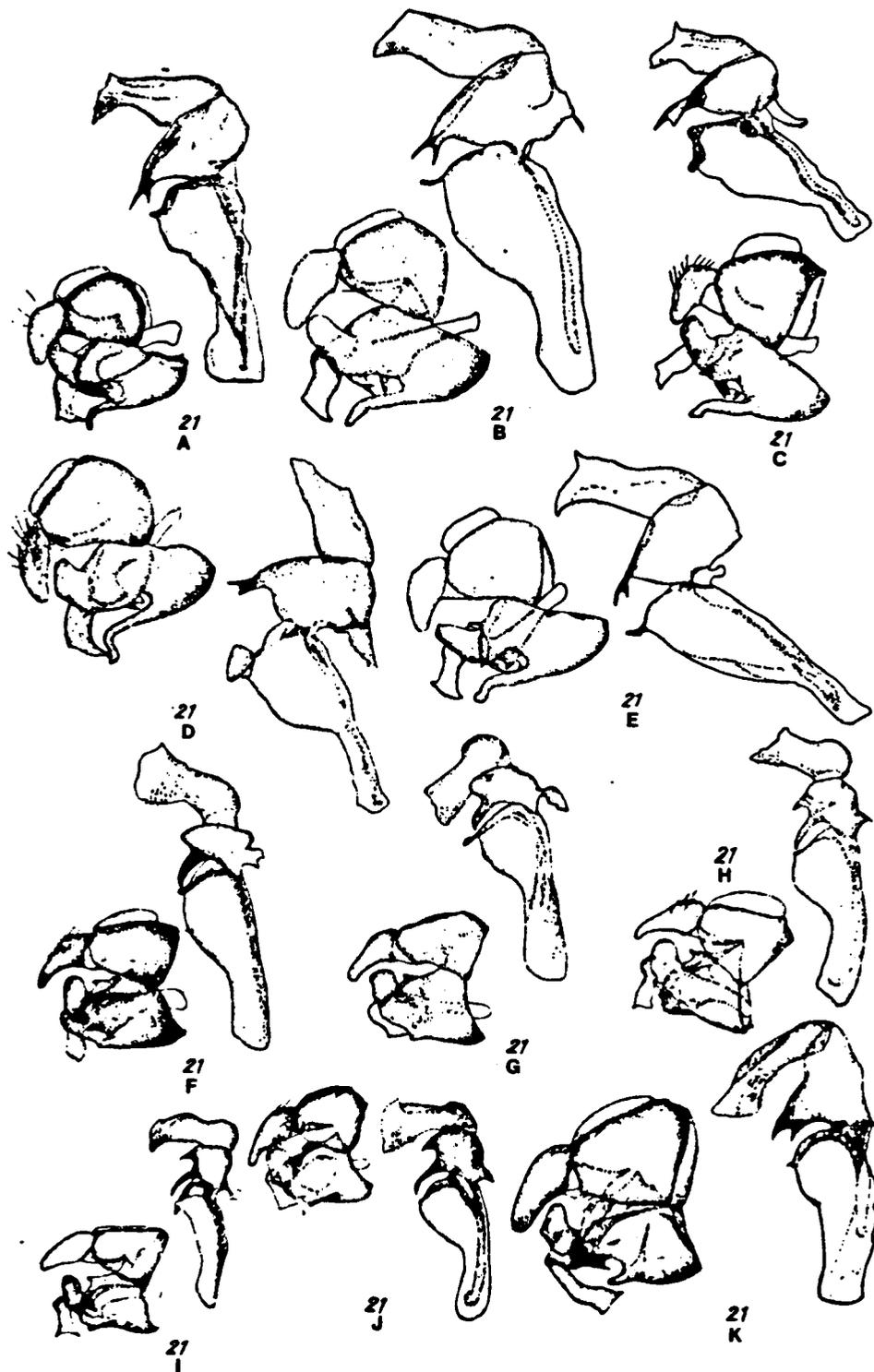


Fig. 21. Hypopygium and aedeagus (after Hippa).

A - *Syrphus ribesii* (L.); B - *S. pilisquamis* Ringd.; C - *S. vitripennis* Mg.; D - *S. torvus* O.-S.; E - *S. sexmaculatus* (Zett.); F - *S. nitens* (Zett.); G - *S. latifasciatus* Macq.; H - *S. lundbecki* Soot-Ryen; I - *S. luniger* Mg.; J - *S. punctifer* Frey et Kan.; K - *S. lapponicus* (Zett.).

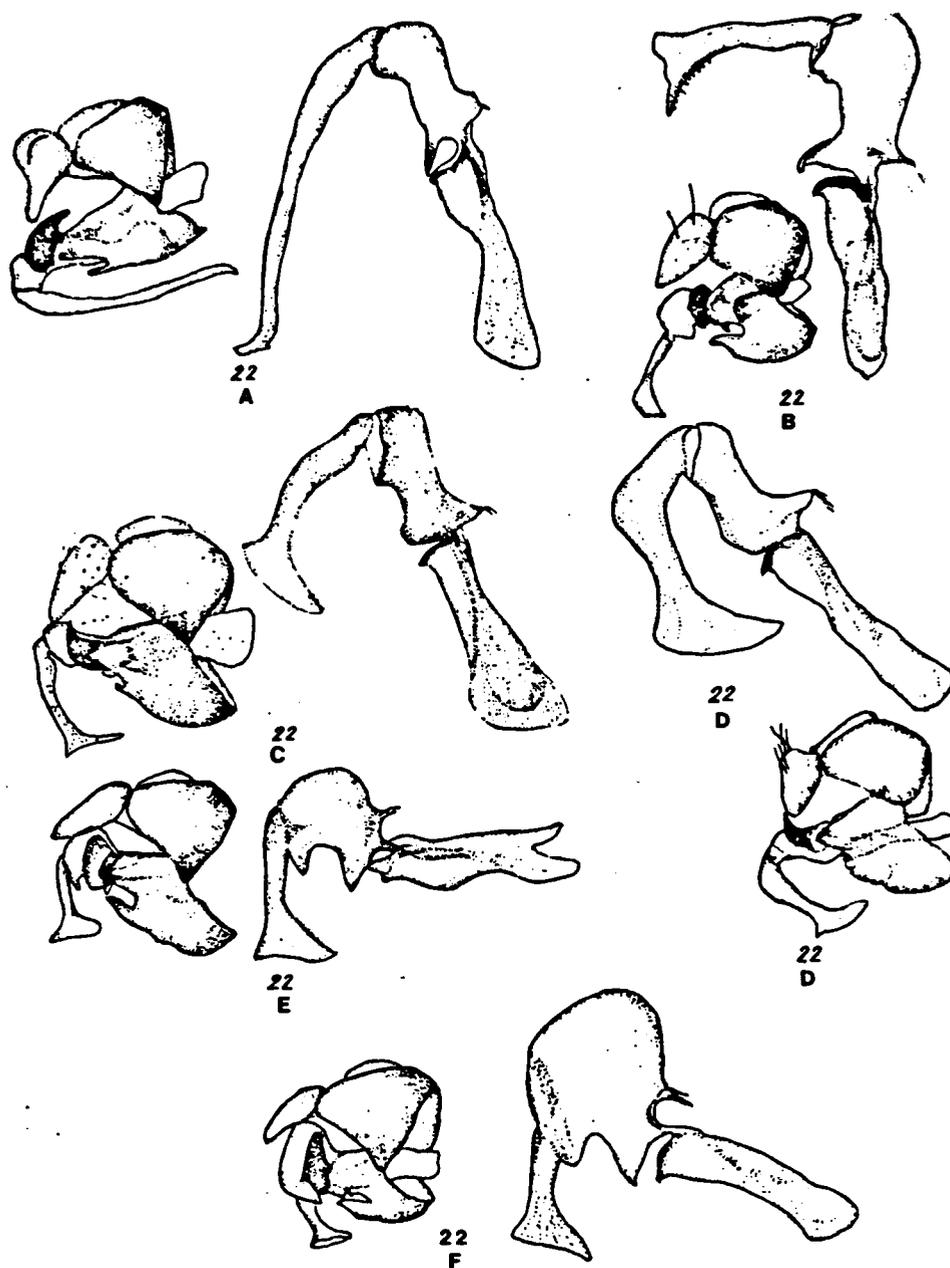


Fig. 22. Hypopygium and aedeagus (after Hippa).
 A - *Syrphus albostratus* (Fall.); B - *S. venustus* Mg.; C - *S. lunulatus* Mg.; D - *S. nigricornis* Verrall; E - *S. bilineatus* Mats.; F - *S. tricinctus* (Fall.).



Fig. 23. Hypopygium and aedeagus (after Hippa).

a - *Syrphus tarsatus* (Zett.); b - *S. dryadis* (Holmgr.); c - *S. nigratarsis* (Zett.); d - *S. vittiger* (Zett.); e - *S. lineola* (Zett.); f - *S. annulatus* (Zett.); g - *S. malinellus* Collin.

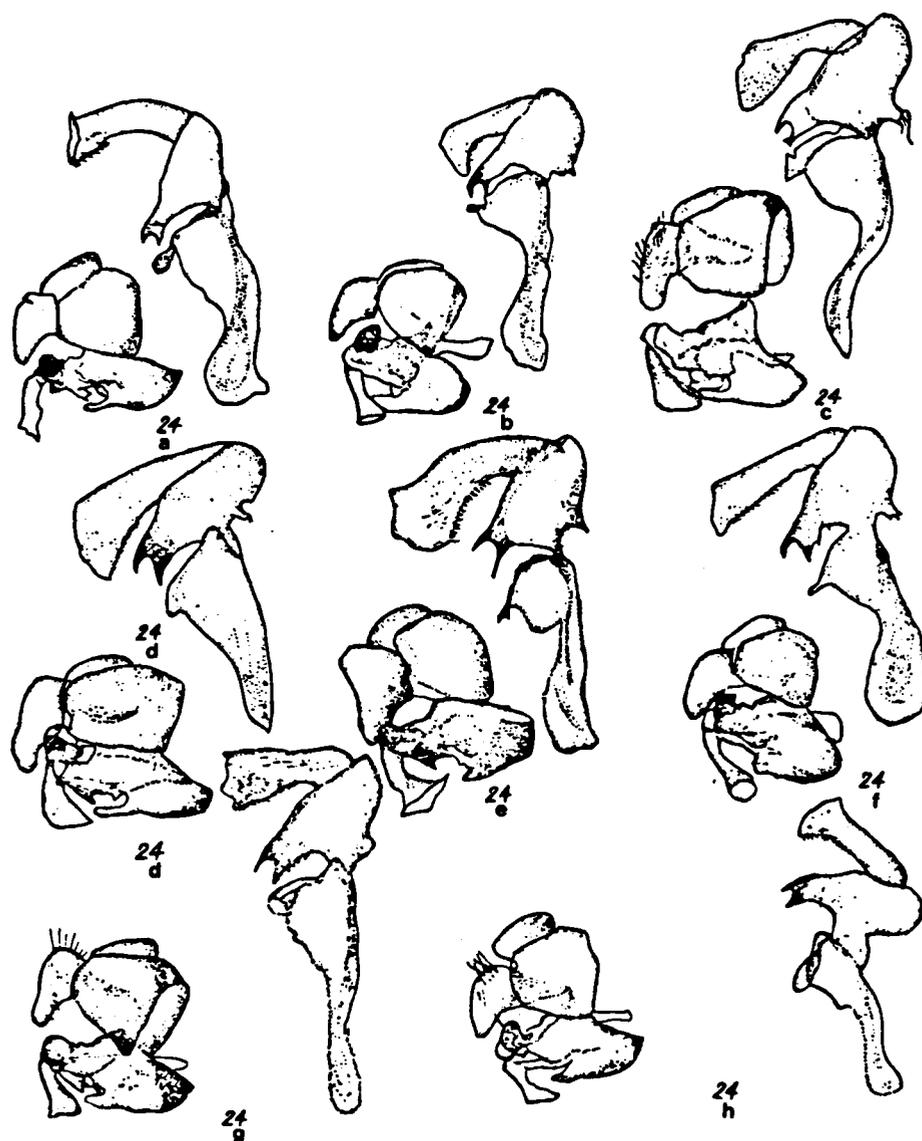


Fig. 24. Hypopygium and aedeagus (after Hippa).
 a - *Syrphus grossulariae* Mg.; b - *S. annulitarsis* Stack.; c - *S. ochrostoma* (Zett.); d - *S. angustifasciatus* Viol.; e - *S. melanostomoides* Strobl; f - *S. diaphanus* (Zett.); g - *S. nitidicollis* Mg.; h - *S. melanostoma* (Zett.).

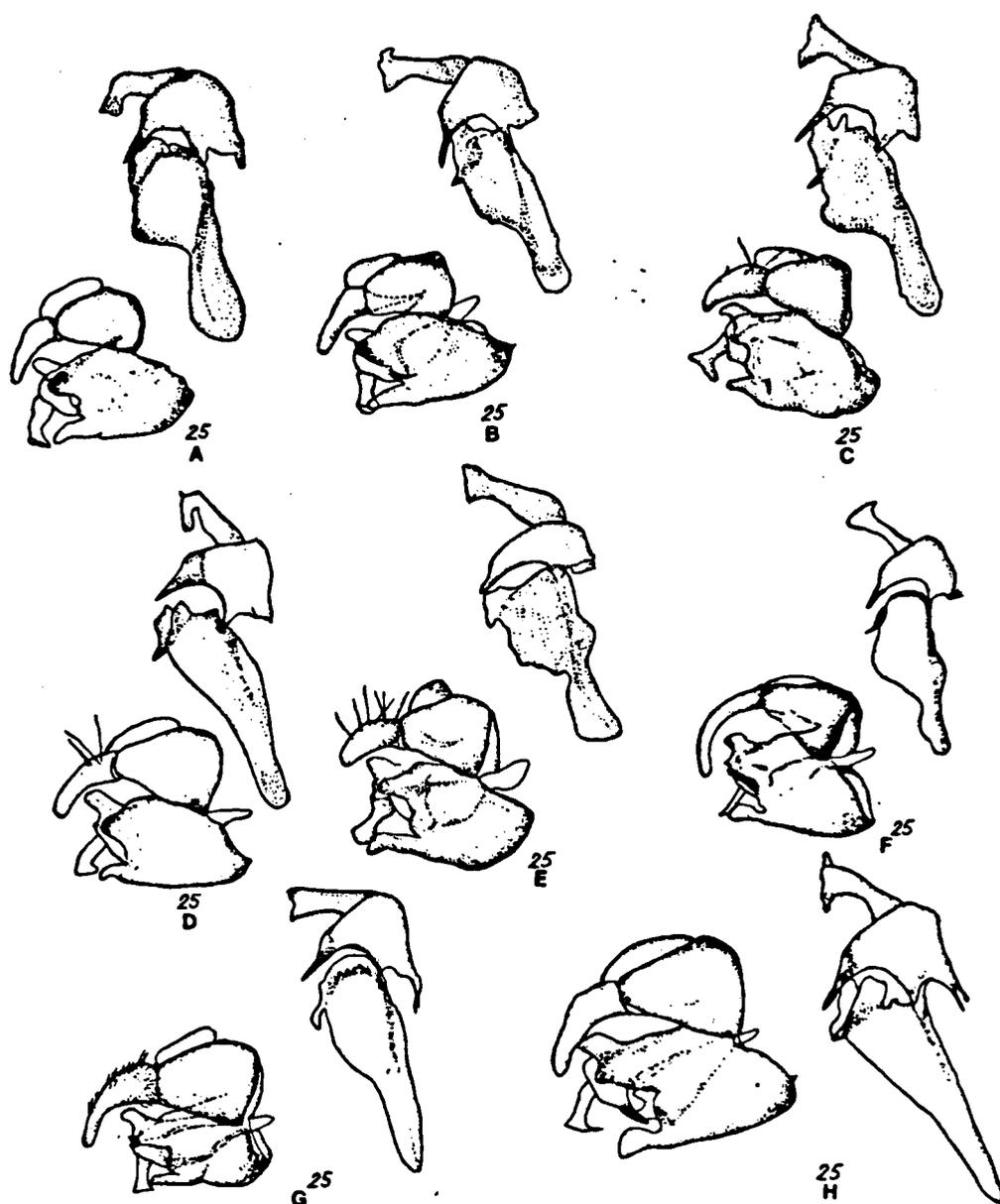


Fig. 25. Hypopygium and aedeagus (after Hippa).

A - *Syrphus umbellatarum* (Fabr.); B - *S. compositorum* Verrall; C - *S. lasiophthalmus* (Zett.); D - *S. olsufjevi* Viol.; E - *S. arcticus* (Zett.); F - *S. barbifrons* (Fall.); G - *S. quadrimaculatus* (Verrall); H - *S. pavlovskyi* Viol.

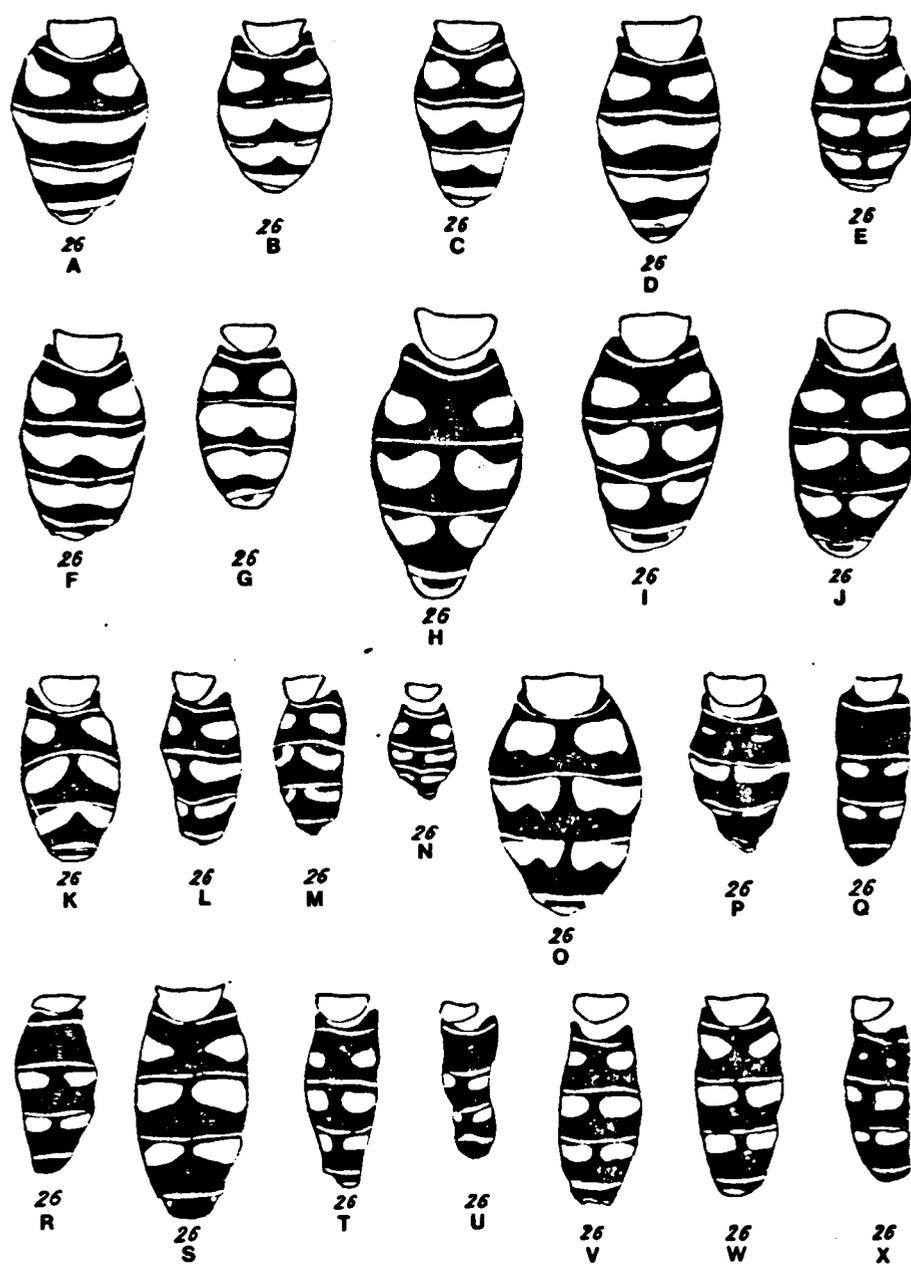


Fig. 26. Abdomen of the ♂ (after Hippa).

A - *Syrphus ribesii* (L.); B - *S. pilisquamis* Ringd.; C - *S. vitripennis* Mg.; D - *S. torvus* O. - S.; E - *S. sexmaculatus* (Zett.); F - *S. nitens* (Zett.); G - *S. latifasciatus* Macq.; H - *S. lundbecki* Soot-Ryen; I - *S. luniger* Mg.; J - *S. punctifer* Frey et Kan.; K - *S. albostriatus* (Fall.); L - *S. venustus* Mg.; M - *S. lunulatus* Mg.; N - *S. nigricornis* Verrall; O - *S. bilineatus* Mats.; P - *S. tricinctus* (Fall.); Q - *S. quadrimaculatus* (Verrall); R - *S. pavlovskyi* Viol.; S - *S. olsufjevi* Viol.; T - *S. lasiophthalmus* (Zett.); U - *S. barbifrons* (Fall.); V - *S. compositarum* Verrall; W - *S. umbellatarum* (Fabr.); X - *S. arcticus* (Zett.).

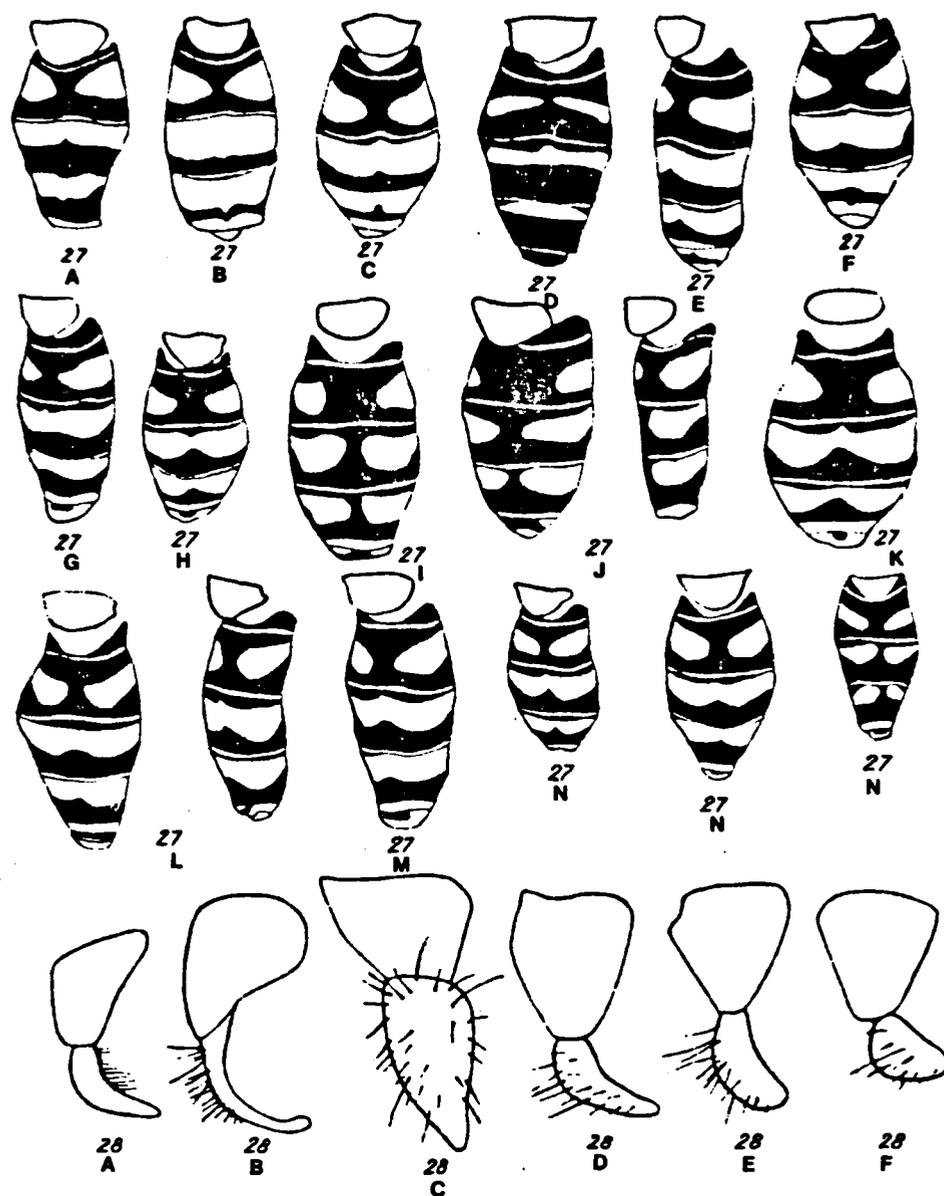


Fig. 27. Abdomen of the ♂ (after Hippa): A - *Syrphus grossulariae* Mg.; B - *S. annulitarsis* Stack.; C - *S. ochrostoma* (Zett.); D - *S. angustifasciatus* Viol.; E - *S. melanostomoides* Strobl; F - *S. diaphanus* (Zett.); G - *S. nitidicollis* Mg.; H - *S. melanostoma* (Zett.); I - *S. tarsatus* (Zett.); J - *S. dryadis* (Holmgr.); K - *S. nigratarsis* (Zett.); L - *S. vittiger* (Zett.); M - *S. lineola* (Zett.); N - *S. annulatus* (Zett.).

Fig. 28. Surstyli (after Violovitsh): A - *Syrphus pavlovskiy* Viol.; B - *S. barbifrons* (Fall.); C - *S. arcticus* (Zett.); D - *S. kolomyetzi* Viol.; E - *S. tsherepanovi* Viol.; F - *S. savtshenkoi* Viol.

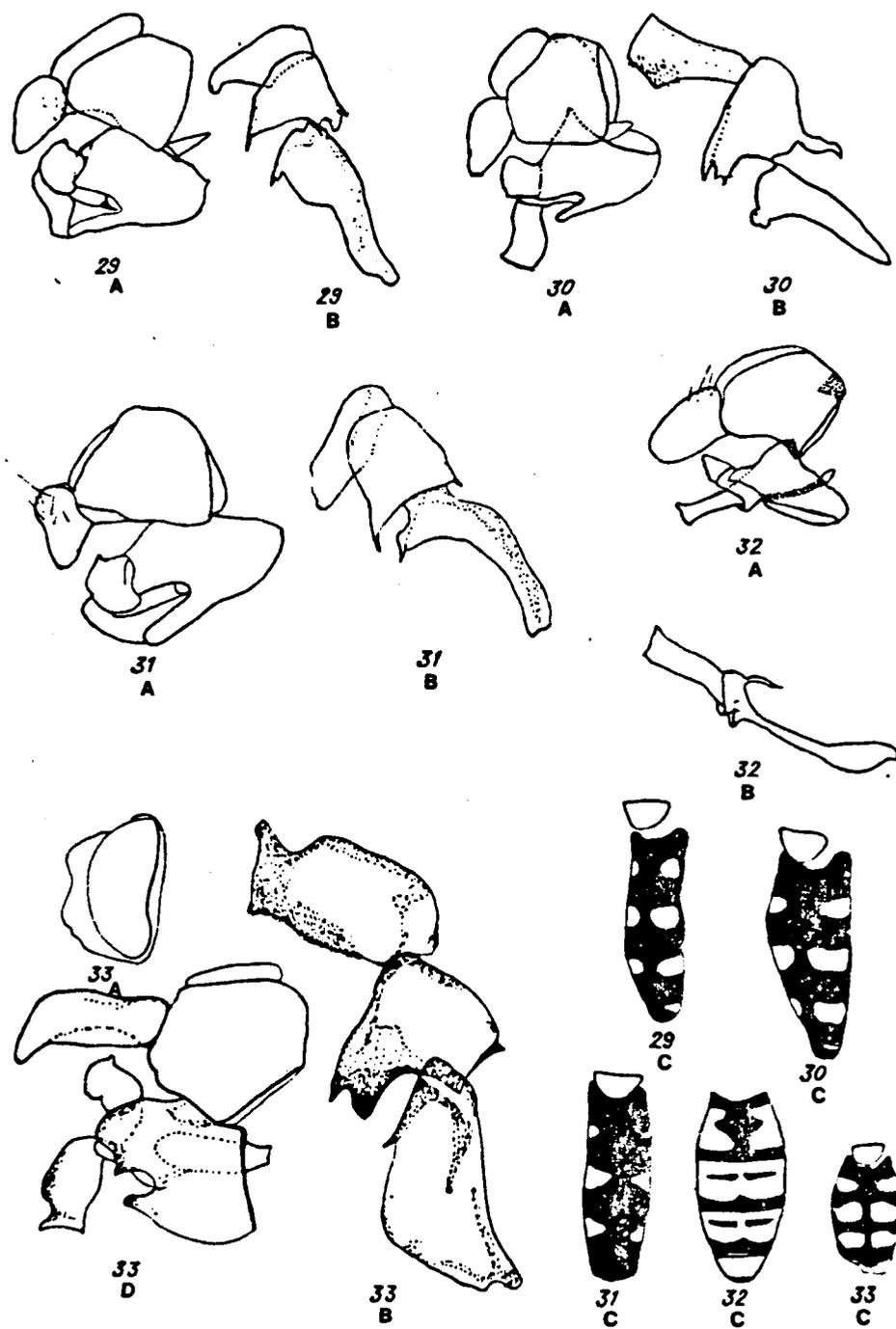


Fig. 29. *Syrphus guttatus* (Fall.): A - hypopygium; B - aedeagus; C - abdomen. Fig. 30. *S. euchromus* Kowarz, do. Fig. 31. *S. triangulifer* (Zett.), do. Fig. 32. *S. balteatus* (De Geer), do. Fig. 33. *S. corollae* (Fabr.): A - head; B - aedeagus; C - abdomen; D - hypopygium (after Hippa).

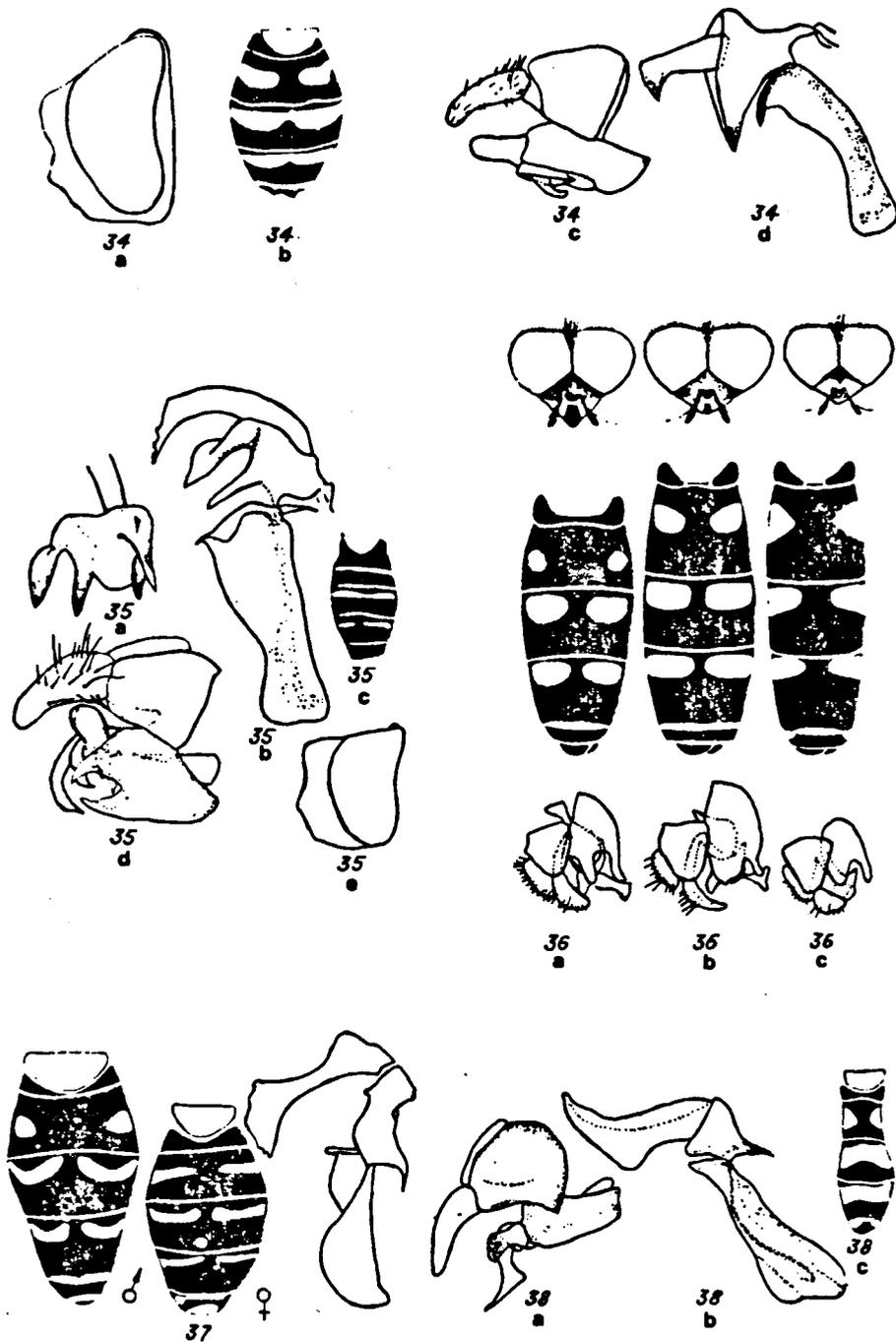


Fig. 34. *Syrphus annulipes* (Zett.), ♂: a - head; b - abdomen; c - hypopygium; d - aedeagus (after Bankowska). Fig. 35. *S. serarius* Wied., ♂: a - part of aedeagus; b - aedeagus; c - abdomen; d - hypopygium; e - head (after Hippa). Fig. 36. Head, abdomen and hypopygium of: a - *S. tsherepanovi* Viol.; b - *S. kolomyetzi* Viol.; c - *S. savtshenkoi* Viol. (after Violovitsh). Fig. 37. *S. kegalii* (Viol.): abdomina and aedeagus (after Violovitsh). Fig. 38. *S. cinctellus* (Zett.), ♂: a - hypopygium; b - aedeagus; c - abdomen (after Hippa).

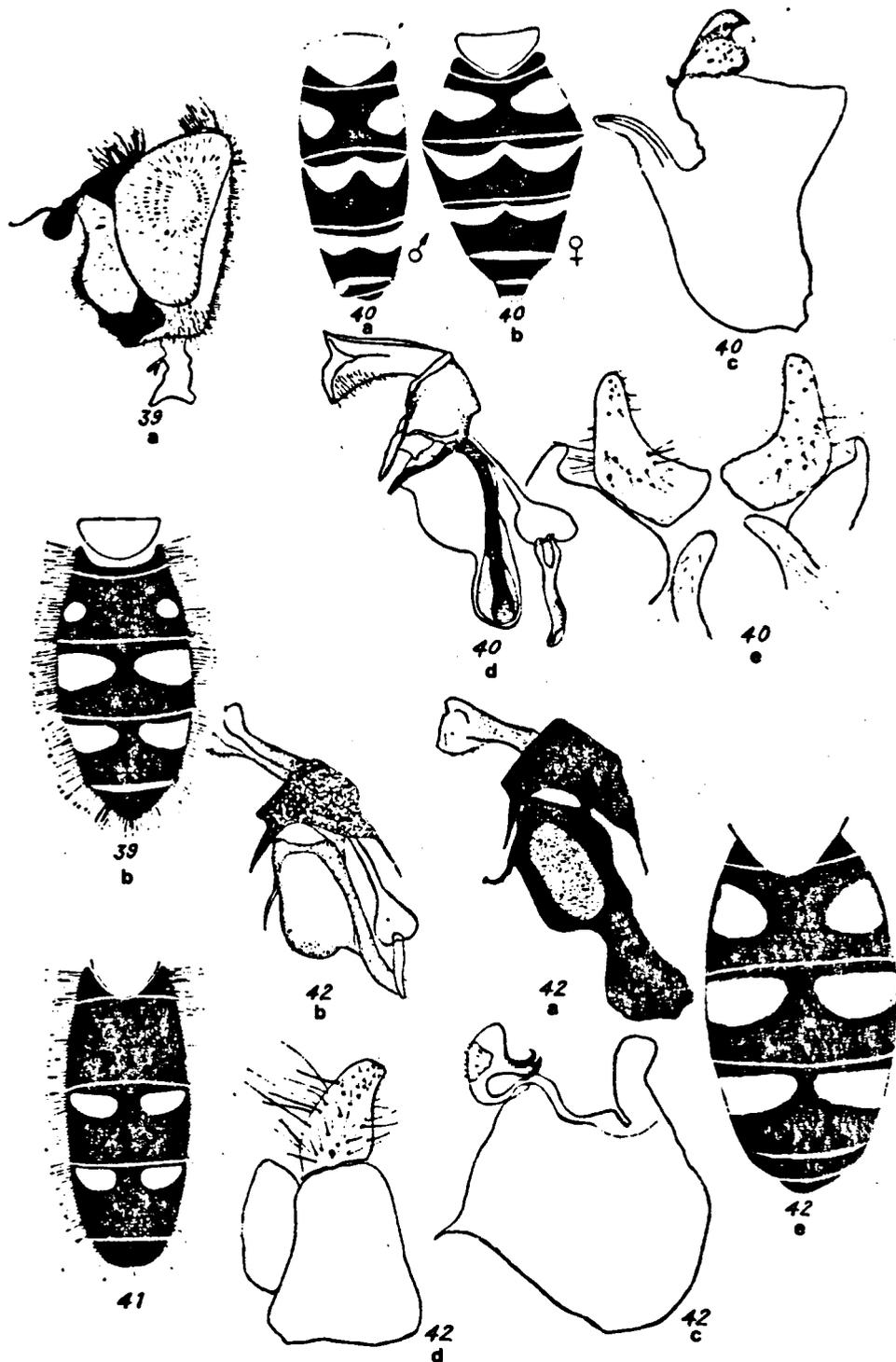


Fig. 39. *Syrphus olsufjevi* Viol., ♂: a - head; b - abdomen. Fig. 40. *S. levinae* (Viol.): a, b - abdomen ♂, ♀; c - lingula and upper lobe of hypandrium; d - aedeagus; e - surstyli, dorsal view. Fig. 41. *S. pavlovskiy* Viol., ♂: abdomen. Fig. 42. *S. stackelbergi* (Viol.), ♂: a, b - aedeagi; c - hypandrium; d - surstylus and gonocercus; e - abdomen (after Violovitsh).

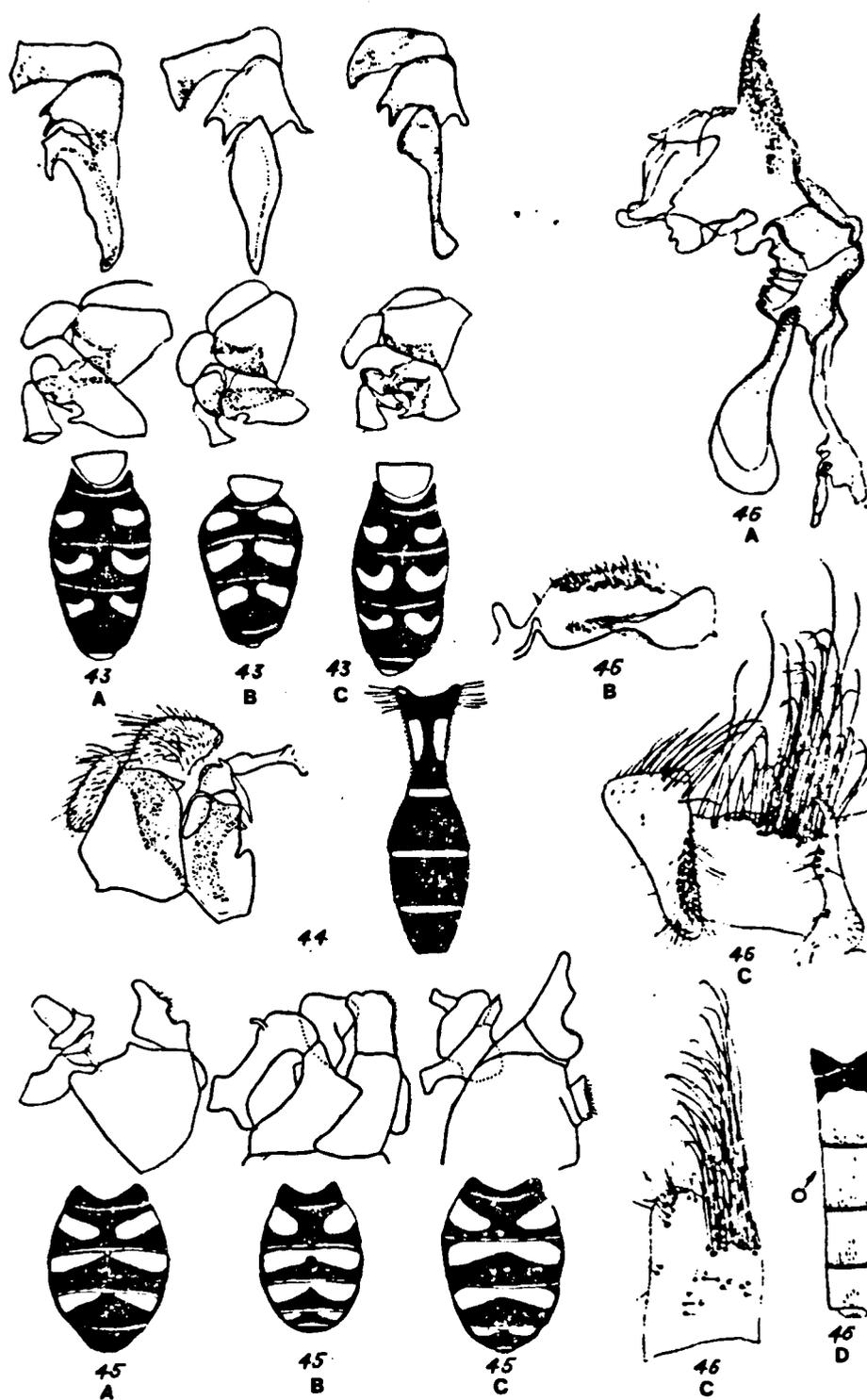


Fig. 43. Aedeagus, hypopygium and abdomen of the ♂: A - *Scaeva pyrastris* (L.); B - *S. albomaculata* (Macq.); C - *S. selenitica* (Mg.) (after Hippa). Fig. 44. *Doros conopseus* (Fabr.): hypopygium and abdomen (♀). Fig. 45. Hypopygium and abdomen of the ♂: A - *Didea alneti* (Fall.); B - *D. fasciata* Macq.; C - *D. intermedia* Lw. (after Bankowska and orig.). Fig. 46. *Sphaerophoria krocha* Viol.: A - aedeagus; B - upper lobe of hypandrium; C - surstylus; D - abdomen (after Violovitsh).

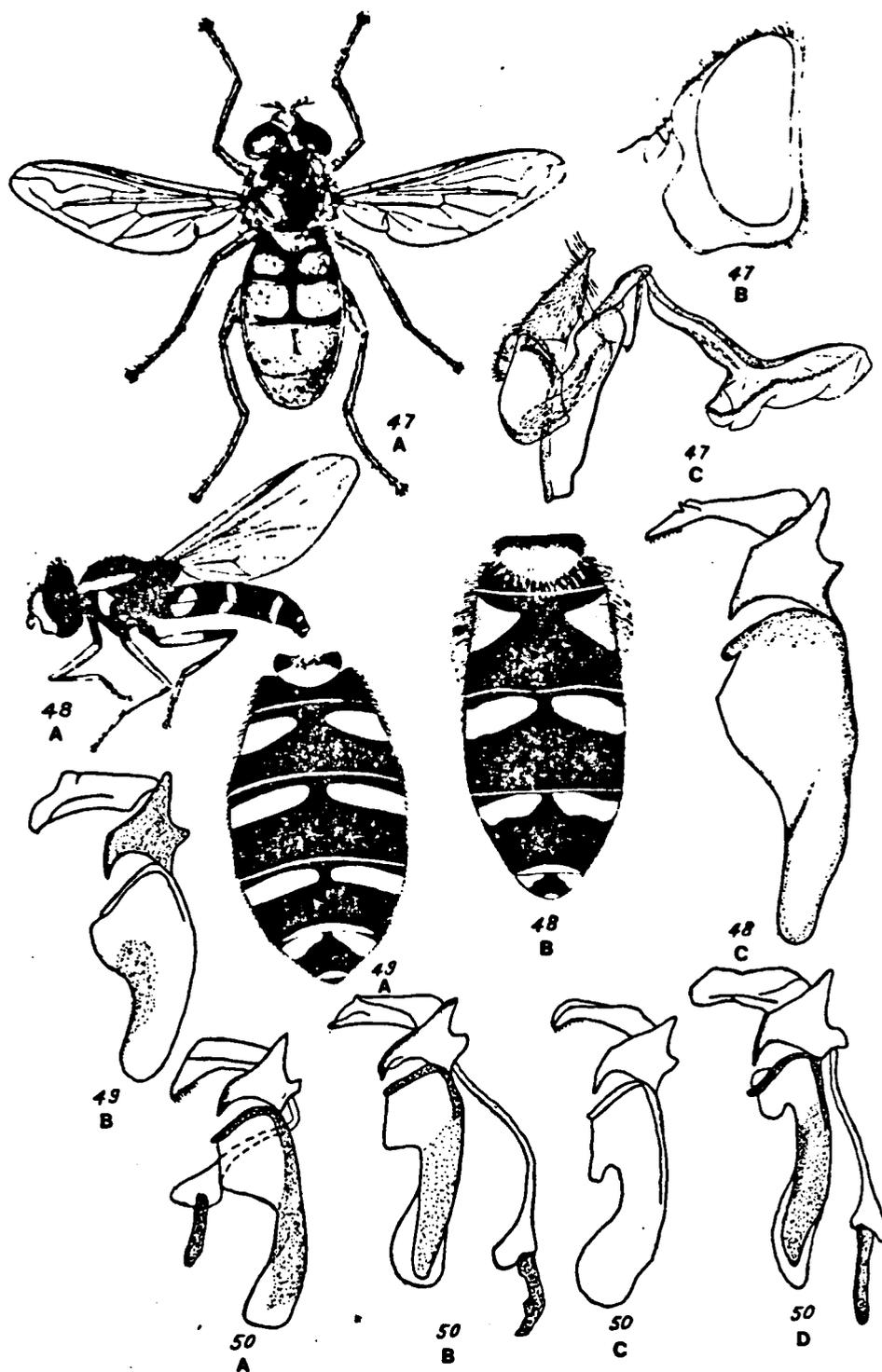


Fig. 47. *Asiodidea nikkoensis* (Mats.), ♂: A - habitus; B - head; C - hypopygium (after Stackelberg and Vockeroth). Fig. 48. *Xanthogramma pedissequum* (Harris), ♂: A - habitus; B - abdomen; C - aedeagus. Fig. 49. *X. citrofasciatum* (De Geer): A - abdomen; B - aedeagus. Fig. 50. *Olbiosyrphus* spp., aedeagi: A - *O. udege* (Viol.); B - *O. eoa* (Viol.); C - *O. sachalinicus* (Viol.); D - *O. sapporensis* (Mats.) (after Bankowska and Violovitsh).

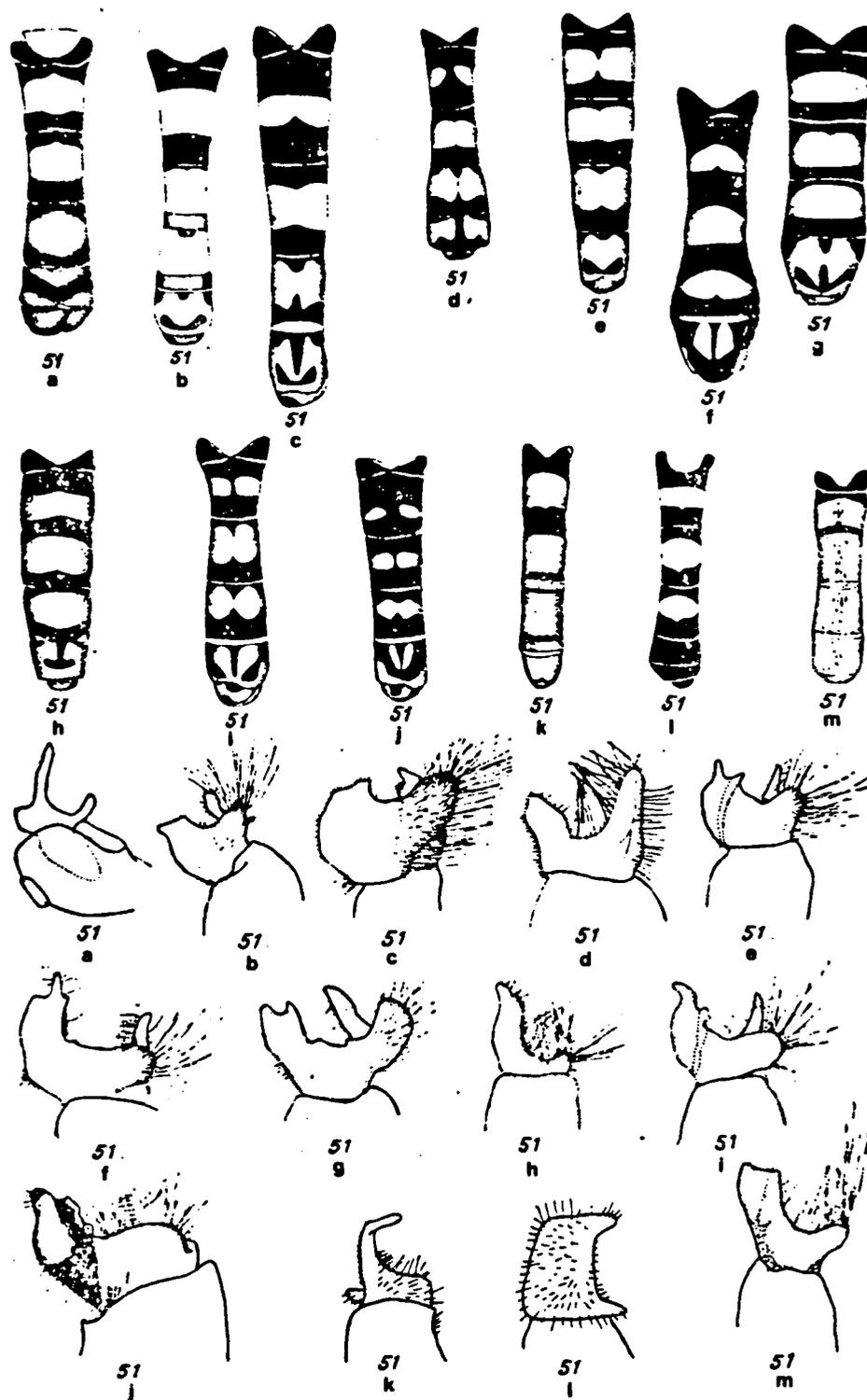


Fig. 51. Abdomen of the ♂ and surstylus (after Bankowska, with corrections).

a - *Sphaerophoria tuvina* Viol.; b - *S. indiana* Bigot; c - *S. scripta* (L.); d - *S. rueppellii* (Wied.); e - *S. philanthus* (Mg.); f - *S. abbreviata* (Zett.); g - *S. taeniata* (Mg.); h - *S. chongjini* Bank.; i - *S. menthastri* (L.); j - *S. kaa* Viol.; k - *S. viridaena* Brun.; l - *S. shirchan* Viol.; m - *S. macrogaster* Thoms.

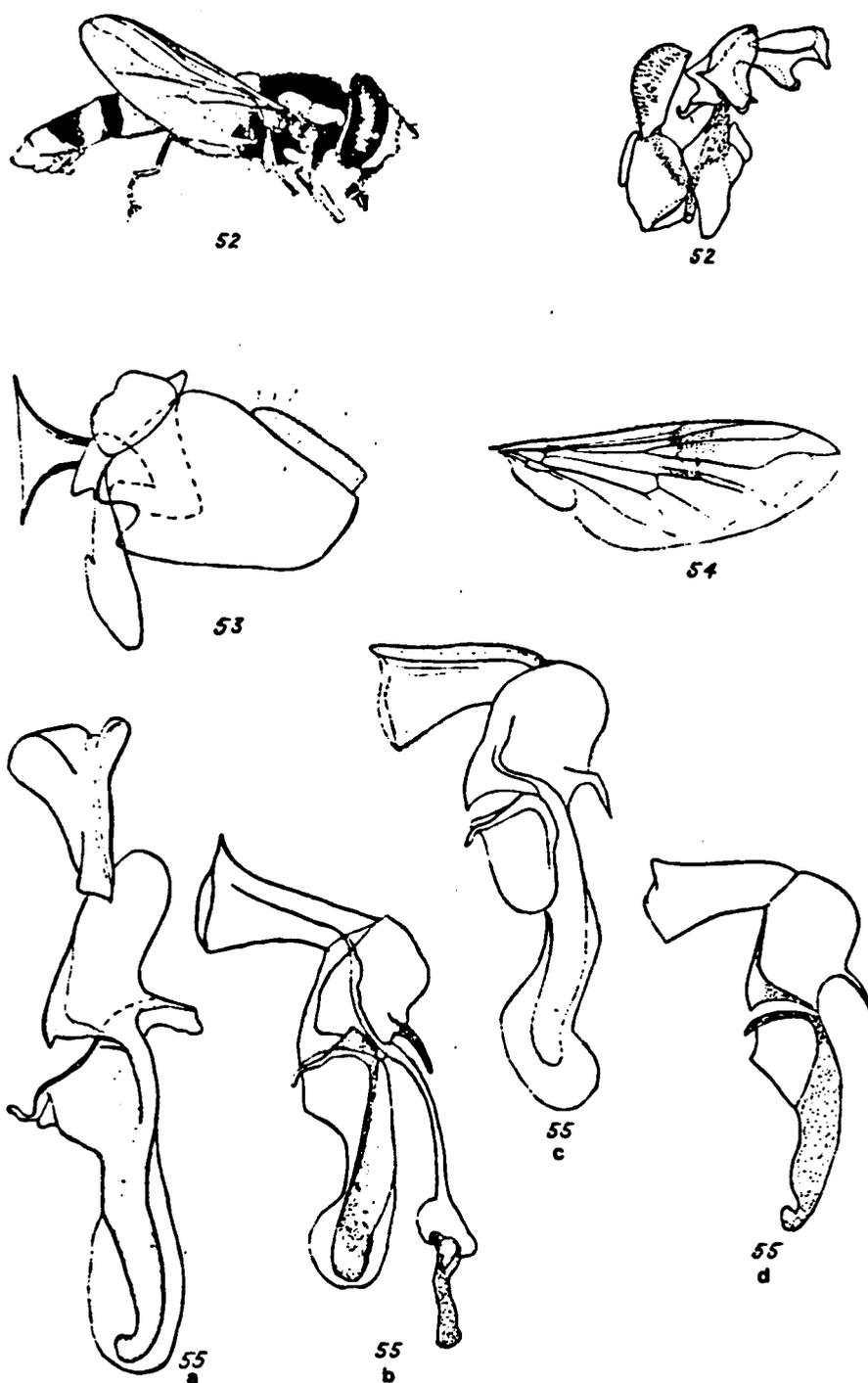


Fig. 52. *Ischiodon scutellaris* (Fabr.), ♂: habitus and hypopygium. Fig. 53. *Allograpta javanica* (Wied.): hypopygium. Fig. 54. *Chrysotoxum sibiricum* Lw., ♀: wing. Fig. 55. Aedeagi: a - *C. amurense* Viol.; b - *C. octomaculatum* Curt.; c - *C. sapporense* Mats.; d - *C. verralli* Collin (orig. and after Violovitsh).

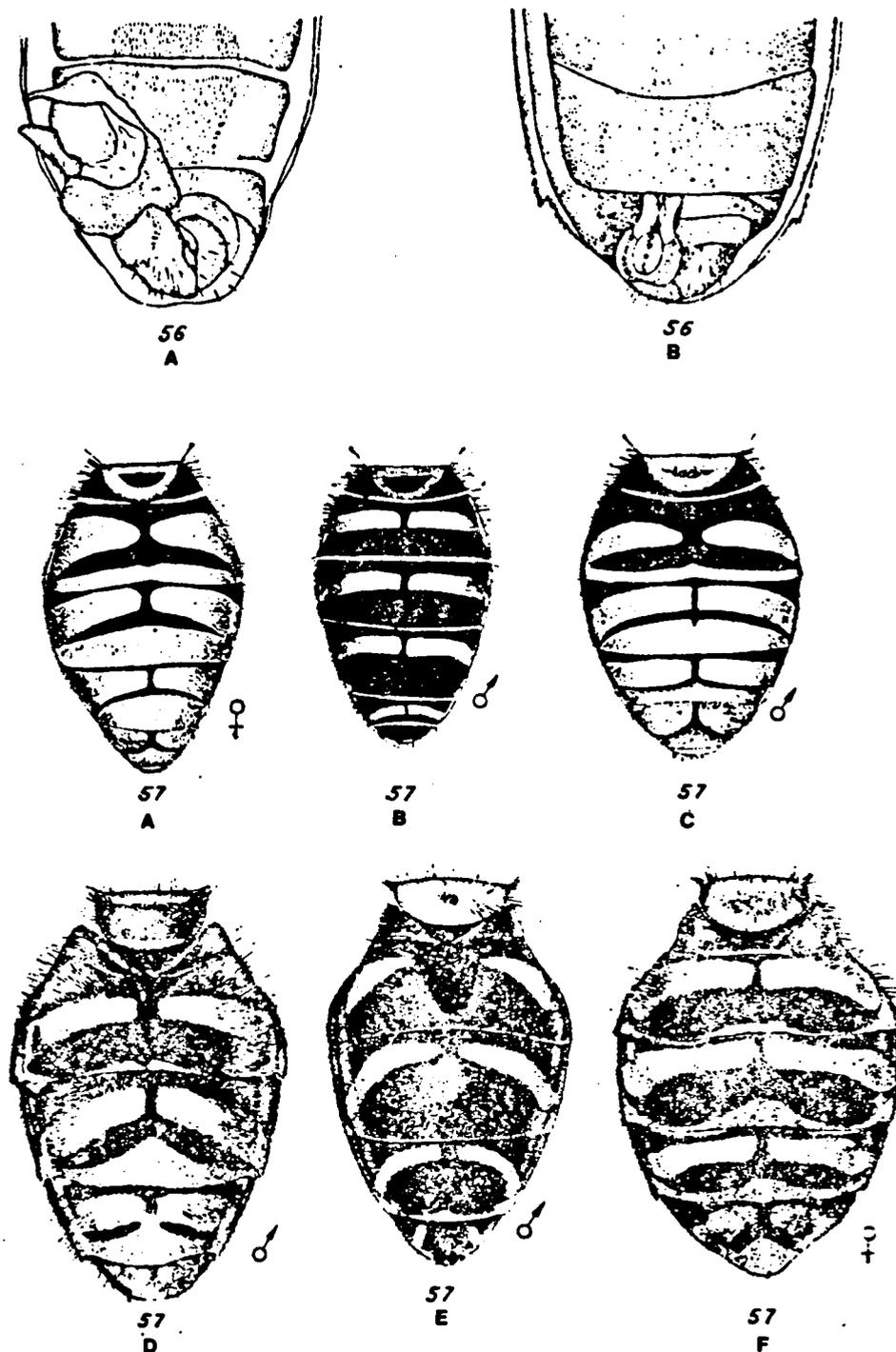


Fig. 56. Tip of abdomen of the ♂, ventral view: A - *Chrysotoxum lydiae* Viol.; B - *C. festivum* (L.). Fig. 57. Abdomen, dorsal view: A - *C. octomaculatum* Curt.; B - *C. festivum* (L.); C - *C. arcuatum* (L.); D - *C. grande* Mats.; E - *C. bajkalicum* Viol.; F - *C. fratellum* Shannon (after Violovitsh and Sack).

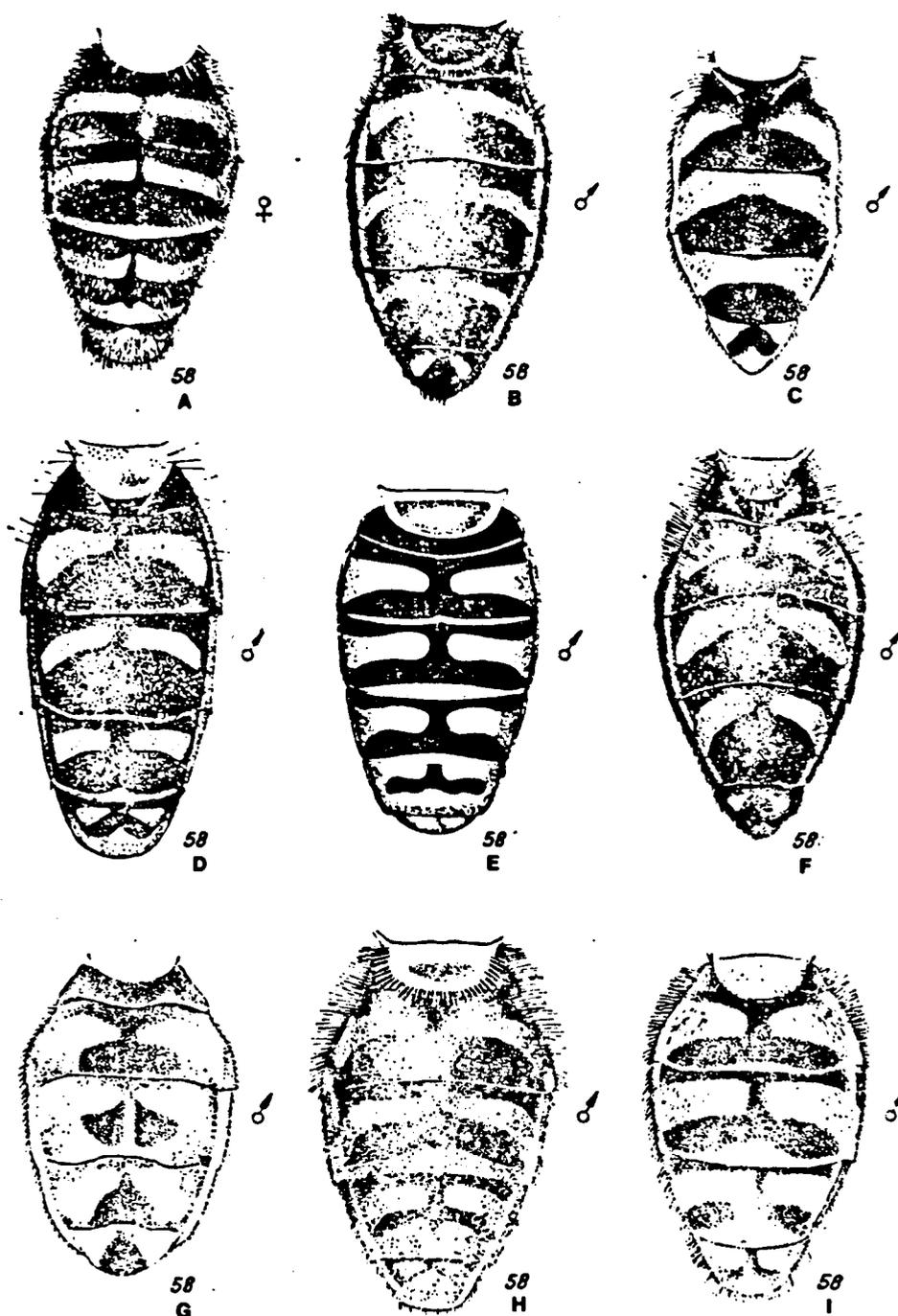


Fig. 58. Abdomen, dorsal view (after Violovitsh).

A - *Chrysotoxum coreanum* Shir.; B - *C. sibiricum* Lw.; C - *C. iadakense* Shannon; D - *C. rubzovi* Viol.; E - *C. lydiae* Viol.; F - *C. lanulosum* Viol.; G - *C. hamaeleon* Viol.; H - *C. verralli* Collin; I - *C. fratellum* Shannon.

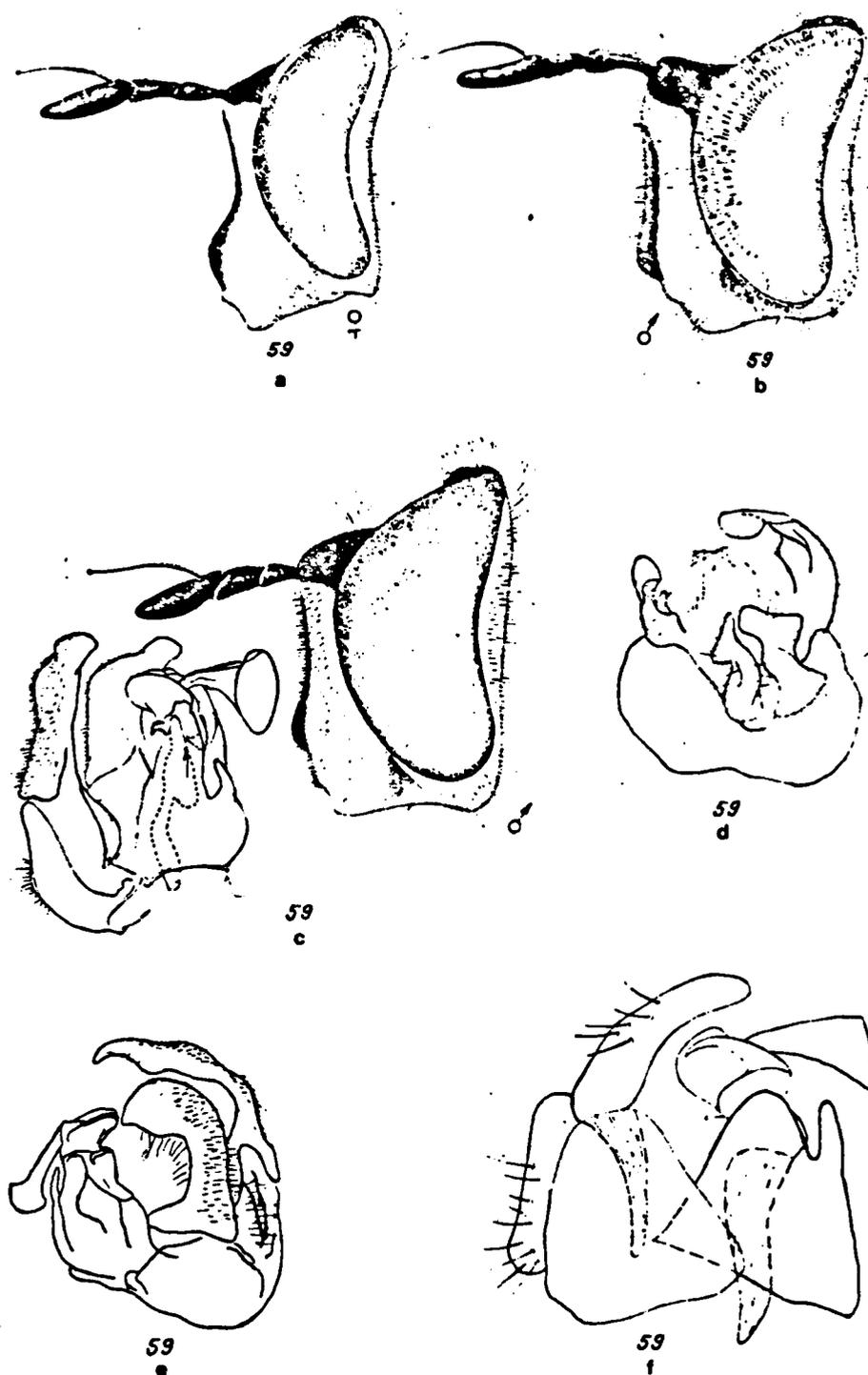


Fig. 59. Head and hypopygium (after Violovitsh).

a - *Chrysotoxum lanulosum* Viol.; b - *C. coreanum* Shir.; c - *C. radha* Viol.; d - *C. amurense* Viol.; e - *C. cautum* (Harris); f - *C. ladakense* Shannon.

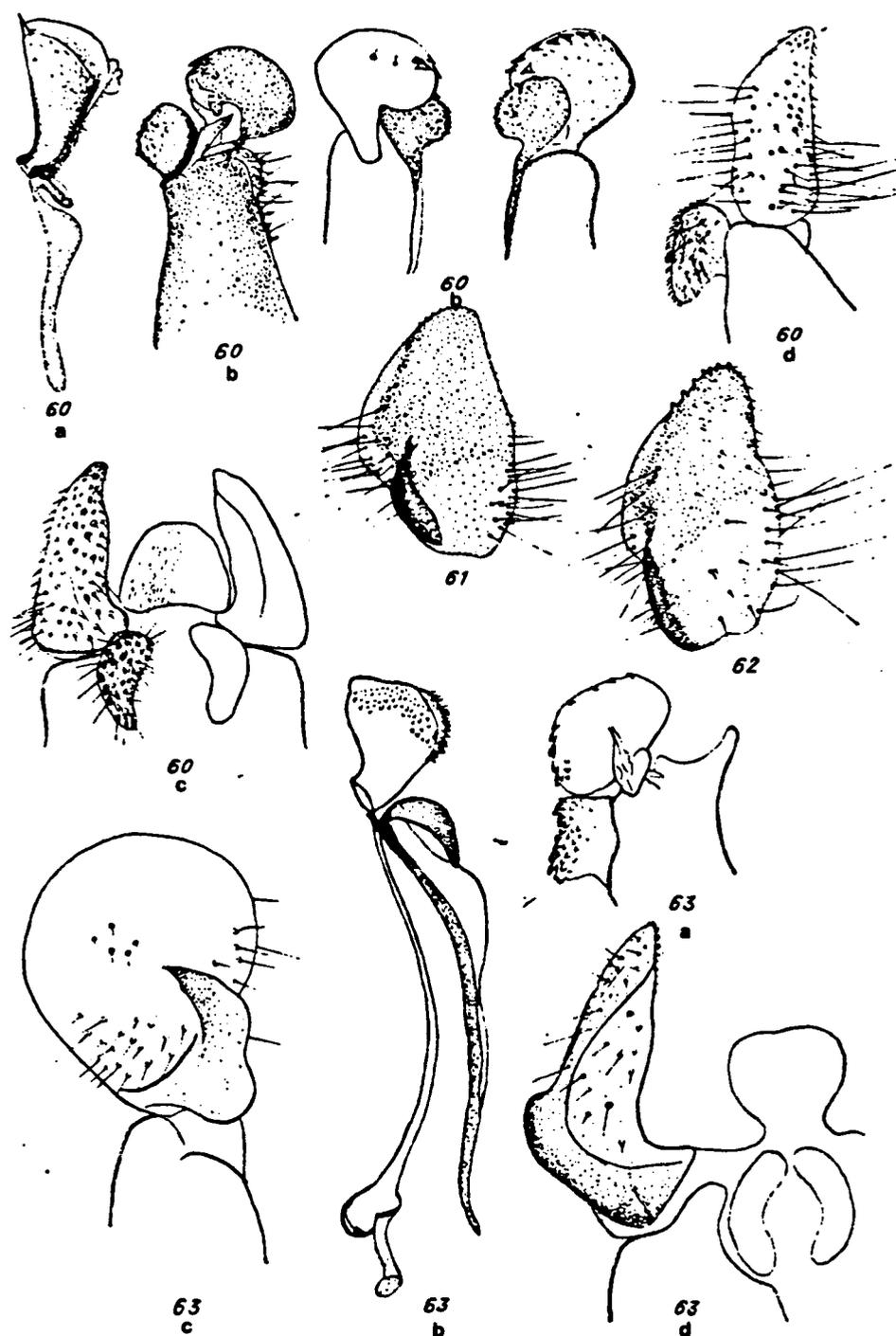


Fig. 60. *Pipizella antennata* Viol.: a - aedeagus ; b - upper lobe of hypandrium; c - surstyli and gonocerci, posterior view; d - surstylus and gonocercus, lateral view. Fig. 61. *P. maculipennis* (Mg.): surstylus. Fig. 62. *P. sibirica* Viol., do. Fig. 63. *P. certa* Viol.: a - upper lobe of hypandrium; b - aedeagus; c, d - surstylus, lateral and dorsal views (after Violovitsh).

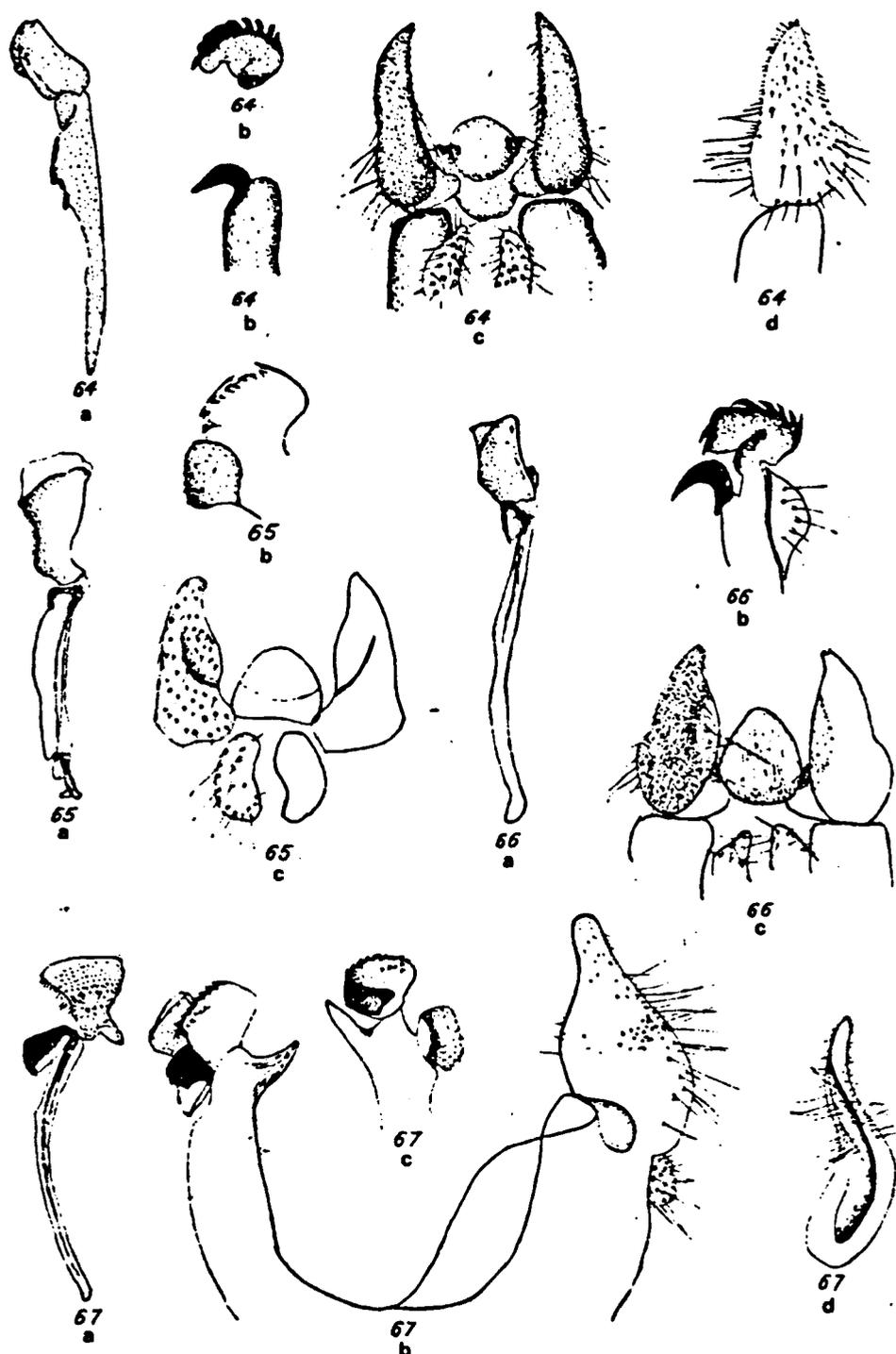


Fig. 64. *Pipizella dentata* Viol.: a - aedeagus; b, c - upper lobe of hypandrium; surstyli and gonocerci, posterior view; d - surstylus, lateral view. Fig. 65. *P. altaica* Viol., do. Fig. 66. *P. barkalovi* Viol., do. Fig. 67. *P. inversa* Viol.: a - aedeagus; b - hypandrium and surstylus, lateral view; c - upper lobe of hypandrium; d - surstylus, posterior view (after Violovitsh).



Fig. 68. *Pipizella varipes* (Mg.): a, c - upper lobe of hypandrium; b - surstylus, lateral view; d, e - surstyli and gonocerci, lateral and posterior view. Fig. 69. Antennae of the ♂: a - *P. mongolorum* Stack.; b - *P. certa* Viol. Fig. 70. *P. adentata* Viol.: a - aedeagus; b, c, e - upper lobe of hypandrium; d - surstyli and gonocerci, posterior view; f - hypopygium, lateral view. Fig. 71. *P. maculipennis* (Mg.): a - aedeagus; b, c - upper lobe of hypandrium; d - surstylus, lateral view; e - surstyli and upper lobe of hypandrium, ventral view (after Violovitsh).

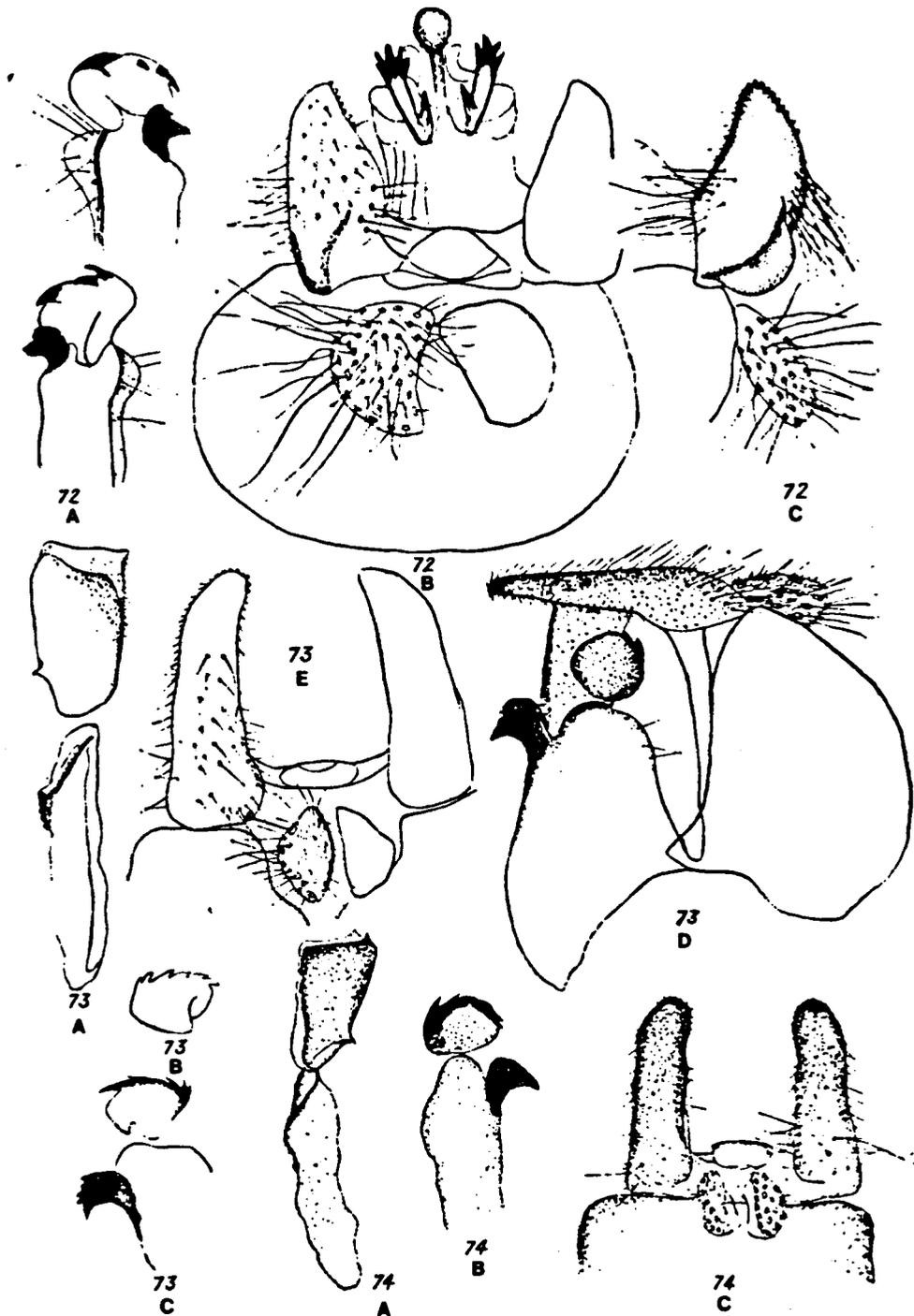


Fig. 72. *Pipizella cauta* Viol.: A - upper lobe of hypandrium; B - hypopygium, ventral view; C - surstylus and gonocercus, lateral view. Fig. 73. *P. surstilonga* Viol.: A - aedeagus; B, C - upper lobe of hypandrium; D - hypopygium, lateral view; E - surstyli and gonocerci, posterior view. Fig. 74. *P. ussurlana* Viol.: A - aedeagus; B - upper and front lobes of hypandrium; C - surstyli and gonocerci, posterior view (after Violovitsh).

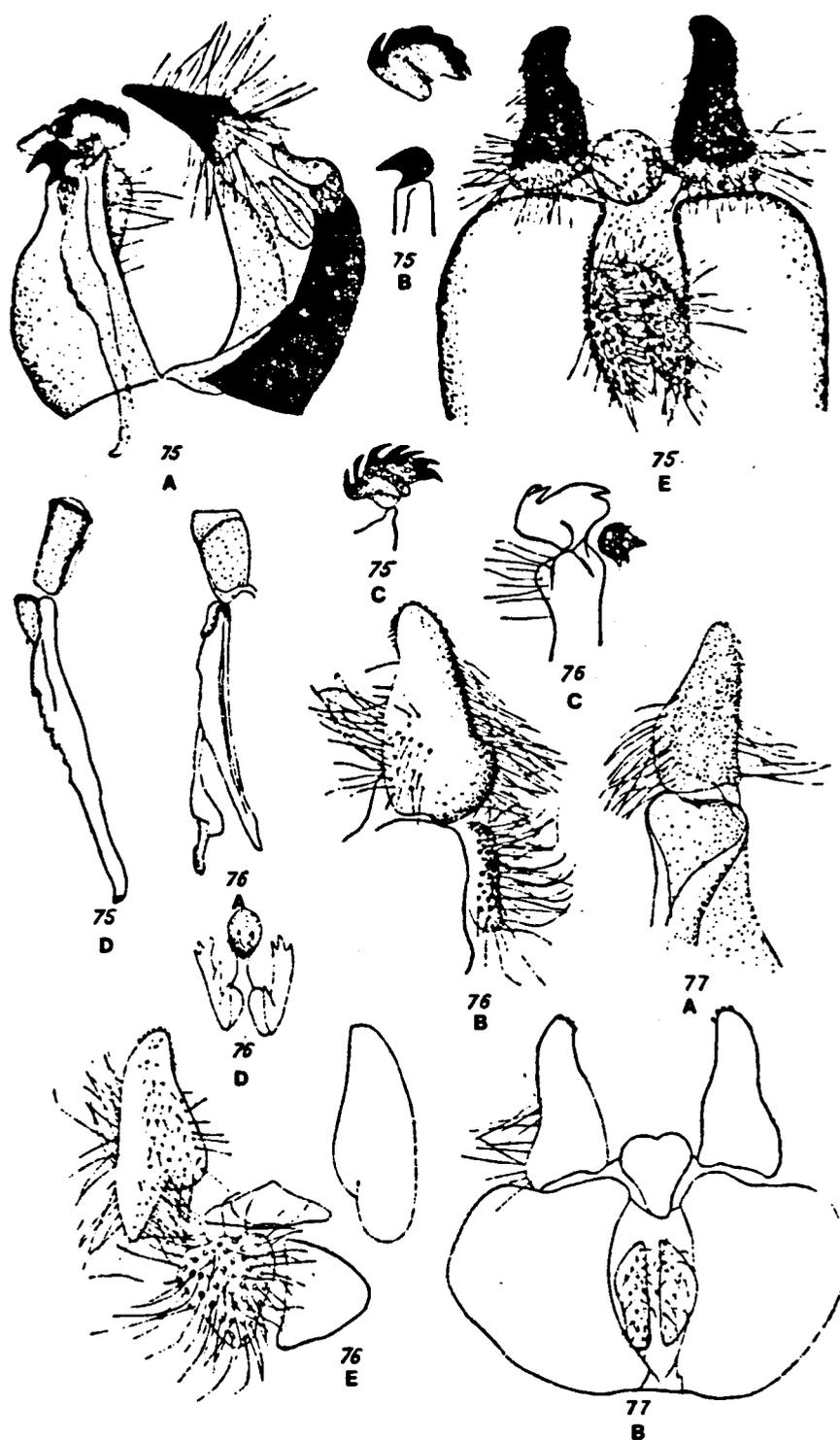


Fig. 75. *Pipizella opaca* Viol.: A - hypopygium, lateral view; B, C - upper lobe of hypandrium; D - aedeagus; E - surstyli and gonocerci, posterior view. Fig. 76. *P. sibirica* Viol.: A - aedeagus; B - surstyli and gonocerci, lateral view; C - upper lobe of hypandrium, lateral view; D - do., dorsal view; E - surstyli and gonocerci, posterior view. Fig. 77. *P. absurdens* Lucas: A - surstylus, lateral view; B - surstyli and gonocerci, posterior view (after Violovitsh).

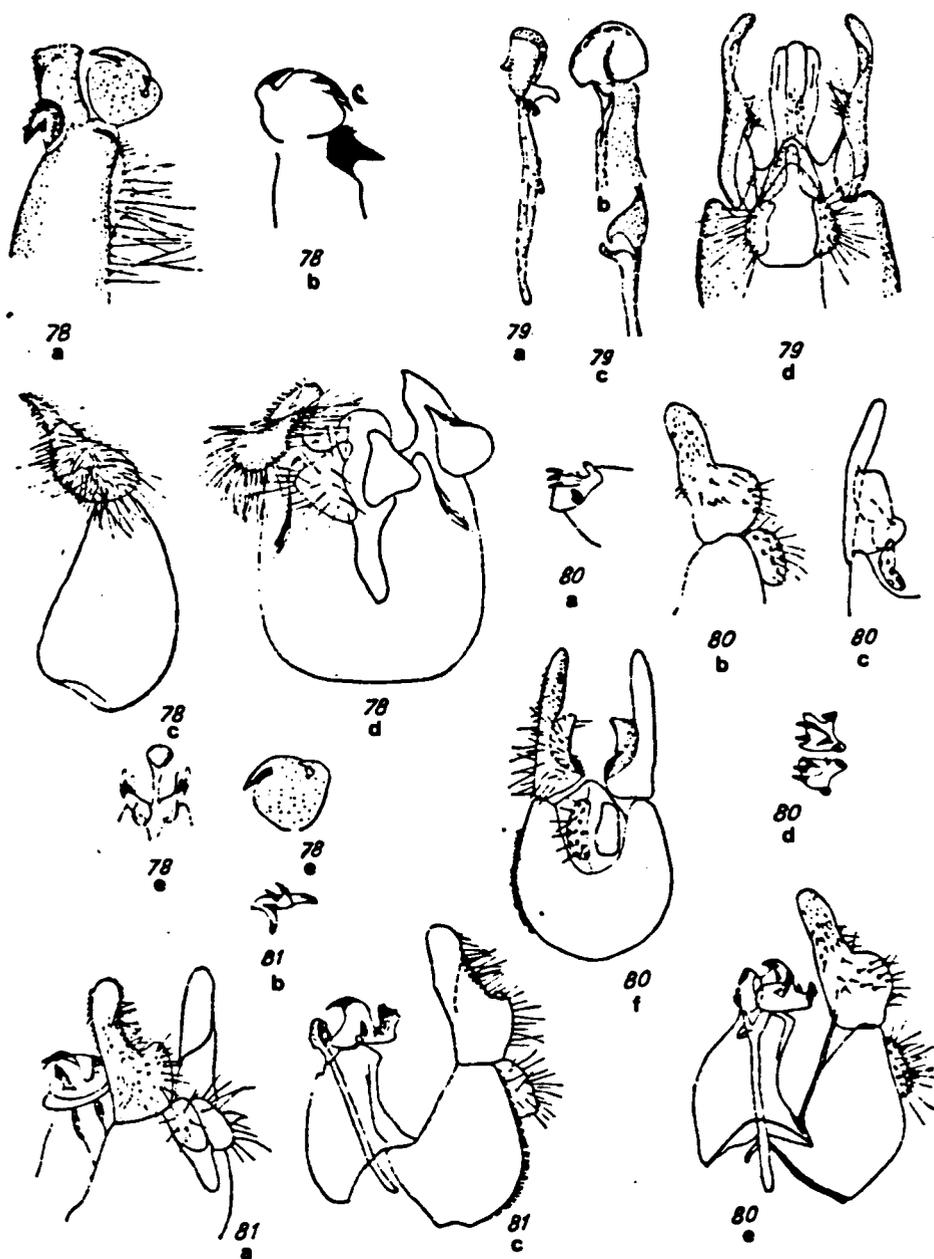


Fig. 78. *Pipizella mongolorum* Stack.: a, b, e - upper lobe of hypandrium; c - surstylus, lateral view; d - surstyli and gonocerci, posterior view. Fig. 79. *Parapenium flavitarsis* (Mg.): a - aedeagus; b, c - upper lobe of hypandrium, lateral and posterior views; d - surstyli and gonocerci, posterior view. Fig. 80. *Triglyphus primus* Lw.: a, d - upper lobe hypandrium; b, c - surstylus, lateral and posterior views; e - hypopygium, f - surstyli and gonocerci, posterior view. Fig. 81. *Triglyphus aureus* Viol.: a, c - hypopygium, posterior and lateral views; b - upper lobe of hypandrium (orig. and after Violovitsh).



Fig. 82. Aedeagus, surstylus, gonocercus and upper lobe of hypandrium (orig.).

a - *Cheilosia aratica* Barkalov; b - *C. angustigena* Becker; c - *C. nasutula* Becker; d - *C. sibirica* Becker; e - *C. violovitshi* Bark.; f - *C. matsumurana* Shir.; g - *C. nox* Stack.; h - *C. moneronica* Viol.; i - *C. posjetica* Bark.; j - *C. pallipes* Lw.; k - *C. josankeiana* Shir.; l - *C. kunashirica* Viol.

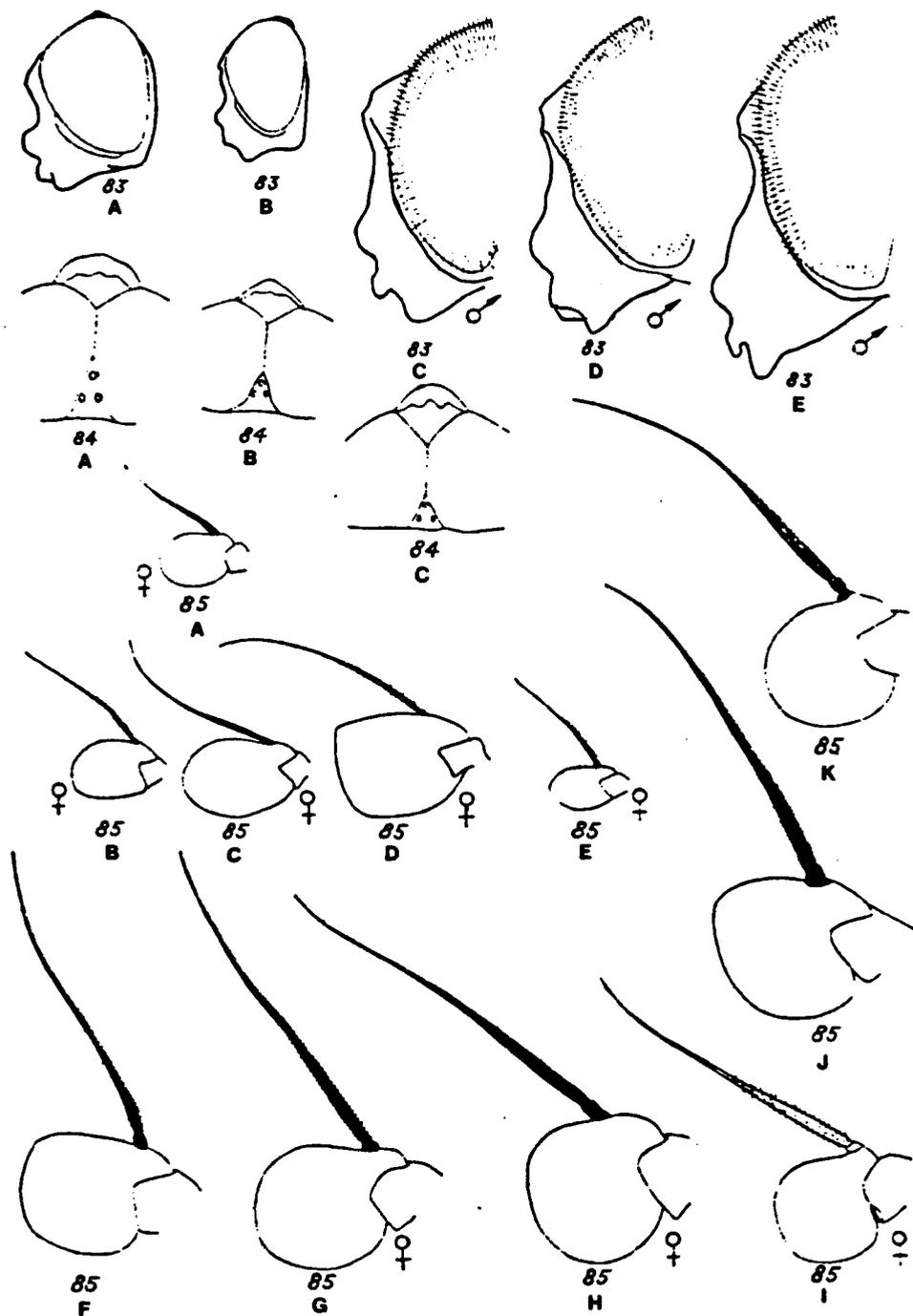


Fig. 83. Heads, lateral view: A - *Cheilisia nasutula* Becker; B - *C. sibirica* Becker; C - *C. albipila* Mg.; D - *C. annulifemur* Stack.; E - *C. sachtlebeni* Stack. Fig. 84. Heads, dorsal view: A - *C. scutellata* (Fall.); B - *C. longula* Zett.; C - *C. moneronica* Viol. Fig. 85. Antennae: A - *C. pollinosa* Becker; B - *C. nox* Stack.; C - *C. pagana* (Mg.); D - *C. zinovievi* Stack.; E - *C. mutabilis* (Fall.); F - *C. gorodkovi* Stack.; G - *C. edashigei* Shir.; H - *C. subalbipila* Viol.; I - *C. annulifemur* Stack.; J - *C. chrysocoma* (Mg.); K - *C. lutea* Bark. (after Becker, Coe and orig.).

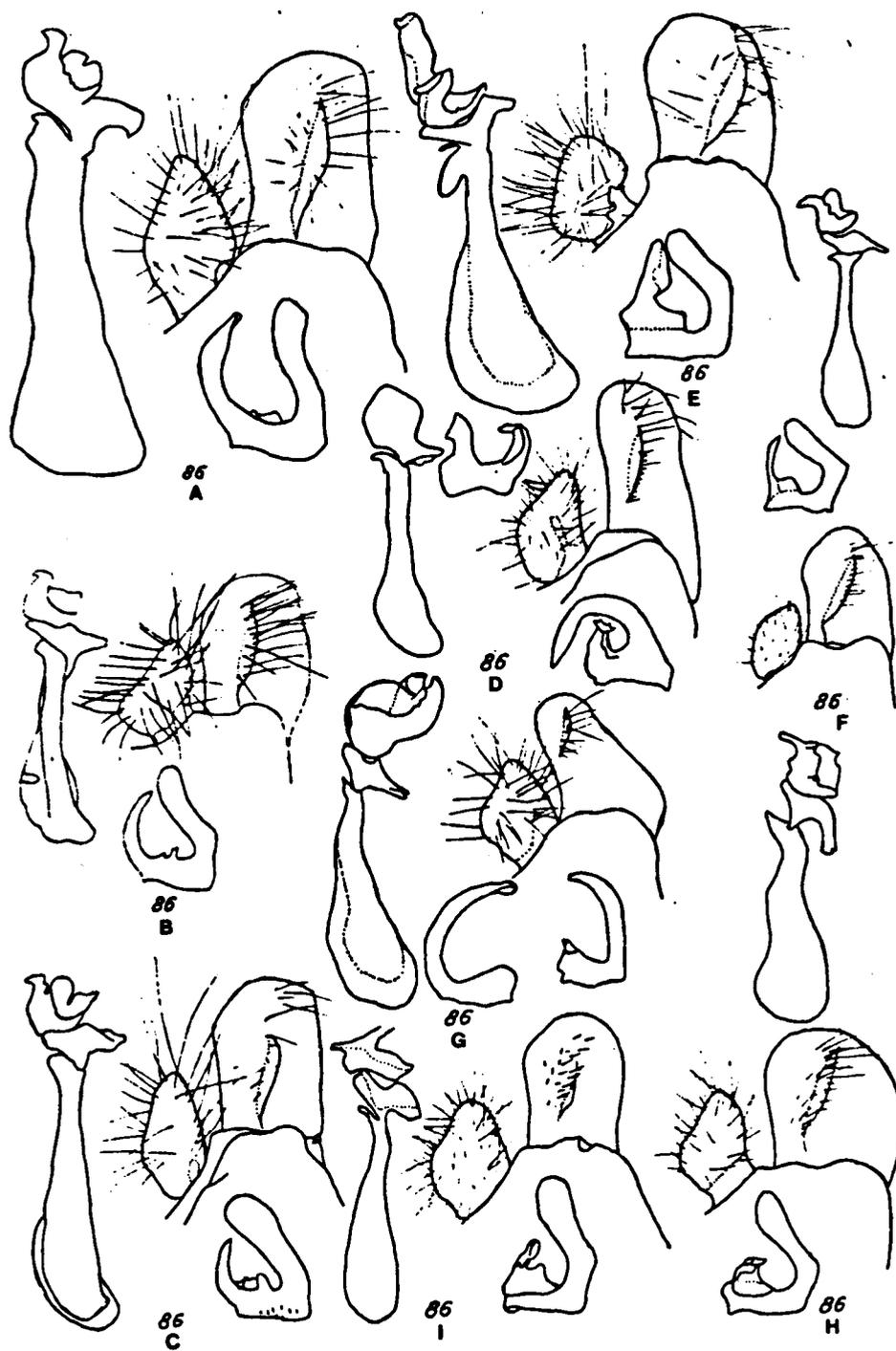


Fig. 86. Aedeagus, surstylus, gonocercus and upper lobe of hypandrium (orig.).

A - *Cheilosia honesta* Rond.; B - *C. variabilis* (Panzer); C - *C. kamtschatica* Helién; D - *C. aterrima* Sack; E - *C. conops* Becker; F - *C. ussuriana* Bark.; G - *C. mutini* Bark.; H - *C. intonsa* Lw.; I - *C. sapporensis* Shir.

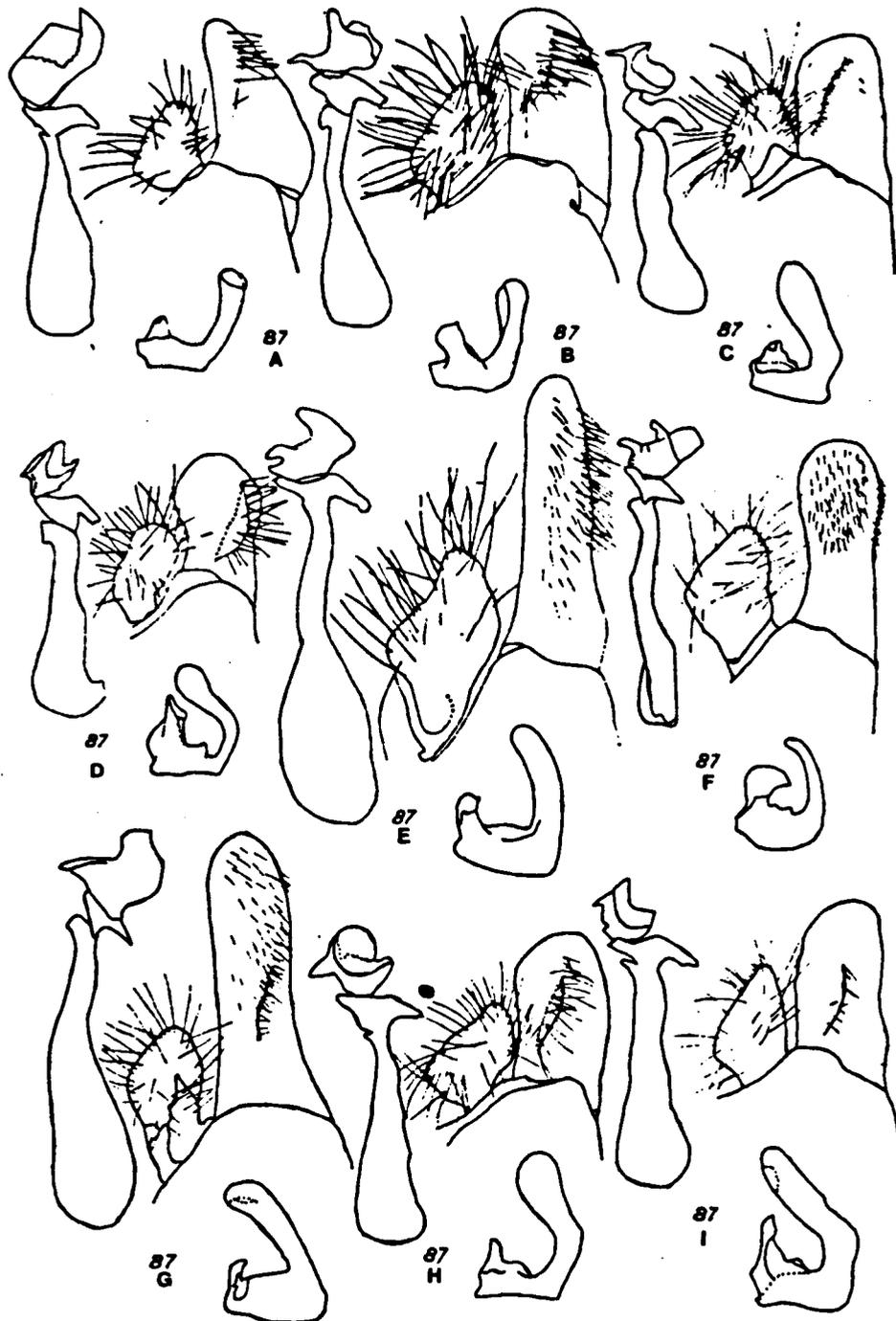


Fig. 87. Aedeagus, surstylus, gonocercus and upper lobe of hypandrium (orig.).

A - *Cheilosia scanica* Ringd.; B - *C. eurodes* Shir.; C - *C. grossa* (Fall.); D - *C. pollinata* Bark.; E - *C. chrysocoma* (Mg.); F - *C. subalbipila* Viol.; G - *C. zmilampis* Viol.; H - *C. annulifemur* Stack.; I - *C. albipila* Mg.

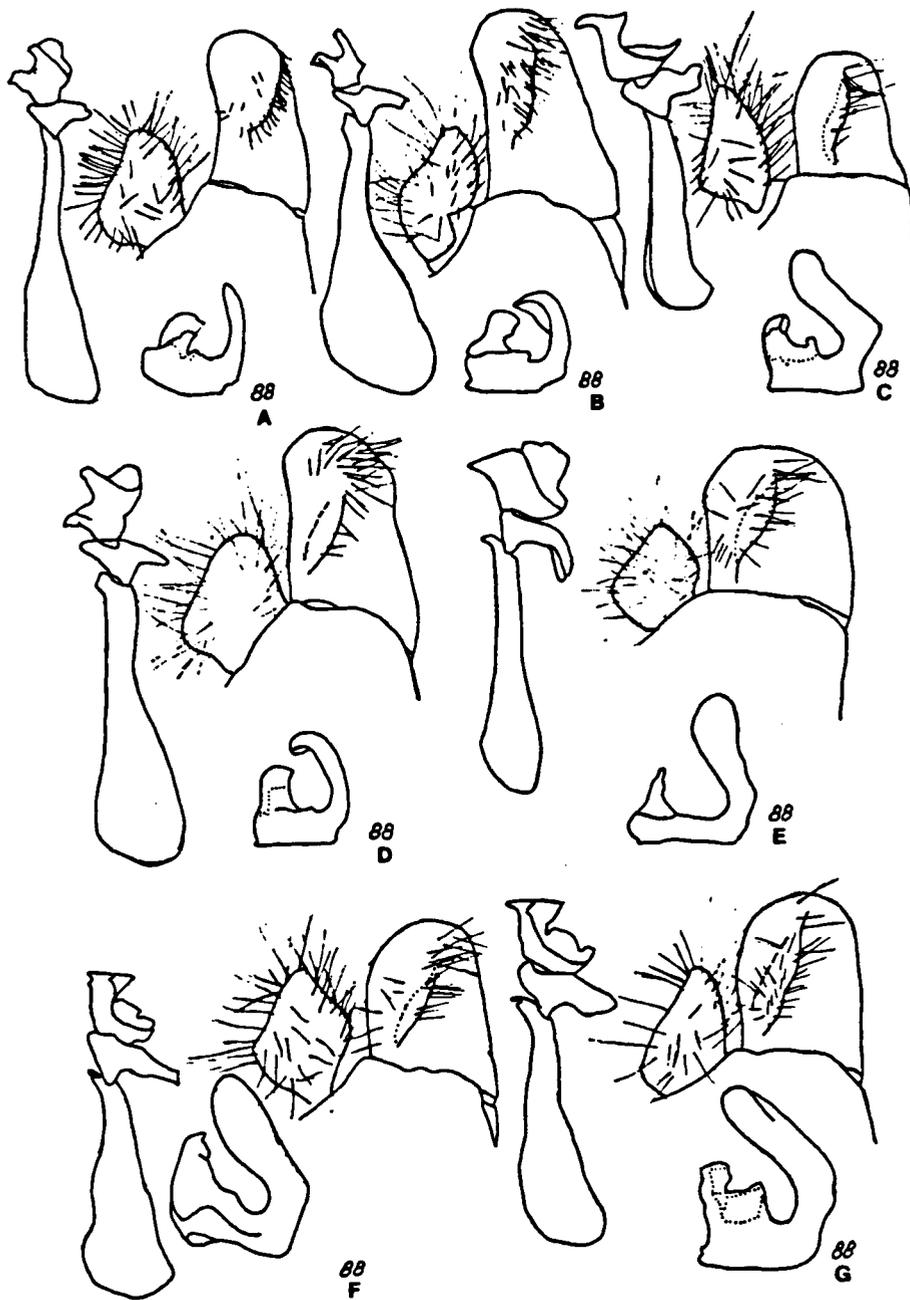


Fig. 88. Aedeagus, surstylus, gonocercus and upper lobe of hypandrium (orig.).

A - *Cheilosia alpina* (Zett.); B - *C. balu* Viol.; C - *C. urakawensis* Shir.; D - *C. montana* Egger; E - *C. flavipes* (Panzer); F - *C. japonica* H.-B.; G - *C. sichotana* Stack.

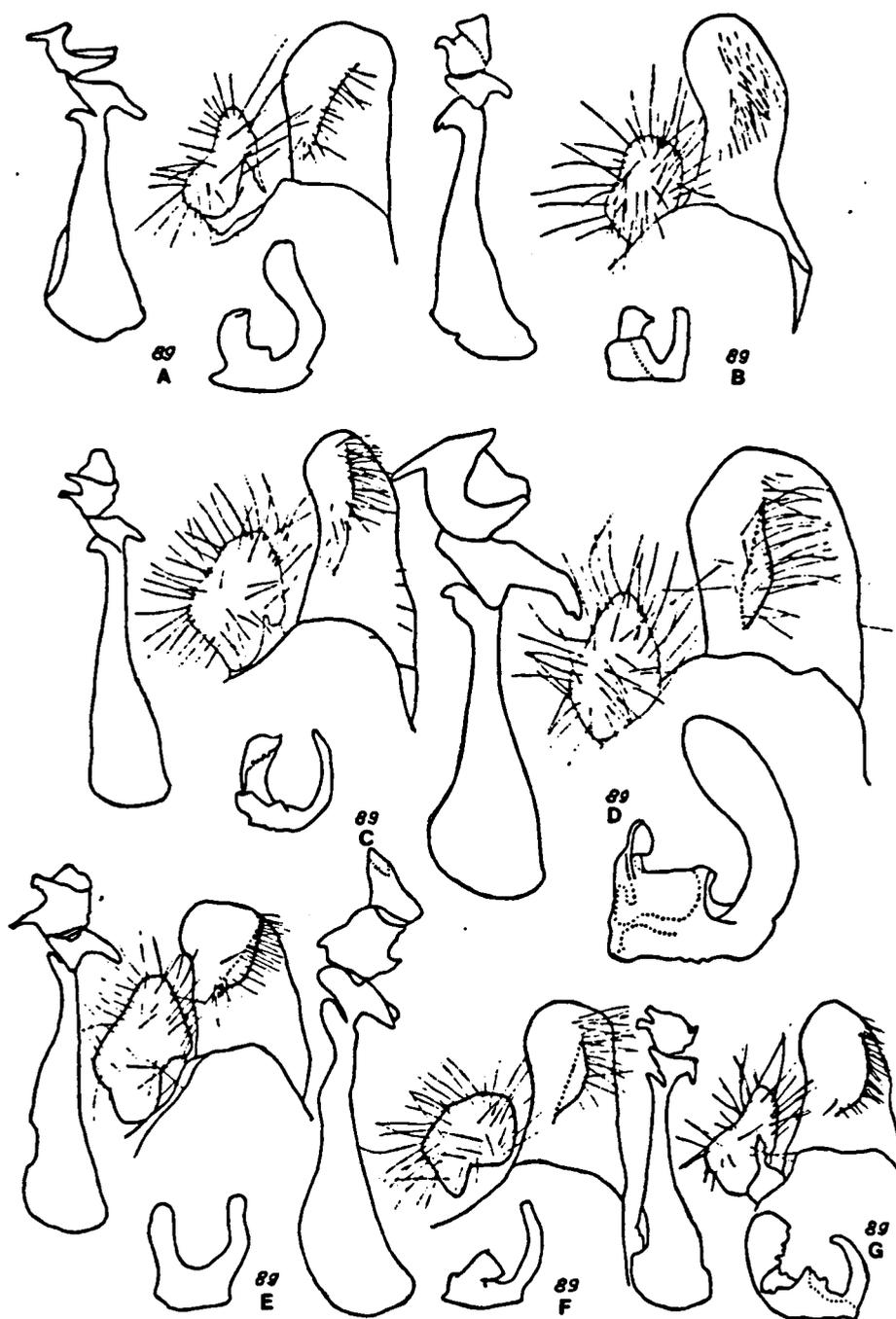


Fig. 89. Aedeagus, surstylus, gonocercus and upper lobe of hypandrium (orig.).

A - *Cheliosia chloris* (Mg.); B - *C. nudiseta* Becker; C - *C. gorodkovi* Stack.;
 D - *C. canicularis* (Panzer); E - *C. pictipennis* Egger; F - *C. edashigei* Shir.; G
 - *C. lutea* Bark.

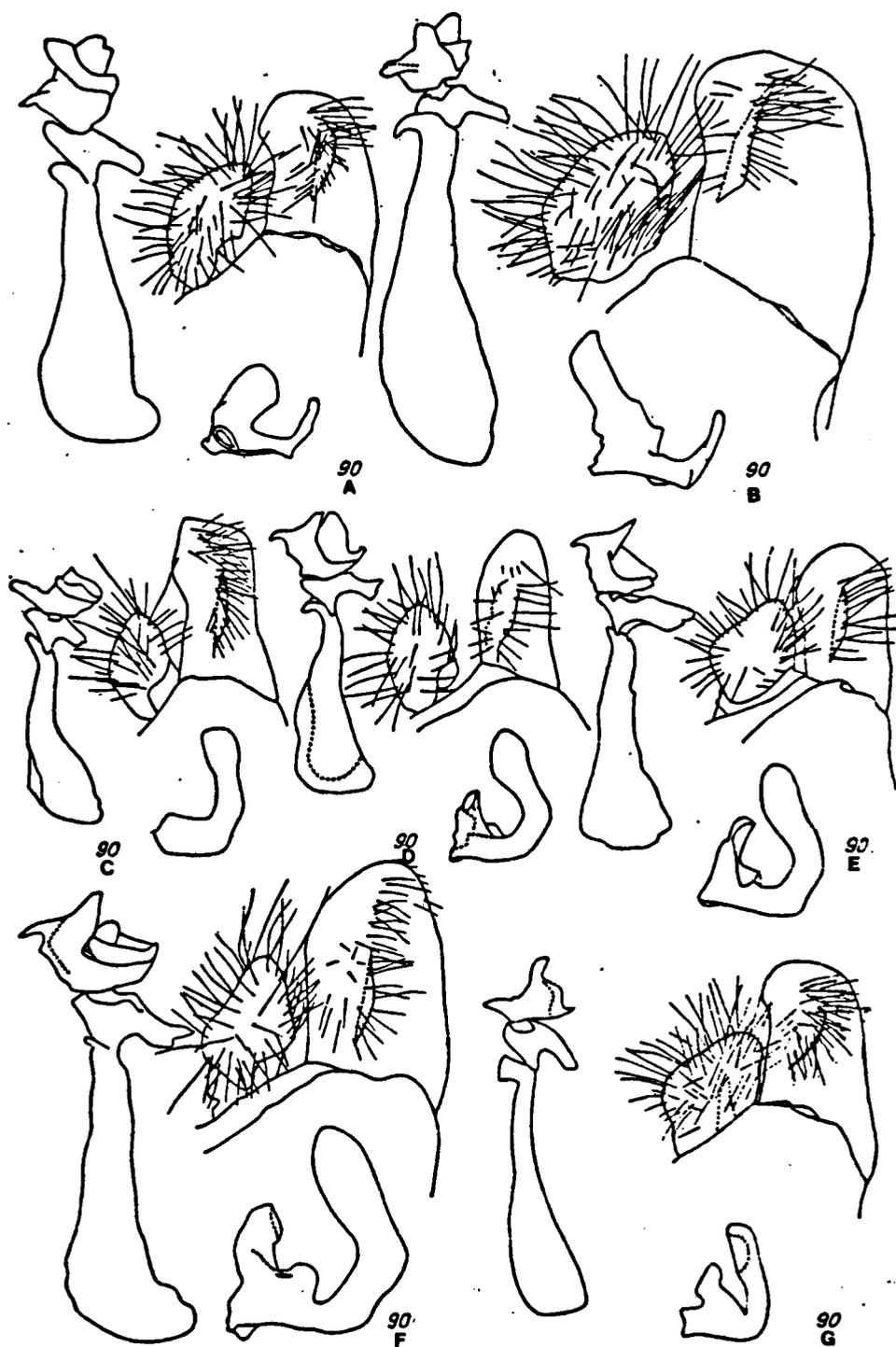


Fig. 90. Aedeagus, surstylus, gonocercus and upper lobe of hypandrium (orig.).

A - *Cheilosia longiptera* Shir.; B - *C. sachtlebeni* Stack.; C - *C. confacies* Stack.; D - *C. carbonaria* Egger; E - *C. fraterna* (Mg.); F - *C. yesonica* Mats.; G - *C. illustrata illustrata* (Harris).

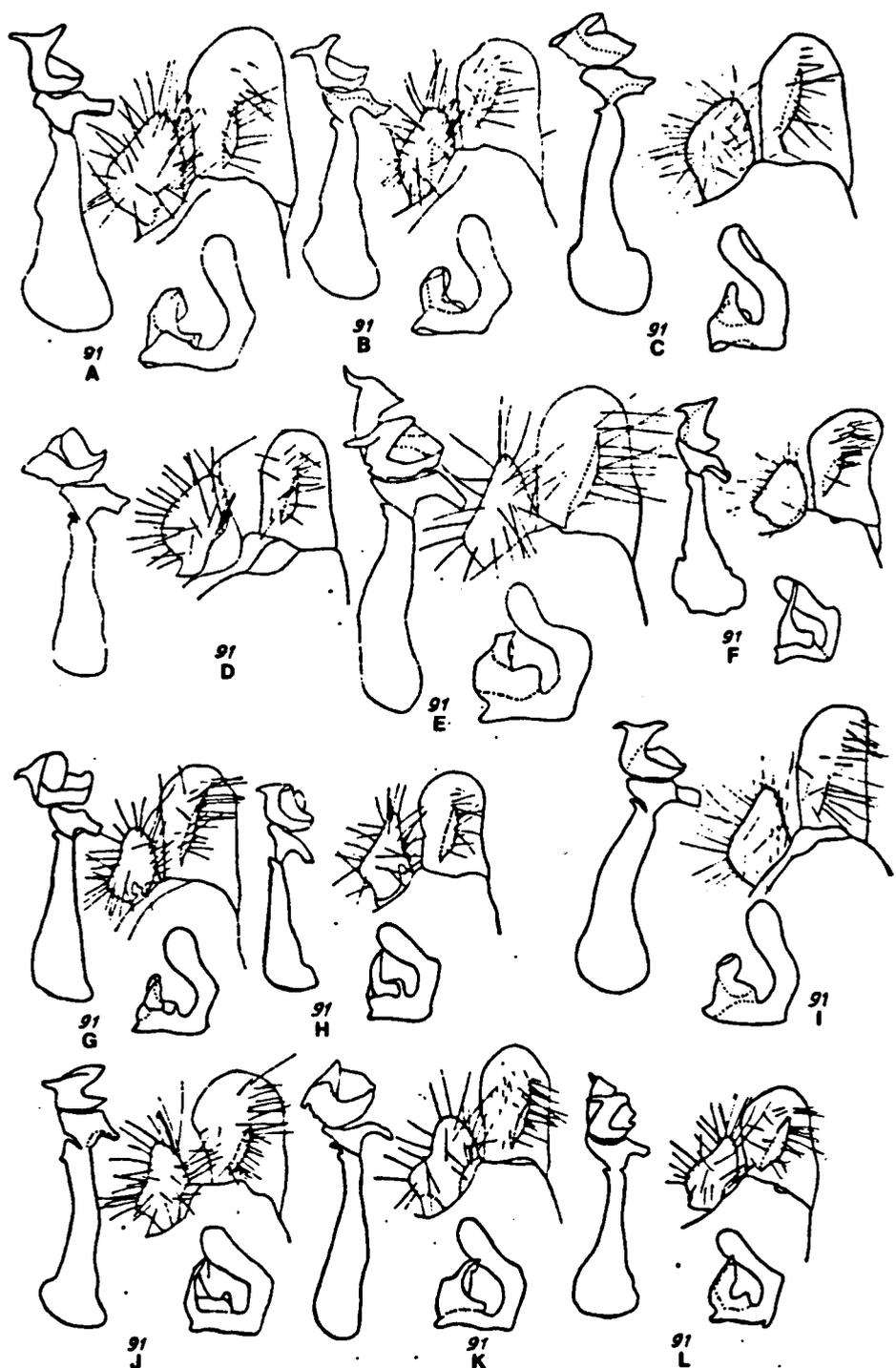


Fig. 91. Aedeagus, surstylus, gonocercus and upper lobe of hypandrium (orig.).

A - *Cheilosia melanura* Becker; B - *C. cynocephala* Lw.; C - *C. nikkoensis* Shir.; D - *C. tokushimaensis* Shir.; E - *C. albitarsis* (Mg.); F - *C. ruralis* (Mg.); G - *C. pollinosa* Becker; H - *C. mutabilis* (Fall.); I - *C. iwawakiensis* Shir.; J - *C. velutina* Lw.; K - *C. proxima* (Zett.); L - *C. impressa* Lw.

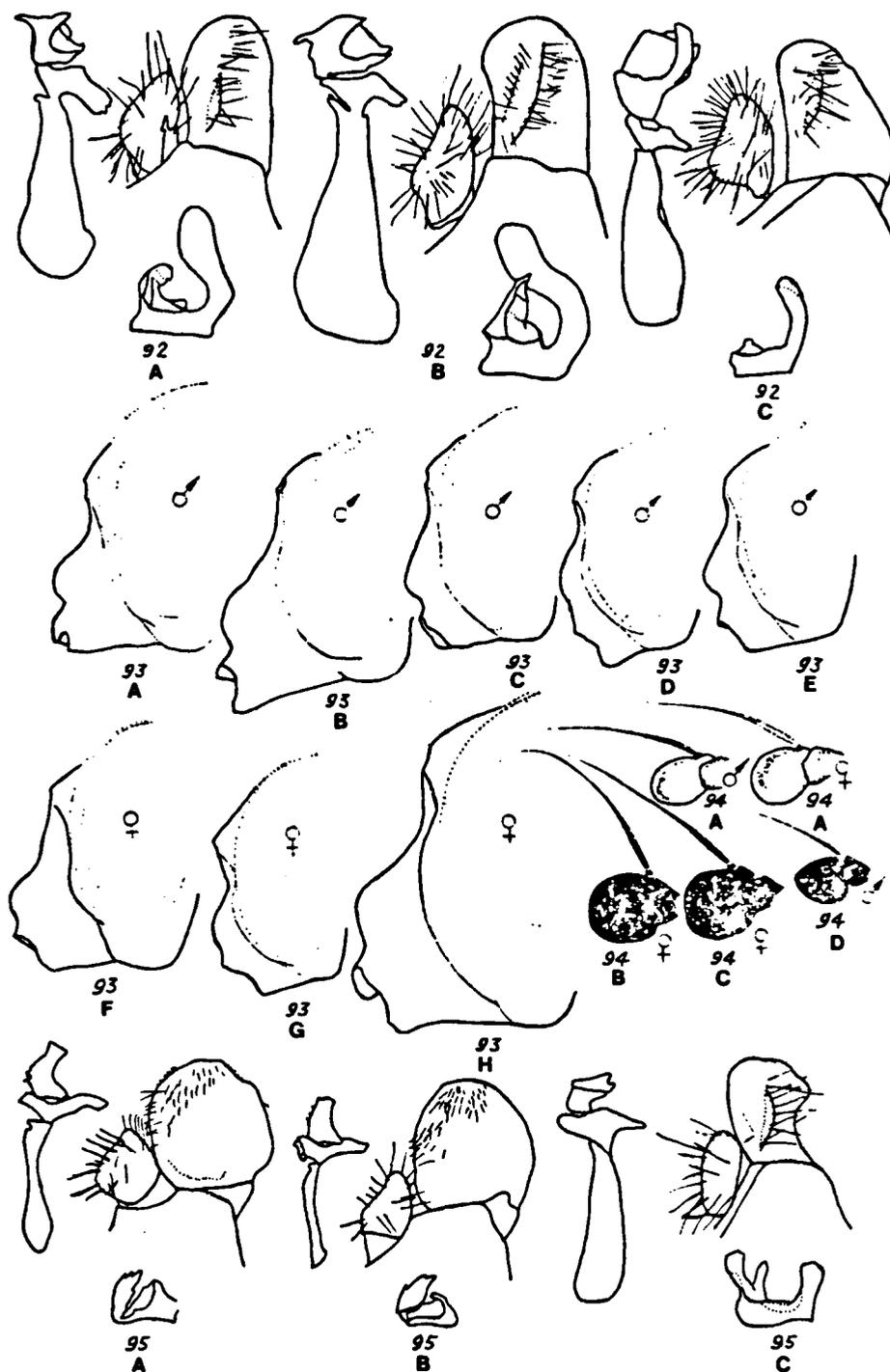


Fig. 92. Aedeagus, surstylus, gonocercus and upper lobe of hypandrium: A - *Cheilisia vernalis* (Fall.); B - *C. gigantea* (Zett.); C - *C. convexifrons* Stack. Fig. 93. Heads, lateral view: A - *C. fraterna* (Mg.); B - *C. nikkoensis* Shir.; C - *C. tokushimaensis* Shir.; D, G - *C. velutina* Lw.; E - *C. proxima* (Zett.); F - *C. iwawakiensis* Shir.; H - *C. japonica* H.-B. Fig. 94. Third antennal joint: A - *C. iwawakiensis* Shir.; B - *C. urakawensis* Shir.; C - *C. gigantea* (Zett.); D - *C. ruralis* (Mg.). Fig. 95. Aedeagus, surstylus, gonocercus and upper lobe of hypandrium: A - *Portevinia altaica* (Stack.); B - *P. dispar* (H.-B.); C - *Cheilisia formosana* Shir. (orig.).

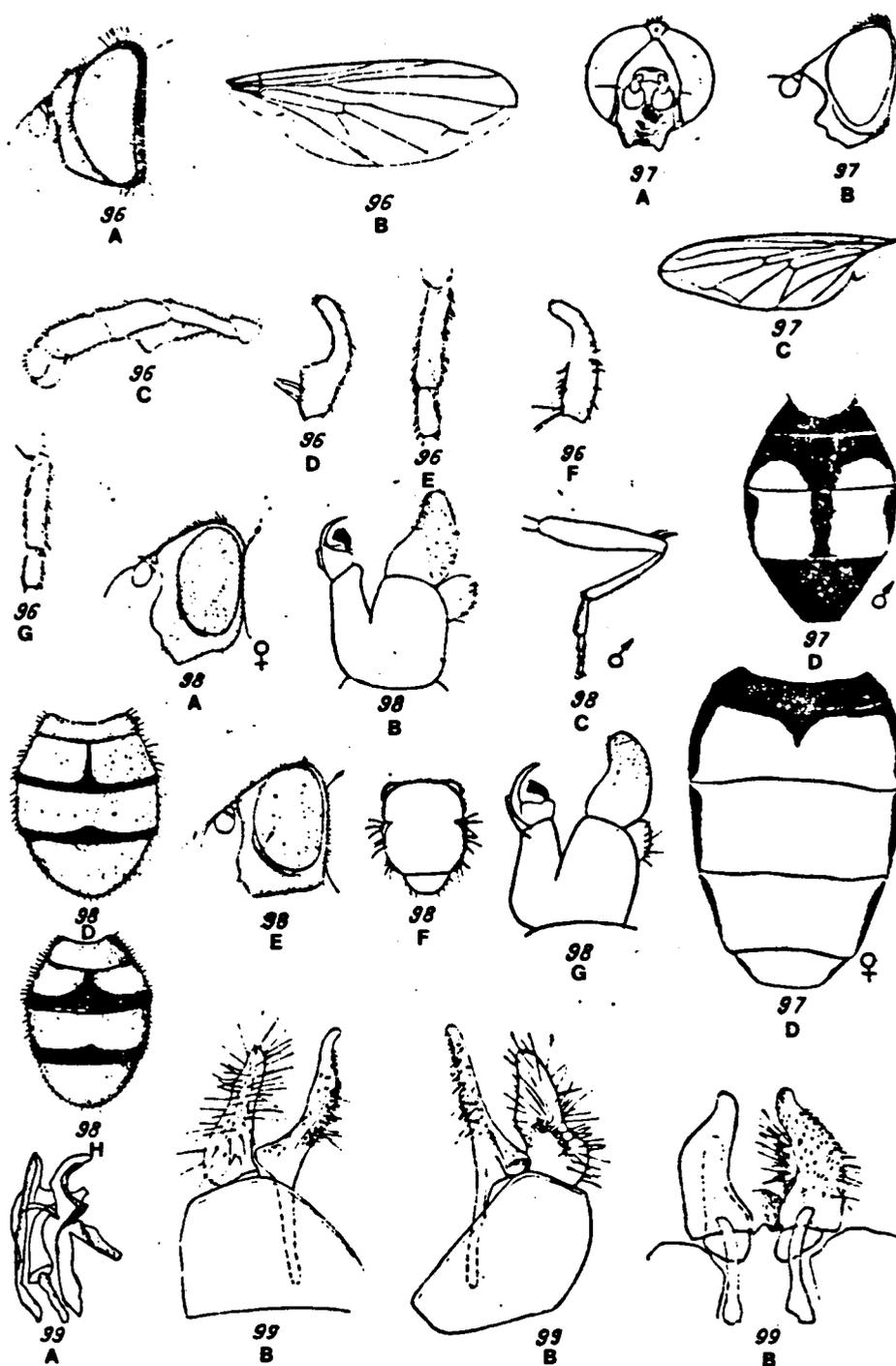


Fig. 96. *Neocnemodon* spp.: A, B, D, E - *N. vitripennis* (Mg.), ♂, head, wing, surstylus and first joint of front tarsus; C - *N. jakutorum* Stack., ♂, abdomen; F, G - *N. verrucula* (Collin), surstylus, first joint of front tarsus (after Stackelberg and Delucchi ♂ Pschorn-Walcher). Fig. 97. *Psarochilosia djakonovi* Stack., ♂: A, B - head; C - wing; D - abdomen (after Stackelberg and Barkalov). Fig. 98. *Ferdinanda cuprea* (Scop.): A - head; B - hypopygium; C - hind leg; D - abdomen; E, F, G, H - *F. ruficornis* (Fabr.): head, thoracic dorsum, hypopygium and abdomen (after Bankowska). Fig. 99. *Liogaster splendida* (Mg.): A - aedeagus, B - surstyli and gonocerci (orig.).

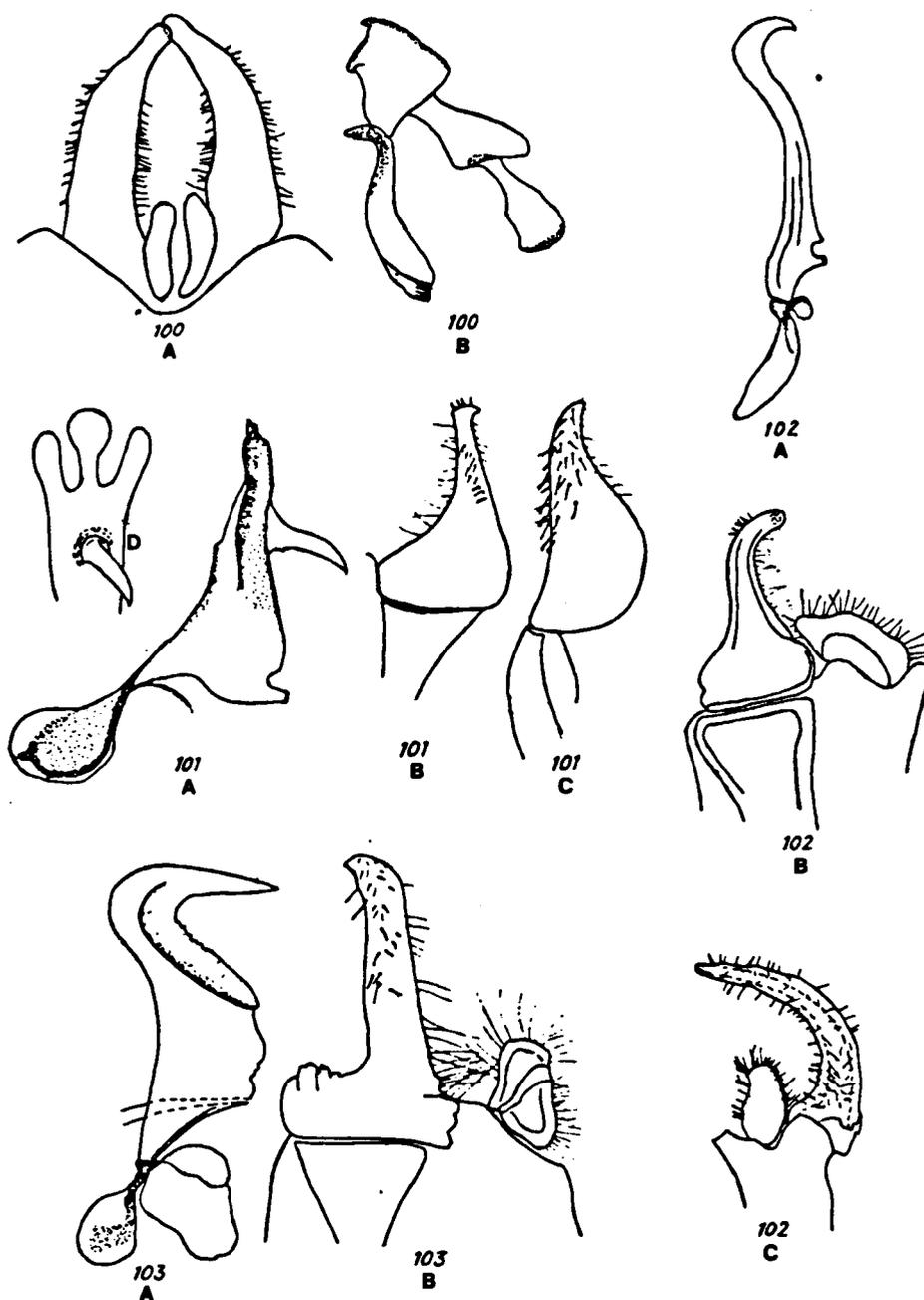


Fig. 100. *Chrysogaster stackelbergi* Viol.: A - surstyli and gonocerci, posterior view; B - aedeagus. Fig. 101. *Orthoneura subincisa* Viol.: A - aedeagus; D - top part of aedeagus, anterior view; B, C - surstyli, lateral and median view. Fig. 102. *O. erythrogonia* Malm: A - aedeagus; B, C - surstylus and gonocercus, lateral and anterior view. Fig. 103. *O. inundata* Viol.: A - aedeagus; B - surstylus and gonocercus, median view.

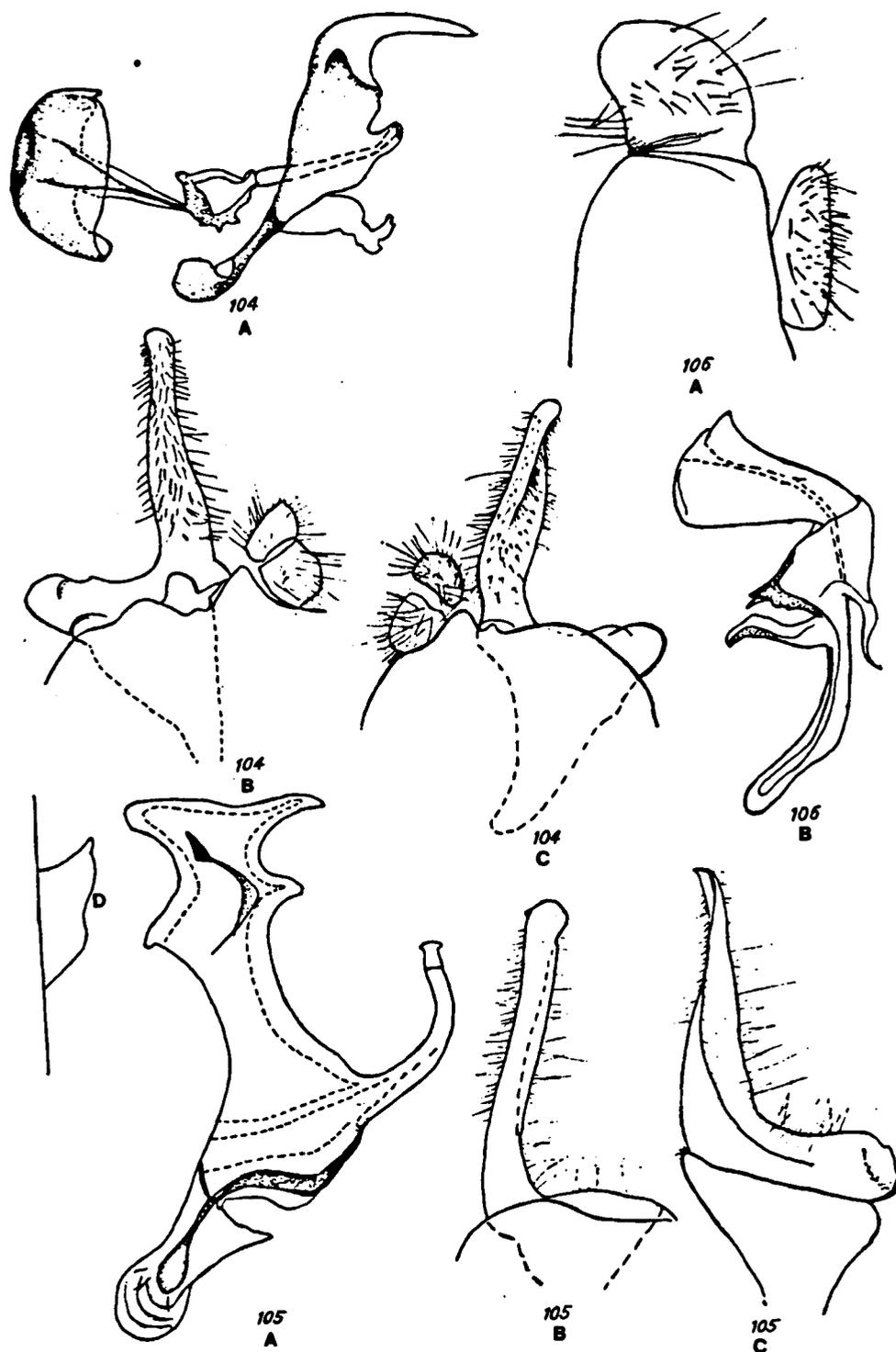


Fig. 104. *Orthoneura plumbago* Lw.: A - aedeagus; B, C - surstylus, lateral and anterior view. Fig. 105. *O. intermedia* Lundbeck: A - aedeagus; D - lateral lobe of aedeagus; B, C - surstylus, lateral and median view. Fig. 106. *Ischyrosyrphus beybienkoi* Viol.: A - surstylus and gonocercus; B - aedeagus (after Violovitsh).

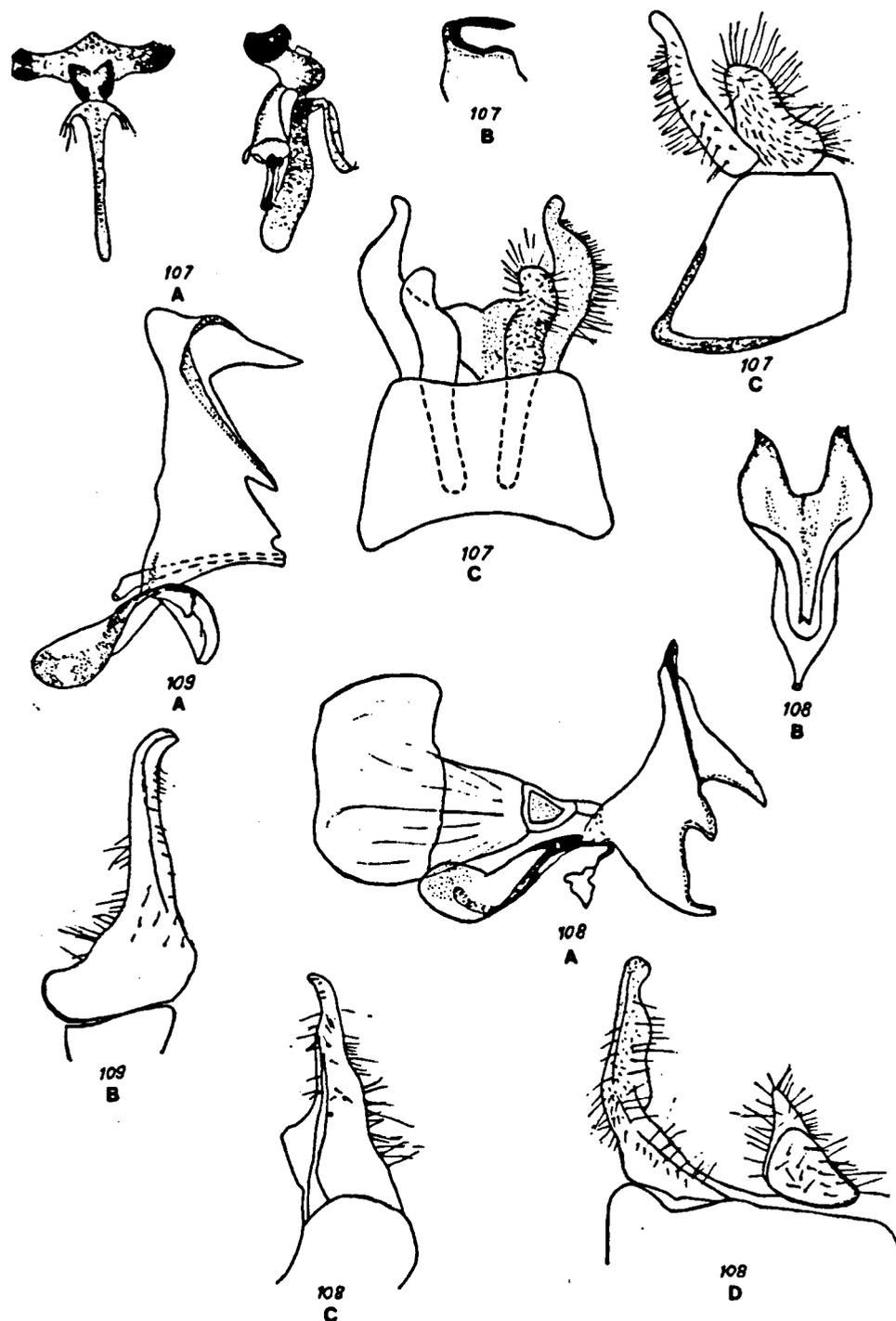


Fig. 107. *Liogaster metallina* (Fabr.): A - aedeagus; B - outer paramere of upper lobe of hypandrium; C - surstyli and gonocerci. Fig. 108. *Orthoneura gemmula* Viol.: A, B - aedeagus, lateral and anterior view; C - surstylus, anterior view; D - surstylus and gonocercus, lateral view. Fig. 109. *O. varga* Viol.: A - aedeagus; B - surstylus (orig. and after Violovitsh).

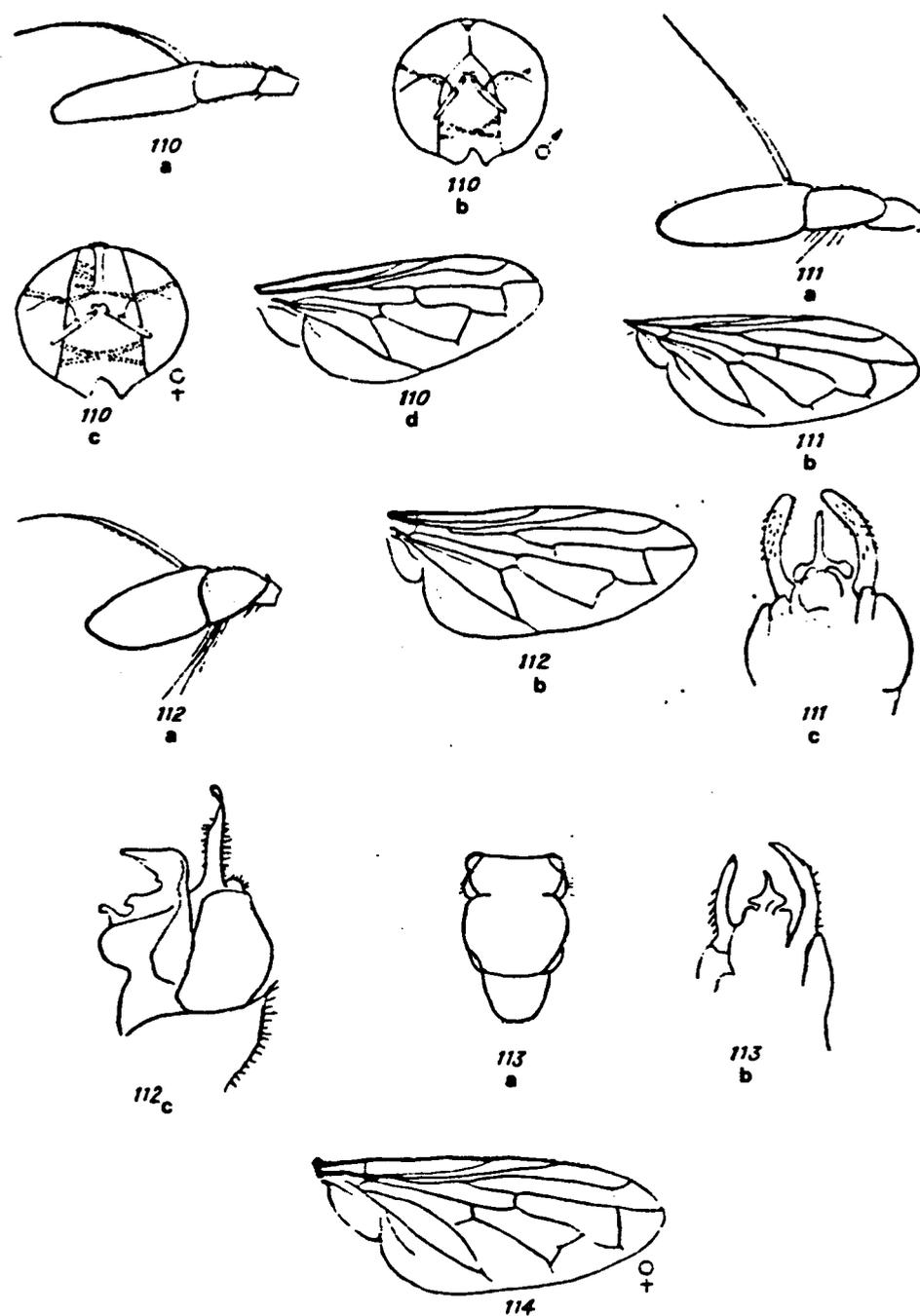


Fig. 110. *Orthoneura elegans* (Mg.): a - antenna; b, c - heads from front; d - wing. Fig. 111. *O. ceratura* Stack., ♂: a - antenna; b - wing; c - surstyli. Fig. 112. *O. nobilis* (Fall.), ♂: a - antenna; b - wing; c - hypopygium. Fig. 113. *O. recurrens* (Lw.), ♂: a - thoracic disc and scutellum; b - hypopygium. Fig. 114. *O. karumaiensis* (Mats.): wing (after Stackelberg).

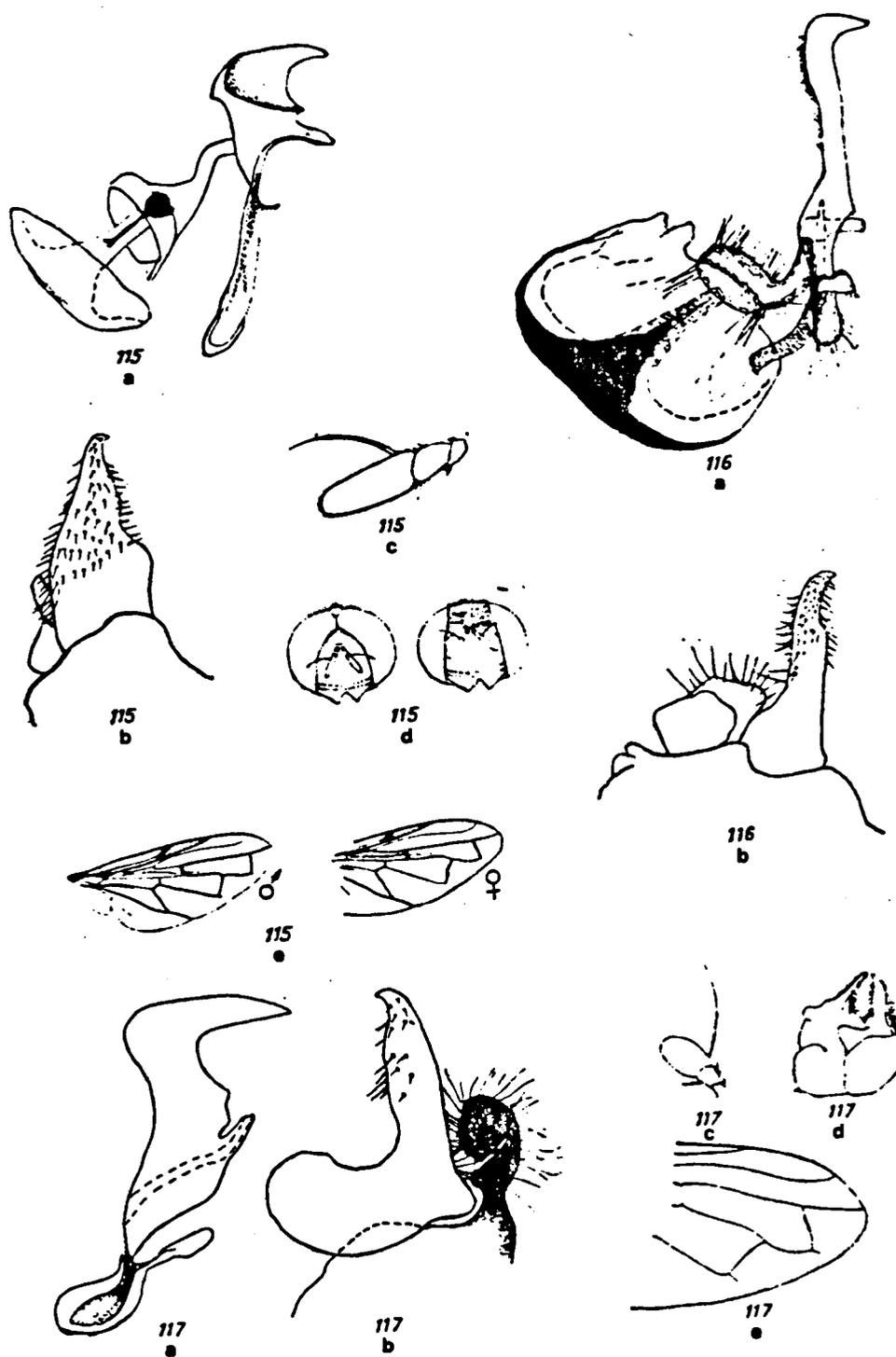


Fig. 115. *Orthoneura geniculata* Mg.: a - aedeagus; b - surstylus, lateral view; c - antenna; d - head; e - wing. Fig. 116. *O. vagabunda* Viol.: a - aedeagus; b - surstylus and gonocercus, lateral view. Fig. 117. *O. sachalinensis* Viol., ♂: a - aedeagus; b - surstylus and gonocercus, median view; c - antenna; d - surstyli; e - tip of wing (after Violovitsh and Stackelberg).

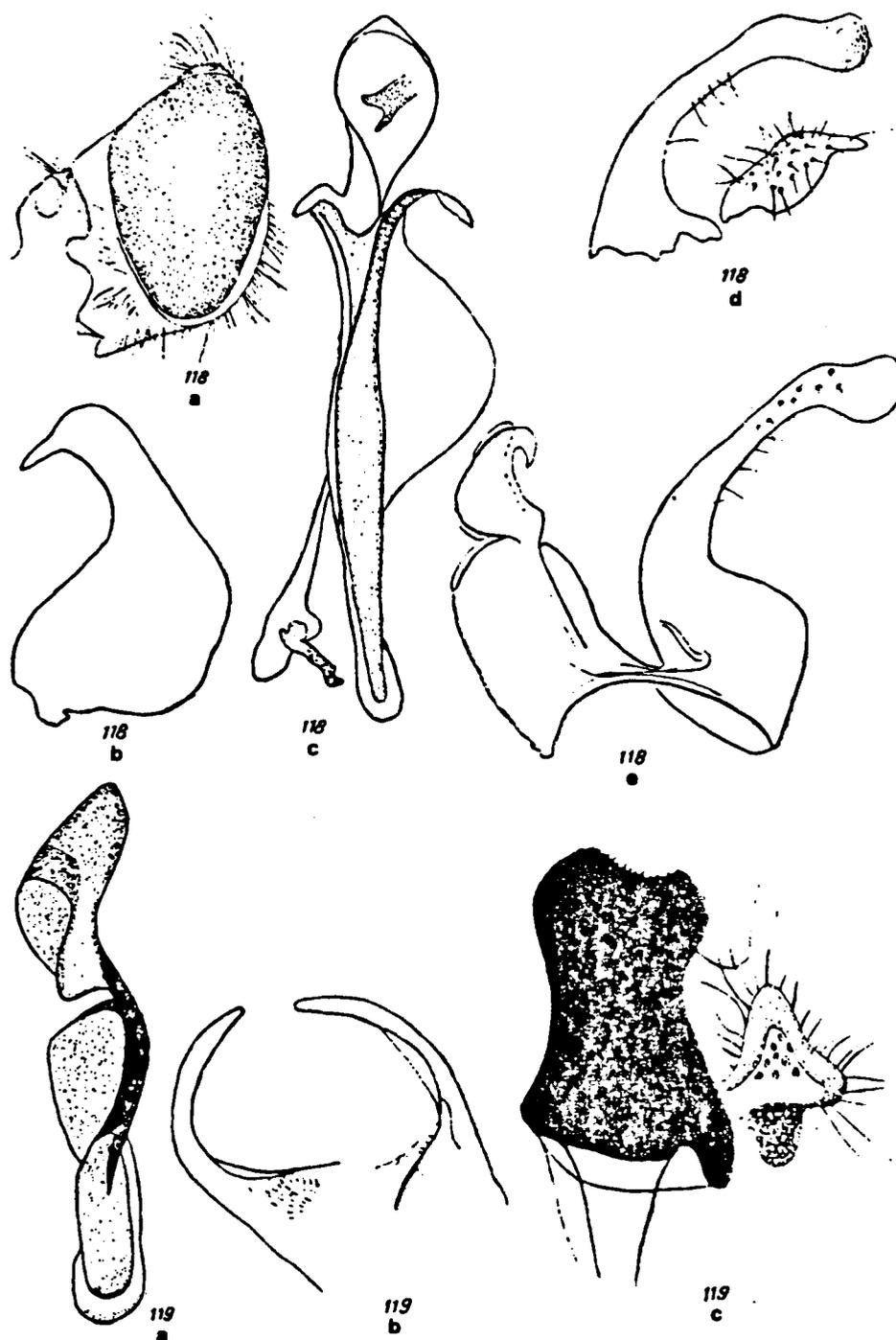


Fig. 118. *Chrysosyrphus alaskensis* (Shannon): a - head; b - upper lobe of hypandrium; c - aedeagus; d - surstylus and gonocercus, median view; e - hypandrium and surstylus, lateral view. Fig. 119. *C. nigrum* (Zett.): a - aedeagus; b - upper lobe of hypandrium; c - surstylus and gonocercus (after Violovitsh).

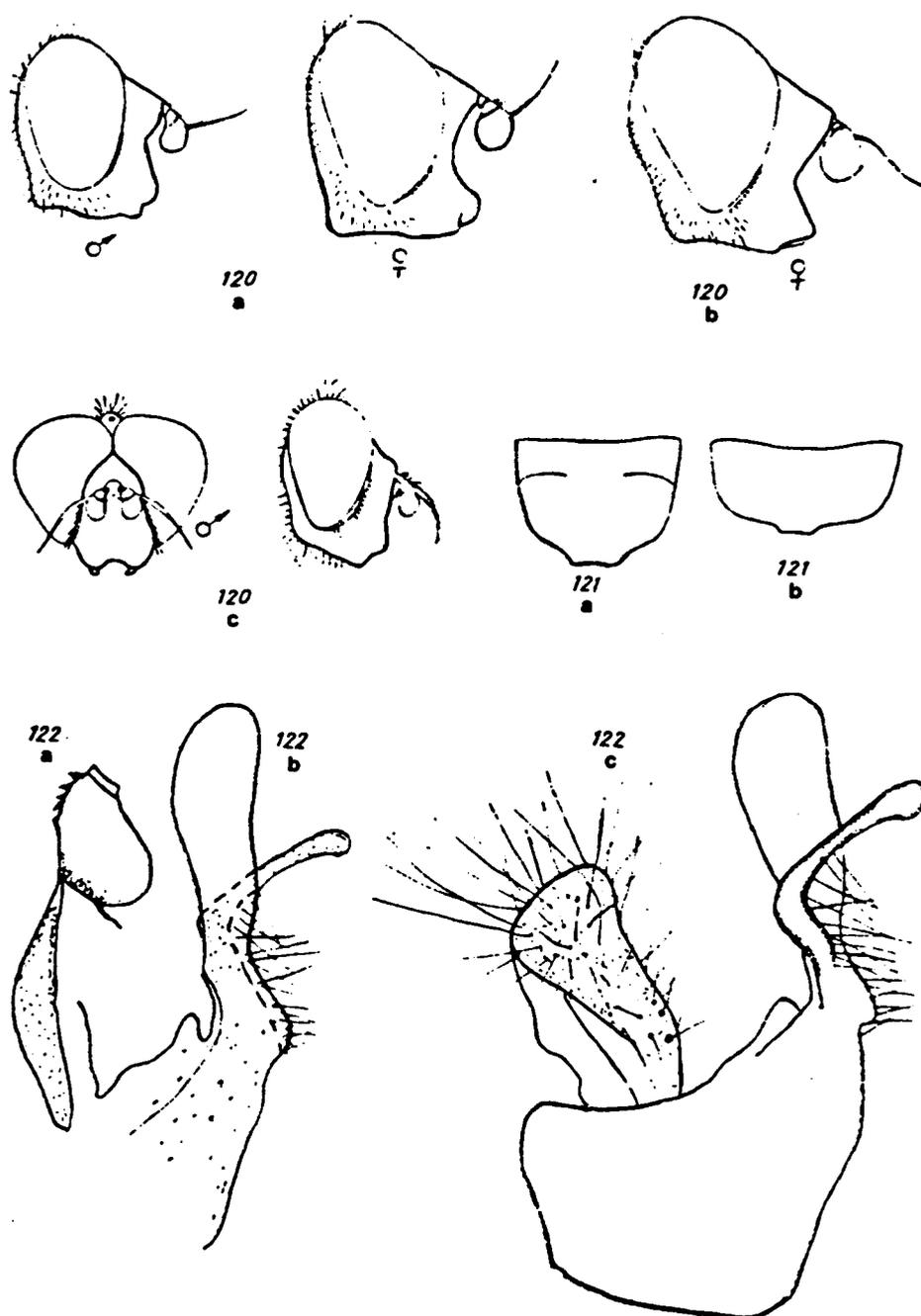


Fig. 120. Heads: a - *Lejota ruficornis* (Zett.); b - *L. femorata* Viol.; c - *L. korsakovi* Stack. Fig. 121. Sternite IV of abdomen: a - *L. korsakovi* Stack.; b - *L. ruficornis* (Zett.). Fig. 122. *Psilota dersu* Viol.: a - aedeagus; b - surstylus, median view; c - surstylus and gonocercus, lateral view (after Violovitsh and Stackelberg).

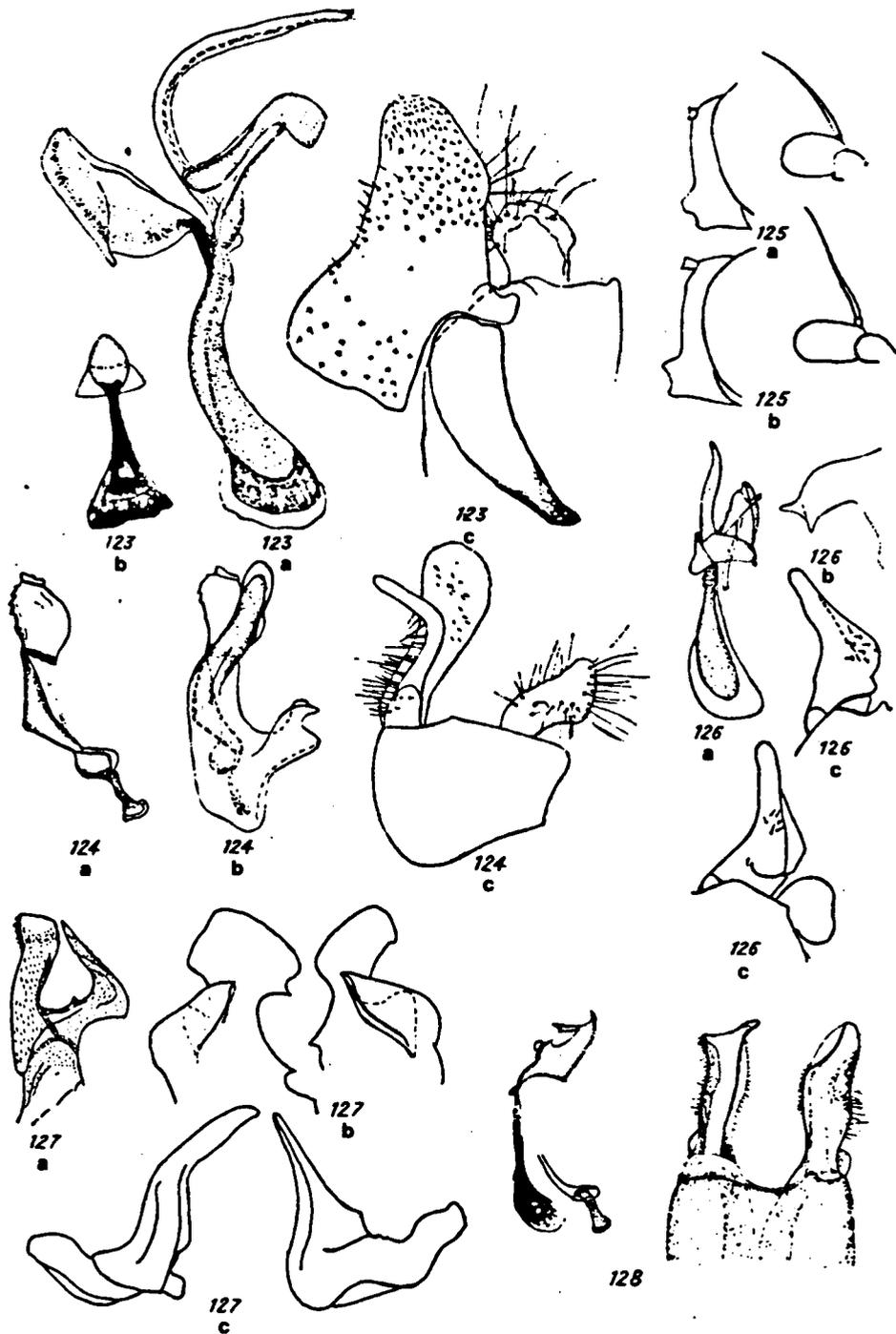


Fig. 123. *Lejota ruficornis* (Zett.): a - aedeagus; b - spermatheca; c - surstylus and gonocercus. Fig. 124. *Psilota sibirica* Viol.: a - aedeagus; b - hypandrium with aedeagus; c - surstylus and gonocercus. Fig. 125. Face and antenna of the ♂: a - *P. sibirica* Viol.; b - *P. dersu* Viol. Fig. 126. *Sphegina violovitshi* Stack.: a - aedeagus; b - upper lobe of hypandrium; c - surstylus, lateral and median view. Fig. 127. *S. stackelbergi* Viol.: a - aedeagus; b - upper lobe of hypandrium; c - surstyli. Fig. 128. *Hammerschmidtia ingrca* Stack.: aedeagus and surstyli (after Violovitsh and orig.).

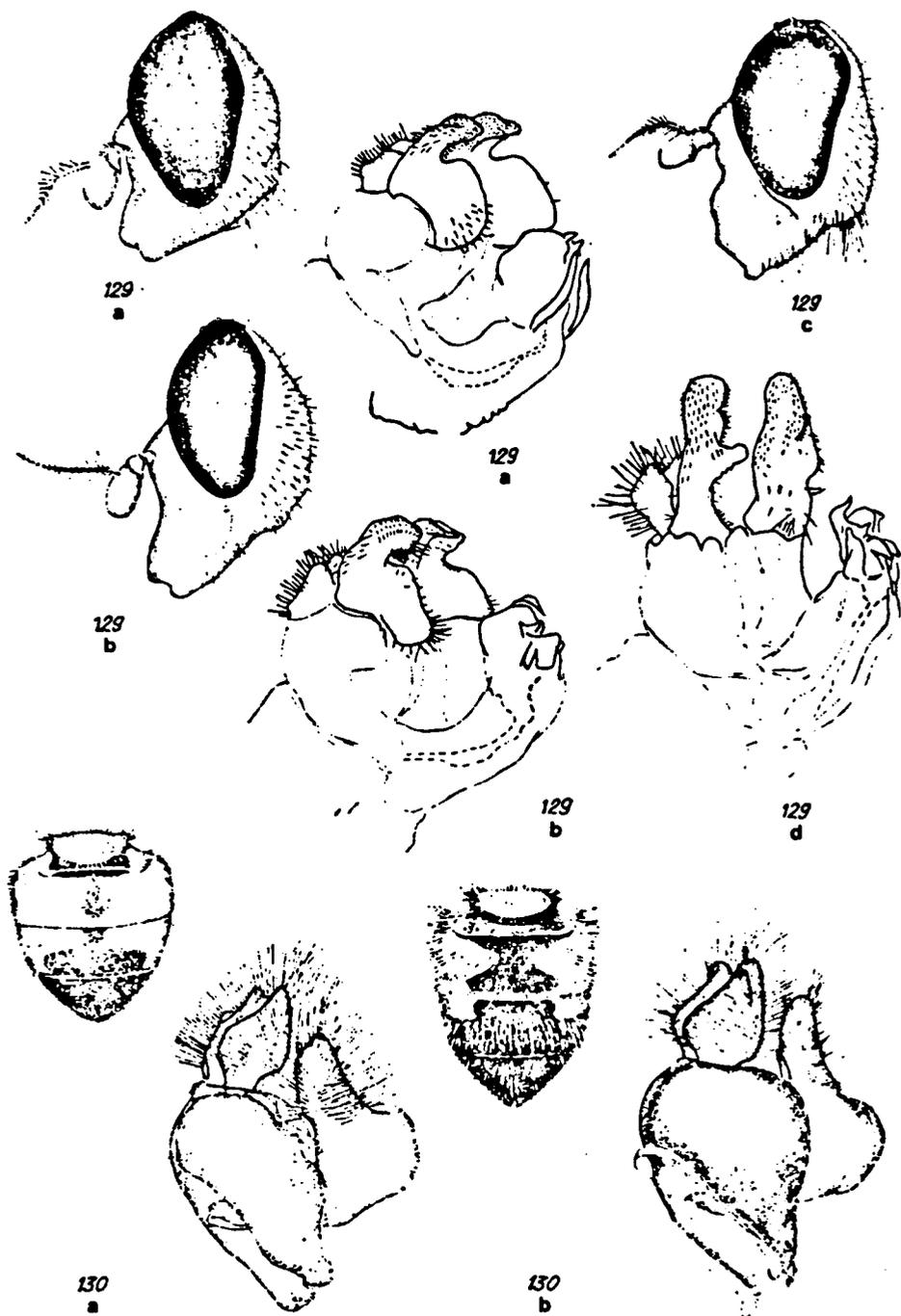


Fig. 129. Head and hypopygium: a - *Brachyopa testacea* (Fall.); b - *B. vittata* Zett.; c - *Hammerschmidtia ingrca* Stack.; d - *H. ferruginea* (Fall.). Fig. 130. Abdomen, surstylus and gonocerci: a - *Helophilus altaicus* Viol.; b - *H. lapponicus* Wahlb. (after Violovitsh and orig.).

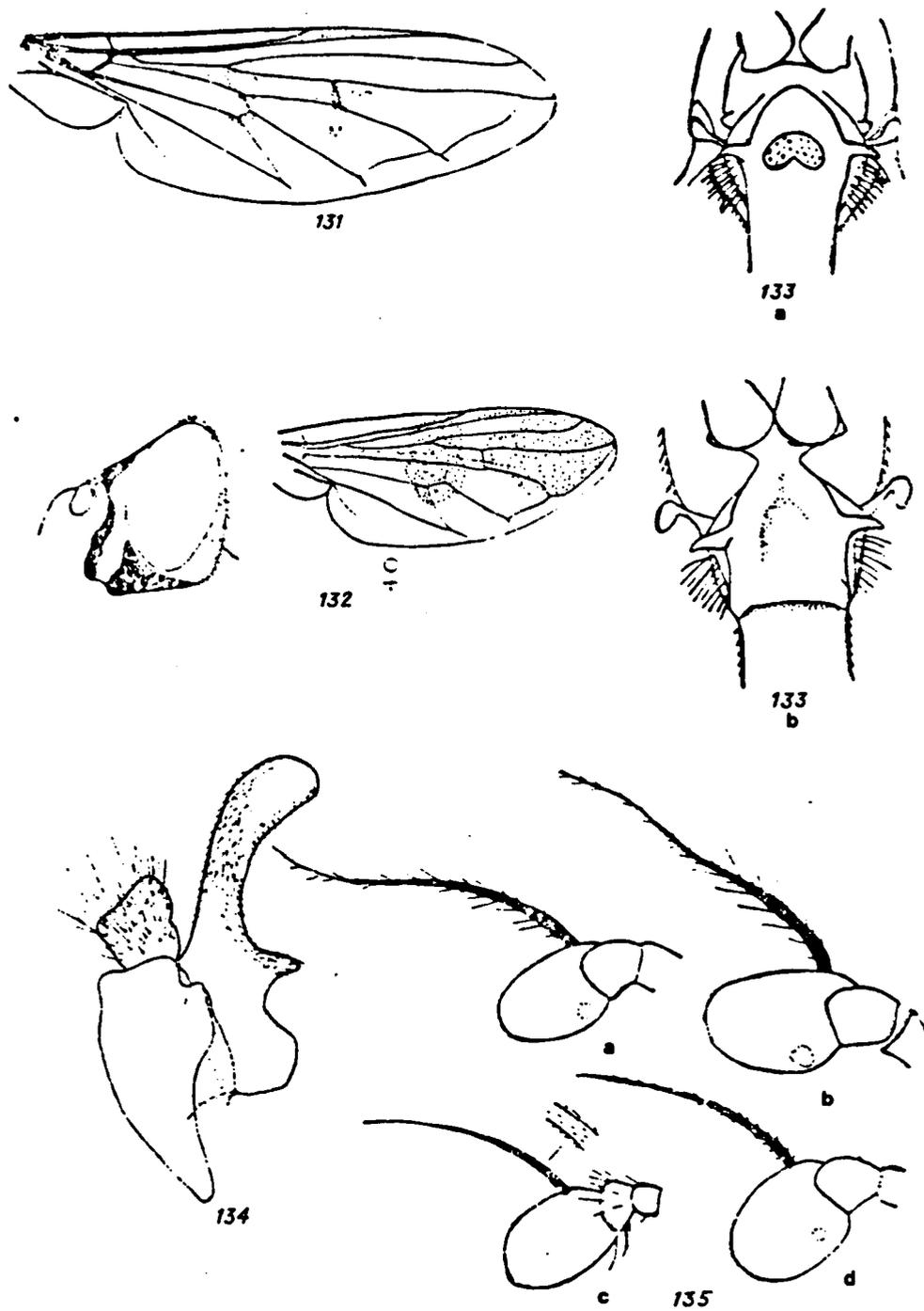


Fig. 131. *Ferdinandea cuprea* (Scop.): wing. Fig. 132. *Myiolepta vara* (Panzer): head and wing (after Bankowska). Fig. 133. Hind part of thorax, ventral view: a - *Neoascia podagrica* (Fabr.); b - *N. carinicauda* Stack. (after Stackelberg). Fig. 134. *Callicera aenea* (Fabr.): surstylus and gonocercus (after Hippa). Fig. 135. Antennae: a - *Brachyopa testacea* (Fall.); b - *B. vittata* Zett.; c - *B. cinerea* Wahlb.; d - *B. dorsata* Zett. (after Thompson).

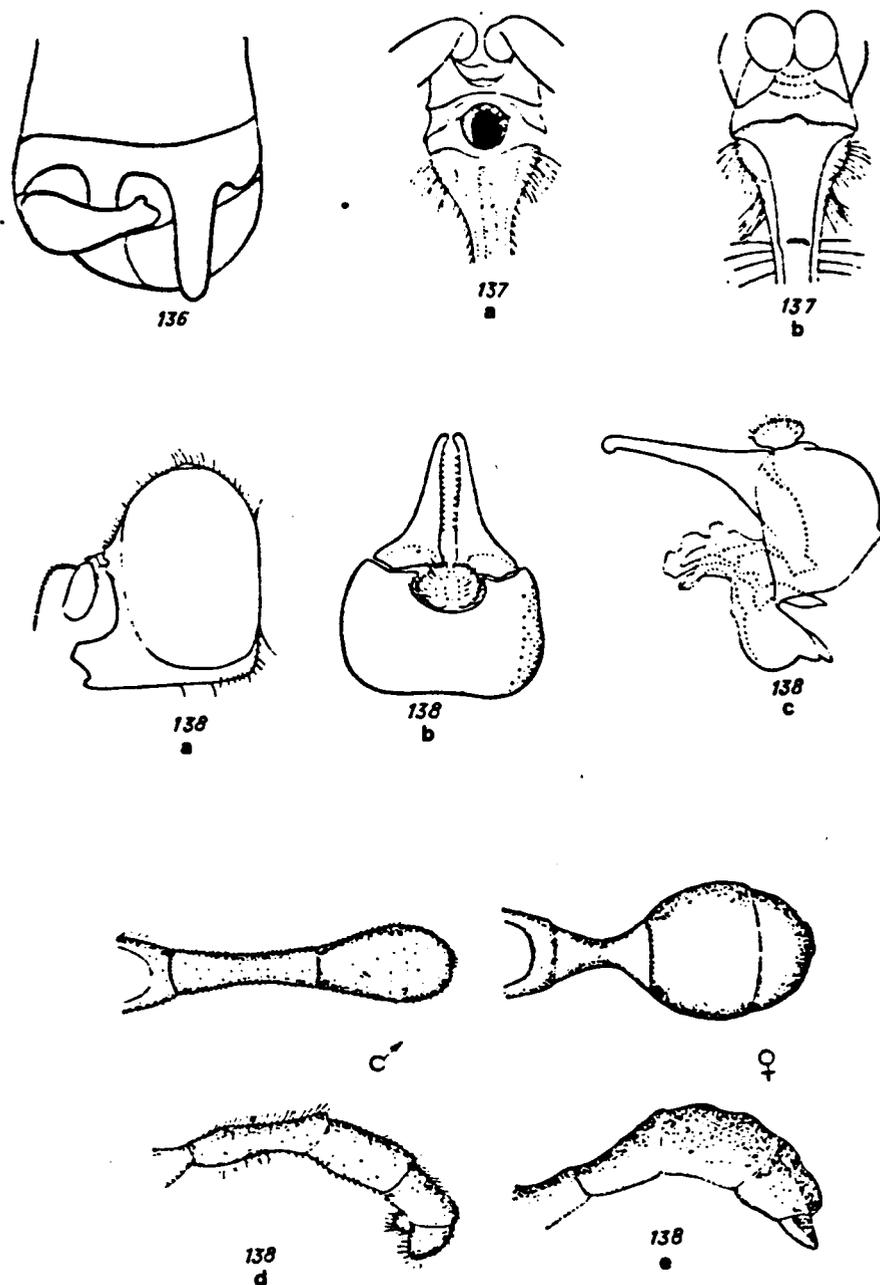


Fig. 136. *Sphagina grunini* Stack.: tip of abdomen, ventral view. Fig. 137. Hind part of thorax, ventral view: a - *S. clunipes* (Fall.); b - *S. sibirica* Stack. Fig. 138. *S. clunipes* (Fall.): a - head; b - surstyli and gonocerci, ventral view; c - hypopygium, lateral view; d, e - abdomen (after Stackelberg and Collin).

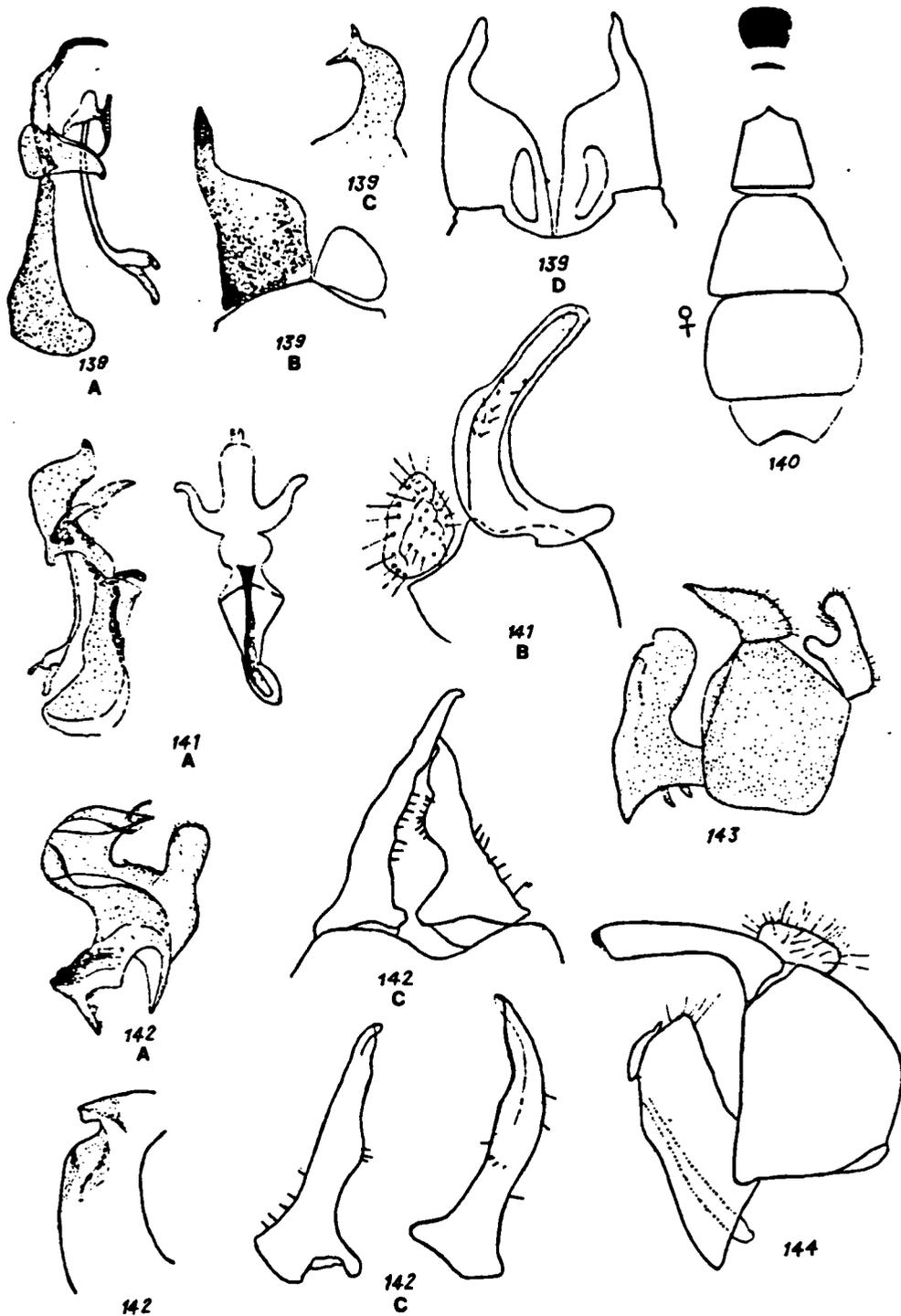


Fig. 139. *Sphegina eoa* Stack.: A - aedeagus; B, D - surstyli and gonocerci; C - upper lobe of hypandrium. Fig. 140. *S. atra* Viol.: sternites of abdomen. Fig. 141. *S. tuvinica* Viol.: A - aedeagus, lateral and anterior view; B - surstylus and gonocercus. Fig. 142. *S. claviventris* Stack.: A - aedeagus; B - upper lobe of hypandrium; C - surstyli (after Violovitsh). Fig. 143. *Neoscasia sphaerophoria* Curran: hypopygium (after Nielsen). Fig. 144. *N. tuberculifera* Viol.: hypopygium (orig.).

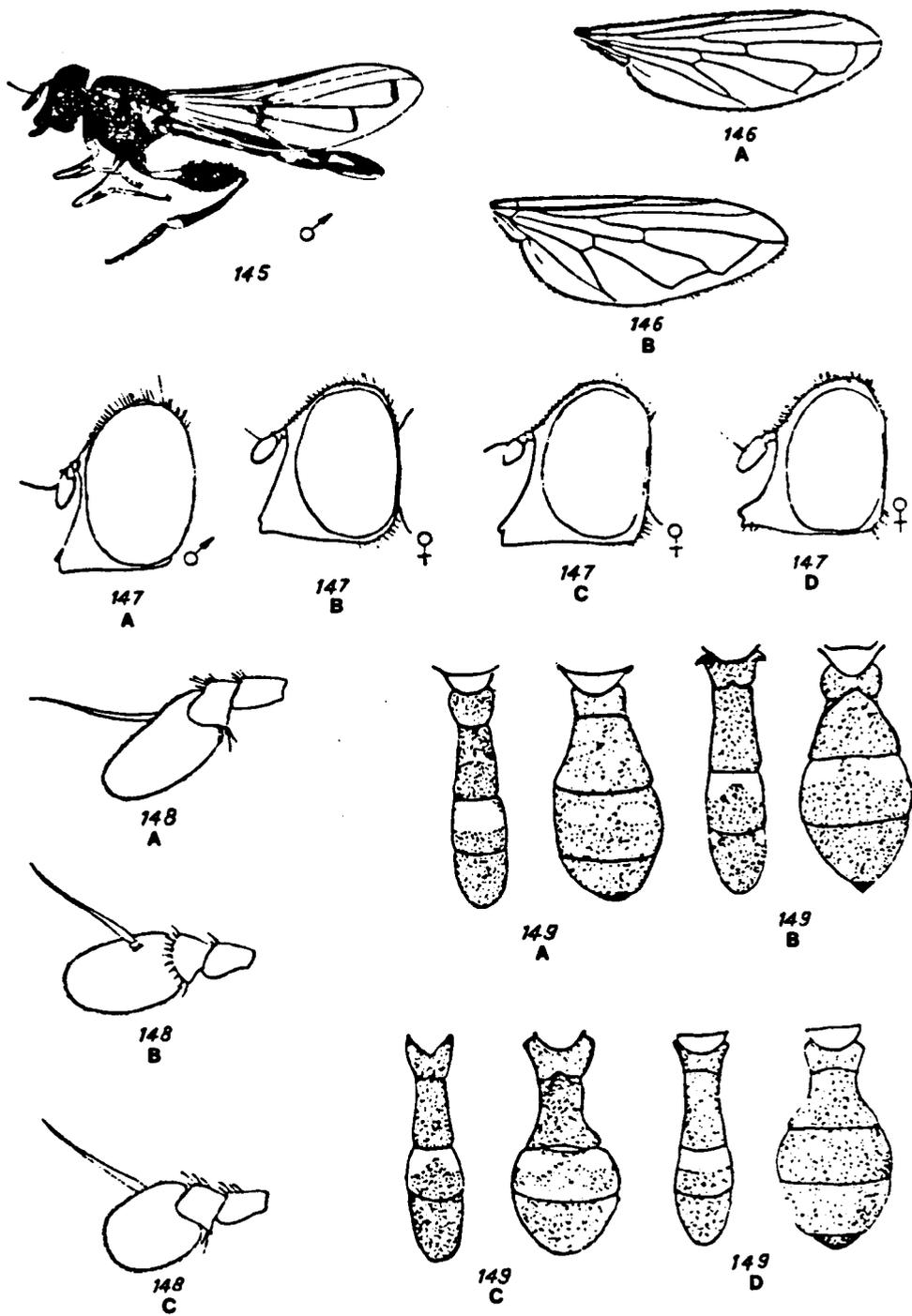


Fig. 145. *Neosciasia podagrica* (Fabr.), habitus. Fig. 146. Wings: A - *Sphegina sibirica* Stack.; B - *S. spheginea* (Zett.). Fig. 147. Heads: A - *Neosciasia podagrica* (Fabr.); B - *N. aenea* (Mg.); C - *N. geniculata* (Mg.); D - *N. dispar* (Mg.). Fig. 148. Antennae: A - *N. podagrica* (Fabr.); B - *N. dispar* (Mg.); C - *N. geniculata* (Mg.). Fig. 149. Abdomen, dorsal view: A - *N. dispar* (Mg.); B - *N. interrupta* (Mg.); C - *N. carinicauda* Stack.; D - *N. aenea* (Mg.) (after Sack, Lundbeck and Stackelberg).

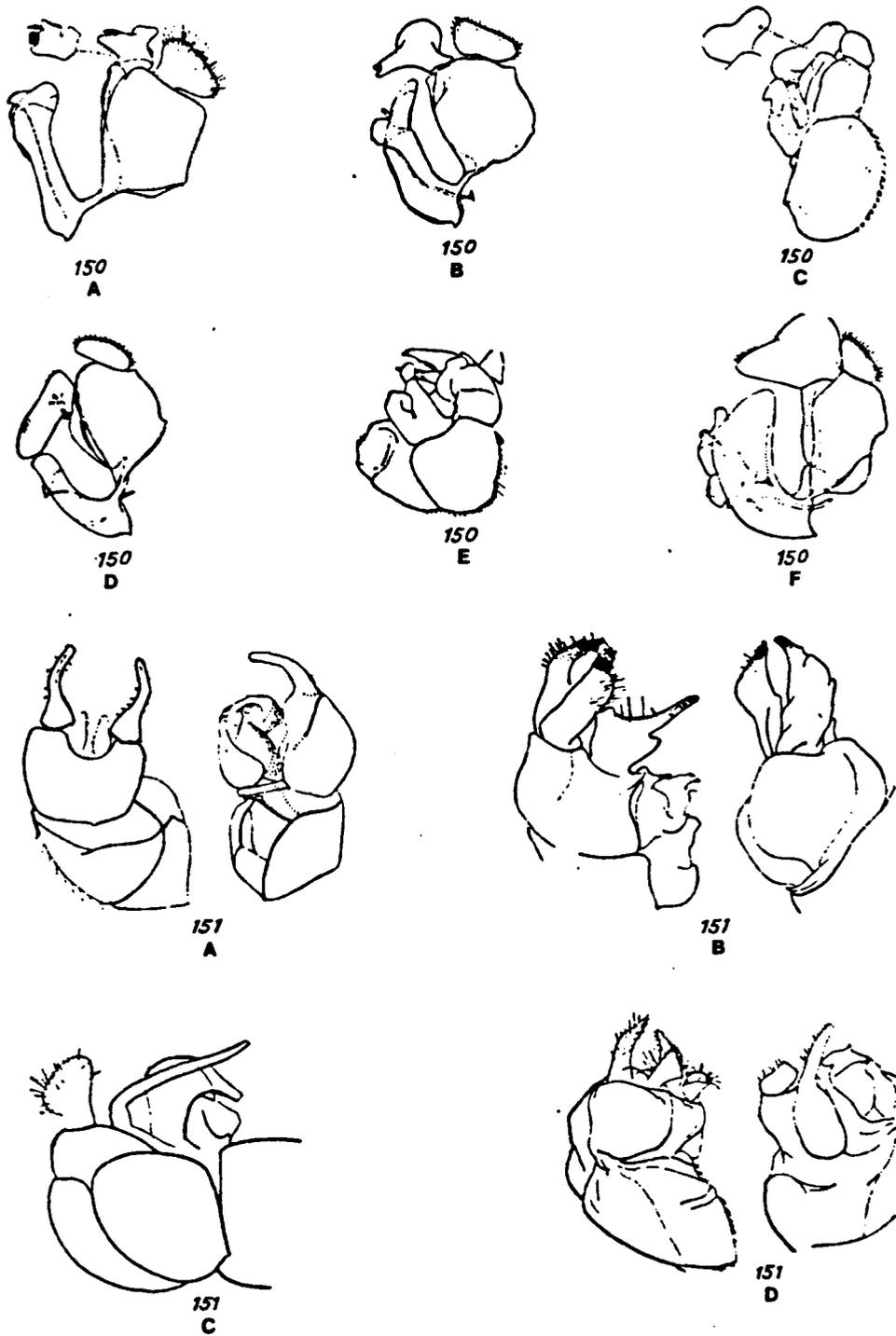


Fig. 150. Hypopygium: A - *Neoascia podagrica* (Fabr.); B - *N. dispar* (Mg.); C - *N. interrupta* (Mg.); D - *N. geniculata* (Mg.); E - *N. carinicauda* Stack.; F - *N. aenea* (Mg.). Fig. 151. Hypopygium: A - *Sphegina aterrima* Stack., posterior and lateral view; B - *S. freyana* Stack., do.; C - *S. nitidifrons* Stack., lateral view; D - *S. sibirica* Stack., lateroposterior and lateral view (after Stackelberg).

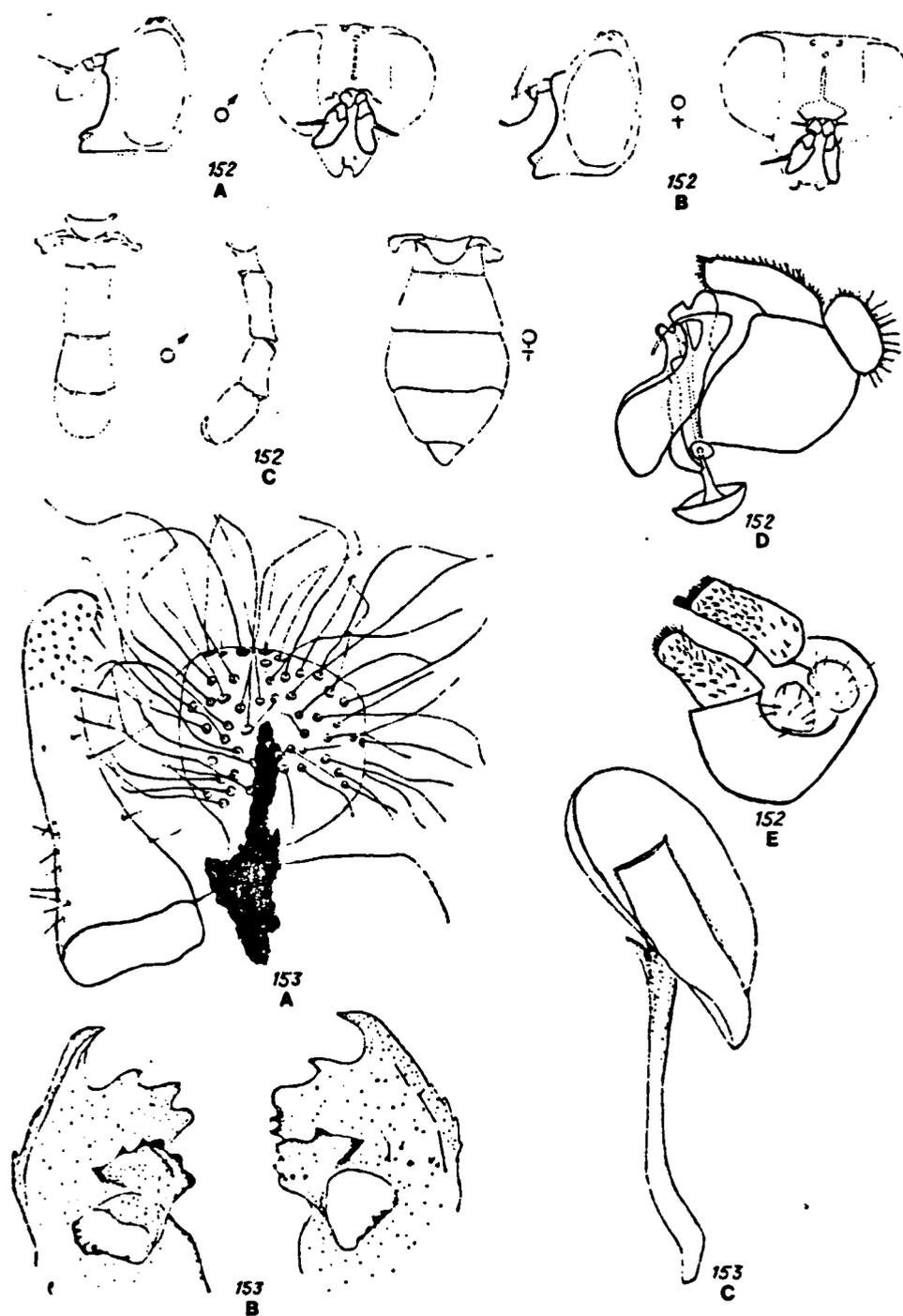


Fig. 152. *Neoascia subchalybea* Curran: A, B - head; C - abdomen; D - hypopygium; E - surstyli and gonocerci, posterior view (after Hippa and orig.). Fig. 153. *Volucella plumatoides* H.-B.: A - surstylus and gonocercus; B - upper lobe of hypandrium; C - aedeagus (orig.).

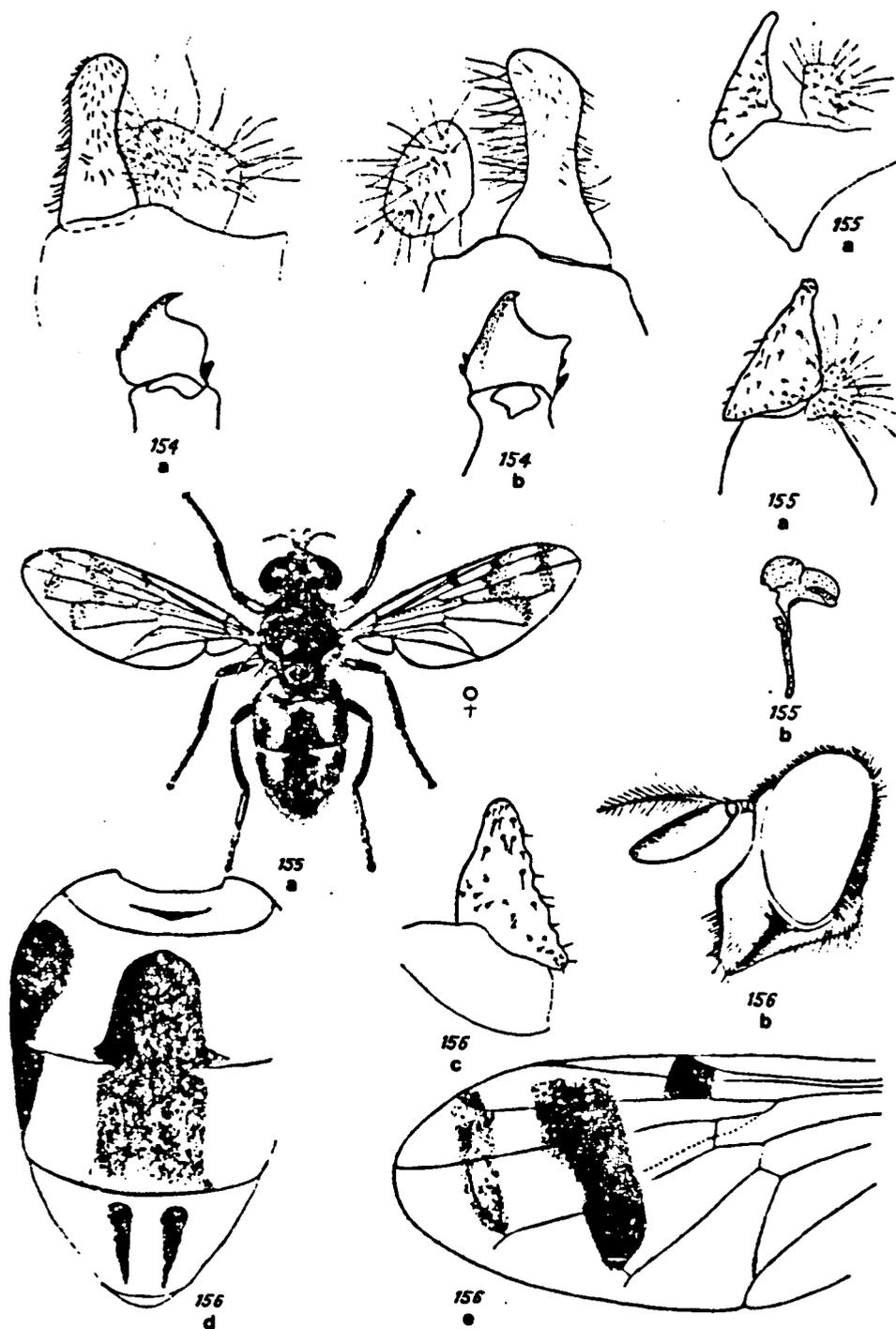


Fig. 154. Surstylus, gonocercus and upper lobe of hypandrium: a - *Volucella abdita* Viol.; b - *V. jeddona* Bigot. Fig. 155. *Graptomyza alabeta* Séguy: a - surstylus and gonocercus from various directions; b - aedeagus (orig.). Fig. 156. *G. takeuchii* Shir.: a - habitus; b - head, lateral view; c - surstylus; d - abdomen; e - wing (after Violovitsh, Shiraki and orig.).

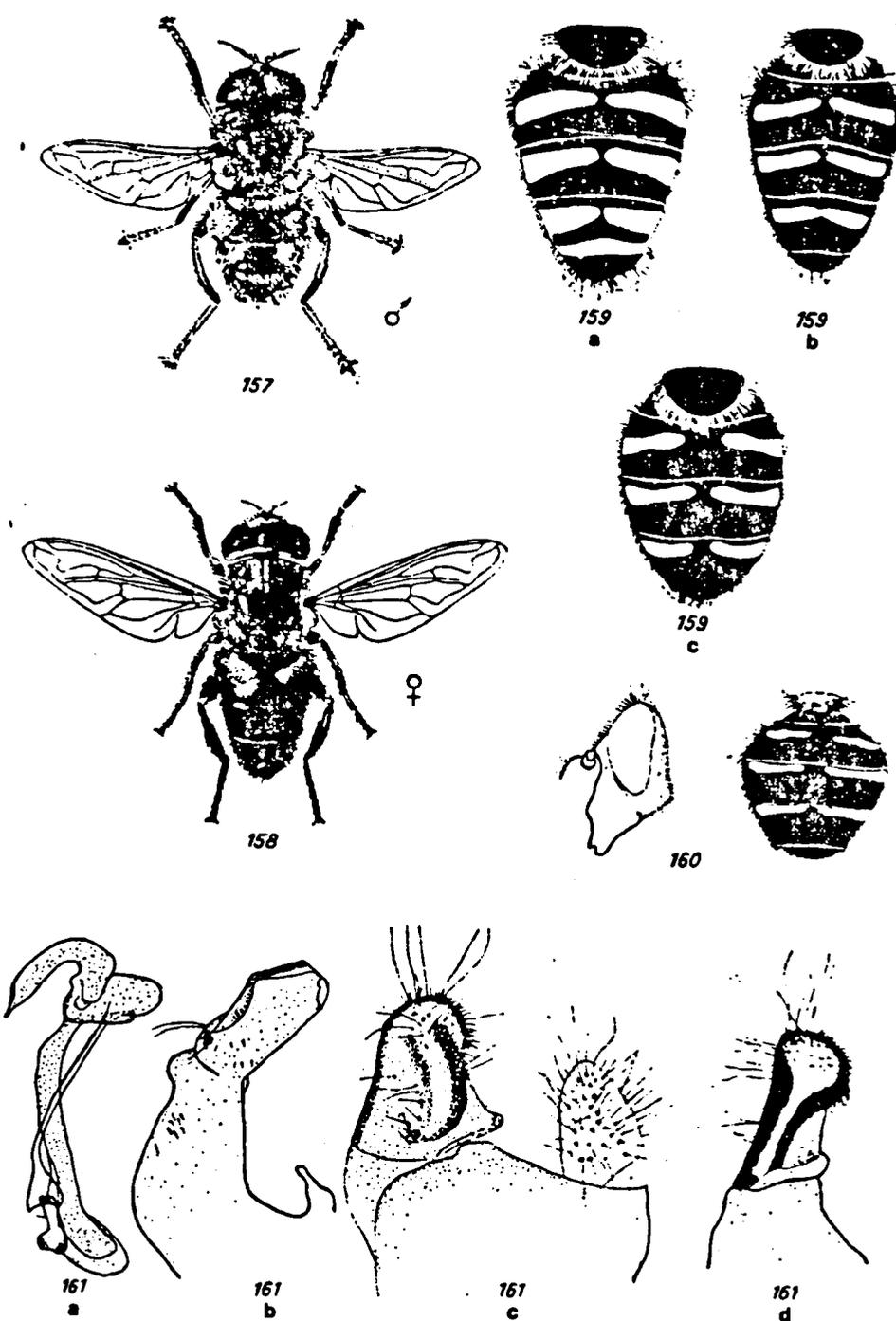


Fig. 157. *Eristalis intricarius* (L.): habitus. Fig. 158. *E. tenax* (L.): habitus. Fig. 159. Abdomen: a - *Sericomyia silentis* (Harris); b - *S. lappona* (L.); c - *S. arctica* Schirmer. Fig. 160. *Conosyrphus tolli* Frey: head and abdomen. Fig. 161. *Eristalis vitripennis* Strobl: a - aedeagus; b - upper lobe of hypandrium; c - surstylus and gonocercus; d - surstylus, posterior view (after Stackelberg and orig.).

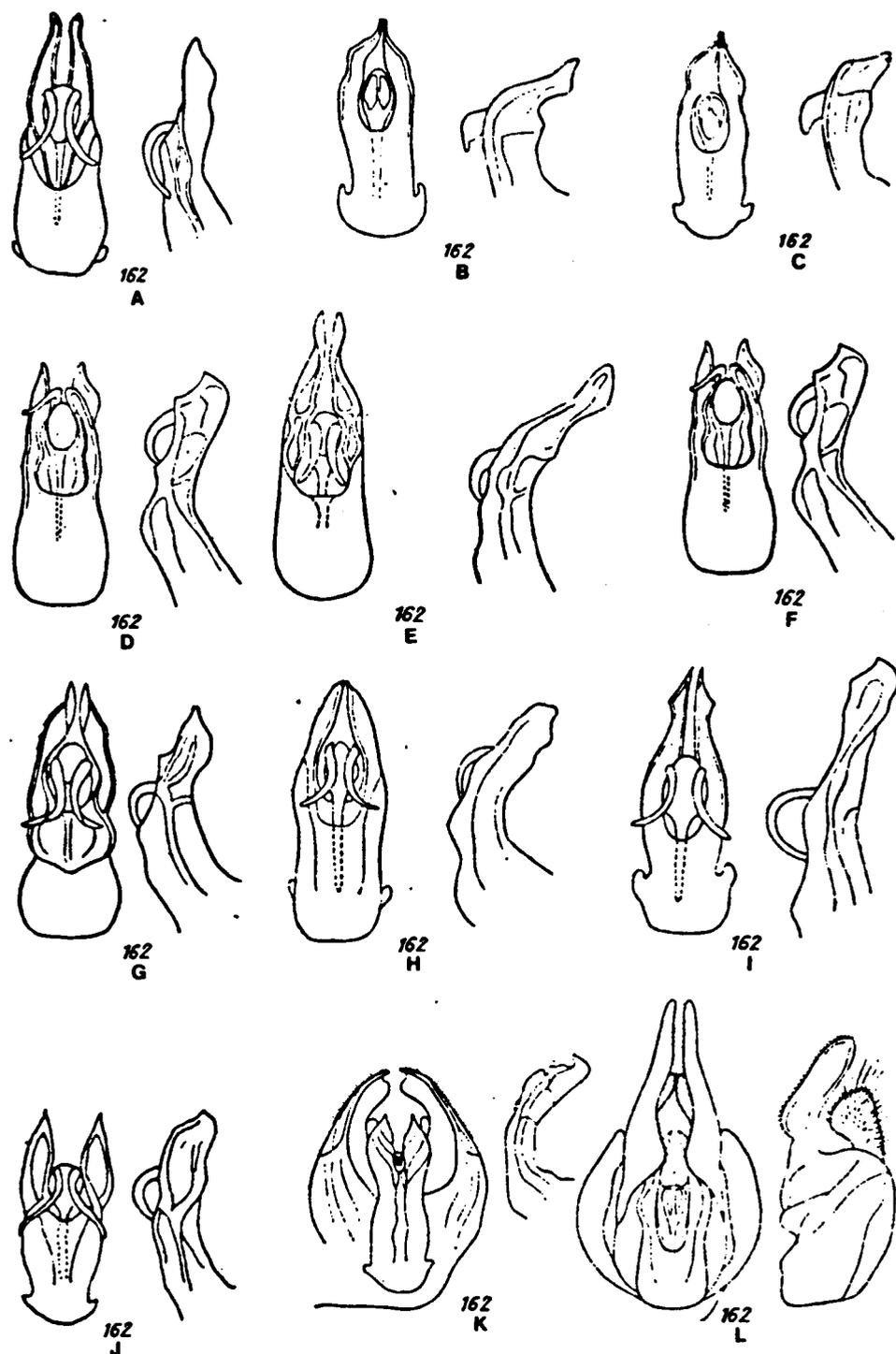


Fig. 162. Aedeagus and hypopygium.

A - *Eristalis cryptarum* (Fabr.); B - *E. abusivus* Collin; C - *E. arbustorum* (L.); D - *E. tundrarum* Frey; E - *E. rupium* Fabr.; F - *E. vitripennis* Strobl; G - *E. alpinus* (Panzer); H - *E. vallei* Kan.; I - *E. anthophorinus* (Fall.); J - *E. nemorum* (L.); K - *E. (Eristalinus) sepulchralis* (L.); L - *E. (Lathyrrophthalmus) aeneus* (Scop.) (after Kanervo and Stackelberg).

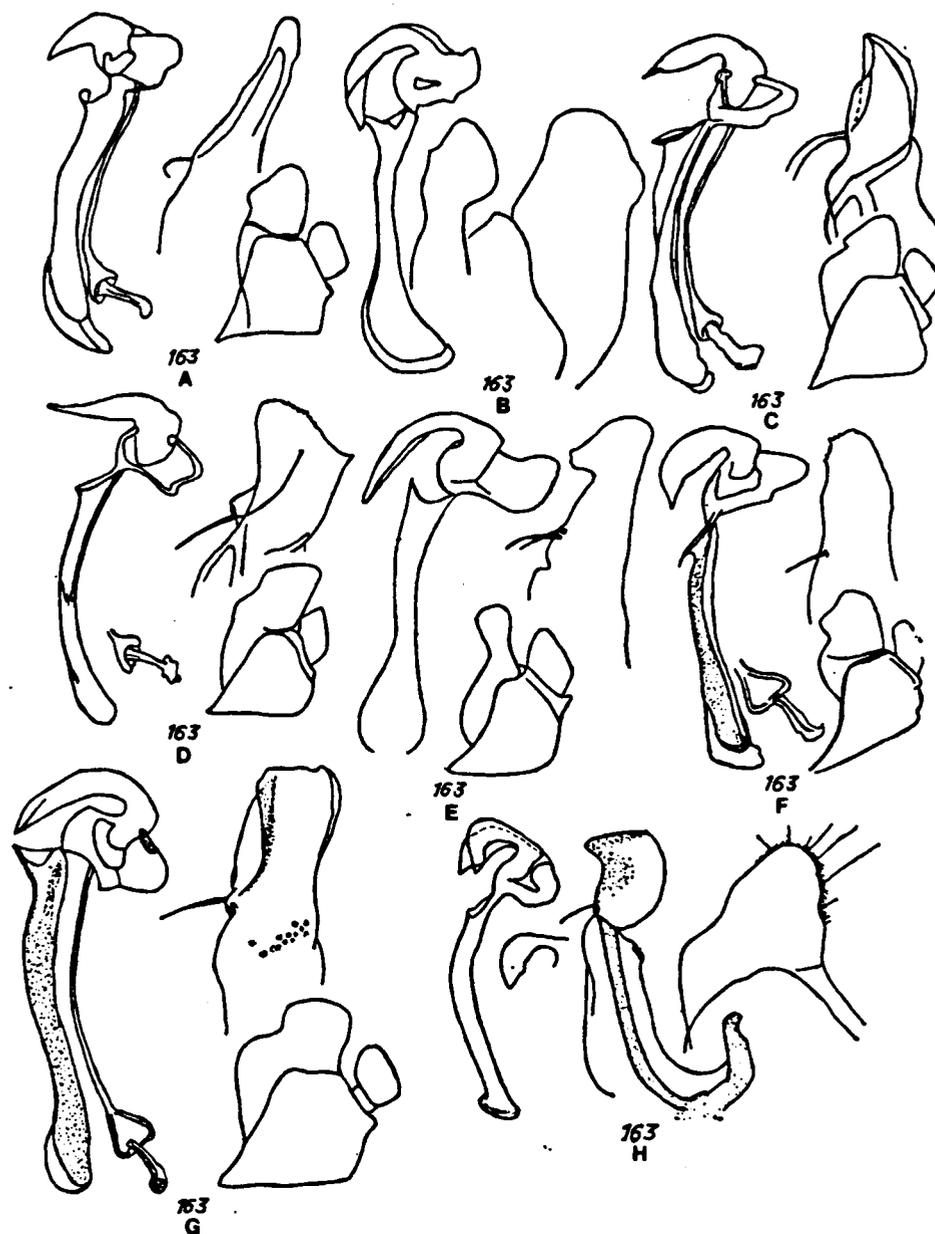


Fig. 163. Aedeagus, upper lobe of hypandrium, surstylus and gonocercus. (after Violovitsh and orig.).

A - *Eristalis rupium* Fabr.; B - *E. pacificus* Viol.; C - *E. alpinus* (Panzer); D - *E. horticola* (De Geer); E - *E. pratorum* Mg.; F - *E. corymbus* Viol.; G - *E. rossicus* Stack.; H - *E. tenax* (L.).

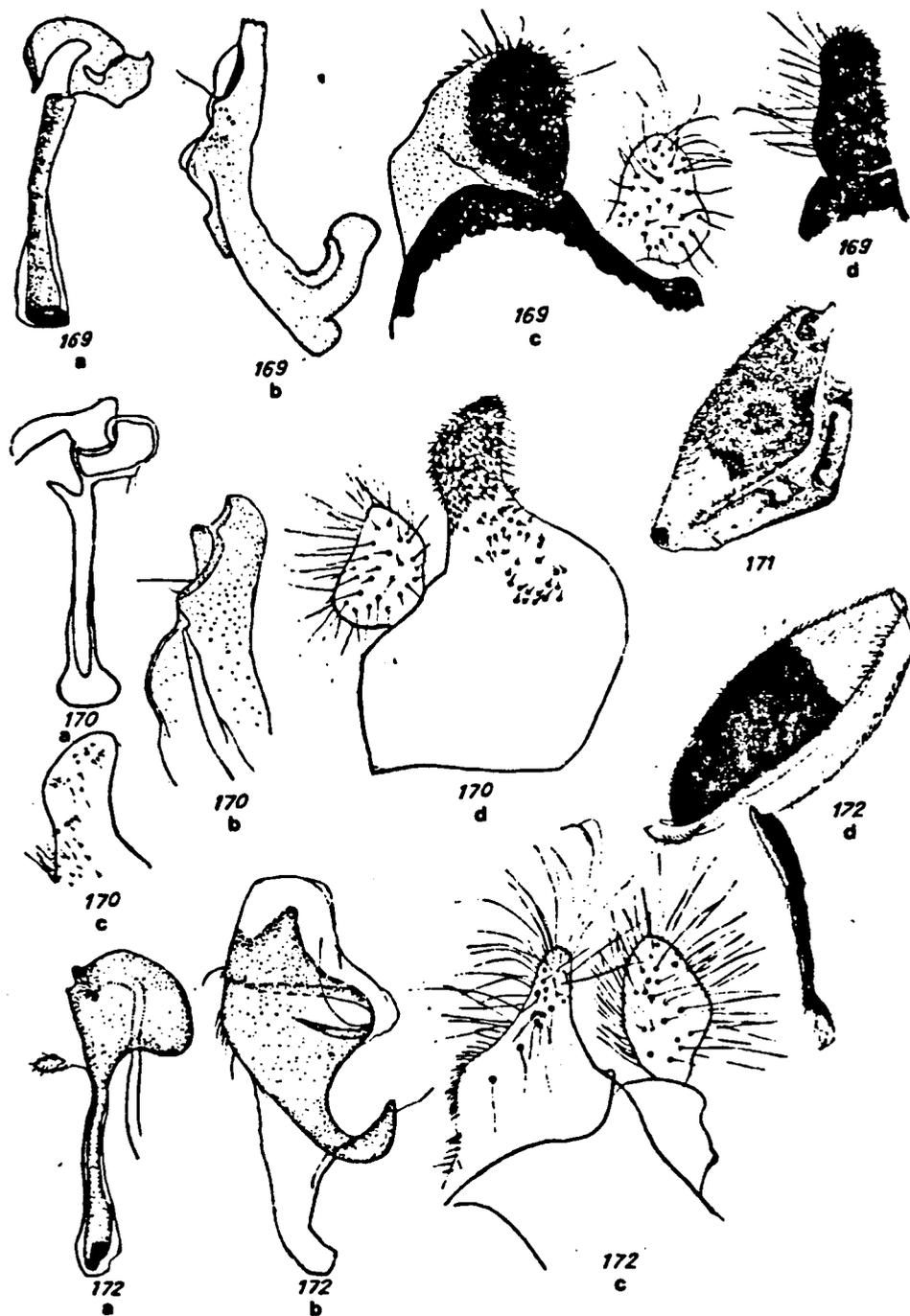


Fig. 169. *Eristalis tundrarum* Frey: a - aedeagus; b - upper lobe of hypandrium; c, d - surstylus and gonocercus, lateral and posterior view. Fig. 170. *E. gomojunovae* Viol.: a - aedeagus; b - upper lobe of hypandrium; c, d - surstylus, lateral and median view. Fig. 171. *Helophilus sapporensis* Mats.: hind femur and tibia. Fig. 172. *H. sibiricus* Smirnov: a - aedeagus; b - upper lobe of hypandrium; c - surstylus and gonocercus; d - hind leg (after Violovitsh and orig.).

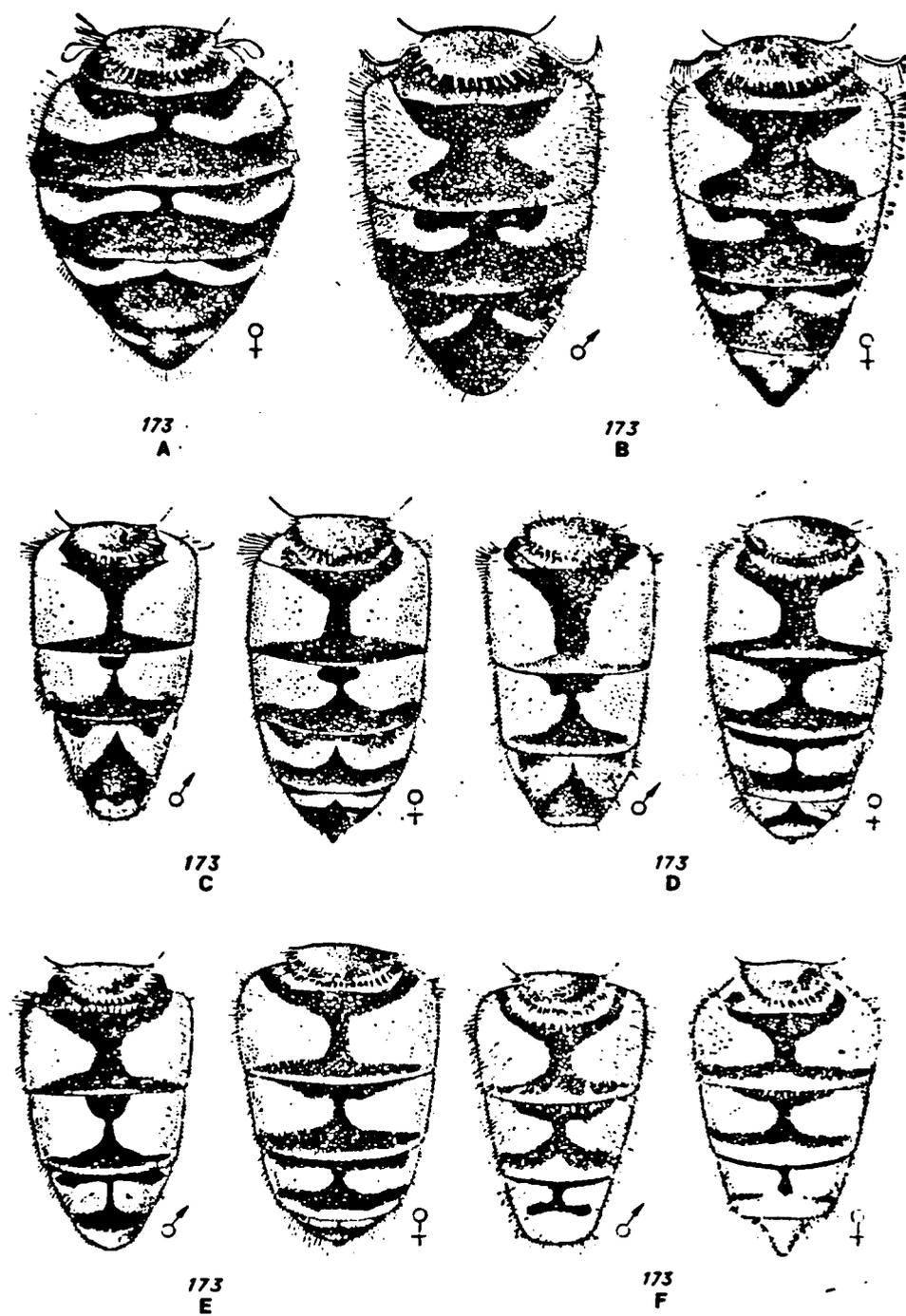


Fig. 173. Abdomen (after Stackelberg).

A - *Helophilus bottnicus* Wahlb.; B - *H. borealis* Staeger; C - *H. trivittatus* (Fabr.); D - *H. hybridus* Lw.; E - *H. pendulus* (L.); F - *Parhelophilus frutetorum* (Fabr.).

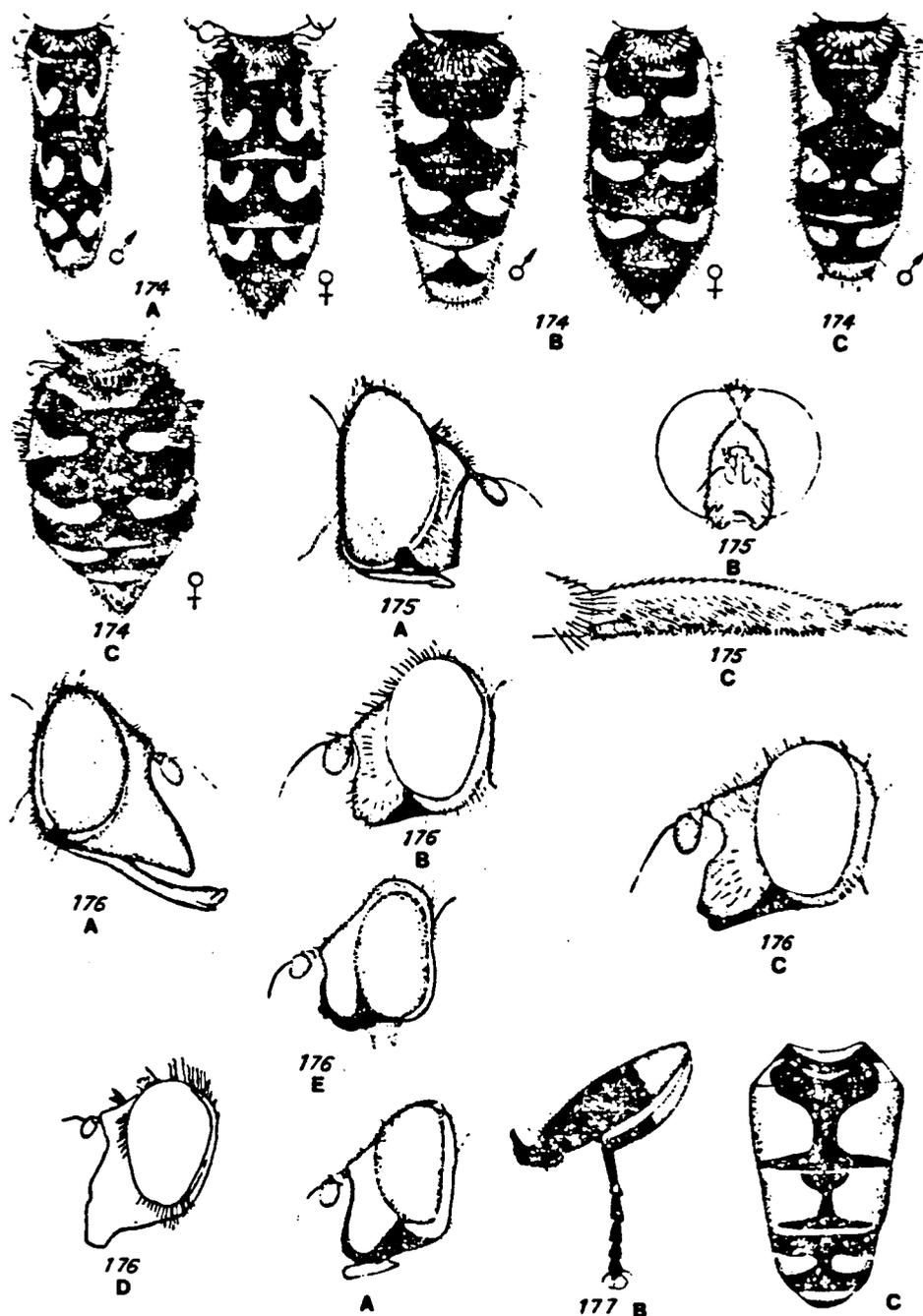


Fig. 174. Abdomen: A - *Anasymia transfuga* (L.); B - *A. lunulata* (Mg.); C - *Eurimyia lineata* (Fabr.) (after Stackelberg). Fig. 175. *Mesembrius peregrinus* Lw.: A, B - head; C - first joint of front tarsus (after Sack and Stackelberg). Fig. 176. Head: A - *Eurimyia lineata* (Fabr.); B - *Parhelophilus versicolor* (Fabr.); C - *P. consimilis* (Malm); D - *Arctosyrphus willingii* (Smith); E - *Helophilus affinis* Wahlb. Fig. 177. *H. pendulus* (L.), ♂: A - head; B - hind leg; C - abdomen (after Bankowska).

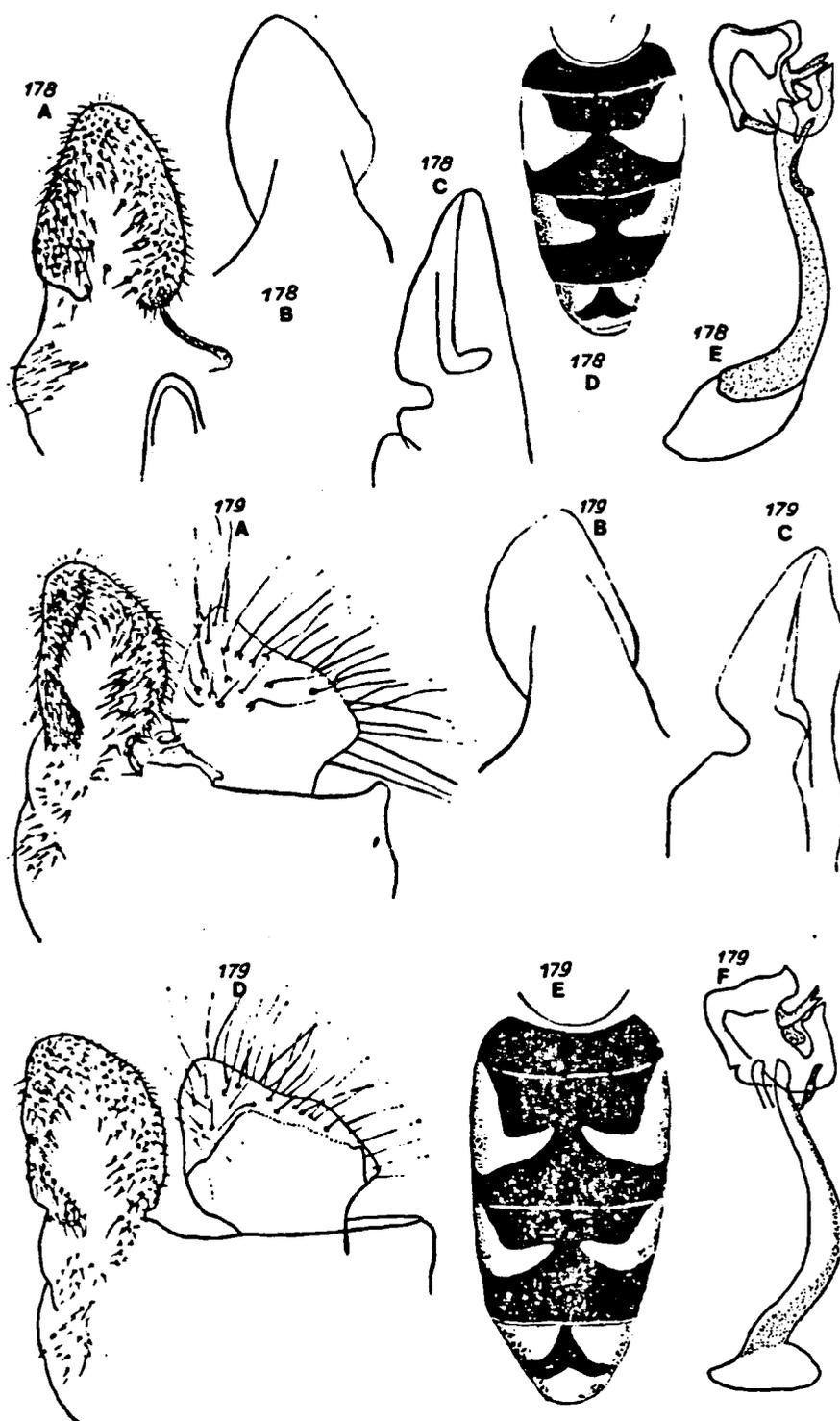


Fig. 178. *Anasimyia pygmaea* Viol.: A, B, C - surstyli, lateral, median and posterior view; D - abdomen; E - aedeagus. Fig. 179. *A. inundata* Viol.: A, D - variations of surstylus and gonocercus, median view; B, C - surstylus, lateral and posterior view; E - abdomen; F - aedeagus (after Violovitsh).

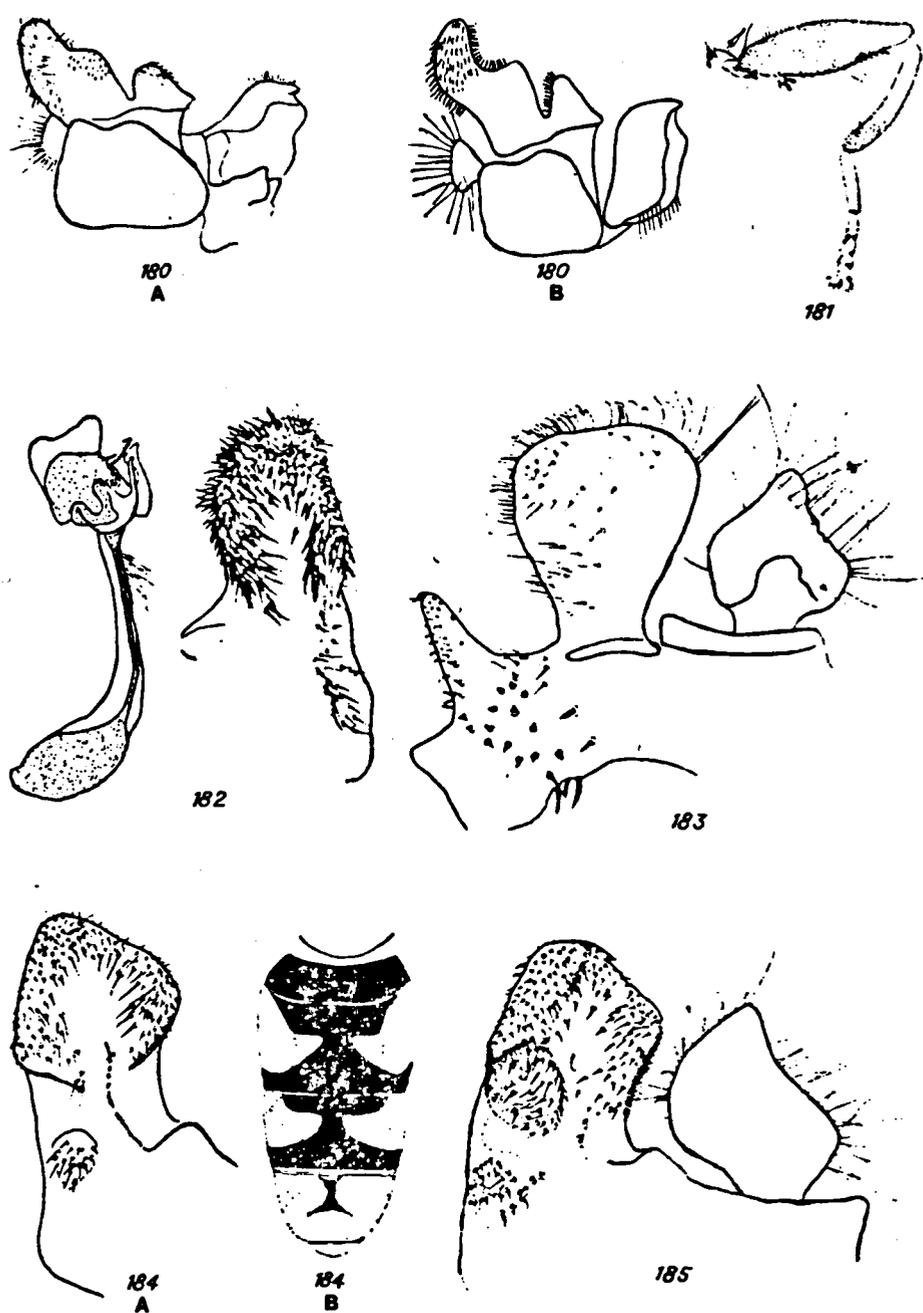


Fig. 180. Hypopygium: A - *Parhelophilus obscurior* Viol.; B - *P. kurentzovi* Viol. Fig. 181. *P. frutetorum* (Fabr.): hind leg. Fig. 182. *P. insignis* Viol.: aedeagus and surstylus. Fig. 183. *Anasimyia smirnovi* (Stack.): surstylus and gonocercus. Fig. 184. *A. oblonga* Viol.: A - surstylus; B - abdomen. Fig. 185. *A. lunulata* (Mg.): surstylus and gonocercus (after Stackelberg and Violovitsh).

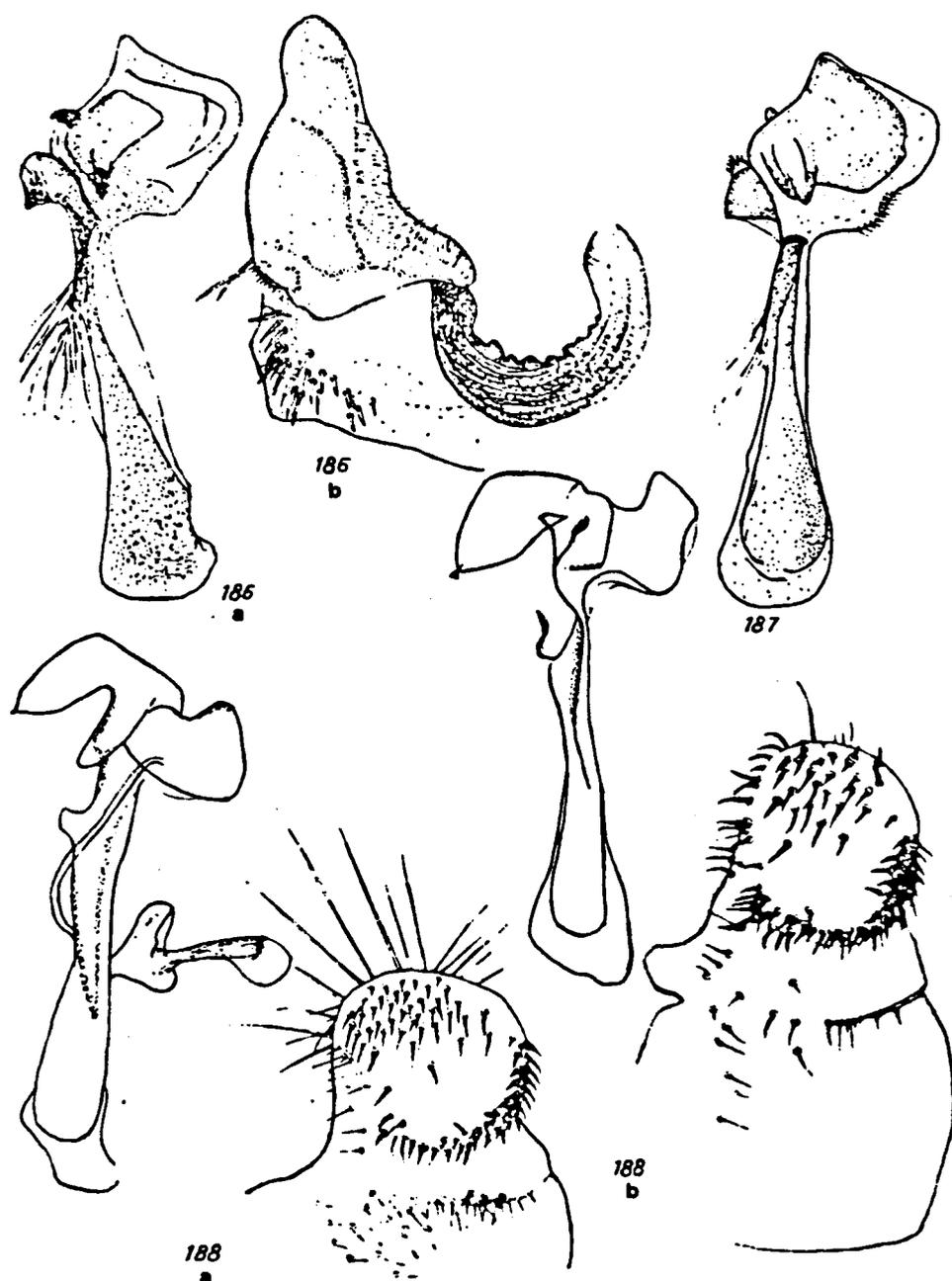


Fig. 186. *Helophilus limosus* Viol.: a - aedeagus; b - surstylus. Fig. 187. *H. borealis* Staeger: aedeagus. Fig. 188. Aedeagus and surstylus: a - *Myiatropa florea* (L.); b - *M. semenovi* Smirnov (after Violovitsh and orig.).

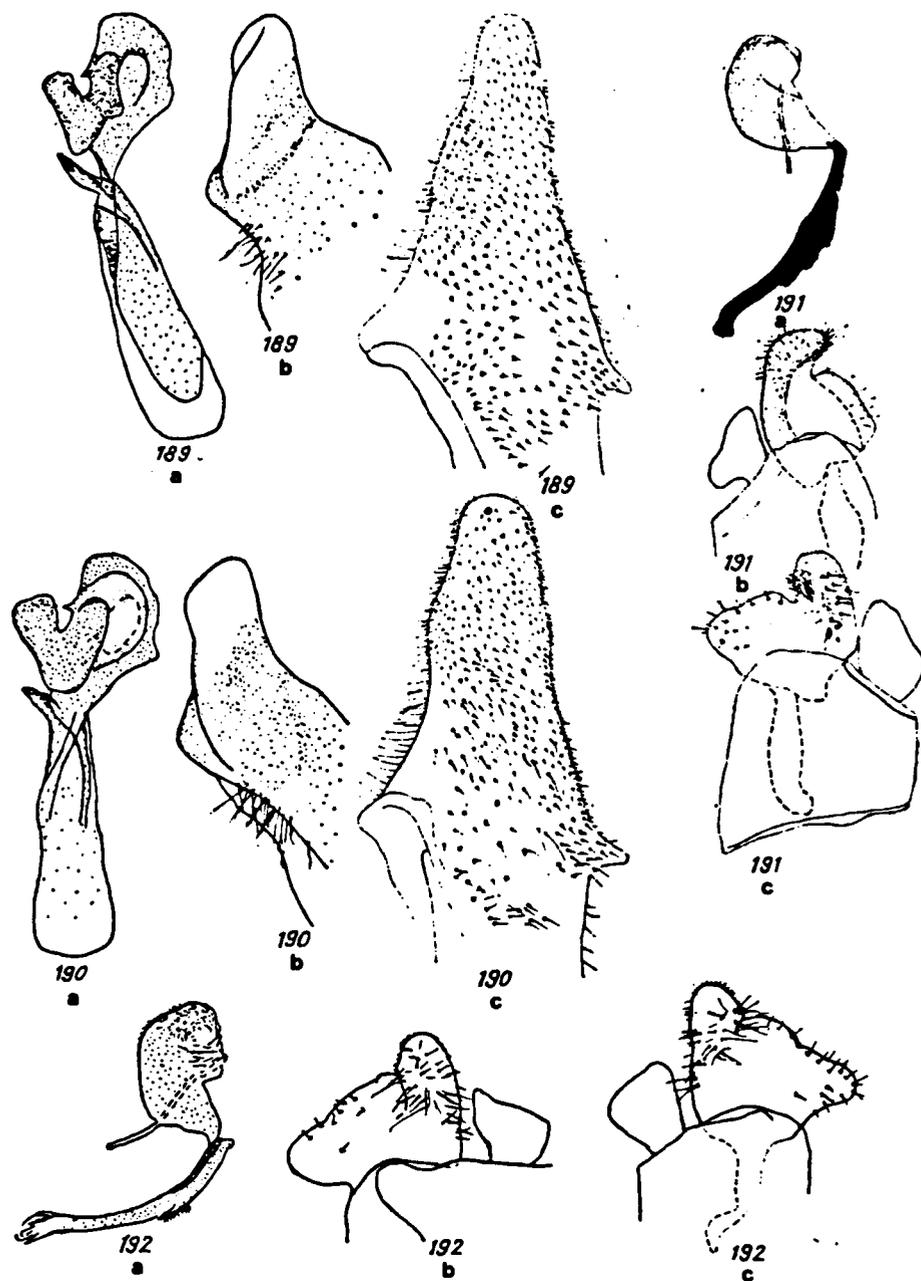


Fig. 189. *Mallota citrea* Viol.: a - aedeagus; b - upper lobe of hypandrium; c - surstylus. Fig. 190. *M. subcitrea* Viol., do. Fig. 191. *Brachyopa maritima* Viol.: a - aedeagus; b, c - surstyli. Fig. 192. *B. dorsata* Zett., do. (after Violovitsh).

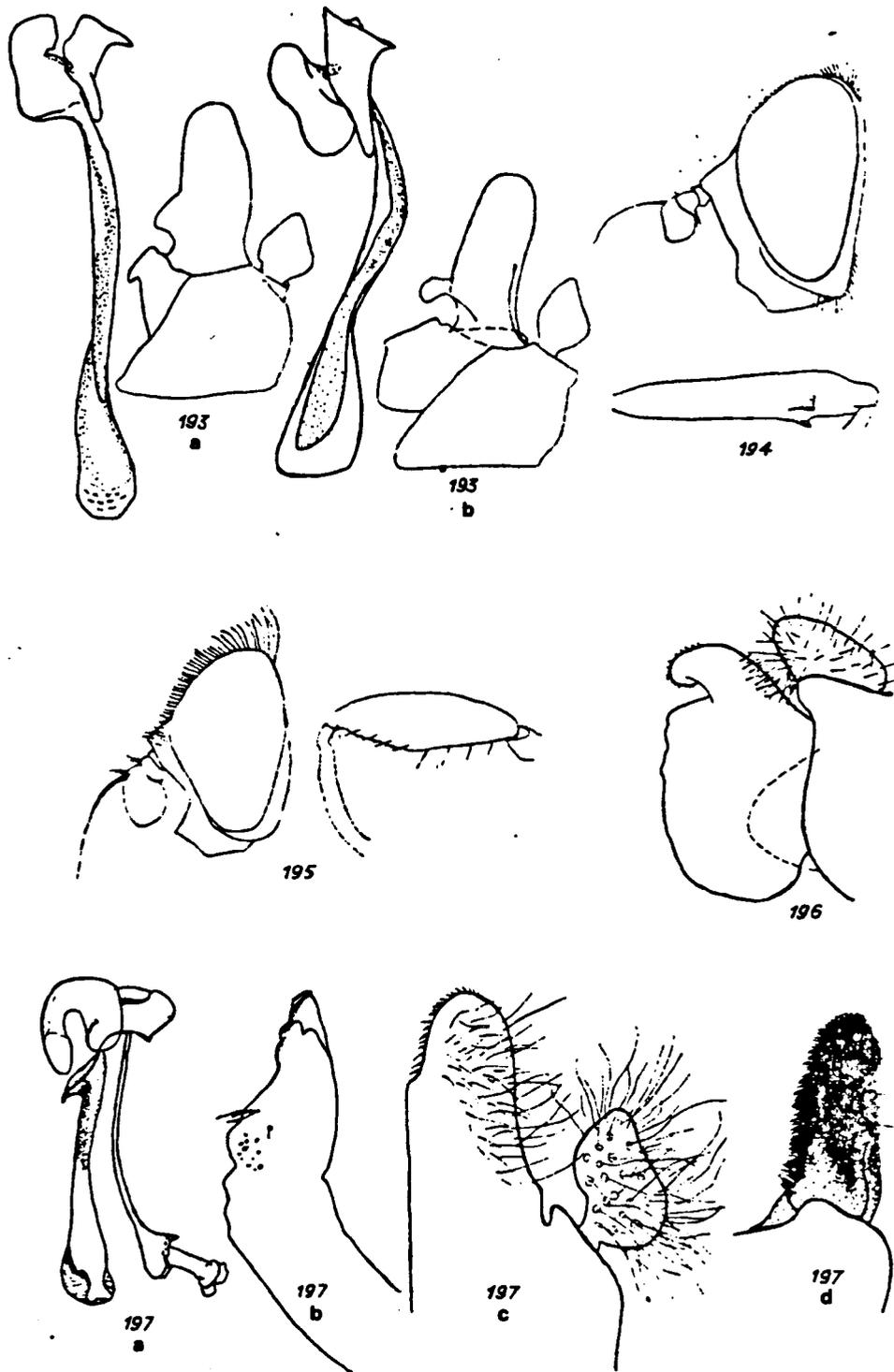


Fig. 193. Aedeagus, surstylus and gonocercus: a - *Mallota inopinata* Viol.; b - *M. tricolor* Lw. Fig. 194. *Macrozelima hervei* (Shir.), ♂: head and hind femur. Fig. 195. *Xylota rerichi* Viol., ♂, do. Fig. 196. *X. arsenjevi* Viol.: surstylus and gonocercus. Fig. 197. *Eristalis cerealis* Fabr.: a - aedeagus; b - upper lobe of hypandrium; c, d - surstylus and gonocercus, posterior view (after Stackelberg and Violovitsh).



Fig. 198. *Blera eoa* (Stack.): a - surstylus and gonocercus; b - upper lobe of hypandrium; c - aedeagus. Fig. 199. *B. velox* Viol., do. Fig. 200. *Eumerus inopinatus* Viol.: a - surstylus and gonocercus; b - surstylus, median view; c - abdominal sternite. Fig. 201. *E. dux* Viol., do. Fig. 202. *E. strigatus* (Fall.): surstylus. (After Violovitsh).

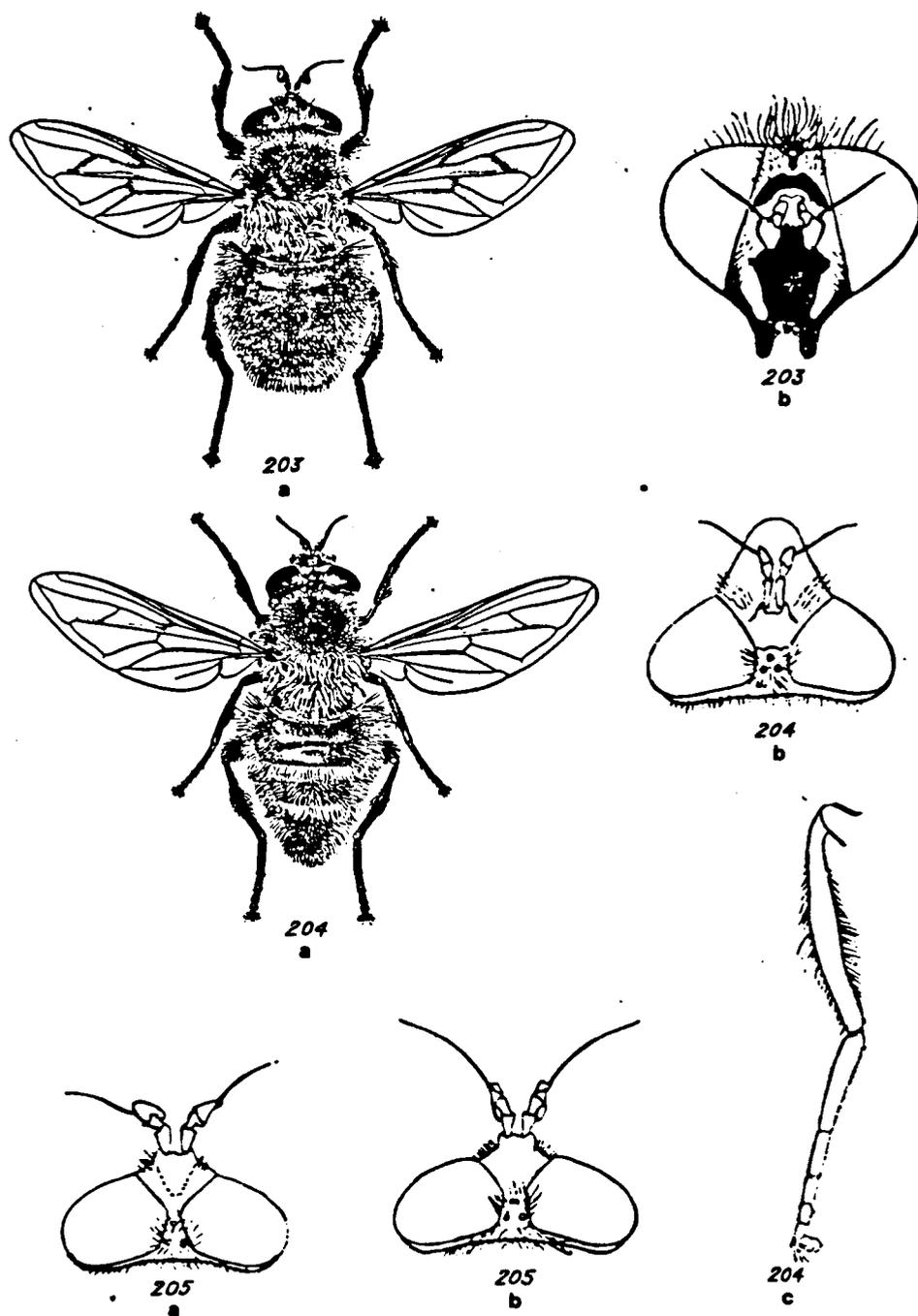


Fig. 203. *Criorhina konakovi* Stack., ♀: a - habitus; b - head. Fig. 204. *C. sichotana* Stack., ♂: a - habitus; b - head; c - hind leg. Fig. 205. Head of the ♂: a - *C. ussuriana* Stack.; b - *C. brevipila* (Lw.) (after Stackelberg).

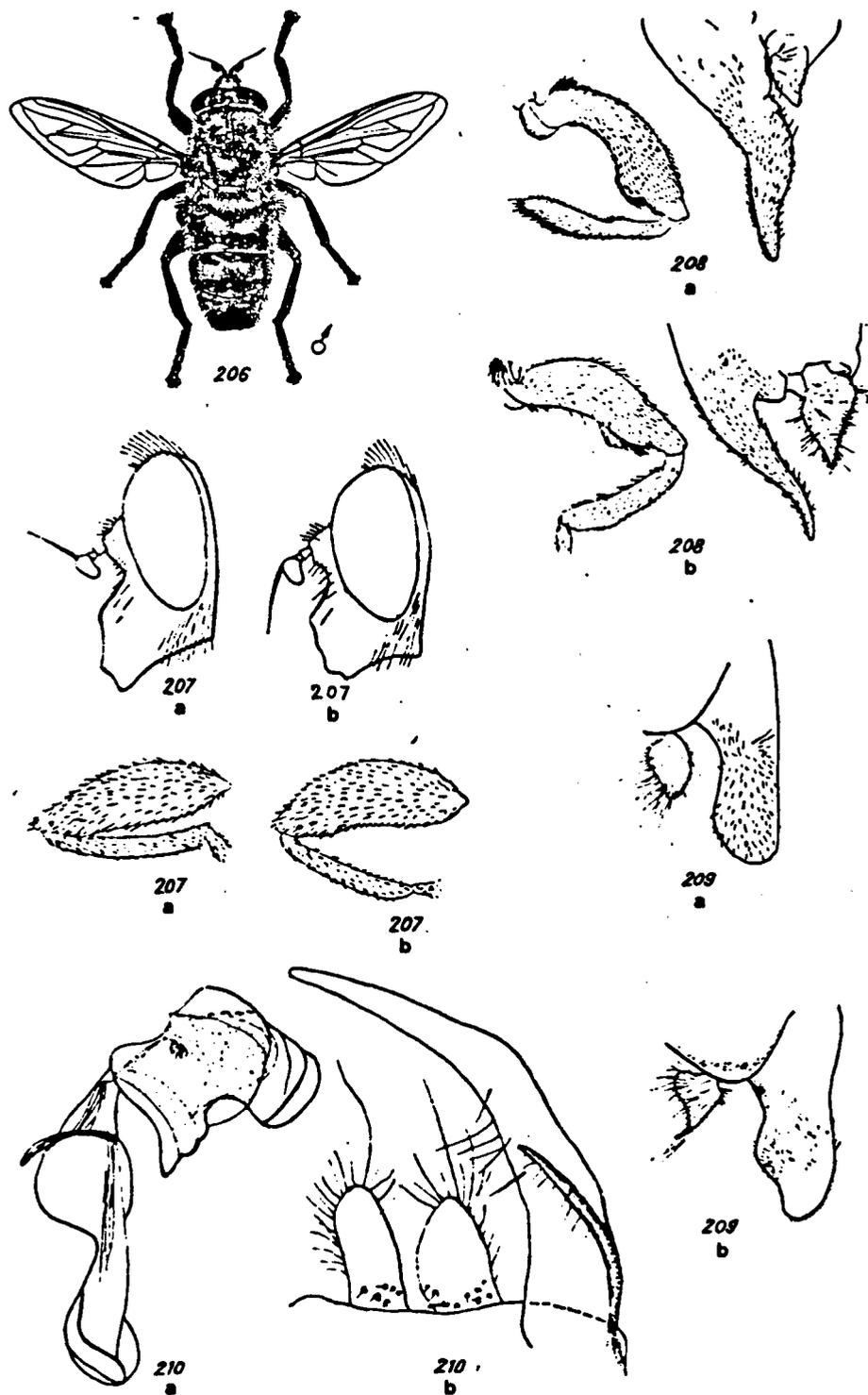


Fig. 206. *Matsumyia jesoensis* (Mats.): habitus. Fig. 207. Head, hind femur and tibia: a - *M. nigrofacies* Shir.; b - *M. jesoensis* (Mats.). Fig. 208. Hind femur and tibia, surstylus and gonocercus: a - *Mallota bicolor* Sack; b - *M. dimorpha* (Shir.). Fig. 209. Surstylus and gonocercus: a - *M. munda* Viol.; b - *M. japonica* (Mats.). Fig. 210. *Sericomyia sachalinica* Stack.: a - aedeagus; b - surstyli and gonocerci (after Violovitsh and orig.).

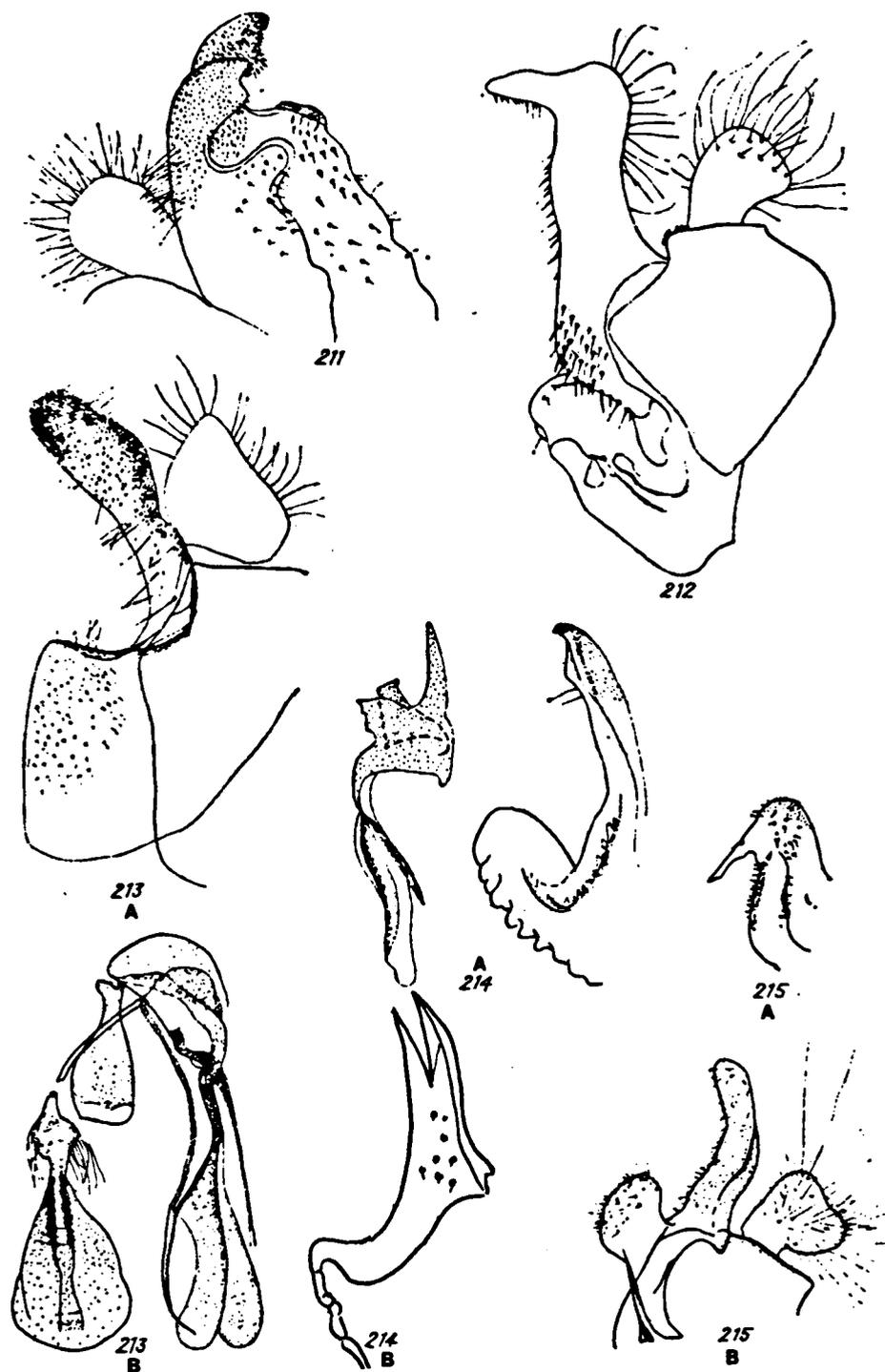


Fig. 211. *Spilomyia suzukii* Mats.: surstyli and gonocerci. Fig. 212. *Caliprobola speciosa* (Rossi): hypopygium. Fig. 213. *Ceriana gibbosa* Viol.: A - surstylus and gonocercus; B - aedeagus and spermatheca. Fig. 214. A - *Temnostoma apiforme* (Fabr.): aedeagus and surstylus; B - *T. bombylans* (Fabr.): upper lobe of hypandrium. Fig. 215. *Xylota segnis* (L.): A - upper lobe of hypandrium; B - surstylus and gonocercus (orig.).

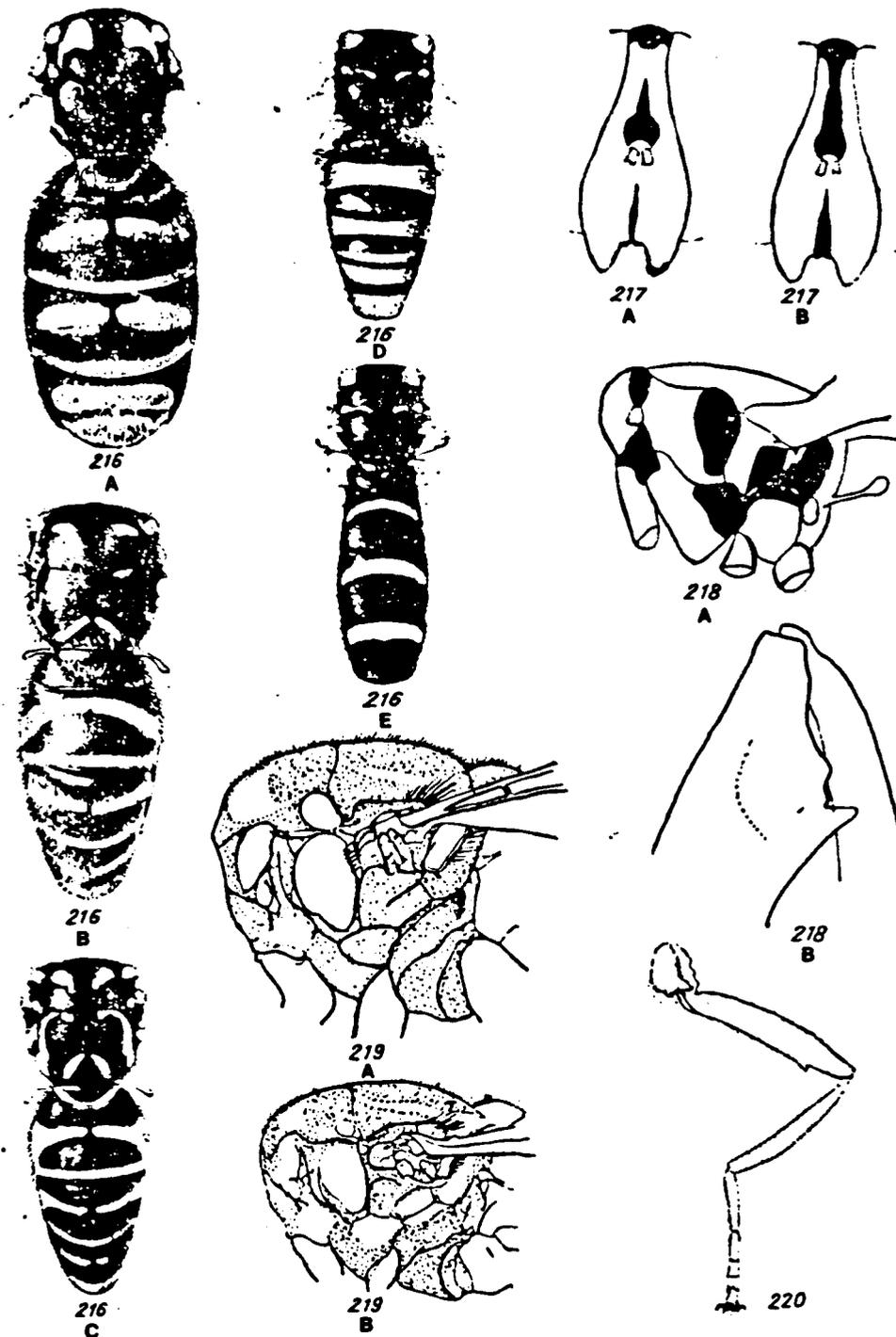


Fig. 216. Thorax and abdomen of the ♂, dorsal view: A - *Spilomyia permagna* Stack.; B - *S. diophthalma* (L.); C - *S. saltuum* (Fabr.); D - *Temnostoma apiforme* (Fabr.); E - *T. bombylans* (Fabr.). Fig. 217. Face of the ♀: A - *Spilomyia suzukii* Mats.; B - *S. panfilovi* Zimina. Fig. 218. *S. panfilovi* Zimina, ♀: A - side of thorax; B - tip of hind femur. Fig. 219. Sides of thorax: A - *Spilomyia maxima* Sack; B - *S. suzukii* Mats. Fig. 220. *S. diophthalma* (L.): hind leg (after Stackelberg and Zimina).

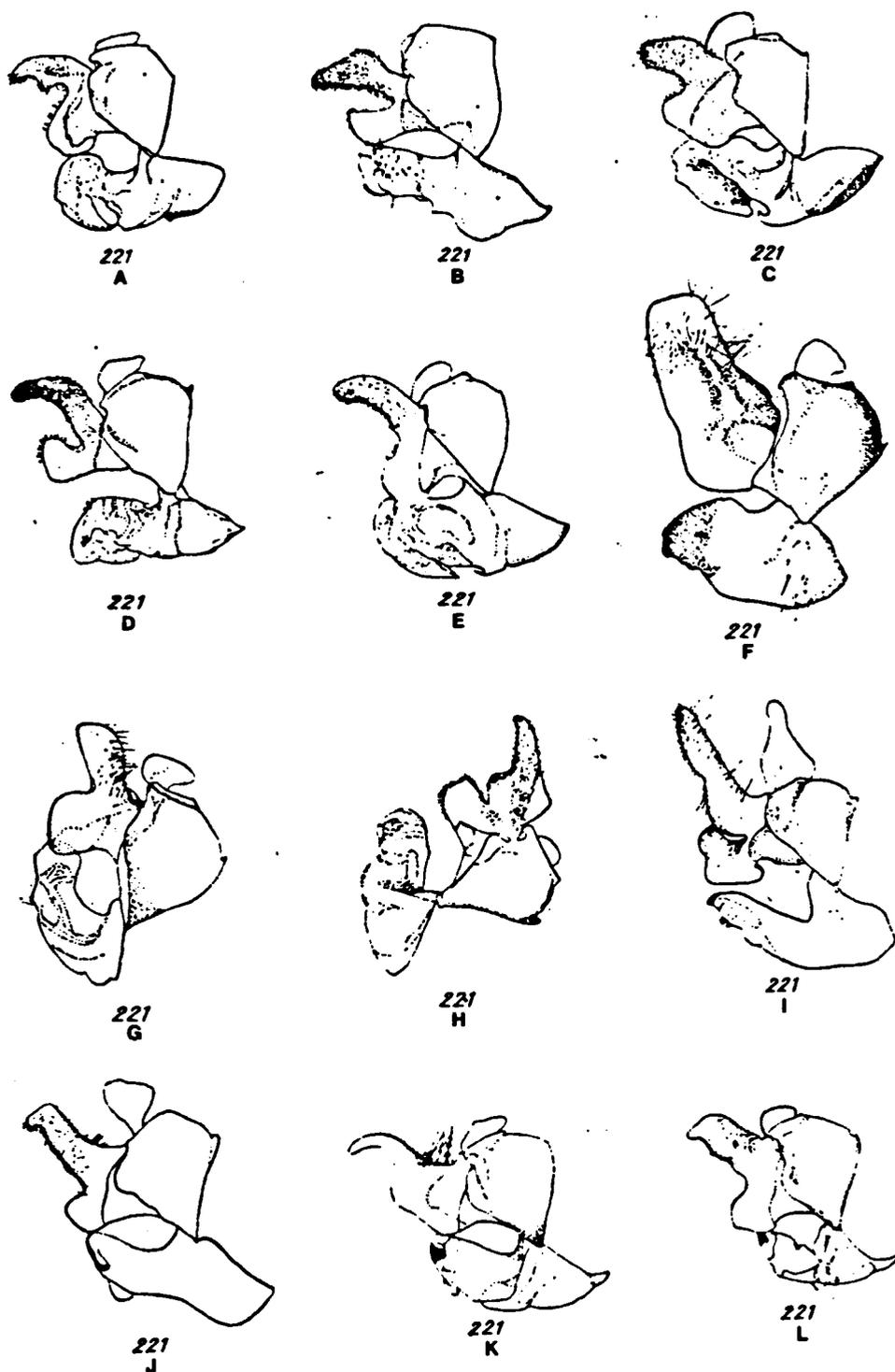


Fig. 221. Hypopygium (after Hippa).

A - *Xylota tuberculifemur* Stack.; B - *X. coquilletti* (H.-B.); C - *X. nitida* Ports.; D - *X. filipjevi* (Stack.); E - *X. jacobsoni* (Stack.); F - *Macrozelima hervei* (Shir.); G - *Blera fallax* (L.); H - *Brachypalpus nipponicus* Shir.; I - *Tropidia scita* (Harris); J - *Sphecomyia vespiformis* (Gorski); K - *Matsumyia nigrofacies* Shir.; L - *M. jesoensis* (Mats.).

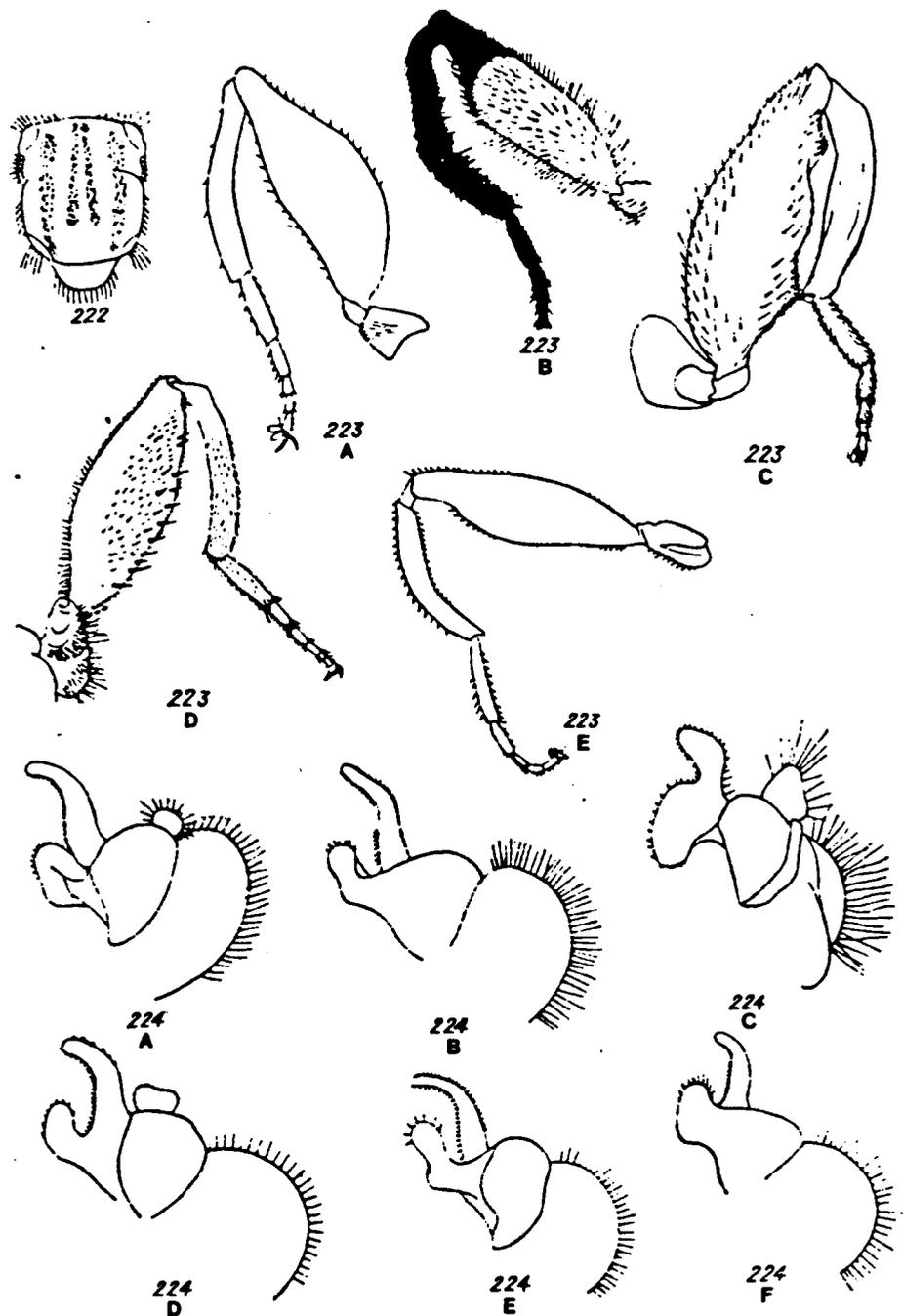


Fig. 222. *Xylota jacobsoni* (Stack.): thoracic disc and scutellum. Fig. 223. Hind leg of the ♂: A - *X. nigripes* Zett.; B - *X. curvipes* Lw.; C - *X. tuberculifemur* Stack.; D - *X. eumera* Lw.; E - *X. pigra* (Fabr.). Fig. 224. Surstylus and gonocercus: A - *X. abiens* Mg.; B - *X. florum* (Fabr.); C - *X. nemorum* (Fabr.); D - *X. filipjevi* (Stack.); E - *X. meigeniana* Stack.; F - *X. coeruleiventris* (Zett.) (after Stackelberg).

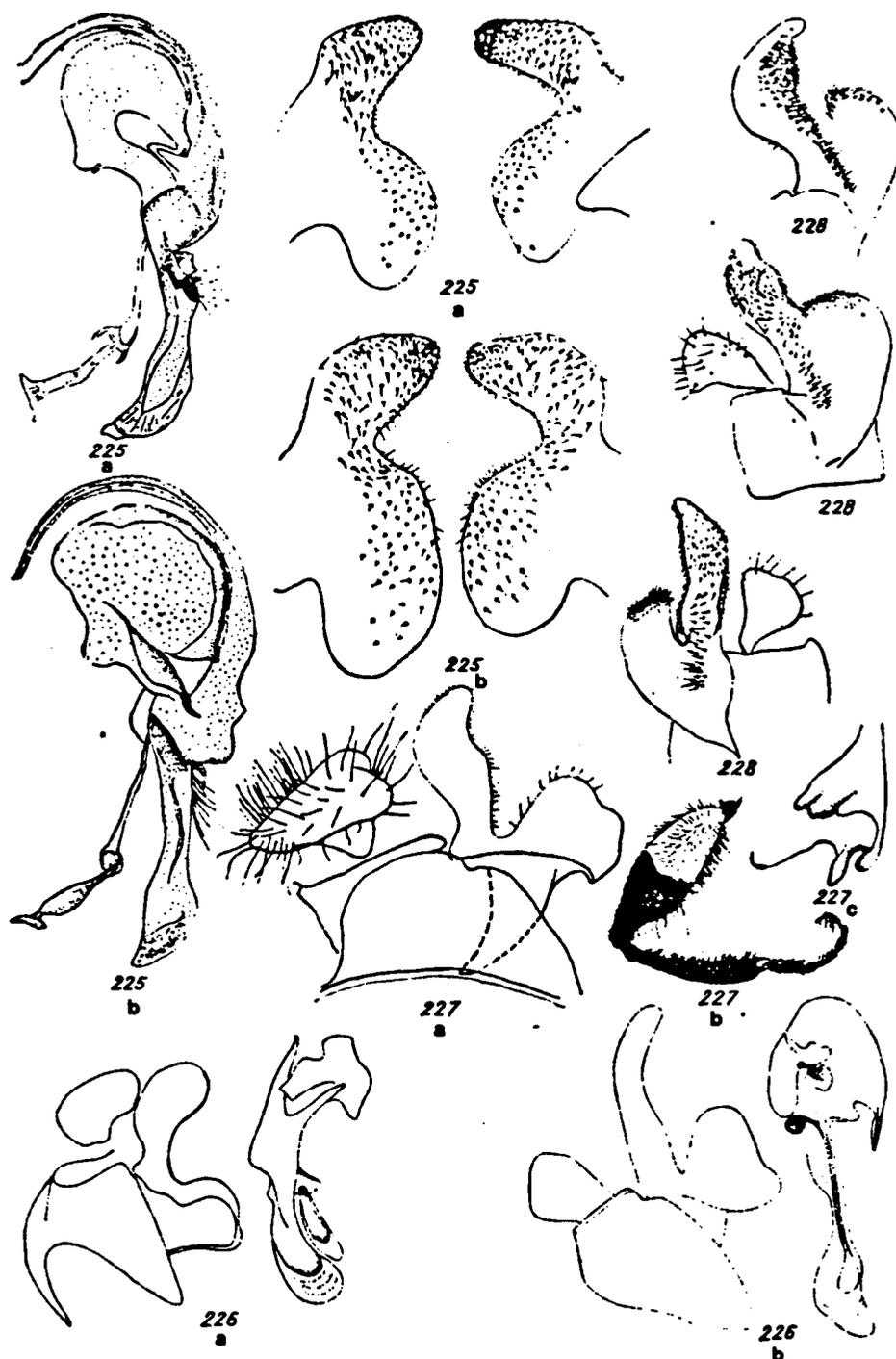


Fig. 225. Aedeagus and surstyli: a - *Xylota nemorum* (Fabr.); b - *X. arsenjevi* Viol. Fig. 226. Surstylus, gonocercus and aedeagus: a - *X. carbona* Viol.; b - *X. umbrosa* Viol. Fig. 227. *X. unica* Viol.: a - surstylus and gonocercus; b - hind leg; c - hind rim of sternite IV. Fig. 228. *X. coquilletti* (H.-B.): surstylus and gonocercus in various projections (after Violovitsh and orig.).

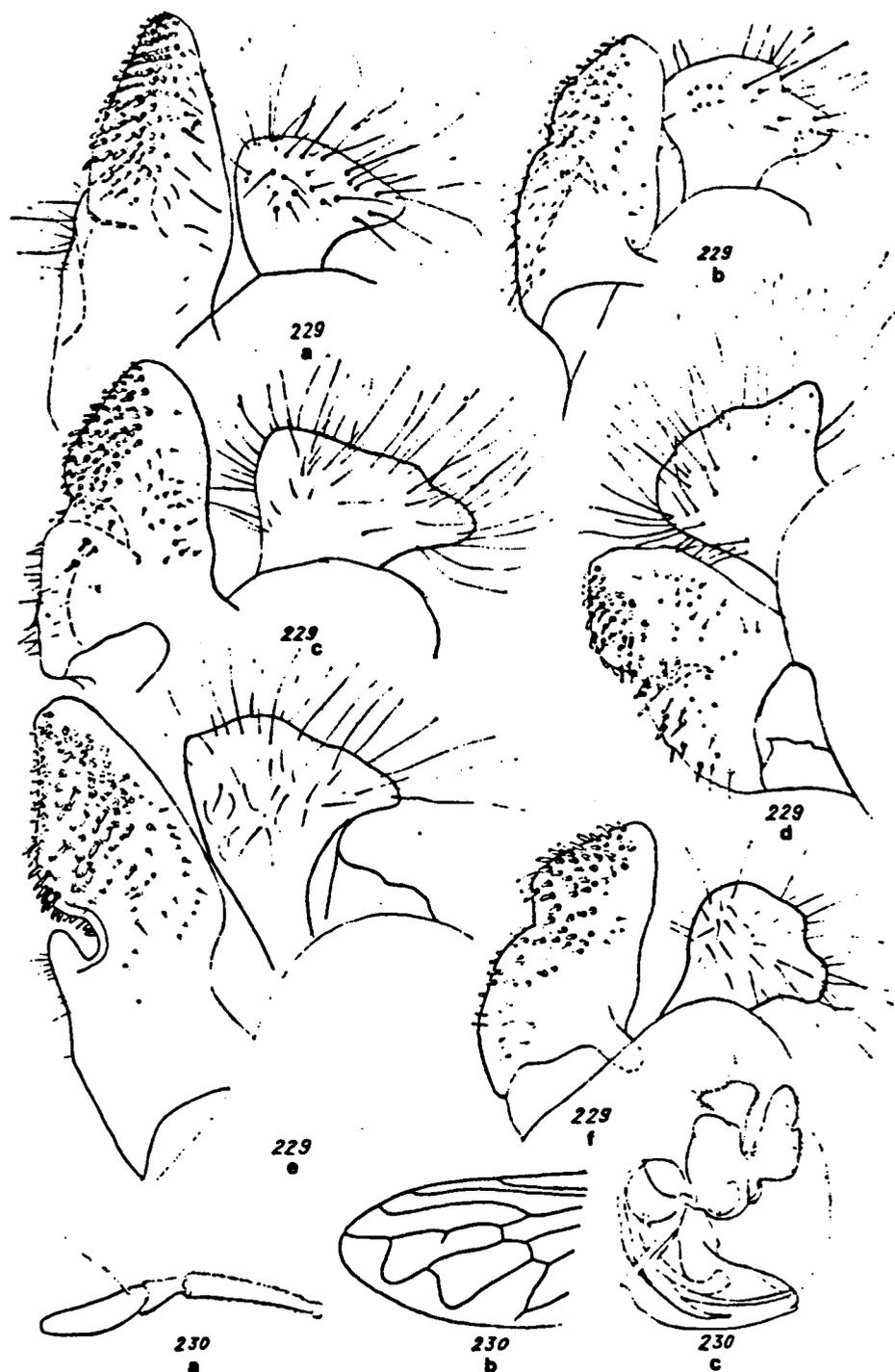


Fig. 229. Surstylus and gonocercus: a - *Microdon mutabilis* (L.); b - *M. eggeri* Mik; c - *M. ignotus* Viol.; d - *M. latifrons* Lw.; e - *M. maritimus* Viol.; f - *M. lateus* Viol. Fig. 230. *M. mysa* Viol.: a - antenna; b - apical half of wing; c - hypopygium (after Violovitsh).

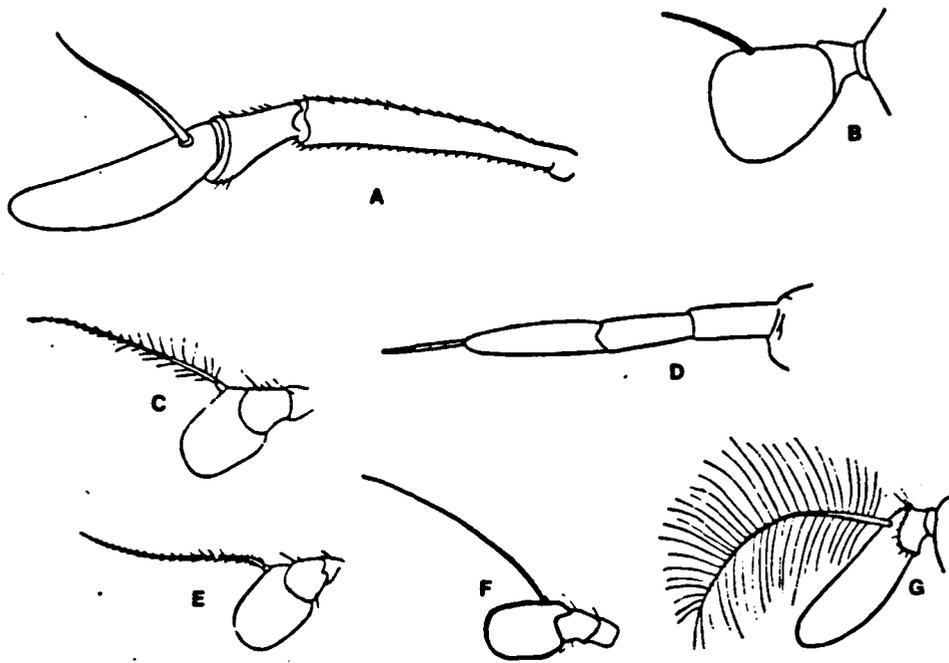


Fig. 11. Antennae (after Stackelberg, Bankowska, Sack and Violovitsh).
A: *Microdon* Mg.; B: *Chamaesyrrhus* Mik; C, D: *Hammerschmidtia* Schumel;
E: *Callicera* Panzer; F: *Eristalis* Latr.; G: *Volucella* Geoffroy.

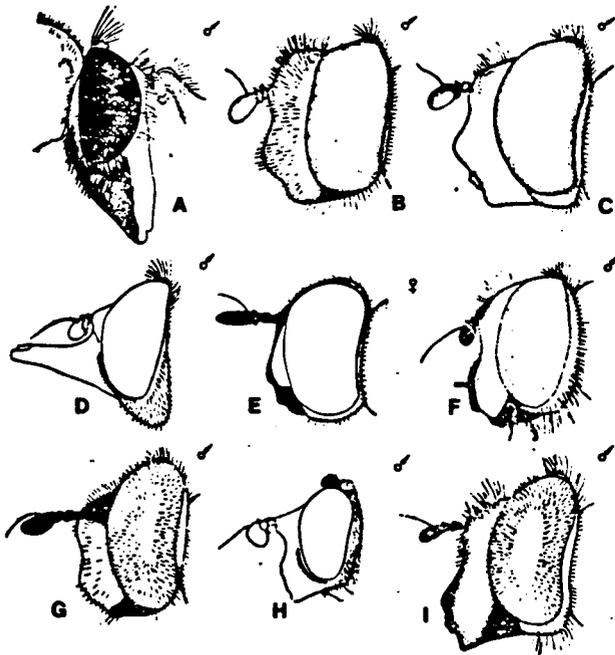


Fig. 13. Heads, lateral view.
After Stackelberg, Sack and Bankowska.

A: *Conosyrphus volucellinus* Ports.; B: *Scaeva pyrastris* (L.);
C: *Syrphus vitripennis* Mg.; D: *Rhingia campestris* Mg.; E: *Paragus tibialis* Fall.; F: *Myiatropa florea* (L.); G: *Eriozona syrphoides* (Fall.); H: *Blera fallax* (L.); I: *Leucozona lucorum* (L.).

