

3.54. Family TACHINIDAE

Hans-Peter TSCHORSNIG and Vera A. RICHTER

Flies with subscutellum (postscutellum) well-developed, strongly convex in profile (Fig. 3; except *Litophasia* Girschner and *Cinochira* Zetterstedt: Figs 107–108), meral (hypopleural) bristles present (Figs 3, 104, except *Oxyphylomyia* Villeneuve); body often strongly bristled. Body length from less than 2 mm (*Catharosia* Rondani) to 20 mm (*Tachina* Meigen).

First instar larva with strongly developed labrum fused to the rest of cephalopharyngeal skeleton; maxillae (oral hooks) developed only in second and third instars. Larva endoparasitic in insects, rarely in other arthropods.

Adult. Head large, usually higher than long or subquadrate, seldom hemispherical (*Thelaira* Robineau-Desvoidy, *Halidaya* Robineau-Desvoidy, Fig. 23). Vertex wide (Figs 63–64) to narrow (Fig. 68), very wide in *Gonia* Meigen and related genera (Figs 14, 49, 65), in majority of males narrower than in females, in *Phasia* Latreille in female narrower than in male. Inner vertical bristles usually strong, reclinate (Figs 64–67) or medioclinate and crossed (Fig. 63), in males with strongly narrowed frons proclinate and hair-like (Figs 48, 54). Outer vertical bristle usually present (Figs 2, 64–66), often hair-like or absent in males (Fig. 63), rarely absent in both sexes (Figs 25, 68). Ocelli present (Figs 2, 63–68), partially or entirely absent only in *Therobia* Brauer and *Aulacephala* Macquart. Ocellar bristles usually strong and proclinate (Figs 63, 64), less often latero-clinate or reclinate (Figs 14, 28, 37, 65), sometimes hair-like or entirely absent (Figs 16, 24). Frontal vitta (frontal stripe, interfrontal area) usually well-developed (Figs 63–67), practically absent in some Phasiinae (Fig. 68). Frontal bristles usually medioclinate, descending more or less far on parafacial (Figs 3–20), in most Phasiinae (Figs 25, 44) and Dexiini (Figs 21–22, 46) extending forwards only to level of base of antenna. Fronto-orbital plate (parafrontalia) usually with scattered or dense hairs or setulae lateral to row of frontal bristles (Figs 3–16), rarely entirely bare (Figs 21, 25), with one or more ad-

ditional rows of medioclinate or reclinate bristles mainly in some Goniini (Figs 14, 49, 65). One (Figs 8, 10, 50), two (Fig. 6) or more (Figs 11, 52) reclinate or latero-clinate upper orbital bristles present, in many genera not distinguishable from uppermost frontal bristles (Fig. 23) or absent (Fig. 25). Proclinate orbital bristles usually present in females (Figs 2–3) and in males with wide frons (Figs 14–15), rarely absent in both sexes (Figs 25, 68); the number of proclinate orbital bristles is usually two (Figs 2–3), less often only one (Fig. 17); few genera bear a complete row on fronto-orbital plate (Fig. 23). Face usually more or less concave or flat and not visible in lateral view (Figs 4–11), sometimes slightly convex and entirely visible in lateral view (Figs 13, 16, 38, 39), in most Dexiinae and a few other genera with a distinct median longitudinal carina, separating antenna (Figs 21–22, 33). Lower facial margin straight and not visible in lateral view (Figs 8–11) or protruding forwards and more or less visible in lateral view (Figs 13, 16, 20–21). Vibrissa usually well-developed and strong (Figs 4–21), rarely not differentiated from hairs on vibrissal angle (Fig. 22); arising near level of lower facial margin (Figs 4–11) or less often distinctly above (Figs 20, 25). Facial ridge with setae on lower fifth or less up to lower five-sixths (rarely without any seta above vibrissa, Figs 24, 35), the setae may be weak, decumbent and becoming hair-like above (Fig. 18) or strong, more or less erect, and retaining their bristle-like appearance up to the uppermost seta (Figs 4, 7, 50); the facial ridge may be concave (Fig. 9), straight (Fig. 10) or convex (Figs 8, 12, 49) in lateral view. Parafacial entirely bare (Figs 9, 7, 56) or with hairs or setulae in its upper part only (Figs 4, 15), sometimes with hairs or setulae over most of its length (Figs 32, 35, 49, 51) or also with proclinate bristles (Figs 16, 26, 29, 57); the width of parafacial varies from width of arista (Fig. 30) to nearly as large as horizontal diameter of eye (Fig. 14). Gena very narrow and not visible in lateral view (Fig. 30) or exceptionally high (Figs 4, 53); all intermediate forms are present.

Genal dilation usually well-developed (Figs 6, 10, 16), in several genera not (Figs 21, 24) or only scarcely developed (Figs 4, 15); hairs on genal dilation usually fine and short, sometimes long and stout or accompanied by one or two bristles. Back of head usually slightly convex, less often strongly convex (Figs 13, 43), sometimes flat or slightly concave (Figs 6, 23), hairs or setulae on it pale or black or a mixture of both. Eye bare or nearly bare (Figs 20–25) or covered with hairs (Figs 6–8, 63).

Antenna usually inserted at level above lower half of eye (Figs 4–8), rarely at level of lower half or below (Fig. 21), in *Halidaya* Egger at level near lower third (Fig. 23); antenna usually longer than height of gena (Figs 4–11), shorter in most Dexiini and a few other genera (Figs 21–22, 34). Scape (first antennal segment) short, in *Richteriola* Mesnil with a basal hook-like prolongation (Fig. 35). Pedicel (second antennal segment) usually short (Figs 4–11), elongate in a few genera (Figs 16, 76); a strong dorsal bristle pre-

sent in many Dexiini and several other genera (Figs 21, 70–71, 77). First flagellomere (third antennal segment) sometimes strongly elongate relative to preceding antennal segments (Fig. 41), sometimes shortened (Fig. 76), subtriangular (Figs 47, 74), or apically pointed (Fig. 70, *Ace-myini*), bifurcate only in male of *Peribaea fissicornis* (Strobl) (Fig. 78); anterior margin straight (Figs 60, 80), less often convex (Figs 16, 55, 76), or rarely concave (Figs 71–72). Arista inserted near base of first flagellomere (Figs 69–80), rarely near middle (Fig. 47); thickened only at base (Figs 71, 80) up to near apex (Figs 4, 14); usually bare, except for microscopic pubescence (Figs 72–74, 80), less often with short hairs (Figs 58, 71), in most Dexiini and a few other genera plumose (Figs 21, 33, 48, 77), lancet-like widened apically in male of *Cylindromyia pusilla* (Meigen) (Fig. 79). First and second aristomeres usually short (Figs 69–73), in several genera elongate to a varying extent (Figs 31, 47, 75).

Proboscis well-developed (Figs 4–11), seldom

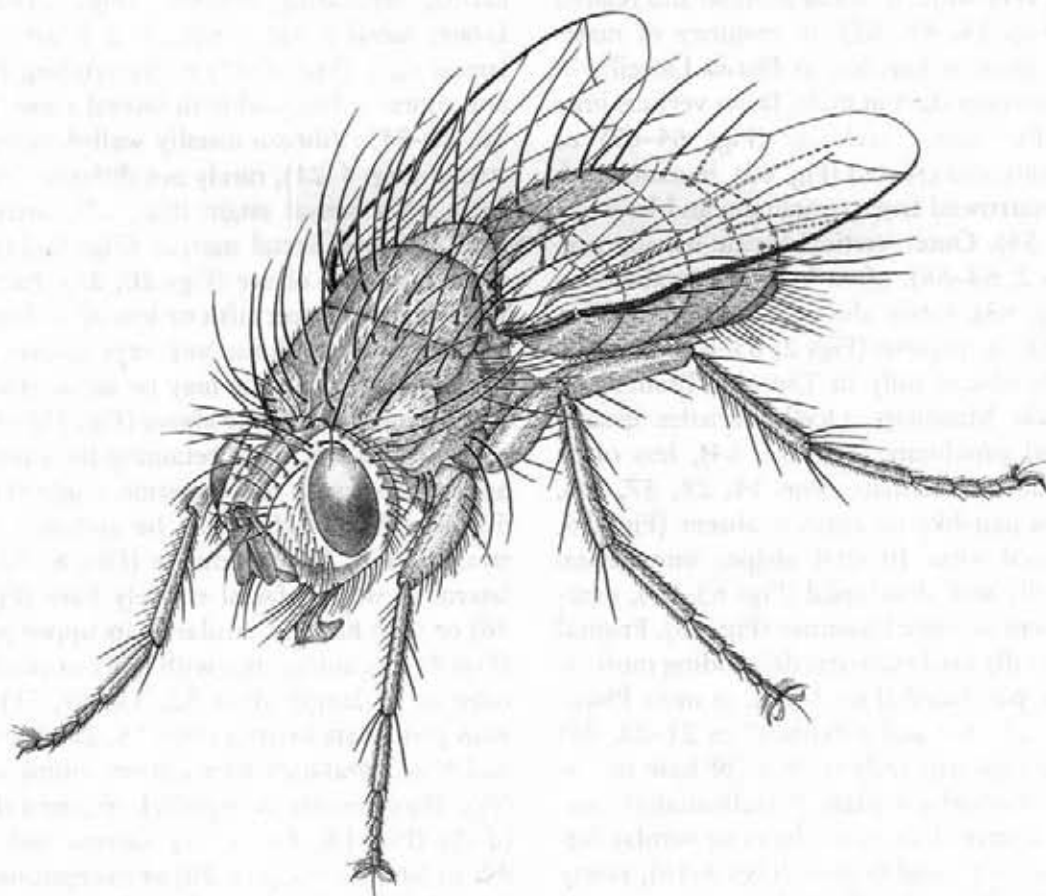


Fig. 54.1. *Brachymera rugosa* (Mik), male.

very small (Fig. 22). Prementum sometimes elongate, with short labella (Figs 21, 31–32, 38, 56, 62) or seldom with elongate slender labella (Figs 15, 60); sometimes shortened (Fig. 22). Palpus usually well-developed, slightly swollen apically (Figs 61–62) or filiform, parallel-sided (Figs 32, 60); rarely strongly thickened apically (Figs 22, 58), more or less reduced (Fig. 16) or completely absent.

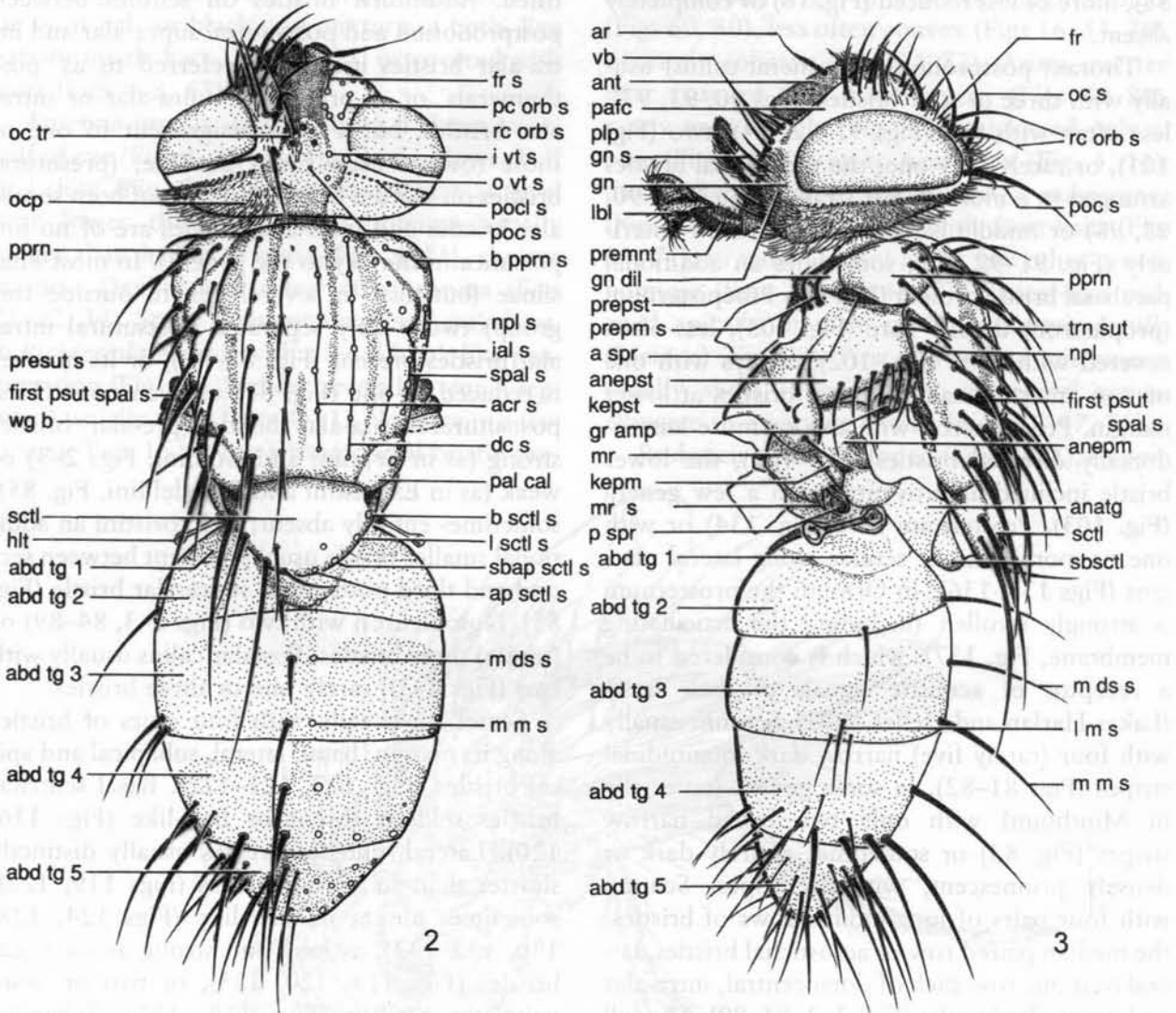
Thorax: postpronotum (humeral callus) usually with three or four bristles (Figs 90, 93, 97), less often with five (Figs 91–92, 94), two (Fig. 101), or rarely only one; the three basal bristles arranged in a more or less straight line (Figs 90, 93, 98) or middle basal bristle displaced anteriorly (Fig. 91–92, 99), sometimes an additional parabasilar bristle present (Fig. 96). Proepisternum (propleuron) usually bare (Fig. 103), less often covered with hairs (Fig. 102), always with one or two anterodorsally directed bristles at lower margin. Proepimeron with one or more anterodorsally directed bristles (Fig. 102), the lower bristle inclined anteroventrally in a few genera (Fig. 103). Prosternum bare (Fig. 134) or with one or more hairs or setulae along lateral margins (Figs 135–136); in Ormiini the prosternum is strongly swollen (including the articulating membrane, Fig. 137), which is considered to be a receptor of acoustic signals of their hosts (Lakes-Harlan and Heller 1992). Scutum usually with four (rarely five) narrow dark longitudinal stripes (Figs 81–82), in some genera (especially in Minthoini) with only two broad narrow stripes (Fig. 83) or sometimes entirely dark or densely pruinose, without stripes. Scutum with four pairs of longitudinal rows of bristles: the median paired row of acrostichal bristles, lateral to it one row each of dorsocentral, intra-alar and supra-alar bristles (Figs 2–3, 84–89). The full number of setae on scutum is: three presutural and three postsutural acrostichal bristles, three presutural and four postsutural dorsocentral bristles, one presutural and three postsutural intra-alar bristles, three postsutural supra-alar bristles. Many genera (mainly in Phasiinae) have a reduced number of bristles (Figs 87–89); in rare cases there are one or two additional bristles. A strong presutural bristle is almost always present,

inserted anteriorly between the rows of supra-alar and intra-alar bristles (Fig. 2). It is usually placed near the supra-alar bristles, but sometimes before the intra-alar bristles; a clear decision, whether this bristle really belongs to the row of supra-alar bristles is not possible, thus the usual reference to it simply as 'presutural bristle' is justified. Additional bristles on scutum between postpronotum and postsutural supra-alar and intra-alar bristles are either referred to as 'posthumeral' or as presutural supra-alar or intra-alar bristles, but a clear assignment to one of those rows is usually not possible; (presutural bristles on scutum before the rows of both supra-alar bristles and intra-alar bristles are of no importance in the key to the genera). In most Phasiinae (but also in several genera outside this group) two widely separated postsutural intra-alar bristles present (Figs 88–89), or its number is reduced to one (Fig. 87) or even none. First postsutural supra-alar bristle (pre-alar bristle) strong (as in Eryciini and Goniini, Figs 2–3) or weak (as in Exoristini and Blondelliini, Fig. 85), sometimes entirely absent; in Exoristini an additional smaller bristle usually present between second and third postsutural supra-alar bristle (Fig. 85). Notopleuron with two (Figs 2–3, 84–89) or (rarely) three bristles. Postal callus usually with two (Figs 2–3), rarely one or three bristles.

Scutellum usually with four pairs of bristles along its margin: basal, lateral, subapical and apical bristles (Figs 117, 121–122). Basal scutellar bristles seldom absent or hair-like (Figs 116, 120). Lateral scutellar bristles usually distinctly shorter than subapical bristles (Figs 119, 122), sometimes absent or hair-like (Figs 124, 128, 130, 132–133), as long and strong as subapical bristles (Figs 114, 120, 123), or two or more pairs are present (Figs 118, 131). Subapical scutellar bristles usually the strongest pair of bristles on scutellum (Figs 119, 122, 130), rarely weak and not extending back to level of apices of apical bristles (Fig. 117); usually divergent (Figs 114, 120) or subparallel (Fig. 119), rarely convergent (Fig. 122). Apical scutellar bristles usually weak (Figs 119, 121–122), less often strong (Figs 117, 128, 130–133) or absent (Figs 114, 120, 123); they may be crossed (Figs 117,

122, 130–133), parallel (Fig. 121) or divergent (Fig. 119), horizontal (Fig. 125) or more or less erect (Figs 3, 126–127). When only two pairs of scutellar bristles are present on margin (Figs 115, 124, 129), it is sometimes difficult to decide

whether the most apical pair belongs to subapical or apical bristles. In rare cases the subapical bristles are the only pair of marginal bristles (Fig. 116). Dorsal surface of scutellum with (Figs 119, 121) or without one or more pairs of discal bristles



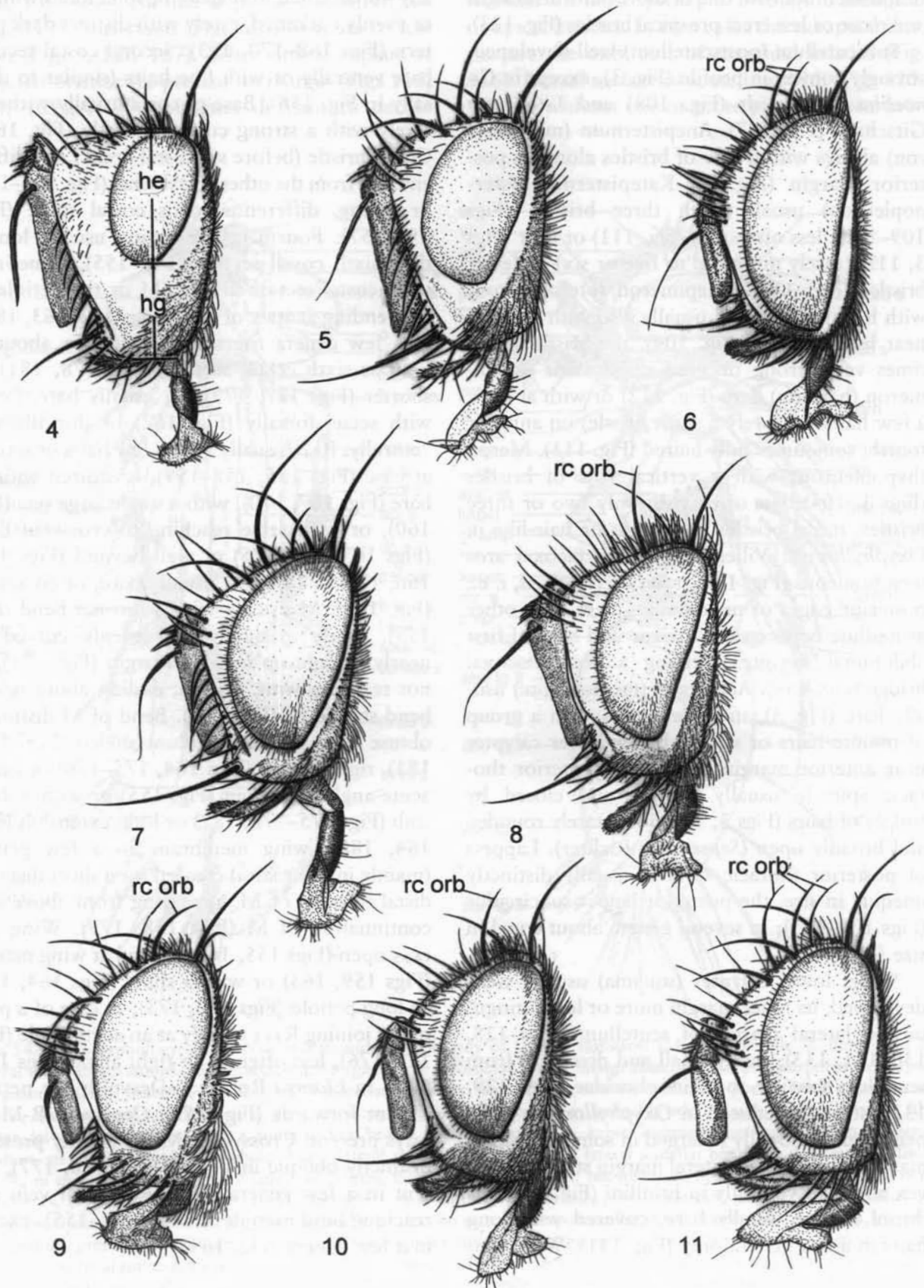
Figs 54.2–3. Morphology, chaetotaxy and terminology of body of *Lydella stabulans* (Meigen), female. 2: dorsal and 3: lateral view (abbreviations: abd tg: abdominal tergite, acr s: acrostichal bristle, anatg: anatergite, anepm: anepimeron, anepst: anepisternum, ant: antenna, ap sctl s: apical scutellar bristle, ar: arista, a spr: anterior spiracle, b pprn s: basal postpronotal bristle, b sctl s: basal scutellar bristle, dc s: dorsocentral bristle, fr: frons, fr s: frontal bristle, gr amp: greater ampulla, hlt: halter, ial s: intra-alar bristle, i vt s: inner vertical bristle, kepm: katepimeron, kepst: katepisternum, gn: gena, gn dil: genal dilation, gn s: genal bristle, lbl: labella, l m s: lateral marginal bristle, l sctl s: lateral scutellar bristle, m ds s: median discal bristle, m m s: median marginal bristle, mr: meron, mr s: meral bristle, npl: notopleuron, npl s: notopleural bristle, ocp: occiput, oc s: ocellar bristle, oc tr: ocellar triangle, o vt s: outer vertical bristle, pafc: parafacial, pal cal: postalar callus, pc orb s: proclinate orbital bristle, plp: palpus, pocl s: postocular seta, poc s: postocellar bristle, pprn: postpronotum, premnt: prementum, prepm s: proepimeral bristle, prepst: proepisternum, presut s: presutural bristle, p spr: posterior spiracle, psut spal s: postsutural supra-alar bristle, rc orb s: reclinate orbital bristle, sbap sctl s: subapical scutellar bristle, sbsctl: subscutellum, sctl: scutellum, spal s: supra-alar bristle, trn sut: transverse suture, vb: vibrissa, wg b: wing base).

gles, sometimes with one or more pairs of straight and more or less erect preapical bristles (Fig. 123).

Subscutellum (postscutellum) well-developed, strongly convex in profile (Fig. 3), except in *Cinnochira* Zetterstedt (Fig. 108) and *Litophasia* Girschner (Fig. 107). Anepisternum (mesopleuron) always with a row of bristles along its posterior margin (Fig. 3). Katepisternum (sternopleuron) usually with three bristles (Figs 109–110), less often two (Fig. 111) or four (Figs 3, 112), rarely more (up to five or six) or fewer bristles (Fig. 113). Anepimeron (pteropleuron) with hairs (Fig. 3) and usually also with a bristle near base of wing (Fig. 104), the bristle sometimes very strong or even duplicated. Katepimeron (barrette) bare (Fig. 112) or with at most a few hairs (or rarely a short bristle) on anterior fourth, sometimes fully haired (Fig. 111). Meron (hypopleuron) with a vertical row of bristles (Figs 3, 104), less often with only two or three bristles, meral bristles are absent or hair-like in *Oxyphyllomyia* Villeneuve. Postmetacoxal area membranous (Fig. 139), rarely sclerotized, i. e., posterior edges of metepimera meet each other at midline between hind coxae and base of first abdominal sternite, forming a postmetacoxal bridge (Fig. 138). Anatergite (mediotergite) usually bare (Fig. 3), in some genera with a group of minute hairs or setulae below lower calypter near anterior margin (Fig. 104). Anterior thoracic spiracle usually narrow and closed by fringes of hairs (Figs 3, 102–103), rarely rounded and broadly open (*Sepseocara* Richter). Lappets of posterior thoracic spiracle usually distinctly unequal in size, the posterior lappet subcircular (Figs 104–105); in several genera about equal in size (Fig. 106).

Wing: lower calypter (squama) usually well-developed, its inner margin more or less contiguous to lateral margin of scutellum (Figs 128, 130–131, 133); rarely small and divergent from scutellum (similar to Rhinophoridae, Figs 129, 132); strongly reduced in *Oxyphyllomyia* Villeneuve; exceptionally enlarged in some Leucostomatini (Fig. 130); its lateral margin strongly convex and bent ventrally in Ethillini (Fig. 128); its dorsal surface usually bare, covered with long hairs in a few genera only (Fig. 131). Wing usu-

ally unpatterned, transparent, sometimes whitish or evenly darkened, rarely with distinct dark pattern (Figs 168–170, 173). Second costal section bare ventrally or with fine hairs (similar to dorsally in Fig. 156). Base of costa usually without, rarely with a strong costigial bristle (Fig. 165). Costal bristle (before subcostal break) not differentiated from the other costal setae (Figs 165–172) or strong, differentiated as costal spine (Figs 155–157). Fourth costal section usually longer than sixth costal section (Fig. 155), sometimes sixth costal section absent (M or the petiole of r_{4+5} ending at apex of wing, Figs 162–163, 182), in a few genera fourth costal section about as long as sixth costal section (Figs 178, 181) or shorter (Figs 177, 179). R_1 usually bare, rarely with setae dorsally (Fig. 162) or dorsally and ventrally. R_{4+5} usually with a few hairs or setulae at base (Figs 155, 158–159), less often entirely bare (Figs 167, 170), with a single large seta (Fig. 160), or with setae reaching to crossvein R-M (Figs 163–164, 175) or well beyond (Figs 162, 166, 177–178). CuA_1 usually bare, rarely setose (Fig. 162). M usually with a distinct bend (Fig. 155), rarely gradually and evenly curved or nearly straight up to wing margin (Fig. 171), or not reaching wing margin, ending about where bend should be (Fig. 160). Bend of M distinctly obtuse (Figs 162–163), blunt-angled (Figs 173, 181), right-angled (Figs 164, 175–176) or rarely acute-angled; without (Fig. 155) or with a short stub (Figs 175–176, 182) or long extension (Figs 164, 180); wing membrane in a few genera (mainly in Exoristini) creased for a short distance distal to bend of M, appearing from above as a continuation of M (Figs 158, 179). Wing cell r_{4+5} open (Figs 155, 169), closed at wing margin (Figs 159, 163) or with a short (Figs 164, 182) or long petiole (Figs 170, 173); in case of a petiole M joining R_{4+5} usually at an acute angle (Figs 175–176), less often at a right angle (Figs 170, 174), in *Elomya* Robineau-Desvoidy the petiole is bent forwards (Fig. 167). Crossvein R-M always present. Crossvein dM-Cu usually present, distinctly oblique in Voriini (Figs 166, 177), absent in a few genera (Fig. 160). Anal vein not reaching hind margin of wing (Fig. 155), except in a few genera (Fig. 163).



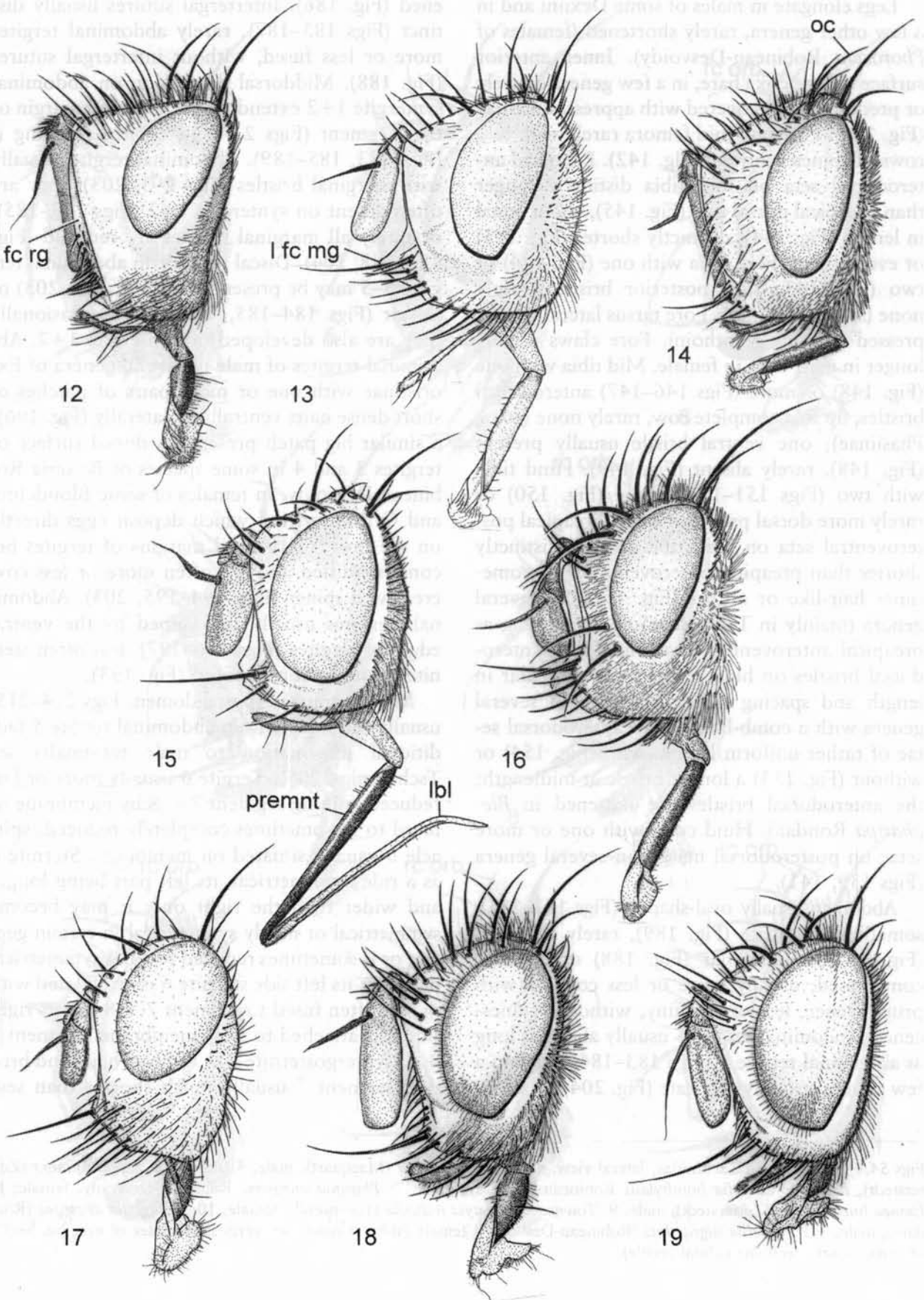
Legs elongate in males of some Dexiini and in a few other genera, rarely shortened (females of *Phorocera* Robineau-Desvoidy). Inner anterior surface of fore coxa bare, in a few genera entirely or predominantly covered with appressed setulae (Fig. 140). Fore and mid femora rarely with two rows of spines ventrally (Fig. 142). Preapical anterodorsal seta on fore tibia distinctly longer than preapical dorsal seta (Fig. 145), about equal in length (Fig. 144), distinctly shorter (Fig. 143) or even absent. Fore tibia with one (Fig. 144) or two (Figs 143, 148) posterior bristles, rarely none (some Phasiinae). Fore tarsus laterally compressed in some Minthoini. Fore claws usually longer in male than in female. Mid tibia with one (Fig. 148) or more (Figs 146–147) anterodorsal bristles, up to a complete row, rarely none (some Phasiinae); one ventral bristle usually present (Fig. 148), rarely absent (Fig. 149). Hind tibia with two (Figs 151–152), three (Fig. 150) or rarely more dorsal preapical setae. Preapical posteroventral seta on hind tibia usually distinctly shorter than preapical anteroventral seta, sometimes hair-like or absent (Fig. 152); in several genera (mainly in Tachininae) nearly as long as preapical anteroventral seta (Fig. 151). Anterodorsal bristles on hind tibia usually irregular in length and spacing (Figs 150–151), in several genera with a comb-like row of anterodorsal setae of rather uniform length, with (Fig. 154) or without (Fig. 153) a longer bristle at midlength; the anterodorsal bristles are flattened in *Blepharipa* Rondani. Hind coxa with one or more setae on posterodorsal margin in several genera (Figs 139, 141).

Abdomen usually oval-shaped (Figs 183–185), sometimes elongate (Fig. 189), rarely flattened (Fig. 187), subglobular (Fig. 188) or laterally compressed; usually more or less covered with pruinescence, less often shiny, without pruinescence. Abdominal tergite 5 usually about as long as abdominal tergite 4 (Figs 183–184, 203), in a few genera strongly elongate (Fig. 204) or short-

ened (Fig. 186). Intertergal sutures usually distinct (Figs 183–187), rarely abdominal tergites more or less fused, without intertergal sutures (Fig. 188). Middorsal depression on abdominal syntergite 1+2 extending back to hind margin of that segment (Figs 2, 184), or not reaching it (Figs 183, 185–189). Abdominal tergites usually with marginal bristles (Figs 2–3, 203), they are often absent on syntergite 1+2 (Figs 183–185), or rarely all marginal bristles are reduced (Figs 187–188, 204). Discal bristles on abdominal tergites 3–5 may be present (Figs 2–3, 183, 203) or absent (Figs 184–185, 189, 205); occasionally they are also developed on syntergite 1+2. Abdominal tergites of male in several genera of Exoristinae with one or more pairs of patches of short dense hairs ventrally or laterally (Fig. 196); a similar big patch present on dorsal surface of tergites 3 and 4 in some species of *Besseria* Robineau-Desvoidy. In females of some Blondeliini and *Cylindromyiini* which deposit eggs directly on the host, the ventral margins of tergites become modified and are often more or less covered with spines (Figs 194–195, 203). Abdominal sternites usually overlapped by the ventral edges of tergites (Figs 196–197), less often sternites more or less exposed (Fig. 193).

Male terminalia (postabdomen, Figs 214–215) usually retracted within abdominal tergite 5 (additional information to male terminalia see Tschorsnig 1985). Tergite 6 usually more or less reduced, joining segment 7 + 8 by membrane or fused to it, sometimes completely reduced; spiracle 6 usually situated on membrane. Sternite 6 as a rule asymmetrical, its left part being longer and wider than the right one; it may become symmetrical or nearly symmetrical in certain genera, or is sometimes reduced to a flat symmetrical plate; on its left side sternite 6 is articulated with or less often fused to segment 7 + 8, on its right side it is attached to it by membrane. Segment 7 + 8 (syntergosternite 7 + 8) bears hairs and bristles; segment 7 usually much shorter than seg-

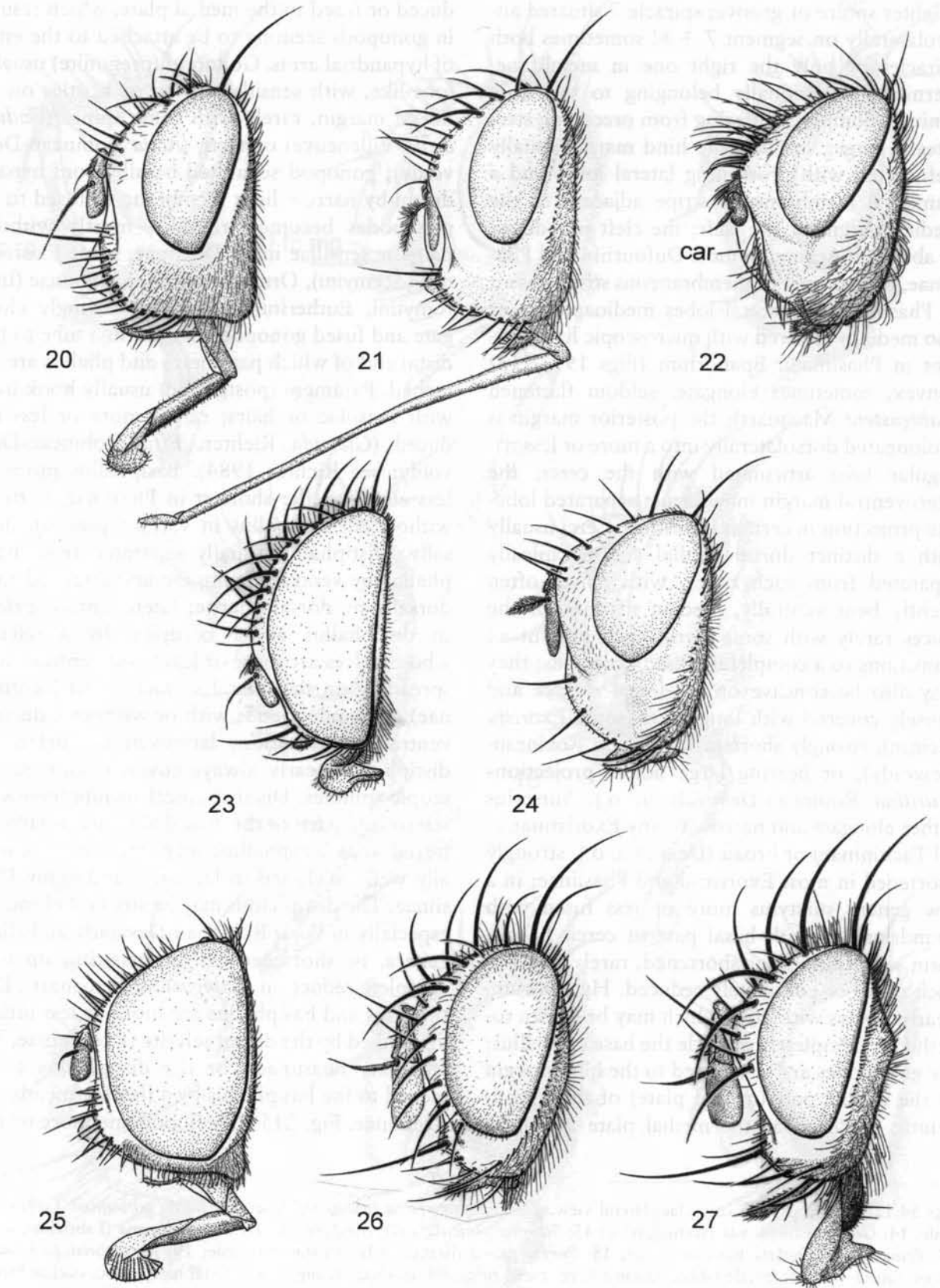
Figs 54.4–11. Heads of Tachinidae, lateral view. 4: *Istocheta cinerea* (Macquart), male; 5: *Admontia maculisquama* (Zetterstedt), male; 6: *Carcelia bombylans* Robineau-Desvoidy, male; 7: *Phorinia aurifrons* Robineau-Desvoidy, female; 8: *Eumea linearicornis* (Zetterstedt), male; 9: *Townsendiellomyia nidicola* (Townsend), female; 10: *Catagonia aberrans* (Rondani), male; 11: *Phebellia nigripalpis* (Robineau-Desvoidy), female (abbreviations: he: vertical diameter of eye; hg, height of gena, rc orb: reclinate orbital bristle).



ment 8, the border between them often visible as a lighter suture or groove; spiracle 7 situated anterolaterally on segment 7 + 8, sometimes both spiracles or only the right one in membrane. Sternite 5 functionally belonging to the male genitalia complex, differing from preceding sternites in larger size and the hind margin usually cleft, often with protruding lateral lobes and a transversal membraneous stripe adjacent to the medial margin of the cleft; the cleft is reduced or absent in Acemyini, most Dufouriini and Phasiinae, the transversal membraneous stripe absent in Phasiinae; the lateral lobes medioapically or also medially covered with microscopic hairs (absent in Phasiinae). Epandrium (Figs 197, 213) convex, sometimes elongate, seldom flattened (*Labigastera* Macquart); the posterior margin is prolonged dorsolaterally into a more or less triangular lobe articulated with the cerci; the lateroventral margin may form a separated lobe-like projection in certain Ernestiini. Cerci usually with a distinct dorsal medial suture, apically separated from each other, with apices often slightly bent ventrally, median margins of the apices rarely with some teeth; cerci present all transitions to a completely fused syncercus; they may also be concave on its dorsal surface and densely covered with long hairs (some *Exorista* Meigen), strongly shortened (*Peleteria* Robineau-Desvoidy), or bearing large dorsal projections (*Eurithia* Robineau-Desvoidy a. o.). Surstylus rather elongate and narrow (many Exoristinae and Tachininae) or broad (Dexiini a. o.), strongly shortened in most Exoristini and Phasiinae; in a few genera surstylus more or less fused with epandrium or with basal part of cerci. Bacilli-form sclerites long or shortened, rarely fused to each other or completely reduced. Hypandrium nearly always with arms which may be drawn together or completely encircle the base of phallus; the gonopodes are articulated to the hind margin of the medial part (medial plate) of the hypandrium; in Phasiinae the medial plate is length-

ened backwards, hypandrial arms may be reduced or fused to the medial plate, which results in gonopods seeming to be attached to the ends of hypandrial arms. Gonopod (pregonite) usually lobe-like, with sensillae, hairs, or bristles on its dorsal margin, rarely with some spines (*Cadurciella* Villeneuve) or teeth (*Actia* Robineau-Desvoidy); gonopod separated basally from hypandrium by narrow light membrane or fused to it; gonopodes become strap-like, mostly without hairs or sensillae in all Dexiinae, some Exoristinae (Acemyini), Ormiini and some Phasiinae (Imitomiyini, Eutherini); sometimes strongly elongate and fused gonopods may form a tube to the distal end of which parameres and phallus are attached. Paramere (postgonite) usually hook-like, with sensillae or hairs; rarely more or less reduced (*Gwenda* Richter, *Elfia* Robineau-Desvoidy; see Richter 1984). Basiphallus more or less elongate, the shortest in Phasiinae, with or without an epiphallus in various position dorsally. Distiphallus usually separated from basiphallus by ventral membrane and attached to it dorsally by dorsal sclerite; lateroventral surface of distiphallus either occupied by a sclerite whose halves are more or less fused ventrally and spreading on the lateral surface (most Exoristinae) or membraneous with or without a distinct ventral sclerotization; lateroventral surface of distiphallus nearly always covered with microscopic spinules. Distinct apical membraneous or sclerotized parts of the distiphallus are usually referred to as acrophallus; such structures are usually well-developed in Dexiinae and many Phasiinae. The distiphallus may be strongly elongate, especially in *Voria* Robineau-Desvoidy and allied genera, or shortened (Strongygastrini) up to a complete reduction (*Labigastera* Macquart). Distiphallus and basiphallus are more or less inflexibly linked by the dorsal sclerite (Exoristinae, Tachininae, Phasiinae), or the distiphallus is attached to the basiphallus by a flexible membrane (Dexiinae, Fig. 215). Phallopodeme more or less

Figs 54.12–19. Heads of Tachinidae, lateral view. 12: *Pexopsis aprica* (Meigen), male; 13: *Bithia gorbunovi* Tschorsnig, male; 14: *Gonia distinguenda* Herting, male; 15: *Siphona geniculata* (DeGeer), male; 16: *Peleteria varia* (Fabricius), male; 17: *Petagnia subpetiolata* Rondani, male; 18: *Phryxe prima* (Brauer et Bergenstamm), male; 19: *Myxexoristops blondeli* (Robineau-Desvoidy), female (abbreviations: fc rg: facial ridge, lbl: labella; l fc mg: lower facial margin, oc: ocellar bristle, premnt: prementum).

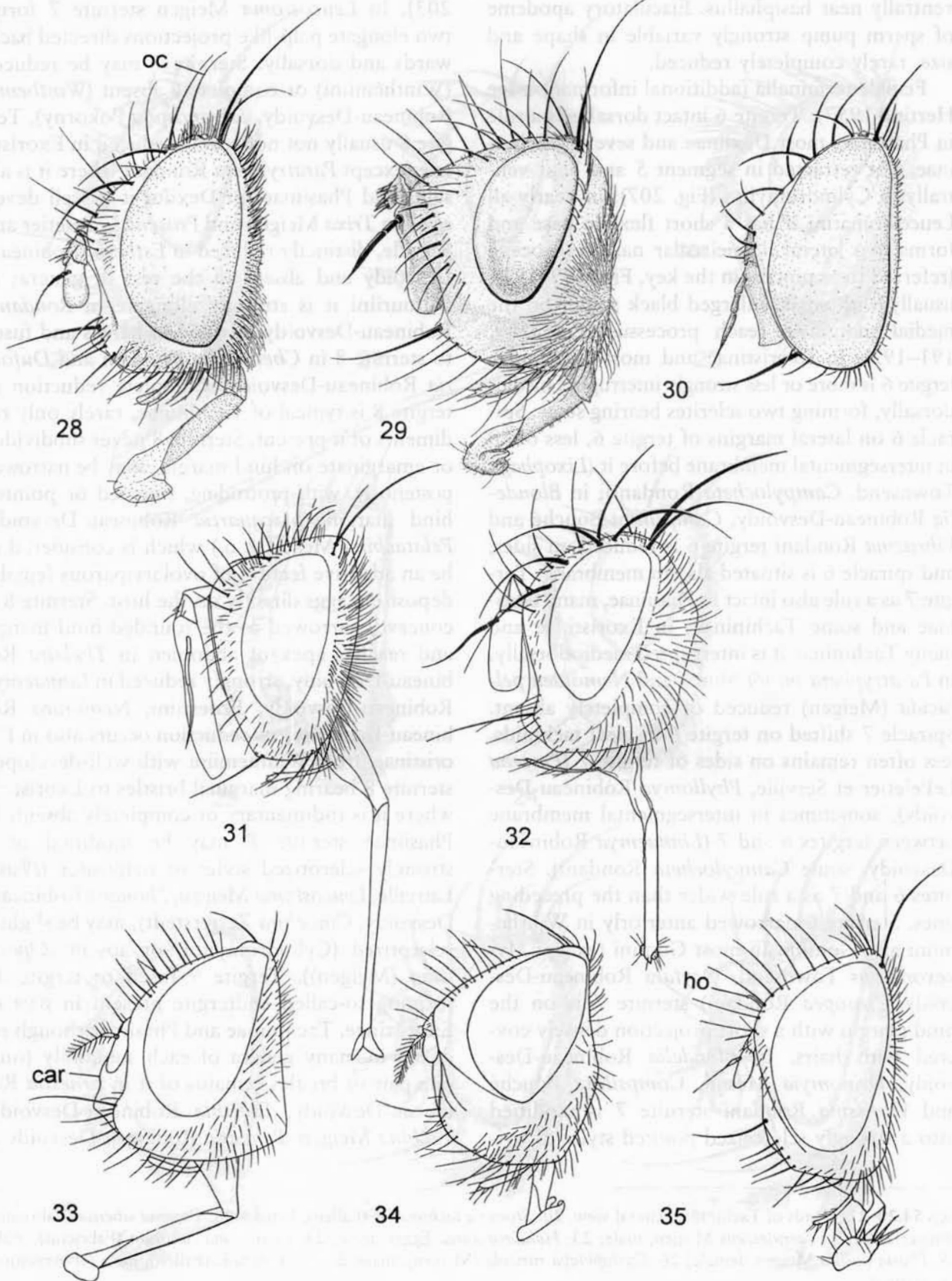


elongate, usually with a process (intermedium) ventrally near basiphallus. Ejaculatory apodeme of sperm pump strongly variable in shape and size, rarely completely reduced.

Female terminalia (additional information see Herting 1957): Tergite 6 intact dorsally as a rule in Phasiinae, most Dexiinae and several Tachininae, not retracted in segment 5 and bent ventrally in *Cylindromyiini* (Fig. 207); in nearly all Leucostomatini it has a short flexible base and forms two lateral hemicircular narrow processi (referred to as pincers in the key, Figs 189–192), usually with some enlarged black spines on the medial margin of each processus (Figs 189, 191–192). In Exoristinae and most Tachininae tergite 6 is more or less strongly interrupted medio-dorsally, forming two sclerites bearing setae. Spiracle 6 on lateral margins of tergite 6, less often in intersegmental membrane before it (*Lixophaga* Townsend, *Campylocheta* Rondani); in *Blondelia* Robineau-Desvoidy, *Compsilura* Bouché and *Vibrissina* Rondani tergite 6 is reduced on sides, and spiracle 6 is situated also in membrane. Tergite 7 as a rule also intact in Phasiinae, many Dexiinae and some Tachininae; in Exoristinae and many Tachininae it is interrupted mediodorsally, in *Paratryphera minor* Shima and *Nemoraea pelucida* (Meigen) reduced or completely absent. Spiracle 7 shifted on tergite 6 in most tachinids, less often remains on sides of tergite 7 (*Prosenia* LePeletier et Serville, *Phyllomya* Robineau-Desvoidy), sometimes in intersegmental membrane between tergites 6 and 7 (*Linnaemya* Robineau-Desvoidy, some *Campylocheta* Rondani). Sternites 6 and 7 as a rule wider than the preceding ones. Sternite 6 narrowed anteriorly in Winthemiini and Goniini. In most Goniini (except *Myxexoristops* Townsend, *Ocytata* Robineau-Desvoidy, *Prosopea* Rondani) sternite 7 is on the hind margin with a short projection densely covered with hairs. In *Blondelia* Robineau-Desvoidy, *Drinomyia* Mesnil, *Compsilura* Bouché and *Vibrissina* Rondani sternite 7 is modified into a strongly sclerotized pointed stylet of ovi-

positor, directed ventrally and forwards (Fig. 203). In *Leucostoma* Meigen sternite 7 forms two elongate palp-like projections directed backwards and dorsally. Sternite 7 may be reduced (Winthemiini) or completely absent (*Winthemia* Robineau-Desvoidy, *Trigonospila* Pokorny). Tergite 8 usually not noticeably reduced in Exoristinae (except *Paratryphera* Rondani where it is absent) and Phasiinae; in Dexiini it is well developed in *Trixa* Meigen and *Prosenia* LePeletier and Serville, distinctly reduced in *Estheria* Robineau-Desvoidy and absent in the rest of genera; in Dufouriini it is strongly elongate in *Rondania* Robineau-Desvoidy, divided in halves and fused to sternite 8 in *Chetoptilia* Rondani and *Dufouria* Robineau-Desvoidy. Complete reduction of tergite 8 is typical of Tachininae, rarely only rudiments of it present. Sternite 8 never subdivided or emarginate on hind margin, may be narrowed posteriorly, with protruding, rounded or pointed hind margin (*Macquartia* Robineau-Desvoidy, *Pelatachina* Meade a. o.) which is considered to be an adaptive feature of ovoviparous females depositing eggs directly on the host. Sternite 8 is concave, narrowed to the rounded hind margin and reaches apex of abdomen in *Thelaira* Robineau-Desvoidy, strongly reduced in *Linnaemya* Robineau-Desvoidy, Ernestiini, *Nemoraea* Robineau-Desvoidy; its reduction occurs also in Exoristinae, from Winthemiini with well-developed sternite 8 bearing marginal bristles to Exoristini, where it is rudimentary or completely absent. In Phasiinae sternite 8 may be modified in a strongly sclerotized stylet of ovipositor (*Phasia* Latreille, *Leucostoma* Meigen, *Dionaea* Robineau-Desvoidy, *Cinochira* Zetterstedt), may be slightly sclerotized (*Cylindromyiini*) or absent (*Opesia cana* (Meigen)). Tergite 9 fused to tergite 10 forming so-called endtergite present in part of Exoristinae, Tachininae and Phasiinae though reduced in many genera of each subfamily (only one pair of bristles remains of it in *Ernestia* Robineau-Desvoidy, *Eurithia* Robineau-Desvoidy, *Tachina* Meigen, *Peleteria* Robineau-Desvoidy a.

Figs 54.20–27. Heads of Tachinidae, lateral view. 20: *Stomina tachinoides* (Fallén), female; 21: *Prosenia siberita* (Fabricius), female; 22: *Trixa caerulescens* Meigen, male; 23: *Halidaya aurea* Egger, male; 24: *Dexiosoma caninum* (Fabricius), male; 25: *Phasia pusilla* Meigen, female; 26: *Cyrtophleba ruficollis* (Meigen), male; 27: *Voria ruralis* (Fallén), male (abbreviation: car: carina).



o.). In Dexiinae the endtergite is reduced completely, its rudiments remaining only in *Trixa* Meigen. Postgenital plate (sternite 10; fused sternites 9 and 10) may be slightly sclerotized, except the margins only or is strongly sclerotized in Dexiinae, flattened and triangular in some Phasiinae, elongate and bent parallel to the stylet formed by sternite 8 in *Catharosia* Rondani.

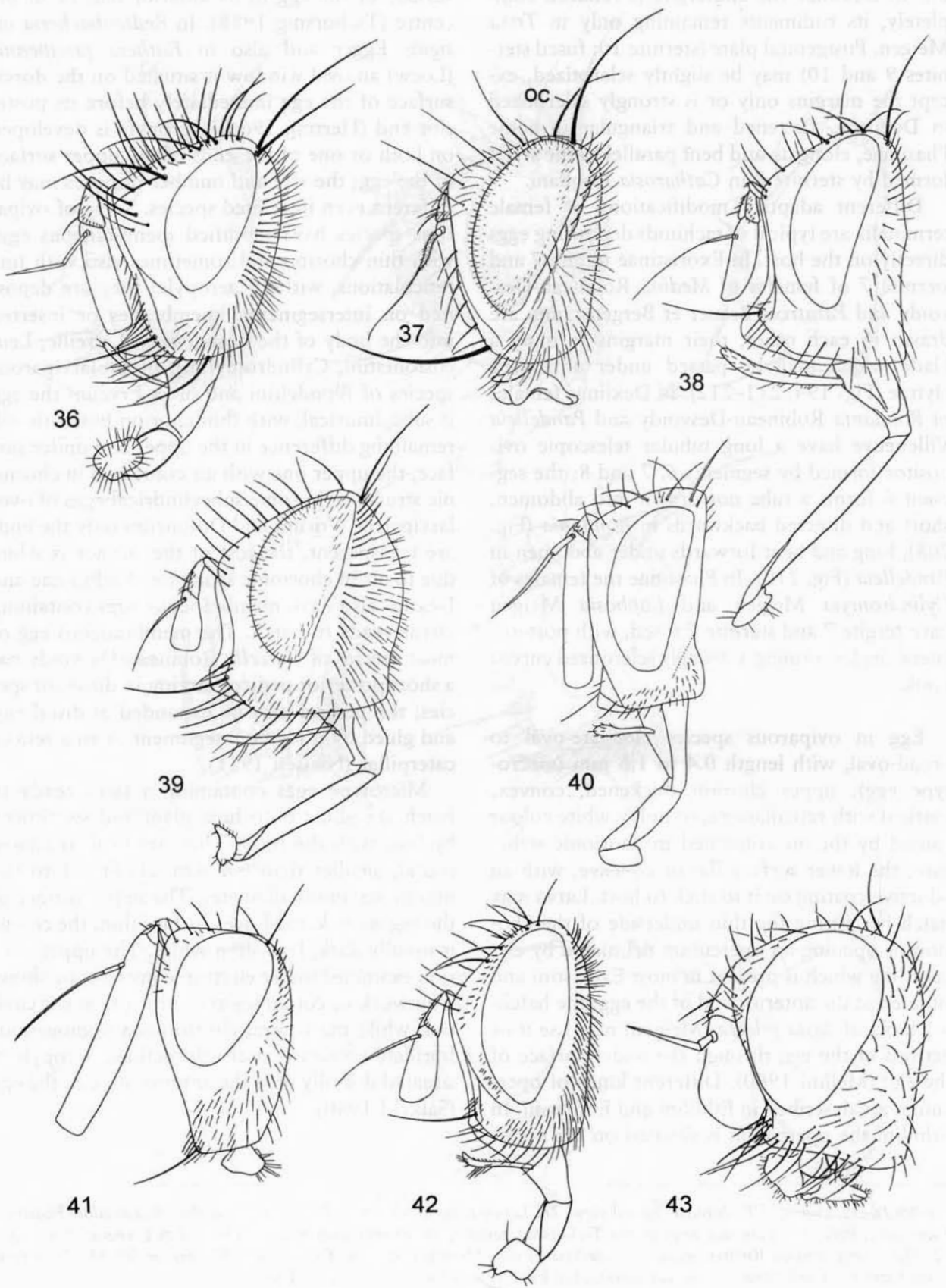
Different adaptive modifications of female terminalia are typical of tachinids depositing eggs directly on the host. In Exoristinae tergite 7 and sternite 7 of females of *Medina* Robineau-Desvoidy and *Paratrixa* Brauer et Bergenstamm are drawn to each other, their margins forming a blade which may be passed under a beetle's elytrae (Figs 194, 211–212). In Dexiinae females of *Rondania* Robineau-Desvoidy and *Pandelleia* Villeneuve have a long tubular telescopic ovipositor formed by segments 6, 7 and 8; the segment 6 forms a tube not drawn into abdomen, short and directed backwards in *Rondania* (Fig. 208), long and bent forwards under abdomen in *Pandelleia* (Fig. 210). In Phasiinae the females of *Cylindromyia* Meigen and *Lophosia* Meigen have tergite 7 and sternite 7 fused, with posterolateral angles forming a strongly sclerotized curved hook.

Egg in oviparous species elongate-oval to broad-oval, with length 0.4 to 1.6 mm (macrotype egg); upper chorion thickened, convex, marked with reticulations, of milky white colour caused by the air contained in chorionic structure; the lower surface flat or concave, with an adhesive coating on it to stick to host. Larva may hatch by cutting the thin underside of the chorion or opening an operculum delimited by cleavage line which is present in most Exoristini and situated at the anterior end of the egg; the hatching larva of *Bessa selecta* (Meigen) may use it or get out of the egg through the under surface of the egg (Mellini 1960). Different kinds of operculum are described in Ethillini and Eutherini. In Ethillini the operculum is situated on the upper

surface of the egg in its anterior half or in the centre (Tschorsnig 1988). In *Redtenbacheria insignis* Egger and also in *Euthera fascipennis* (Loew) an oval window is situated on the dorsal surface of the egg immediately before its posterior end (Herting 1966). Aeropyle is developed on both or one of the ends of the upper surface of the egg; the size and number of pores may be different even in related species. Some of oviparous species have modified membranous eggs with thin chorion and sometimes also with fine reticulations, without aeropyle; they are deposited on intersegmental membranes or inserted into the body of the host (*Phasia* Latreille, Leucostomatini, Cylindromyiini). In ovolarviparous species of Blondeliini and most Eryciini the egg is subcylindrical, with thin chorion but with still remaining difference in the upper and under surface, the upper one with air contained in chorionic structure. In some subcylindrical eggs of ovolarviparous Voriini and Dufouriini only the ends are transparent, the rest of the surface is white due to air in chorionic structure. Tachininae and Dexiini also have membranous eggs containing larvae ready to hatch. The membranous egg of most species of *Carcelia* Robineau-Desvoidy has a short posterior pedicel varying in different species; the pedicel may be expanded at distal end and glued by it to the integument or to a seta of caterpillar (Nielsen 1911).

Microtype eggs containing a larva ready to hatch are glued onto host plant and swallowed by host with the food. They are oval to almost round, smaller than 0.4 mm, about 0.1 to 0.4 mm in maximum diameter. The upper surface of the egg is thick, the lower surface thin, the colour is usually dark, less often white. The upper chorion examined under electronic microscope shows a network of columnes and interconnected cavities, while the ventral chorion is a homogenous fibrillate structure; a clearly defined aeropyle is situated dorsally near the anterior pole of the egg (Salkeld 1980).

Figs 54.28–35. Heads of Tachinidae, lateral view. 28: *Leucostoma semibarbata* Tschorsnig, female; 29: *Engeddia hispanica* Tschorsnig, male; 30: *Bampura angustigena* Tschorsnig, female; 31: *Rhynchogonia algerica* Brauer et Bergenstamm, male; 32: *Hypovoria dentata* Richter, male; 33: *Riedelia bicolor* Mesnil, male; 34: *Ciala veleda* Richter, male; 35: *Richteriola beata* Richter, male (abbreviations: car: carina, ho: basal hook of scape, oc: ocellar bristle).

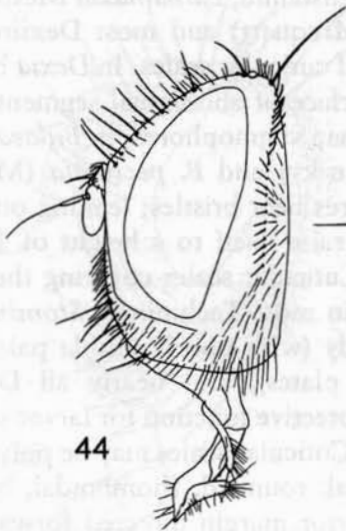


Larvae. *First instar larva* with strongly developed labrum fused to the rest of cephalopharyngeal skeleton. Homology of the anterior part of cephalopharyngeal skeleton of tachinids is widely accepted (Hennig 1973, Teskey 1981). Labrum elongate and pointed in most Exoristinae, some Tachininae, Voriini and Phasiinae, broadened with more or less pointed apex in all Dexiini, some Tachininae and Voriini; the anterior margin of the labrum is often serrate in Exoristinae. The ventral margin of labrum is serrate in *Gymnosoma* and *Ectophasia*. Observations on living larva of *Thrixion aberrans* (Schiner) showed that the working labrum moves from the front backwards making by this move both perforation of the egg shell and the cuticle of the host. Mandibles not developed; no ventral pharyngeal ridges; a lateral sclerite whose shape varies with species on either side of labrum; a small sclerotized plate termed salivary gland sclerite beneath hypopharyngeal sclerite. Antennal sensory papillae usually small, may be flattened, discoidal or elongate cylindrical, two-segmented (*Admontia* Brauer et Bergenstamm, *Nemoraea pellucida* (Meigen), Palpostomini, *Thelaira* Robineau-Desvoidy, all Dexiini), also two-segmented but short (*Hyalurgus sima* (Zimin), *Atylostoma towadensis* (Matsumura)). The discoidal antennal papillae may be unusually large (*Cavillatrix calliphorina* Richter). Rarely the antennal papillae are elongate and ending in a long hair 1.6 of the length of the first thoracic segment (*Triarthria setipennis* (Fallén)). Maxillary sensory papillae small, elongate, inclined forwards and ventrally, with inflated apex in Dexiini and some Tachininae.

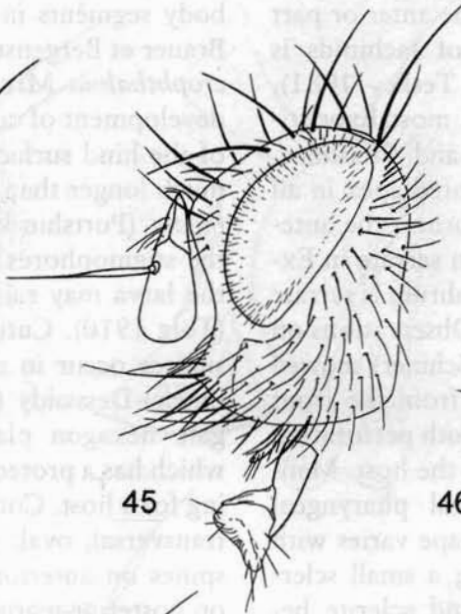
Cuticle of the larva primarily transparent, with bands of rows of microscopic spines on the anterior margin of thoracic and abdominal segments or on anterior and posterior margins of abdominal segments. The dorsal surface of thoracic segments is seldom strongly pigmented (*Loewia brevifrons* (Rondani)). Modifications of cuticular armature include: differentiation of spines in size, shape and sclerotization, especially

on abdominal segment 8 with most spines directed forwards, development of bristles on the body segments in some Tachininae (*Angiorhina* Brauer et Bergenstamm, *Parhamaxia* Mesnil, *Microphthalmia* Macquart) and most Dexiini, and development of cuticular scales. In *Dexia* bristles of the hind surface of abdominal segment 8 are much longer than stigmophores; in *Billaea intermedia* (Portshinsky) and *B. pectinata* (Meigen) the stigmophores bear bristles; leaning on them the larva may raise itself to a height of 1.5 cm (Tölg 1910). Cuticular scales covering the body surface occur in most Tachininae, *Stomina* Robineau-Desvoidy (with poorly visible pale elongate hexagon plates), and nearly all Dexiini, which has a protective function for larvae searching for a host. Cuticular scales may be polygonal, transversal, oval, rounded, rhomboidal, bearing spines on anterior margin directed forwards or on posterior margin directed backwards, bearing longitudinal or transversal keels. One larva may possess many types of cuticular scales; they are especially variable in *Dexia* Meigen. Cuticular scales may be present only on thoracic segments (*Macquartia praefica* (Meigen), *Dinera grisescens* (Fallén)). In Tachininae the ventral surface of the body usually bears no cuticular scales but only a band of spines along the anterior margin of segments. Development of large cuticular plates is also typical: in *Triarthria setipennis* (Fallén) and *Anthomyiopsis plagioderiae* Mesnil they cover the dorsal surface of each of thoracic segments and abdominal segments 1–7, in *Glaurocara flava* Thomson also the lateral surface of the body is covered by cuticular plates (Crosskey 1965); in *Therobia leonidei* (Mesnil) similarly arranged cuticular plates overlay the anterior margins of hind plates forming a real armour. Reduction of spines is less frequent: they are absent on all thoracic segments dorsally in *Ligeria angusticornis* (Loew) and *Campylocheta praecox* (Meigen), on the dorsal surface of all abdominal segments in *Drino inconspicua* (Meigen), *Gonia* Meigen and *Clausicella suturata* Rondani, and on the dorsal

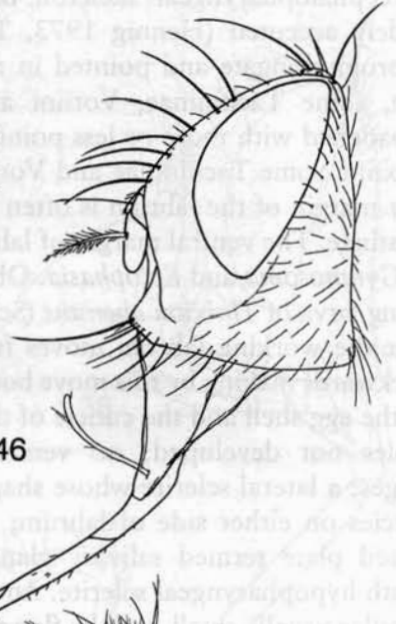
Figs 54.36–43. Heads of Tachinidae, lateral view. 36: *Germaria ruficeps* (Fallén), male; 37: *Campylocheta dentifera* Richter, male; 38: *Fischeria bicolor* Robineau-Desvoidy, female; 39: *Eriothrix apennina* (Rondani), male; 40: *Hasmica xanthocera* Richter, male; 41: *Magripa autumnalis* Richter, male; 42: *Naira nata* Richter, male; 43: *Corybantia flaviaristata* Richter, male (abbreviation: oc: ocellar bristle).



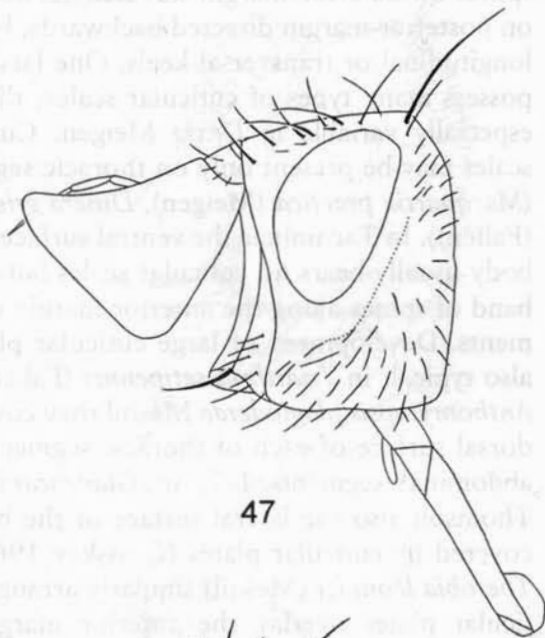
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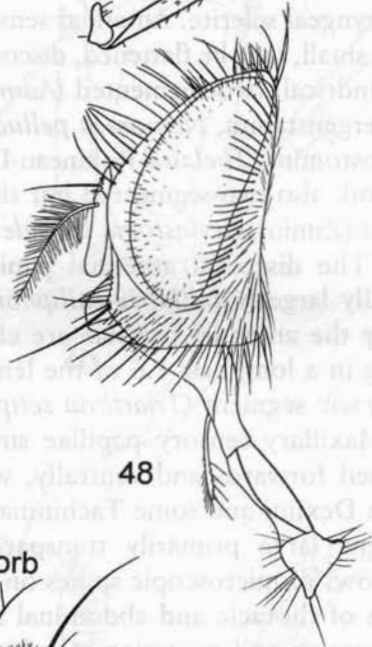
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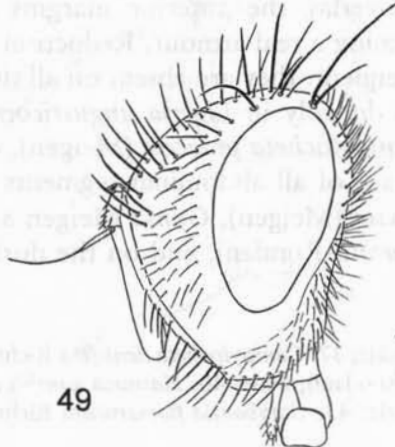
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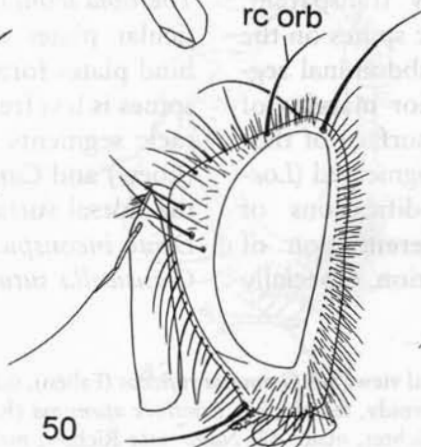
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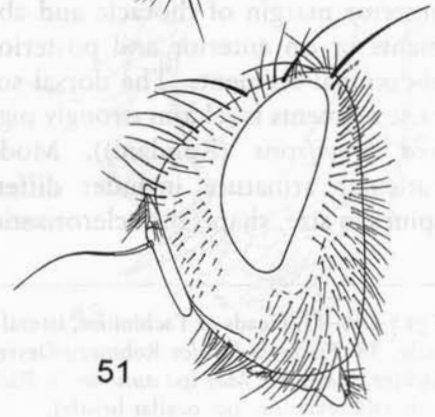
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surface of the entire body except thoracic segment 2 in *Phyllomya volvulus* (Fabricius). The ventral surface of the body also may lack spines completely (*Campylocheta praecox* (Meigen)); spines are lacking on all segments except for a group of spines around the hind spiracles in *Thrixion aberrans* (Schiner).

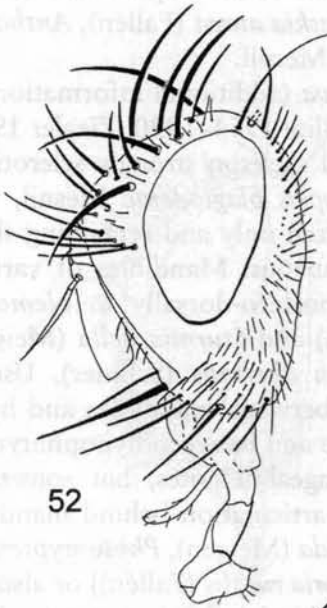
Most first instar larvae are metapneustic; each spiracle with two slits or rarely with a single V-shaped aperture. Stigmophores are present in *Dexia* Meigen, *Billaea* Robineau-Desvoidy, and *Milada* Richter (long, sinuate, non-pigmented), and *Ciala* Richter (short, narrow, directed backwards and dorsally). First instar larvae of some Goniini and Voriini are apneustic.

Second instar larva. Antennal and maxillary sensory papillae considerably less developed (small and rounded in *Triarthria setipennis* (Fallén)). Labrum reduced; paired mandibles well-developed in most species. One short cylindrical mandible in *Voria ruralis* (Fallén); a sole medial mandible, replaced in the third instar larva by short paired mandibles in *Phytomyptera nigrina* (Meigen) (Mellini 1954a); mandibles completely absent in *Thrixion aberrans* (Schiner) as in the first instar larva. Usually the hypopharyngeal sclerite is fused to the tentoropharyngeal sclerite, leaving one articulation between mandibles and hypopharyngeal sclerite. Cuticular armature strongly reduced or completely absent; if present, consisting of microscopic spines only. A large median sclerotized plate on the ventral surface of thoracic segment 2 is present in *Sturmia bella* (Meigen) and *Nemoraea pellucida* (Meigen). Usually larvae are amphipneustic, but some (Acemyini, *Ocytata pallipes* (Fallén), *Pales pavidus* (Meigen), *Clausicella suturata* Rondani and all investigated Phasiinae) remain metapneustic. Anterior spiracle usually elevated from surface of prothorax, with one or more (up to 50) papillate openings at apex. Each of posterior spiracles usually with two (sometimes three to six) slits, sometimes cuticular processes and groups of stout spines around spiracles

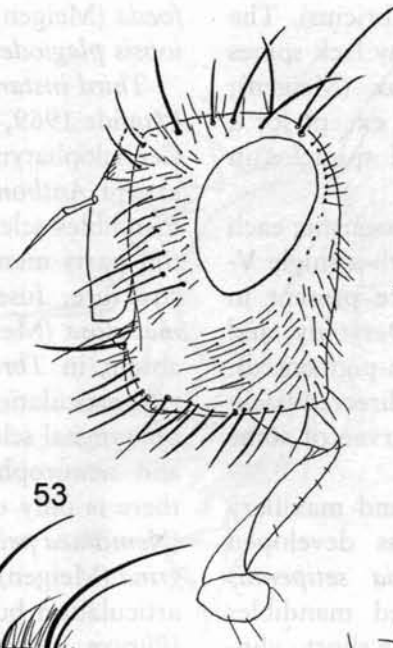
present. Few species remain apneustic: *Loewia foeda* (Meigen), *Leskia aurea* (Fallén), *Anthomyiopsis plagioderæ* Mesnil.

Third instar larva (additional information see Léonide 1969, Mellini 1954–1990, Ziegler 1998). Cephalopharyngeal skeleton strongly sclerotized, except *Anthomyiopsis plagioderæ* Mesnil, with mandibles sclerotized only and remaining skeleton parts membraneous. Mandibles of variable structure, fused postero-dorsally in *Nemorilla maculosa* (Meigen) and *Sturmia bella* (Meigen), absent in *Thrixion aberrans* (Schiner). Usually two articulations between mandibles and hypopharyngeal sclerite and between hypopharyngeal and tentoropharyngeal sclerites, but sometimes there is only one articulation behind mandibles (*Nemoraea pellucida* (Meigen), *Phytomyptera nigrina* (Meigen), *Voria ruralis* (Fallén)) or also one articulation but behind hypopharyngeal sclerite (*Phryxe vulgaris* (Fallén), *P. nemea* (Meigen), *Eumea linearicornis* (Zetterstedt)). Intact dorsal cornua of tentoropharyngeal sclerite is typical of tachinids; ventral carinae are fused forming a concave ventral sclerite in *Glaurocara* Thomson. Also typical of tachinids is the lack of parastomal bars. Body with numerous longitudinal and transversal grooves concealing distinct segmentation; ventral locomotory projections on the anterior margin of thoracic segments 2 and 3 and on abdominal segments 1 to 7 rather common. Cephalic segment bare, a group of spines may be present only near atrium. Cuticular armature comprises bands of microscopic spines; in *Cylindromyia* Meigen the body is covered with rounded or polygonal scales. Most larvae are amphipneustic; larvae of Acemyini, *Therobia* Brauer, *Glaurocara* Thomson and Phasiinae (except *Phania incrassata* Pandellé) remain metapneustic. Anterior spiracles of variable form and number of lobes and apertures. Posterior spiracles situated on the surface of abdominal segment 8, sometimes on conic projections (*Anthomyiopsis plagioderæ* Mesnil) or stigmophores (*Elodia* Robineau-Desvoidy, *Ocytata* Robineau-Desvoidy,

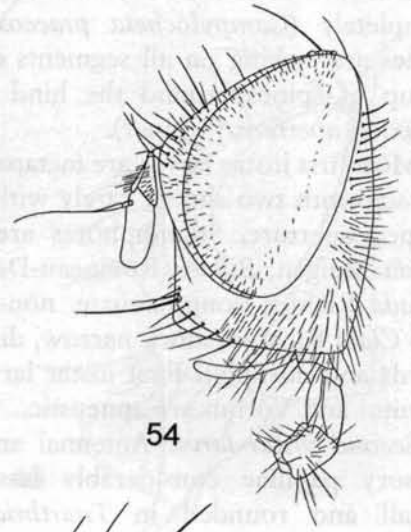
Figs 54.44–51. Heads of Tachinidae, lateral view. 44: *Arcona amuricola* Richter, female; 45: *Emporomyia caucasica* Richter, male; 46: *Dinera grisescens* (Fallén), male; 47: *Scomma gobica* Richter, male; 48: *Cavillatrix calliphorina* Richter, male; 49: *Manola xenocera* Richter, female; 50: *Dolichocolon paradoxum* Brauer et Bergenstamm, male; 51: *Pseudalsomyia hyrcanica* Richter, male (abbreviation: rc orb: reclinate orbital bristle).



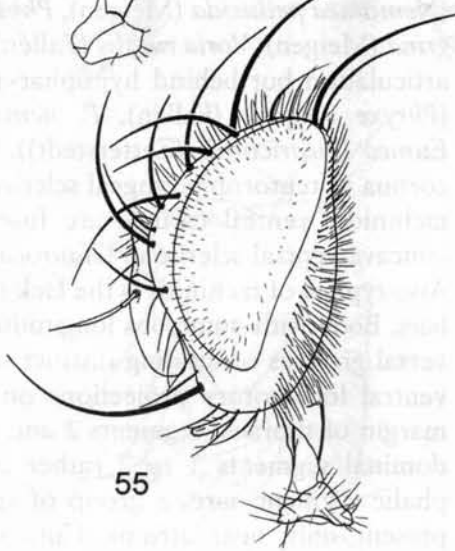
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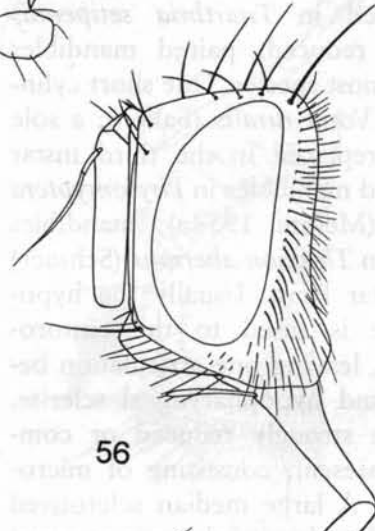
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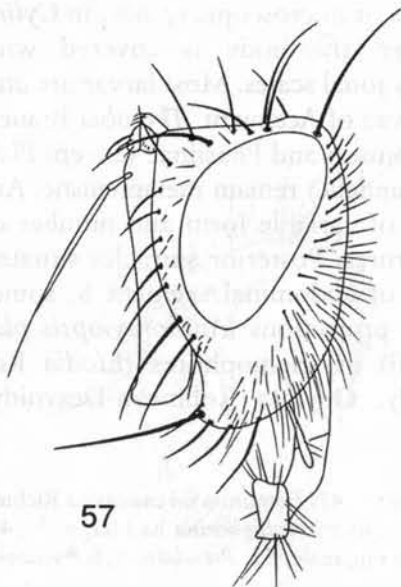
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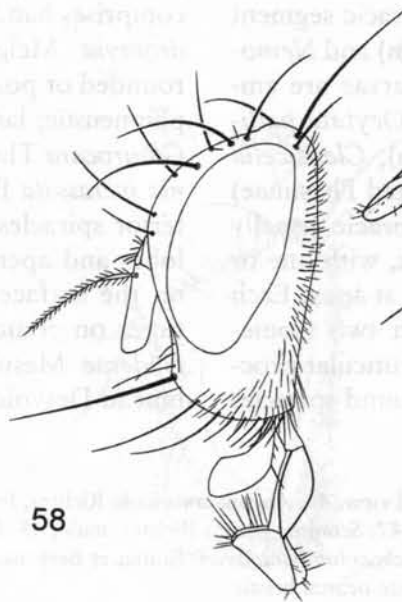
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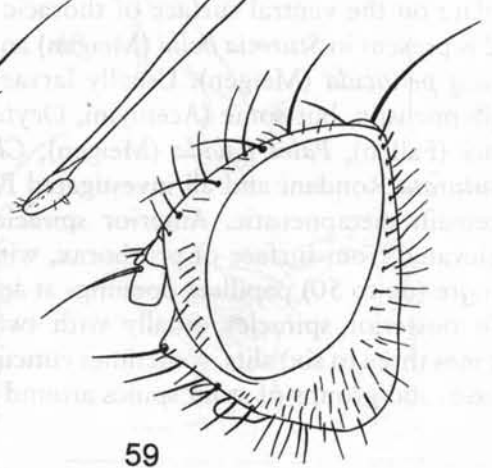
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Voria Robineau-Desvoidy, *Phasia* Latreille, *Clytiomya* Rondani, *Leucostoma* Meigen), very rarely sunken within a common cavity as in Sarcophagidae (*Estheria picta* (Meigen), *E. petiolata* (Bonsdorff)). Slits of the spiracles usually straight, sometimes curved or sinuose, with raised rims delimiting them; the slits may become subdivided or broken into a number of shorter slits or there may be a large number of pores instead of slits. The number of slits is usually three, it may increase to four, five or occasionally more. Sometimes the spiracular plate has one or several cuticular processes or spines.

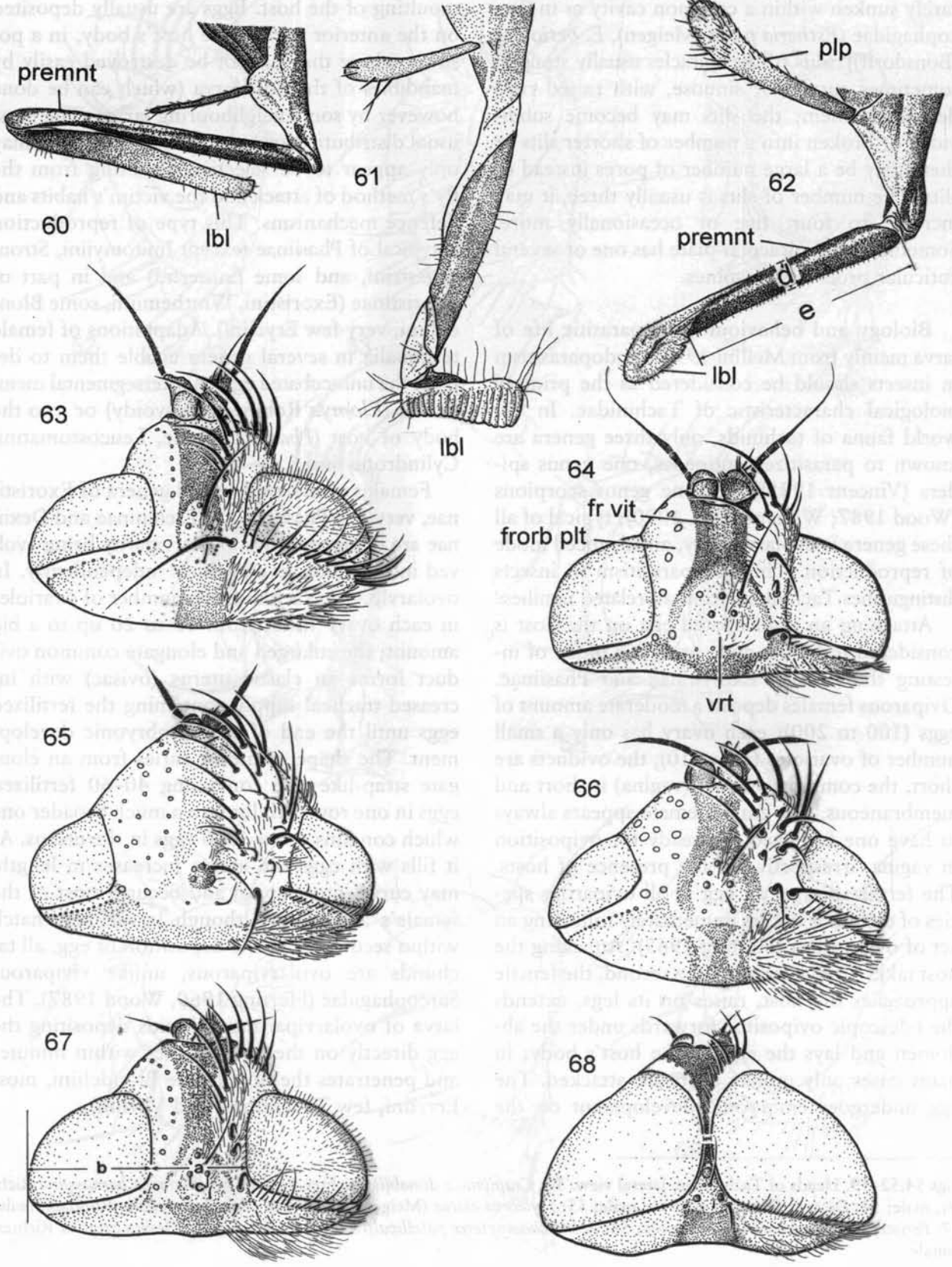
Biology and behaviour (endoparasitic life of larva mainly from Mellini 1990). Endoparasitism in insects should be considered as the primary biological characteristic of Tachinidae. In the world fauna of tachinids, only three genera are known to parasitize centipedes, one genus spiders (Vincent 1985), and one genus scorpions (Wood 1987; Williams et al. 1990); typical of all these genera is ovolarviparity, an advanced mode of reproduction. The endoparasitism in insects distinguishes Tachinidae from all related families.

Attaching an unincubated egg on the host is considered to be the most primitive mode of infesting the host in Exoristinae and Phasiinae. Oviparous females deposit a moderate amount of eggs (100 to 200); each ovary has only a small number of ovarioles (about 10), the oviducts are short, the common oviduct (vagina) is short and membranous. The gravid female appears always to have one fertilized egg ready for oviposition in vagina, irrespective of the presence of hosts. The fertilization of an egg in all oviparous species of tachinids occurs immediately following an act of oviposition (Herting 1965). Attacking the host takes often a fraction of a second, the female approaches the host, raises on its legs, extends the telescopic ovipositor forwards under the abdomen and lays the egg on the host's body; in many cases only mobile hosts are attacked. The egg undergoes embryonic development on the

host's skin within two to twelve days and may be destroyed by the host or becomes lost due to moulting of the host. Eggs are usually deposited on the anterior part of the host's body, in a position where they cannot be destroyed easily by mandibles of the host larva (which can be done however by some neighbouring larva). The most usual distribution of eggs on the host's body may only appear to be selective, resulting from the fly's method of attack and the victim's habits and defence mechanisms. This type of reproduction is typical of Phasiinae (except *Imitomyiini*, *Strongygastrini*, and some *Eutherini*) and in part of Exoristinae (*Exoristini*, *Winthemiini*, some *Blondeliini*, very few *Eryciini*). Adaptations of female terminalia in several genera enable them to deposit the unincubated egg on intersegmental membranes (*Elomya* Robineau-Desvoidy) or into the body of host (*Phasia* Latreille, *Leucostomatini*, *Cylindromyiini*).

Females of more advanced genera of Exoristinae, very few Phasiinae, all Tachininae and Dexiinae are ovolarviparous, ovolarviparity being evolved in tachinids several times independently. In ovolarviparous tachinids the number of ovarioles in each ovary varies from 10 to 20 up to a big amount; the enlarged and elongate common oviduct forms an elastic uterus (ovisac) with increased tracheal supply containing the fertilized eggs until the end of their embryonic development. The shape of uterus varies from an elongate strap-like one containing 40–60 fertilized eggs in one row (*Ethillini*) to a much broader one which contains up to 4000 eggs in the uterus. As it fills with eggs the uterus increases in length, may curve into a spiral and occupy most of the female's abdomen. Although larvae may hatch within seconds after the deposition of egg, all tachinids are ovolarviparous, unlike viviparous Sarcophagidae (Herting 1960, Wood 1987). The larva of ovolarviparous tachinids depositing the egg directly on the host hatches within minutes and penetrates the host (some *Blondeliini*, most *Eryciini*, few Tachininae, and *Voriini*).

Figs 54.52–59. Heads of Tachinidae, lateral view. 52: *Crapivnicia donabilis* Richter, female; 53: *Haracca parnassiina* Richter, male; 54: *Dicarca fluviatilis* Richter, male; 55: *Hyleorus elatus* (Meigen), male; 56: *Clausicella puella* Rondani, male; 57: *Periscepsia turkmenica* Richter, male; 58: *Actinochaetopterix patellipalpis* Richter, female; 59: *Plesina asiatica* Richter, female.



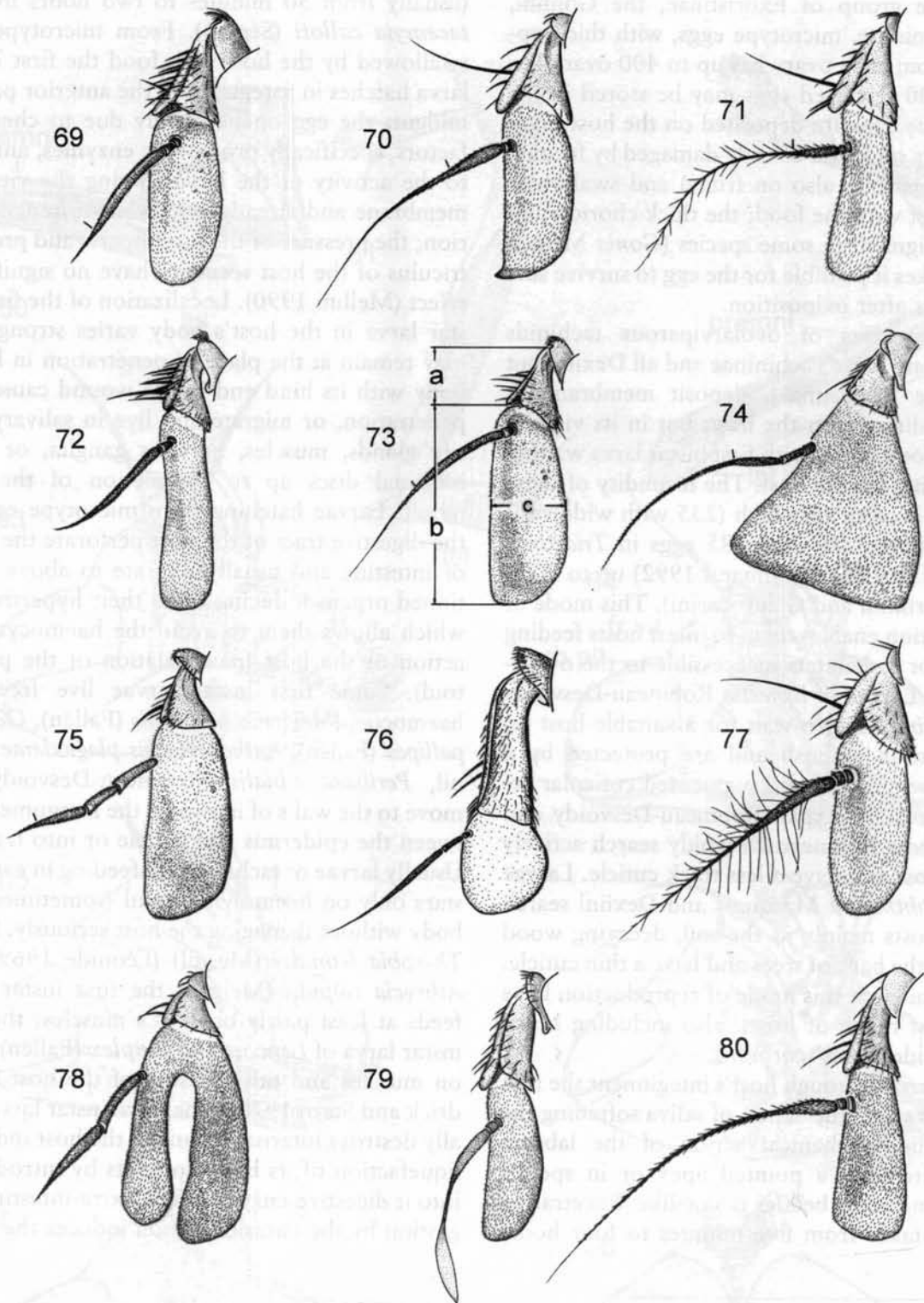
A large group of Exoristinae, the Goniini, produce minute, microtype eggs, with thick upper chorion; each ovary has up to 400 ovarioles, up to 4000 fertilized eggs may be stored in the uterus. The eggs are deposited on the host plant (preferably on leaves already damaged by feeding hosts, sometimes also on fruits) and swallowed by the host with the food; the thick chorion and its dark pigment in some species (*Gonia* Meigen a. o.), makes it possible for the egg to survive several weeks after oviposition.

Many species of ovolarviparous tachinids (here belong most Tachininae and all Dexiini but also some Exoristinae), deposit membranous eggs not directly on the host, but in its vicinity or on its food plant, with first instar larva waiting or searching for the host. The fecundity of these tachinids is often very high (235 with wide variations between 107 and 385 eggs in *Triarthria setipennis* (Fallén) (Kuhlmann 1992) up to 8000 eggs in Ormiini and Glaurocarini). This mode of reproduction enables them to infest hosts feeding at night or in habitats inaccessible to the ovipositing fly. Larvae of *Ernestia* Robineau-Desvoidy and *Tachina* Meigen wait for a suitable host on food-plant in ambush and are protected by a strongly sclerotized and pigmented cuticular armour; larvae of *Lypha* Robineau-Desvoidy and *Gymnocheta* Robineau-Desvoidy search actively for the host and have a less thick cuticle. Larvae of *Microphthalma* Macquart and Dexiini search for the hosts mainly in the soil, decaying wood or under the bark of trees and have a thin cuticle. Tachininae with this mode of reproduction have the widest range of hosts, also including centipedes, spiders and scorpions.

To burrow through host's integument the first instar larva uses the action of saliva softening the cuticle and mechanical action of the labrum which often has a pointed apex or in species parasitizing adult beetles is saw-like. Penetrating the host takes from five minutes to four hours

(usually from 30 minutes to two hours in *Metacemyia calloti* (Séguy)). From microtype egg swallowed by the host with food the first instar larva hatches in foregut or in the anterior part of midgut; the egg opens mainly due to chemical factors, specifically proteolytic enzymes, and due to the activity of the larva ripping the vitelline membrane and already somewhat softened chorion; the pressure of the mouthparts and proventriculus of the host seems to have no significant effect (Mellini 1990). Localization of the first instar larva in the host's body varies strongly; it may remain at the place of penetration in host's body with its hind end in the wound caused by penetration, or migrate and live in salivary and silk glands, muscles, nervous ganglia, or even imaginal discs up to completion of the first moult. Larvae hatching from microtype eggs in the digestive tract of the host perforate the walls of intestine and usually migrate to above mentioned organs inducing often their hypertrophy, which allows them to avoid the haemocytic reaction of the host (incapsulation of the parasitoid). Some first instar larvae live freely in haemocoel (*Meigenia mutabilis* (Fallén), *Ocytata pallipes* (Fallén), *Anthomyiopsis plagioderiae* Mesnil, *Peribaea tibialis* (Robineau-Desvoidy) or move to the walls of intestine, the integument between the epidermis and cuticle or into trachea. Usually larvae of tachinids are feeding in early instars only on haemolymph and (sometimes) fat-body without damaging the host seriously, but in *Therobia leonidei* (Mesnil) (Léonide 1969) and *Athrycia trepida* (Meigen) the first instar larva feeds at least partly on host's muscles; the first instar larva of *Leucostoma simplex* (Fallén) feeds on muscles and other tissues of the host (Hendrick and Stern 1970). The third instar larva usually destroys internal organs of the host inducing liquefaction of its body contents by introducing into it digestive enzymes. The extra-intestinal digestion by the parasitoid soon induces the death

Figs 54.60–68. Probosci and heads of Tachinidae. 60–62: proboscis, lateral view: 60: *Ancistrophora mikii* Schiner, female; 61: *Ceranthia samarensis* (Villeneuve), male; 62: *Nowickia ferox* (Panzer), female. 63–68: heads, dorsal view: 63: *Linnaemya haemorrhoidalis* (Fallén), male; 64: *Bessa selecta* (Meigen), male; 65: *Gonia ornata* Meigen, male; 66: *Thelymorpha marmorata* (Fabricius), male; 67: *Pseudoperichaeta nigrolineata* (Walker), male; 68: *Opesia cana* (Meigen), female (abbreviations: a: width of frons, b: width of eye, c: distance between posterior ocelli, d: diameter of prementum, e: length of prementum, frorb plt: fronto-orbital plate, fr vit: frontal vitta, lbl: labella, plp: palpus, premnt: prementum, vrt: vertex).



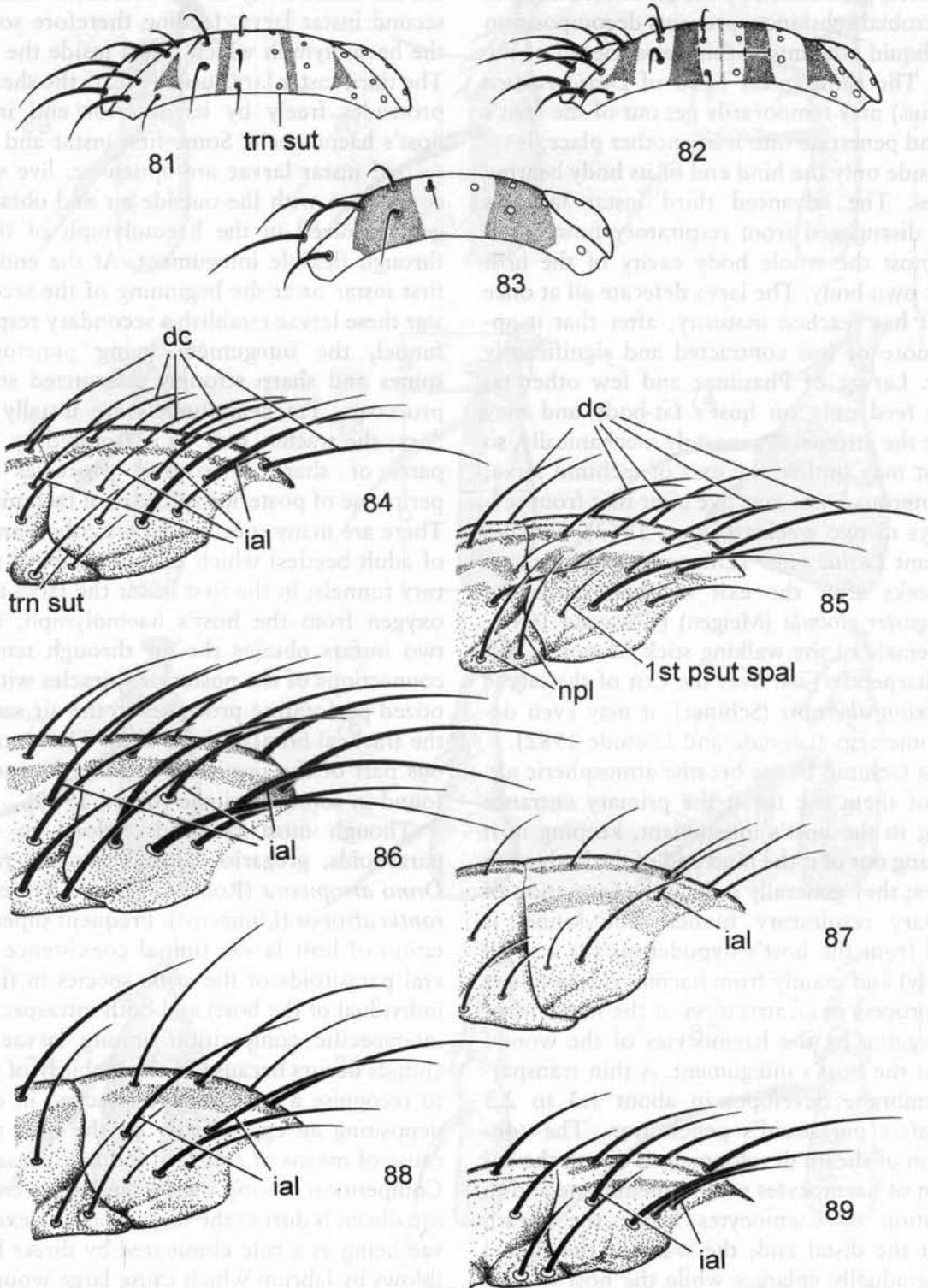
Figs 54.69–80. Left antennae of Tachinidae, lateral view. 69: *Rhaphiochaeta breviseta* (Zetterstedt), male; 70: *Acemya acuticornis* (Meigen), male; 71: *Gastrolepta anthracina* (Meigen), male; 72: *Masicera silvatica* (Fallén), female; 73: *Carcelia iliaca* (Ratzeburg), male; 74: *Lophosia fasciata* Meigen, male; 75: *Triarthria setipennis* (Fallén), female; 76: *Tachina fera* (Linnaeus), male; 77: *Billaea triangulifera* (Zetterstedt), male; 78: *Peribaea fissicornis* (Strobl), male; 79: *Cylindromyia pusilla* (Meigen), male; 80: *Eriothrix prolixa* (Meigen), male (abbreviations: a: length of pedicel, b: length of first flagellomere, c: width of first flagellomere).

of the host; production by the parasitoid larva of antimicrobial substances prevents decomposition of the liquid contents within exoskeleton of the victim. The third instar larva of *Dexia rustica* (Fabricius) may temporarily get out of the host's larva and penetrate into it in another place, leaving outside only the hind end of its body bearing spiracles. The advanced third instar larva is mostly disengaged from respiratory funnel and fills almost the whole body cavity of the host with its own body. The larva defecate all at once when it has reached maturity; after that it appears more or less contracted and significantly smaller. Larvae of Phasiinae and few other tachinids feed only on host's fat-body and may damage the internal organs only mechanically, so the host may outlive the exit of tachinid larva; heteropterous hosts may live after that from several days to two weeks (Dupuis 1963). Females of the ant *Lasius niger* (Linnaeus) may live several weeks after the exit of their parasitoid *Strongygaster globula* (Meigen) (Gösswald 1949). If the female of the walking stick *Clonopsis gallica* (Charpentier) survives the exit of the larvae of *Thrixion aberrans* (Schiner), it may even deposit some eggs (Léonide and Léonide 1982).

Most tachinid larvae breathe atmospheric air. Many of them use for it the primary entrance opening in the host's integument, keeping in it or sticking out of it the hind end of the body with spiracles; they generally induce the formation of a primary respiratory funnel. The funnel is formed from the host's hypodermis (to a small part only) and mainly from haemocytes involved in the process of cicatrization of the integument and plugging by the haemocytes of the wound made in the host's integument. A thin transparent membrane develops in about 1.3 to 2.3 hours after parasitoid's penetration. The continuation of sheath development is due to the apposition of haemocytes on this membrane and to penetration of haemocytes inside the sheath open at the distal end; the walls of the funnel which gradually enlarges while the host is alive include exuviae of the first instar and second instar larvae, become more strong and assume the appearance of parchment. In primary respiratory funnels the flexible transparent sheath often cov-

ers the entire body of the first instar and young second instar larva, feeding therefore solely on the haemolymph which filters inside the sheath. The third instar larva usually tears the sheath and protrudes freely by its anterior end into the host's haemocoel. Some first instar and certain second instar larvae are apneustic, live without connection with the outside air and obtain oxygen dissolved in the haemolymph of the host through flexible integument. At the end of the first instar or at the beginning of the second instar these larvae establish a secondary respiratory funnel, the integument being punctured by spines and sharp strongly sclerotized stigmatic processus. Tracheal funnels are usually secondary; the trachea may be perforated by mouthparts or sharp sclerotized processes in the peritreme of posterior spiracles of tachinid larva. There are many species (in particular parasitoids of adult beetles) which do not establish respiratory funnels; in the first instar the larva uses the oxygen from the host's haemolymph, in next two instars obtains the air through temporary connections of the posterior spiracles with sclerotized perforating processes to the air sacs or to the tracheal branch of the host. The membranous part of the respiratory funnel has not been found in some Phasiinae (Beard 1940).

Though most tachinids belong to solitary parasitoids, gregarious forms are not rare (80 *Drino atropivora* (Robineau-Desvoidy) ex *Acherontia atropos* (Linnaeus)). Frequent superparasitization of host larvae (initial coexistence of several parasitoids of the same species in the same individual of the host) and both intraspecific and interspecific competition among larvae of tachinids occurs because of the inability of females to recognise a host already attacked in cases of depositing an egg directly on the host and because of means of attack in indirect parasitization. Competition among the larvae begins early and usually ends during the first instar, the excess larvae being as a rule eliminated by direct fighting (blows by labrum which cause large wounds). In general the deciding factor in the competition is the order of penetration: the larva which first inhabits the host will win. Multiparasitization is also very common. In these cases of interspecific



Figs 54.81–89. Thoraces of Tachinidae. 81–83: presutural scutum, dorsal view: 81: *Phebellia glauca* (Meigen), female; 82: *Winthemia quadripustulata* (Fabricius), female; 83: *Mintbo rufiventris* (Fallén), female. 84–89: left side of postsutural scutum, lateral view: 84: *Siphona flavifrons* Staeger, female, 85: *Exorista larvarum* (Linnaeus), male; 86: *Tachina praeceps* Meigen, male; 87: *Ectophasia crassipennis* (Fabricius), male; 88: *Labigastera forcipata* (Meigen), male; 89: *Cylindromyia xylotina* (Egger), male (abbreviations: dc: dorsocentral bristle, ial: intra-alar bristle, npl: notopleural bristle, psut spal: post-sutural supra-alar bristle, trn sut: transverse suture).

competition the type of development is the deciding factor: in competition among tachinid larvae of *Sturmia bella* (Meigen) and *Compsilura concinnata* (Meigen) or *Phryxe vulgaris* (Fallén) the larva of *Sturmia bella* perishes usually, because the larvae of the other two species undergo development before pupation of the host's larva, whereas larva of *Sturmia bella* begins to grow only after host's pupation (Mellini 1957, 1990).

The pupation may occur outside or inside the host body (always outside, if the host is still alive); if the host is ectophagous, the larva usually falls to the ground and burrows a few centimetres into the soil; if the host is endophagous, the larva often pupates beside the host's body. Synchronization of their own cycles with those of hosts is common in tachinids; some of them may have one generation in a year, independent of the host's voltinism. In general, number of the annual generations tends to increase with the level of polyphagy of the tachinid, which can thus take advantage of more varied possibilities to complete its cycle. Usually tachinids hibernate as a pupa in the ground or as a first- or beginning second instar larva inside the host in diapause; in rare cases the mature larva hibernates in the body of the host. Diapause of the host is always followed by diapause of the tachinid larva; in some species a cessation of development occurs at the end of the first instar or at the beginning of the second instar until the beginning of the certain stage of the host (last instar larva or pupa); both kinds of diapause result in the synchronization of the cycles of parasitoid and host and have adaptive significance for tachinids.

Insects known as hosts of tachinids belong to eleven orders (parasitoids of Embioptera have not been found in the Palaearctic region):

Blattodea: parasitization of a larva of the desert cockroach *Anisogamia tamerlana* Saussure (Blattidae) by *Arama gobica* Richter (Goniini) is recorded.

Mantodea: parasitization of *Tenodera angustipennis* Saussure (Mantidae) in Japan by *Exorista bisetosa* Mesnil is recorded.

Phasmoda: three genera and three species of Phasmatidae are parasitized by *Thrixion aberrans* (Schiner), *Phaortes illipidus* (Brunner von Wat-

tenwyl) (Phasmatidae) is recorded as a host of *Mycteromyiella marginalis* Shima.

Orthoptera: grasshoppers of both suborders, Ensifera and Caelifera, families Bradyporidae, Tettigoniidae, Tetrigidae, Acrididae, are parasitized by Acemyini. Grasshoppers of the family Tettigoniidae are parasitized also by *Therobia leonidei* Mesnil (Ormiini). Females of Ormiini are attracted by the songs of grasshoppers and crickets; they may even be attracted by a loudspeaker reproducing a recording of the call notes of the appropriate host (Cade 1975).

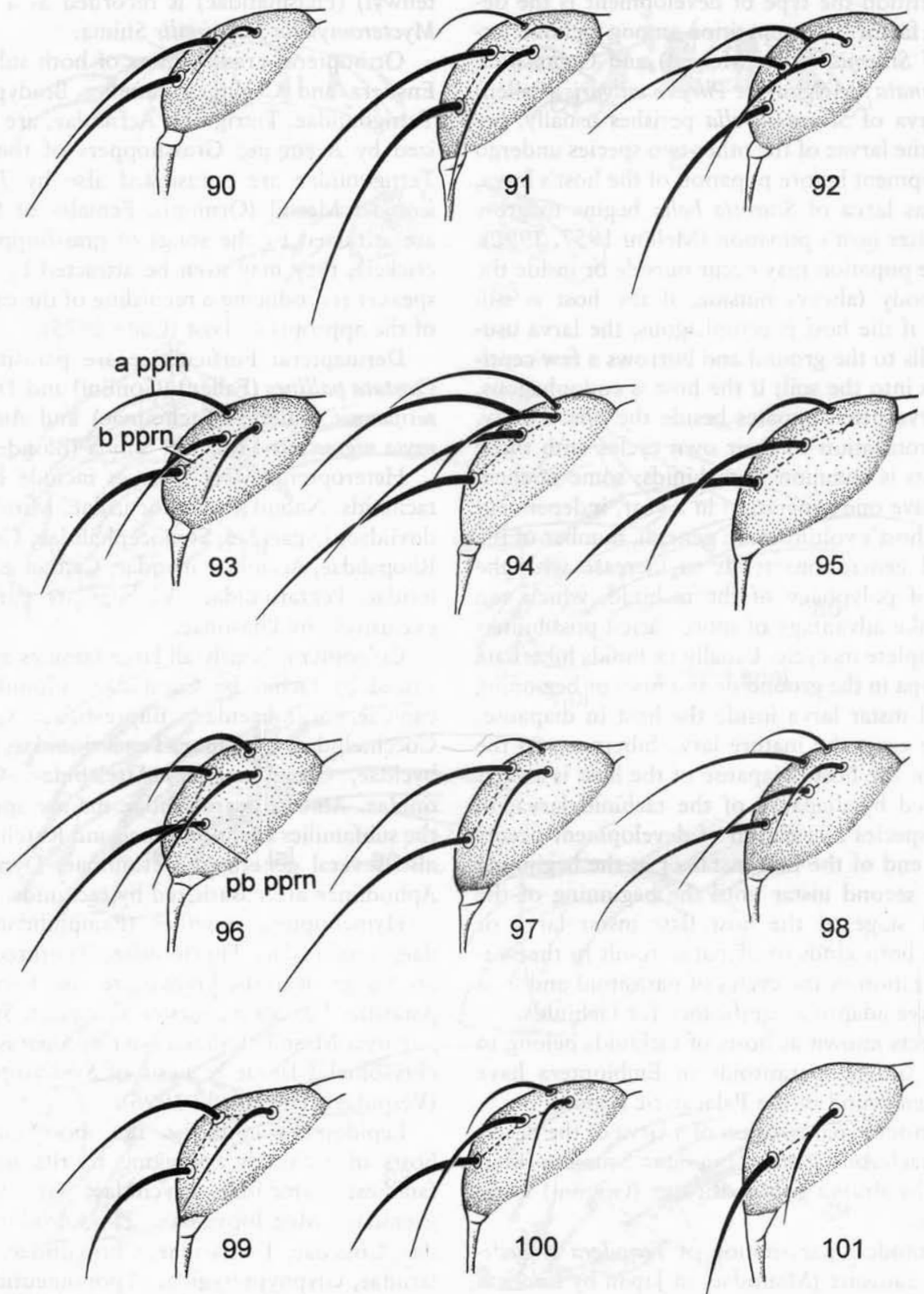
Dermoptera: Forficulidae are parasitized by *Ocytata pallipes* (Fallén) (Goniini) and *Triarthria setipennis* (Fallén) (Tachininae) and *Anechuro-myia nigrescens* Mesnil et Shima (Blondeliini).

Heteroptera. Most families include hosts of tachinids: Nabiiidae, Anthocoridae, Miridae, Reduviidae, Lygaeidae, Stenocephalidae, Coreidae, Rhopalidae, Acanthosomatidae, Cydnidae, Scutelleridae, Pentatomidae. All bugs are parasitized exclusively by Phasiinae.

Coleoptera. Nearly all large families are parasitized by tachinids: Carabidae, Silphidae, Lucanidae, Scarabaeidae, Buprestidae, Cleridae, Coccinellidae, Lagriidae, Tenebrionidae, Cerambycidae, Chrysomelidae, Attelabidae, Curculionidae. Among Scarabaeidae mainly species of the subfamilies Melolonthinae and Rutelinae and also several genera of Cetoniinae, Dynastinae, Aphodiinae are parasitized by tachinids.

Hymenoptera: sawflies (Pamphilidae, Argidae, Cimbicidae, Diprionidae, Tenthredinidae) are the main hosts, known are also Formicidae parasitized by *Strongygaster* Macquart. *Symmorphomyia* Mesnil et Shima is a cleptoparasitoid of chrysomelid larvae in nests of *Symmorphus* sp. (Vespidae) (Hamanishi 1996).

Lepidoptera comprise the most numerous hosts of tachinids belonging to the following families: Hepialidae, Psychidae, Tineidae, Zygaenidae, Megalopygidae, Limacodidae, Sesiiidae, Cossidae, Tortricidae, Choreutidae, Gracilariidae, Glyphypterygidae, Yponomeutidae, Argyresthiidae, Plutellidae, Lyonetiidae, Scythrididae, Elachistidae, Oecophoridae, Coleophoridae, Ethmiidae, Gelechiidae, Pterophoridae, Pyralidae, Saturniidae, Bombycidae, Lasiocampidae, Endromidi-



Figs 54.90–101. Left postpronotum, dorsal view. 90: *Huebneria affinis* (Fallén), male; 91: *Phebellia villica* (Zetterstedt), male; 92: *Myxexoristops blondeli* (Robineau-Desvoidy), female; 93: *Phryxe vulgaris* (Fallén), male; 94: *Chrysosomopsis auratus* (Fallén), male; 95: *Chaetovoria antennata* (Villeneuve), male; 96: *Eurithia suspecta* (Pandellé), male; 97: *Pseudopachystylum gonioides* (Zetterstedt), male; 98: *Eriothrix argyreatus* (Meigen), male; 99: *Ramonda prunaria* (Rondani) male; 100: *Wagneria gagatea* Robineau-Desvoidy, male; 101: *Wagneria alpina* Villeneuve, male (abbreviations: a pprn: anterior postpronotal bristle, b pprn: basal postpronotal bristle, pb pprn: parabasal postpronotal bristle).

dae, Sphingidae, Notodontidae, Thaumetopoeidae, Geometridae, Drepanidae, Thyatiridae, Teuthidae, Lymantriidae, Noctuidae, Arctiidae, Ctenuchidae, Hesperidae, Papilionidae, Pieridae, Lycaenidae, Libytheidae, Nymphalidae, Danaidae, Satyridae. In the Palaearctic region the majority of tachinids are parasitoids of the families Noctuidae, Geometridae, Lasiocampidae, Arctiidae, Lymantriidae, Pyralidae, Tortricidae, and Yponomeutidae.

Diptera. Larvae of Tipulidae are parasitized by species of *Admontia* Brauer et Bergenstamm (Blondeliini), *Allophorocera* Hendel (Goniini) and *Siphona* Meigen (Tachininae). Parasitization of larvae of Limoniidae (*Metalimnobia quadrimaculata* L.) by *Lixophaga limoniina* Richter (Blondeliini) has been recorded.

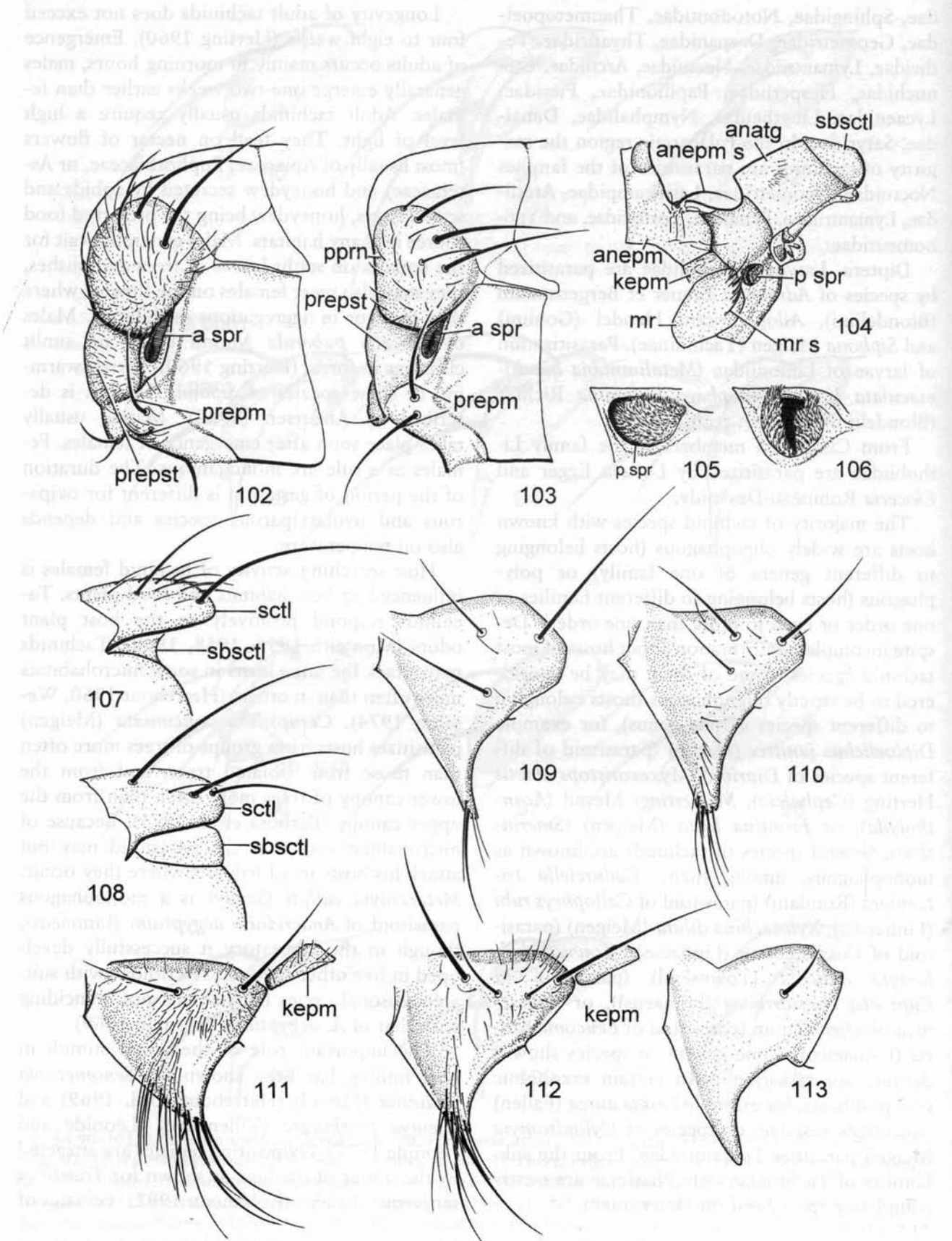
From Chilopoda members of the family Lithobiidae are parasitized by *Loewia* Egger and *Eloceria* Robineau-Desvoidy.

The majority of tachinid species with known hosts are widely oligophagous (hosts belonging to different genera of one family) or polyphagous (hosts belonging to different families of one order or even to more than one order). Despite incomplete information about hosts of most tachinid species, some of them may be considered to be strictly oligophagous (hosts belonging to different species of one genus), for example *Diplostichus janitrix* (Hartig) (parasitoid of different species of *Diprion*), *Myxexoristops abietis* Herting (*Cephalcia*), *M. hertingi* Mesnil (*Acantholyda*), or *Frontina laeta* (Meigen) (*Smerinthus*). Several species of tachinids are known as monophagous, among them: *Cadurciella triaeniata* (Rondani) (parasitoid of *Callophrys rubi* (Linnaeus)), *Xylotachina diluta* (Meigen) (parasitoid of *Cossus cossus* (Linnaeus)), *Townsendielomyia nidicola* (Townsend) (parasitoid of *Euproctis chrysorrhoea* (Linnaeus)), or *Linnaemya olsufjevi* Zimin (parasitoid of *Leucoma salicis* (Linnaeus)). Some genera or species show a definite specialisation on a certain taxonomic group of hosts, for example *Leskia aurea* (Fallén) parasitizes Sesiidae, or species of *Cylindromyia* Meigen parasitize Pentatomidae. From the subfamilies of Tachinidae only Phasiinae are nearly completely specialised on Heteroptera.

Longevity of adult tachinids does not exceed four to eight weeks (Herting 1960). Emergence of adults occurs mainly in morning hours, males generally emerge one-two weeks earlier than females. Adult tachinids usually require a high level of light. They feed on nectar of flowers (most usually of Apiaceae, Euphorbiaceae, or Asteraceae) and honeydew secreted by aphids and scale-insects, honeydew being the preferred food source in many habitats. Males generally wait for the females on sunlit leaves of trees and bushes, they may also meet females on the flowers where they feed, or in aggregations on hilltops. Males of *Carcelia puberula* Mesnil hover on sunlit clearings in forest (Herting 1960); aerial swarming of some species of *Siphona* Meigen is described by Andersen (1982). Mating usually takes place soon after emergence of females. Females as a rule are monogamous. The duration of the period of gestation is different for oviparous and ovularviparous species and depends also on temperature.

Host searching activity of tachinid females is influenced by host habitats and food plants. Tachinids respond positively to the host plant odors (Monteith 1955, 1958, 1960). Tachinids may attack the same hosts in some microhabitats more often than in others (Herrebut 1960, Weseloh 1974). *Compsilura concinnata* (Meigen) parasitizes hosts from groups of trees more often than those from isolated trees, and from the lower canopy of trees more often than from the upper canopy (Barbosa et al. 1975). Because of microhabitat responses the parasitoid may not attack his hosts in all habitats where they occur. *Metacemyia calloti* (Séguy) is a monophagous parasitoid of *Anacridium aegyptium* (Linnaeus), though in the laboratory it successfully developed in five other species of Acrididae with suitable seasonal cycles but habitats not coinciding with that of *A. aegyptium* (Léonide 1969).

The important role of the visual stimuli in host finding has been shown for *Senometopia pollinosa* (Mesnil) (Herrebut et al. 1969) and *Acemya pyrrhocera* (Villeneuve) (Léonide and Léonide 1977). Ovipositing females are attracted by the odour of the host as shown for *Triarthria setipennis* (Fallén) (Kuhlmann 1992). Females of



Drino bohémica Mesnil and *Bessa harveyi* (Townsend) are attracted first to the food plants of their hosts and then to the host larvae. The host finding of these tachinids is influenced by the damage to the food plants of their hosts; they made two to four times as many attacks on host larvae exposed on a food plant eaten by the host as on larvae of healthy food plants. It was also found from cage experiments that ovipositing females of *Cyzenis albicans* (Fallén) respond to leaf damage (in particular, some component of the sap that exudes from damaged leaf edges) rather than to the presence of its host, *Operophtera brumata* (Linnaeus) (Hassell 1968). Thus, a food plant damaged by the tachinid host influences the host finding in the females of members of different tribes of tachinids: Exoristini and Eryciini depositing eggs directly on the host, Goniini producing microtype eggs and depositing them on the food plant. Females of tachinids usually prefer larvae of the eldest instars, but there may be different variants. *Compsilura concinnata* (Meigen) successfully parasitizes young hosts but the larval development on second instars is twice as long as that on fourth instars (Weseloh 1982). When all stages of the host *Agelastica alni* (Linnaeus) are present, the female of *Meigenia uncinata* Mesnil deposits eggs mainly on the larvae of the second instar which cluster in groups of about 30 each, preferring this to small groups of the first instar larvae and single scattered larvae of the third instar; it remains unclear whether the second instar larvae or their groups are preferred (Mellini 1954b).

Classification and distribution. The family Tachinidae comprises about 8000 species in the world fauna; more than 1600 species are known from the Palaearctic region where Tachinidae may be the second largest family after Limoniidae.

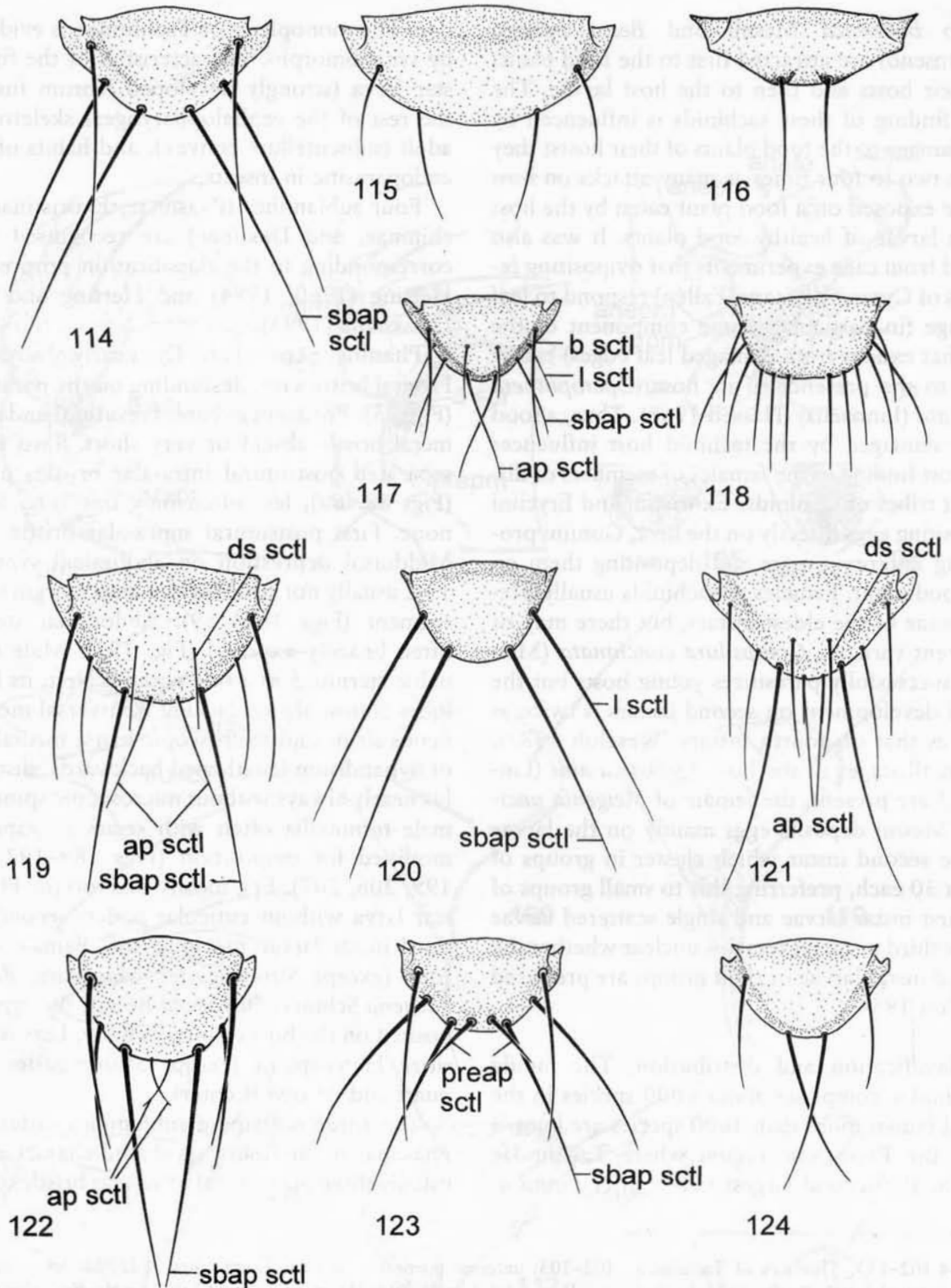
The monophyly of Tachinidae is evidenced by synapomorphic characteristics of the first instar larva (strongly developed labrum fused to the rest of the cephalopharyngeal skeleton), of adult (subscutellum convex), and habits of larva endoparasitic in insects.

Four subfamilies (Phasiinae, Exoristinae, Tachininae, and Dexiinae) are recognised there, corresponding to the classification proposed by Herting (1960, 1984) and Herting and Dely-Draskovits (1993).

Phasiinae. Arista bare. Eye nearly always bare. Frontal bristles not descending on the parafacials (Fig. 25). Prosternum bare. Presutural and anepimeral bristle absent or very short. Two widely separated postsutural intra-alar bristles present (Figs 88, 89), less often only one (Fig. 87) or none. First postsutural supra-alar bristle short. Middorsal depression on abdominal syntergite 1+2 usually not reaching the hind margin of that segment (Figs 187–189). Abdominal sternites often broadly exposed (Fig. 193). Male terminalia: sternite 5 as a rule without cleft, its lateral lobes almost always lacking transversal membranous stripe and microscopic hairs; medial plate of hypandrium lengthened backwards; distiphallus nearly always without microscopic spines. Female terminalia often with segments especially modified for oviposition (Figs 189–192, 195, 199, 206, 207). Egg mostly macrotype. First instar larva without cuticular scales; second- and third instar larvae metapneustic. Female oviparous (except *Strongygaster* Macquart, *Redtenbacheria* Schiner, *Diplopota* Bezzi); the egg is deposited on the host or into its body. Larvae parasitize Heteroptera (except *Strongygaster* Macquart and *Arcona* Richter).

The three remaining subfamilies differ from Phasiinae in the following shared characteristics: usually three postsutural intra-alar bristles (rarely

Figs 54.102–113. Thoraces of Tachinidae. 102–103: anterior portion of thorax, lateral view: 102: *Meigenia mutabilis* (Fallén), female; 103: *Peribaea tibialis* (Robineau-Desvoidy), female. 104: *Macquartia grisea* (Fallén) male, posterior portion of thorax, lateral view. 105–106: posterior spiracles, lateral view: 105: *Dexia rustica* (Fabricius), male; 106: *Prosenia siberita* (Fabricius) female. 107–108: male scutellum and subscutellum, lateral view: 107: *Litophasia hyalipennis* (Fallén); 108: *Cinochira atra* Zetterstedt. 109–113: left katepisternum, lateral view: 109: *Siphona flavifrons* Staeger, female; 110: *Actia lamia* (Meigen), female; 111: *Winthemia quadripustulata* (Fabricius), male; 112: *Drino inconspicua* (Meigen), female; 113: *Cylindromyia pusilla* (Meigen), male (abbreviations: a spr: anterior spiracle, anatg: anatergite, anepm: anepimeron, anepm: anepimeral bristle, kep: katepimeron, mr: meron, mr: meral bristle, p spr: posterior spiracle, ppr: postpronotum, prep: proepimeral bristle, prepst: proepisternum, bsct: subscutellum, sct: scutellum).



Figs 54.114–124. Scutellum of Tachinidae, dorsal view. 114: *Oswaldia muscaria* (Fallén), female; 115: *Gymnosoma rotundatum* (Linnaeus), male; 116: *Germariochaeta clavata* Villeneuve, male; 117: *Synactia parvula* (Rondani), female; 118: *Besseria melanura* (Meigen), female; 119: *Gaedia connexa* (Meigen), male; 120: *Torocca munda* (Walker), male; 121: *Meigenia dorsalis* (Meigen), male; 122: *Ceromya bicolor* (Meigen), female; 123: *Masistylum arcuatum* (Mik), male; 124: *Anthomyiopsis nigrisquamata* (Zetterstedt), female (abbreviations: ap sctl: apical scutellar bristle, b sctl: basal scutellar bristle, ds sctl: discal scutellar bristle, l sctl: lateral scutellar bristle, preap sctl: preapical scutellar bristle, sbap sctl: subapical scutellar bristle).

two, one or none); sternites almost always overlapped by lateral edges of tergites; sternite 5 of the male as a rule with its hind margin cleft and protruding lateral lobes, transversal membranous stripe and microscopic hairs present; medial plate of hypandrium usually not lengthened; gonopods attached in the middle of hypandrium; distiphallus nearly always with microscopic spines. No Heteroptera host known.

Exoristinae. Arista usually bare. Frontal bristles usually descending on the parafacials. Prosternum usually setose (Fig. 136). First post-sutural supra-alar bristle short (Exoristini, Blondeliini, Fig. 85) or long (Eryciini, Goniini, Figs 2-). Preapical anterodorsal seta on fore tibia usually distinctly shorter than preapical dorsal seta (Fig. 143). Male terminalia: tergite 6 more or less interrupted mediodorsally or completely reduced; gonopods lobe-like (Fig. 214); distiphallus attached to basiphallus by dorsal sclerite, with a strong lateroventral sclerotization (Fig. 214). Female terminalia: sternite 8 strongly reduced or absent (except Winthemiini). Egg macrotype, sometimes modified, also membraneous or microtype. First instar larva without cuticular scales; second and third instar larvae amphipneustic. Female oviparous or ovarviparous; the egg is deposited on the host or in its vicinity, rarely directly into host's body; microtype eggs are deposited on the food plant of the host.

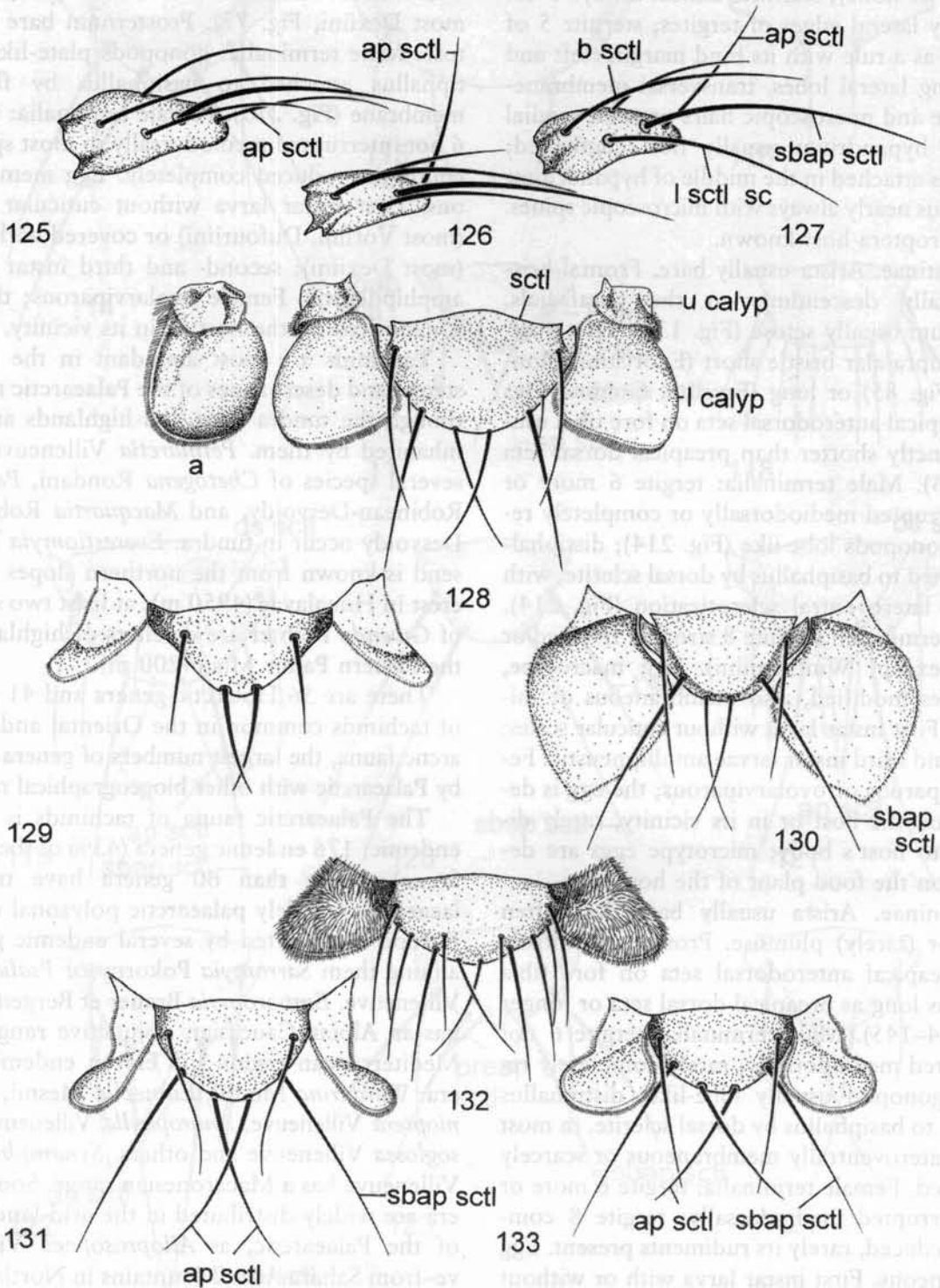
Tachininae. Arista usually bare, less often haired or (rarely) plumose. Prosternum mostly bare. Preapical anterodorsal seta on fore tibia usually as long as preapical dorsal seta or longer (Figs 144-145). Male terminalia: tergite 6 not interrupted mediodorsally, rarely completely reduced; gonopod usually lobe-like; distiphallus attached to basiphallus by dorsal sclerite, in most species lateroventrally membraneous or scarcely sclerotized. Female terminalia: tergite 6 more or less interrupted mediodorsally; tergite 8 completely reduced, rarely its rudiments present. Egg membraneous. First instar larva with or without cuticular scales; second- and third instar larvae amphipneustic. Female ovarviparous; the egg is deposited on the host or more often on its food plant or in its vicinity.

Dexiinae. Arista bare or haired (plumose in most Dexiini, Fig. 77). Prosternum bare or setose. Male terminalia: gonopods plate-like; distiphallus attached to basiphallus by flexible membrane (Fig. 215). Female terminalia: tergite 6 not interrupted mediodorsally in most species; endtergite reduced completely. Egg membraneous. First instar larva without cuticular scales (most Voriini, Dufouriini) or covered with them (most Dexiini); second- and third instar larvae amphipneustic. Female ovarviparous; the egg is deposited on the host or in its vicinity.

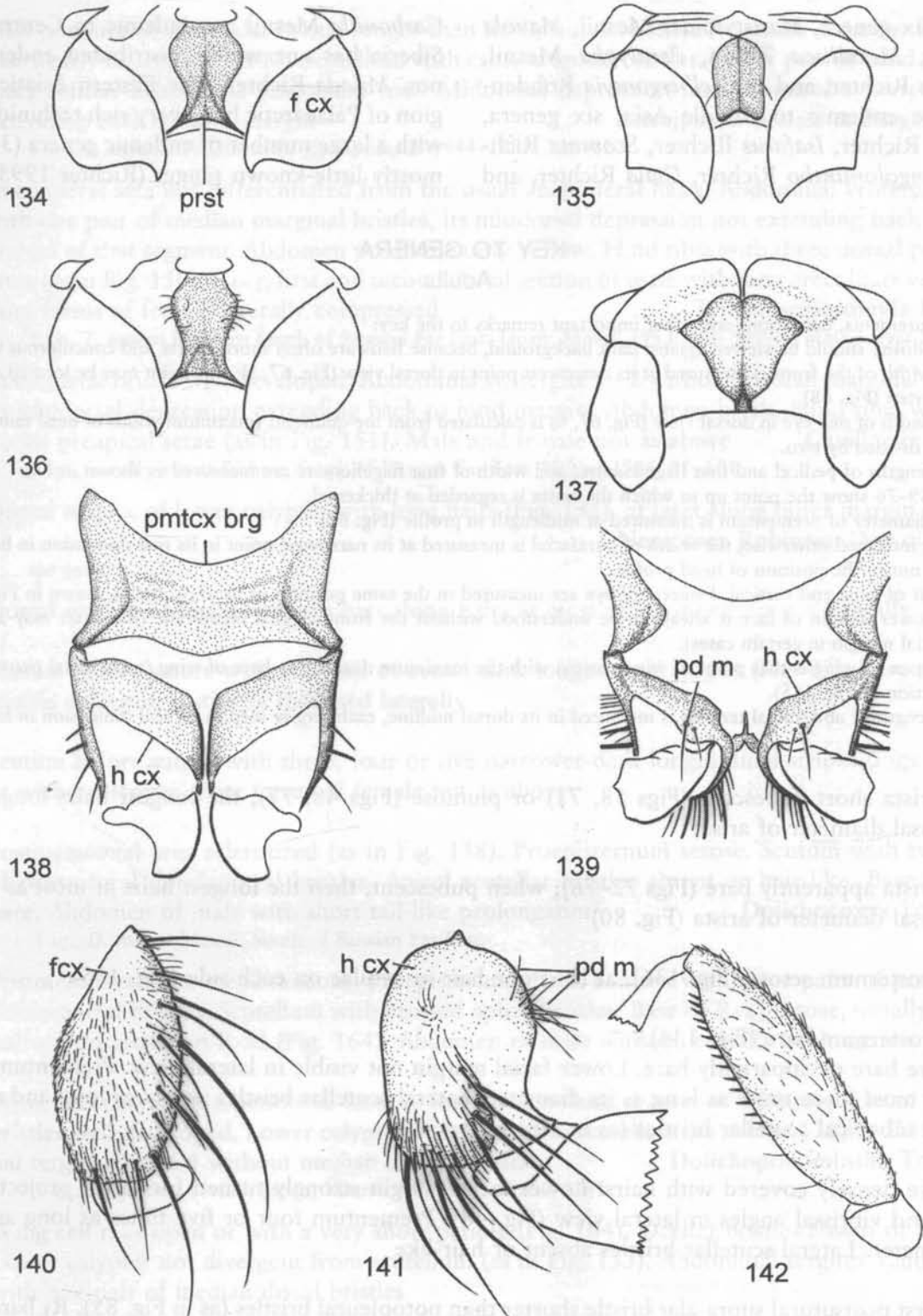
Tachinids are most abundant in the forest, steppe and desert zones of the Palaearctic region, though the tundra zone and highlands are also inhabited by them. *Petinarctia* Villeneuve, also several species of *Chetogena* Rondani, *Peleteria* Robineau-Desvoidy, and *Macquartia* Robineau-Desvoidy occur in tundra. *Everestiomyia* Townsend is known from the northern slopes of Everest in Himalayas (4950 m); at least two species of *Gwenda* Richter are dwellers of highlands of the Eastern Pamir Mts (4200 m).

There are 56 Holarctic genera and 41 genera of tachinids common in the Oriental and Palaearctic fauna, the largest numbers of genera shared by Palaearctic with other biogeographical regions.

The Palaearctic fauna of tachinids is highly endemic: 176 endemic genera (43% of the whole fauna). More than 60 genera have transpalaearctic or widely palaearctic polyzonal ranges. Europe is inhabited by several endemic genera, among them *Sarromyia* Pokorný or *Psaldoxena* Villeneuve. *Emporomyia* Brauer et Bergenstamm has an Alpien-Caucasian disjunctive range. The Mediterranean region has eleven endemic genera: *Wardarina* Mesnil, *Eumeella* Mesnil, *Cestonoptera* Villeneuve, *Anurophylla* Villeneuve, *Lisoglossa* Villeneuve and others. *Synamphichaeta* Villeneuve has a Macaronesian range. Some genera are widely distributed in the arid landscapes of the Palaearctic, as *Alloprosopaea* Villeneuve—from Sahara Atlas Mountains in North Africa to the east to the Gobi desert in southern Mongolia. *Bampura* Tschorsnig, *Ramonella* Kugler, *Richteriola* Mesnil, *Sonaca* Richter, *Mitannia* Herting and other genera have Western-Asiatic



Figs 54.125–133. Scutellum and calypters of Tachinidae. 125–127: scutellum, lateral view: 125: *Pales processioneae* (Ratzeburg), male; 126: *Phryxe vulgaris* (Fallén), female; 127: *Phebellia nigripalpis* (Robineau-Desvoidy), female. 128–133: scutellum and calypters, dorsal view: 128: *Paratryphera barbatula* (Rondani), male (a: lateral view of left calypter); 129: *Catharosia pygmaea* (Fallén), male; 130: *Leucostoma anthracinum* (Meigen), male; 131: *Nemoraea pellucida* (Meigen), male; 132: *Macquartia grisea* (Fallén), female; 133: *Macquartia tenebricosa* (Meigen), female (abbreviations: ap sctl: apical scutellar bristle, b sctl: basal scutellar bristle, l calyp: lower calypter, l sctl: lateral scutellar bristle, sbap sctl: subapical scutellar bristle, sctl: scutellum, u calyp: upper calypter).



Figs 54.134-142. Thoraces and legs of Tachinidae. 134-137: prosternum and fore coxa, anteroventral view: 134: *Masicera pavoniae* (Robineau-Desvoidy), female; 135: *Siphona pauciseta* Rondani, female; 136: *Masicera sphingivora* (Robineau-Desvoidy), female; 137: *Therobia leonidei* Mesnil, male. 138-139: male hind coxa and postmetacoxal area, posteroventral view: 138: *Phania funesta* (Meigen); 139: *Carcelia bombylans* Robineau-Desvoidy. 140: *Dexiosoma caninum* (Fabricius), male left fore coxa, anteroventral view; 141: *Tachina fera* (Linnaeus), female left hind coxa, lateral view; 142: *Gymnosoma clavatum* (Rohdendorf), female left mid femur, posteroventral view (abbreviations: f cx: fore coxa, h cx: hind coxa, pd m: setae on posterodorsal margin of hind coxa, pmtcx brg: postmetacoxal bridge, prst: prosternum).

areas. Six genera, *Masistylodes* Mesnil, *Manola* Richter, *Mesnilisca* Zimin, *Paralypha* Mesnil, *Magripa* Richter, and *Stackelbergomyia* Rohden-dorf are endemic to Middle Asia; six genera, *Catena* Richter, *Isafarus* Richter, *Scommma* Richter, *Mongolomintho* Richter, *Ciala* Richter, and

Carbonilla Mesnil are endemic to Central Asia. Siberia has one widely distributed endemic genus, *Milada* Richter. The Eastern Asiatic subregion of Palaearctic has a very rich tachinid fauna, with a large number of endemic genera (34) with mostly little-known ranges (Richter 1995b).

KEY TO GENERA

Adults

Measurements, definitions and other important remarks to the key:

Eye pilosity should be viewed against dark background, because hairs are often short, sparse and concolorous with eye.

The width of the frons is measured at its narrowest point in dorsal view (Fig. 67, a); this point may be located distinctly before vertex (Fig. 68).

The width of one eye in dorsal view (Fig. 67, b) is calculated from the quotient: (maximum width of head minus width of frons) divided by two.

The lengths of pedicel and first flagellomere, and width of first flagellomere are measured as shown in Fig. 73.

Figs 69–76 show the point up to which the arista is regarded as thickened.

The diameter of prementum is measured at midlength in profile (Fig. 62).

If not indicated otherwise, the width of parafacial is measured at its narrowest point in its real dimension in horizontal position, not in the position of head profile.

Height of gena and vertical diameter of eye are measured in the same position of head profile as shown in Fig. 4.

The lower margin of face is always to be understood without the frontoclypeal membrane (the latter may appear as lower facial margin in certain cases).

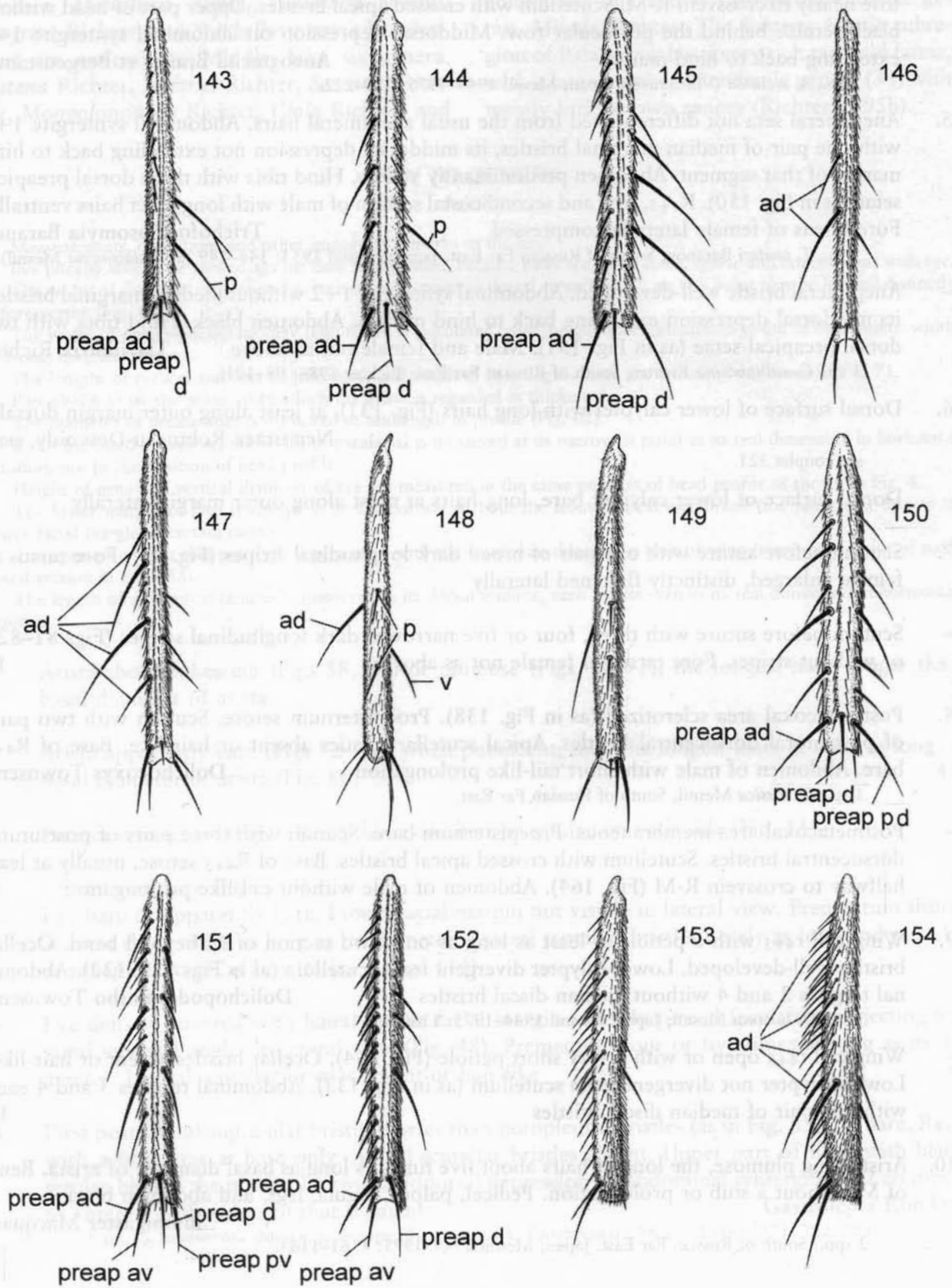
The apex of wing is that point of wing margin with the maximum distance to base of wing (most distal point of sixth costal section in Fig. 155).

The length of abdominal tergites is measured in its dorsal midline, each tergite seen in its real dimension in horizontal position.

1. Arista short pubescent (Figs 58, 71) or plumose (Figs 48, 77), the longest hairs longer than basal diameter of arista 2
- Arista apparently bare (Figs 72–76); when pubescent, then the longest hairs at most as long as basal diameter of arista (Fig. 80) 41
2. Prosternum setose (Fig. 136), at least one hair or setulae on each side (Fig. 135) 3
- Prosternum bare (Fig. 134) 6
3. Eye bare or apparently bare. Lower facial margin not visible in lateral view. Prementum short, at most three times as long as its diameter. Lateral scutellar bristles nearly as long and straight as subapical scutellar bristles (as in Fig. 114) 4
- Eye densely covered with hairs. Lower facial margin strongly turned forwards, projecting beyond vibrissal angles in lateral view (Fig. 48). Prementum four or five times as long as its diameter. Lateral scutellar bristles absent or hair-like 5
4. First postsutural supra-alar bristle shorter than notopleural bristles (as in Fig. 85). R₁ bare. R₄₊₅ with a few setae at base only. Apical scutellar bristles absent. Upper part of head with black setulae behind the postocular row. Middorsal depression on abdominal syntergite 1+2 confined to anterior half or less of that segment **Gastrolepta** Rondani

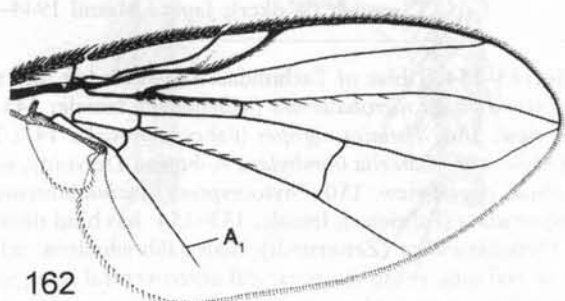
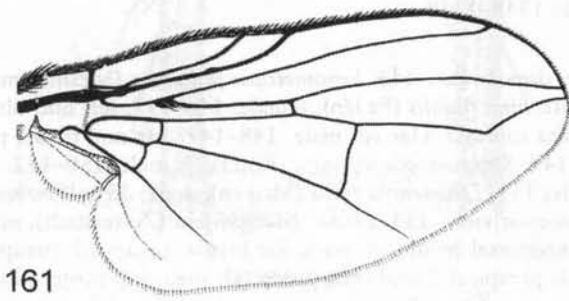
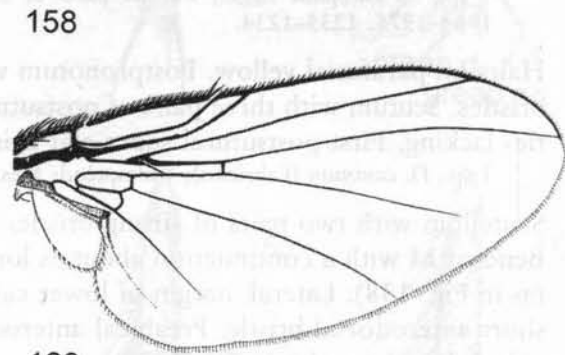
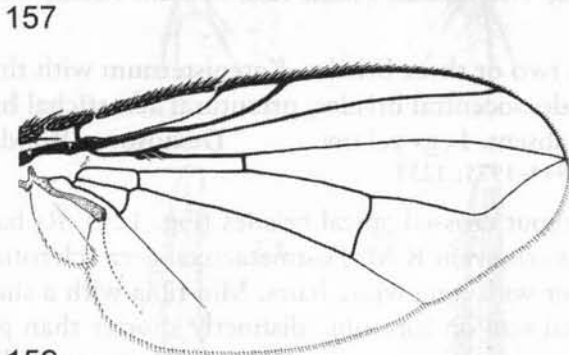
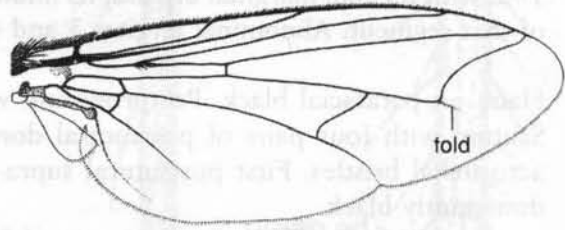
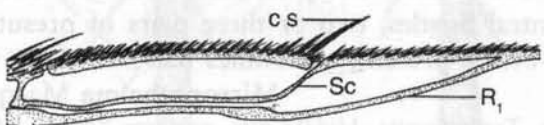
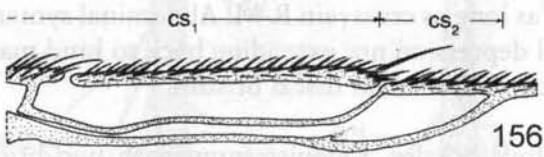
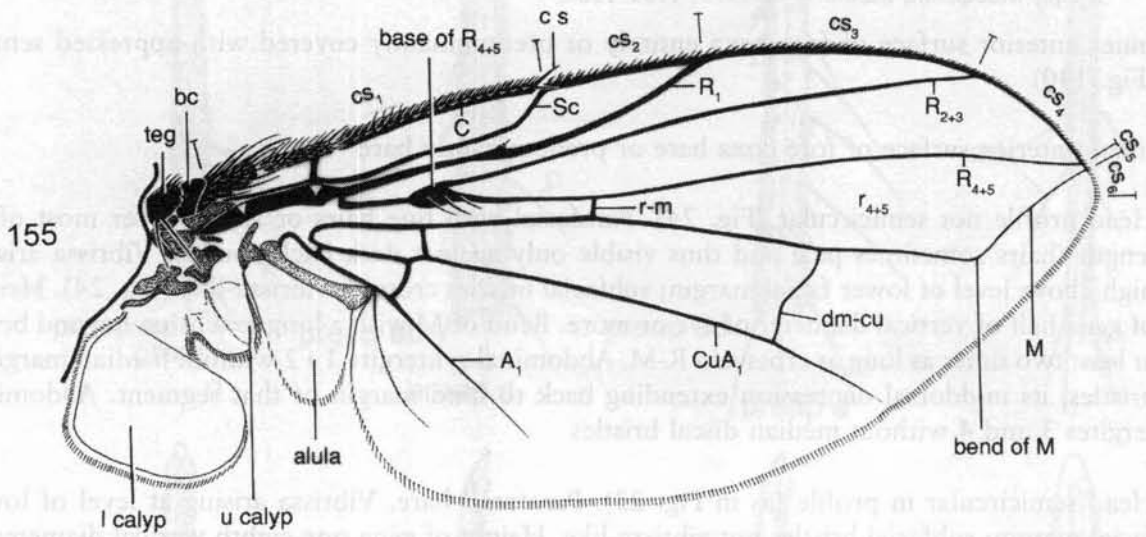
1 sp., *G. anthracina* (Meigen); Europe, Transcaucasia, Tadzhikistan; Mesnil 1944–1975: 722–723.

- First postsutural supra-alar bristle longer than notopleural bristles. R₁ setose dorsally. R₄₊₅ setose nearly to crossvein R-M. Scutellum with crossed apical bristles. Upper part of head without black setulae behind the postocular row. Middorsal depression on abdominal syntergite 1+2 extending back to hind margin **Aneogmena** Brauer et Bergenstamm
1 sp., *A. secunda* (Villeneuve); Japan; Mesnil 1944-1975: 220-222.
- 5. Anepimeral seta not differentiated from the usual anepimeral hairs. Abdominal syntergite 1+2 with one pair of median marginal bristles, its middorsal depression not extending back to hind margin of that segment. Abdomen predominantly yellow. Hind tibia with three dorsal preapical setae (as in Fig. 150). R₄₊₅, first and second costal section of male with long erect hairs ventrally. Fore tarsus of female laterally compressed **Trichoformosomyia** Baranov
1 sp., *T. sauteri* Baranov; South of Russian Far East, Japan; Mesnil 1953: 146-149 (as *Malaisimyia* Mesnil).
- Anepimeral bristle well-developed. Abdominal syntergite 1+2 without median marginal bristles, its middorsal depression extending back to hind margin. Abdomen black. Hind tibia with two dorsal preapical setae (as in Fig. 151). Male and female not as above **Cavillatrix** Richter
1 sp., *C. calliphorina* Richter; South of Russian Far East; Richter 1986: 98-101.
- 6. Dorsal surface of lower calypter with long hairs (Fig. 131), at least along outer margin dorsally **Nemoraea** Robineau-Desvoidy, part
see couplet 321.
- Dorsal surface of lower calypter bare, long hairs at most along outer margin laterally 7
- 7. Scutum before suture with one pair of broad dark longitudinal stripes (Fig. 83). Fore tarsus of female enlarged, distinctly flattened laterally 8
- Scutum before suture with three, four or five narrower dark longitudinal stripes (Figs 81-82), or without stripes. Fore tarsus of female not as above 11
- 8. Postmetacoxal area sclerotized (as in Fig. 138). Proepisternum setose. Scutum with two pairs of postsutural dorsocentral bristles. Apical scutellar bristles absent or hair-like. Base of R₄₊₅ bare. Abdomen of male with short tail-like prolongation **Dolichocoxys** Townsend
1 sp., *D. rossica* Mesnil; South of Russian Far East.
- Postmetacoxal area membranous. Proepisternum bare. Scutum with three pairs of postsutural dorsocentral bristles. Scutellum with crossed apical bristles. Base of R₄₊₅ setose, usually at least halfway to crossvein R-M (Fig. 164). Abdomen of male without tail-like prolongation 9
- 9. Wing cell r₄₊₅ with a petiole at least as long as one-third section of M beyond bend. Ocellar bristles well-developed. Lower calypter divergent from scutellum (as in Figs 129, 132). Abdominal tergites 3 and 4 without median discal bristles **Dolichopodomintho** Townsend
1 sp., *D. takanoi* Mesnil; Japan; Mesnil 1944-1975: 1160-1161.
- Wing cell r₄₊₅ open or with a very short petiole (Fig. 164). Ocellar bristles absent or hair-like. Lower calypter not divergent from scutellum (as in Fig. 133). Abdominal tergites 3 and 4 each with one pair of median discal bristles 10
- 10. Arista long plumose, the longest hairs about five times as long as basal diameter of arista. Bend of M without a stub or prolongation. Pedicel, palpus, tegula, legs, and abdomen black **Sumpigaster** Macquart
2 spp.; South of Russian Far East, Japan; Mesnil 1944-1975: 1161-1163.



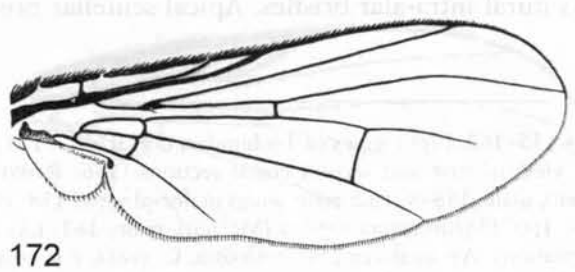
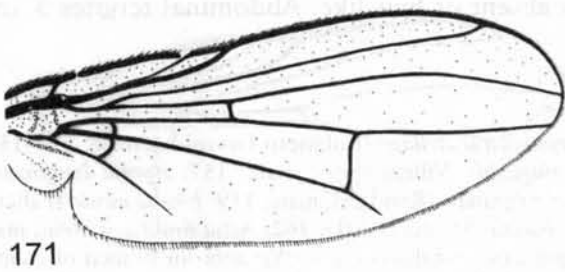
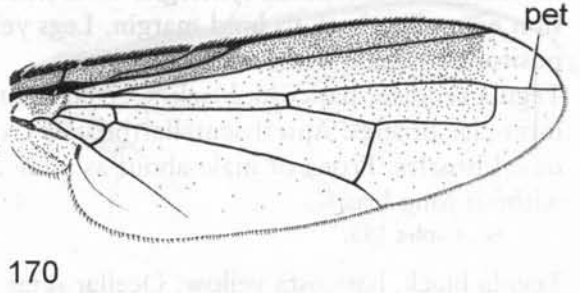
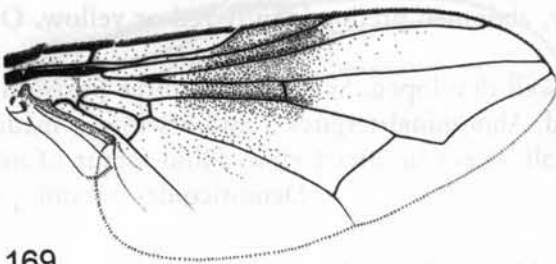
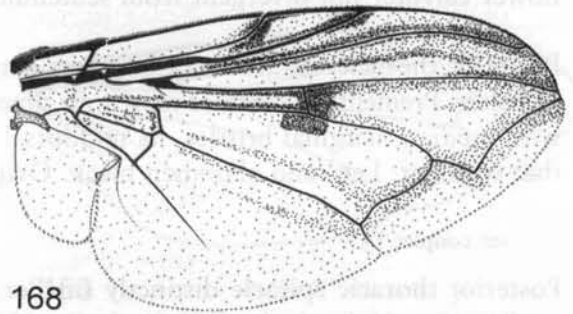
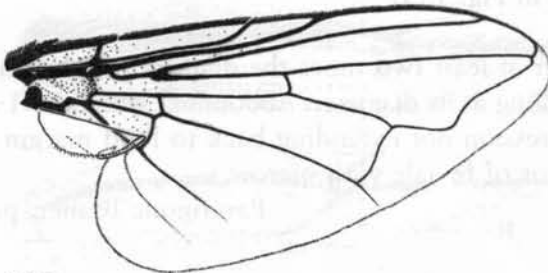
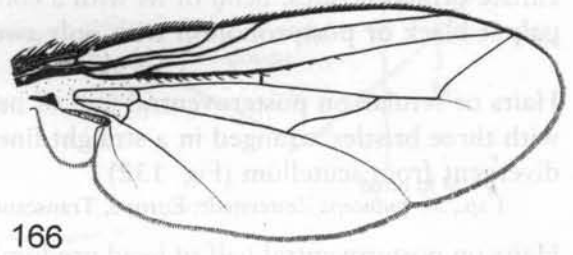
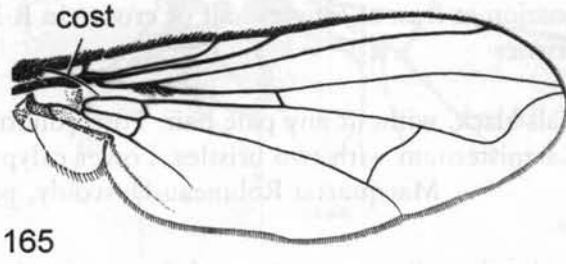
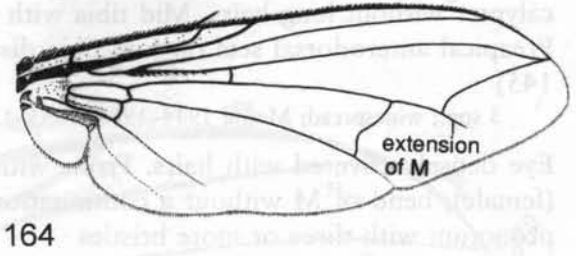
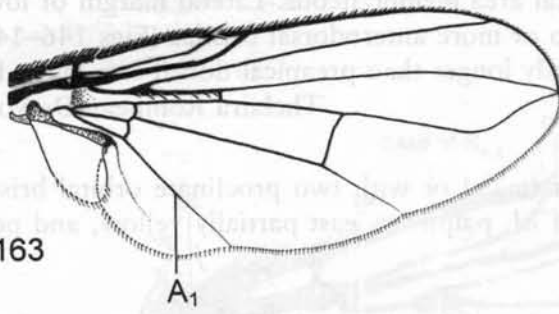
- Hairs of arista at most as long as two times basal diameter of arista. Bend of M with a long extension beyond bend, distinctly longer than crossvein R-M (Fig. 164). Pedicel, palpus, tegula, and legs yellow or red, abdomen usually predominantly yellow or red
Mintho Robineau-Desvoidy
 2 spp.; widespread; Mesnil 1944–1975: 1163–1166.
11. Inner anterior surface of fore coxa entirely or predominantly covered with appressed setulae (Fig. 140) 12
- Inner anterior surface of fore coxa bare or predominantly bare 15
12. Head profile not semicircular (Fig. 24). Parafacial with fine hairs or setulae over most of its length (hairs sometimes pale and thus visible only against dark background). Vibrissa arising high above level of lower facial margin; subfacial bristles crossed, vibrissa-like (Fig. 24). Height of gena half of vertical diameter of eye or more. Bend of M with a long extension beyond bend, at least two times as long as crossvein R-M. Abdominal syntergite 1+2 without median marginal bristles, its middorsal depression extending back to hind margin of that segment. Abdominal tergites 3 and 4 without median discal bristles 13
- Head semicircular in profile (as in Fig. 23). Parafacial bare. Vibrissa arising at level of lower facial margin; subfacial bristles not vibrissa-like. Height of gena one-eighth vertical diameter of eye or less. Bend of M at most with an extension as long as crossvein R-M. Abdominal syntergite 1+2 with median marginal bristles, its middorsal depression not extending back to hind margin of that segment. Abdominal tergites 3 and 4 each with median discal bristles 14
13. Hairs on parafacial black. Postpronotum with four bristles. Katepisternum with two bristles. Scutum with four pairs of postsutural dorsocentral bristles, two or three pairs of presutural acrostichal bristles. First postsutural supra-alar bristle present, sometimes hair-like. Legs predominantly black
Microphthalma Macquart
 1 sp., *M. europaea* Egger; warmer parts of Europe, Transcaucasia, Middle Asia, southern Siberia; Mesnil 1944–1975: 1233–1234.
- Hairs on parafacial yellow. Postpronotum with two or three bristles. Katepisternum with three bristles. Scutum with three pairs of postsutural dorsocentral bristles, presutural acrostichal bristles lacking. First postsutural supra-alar bristle absent. Legs yellow
Dexiosoma Rondani
 1 sp., *D. caninum* (Fabricius); widespread; Mesnil 1944–1975: 1233.
14. Scutellum with two pairs of strong bristles, without crossed apical bristles (Fig. 120). R₁ bare. Bend of M with a continuation about as long as crossvein R-M. Postmetacoxal area sclerotized (as in Fig. 138). Lateral margin of lower calypter with long white hairs. Mid tibia with a single short anterodorsal bristle. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143)
Torocca Walker
 1 sp., *T. munda* (Walker); Japan; Mesnil 1944–1975: 1348–1349.

Figs 54.143–154. Tibiae of Tachinidae. 143–145: left fore tibiae, dorsal view: 143: *Senometopia pollinosa* (Mesnil), male; 144: *Entomophaga nigrohalterata* (Villeneuve), female; 145: *Pelatachina tibialis* (Fallén), female. 146–147: left mid tibiae, dorsal view: 146: *Thelaira nigripes* (Fabricius), male; 147: *Thelaira solivaga* (Harris), male. 148–149: left mid tibiae, posterior view: 148: *Carcelia bombylans* Robineau-Desvoidy, male; 149: *Senometopia separata* (Rondani), male. 150–152: left hind tibiae, dorsal view: 150: *Phytomyptera vaccinii* Sintenis, male; 151: *Linnaemya picta* (Meigen), male; 152: *Winthemia quadripustulata* (Fabricius), female. 153–154: left hind tibiae, posterior view: 153: *Billaea triangulifera* (Zetterstedt), male; 154: *Phebellia villica* (Zetterstedt), male (abbreviations: ad: anterodorsal bristle, p: posterior bristle, preap ad: preapical anterodorsal seta, preap av: preapical anteroventral seta, preap d: preapical dorsal seta, preap pd: preapical posterodorsal seta, preap pv: preapical posteroventral seta, v: ventral bristle).



- Scutellum with three pairs of bristles, apical bristles crossed (as in Fig. 130). R₁ setose dorsally. Bend of M without continuation. Postmetacoxal area membranous. Lateral margin of lower calypter without long hairs. Mid tibia with two or more anterodorsal bristles (Figs 146–147). Preapical anterodorsal seta on fore tibia distinctly longer than preapical dorsal seta (as in Fig. 145)
Thelaira Robineau-Desvoidy
- 3 spp.; widespread; Mesnil 1944–1975: 1335–1341.
- 15. Eye densely covered with hairs. Frons without (male) or with two proclinate orbital bristles (female), bend of M without a continuation of M, palpus at least partially yellow, and postpronotum with three or more bristles 16
- Eye bare, but if covered with hairs (rare cases), then either frons with a complete row of proclinate orbital bristles, bend of M with a continuation at least as long as half of crossvein R-M, palpus black or postpronotum with only two bristles 19
- 16. Hairs or setulae on posteroventral half of head all black, without any pale hair. Postpronotum with three bristles arranged in a straight line. Katepisternum with two bristles. Lower calypter divergent from scutellum (Fig. 132)
Macquartia Robineau-Desvoidy, part
- 1 sp., *M. pubiceps* Zetterstedt; Europe, Transcaucasia.
- Hairs on posteroventral half of head predominantly white. Postpronotum with four or five bristles, but if only three, then distinctly arranged in a triangle. Katepisternum with three bristles. Lower calypter not divergent from scutellum (as in Fig. 133) 17
- 17. Posterior thoracic spiracle very large, its diameter at least two times the diameter of the knob of halter. Prementum short, at most four times as long as its diameter. Abdominal syntergite 1+2 with median marginal bristles, its middorsal depression not extending back to hind margin of that segment. Legs and abdomen black. Ovipositor of female with piercer
Parerigone Brauer, part
- see couplet 145.
- Posterior thoracic spiracle distinctly smaller. Prementum longer, at least five times as long as its diameter. Abdominal syntergite 1+2 without median marginal bristles, its middorsal depression extending back to hind margin. Legs yellow, abdomen predominantly red or yellow. Ovipositor of female without piercer 18
- 18. Tegula reddish, basicosta black. Ocellar bristles well-developed. Scutum with three postsutural intra-alar bristles. Apical scutellar bristles crossed. Abdominal tergites 3 and 4 without median discal bristles. Frons of male about as wide as half of eye in dorsal view. Hind femur of male without long bristles
Demoticoides Mesnil, part
- see couplet 353.
- Tegula black, basicosta yellow. Ocellar setae hair-like or absent. Scutum with one or two postsutural intra-alar bristles. Apical scutellar bristles absent or hair-like. Abdominal tergites 3 and

Figs 54.155–162. Right wings of Tachinidae, dorsal view. 155: *Eurysthaea scutellaris* (Robineau-Desvoidy), male. 156–157: dorsal view of first and second costal sections: 156: *Ramonda ringdabli* (Villeneuve), female; 157: *Aphria longirostris* (Meigen), male. 158–8–162: right wings in dorsal view: 158: *Phorocera grandis* (Rondani), male; 159: *Elodia morio* (Fallén), female; 160: *Phytomyptera nigrina* (Meigen), male; 161: *Eloceria delecta* (Meigen), male; 162: *Actia nudibasis* Stein, male (abbreviations: A₁: anal vein, bc: basicosta, C: costa, c s: costal spine, cs: costal section, CuA₁: anterior branch of cubital vein, dM-Cu: medio-cubital crossvein, l calyp: lower calypter, M: medial vein, R₁, R₂₊₃, R₄₊₅: branches of radial veins, r₄₊₅: wing cell r₄₊₅, R-M: radio-medial crossvein, Sc, subcostal vein, teg: tegula, u calyp: upper calypter).



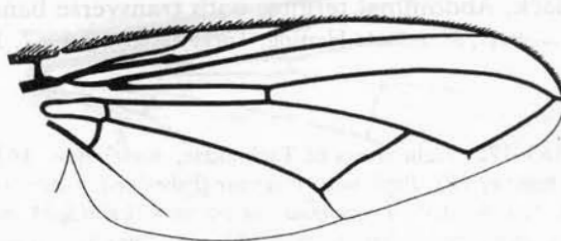
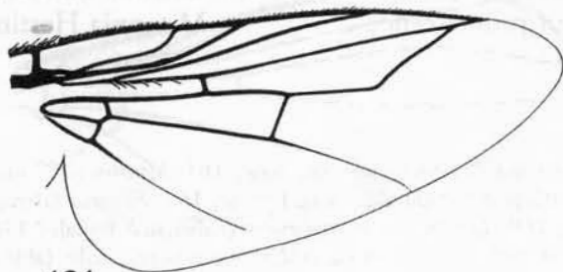
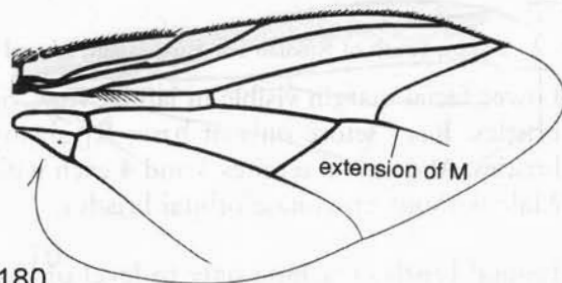
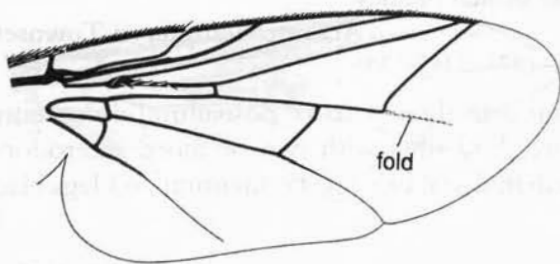
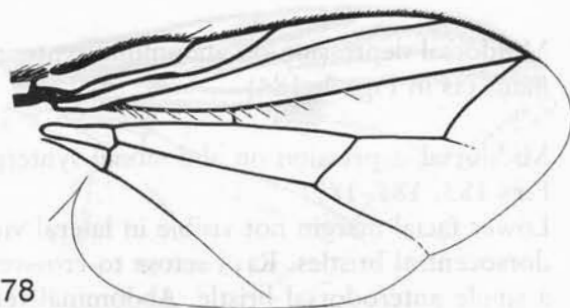
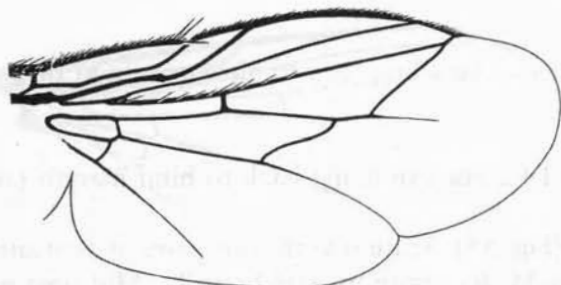
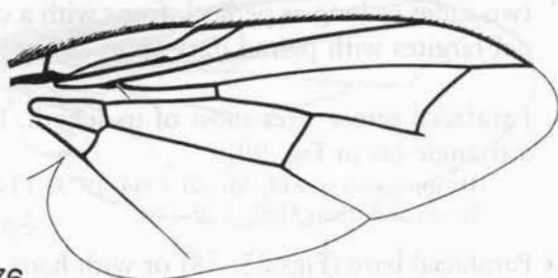
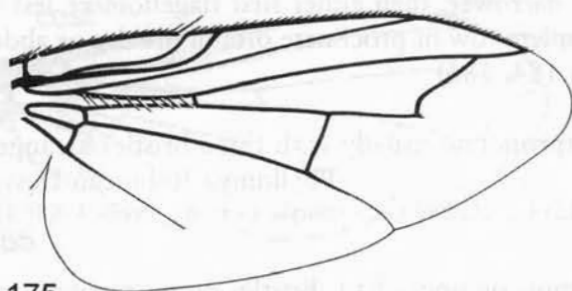
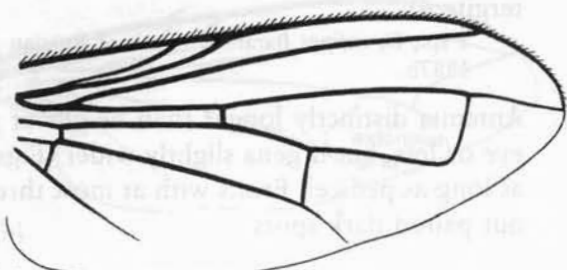
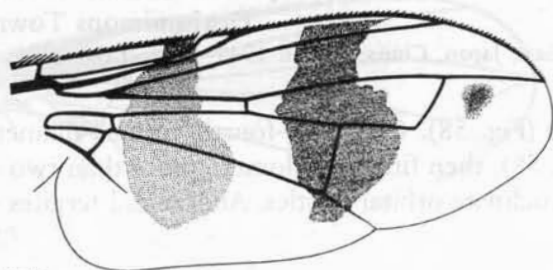
4 each with one pair of median discal bristles. Frons of male about as wide as one-tenth eye in dorsal view. Hind femur of male with three or four long bristles posterodorsally (as long as tergite 4)

Dexiomimops Townsend

1 sp., *D. rufipes* Baranov; South of Russian Far East, Japan, China; Mesnil 1944–1975: 1326–1328, Shima 1987b.

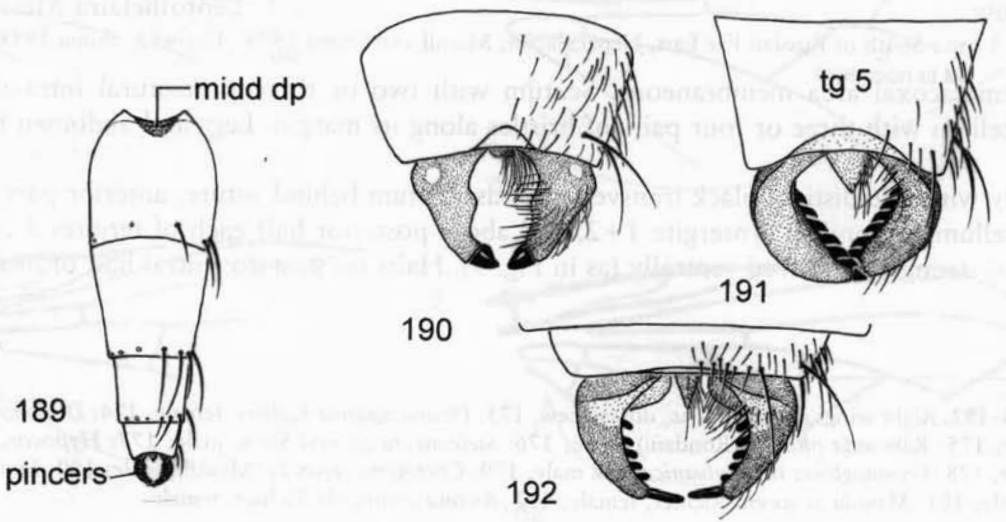
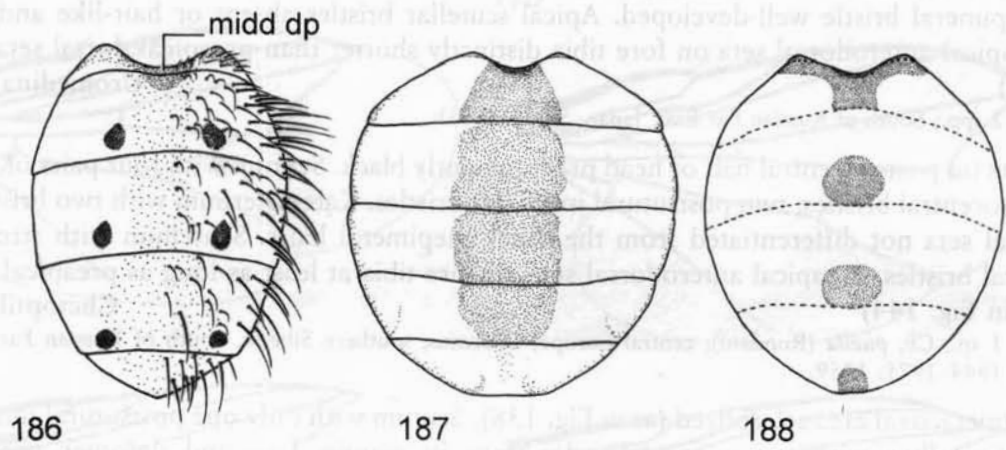
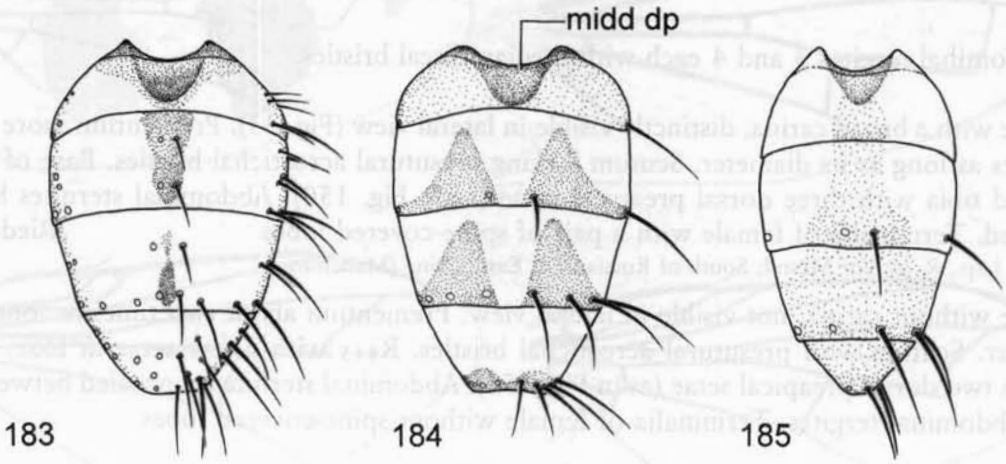
19. Antenna distinctly longer than height of gena (Fig. 58). Gena one-fourth vertical diameter of eye or less, but if gena slightly wider (Figs 33, 58), then first flagellomere more than two times as long as pedicel. Frons with at most three proclinate orbital bristles. Abdominal tergites without paired dark spots 20
- Antenna usually at most as long as height of gena (Figs 20–21, 34, 46). Gena one-third vertical diameter of eye or more, but if gena slightly narrower, then either first flagellomere less than two times as long as pedicel, frons with a complete row of proclinate orbital bristles or abdominal tergites with paired dark spots (as in Figs 184, 186) 29
20. Parafacial setose over most of its length. Postpronotum usually with three bristles arranged in a triangle (as in Fig. 99) **Phyllomya** Robineau-Desvoidy
10 spp.; widespread; Mesnil 1944–1975: 1349–1354 (including *Gibsonomyia* Curran), Shima 1988: 11–17, Shima and Chao 1992: 639–640.
- Parafacial bare (Figs 33, 58) or with hairs at most on upper half. Bristles on postpronotum not arranged in a triangle 21
21. Middorsal depression on abdominal syntergite 1+2 extending back to hind margin of that segment (as in Figs 2, 184) 22
- Middorsal depression on abdominal syntergite 1+2 not extending back to hind margin (as in Figs 183, 185–189) 24
22. Lower facial margin not visible in lateral view (Fig. 58). Scutum with four pairs of postsutural dorsocentral bristles. R_{4+5} setose to crossvein R-M; R_1 setose or bare dorsally. Mid tibia with a single anterodorsal bristle. Abdominal tergites 3 and 4 without median discal bristles. Prementum and legs yellow. Male with two proclinate orbital bristles **Actinochaetopteryx** Townsend
2 spp.; South of Russian Far East, Japan; Mesnil 1944–1975: 1345–1346.
- Lower facial margin visible in lateral view. Scutum with three pairs of postsutural dorsocentral bristles. R_{4+5} setose only at base; R_1 always bare. Mid tibia with two or more anterodorsal bristles. Abdominal tergites 3 and 4 each with median discal bristles. Prementum and legs black. Male without proclinate orbital bristles 23
23. Frontal bristles reaching only to level of base of antenna. Prementum less than three times as long as its diameter. Katepisternum with two bristles. Postpronotum with four bristles. Basicosta black. Abdominal tergites with transverse bands of pruinescence **Mitannia** Herting
1 sp., *M. insueta* Herting; Turkey; Herting 1987: 10–12.

Figs 54.163–172. Right wings of Tachinidae, dorsal view. 163: *Siphona flavifrons* Staeger, male; 164: *Mintho rufiventris* (Fallén), female; 165: *Phyllomya volvulus* (Fabricius), male; 166: *Athrycia trepida* (Meigen), female; 167: *Elomya lateralis* (Meigen), female; 168: *Ectophasia crassipennis* (Fabricius), male; 169: *Ectophasia crassipennis* (Fabricius) female; 170: *Catharosia pygmaea* (Fallén), female; 171: *Cinochira atra* Zetterstedt, male; 172: *Besseria anthophila* (Loew), male. (abbreviations: A₁: anal vein, cost: costigial bristle).



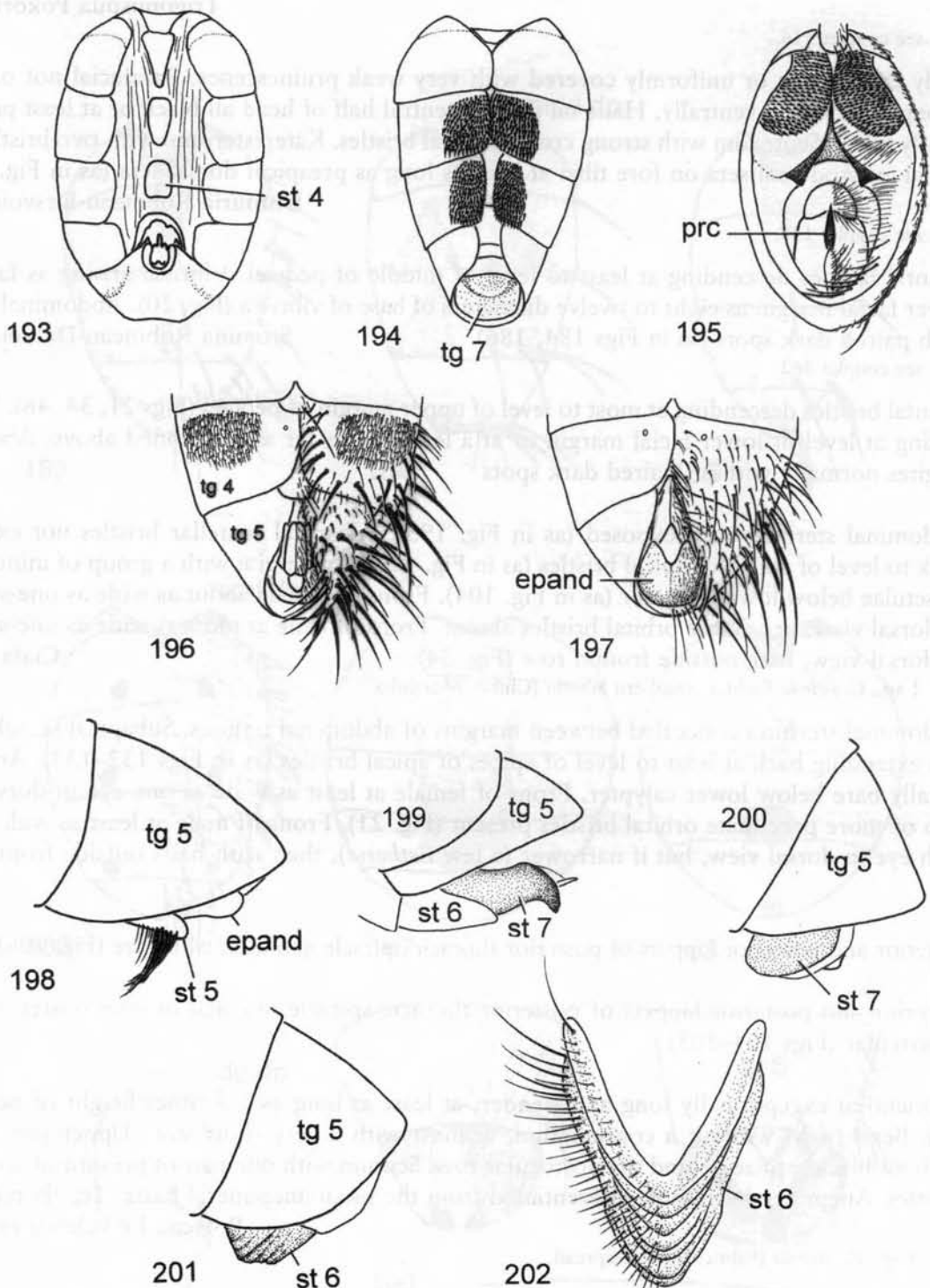
- Frontal bristles descending to level of middle of pedicel. Prementum about six times as long as its diameter. Katepisternum with three bristles. Postpronotum with three bristles. Basicosta yellow. Abdomen uniformly covered with pruinescence Bithia Robineau-Desvoidy, part
see couplet 370.
- 24. Abdominal tergites 3 and 4 without median discal bristles. 25
- Abdominal tergites 3 and 4 each with median discal bristles 27
- 25. Face with a broad carina, distinctly visible in lateral view (Fig. 33). Prementum more than seven times as long as its diameter. Scutum lacking presutural acrostichal bristles. Base of R_{4+5} bare. Hind tibia with three dorsal preapical setae (as in Fig. 150). Abdominal sternites broadly exposed. Terminalia of female with a pair of spine-covered lobes Riedelia Mesnil
1 sp., *R. bicolor* Mesnil; South of Russian Far East, China (Manchuria).
- Face without carina, not visible in lateral view. Prementum about two times as long as its diameter. Scutum with presutural acrostichal bristles. R_{4+5} with a few setae at base. Hind tibia with two dorsal preapical setae (as in Fig. 151). Abdominal sternites concealed between margins of abdominal tergites. Terminalia of female without spine-covered lobes 26
- 26. Hairs on posteroventral half of head predominantly white. Scutum with three pairs of postsutural dorsocentral bristles, three postsutural intra-alar bristles. Katepisternum with three bristles. Anepimeral bristle well-developed. Apical scutellar bristles absent or hair-like and divergent. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143) Uromedina Townsend
2 spp.; South of Russian Far East, Japan; Shima 1985b.
- Hairs on posteroventral half of head predominantly black. Scutum with four pairs of postsutural dorsocentral bristles, two postsutural intra-alar bristles. Katepisternum with two bristles. Anepimeral seta not differentiated from the usual anepimeral hairs. Scutellum with strong crossed apical bristles. Preapical anterodorsal seta on fore tibia at least as long as preapical dorsal seta (as in Fig. 144) Chetoptilia Rondani
1 sp., *Ch. puella* (Rondani); central Europe, Caucasus, southern Siberia, South of Russian Far East; Mesnil 1944-1975: 1359.
- 27. Postmetacoxal area sclerotized (as in Fig. 138). Scutum with only one postsutural intra-alar bristle. Scutellum with two pairs of bristles along its margin. Legs and abdomen predominantly yellow Leptothelaira Mesnil et Shima
3 spp.; South of Russian Far East, Nepal, Japan; Mesnil and Shima 1979: 476-482, Shima 1988: 17-19.
- Postmetacoxal area membranous. Scutum with two or three postsutural intra-alar bristles. Scutellum with three or four pairs of bristles along its margin. Legs and abdomen black 28
- 28. Body with five distinct black transverse bands: scutum behind suture, anterior part or more of scutellum, abdominal syntergite 1+2, and about posterior half each of tergites 3 and 4. Para-facial strongly narrowed ventrally (as in Fig. 9). Hairs on posteroventral half of head predomi-

Figs 54.173-182. Right wings of Tachinidae, dorsal view. 173: *Plesina asiatica* Richter, female; 174: *Diplopota mica* (Richter), female; 175: *Ramonda plorans* (Rondani), male; 176: *Steleoneura czernyi* Stein, male; 177: *Hypovoria hilaris* Ville-neuve, male; 178: *Gymnoglossa transsylvanica* Mik male; 179: *Chetogena repanda* (Mesnil), male; 180: *Linnaemya comta* (Fallén), male; 181: *Manola xenocera* Richter, female; 182: *Arcona amuricola* Richter, female.



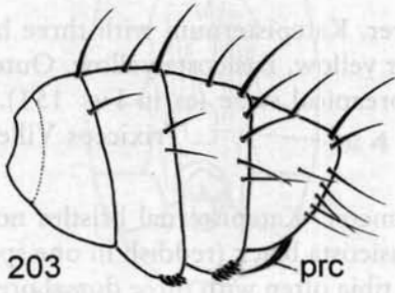
- nantly white. Apical scutellar bristles absent. Katepisternum with three bristles. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143)
Trigonospila Pokorny, part
 see couplet 316.
- Body shiny black or uniformly covered with very weak pruinescence. Parafacial not or not as strongly narrowed ventrally. Hairs on posteroventral half of head all black or at least predominantly black. Scutellum with strong crossed apical bristles. Katepisternum with two bristles. Preapical anterodorsal seta on fore tibia at least as long as preapical dorsal seta (as in Fig. 144)
Dufouria Robineau-Desvoidy, part
 see couplet 137.
29. Frontal bristles descending at least to level of middle of pedicel. Vibrissa arising as far above lower facial margin as eight to twelve diameters of base of vibrissa (Fig. 20). Abdominal tergites with paired dark spots (as in Figs 184, 186)
Stomina Robineau-Desvoidy, part
 see couplet 362.
- Frontal bristles descending at most to level of upper margin of pedicel (Figs 21, 34, 46). Vibrissa arising at level of lower facial margin or at a level not as far as mentioned above. Abdominal tergites normally without paired dark spots 30
30. Abdominal sternites well exposed (as in Fig. 193). Subapical scutellar bristles not extending back to level of apices of apical bristles (as in Fig. 117). Anatergite with a group of minute hairs or setulae below lower calypter (as in Fig. 104). Frons of female about as wide as one-sixth eye in dorsal view, proclinate orbital bristles absent. Frons of male at most as wide as one-sixth eye in dorsal view, bare outside frontal row (Fig. 34)
Ciala Richter
 1 sp., *C. veleda* Richter; southern Siberia (Chita), Mongolia.
- Abdominal sternites concealed between margins of abdominal tergites. Subapical scutellar bristles extending back at least to level of apices of apical bristles (as in Figs 132–133). Anatergite usually bare below lower calypter. Frons of female at least as wide as one eye in dorsal view, two or more proclinate orbital bristles present (Fig. 21). Frons of male at least as wide as one-fifth eye in dorsal view, but if narrower (a few *Estheria*), then with hairs outside frontal row 31
31. Anterior and posterior lappets of posterior thoracic spiracle about equal in size (Fig. 106) 32
- Anterior and posterior lappets of posterior thoracic spiracle unequal in size; posterior lappet subcircular (Figs 104–105) 34
32. Prementum exceptionally long and slender, at least as long as 1.5 times height of head (Fig. 21). Bend of M without a continuation, at most with a very short stub. Upper part of head without black setulae behind the postocular row. Scutum with one pair of presutural acrostichal bristles. Anepimeral seta not differentiated from the usual anepimeral hairs. Tegula reddish
Prosenia Le Peletier et Serville
 1 sp., *P. siberita* (Fabricius); widespread.

Figs 54.183–192. Abdomens of Tachinidae. 183–189: in dorsal view: 183: *Hyalurgus lucidus* (Meigen), male; 184: *Billaea triangulifera* (Zetterstedt), male; 185: *Siphona maculata* Staeger, male; 186: *Pandelleia otiorrhynchi* Villeneuve, male; 187: *Ectophasia crassipennis* (Fabricius), male; 188: *Gymnosoma rotundatum* (Linnaeus), male; 189: *Leucostoma anthracinum* (Meigen), female. 190–192: female tergite 5 and pincers, dorsal view: 190: *Labigastera pauciseta* Rondani; 191: *Leucostoma tetraptera* (Meigen); 192: *Dionaea aurifrons* (Meigen) (abbreviations: midd dp: middorsal depression, T: tergite).



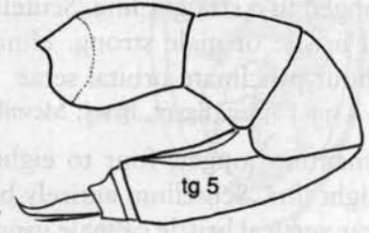
Figs 54.193–202. Abdomens of Tachinidae. 193–195: in ventral view: 193: *Ectophasia oblonga* (Robineau-Desvoidy), male; 194: *Medina multispina* (Herting), female; 195: *Catharosia pygmaea* (Fallén), female. 196–197: ventral view of male tergites 4 and 5: 196: *Lydella grisescens* Robineau-Desvoidy; 197: *Leucostoma crassum* Kugler. 198–201: lateral view of tergite 5 and terminalia: 198: *Medina multispina* (Herting), male; 199: *Phasia pusilla* Meigen, female; 200: *Picconia incurva* (Zetterstedt), female; 201: *Phorocera assimilis* (Fallén), female. 202: *Phorocera assimilis* (Fallén), female sternite 6, ventral view (abbreviations: epand: epandrium, prc: piercer, S: sternite, T: tergite).

- Prementum distinctly shorter. Bend of M with a continuation 0.5–3 times as long as crossvein R-M (as in Figs 164, 180). Upper part of head with several rows of black setulae behind the postocular row. Scutum with two or three pairs of presutural acrostichal bristles. Anepimeral bristle well-developed. Tegula black 33
33. Prementum short, about three times as long as its diameter. Katepisternum with three bristles arranged in a straight line. Scutellum predominantly red or yellow. Basicosta yellow. Outer vertical bristle of male strong. Hind tibia with two dorsal preapical setae (as in Fig. 151). Male without proclinate orbital setae **Trixiceps Villeneuve**
2 spp.; Spain, Egypt, Israel; Mesnil 1980: 14–16.
- Prementum longer, four to eight times as long as its diameter. Katepisternal bristles not in a straight line. Scutellum entirely black in ground colour. Basicosta black (reddish in one species). Outer vertical bristle of male usually absent or weak. Hind tibia often with three dorsal preapical setae (as in Fig. 150). Male often with a complete row of proclinate orbital setae **Zeuxia Meigen**
18 spp.; widespread; Mesnil 1980: 17–38.
34. Second costal section with fine hairs ventrally. Postpronotum with two or three bristles 35
- Second costal section bare ventrally, but if with hairs (one species of *Estheria*), then postpronotum with four or five bristles 37
35. Middorsal depression on abdominal syntergite 1+2 extending back to hind margin of that segment. Proboscis of normal length, prementum at least three times as long as its diameter. Palpus not strongly inflated. First postsutural supra-alar bristle distinctly shorter than notopleural bristles. Abdominal tergites often with median discal bristles **Dexia Meigen**
11 spp.; widespread; Mesnil 1980: 38–52.
- Middorsal depression on abdominal syntergite 1+2 not extending back to hind margin. Proboscis very short, prementum at most two times as long as its diameter (as in Fig. 22). Palpus strongly inflated. First postsutural supra-alar bristle about as long as notopleural bristles or longer. Abdominal tergites without median discal bristles 36
36. Hairs of arista not or only slightly longer than basal diameter of arista. Parafacial at its narrowest point about as wide as first flagellomere. Facial ridge with setae on lower one-fourth to half. Mid tibia with one to four anterodorsal bristles. Tegula and basicosta usually black or pale brown **Trixella Mesnil**
4 spp.; South of Russian Far East, China, Nepal, Japan.
- Hairs of arista about four times as long as basal diameter of arista. Parafacial at least 1.5 times as wide as first flagellomere. Facial ridge with only a few hairs just above vibrissa. Mid tibia with a single anterodorsal bristle. Tegula and basicosta yellow **Dexiotrix Villeneuve**
1 sp., *D. longipennis* Villeneuve; China (Szechwan).
37. Proepisternum setose, but if bare (individual specimens of one species of *Dinera*), then abdominal tergites 3 and 4 without median discal bristles 38
- Proepisternum bare. Abdominal tergites 3 and 4 each with median discal bristles 40



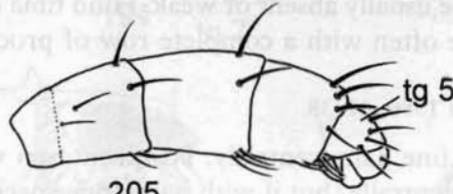
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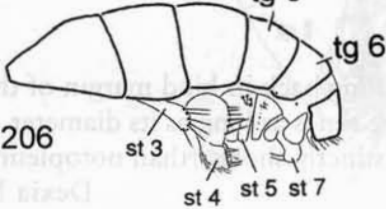
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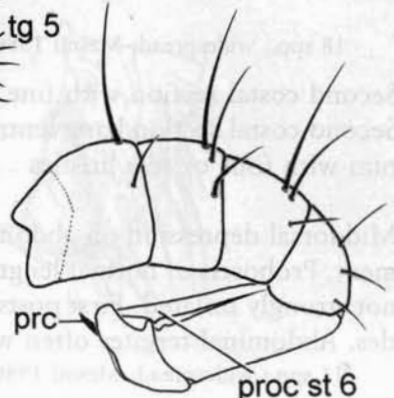
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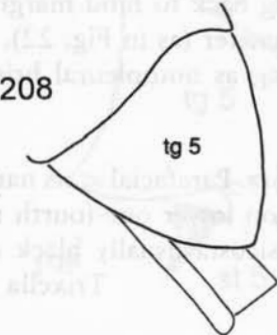
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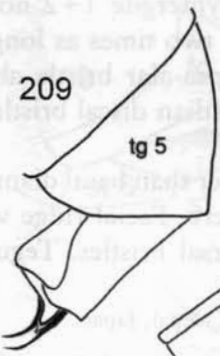
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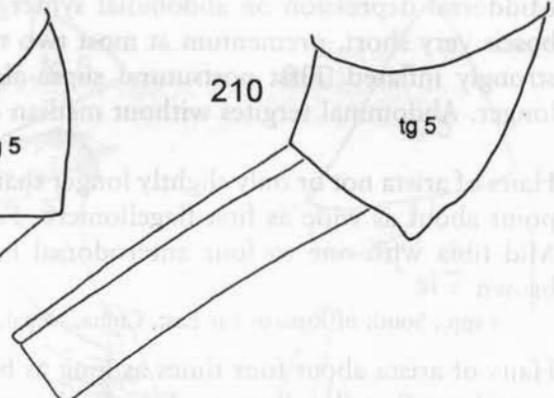
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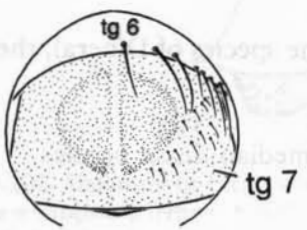
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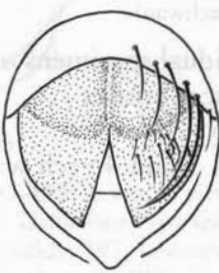
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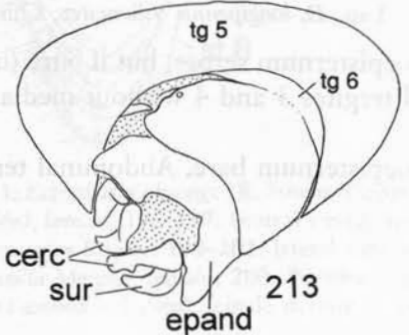
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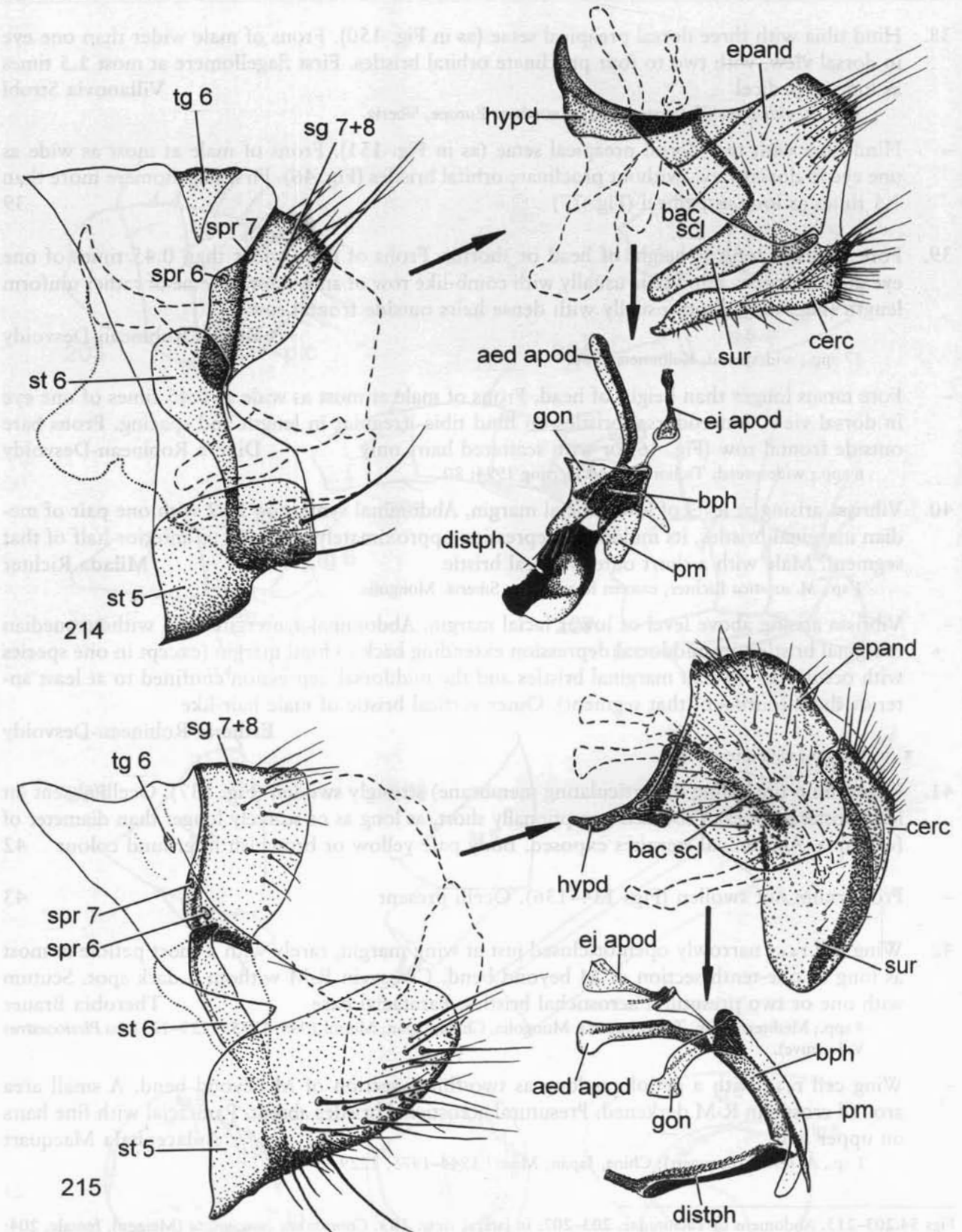
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38. Hind tibia with three dorsal preapical setae (as in Fig. 150). Frons of male wider than one eye in dorsal view, with two to four proclinate orbital bristles. First flagellomere at most 1.5 times as long as pedicel **Villanovia** Strobl
1 sp., *V. villicornis* (Zetterstedt); Alps, northern Europe, Siberia.
- Hind tibia with two dorsal preapical setae (as in Fig. 151). Frons of male at most as wide as one eye in dorsal view, without proclinate orbital bristles (Fig. 46). First flagellomere more than 1.5 times as long as pedicel (Fig. 77) 39
39. Fore tarsus as long as height of head or shorter. Frons of male wider than 0.45 times of one eye in dorsal view. Hind tibia usually with comb-like row of anterodorsal setae of rather uniform length (Fig. 153). Frons usually with dense hairs outside frontal row **Billaea** Robineau-Desvoidy
17 spp.; widespread; Kolomiets 1966.
- Fore tarsus longer than height of head. Frons of male at most as wide as 0.45 times of one eye in dorsal view. Anterodorsal bristles on hind tibia irregular in length and spacing. Frons bare outside frontal row (Fig. 46) or with scattered hairs only **Dinera** Robineau-Desvoidy
6 spp.; widespread; Tschorsnig and Herting 1994: 80.
40. Vibrissa arising at level of lower facial margin. Abdominal syntergite 1+2 with one pair of median marginal bristles, its middorsal depression approximately confined to anterior half of that segment. Male with a short outer vertical bristle **Milada** Richter
1 sp., *M. asiatica* Richter; eastern Kazakhstan, Siberia, Mongolia.
- Vibrissa arising above level of lower facial margin. Abdominal syntergite 1+2 without median marginal bristles, its middorsal depression extending back to hind margin (except in one species with occasional median marginal bristles and the middorsal depression confined to at least anterior three-fourths of that segment). Outer vertical bristle of male hair-like **Estheria** Robineau-Desvoidy
25 spp.; widespread.
41. Prosternum (including the articulating membrane) strongly swollen (Fig. 137). Ocelli absent (at least posterior ones). Proboscis exceptionally short, as long as or scarcely longer than diameter of fore tibia. Abdominal sternites exposed. Body pale yellow or brownish in ground colour 42
- Prosternum not swollen (Figs 134–136). Ocelli present 43
42. Wing cell r_{4+5} narrowly open or closed just at wing margin, rarely with a short petiole at most as long as one-tenth section of M beyond bend. Crossvein R-M without a dark spot. Scutum with one or two presutural acrostichal bristles. Parafacial bare **Therobia** Brauer
4 spp.; Mediterranean, Transcaucasia, Mongolia, China, Japan; Mesnil 1944–1975: 1229–1231 (as *Plesiooestrus* Villeneuve).
- Wing cell r_{4+5} with a petiole as long as two-thirds section of M beyond bend. A small area around crossvein R-M darkened. Presutural acrostichal bristles absent. Parafacial with fine hairs on upper half **Aulacephala** Macquart
1 sp., *A. hervei* (Bequaert); China, Japan; Mesnil 1944–1975: 1229.

Figs 54.203–213. Abdomens of Tachinidae. 203–207: in lateral view: 203: *Compsilura concinnata* (Meigen), female, 204: *Freraea gagatea* Robineau-Desvoidy, female; 205: *Cylindromyia brevicornis* (Loew), male; 206: *Sepseocara itians* Richter, female; 207: *Phania funesta* (Meigen), female. 208–210: female tergite 5 and terminalia in lateral view: 208: *Rondania dimidiata* (Meigen); 209: *Microsoma exiguum* (Meigen); 210: *Pandelleia otiorrhynchi* Villeneuve. 211–1–213: terminalia, posterior view: 211: *Medina multispina* (Herting), female; 212: *Medina melania* (Meigen), female; 213: *Xysta holosericea* (Fabricius), male (abbreviations: cerc: cercus, epand: epandrium, prc: piercer, S: sternite, sur: surstylus, T: tergite).



Figs 54.214–215. Male terminalia, lateral view. 214: *Aplomya confinis* (Fallén); 215: *Phenicellia haematodes* (Meigen) (abbreviations: aed apod: aedeagal apodeme, bac scl: bacilliform sclerite, bph: basiphallus, cerc: cercus, distph: distiphallus, ej apod: ejaculatory apodeme, epand: epandrium, gon: gonopod, hypd: hypandrium, pm: paramere, sg: segment, spr: spiracle, S: sternite, sur: surstylus, T: tergite).

43. M not reaching wing margin (Figs 160, 172) or M gradually and evenly curved or nearly straight, extending to wing margin without an abrupt bend (Fig. 171) 44
- M with a distinct bend, reaching wing margin (Fig. 155) 56
44. M gradually and evenly curved or nearly straight, extending to wing margin without an abrupt bend (Fig. 171) 45
- M not reaching wing margin, ending about where bend should be (Figs 160, 172) 46
45. Parafacial with hairs or setulae over its whole length. Lower calypter not divergent from scutellum. Postmetacoxal area membraneous. Subscutellum convex (as in Fig. 3). Abdomen without any bristle. Frons of male about as wide as one-tenth eye in dorsal view. Female: head covered with short spines, without bristles; abdominal tergite 5 exceptionally elongate, bent ventrally (Fig. 204) **Freraea** Robineau-Desvoidy
1 sp., *F. gagatea* Robineau-Desvoidy; Europe, Siberia, Mongolia; Mesnil 1944–1975: 1373–1374.
- Parafacial bare. Lower calypter divergent from scutellum (as in Figs 129, 132). Postmetacoxal area sclerotized (as in Fig. 138). Subscutellum not convex in lateral view (Fig. 108). Abdominal tergites with marginal bristles. Frons of male wider than one eye in dorsal view. Female: head with normal bristles; apex of abdomen with pincers (distinctly shorter and weaker as in Fig. 190) **Cinochira** Zetterstedt
1 sp., *C. atra* Zetterstedt; Europe.
46. Crossvein dM-Cu absent (Fig. 160) 47
- Crossvein dM-Cu present (Fig. 172) 49
47. Base of R₄₊₅ with a single large bristle (Fig. 160). Arista thickened at least on basal two-thirds; second aristomere three to six times as long as its diameter. Upper part of head with several rows of black setulae behind the postocular row. Prosternum with one pair of setae. Three postsutural intra-alar bristles present **Phytomytera** Rondani
5 spp.; widespread; Mesnil 1944–1975: 1192–1195, Andersen 1988 (in part).
- Base of R₄₊₅ not as above. Arista thickened at most on basal half; second aristomere at most as long as its diameter. Upper part of head bare behind the postocular row. Prosternum bare. Two postsutural intra-alar bristles present, separated from each other by a wide distance (as in Fig. 88) 48
48. Frontal vitta present. Palpus present. Hairs on posteroventral half of head predominantly white. Anepimeral bristle present. R₄₊₅ setose at least halfway to crossvein R-M. Abdominal syntergite 1+2 with one pair of strong median marginal bristles, its middorsal depression extending back to hind margin of that segment **Thrixion** Brauer et Bergenstamm
2 spp.; Mediterranean, Tadjhikistan; Mesnil 1944–1975: 1246–1248.
- Frontal vitta absent. Palpus absent. Posteroventral half of head with a few black setulae only. Anepimeral bristle absent. Base of R₄₊₅ bare or with one fine hair. Abdominal syntergite 1+2 without median marginal bristles, its middorsal depression confined to less than half of that segment **Oblitoneura** Mesnil
1 sp., *O. agromyzina* Mesnil; Israel.

49. Middorsal depression on abdominal syntergite 1+2 extending back to hind margin of that segment 50
- Middorsal depression on abdominal syntergite 1+2 confined to anterior half or less of that segment 51
50. Prosternum setose. Face deeply sunken, not visible in lateral view. Prementum about two times as long as its diameter. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143). Scutellum, tegula, basicosta and femora red or yellow
Ocytata Robineau-Desvoidy
 1 sp., *O. pallipes* (Fallén); Europe, Transcaucasia, Israel, Tadzhikistan; Mesnil 1944–1975: 240–242 (as *Rhacodineura* Rondani).
- Prosternum bare. Face completely visible in lateral view. Prementum at least four times as long as its diameter. Preapical anterodorsal seta on fore tibia at least as long as preapical dorsal seta (as in Fig. 144). Scutellum, tegula, basicosta and femora black **Demoticus** Macquart, part see couplet 370.
51. Hairs or setulae on posteroventral half of head all black, without any pale hair 52
- Hairs or setulae on posteroventral half of head predominantly white, or at least several pale hairs along posteroventral margin of head present 54
52. Base of R_{4+5} with a single large bristle (as in Fig. 160). Prosternum setose. Lower calypter not divergent from scutellum (as in Fig. 133). Three postsutural intra-alar bristles present. Lower proepimeral bristle directed anteroventrally (as in Fig. 103). Second costal section with fine hairs ventrally 196
- Base of R_{4+5} not as above. Prosternum bare. Lower calypter divergent from scutellum (as in Figs 129, 132). One or two postsutural intra-alar bristles present. Lower proepimeral bristle not as above. Second costal section bare ventrally 53
53. General habitus of a Phoridae. Antenna deeply sunken in antennal grooves, at least basal half of first flagellomere concealed within pedicel. Third costal section only one-fourth of fourth costal section. R_1 setose dorsally, R_{4+5} setose to crossvein R-M. Anterior margin of wing not black. Claws absent or strongly reduced. Segments 1–4 of fore tarsus each with a strong bristle. Abdomen of female without pincers **Stackelbergomyia** Rohdendorf
 1 sp., *S. arenaria* Rohdendorf; southern Russia (Astrakhan), Turkmenia.
- Not resembling a Phoridae. Antenna not as above. Third costal section about five times as long as fourth costal section. R_1 and R_{4+5} bare. Anterior margin of wing black at least up to R_{2+3} . Claws not reduced. Fore tarsus without strong bristles. Apex of abdomen of female with pincers (similar to Fig. 189) **Dionomelia** Kugler
 1 sp., *D. hennigi* Kugler; Mediterranean, Turkmenia.
54. Two postsutural intra-alar bristles present, separated from each other by a wide distance (as in Figs 88–89). Anepimeral bristle absent. Lower calypter divergent from scutellum (as in Figs 129, 132). Abdomen shiny, without pruinescence. Terminalia of male and female large, bent ventrally (as in Figs 205, 207) **Besseria** Robineau-Desvoidy, part see couplet 280.

- Three postsutural intra-alar bristles present (as in Fig. 84), but if only two, then separated from each other by a narrow distance (as in Fig. 86). Anepimeral bristle present. Lower calypter not divergent from scutellum (as in Fig. 133). Abdomen with pruinescence. Terminalia not as above 55
- 55. Parafacial with a row of setae. R_1 and R_{4+5} bare. M, CuA_1 , and crossvein dM-Cu faint and whitish. Katepisternum without a descending row of fine hairs. Outer vertical bristle not differentiated. One proclinate orbital bristle present in male and female — **Melisonera** Rondani
1 sp., *M. leucoptera* (Meigen); Europe, southern Siberia; Mesnil 1944–1975: 1242–1243.
- Parafacial bare. R_1 setose dorsally, R_{4+5} setose at least to crossvein R-M (as in Fig. 162). M, CuA_1 , and crossvein dM-Cu well-developed. Katepisternum with a descending row of fine hairs (Fig. 110). Outer vertical bristle present. Two proclinate orbital bristles present
Actia Robineau-Desvoidy, part
1 sp., *A. lamia* Meigen; widespread.
- 56. Crossvein dM-Cu exceptionally oblique (Figs 166, 177). Forms with the following characteristics present simultaneously: R_{4+5} setose at least halfway to crossvein R-M; genal dilation not or scarcely developed (Figs 26–27, 32, 55); three postsutural intra-alar bristles present; preapical anterodorsal seta on fore tibia at least as long as preapical dorsal seta (as in Figs 144–145); basicosta black; male with at least two proclinate orbital bristles 57
- Crossvein dM-Cu not exceptionally oblique, but if so, then without such combination of characteristics present simultaneously 66
- 57. Hairs or setulae on back of head all black. Height of gena at least three-fourths vertical diameter of eye (Fig. 53). Scutum with one pair of presutural acrostichal bristles. Abdomen without pruinescence **Haracca** Richter
1 sp., *H. parnassiina* Richter; Uzbekistan; Richter 1995: 748–750.
- Back of head with white hairs. Height of gena usually distinctly less than three-fourths vertical diameter of eye. Scutum with two or three pairs of presutural acrostichal bristles. Abdomen with pruinescence 58
- 58. Anepimeral bristle very strong, extending back to hind margin of lower calypter 59
- Anepimeral seta not or only slightly differentiated from the usual anepimeral hairs 60
- 59. Parafacial with proclinate bristles (as in Fig. 26). Height of gena at most one-fourth vertical diameter of eye. Prementum about two times as long as its diameter. Abdominal tergites 3 and 4 each with median discal bristles **Athrycia** Robineau-Desvoidy
4 spp.; widespread; Mesnil 1944–1975: 1263–1265, Tschorsnig and Herting 1994: 84.
- Parafacial at most with fine hairs (Fig. 32). Height of gena about two-fifths vertical diameter of eye or more. Prementum at least three times as long as its diameter. Abdominal tergites 3 and 4 without median discal bristles **Hypovoria** Villeneuve
3 spp.; widespread; Mesnil 1944–1975: 1278–1280.
- 60. Parafacial entirely bare below lowest frontal bristle (Fig. 55). Facial ridge with setae approximately on lower half. Height of gena at most one-sixth vertical diameter of eye. Scutum with four pairs of postsutural dorsocentral bristles. Eye with dense hairs **Hylecorus** Aldrich
3 spp.; widespread; Mesnil 1944–1975: 1258–1261.

- Parafacial with proclinate bristles (Figs 26–27) or at least with hairs on its upper half. Facial ridge with setae on less than lower one-third. Height of gena at least one-fifth vertical diameter of eye. Scutum with three pairs of postsutural dorsocentral bristles. Eye usually bare (hairs present in most *Cyrtophleba*, Fig. 26) 61
- 61. Middorsal depression on abdominal syntergite 1+2 not extending back to hind margin of that segment. Abdominal tergites 3 and 4 each with one pair of strong median discal bristles
Klugia Robineau-Desvoidy
1 sp., *K. marginata* (Meigen); widespread; Mesnil 1944–1975: 1269–1271.
- Middorsal depression on abdominal syntergite 1+2 extending back to hind margin, but if not extending back, then abdominal tergites 3 and 4 without median discal bristles 62
- 62. Prementum short, at most two times as long as its diameter (Figs 26–27). Frons at most 1.3 times as wide as one eye in dorsal view. Arista thickened at most on basal three-fifths 63
- Prementum at least 3.5 times as long as its diameter. Frons at least 1.5 times as wide as one eye in dorsal view. Arista thickened on basal two-thirds or more 64
- 63. R₁ setose dorsally. Parafacial usually with only one proclinate bristle (Fig. 27). Eye bare
Voria Robineau-Desvoidy
1 sp., *V. ruralis* (Fallén); widespread; Mesnil 1944–1975: 1261–1263.
- R₁ bare. Parafacial with a complete row of proclinate bristles (Fig. 26). Eye usually covered with hairs
Cyrtophleba Rondani
3 spp.; widespread; Mesnil 1944–1975: 1266–1269 (including *Stackelbergula* Richter).
- 64. Abdominal tergite 5 without median discal bristles. Postpronotum with four bristles as in Fig. 100. Parafacial covered with hairs (as in Fig. 32) *Plagiomima* Brauer et Bergenstamm
2 spp.; Mediterranean, Transcaucasia, Kazakhstan, southern Siberia; Mesnil 1944–1975: 1277–1278.
- Abdominal tergite 5 with a row of median discal bristles. Postpronotum with three bristles: outer basal, middle basal and inner anterior bristle; inner basal bristle hair-like or absent (Fig. 95). Parafacial usually with proclinate bristles 65
- 65. Lower facial margin strongly turned forwards, projecting beyond vibrissal angles in lateral view. Parafacial at its narrowest point at most as wide as first flagellomere. Middorsal depression on abdominal syntergite 1+2 extending back to hind margin of that segment
Chaetovoria Villeneuve
1 sp., *Ch. antennata* (Villeneuve); Europe (boreo-alpine); Mesnil 1944–1975: 1271–1272.
- Lower facial margin not visible in lateral view. Parafacial at least 1.3 times width of first flagellomere. Middorsal depression on abdominal syntergite 1+2 usually not extending back to hind margin
Uclesia Girschner
8 spp.; Mediterranean, Tadzhikistan, Mongolia; Mesnil 1944–1975: 1272–1276.
- 66. Body (at least thorax and abdomen) metallic green, blue or copper-coloured. Facial ridge with setae on lower one-fourth or less. Katepimeron bare (Fig. 112) or with at most four hairs on anterior fourth 67
- Thorax and abdomen not metallic, but if so, then either facial ridge with strong bristles at least on lower two-thirds (as in Fig. 7) or katepimeron entirely setose (Fig. 111) 71

67. Parafacial with hairs or setulae over most of its length. Antenna entirely yellow or orange. Abdominal syntergite 1+2 with median marginal bristles 68
- Parafacial bare or with hairs on less than its upper half. Antenna black or predominantly black. Abdominal syntergite 1+2 without median marginal bristles 69
68. Eye bare. Face entirely visible in lateral view. Proepisternum with dense hairs (as in Fig. 102). Apical scutellar bristles crossed. Hind coxa with fine hairs on posterodorsal margin (Fig. 141). Middorsal depression on abdominal syntergite 1+2 extending back to hind margin of that segment. Abdominal tergites 3 and 4 without median discal bristles. Bristles on abdomen thorn-like
Chrysomikia Mesnil
1 sp., *Ch. grahami* (Villeneuve); China (Szechwan); Mesnil 1944–1975: 945–946.
- Eye covered with dense hairs. Face not visible in lateral view. Proepisternum bare. Scutellum without crossed apical bristles. Hind coxa bare on posterodorsal margin. Middorsal depression on abdominal syntergite 1+2 not extending back to hind margin. Abdominal tergites 3 and 4 each with one pair of median discal bristles. Bristles on abdomen not thorn-like
Symmorphomyia Mesnil et Shima
1 sp., *S. katayamai* Mesnil and Shima; South of Russian Far East, Japan.
69. Upper part of head without or at most with a few black setulae behind the postocular row. Palpus yellow. Prosternum usually setose. Postpronotum with three basal bristles in a straight line and one or two anteriorly placed bristles (Fig. 94). Scutum with three pairs of postsutural dorsocentral bristles. R₄₊₅ setose at least two-thirds to crossvein R-M. Abdominal sternites usually concealed between margins of abdominal tergites **Chrysosomopsis** Townsend
4 spp.; widespread; Mesnil 1944–1975: 1003–1004.
- Upper part of head with at least two rows of setulae behind the postocular row. Palpus black or dark brown. Prosternum bare. Postpronotum with four or five bristles, the three strongest bristles arranged in a triangle (as in Figs 92, 97). Scutum with four pairs of postsutural dorso-central bristles. R₄₊₅ setose at most one-third to crossvein R-M. Abdominal sternites broadly exposed 70
70. Blend of M without a continuation of M. Preapical posteroventral seta on hind tibia as long as preapical anteroventral seta (as in Fig. 151). Prementum at least four times as long as its diameter. Katepisternum usually with two bristles. Apical scutellar bristles crossed
Janthinomyia Brauer et Bergenstamm
2 spp.; South of Russian Far East, China, Japan; Mesnil 1944–1975: 1067–1069.
- Bend of M with a continuation of M about as long as crossvein R-M. Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta. Prementum at most three times as long as its diameter. Katepisternum with three bristles. Scutellum without crossed apical bristles **Gymnocheta** Robineau-Desvoidy
8 spp.; widespread; Zimin 1958, Mesnil 1944–1975: 1077–1080.
71. Hind coxa with one or more setae on posterodorsal margin (Figs 139, 141) 72
- Hind coxa bare on posterodorsal margin 90
72. Prosternum bare (Fig. 134) 73
- Prosternum setose (Figs 135–136) 82

73. Postmetacoxal area sclerotized (as in Fig. 138). Parafacial bare. Gena narrower than width of palpus. Two postsutural intra-alar bristles present, separated from each other by a very wide distance (as in Fig. 88). First postsutural supra-alar bristle shorter than notopleural bristles. Middorsal depression on abdominal syntergite 1+2 confined to less than anterior half of that segment. Apex of abdomen of female with pincers (similar to Fig. 190) **Takanoella** Baranov
1 sp., *T. parvicomis* Baranov; Japan.
- Postmetacoxal area membranous (Fig. 139). Parafacial setose over its whole length. Height of gena at least one-third vertical diameter of eye. Postsutural intra-alar bristles not as above. First postsutural supra-alar bristle longer than notopleural bristles. Middorsal depression on abdominal syntergite 1+2 extending back to hind margin or nearly so. Apex of abdomen of female without pincers 74
74. Parafacial with hairs over its whole length and two to four proclinate bristles on its lower third (Fig. 16). Ocellar setae absent. Proepisternum bare **Peleteria** Robineau-Desvoidy
37 spp.; widespread; Zimin 1961, Mesnil 1944–1975: 948–972.
- Parafacial with hairs or setulae only. Ocellar bristles well-developed. Proepisternum setose (as in Fig. 102) 75
75. Wing cell r_{4+5} with a petiole longer than half of section of M beyond bend. Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta. Postpronotum with three bristles in a straight line. Apical scutellar bristles erect (as in Fig. 126). Prementum at least ten times as long as its diameter. Hairs or setulae on back of head all black, without any pale hair. Abdominal tergites 3 and 4 each with strong median discal bristles **Sarromyia** Pokorny
1 sp., *S. nubigena* Pokorny; Europe (Pyrenees, Alps); Mesnil 1944–1975: 975–977.
- Wing cell r_{4+5} without petiole or with a petiole at most as long as one-third section of M beyond bend. Preapical posteroventral seta on hind tibia about as long as preapical anteroventral seta (as in Fig. 151). Postpronotum with more than three bristles, the strongest of them arranged in a triangle (as in Figs 92, 96). Apical scutellar bristles horizontal. Prementum usually distinctly shorter. Hairs or setulae on back of head white, yellow, red or pale brown, but if black, then at least with several pale hairs on posterodorsal half. Abdominal tergites 3 and 4 usually without median discal bristles 76
76. Wing cell r_{4+5} with a petiole as long as one-fifth to one-third section of M beyond bend. Inner anterior surface of fore coxa entirely covered with appressed setulae (as in Fig. 140) **Laufferiella** Villeneuve
3 spp.; northern Africa, Iran, Turkmenia; Mesnil 1944–1975: 946–948.
- Wing cell r_{4+5} without petiole or with a petiole at most as long as diameter of vein M. Inner anterior surface of fore coxa bare or predominantly bare 77
77. Legs predominantly yellow (at least hind tarsus partially), but if entirely black (in one very large species), then lower calypter black **Tachina** Meigen
42 spp.; widespread; Mesnil 1944–1975: 900–926.
- Legs all black. Lower calypter white or yellow 78

78. Scutum with three broad presutural dark longitudinal stripes. First flagellomere 1.2–1.7 times as long as pedicel. First aristomere three to four times as long as its diameter. Vibrissa arising at level of lower facial margin **Mesnilisca** Zimin
1 sp., *M. trivittata* Zimin; Tadzhikistan.
- Scutum with four narrow presutural dark longitudinal stripes, or scutum lacking dark longitudinal stripes. First flagellomere usually at most as long as pedicel. First aristomere at most three times as long as its diameter. Vibrissa arising as far above lower facial margin as two to six diameters of base of vibrissa 79
79. Prementum four to twelve times as long as its diameter (Fig. 62). Usually three postsutural intra-alar bristles present. Wing unpatterned. Bend of M without a stub 80
- Prementum short, at most four times as long as its diameter. Two postsutural intra-alar bristles present. Wing usually patterned. Bend of M usually with a short stub 81
80. Abdominal tergites 3 and 4 without pruinescence, but if abdominal tergite 4 with traces of pruinescence along its anterior margin, then palpus black. Basicosta usually black **Nowickia** Wachtl
18 spp.; widespread; Mesnil 1944–1975: 926–940, Tschorsnig and Herting 1994: 64–65.
- Abdominal tergites 3 and 4 with narrow basal bands of pruinescence, or at least with traces of pruinescence along their anterior margins. Palpus yellow. Basicosta yellow **Cnephaotachina** Brauer et Bergenstamm
2 spp.; widespread (except western parts of Europe and Japan); Mesnil 1944–1975: 932–934 (as subgenus of *Nowickia* Wachtl).
81. Scutellum with at least five pairs of bristles along its margin. Hind tibia with three dorsal preapical setae about equal in length. Genal dilation with yellow hairs only. Male with proclinate orbital bristles **Mikia** Kowarz
1 sp., *M. tepens* (Walker); Kazakhstan, southern Siberia, South of Russian Far East, China, Japan; Mesnil 1944–1975: 941, 944–945.
- Scutellum with three pairs of bristles along its margin. Hind tibia with two dorsal preapical setae, but if with three, then posterodorsal one short. Genal dilation with yellow hairs and black setulae. Male without proclinate orbital bristles **Anaeudora** Townsend
3 spp.; South of Russian Far East, China, Japan; Mesnil 1944–1975: 942–944 (as subgenus of *Mikia* Kowarz).
82. Eye bare. Frons at least 1.8 times as wide as one eye in dorsal view. Ocellar bristles erect, latero-clinate. Arista thickened nearly to apex; second aristomere six to eight times as long as its diameter. Katepisternum with four or five bristles. R₄₊₅ setose at least halfway to crossvein R-M **Pachystylum** Macquart
1 sp., *P. breinii* Macquart; widespread; Mesnil 1944–1975: 488–490 (as *Chaetomera* Brauer et Bergenstamm).
- Eye covered with dense hairs. Frons narrower. Ocellar bristles proclinate. Arista thickened at most on basal three-fourths; second aristomere at most 1.5 times as long as its diameter. Katepisternum with two or three bristles. R₄₊₅ setose only at its base 83
83. Upper part of head with at least one complete row of black setulae behind the postocular row 84

- Upper part of head without black setulae behind the postocular row 85
84. First postsutural supra-alar bristle shorter than notopleural bristles. Second costal section with fine hairs ventrally. Mid tibia with a single anterodorsal bristle. Parafacial at its narrowest point at most as wide as one-third of first flagellomere. Upper part of head with several rows of black setulae behind the postocular row **Hemimacquartia** Brauer et Bergenstamm
1 sp., *H. paradoxa* Brauer et Bergenstamm; central and northern Europe; Mesnil 1944-1975: 733-735.
- First postsutural supra-alar bristle longer than notopleural bristles. Second costal section bare ventrally. Mid tibia with three or more anterodorsal bristles. Parafacial at its narrowest point at least as wide as three-fifths of first flagellomere. Upper part of head usually with only one row of black setulae behind the postocular row 90
85. Katepisternum with two bristles 86
- Katepisternum with three bristles 87
86. Height of gena about one-fifth or one-sixth vertical diameter of eye. Lower facial margin strongly protruding, visible in lateral view. Prementum five or six times as long as its diameter. Abdomen predominantly yellow **Rhinaplomyia** Mesnil
1 sp., *Rh. nasuta* (Villeneuve); China (Szechwan); Mesnil 1944-1975: 441-443.
- Gena very narrow, its height usually distinctly less than one-eighth vertical diameter of eye (Fig. 6). Lower facial margin not visible in lateral view. Prementum short, at most three times as long as its diameter. Abdomen predominantly black **Carcelia** Robineau-Desvoidy
31 spp.; widespread; Herting 1977: 5-7, Shima 1968a: 509-519 (as *Calocarcelia* Townsend), Shima 1969, Tschorsnig and Herting 1994: 55-56.
87. Parafacial strongly narrowed ventrally, at its narrowest point at most as wide as one-fourth as at base of antenna. Postpronotum with three bristles in a straight or nearly straight line (Fig. 90), but if middle basal bristle slightly displaced anteriorly, then wing cell r_{4+5} with a short petiole 88
- Parafacial not or not as strongly narrowed ventrally. Postpronotum with the three main bristles arranged in a triangle (Fig. 91). Wing cell r_{4+5} open 89
88. Wing cell r_{4+5} open. Costal bristle, if present, distinctly shorter than crossvein R-M. Hind tibia with two dorsal preapical setae (as in Fig. 152). Lateral scutellar bristles about as long as four-fifths of subapical bristles. Palpus yellow **Huebneria** Robineau-Desvoidy
1 sp., *H. affinis* (Fallén); widespread; Mesnil 1944-1975: 391-394.
- Wing cell r_{4+5} with a short petiole about as long as one-tenth section of M beyond bend. Costal spine at least as long as crossvein R-M. Hind tibia with three dorsal preapical setae (as in Fig. 150). Lateral scutellar bristles hair-like or absent. Palpus black **Trypthera** Meigen
1 sp., *T. lugubris* (Meigen); widespread; Mesnil 1944-1975: 288-289.
89. Scutellum black. Frons of male at most as wide as three-fourths eye in dorsal view. Abdominal tergites 4 and 5 of male with patches of appressed hair ventrally (as on tergite 4 in Fig. 196) **Phebellia** Robineau-Desvoidy, part
1 sp., *Ph. nigricauda* Mesnil; Japan.

- At least posterior half of scutellum red or yellow. Frons of male about as wide as one eye in dorsal view. Abdomen of male without patches of appressed hair ventrally **Amelibaea** Mesnil
2 spp.; central Europe, Mediterranean; Mesnil 1944–1975: 475–477 (as subgenus of *Phebellia* Robineau-Desvoidy).
- 90. Middorsal depression on abdominal syntergite 1+2 not extending back to hind margin of that segment (Figs 183, 185–189) 91
- Middorsal depression on abdominal syntergite 1+2 extending back to hind margin (Figs 2, 184) 319
- 91. All of the following characteristics present simultaneously: R₄₊₅ setose at least halfway to cross-vein R-M (Figs 162, 163); hind tibia with three dorsal preapical setae (as in Fig. 150); second costal section with fine hairs ventrally; subapical scutellar bristles convergent or crossing apically (parallel in only one species), apical bristles fine or hair-like (Fig. 122); parafacial without strong bristles (Fig. 15); body length at most 6 mm 92
- Without such combination of characteristics present simultaneously 100
- 92. Preapical anterodorsal seta on fore tibia at least as long as preapical dorsal seta (Fig. 144). Abdominal tergites 3 and 4 with or without median discal bristles. Mid tibia with one or more anterodorsal bristles 93
- Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143). Abdominal tergites always without median discal bristles. Mid tibia with a single anterodorsal bristle 96
- 93. Frons at least 1.3 times as wide as one eye in dorsal view. Second aristomere at least three times as long as its diameter. Proclinate orbital bristles strong 94
- Frons at most as wide as one eye in dorsal view. Second aristomere less than three times as long as its diameter. Proclinate orbital bristles of male weak, sometimes hair-like 95
- 94. Mid tibia with at least two anterodorsal bristles. First aristomere at most as long as its diameter **Goniocera** Brauer et Bergenstamm¹
4 spp.; Europe, South of Russian Far East; Mesnil 1944–1975: 797–803, Andersen 1996: 46–50.
- Mid tibia with a single anterodorsal bristle. First aristomere 1.5–4 times as long as its diameter **Entomophaga** Lioy
3 spp.; Europe; Tschorsnig and Herting 1994: 72, Andersen 1996: 51–54.
- 95. Eye bare. Parafacial at most with a few hairs below lowest frontal bristle. Tegula yellow or reddish **Proceromyia** Mesnil
1 sp., *P. macronychia* (Mesnil); South of Russian Far East, Japan; Mesnil 1944–1975: 829–831 (as subgenus of *Ceromyia* Robineau-Desvoidy).
- Eye covered with dense hairs. Parafacial with one or two rows of hairs. Tegula dark brown **Nipponoceromyia** Mesnil et Shima
1 sp., *N. pubiocolata* Mesnil et Shima; Japan.

1 Included is the species formerly placed in *Galsania* Richter.

96. Lower proepimeral bristle directed anteroventrally (Fig. 103) **Peribaea** Robineau-Desvoidy
9 spp.; widespread; Mesnil 1944–1975: 803–813 (as *Strobliomyia* Townsend), Andersen 1996: 55–74.
- Proepimeral bristle not as above 97
97. Anal vein not reaching wing margin (Fig. 162). Lower katepisternal bristle shorter than upper anterior one (Fig. 110) 98
- Anal vein reaching wing margin at least as a fold (Fig. 163). Lower katepisternal bristle at least as long as upper anterior one (Fig. 109) 99
98. Katepisternum without a descending row of hairs (as in Fig. 109). Upper part of anepisternum with one setula anteriorly. Legs predominantly yellow. Basicosta yellow
Ceromya Robineau-Desvoidy
10 spp.; widespread; Mesnil 1944–1975: 828–839, Shima 1970: 187–192, Andersen 1996: 37–46.
- Katepisternum with a descending row of fine hairs anterior to mid coxa (Fig. 110). Upper part of anepisternum with two setulae anteriorly. Legs predominantly black. Basicosta black, brown or yellow
Actia Robineau-Desvoidy
13 spp.; widespread; Mesnil 1944–1975: 813–828, Andersen 1996: 55–65.
99. Prementum short, but if elongate, then labella at most half as long as prementum (Fig. 61)
Ceranthia Robineau-Desvoidy²
16 spp.; widespread; Mesnil 1944–1975: 839–853 (including *Asiphona* Mesnil), Tschorsnig and Herting 1994: 74–75, Andersen 1996: 108–124 (including *Aphantorhaphopsis* Townsend).
- Prementum at least eight times as long as its diameter, labella about as long as prementum (Fig. 15)
Siphona Meigen
25 spp.; widespread; Mesnil 1944–1975: 853–879, Andersen 1982, 1996: 74–108, Tschorsnig and Herting 1994: 75–77.
100. Scutellum with only one pair of bristles (Fig. 116). Wing cell r_{4+5} open 101
- Scutellum with at least two pairs of bristles along margin, but if with only one pair, then wing cell r_{4+5} with a distinct petiole 102
101. Arista thickened at most on basal fourth; first and second aristomere each at most as long as its diameter. Prementum exceptionally long, at least 1.5 times height of head. Palpus present. Proepisternum setose. Lower calypter strongly reduced. Abdominal tergites with strong marginal bristles. Meron with a single bristle or none
Oxyphyllomyia Villeneuve
1 sp., *O. cordylurina* Villeneuve; China (Szechwan), Nepal; Mesnil 1944–1975: 1349, Shima 1983b.
- Arista thickened nearly to apex; first and second aristomere elongate, each at least four times as long as its diameter. Prementum stout, about 1.5 times as long as its diameter. Palpus absent. Proepisternum bare. Lower calypter not reduced, divergent from scutellum (as in Fig. 129). Abdomen without any bristle, covered with short appressed spinulae. Meron with the normal row of bristles (as in Figs 3, 104)
Germariochaeta Villeneuve
1 sp., *G. clavata* Villeneuve; southern Siberia (Tomsk), China (Manchuria, Kiangsu); Mesnil 1944–1975: 1211–1212, 1219–1220.

2 Regarded as subgenus of *Siphona* by O'Hara 1989.

102. Postmetacoxal area sclerotized, i. e., posterior edges of metepimera meet each other at midline between hind coxae and base of first abdominal sternite, forming a postmetacoxal bridge (Fig. 138) 103
- Postmetacoxal area membranous (Fig. 139) 111
103. Wing cell r_{4+5} with a petiole as long as section of M beyond bend or longer (Fig. 173) 104
- Wing cell r_{4+5} open or with a petiole at most as long as three-fourths section of M beyond bend 106
104. Frons of male at most as wide as one-sixth eye in dorsal view, frons of female about as wide as one eye. Parafacial with a row of hairs or setulae (Fig. 59). Vibrissa arising at level of lower facial margin. Katepisternum with a single bristle. Wing with (Fig. 173) or without transverse dark bands. Mid femur without spinules. Abdominal tergites with strong marginal bristles; abdominal sternites concealed between margins of abdominal tergites **Plesina** Meigen
5 spp.; Mediterranean, Middle Asia; Kugler 1978.
- Frons of male and female as wide as one-third to half of eye in dorsal view. Parafacial bare. Vibrissa arising high above level of lower facial margin. Katepisternum with two or three bristles. Wing unpatterned, transparent. Mid femur with two rows of spinules ventrally (as in Fig. 142). Abdomen without any bristle; abdominal sternites broadly exposed (as in Fig. 193) 105
105. Abdominal tergites completely fused, without sutures between them. Abdomen subglobular, without pruinescence. Sternite 7 of female not strongly developed **Perigymnosoma** Villeneuve
2 spp.; South of Russian Far East; Crosskey 1976: 20, 168.
- Intertergal sutures distinct. Abdomen obviously longer than broad, posterior margins of abdominal tergites with narrow bands of pruinescence. Sternite 7 of female strongly developed (as in Phasia, Fig. 199) **Alophorophasia** Townsend
1 sp., *A. alata* Townsend; Japan.
106. Terminalia of male and female prominent, well visible in lateral view (Figs 205, 207) 107
- Terminalia entirely or predominantly concealed between margins of abdominal tergite 5, usually not visible in lateral view 110
107. Preapical posteroventral seta on hind tibia present. Abdominal sternites entirely or predominantly concealed between margins of abdominal tergites. Postpronotal bristles standing on a line forming an angle less than 45° to longitudinal axis of body. Abdominal sternite 6 of female without a process 108
- Preapical posteroventral seta on hind tibia absent. Abdominal sternites well exposed (as in Fig. 193). Line of postpronotal bristles forming an angle of 45° or more to longitudinal axis of body. Abdominal sternite 6 of female with a ventral process, which is directed posteriorly (Fig. 207) 109
108. Palpus well-developed. Prementum stout, about two times as long as its diameter. First postsutural supra-alar bristle longer than notopleural bristles. Preapical anterodorsal seta on fore tibia

- shorter than preapical dorsal seta or absent (as in Fig. 143). Wing cell r_{4+5} open or with a petiole at most as long as one-sixth section of M beyond bend **Lophosia** Meigen
8 spp.; widespread; Herting 1983b: 7–29, Sun 1996.
- Palpus strongly reduced (at most as long as diameter of prementum) or absent. Prementum slender, at least four times as long as its diameter. First postsutural supra-alar bristle distinctly shorter than notopleural bristles or absent (Fig. 89). Preapical anterodorsal seta on fore tibia distinctly longer than preapical dorsal seta (as in Fig. 145). Wing cell r_{4+5} with a petiole at least as long as one-sixth section of M beyond bend **Cylindromyia** Meigen
31 spp.; widespread; Herting 1983b: 30–88, Sun and Marschall 1995.
109. Back of head with pale hairs, at most with a row of black setulae on upper part behind the postocular row. Lower facial margin usually not visible in lateral view. Hind margin of eye indented. Prementum stout, at most three times as long as its diameter **Hemyda** Robineau-Desvoidy
3 spp.; widespread; Tschorsnig and Herting 1994: 92, Ziegler and Shima 1996: 462–465.
- Hairs or setulae on back of head all black. Lower facial margin protruding, always visible in lateral view. Hind margin of eye straight or evenly convex. Prementum slender, at least five times as long as its diameter **Phania** Meigen, part
see couplet 273.
110. Parafacial bare. Proepisternum setose. Scutum with one pair of broad dark presutural longitudinal stripes, each wider than the pale median stripe. Scutellum with two pairs of bristles along its margin, without crossed apical bristles. Wing cell r_{4+5} open. Preapical anterodorsal seta on fore tibia absent **Dolichocoxys** Townsend, part
see couplet 8.
- Parafacial with a row of hairs. Proepisternum bare. Scutum not as above. Scutellum with three pairs of bristles along its margin, strong crossed apical bristles present. Wing cell r_{4+5} with a short petiole. Preapical anterodorsal seta on fore tibia about as long as preapical dorsal seta (as in Fig. 144) **Clelimyia** Herting
1 sp., *C. paradoxa* Herting; South of Russian Far East, Japan.
111. Eye covered with hairs (Figs 4, 54), each hair longer than combined diameter of three eye facets 112
- Eye bare or apparently bare; if hairs present, then each hair at most as long as combined diameter of two eye facets 154
112. Prosternum setose (Figs 135–136) 113
- Prosternum bare (Fig. 134) 123
113. Parafacial bare or with fine hairs. Frontal bristles descending to level of lower margin of pedicel or below. Hairs on posteroventral half of head predominantly white 114
- Parafacial with proclinate bristles and hairs. Frontal bristles descending at most to level of upper margin of pedicel. Hairs or setulae on posteroventral half of head all black, without any pale hair 135
114. Facial ridge with setae on lower three-fifths or more (Fig. 4) 115

- Facial ridge with setae on lower half or less 119
- 115. Wing membrane creased for a short distance distal to bend of M, appearing from above as a stub or continuation of M (Fig. 158); bend of M angular. Syncercus of male spatulate in posterior view, broadest beyond middle. Sternite 6 of female V-like (Figs 201–202)
Phorocera Robineau-Desvoidy, part
 see couplet 386.
- Wing membrane not as above; bend of M distinctly obtuse. Cerci of male and sternite 6 of female not as above 116
- 116. Mid tibia with two to five anterodorsal bristles. Palpus black or dark brown. Postpronotum with three bristles arranged in a distinct triangle (as in Fig. 99) Lecanipa Rondani
 2 spp.; Europe, southern Siberia; Mesnil 1944–1975: 745–748.
- Mid tibia with a single anterodorsal bristle. Palpus yellow. Postpronotum with middle basal bristle in line with outer and inner basal bristles, rarely middle basal bristle slightly displaced anteriorly 117
- 117. Vibrissa arising above level of lower facial margin. Occiput with well-developed genal dilation. Second costal section bare ventrally. Frons of male at most as wide as one-third eye in dorsal view. Female without or at most with one proclinate orbital bristle Biomeigenia Mesnil
 3 spp.; South of Russian Far East, China; Mesnil 1944–1975: 697–701.
- Vibrissa arising at level of lower facial margin. Occiput without genal dilation or genal dilation scarcely developed (Fig. 4). Second costal section usually with fine hairs ventrally. Frons of male at least as wide as half of eye in dorsal view. Female with two proclinate orbital bristles 118
- 118. Parafacial with hairs on its upper third or half (Fig. 4), rarely below upper half. Height of gena at least one-third vertical diameter of eye. Arista usually thickened on much more than basal one-fifth. Scutum with two pairs of presutural dorsocentral bristles. Abdominal tergites almost always with median discal bristles. Cerci of male usually with a process dorsolaterally Istocheta Rondani
 31 spp.; widespread; Mesnil 1944–1975: 684–697 (as *Hyperecteina* Schiner, *Urophyllina* Villeneuve, *Urophyllodes* Brauer et Bergenstamm), Borisova-Zinov'eva 1964: 768–788, Borisova-Zinov'eva 1966: 420–439.
- Parafacial bare or with at most a few hairs below lowest frontal bristle. Height of gena at most one-fourth vertical diameter of eye. Arista thickened on basal one-fifth. Scutum with three pairs of presutural dorsocentral bristles. Abdominal tergites without median discal bristles. Cerci of male without a process Compsiluroides Mesnil
 1 sp., *C. flavipalpis* Mesnil; South of Russian Far East, Japan; Mesnil 1944–1975: 735–737.
- 119. First postsutural supra-alar bristle shorter than notopleural bristles. Scutellum without crossed apical bristles 120
- First postsutural supra-alar bristle longer than notopleural bristles. Scutellum with crossed apical bristles 121
- 120. Frons at least as wide as 1.5 times eye in dorsal view. Height of gena about half of vertical diameter of eye. First flagellomere about five times as long as pedicel. Costal spine, if present, distinctly shorter than crossvein R-M. Mid tibia with a single anterodorsal bristle. Abdominal

- tergites without median discal bristles. Antenna, palpus, scutellum, basicosta and legs entirely or predominantly yellow **Kallisomyia** Borisova
 1 sp., *K. stackelbergi* Borisova-Zinov'eva; South of Russian Far East.
- Frons at most as wide as one eye in dorsal view. Height of gena at most one-fifth vertical diameter of eye. First flagellomere at most two times as long as pedicel. Costal spine as long as or longer than crossvein R-M. Mid tibia with three or four anterodorsal bristles. Abdominal tergites with median discal bristles. Antenna, palpus, scutellum, basicosta and legs black **Lomachantha** Rondani
 2 spp.; Europe, Palestine, Crimea, Transcaucasia, Uzbekistan; Mesnil 1944–1975: 771–773.
121. Genal dilation on occiput scarcely developed, confined to lower half to lower one-fourth of gena (as in Fig. 27). Middorsal depression on abdominal syntergite 1+2 confined to anterior half to seven-eighths of that segment 122
- Occiput with well-developed genal dilation (as in Fig. 18). Middorsal depression on abdominal syntergite 1+2 reaching nearly to hind margin, confined to anterior nine-tenths or more of that segment 407
122. Prementum four to eight times as long as its diameter. Height of gena at most one-third vertical diameter of eye. Parafacial usually with hairs on upper third or below. Hind tibia usually with three dorsal preapical setae **Ptesiomyia** Brauer et Bergenstamm
 3 spp.; Europe, northern Africa, Israel, Transcaucasia; Mesnil 1944–1975: 477–480.
- Prementum about three times as long as its diameter. Height of gena about half of vertical diameter of eye. Hind tibia with two dorsal preapical setae. Parafacial with only a few hairs below lowest frontal bristle **Anurophylla** Villeneuve
 1 sp., *A. aprica* (Villeneuve); Algeria; Mesnil 1944–1975: 483–486.
123. Scutellum with only two pairs of bristles along its margin (as in Figs 115, 124) 124
- Scutellum with three or more pairs of bristles along its margin 125
124. Ocellar bristles well-developed (Fig. 54). Parafacial with a few hairs below lowest frontal bristle. Scutellum with strong crossed apical bristles (as in Fig. 124). Lower calypter small, rounded, divergent from scutellum. Abdominal tergites with marginal bristles **Dicarca** Richter
 1 sp., *D. fluviatilis* Richter; South of Russian Far East; Richter 1993: 429–433.
- Ocellar bristles absent. Parafacial with one or two rows of hairs or setulae. Scutellum without crossed apical bristles. Lower calypter not divergent from scutellum. Abdomen without any bristle 158
125. First aristomere at least two times as long as its diameter. Bend of M with a continuation as long as crossvein R-M or longer. Parafacial at its narrowest point 1.0–1.5 times as wide as first flagellomere 126
- First aristomere distinctly shorter (Fig. 37). Bend of M without continuation or with a very short stub, but if with a continuation nearly as long as crossvein R-M, then parafacial more than two times as wide as first flagellomere 127
126. Ocellar bristles reclinate. Parafacial with fine hairs over most of its length. First and second -aristomere each six to eight times as long as its diameter. Prementum exceptionally slender,

- distinctly longer than height of head. Two strong postsutural intra-alar bristles present. Wing cell r_{4+5} with a petiole at least as long as half section of M beyond bend. Preapical anterodorsal seta on fore tibia hair-like or absent **Lissoglossa** Villeneuve
2 spp.; Morocco, Algeria; Mesnil 1944–1975: 1216–1218.
- Ocellar bristles proclinate. Parafacial bare. First and second aristonere each two to four times as long as its diameter. Prementum shorter than height of head. Three postsutural intra-alar bristles present. Wing cell r_{4+5} open or at most with a very short petiole. Preapical anterodorsal seta on fore tibia as long as preapical dorsal seta or longer (as in Figs 144–145) **Barychaeta** Bezzi
2 spp.; Ukraine, Caucasus, Siberia, China; Mesnil 1944–1975: 1218–1219, Richter 1981.
127. Facial ridge with bristles on lower two-thirds or more (Fig. 37). Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta or absent 128
- Facial ridge with setae on lower half or less, but if recumbent setae reaching two-thirds of facial ridge, then preapical posteroventral seta on hind tibia about as long as preapical anteroventral seta 130
128. Male and female with strong laterocline orbital bristles. Lower facial margin strongly turned forwards, visible in lateral view. Palpus black. Anepimeral bristle well-developed. Scutellum with divergent apical bristles. Abdominal sytergite 1+2 with median marginal bristles **Policheta** Rondani
1 sp., *P. unicolor* (Fallén); Europe, Mongolia; Mesnil 1944–1975: 660–662 (as *Perichaeta* Rondani).
- Male without, female with one or two pairs of proclinate orbital bristles. Lower facial margin not visible in lateral view (Fig. 37). Palpus yellow. Anepimeral seta hair-like or absent. Scutellum with crossed apical bristles. Abdominal sytergite 1+2 without median marginal bristles 129
129. Ocellar bristles well-developed, reclinate (Fig. 37). Proepisternum setose (as in Fig. 102). R_{4+5} setose only at base. R_1 bare **Campylocheta** Rondani, part
see couplet 351.
- Ocellar setae hair-like, proclinate, or absent. Proepisternum bare. R_{4+5} setose nearly to crossvein R-M. R_1 setose or bare dorsally **Elfriedella** Mesnil
2 spp.; Japan, Nepal; Mesnil 1944–1975: 1249–1250, Shima 1988: 24–26.
130. Hairs or setulae on posteroventral half of head all black, without any pale hair 131
- Hairs on posteroventral half of head predominantly white or yellow or at least with a few pale hairs along posteroventral margin of head 141
131. Postpronotum with the three strongest bristles forming a nearly right-angled triangle (as in Fig. 97) 132
- Bristles on postpronotum not as above, middle basal bristle at most slightly displaced anteriorly 133
132. Ocellar bristles erect, laterocline. First flagellomere at most 1.5 times as long as pedicel. Arista thickened at most on basal two-fifths. Height of gena at most half of vertical diameter of eye. Scutum lacking presutural acrostichal bristles. Scutellum with crossed apical bristles **Zophomyia** Macquart
2 spp.; widespread; Mesnil 1944–1975: 1082–1083.

- Ocellar bristles proclinate. First flagellomere at least four times as long as pedicel. Arista thickened nearly to apex. Height of gena at least two-thirds vertical diameter of eye. Scutum with two pairs of presutural acrostichal bristles. Scutellum without crossed apical bristles
Ercbiomima Mesnil
2 spp.; Israel; Mesnil 1944-1975: 1081-1082, Herting 1979: 4.
133. Wing cell r_{4+5} with a petiole at least as long as two-thirds section of M beyond bend 265
- Wing cell r_{4+5} open or with a very short petiole 134
134. Scutellum without crossed apical bristles 135
- Scutellum with strong crossed apical bristles (Figs 117, 132-133) 137
135. Parafacial with proclinate bristles and hairs over its whole length. Lateral scutellar bristles at most half as long as subapical bristles. Anatergite with a group of minute hairs or setulae below lower calypter (as in Fig. 104). Base of R_{4+5} with a strong seta and occasionally one or two hairs. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143). Abdominal sternites concealed between margins of abdominal tergites
Eulasiona Townsend
3 spp.; southern Siberia, South of Russian Far East, Mongolia, Japan; Mesnil 1944-1975: 1307-1310.
- Parafacial bare. Lateral scutellar bristles at least as long as two-thirds of subapical bristles. Anatergite bare below lower calypter. Base of R_{4+5} bare or with two fine hairs. Preapical anterodorsal seta on fore tibia about as long as preapical dorsal seta (as in Fig. 144). Abdominal sternites exposed 136
136. Lateral scutellar bristles as long as subapical bristles. Basicosta yellow or reddish. Mid tibia with three or four anterodorsal bristles. Section of M between crossveins R-M and dM-Cu longer than section between dM-Cu and bend of M
Cleonice Robineau-Desvoidy
2 spp.; central and northern Europe, Siberia; Mesnil 1944-1975: 1089-1091.
- Lateral scutellar bristles shorter than subapical bristles. Basicosta black. Mid tibia with two anterodorsal bristles. Section of M between crossveins R-M and dM-Cu about equal to or shorter than section between dM-Cu and bend of M
Gastroptilops Mesnil
1 sp., *G. ater* Mesnil; South of Russian Far East, Japan; Mesnil 1944-1975: 1091-1092.
137. Ocellar setae short, usually hair-like. Anepimeral bristle hair-like. Lower facial margin protruding, visible in lateral view. Two strong postsutural intra-alar bristles present
Dufouria Robineau-Desvoidy
5 spp.; widespread; Mesnil 1944-1975: 1355-1357.
- Ocellar bristles well-developed. Anepimeral bristle well-developed. Lower facial margin usually not visible in lateral view. Three or two postsutural intra-alar bristles present 138
138. First flagellomere two to five times as long as pedicel. Arista thickened on basal half or more. Anatergite bare below lower calypter. Frons of male about 1.5 times as wide as one eye in dorsal view, with one or two proclinate orbital bristles. Body length less than 5 mm
Synactia Villeneuve
2 spp.; Europe, Tadzhikistan; Mesnil 1944-1975: 1223-1224.

- First flagellomere less than two times as long as pedicel. Arista thickened on basal one-fourth or less. Anatergite almost always with a group of minute hairs or setulae below lower calypter (Fig. 104). Frons of male at most as wide as one-fourth eye in dorsal view, without proclinate orbital bristles. Body length more than 5 mm 139
- 139. Second costal section with fine hairs ventrally. Scutum with three pairs each of presutural dorsocentral bristles and postsutural intra-alar bristles **Macquartia** Robineau-Desvoidy
12 spp.; widespread; Mesnil 1944-1975: 1093-1105 (including *Bebricia* Robineau-Desvoidy), Tschorsnig and Herting 1994: 70-71.
- Second costal section bare ventrally. Scutum with two pairs each of presutural dorsocentral bristles and postsutural intra-alar bristles 140
- 140. Parafacial with fine hairs on its upper half, at its narrowest point at most 1.5 times width of first flagellomere. Occiput with well-developed genal dilation. Scutum with one pair of presutural acrostichal bristles. Postpronotum with two bristles. Lower calypter divergent from scutellum (as in Fig. 132) **Macroprosopa** Brauer et Bergenstamm
1 sp., *M. atrata* (Fallén); widespread; Mesnil 1944-1975: 1105-1106.
- Parafacial with proclinate bristles or strong hairs over its whole length, more than two times width of first flagellomere. Genal dilation on occiput not or scarcely developed (as in Fig. 29). Scutum with two pairs of presutural acrostichal bristles. Postpronotum with three bristles. Lower calypter not divergent from scutellum (as in Fig. 133) **Angiorhina** Brauer et Bergenstamm
3 spp.; northern Europe, Siberia, Mongolia; Mesnil 1944-1975: 1243-1245, Herting 1982: 9.
- 141. Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta 142
- Preapical posteroventral seta on hind tibia about as long as preapical anteroventral seta (as in Fig. 151) 146
- 142. Parafacial with proclinate bristles or hairs over its whole length 143
- Parafacial bare or with hairs at most on upper half 145
- 143. Scutum with two pairs each of presutural dorsocentral bristles and postsutural intra-alar bristles. Postpronotum with three bristles in a straight line. Anatergite with a group of minute hairs or setulae below lower calypter (as in Fig. 104) 140
- Scutum with three pairs each of presutural dorsocentral bristles and postsutural intra-alar bristles. Postpronotum with four or five bristles, but if with only three bristles, then arranged in a nearly right-angled triangle. Anatergite bare below lower calypter 144
- 144. Parafacial with proclinate bristles and hairs. Prementum about two times as long as its diameter. Lateral scutellar bristles absent. Second costal section with fine hairs ventrally **Blepharomyia** Brauer et Bergenstamm
4 spp.; widespread; Mesnil 1944-1975: 1311-1314.
- Parafacial with fine hairs only. Prementum about six times as long as its diameter. Lateral scutellar bristles present. Second costal section bare ventrally 122

145. Posterior thoracic spiracle very large, its diameter at least two times the diameter of the knob of halter. Hairs on back of head entirely or predominantly pale. Postpronotum with three or more bristles, the three strongest bristles arranged in a triangle. Katepisternum with three bristles **Parerigone Brauer**³
7 spp.; South of Russian Far East, Japan.
- Posterior thoracic spiracle distinctly smaller. Hairs or setulae on back of head all black, except a few pale hairs along posteroventral margin of head. Postpronotum with two bristles. Katepisternum with two bristles 137
146. Lower facial margin strongly turned forwards, face entirely visible in lateral view (Fig. 39) 147
- Face and lower facial margin not visible in lateral view (Fig. 45) 148
147. Lateral scutellar bristles absent or hair-like. Second costal section with fine hairs ventrally. Costal bristle longer than crossvein R-M. Hind tibia with two dorsal preapical setae (as in Fig. 151). Abdominal syntergite 1+2 without median marginal bristles. Basicosta yellow or reddish. Abdomen red laterally **Eriothrix Meigen, part**
see couplet 334.
- Lateral scutellar bristles present. Second costal section bare ventrally. Costal bristle shorter than crossvein R-M. Hind tibia with three strong dorsal preapical setae (as in Fig. 150). Abdominal syntergite 1+2 with median marginal bristles. Basicosta black. Abdomen black 291
148. Frons about 1.5 times as wide as one eye in dorsal view or wider. Arista thickened on basal two-thirds or more. Hind tibia with three strong dorsal preapical setae (as in Fig. 150) 149
- Frons at most 1.2 times as wide as one eye in dorsal view. Arista thickened on less than basal two-thirds (Fig. 45). Hind tibia usually with two dorsal preapical setae (as in Fig. 151) 150
149. Scutellum with crossed apical bristles. The three strong postpronotal bristles arranged in a blunt-angled triangle. Upper part of head without or at most with a few black setulae behind the postocular row **Sonaca Richter**
1 sp., *S. moderata* (Herting); Armenia, eastern Turkey, northern Europe.
- Scutellum without crossed apical bristles. The three strong postpronotal bristles arranged in a nearly right-angled triangle. Upper part of head with one or more rows of black setulae behind the postocular row 132
150. Abdominal tergites 3 and 4 without median discal bristles. Upper part of head without black setulae behind the postocular row. Antenna entirely orange. Second aristomere two to three times as long as its diameter. Body length 13 mm or more **Flavicorniculum Chao et Shi**
2 spp.; China (Chekiang, Szechwan).
- Abdominal tergites 3 and 4 each with median discal bristles. Upper part of head with one or more rows of black setulae behind the postocular row. Antenna black, but if partially yellow, then at least first flagellomere darkened along anterior margin. Second aristomere less than two times as long as its diameter (Fig. 45). Body length at most 10 mm 151

3 Included are the species formerly placed in *Parerigonesis* Chao et Sun.

151. Postpronotum with two, three or four bristles, the three strongest bristles arranged in a more or less straight line (as in Figs 90, 100–101) 152
- Postpronotum with three to five bristles, the three strongest bristles arranged in a nearly right-angled triangle (as in Figs 92, 97, 99) 153
152. Scutellum with strong crossed apical bristles. Basicosta black or dark brown. Wing cell r_{4+5} open or with a petiole. Frons of male at most as wide as one-third eye in dorsal view
Loewia Egger, part
see couplet 347.
- Scutellum without crossed apical bristles. Basicosta yellow or reddish. Wing cell r_{4+5} open. Frons of male as wide as half of eye in dorsal view or wider 136
153. Genal dilation large, covered with strong bristle-like setulae (Fig. 45). Costal spine about as long as crossvein R-M. Sixth costal section as long as one-fourth of fourth costal section. Scutellum entirely black. Lateral scutellar bristles usually distinctly shorter than subapical bristles. Parafacial of male at its narrowest point less than half as wide as first flagellomere. Abdominal tergite 6 of male covered with hairs
Emporomyia Brauer et Bergenstamm
2 spp.; Europe (Alps), Caucasus; Mesnil 1944–1975: 1076–1077.
- Genal dilation covered with fine setulae or hairs. Costal spine absent or at least distinctly shorter than crossvein R-M. Sixth costal section distinctly shorter. Scutellum at least apically red or yellow. Lateral scutellar bristles as long as subapical bristles. Parafacial of male about as wide as first flagellomere. Abdominal tergite 6 of male bare or with at most six hairs
Hyalurgus Brauer et Bergenstamm
11 spp.; widespread; Mesnil 1944–1975: 1069–1076.
154. Scutellum with only two pairs of bristles along its margin (Figs 115, 124, 129) 155
- Scutellum with three or more pairs of bristles along its margin 178
155. Parafacial setose over its whole length. Lower facial margin not visible in lateral view. Vibrissa arising at level of lower facial margin 156
- Parafacial bare (Fig. 25) or at most with hairs on its upper half (Fig. 41), but if with hairs below upper half (one species of Phasia), then lower facial margin strongly turned forwards and vibrissa arising high above level of lower facial margin 159
156. Facial ridge with bristles on lower two-thirds or more (as in Fig. 4). Abdominal syntergite 1+2 with one pair of median marginal bristles. Abdomen with pruinescence 183
- Facial ridge setose on lower third or less. Abdominal syntergite 1+2 without median marginal bristles. Abdomen without pruinescence 157
157. Wing cell r_{4+5} with a petiole at least as long as three-fourths section of M beyond bend. Parafacial with proclinate bristles. Scutellum with three bristles arranged in a triangle 248
- Wing cell r_{4+5} open. Parafacial with hairs only. Scutellum with two bristles or three bristles arranged in a more or less straight line 158

158. Occiput with well-developed genal dilation. Prosternum bare. Katepisternum with a single bristle. Scutellum without crossed apical bristles. Abdomen without any bristle. Abdominal tergite 5 of female bent ventrally (as in Fig. 204). Body black **Eugymnopeza Townsend**
2 spp.; Austria (?), Transcaucasia, Mongolia; Mesnil 1944–1975: 1372–1373.
- Occiput without genal dilation. Prosternum setose. Katepisternum with two or three bristles. Scutellum with strong crossed apical bristles. Abdominal tergites with marginal bristles. Abdominal tergite 5 of female not as above. Body pale yellow **Hamaxia Walker**
1 sp., *H. incongrua* Walker; South of Russian Far East, China, Korea, Japan; Mesnil 1944–1975: 1237–1239.
159. Lower calypter divergent from scutellum (Fig. 129). Hairs or setulae on posteroventral half of head all black, without any pale hair 160
- Lower calypter not divergent from scutellum (as in Fig. 133). Hairs or setulae on posteroventral half of head usually pale, rarely black 165
160. Wing cell r_{4+5} open or closed just at wing margin. Abdominal tergite 4 with median discal bristles **Anthomyiopsis Townsend**
2 spp.; Europe; Mesnil 1944–1975: 1108–1109, Tschorsnig and Herting 1994: 71.
- Wing cell r_{4+5} with a petiole at least as long as one-fourth section of M beyond bend (Figs 170, 174). Abdominal tergite 4 without median discal bristles 161
161. Face with a broad carina, visible in lateral view, completely separating antennae. Prementum and labella strongly elongate (as in Fig. 15). Abdomen uniformly covered with dense pruinescence. Terminalia of female with two strong lobes covered with curved spines **Diplopota Bezzi**
2 spp.; Hungary (?), Mongolia.
- Face without carina, usually not visible in lateral view. Proboscis not as above. Abdomen without or at most with traces of pruinescence. Terminalia of female not as above 162
162. Abdominal tergite 6 slightly shorter, but similar in shape to tergite 5 (Fig. 206). Postsutural intra-alar bristles absent. Postpronotum with one bristle or none. Female resembling a Sepsidae; back of head exceptionally convex, nearly semiglobular; abdominal sternite 4 exceptionally developed (Fig. 206) **Sepseocara Richter**
1 sp., *S. itians* Richter; South of Russian Far East; Richter 1986: 111–115, Richter 1993: 438–439.
- Abdominal tergite 6 different in shape from abdominal tergite 5. One, two or three postsutural intra-alar bristles present. Postpronotum with two or three bristles. Female not resembling a Sepsidae, head and abdominal sternite 4 not as above 163
163. Petiole of wing cell r_{4+5} shorter than section of M beyond bend. Prementum four to six times as long as its diameter. Lower facial margin turned forwards, usually visible in lateral view. Abdominal tergites 3 and 4 each with median marginal bristles. Abdominal sternites concealed between margins of abdominal tergites. Abdomen of female without piercer and spinules **Mesnilomyia Kugler**
4 spp.; Tunisia, Israel, Iran, Transcaucasia; Mesnil 1944–1975: 1109–1111; Kugler 1972.
- Petiole of wing cell r_{4+5} as long as or longer than section of M beyond bend (Fig. 170). Prementum less than three times as long as its diameter. Lower facial margin not visible in lateral

- view. Abdominal tergites 3 and 4 usually without median marginal bristles. Abdominal sternites exposed. Abdomen of female with piercer and usually with patches of short spinules ventrally (Fig. 195) 164
164. Subscutellum convex in lateral view (as in Fig. 3). Posterior pair of scutellar bristles crossed (Fig. 129). Proepisternum usually with one to three setulae. Petiole of wing cell r_{4+5} as long as 1.5 to 5 times section of M beyond bend (Fig. 170). Hind tibia with two dorsal preapical setae. Usually at least anterior margin of wing darkened. Outer vertical bristle not differentiated. Palpus present or absent **Catharosia Rondani**
4 spp.; widespread; Kugler 1977: 10.
- Subscutellum straight or slightly concave in lateral view (Fig. 107). Posterior pair of scutellar bristles parallel or divergent. Proepisternum bare. Petiole of wing cell r_{4+5} as long as 1 to 1.5 times section of M beyond bend. Hind tibia with three dorsal preapical setae. Wing transparent, not darkened. Outer vertical bristle usually present. Palpus absent **Litophasia Girschner**
1 sp., *L. hyalipennis* (Fallén); Europe.
165. Scutum before suture with one pair of broad dark longitudinal stripes (as in Fig. 83). Wing cell r_{4+5} with a petiole 166
- Scutum before suture without stripes or with three, four or five narrower dark longitudinal stripes (as in Figs 81–82). Wing cell r_{4+5} without or with a petiole 168
166. Arista thickened on basal half or less. Prementum four to six times as long as its diameter. Costal spine one to four times as long as crossvein R-M 290
- Arista thickened nearly to apex (Fig. 41). Prementum at most two times as long as its diameter. Costal bristle, if present, distinctly shorter than crossvein R-M 167
167. Genal dilation not or only scarcely developed. Hairs or setulae on posteroventral half of head entirely or predominantly pale. Palpus present. Scutum lacking presutural acrostichal bristles. Anepimeral seta absent. Abdominal sytergite 1+2 with a pair of strong median marginal bristles. First flagellomere of male at most seven times as long as pedicel **Mongolomintho Richter**
1 sp., *M. longipes* Richter; Mongolia.
- Occiput with well-developed genal dilation (Fig. 41). Hairs or setulae on posteroventral half of head all black. Palpus absent. Scutum with one or two pairs of presutural acrostichal bristles. A short anepimeral bristle present. Abdominal sytergite 1+2 without median marginal bristles. First flagellomere of male exceptionally long, about 15 times as long as pedicel (Fig. 41) **Magripa Richter**
1 sp., *M. autumnalis* Richter; Tadzhikistan; Richter 1988: 206–209.
168. One postsutural intra-alar bristle present (Fig. 87) or none 169
- Three or two postsutural intra-alar bristles present 178
169. Wing cell r_{4+5} with a petiole (Figs 167, 174) 170
- Wing cell r_{4+5} without a petiole (Figs 168–169) 173

170. Abdominal tergites completely fused, without sutures between them (Fig. 188). Frons about as wide as half of eye in dorsal view or wider. Abdomen subglobular, without pruinescence, usually orange red in ground colour with dark markings, sometimes entirely black 171
- Intertergal sutures distinct (as in Fig. 187). Width of frons less than one-fourth eye in dorsal view (as in Figs 25, 68). Abdomen often flattened dorsally 172⁴
171. Antenna extending to or nearly to level of lower facial margin; first flagellomere at least two times as long as wide. Vibrissa arising at level of lower facial margin **Gymnosoma** Meigen
19 spp.; widespread; Zimin 1966: 435–445 (including *Stylogymnomyia* Brauer et Bergenstamm), Tschorsnig and Herting 1994: 86–87.
- Antenna short, distance between first flagellomere and lower facial margin about equal to length of first flagellomere; first flagellomere about as long as wide. Vibrissa arising above level of lower facial margin **Cistogaster** Latreille
5 spp.; widespread; Zimin 1966: 429–434 (as *Pallasia* Robineau-Desvoidy).
172. Petiole of wing cell r_{4+5} bent forwards, about as long as one-tenth section of M beyond bend (Fig. 167). Sternite 7 of female inconspicuous **Elomya** Robineau-Desvoidy
1 sp., *E. lateralis* (Meigen); warmer parts of Palaearctic.
- Petiole of wing cell r_{4+5} in a line with vein R_{4+5} , at least as long as one-fifth section of M beyond bend (as in Fig. 174). Sternite 7 of female strongly developed (Fig. 199) **Phasia** Latreille
21 spp.; widespread; Draber-Monko 1965 (as *Alophora* Robineau-Desvoidy), Ziegler 1994.
173. Terminalia of male and female strongly asymmetrical (Fig. 213). Postpronotum with only one bristle. Scutum with one pair of postsutural dorsocentral bristles, lacking presutural dorsocentral bristles and postsutural intra-alar bristles **Xysta** Meigen
1 sp., *X. holosericea* (Fabricius); southern Europe, Israel.
- Terminalia of male and female symmetrical. Postpronotum with two or three bristles. Scutum with two to four pairs of postsutural dorsocentral bristles, one or two pairs of presutural dorsocentral bristles and one postsutural intra-alar bristle 174
174. Wing patterned with dark spots (Figs 168–169) or entirely darkened, but when nearly transparent, then abdominal tergites without median marginal bristles. Abdomen often flattened dorsoventrally (Fig. 187) 175
- Wing unpatterned, transparent. At least abdominal tergites 4 and 5 with marginal bristles. Abdomen not flattened dorsoventrally 176
175. Scutum without yellow transverse bands. Abdomen more or less rounded, distinctly less than two times as long as wide (Fig. 187). Frons with two or more rows of hairs outside frontal row **Ectophasia** Townsend
5 spp.; widespread; Dupuis 1963: 110–113, Tschorsnig and Herting 1994: 85–86.

4 Specimens with a row of long flattened blade-like setae on hind tibia and dark wings with yellow anterior margin belong to the American genus *Trichopoda* Berthold, which seems to be accidentally introduced in southern Europe.

- Scutum before suture and before scutellum with a transverse band of yellow pruinescence. Abdomen subparallel, about two times as long as wide. Frons with at most a few hairs outside frontal row **Pentatomophaga** de Meijere
1 sp., *P. latifascia* (Villeneuve); Japan.
- 176. Legs, antenna, scutellum and abdomen entirely or predominantly yellow. Height of gena one-fourth vertical diameter of eye or more. Scutum with one pair of presutural dorsocentral bristles. Abdomen in posterior view without pruinescence **Subclytia** Pandellé
1 sp., *S. rotundiventris* (Fallén); widespread.
- Legs, antenna and scutellum black, abdomen black or yellow. Height of gena one-sixth vertical diameter of eye or less. Scutum with two pairs of presutural dorsocentral bristles. Abdomen in posterior view covered with pruinescence (occasionally only on abdominal tergite 5) 177
- 177. Frons of female with dense hairs outside frontal row, frons of male bare. Katepisternum usually with three bristles. Mid tibia with two anterodorsal bristles. Second costal section with fine hairs ventrally. Hairs on abdomen of male recumbent **Eliozeta** Rondani
2 spp.; widespread; Tschorsnig and Herting 1994: 85.
- Frons of male and female bare outside frontal row. Katepisternum with two bristles. Mid tibia with a single anterodorsal bristle. Second costal section usually bare ventrally. Hairs on abdomen of male often erect dorsally **Clytiomya** Rondani
4 spp.; widespread; Dupuis 1963: 130–131.
- 178. Prosternum setose (Fig. 136), at least one hair or setulae on each side (Fig. 135) 179
- Prosternum bare (Fig. 134) 222
- 179. Face with a strong carina, separating antennae. Antenna and proboscis exceptionally short (Fig. 22) **Trixa** Meigen, part
see couplet 299.
- Face without carina. Antenna and proboscis not as above 180
- 180. First postsutural supra-alar bristle longer than notopleural bristles and usually longer than first postsutural intra-alar bristle (Figs 2–3) 181
- First postsutural supra-alar bristle shorter than notopleural bristles and shorter than first postsutural intra-alar bristle (Fig. 85), or absent 192
- 181. Parafacial setose (Figs 14, 31), at least with a patch of small setae near midlength or below (as in Fig. 42) 182
- Parafacial entirely bare or at most with a few hairs below lowest frontal bristle 186
- 182. Ocellar bristles proclinate. Second aristemere short, not or only slightly longer than its diameter. Katepisternum with three bristles. Abdominal tergites 3 and 4 each with median discal bristles 183
- Ocellar bristles reclinate (Figs 14, 65). Second aristemere four to twelve times as long as its diameter (Figs 14, 31). Katepisternum with four bristles. Abdominal tergites 3 and 4 without median discal bristles 184

170. Abdominal tergites completely fused, without sutures between them (Fig. 188). Frons about as wide as half of eye in dorsal view or wider. Abdomen subglobular, without pruinescence, usually orange red in ground colour with dark markings, sometimes entirely black 171
- Intertergal sutures distinct (as in Fig. 187). Width of frons less than one-fourth eye in dorsal view (as in Figs 25, 68). Abdomen often flattened dorsally 172⁴
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19 spp.; widespread; Zimin 1966: 435–445 (including *Stylogymnomyia* Brauer et Bergenstamm), Tschorsnig and Herting 1994: 86–87.
- Antenna short, distance between first flagellomere and lower facial margin about equal to length of first flagellomere; first flagellomere about as long as wide. Vibrissa arising above level of lower facial margin **Cistogaster** Latreille
5 spp.; widespread; Zimin 1966: 429–434 (as *Pallasia* Robineau-Desvoidy).
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1 sp., *E. lateralis* (Meigen); warmer parts of Palaearctic.
- Petiole of wing cell r_{4+5} in a line with vein R_{4+5} , at least as long as one-fifth section of M beyond bend (as in Fig. 174). Sternite 7 of female strongly developed (Fig. 199) **Phasia** Latreille
21 spp.; widespread; Draber-Monko 1965 (as *Alophora* Robineau-Desvoidy), Ziegler 1994.
173. Terminalia of male and female strongly asymmetrical (Fig. 213). Postpronotum with only one bristle. Scutum with one pair of postsutural dorsocentral bristles, lacking presutural dorsocentral bristles and postsutural intra-alar bristles **Xysta** Meigen
1 sp., *X. holosericea* (Fabricius); southern Europe, Israel.
- Terminalia of male and female symmetrical. Postpronotum with two or three bristles. Scutum with two to four pairs of postsutural dorsocentral bristles, one or two pairs of presutural dorsocentral bristles and one postsutural intra-alar bristle 174
174. Wing patterned with dark spots (Figs 168–169) or entirely darkened, but when nearly transparent, then abdominal tergites without median marginal bristles. Abdomen often flattened dorsoventrally (Fig. 187) 175
- Wing unpatterned, transparent. At least abdominal tergites 4 and 5 with marginal bristles. Abdomen not flattened dorsoventrally 176
175. Scutum without yellow transverse bands. Abdomen more or less rounded, distinctly less than two times as long as wide (Fig. 187). Frons with two or more rows of hairs outside frontal row **Ectophasia** Townsend
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- Scutum before suture and before scutellum with a transverse band of yellow pruinescence. Abdomen subparallel, about two times as long as wide. Frons with at most a few hairs outside frontal row Pentatomophaga de Meijere
1 sp., *P. latifascia* (Villeneuve); Japan.
- 176. Legs, antenna, scutellum and abdomen entirely or predominantly yellow. Height of gena one-fourth vertical diameter of eye or more. Scutum with one pair of presutural dorsocentral bristles. Abdomen in posterior view without pruinescence Subclytia Pandellé
1 sp., *S. rotundiventris* (Fallén); widespread.
- Legs, antenna and scutellum black, abdomen black or yellow. Height of gena one-sixth vertical diameter of eye or less. Scutum with two pairs of presutural dorsocentral bristles. Abdomen in posterior view covered with pruinescence (occasionally only on abdominal tergite 5) 177
- 177. Frons of female with dense hairs outside frontal row, frons of male bare. Katepisternum usually with three bristles. Mid tibia with two anterodorsal bristles. Second costal section with fine hairs ventrally. Hairs on abdomen of male recumbent Eliozeta Rondani
2 spp.; widespread; Tschorsnig and Herting 1994: 85.
- Frons of male and female bare outside frontal row. Katepisternum with two bristles. Mid tibia with a single anterodorsal bristle. Second costal section usually bare ventrally. Hairs on abdomen of male often erect dorsally Clytiomya Rondani
4 spp.; widespread; Dupuis 1963: 130-131.
- 178. Prosternum setose (Fig. 136), at least one hair or setulae on each side (Fig. 135) 179
- Prosternum bare (Fig. 134) 222
- 179. Face with a strong carina, separating antennae. Antenna and proboscis exceptionally short (Fig. 22) Trixa Meigen, part
see couplet 299.
- Face without carina. Antenna and proboscis not as above 180
- 180. First postsutural supra-alar bristle longer than notopleural bristles and usually longer than first postsutural intra-alar bristle (Figs 2-3) 181
- First postsutural supra-alar bristle shorter than notopleural bristles and shorter than first postsutural intra-alar bristle (Fig. 85), or absent 192
- 181. Parafacial setose (Figs 14, 31), at least with a patch of small setae near midlength or below (as in Fig. 42) 182
- Parafacial entirely bare or at most with a few hairs below lowest frontal bristle 186
- 182. Ocellar bristles proclinate. Second aristemere short, not or only slightly longer than its diameter. Katepisternum with three bristles. Abdominal tergites 3 and 4 each with median discal bristles 183
- Ocellar bristles reclinate (Figs 14, 65). Second aristemere four to twelve times as long as its diameter (Figs 14, 31). Katepisternum with four bristles. Abdominal tergites 3 and 4 without median discal bristles 184

183. Facial ridge with setae on lower two-fifths or less. Parafacial at its narrowest point at most two times width of first flagellomere. Height of gena about one-fourth vertical diameter of eye. Upper part of head with one or two rows of black setulae behind the postocular row. Bristles on postpronotum arranged in a triangle **Wardarina** Mesnil
2 spp.; Mediterranean region; Mesnil 1944-1975: 481-482.
- Facial ridge with setae on lower two-thirds or more. Parafacial two to six times width of first flagellomere. Height of gena about three-fifths vertical diameter of eye. Upper part of head without or at most with a few black setulae behind the postocular row. Bristles on postpronotum not arranged in a triangle **Baumhaueria** Meigen
5 spp.; widespread; Mesnil 1944-1975: 502-506, Mesnil 1963: 18-19.
184. Prementum exceptionally slender, about as long as height of head (Fig. 31). Wing cell r_{4+5} with a petiole about as long as two-fifths section of M beyond bend. First aristomere three to four times as long as its diameter **Rhynchogonia** Brauer et Bergenstamm
1 sp., *Rh. algerica* Brauer et Bergenstamm; Algeria (Sahara), Israel, Turkmenia; Mesnil 1944-1975: 546-547.
- Prementum not as above (Fig. 14). Wing cell r_{4+5} without a petiole. First aristomere at most 1.5 times as long as its diameter 185
185. R_{4+5} setose at least on basal third to crossvein R-M. Upper part of head usually with black setulae behind the postocular row. Abdominal syntergite 1+2 usually without median marginal bristles **Gonia** Meigen, part
see couplet 478.
- R_{4+5} with less setulae near its base. Upper part of head without black setulae behind the postocular row. Abdominal syntergite 1+2 with one pair of strong median marginal bristles **Pseudogonia** Brauer et Bergenstamm, part
see couplet 480.
186. Arista thickened at most on basal half. Frons about as wide as one eye or narrower. First flagellomere less than 2.5 times as long as pedicel 187
- Arista thickened on basal two-thirds or more. Frons at least 1.7 times as wide as one eye in dorsal view (Fig. 66). First flagellomere more than 2.5 times as long as pedicel 188
187. Base of R_{4+5} with a single setula. Scutellum without crossed apical bristles. Ocellar setae small, at most half as long as uppermost frontal bristle. Femur black, tibia red or yellow. Palpus black **Pelatachina** Meade
1 sp., *P. tibialis* (Fallén); widespread; Mesnil 1944-1975: 1112-1113.
- R_{4+5} setose at least halfway to crossvein R-M. Scutellum with fine crossed apical bristles. Ocellar bristles well-developed. Femur and tibia black. Palpus yellow 218
188. Facial ridge with setae on lower third or less 189
- Facial ridge with setae on lower half or more 190
189. Upper part of head with several rows of black setulae behind the postocular row. Costal spine at least two times as long as crossvein R-M. R_{4+5} setose at least halfway to crossvein R-M. Wing

cell r_{4+5} without petiole. Hind tibia with four or five dorsal preapical setae. Abdominal tergites 3 and 4 each with median discal bristles. Basicosta and palpus black

Masistylum Brauer et Bergenstamm

1 sp., *M. arcuatum* (Mik); Europe (Alps, Tatra); Mesnil 1944–1975: 500–502.

- Upper part of head without black setulae behind the postocular row. Costal spine at most as long as crossvein R-M. Base of R_{4+5} with only one or two setulae. Wing cell r_{4+5} with a petiole about as long as one-fourth section of M beyond bend. Hind tibia with two dorsal preapical setae (as in Fig. 152). Abdominal tergites 3 and 4 without median discal bristles. Basicosta and palpus yellow 494

- 190. Upper part of head with one or more rows of black setulae behind the postocular row. Frons with hairs outside frontal row. Prementum four to six times as long as its diameter. Scutum with two pairs of presutural dorsocentral bristles and three pairs of postsutural dorsocentral bristles **Brachicheta** Rondani
 2 spp.; Europe, Transcaucasia, Palestine; Mesnil 1944–1975: 497–500.
- Upper part of head without black setulae behind the postocular row. Frons with reclinate or mediocline bristles lateral to frontal row (Fig. 66). Prementum at most three times as long as its diameter. Scutum with three pairs of presutural dorsocentral bristles and four pairs of postsutural dorsocentral bristles 191

- 191. Katepisternum with four bristles. Scutellum with crossed apical bristles, without erect preapical bristles. Costal spine about two times as long as crossvein R-M. Wing cell r_{4+5} with a petiole about as long as crossvein R-M. Basicosta yellow. Preapical anterodorsal seta on fore tibia distinctly longer than preapical dorsal seta (as in Fig. 145). Hind tibia with three strong dorsal preapical setae (as in Fig. 150) **Isafarus** Richter
 1 sp., *I. calceolus* Richter; Mongolia.
- Katepisternum with three bristles. Scutellum without crossed apical bristles, with one pair of straight nearly erect preapical bristles on dorsal surface just anterior to apex (as in Fig. 123). Costal bristle distinctly shorter than crossvein R-M. Wing cell r_{4+5} without a petiole. Basicosta black. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143). Hind tibia with two dorsal preapical setae (as in Fig. 152) **Thelymorpha** Brauer et Bergenstamm
 1 sp., *Th. marmorata* (Fabricius); widespread; Mesnil 1944–1975: 506–508 (as *Histochoeta* Bezzi).

- 192. Hairs or setulae on posteroventral half of head all black, without any pale hair 193
- Hairs or setulae on posteroventral half of head predominantly white, but if predominantly black, then at least with a few pale hairs along posteroventral margin of head 197

- 193. Parafacial at its narrowest point at least as wide as half of first flagellomere. First flagellomere at most 1.5 times as long as pedicel. Second costal section bare ventrally. Wing cell r_{4+5} with a petiole at least as long as half section of M beyond bend. Base of R_{4+5} usually bare, rarely with a setula. Frons of male at most as wide as one-fifth eye in dorsal view 194
- Parafacial strongly narrowed ventrally, at its narrowest point at most as wide as two-fifths width of first flagellomere. First flagellomere at least two times as long as pedicel. Second costal section with fine hairs ventrally. Wing cell r_{4+5} without or with a petiole. Base of R_{4+5} with a single setula or bristle. Frons of male at least as wide as 1.3 times eye in dorsal view 195

194. Prementum and labella short. Hind tibia with two dorsal preapical setae
 11 spp.; widespread; Mesnil 1944–1975: 1197–1203. **Graphogaster** Rondani
- Prementum and labella strongly elongate (Fig. 60). Hind tibia with three dorsal preapical setae
 1 sp., *A. mikii* Schiner; Europe (High Alps); Mesnil 1944–1975: 1196–1197. **Ancistrophora** Schiner
195. Wing cell r_{4+5} with a petiole as long as one-fourth to half section of M beyond bend. Second aristomere at most as long as its diameter
 1 sp., *H. albipennis* Villeneuve; Mediterranean, Crimea, Uzbekistan; Mesnil 1944–1975: 1186–1188. **Heraultia** Villeneuve
- Wing cell r_{4+5} without a petiole. Second aristomere three to seven times as long as its diameter
 196
196. Abdominal tergites 3 and 4 with narrow basal bands of pruinescence, divided in the dorsal midline of abdomen, or abdomen without pruinescence. Parafacial strongly narrowed ventrally, at its narrowest point as wide as one-eighth to one-fourth as at base of antenna
 8 spp.; widespread; Mesnil 1944–1975: 1188–1192, Andersen 1988 (as *Phytomyptera* Rondani, part). **Elfia** Robineau-Desvoidy
- Abdominal tergites 3 and 4 with pruinescence reaching to or nearly to their hind margins. Parafacial usually not as strongly narrowed ventrally
 4 spp.; widespread; Mesnil 1944–1975: 1188–1192 (as *Elfia* Robineau-Desvoidy, part), Andersen 1988 (as *Phytomyptera* Rondani, in part). **Gwenda** Richter
197. Wing cell r_{4+5} with a petiole at least as long as one-fifth section of M beyond bend (Fig. 176)
 198
- Wing cell r_{4+5} open or with a petiole shorter than one-eighth section of M beyond bend 201
198. Facial ridge with setae on lower three-fifths or more. Arista thickened at least on basal half. Katepisternum with three bristles. Lateral scutellar bristles half as long as subapical bristles or longer
 199
- Facial ridge with setae on lower fourth or less. Arista thickened at most on basal two-fifths. Katepisternum with two bristles. Lateral scutellar bristles hair-like or absent 200
199. Facial ridge strongly convex in profile. Upper part of head without black setulae behind the postocular row. Postpronotum with two bristles. Scutum with four pairs of postsutural dorso-central bristles. Abdomen with pruinescence. Abdominal tergites 3 and 4 without median discal bristles
 2 spp.; northern Africa, Israel, Middle Asia, Mongolia; Mesnil 1944–1975: 655–657. **Alloprosopaea** Villeneuve
- Facial ridge straight in profile. Upper part of head with one or more rows of black setulae behind the postocular row. Postpronotum with three bristles. Scutum with three pairs of postsutural dorsocentral bristles. Abdomen shiny, without pruinescence. Abdominal tergites 3 and 4 each with median discal bristles
 2 spp.; widespread; Mesnil 1944–1975: 662–664. **Ligeria** Robineau-Desvoidy
200. First flagellomere three to four times as long as pedicel. Scutum with one or two pairs of pre-sutural acrostichal bristles. Costal bristle, if present, distinctly shorter than crossvein R-M. Ab-

194. Prementum and labella short. Hind tibia with two dorsal preapical setae
Graphogaster Rondani
 11 spp.; widespread; Mesnil 1944–1975: 1197–1203.
- Prementum and labella strongly elongate (Fig. 60). Hind tibia with three dorsal preapical setae
Ancistrophora Schiner
 1 sp., *A. mikii* Schiner; Europe (High Alps); Mesnil 1944–1975: 1196–1197.
195. Wing cell r_{4+5} with a petiole as long as one-fourth to half section of M beyond bend. Second aristomere at most as long as its diameter
Heraultia Villeneuve
 1 sp., *H. albipennis* Villeneuve; Mediterranean, Crimea, Uzbekistan; Mesnil 1944–1975: 1186–1188.
- Wing cell r_{4+5} without a petiole. Second aristomere three to seven times as long as its diameter
 196
196. Abdominal tergites 3 and 4 with narrow basal bands of pruinescence, divided in the dorsal midline of abdomen, or abdomen without pruinescence. Parafacial strongly narrowed ventrally, at its narrowest point as wide as one-eighth to one-fourth as at base of antenna
Elfia Robineau-Desvoidy
 8 spp.; widespread; Mesnil 1944–1975: 1188–1192, Andersen 1988 (as *Phytomyptera* Rondani, part).
- Abdominal tergites 3 and 4 with pruinescence reaching to or nearly to their hind margins. Parafacial usually not as strongly narrowed ventrally
Gwenda Richter
 4 spp.; widespread; Mesnil 1944–1975: 1188–1192 (as *Elfia* Robineau-Desvoidy, part), Andersen 1988 (as *Phytomyptera* Rondani, in part).
197. Wing cell r_{4+5} with a petiole at least as long as one-fifth section of M beyond bend (Fig. 176)
 198
- Wing cell r_{4+5} open or with a petiole shorter than one-eighth section of M beyond bend 201
198. Facial ridge with setae on lower three-fifths or more. Arista thickened at least on basal half. Katepisternum with three bristles. Lateral scutellar bristles half as long as subapical bristles or longer
 199
- Facial ridge with setae on lower fourth or less. Arista thickened at most on basal two-fifths. Katepisternum with two bristles. Lateral scutellar bristles hair-like or absent
 200
199. Facial ridge strongly convex in profile. Upper part of head without black setulae behind the postocular row. Postpronotum with two bristles. Scutum with four pairs of postsutural dorso-central bristles. Abdomen with pruinescence. Abdominal tergites 3 and 4 without median discal bristles
Alloprosopaea Villeneuve
 2 spp.; northern Africa, Israel, Middle Asia, Mongolia; Mesnil 1944–1975: 655–657.
- Facial ridge straight in profile. Upper part of head with one or more rows of black setulae behind the postocular row. Postpronotum with three bristles. Scutum with three pairs of postsutural dorsocentral bristles. Abdomen shiny, without pruinescence. Abdominal tergites 3 and 4 each with median discal bristles
Ligeria Robineau-Desvoidy
 2 spp.; widespread; Mesnil 1944–1975: 662–664.
200. First flagellomere three to four times as long as pedicel. Scutum with one or two pairs of pre-sutural acrostichal bristles. Costal bristle, if present, distinctly shorter than crossvein R-M. Ab-

- dominal tergites 3 and 4 of female with ventral processes covered with spinules; ovipositor flattened dorsoventrally (as in Fig. 194) **Phytorophaga** Bezzi
 1 sp., *Ph. nigriventris* Mesnil; South of Russian Far East, China (Manchuria).
- First flagellomere at most 1.5 times as long as pedicel. Scutum with three pairs of presutural acrostichal bristles. Costal spine as long as crossvein R-M or longer (Fig. 176). Abdomen of female not as above **Stelconeura** Stein
 2 spp.; widespread; Mesnil 1944–1975: 714–717, Herting 1983a: 2–3.
201. Abdominal tergites 3 and 4 without median discal bristles, or at most tergite 4 with a pair of weak discal bristles 202
- Abdominal tergites 3 and 4 each with median discal bristles 208
202. Parafacial strongly narrowed ventrally, at its narrowest point at most as wide as one-sixth of first flagellomere 203
- Parafacial not or not as strongly narrowed ventrally, at its narrowest point at least as wide as half of first flagellomere 204
203. Subapical and apical bristles of scutellum divergent. Base of R_{4+5} with a single setula. Hind tibia with three dorsal preapical setae. Palpus at least partly yellow. Abdominal tergite 4 of female with a strong process ventrally **Anechuromyia** Mesnil et Shima
 1 sp., *A. nigrescens* Mesnil et Shima; South of Russian Far East, Japan.
- Scutellum with convergent subapical bristles, apical bristles absent. Base of R_{4+5} with two or three setulae. Hind tibia with two dorsal preapical setae. Palpus black. Abdomen of female without a process **Paracraspedothrix** Villeneuve
 1 sp., *P. montivaga* Villeneuve; central and northern Europe; Mesnil 1944–1975: 670–671.
204. Facial ridge with setae on lower two-thirds or more. Arista thickened on more than basal half. Genal dilation strongly reduced (as in Fig. 4) 118
- Facial ridge with setae on lower three-fifths or less. Arista thickened at most on basal two-fifths. Genal dilation not as strongly reduced 205
205. Parafacial entirely bare below lowest frontal bristle. Scutum with at most two pairs of presutural acrostichal bristles 206
- Parafacial with hairs below lowest frontal bristle. Scutum with three pairs of presutural acrostichal bristles 207
206. Prementum five to six times as long as its diameter. Scutellum with divergent apical bristles. Hind tibia usually with three dorsal preapical setae. Abdomen of female without spinules, ovipositor not flattened dorsoventrally **Conogaster** Brauer et Bergenstamm
 1 sp., *C. pruinosa* (Meigen); widespread; Mesnil 1944–1975: 743–745.
- Prementum at most two times as long as its diameter. Apical scutellar bristles absent. Hind tibia with two dorsal preapical setae. Abdominal tergites 3 and 4 of female with spinules along its ventral margin, ovipositor flattened dorsoventrally (similar to Fig. 194) **Paratrixa** Brauer et Bergenstamm
 3 spp.; widespread; Mesnil 1944–1975: 724–726.

207. Frons at most as wide as one eye in dorsal view. First flagellomere at most three times as long as pedicel. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143). Scutellum and legs black **Zaira** Robineau-Desvoidy
1 sp., *Z. cinerea* (Fallén); widespread; Mesnil 1944–1975: 701–702 (as *Viviania* Rondani).
- Frons at least as wide as 1.5 times eye in dorsal view. First flagellomere about five times as long as pedicel. Preapical anterodorsal seta on fore tibia at least as long as preapical dorsal seta (as in Fig. 144). Scutellum and legs predominantly yellow 120
208. Vibrissa arising above level of lower facial margin. Proepisternum setose (as in Fig. 102). Scutellum without apical bristles 209
- Vibrissa arising at level of lower facial margin (Fig. 5). Proepisternum bare, but if setose, then scutellum with apical bristles 210
209. Ocellar bristles well-developed. Height of gena at least one-fifth vertical diameter of eye. Second costal section with fine hairs ventrally. Abdominal tergite 5 of male with long recumbent hairs ventrally, without tail-like process **Prodegeeria** Brauer et Bergenstamm
2 spp.; South of Russian Far East, Korea, Japan; Mesnil 1944–1975: 711–714, Shima 1979a: 130–134.
- Ocellar setae hair-like. Height of gena less than one-tenth vertical diameter of eye. Second costal section bare ventrally. Abdominal tergite 5 of male without long recumbent hairs, with a tail-like process dorsally 391
210. Mid tibia with a single anterodorsal bristle 211
- Mid tibia with two or more anterodorsal bristles 216
211. Parafacial with hairs or setulae below lowest frontal bristle (Fig. 5) 212
- Parafacial entirely bare below lowest frontal bristle 214
212. Abdomen shiny black, without pruinescence. Facial ridge with setae on lower two-fifths to half. Wing cell r_{4+5} with a short petiole. Body length 3–4 mm **Erynniopsis** Townsend
1 sp., *E. antennata* (Rondani); southern Europe, Israel, Transcaucasia, Turkmenia; Mesnil 1944–1975: 671–672.
- Abdomen with pruinescence. Facial ridge usually setose on distinctly more than lower half (Fig. 5). Wing cell r_{4+5} usually without petiole. Body usually longer than 4 mm 213
213. Genal dilation strongly reduced (Fig. 4). Postpronotum with three bristles. Parafacial at its narrowest point about as wide as first flagellomere or wider 118
- Genal dilation not as strongly reduced (Fig. 5). Postpronotum with two bristles, but if with three bristles, then parafacial at its narrowest point at most as wide as three-fifths of first flagellomere **Admontia** Brauer et Bergenstamm, part
see couplet 217.
214. Scutellum without apical setae. Height of gena one-sixth vertical diameter of eye or less. Last section of CuA_1 (beyond crossvein dM-Cu) shorter than four-fifths of crossvein dM-Cu. Ovi-

- positor of female flattened dorsoventrally (Figs 194, 211–212). Sternite 5 of male usually with a pair of tufts of curved setae, visible in lateral view (Fig. 198) 399
- Scutellum with hair-like apical setae. Height of gena one-fourth vertical diameter of eye or more. Last section of CuA₁ as long as four-fifths of crossvein dM-Cu or longer. Ovipositor of female not flattened dorsoventrally. Sternite 5 of male without tufts of curved setae 215
215. Facial ridge with setae on lower fifth. Postpronotal bristles arranged in a triangle. Katepisternum with three bristles. Abdomen of female without piercer or spinules **Lixophaga** Townsend
4 spp.; Japan, south of Russian Far East; Mesnil 1944–1975: 731–733, Shima 1979b: 304–311.
- Facial ridge with usually strong setae on lower one-third to four-fifths. Postpronotal bristles not arranged in a triangle. Katepisternum with two bristles. Female with piercer (usually concealed between margins of abdominal tergite 5), ventral margins of abdominal tergites 3 and 4 usually with spinules **Vibrissina** Rondani
4 spp.; widespread; Mesnil 1944–1975: 739–743, Shima 1983a.
216. Postpronotal bristles arranged in a triangle (as in Fig. 99) 217
- Postpronotal bristles not arranged in a triangle 219
217. Parafacial setose on upper half or below (Fig. 5). Facial ridge with setae on lower half or more. Male with proclinate orbital bristles **Admontia** Brauer et Bergenstamm
11 spp.; widespread; Mesnil 1944–1975: 673–684 (as *Trichoparia* Brauer et Bergenstamm), Tschorsnig and Herting 1994: 46–47.
- Parafacial bare or with at most a few hairs below lowest frontal bristle. Facial ridge usually setose on less than lower half. Male without proclinate orbital bristles 218
218. Lateral scutellar bristles at most as long as two-thirds of subapical bristles; usually fine crossed apical bristles present. Costal spine as long as crossvein R-M or longer. R₄₊₅ setose at least halfway to crossvein R-M. First flagellomere usually at most two times as long as pedicel **Belida** Robineau-Desvoidy
3 spp.; widespread; Mesnil 1944–1975: 748–752 (as *Aporotachina* Meade), Shima 1979a: 134–138.
- Lateral scutellar bristles nearly as long as subapical bristles; apical bristles absent or hair-like (Fig. 114). Costal bristle, if present, shorter than crossvein R-M. R₄₊₅ with setulae only at base. First flagellomere longer than two times length of pedicel **Oswaldia** Robineau-Desvoidy
12 spp.; widespread; Mesnil 1944–1975: 761–771, Shima 1991.
219. Facial ridge with setae on lower two-thirds or more. Arista thickened on basal two-thirds or more. R₄₊₅ setose at least halfway to crossvein R-M. Male without proclinate orbital bristles **Staurochaeta** Brauer et Bergenstamm
2 spp.; Europe, Kazakhstan, Mongolia; Mesnil 1944–1975: 659–660.
- Facial ridge with setae at most on lower half. Arista thickened on less than basal two-thirds. R₄₊₅ with hairs or setulae only at base. Male usually with proclinate orbital bristles 220
220. Facial ridge convex in profile. Scutum lacking dark presutural longitudinal stripes, appearing dark. First flagellomere usually more than four times as long as pedicel. Katepisternum with two bristles **Leiophora** Robineau-Desvoidy
2 spp.; widespread; Mesnil 1944–1975: 667–669 (as *Arrhinomyia* (Brauer et Bergenstamm) of Villeneuve)

- Facial ridge straight or concave. Scutum with dark presutural longitudinal stripes or uniformly covered with dense pruinescence. First flagellomere at most four times as long as pedicel. Katepisternum with three bristles 221
221. Height of gena less than one-tenth vertical diameter of eye. Upper part of head without black setulae behind the postocular row. Anepimeral seta hair-like. Lateral scutellar bristles as long as subapical bristles; apical bristles absent. Costal bristle, if present, shorter than crossvein R-M. Ovipositor of female not laterally compressed, with piercer **Metadrinomyia** Shima
1 sp., *M. proclinata* Shima; Korea, Japan, Nepal; Shima 1980b: 259–263.
- Height of gena one-third vertical diameter of eye or more. Upper part of head with one or more rows of black setulae behind the postocular row. Anepimeral bristle well-developed. Lateral scutellar bristles about half as long as subapical bristles; apical bristles divergent or parallel. Costal spine as long as crossvein R-M or longer. Ovipositor of female laterally compressed, without piercer (Fig. 200) **Picconia** Robineau-Desvoidy
3 spp.; Europe, Transcaucasia, Israel, Mongolia; Mesnil 1944–1975: 664, 666–667 (excluding *Robinaldia angustata* Villeneuve).
222. Subapical scutellar bristles not extending back to level of apices of strong crossed apical bristles (as in Fig. 117) 223
- Subapical scutellar bristles extending back at least to level of apices of apical bristles (Figs 130–133); the latter may be absent (Fig. 114) 237⁵
223. Vibrissa absent, subvibrissal ridge exceptionally large, covered with fine setulae. Antenna shorter than height of gena. Face with a distinct carina. One postsutural intra-alar bristle present. Antenna and legs entirely yellow 224
- Vibrissa well-developed, subvibrissal ridge not exceptionally large (Figs 43–44). Antenna at least as long as height of gena. Face without carina. Two or three postsutural intra-alar bristles present, but if only one, then antenna and legs entirely or predominantly black 225
224. Parafacial bare. Proboscis exceptionally small, shorter than half of height of gena. Scutum lacking presutural dorsocentral bristles. Bend of M angular. Mid tibia with two short anterodorsal bristles **Tachinoestrus** Portshinsky
1 sp., *T. semenovi* Portshinsky; China (Kansu).
- Parafacial with one or two rows of fine hairs. Proboscis not exceptionally small. Scutum with two or three pairs of presutural dorsocentral bristles. Bend of M evenly rounded. Mid tibia without anterodorsal bristle **Eutrixopsis** Townsend
1 sp., *E. javana* Townsend; Korea, Japan; Mesnil 1944–1975: 1239–1240.
225. Hairs or setulae on posteroventral half of head predominantly white, but if predominantly black, then at least with a few pale hairs along posteroventral margin of head 226
- Hairs or setulae on posteroventral half of head all black, without any pale hair 231
226. Vibrissa arising above level of lower facial margin (as in Figs 25, 44). Base of R₄₊₅ entirely bare. Female without proclinate orbital bristles 227

5 Doubtful cases should be keyed out under both couplet 223 and couplet 237.

- Vibrissa arising at level of lower facial margin, but if arising slightly above, then base of R_{4+5} with one or more minute hairs. Female with proclinate orbital bristles 229
- 227. Frons less than one-tenth of one eye in dorsal view (Fig. 68). Lower facial margin strongly turned forwards (as in Fig. 25). Anatergite with a group of minute hairs below lower calypter (as in Fig. 104). Wing cell r_{4+5} without petiole **Opesia** Robineau-Desvoidy
3 spp.; widespread; Herting 1973: 14, Tschorsnig and Herting 1994: 87.
- Frons at least as wide as one-fifth eye in dorsal view. Lower facial margin not or only slightly visible in lateral view (Fig. 44). Anatergite bare below lower calypter. Wing cell r_{4+5} with a short petiole (Fig. 182) 228
- 228. Scutellum with three pairs of bristles along its margin. Second costal section bare ventrally. Section of M between crossveins r-m and dM-Cu about equal to or shorter than section between dM-Cu and bend of M. Body length at most 7 mm **Strongygaster** Macquart
2 spp.; widespread; Tschorsnig and Herting 1994: 89.
- Scutellum with five pairs of bristles along its margin. Second costal section with fine hairs ventrally (as dorsally in Fig. 156). Section of M between crossveins r-m and dM-Cu longer than section between dM-Cu and bend of M (Fig. 182). Body length more than 7 mm **Arcona** Richter
2 spp.; South of Russian Far East, Japan; Richter 1988: 210-212.
- 229. Ocellar bristles reclinate. Apex of abdomen of female with pincers (as in Fig. 190) 285
- Ocellar bristles proclinate. Abdomen of female without pincers 230
- 230. Palpus well-developed. Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta. Abdominal tergite 5 longer than tergite 4. Ovipositor visible in lateral view (Fig. 208). Wing cell r_{4+5} with or without a petiole **Rondania** Robineau-Desvoidy, females
see couplet 236.
- Palpus absent. Preapical posteroventral seta on hind tibia about as long as preapical anteroventral seta (as in Fig. 151). Abdominal tergite 5 about as long as tergite 4. Ovipositor not visible in lateral view. Wing cell r_{4+5} without a petiole (Fig. 161) **Eloceria** Robineau-Desvoidy
2 spp.; Europe, Japan; Mesnil 1944-1975: 1224-1227.
- 231. Arista thickened on basal half or more (Fig. 43). R_{4+5} with setae nearly halfway to crossvein R-M or more. Frons of male about 1.5 times as wide as one eye in dorsal view, with proclinate orbital bristles 232
- Arista thickened on less than basal half. Base of R_{4+5} bare or with a few minute hairs. Frons of male at most as wide as one-third eye in dorsal view, without proclinate orbital bristles 233
- 232. Parafacial with a row of fine hairs on its upper half or two-thirds (Fig. 43). Arista yellow. Scutum with one pair of presutural acrostichal bristles. Abdominal syntergite 1+2 without middorsal depression. Mid tibia with one short anterodorsal bristle or none. Abdomen without any bristle **Corybantia** Richter
1 sp., *C. flaviaristata* Richter; South of Russian Far East (Kunashir and Shikotan Islands); Richter 1986: 95-97.

- Parafacial bare or with at most two hairs below upper half. Arista black. Scutum with two or three pairs of presutural acrostichal bristles. Mid tibia with two or three anterodorsal bristles. Middorsal depression on abdominal syntergite 1+2 confined to about anterior seven-eighths of that segment. Abdomen with bristles, at least with median discal bristles on tergite 5 138
- 233. Postpronotal bristles arranged in a triangle. Katepisternum with three bristles. Section of M between crossveins r-m and dM-Cu longer than section between dM-Cu and bend of M. Wing cell r_{4+5} without a petiole. Body length 6 mm or more **Gymnomacquartia** Mesnil et Shima
1 sp., *G. japonica* Mesnil et Shima; Japan.
- Postpronotal bristles not arranged in a triangle. Katepisternum with two bristles or less. Section of M between crossveins r-m and dM-Cu about equal to or shorter than section between dM-Cu and bend of M (as in Figs 159, 174). Wing cell r_{4+5} with or without petiole. Body length less than 6 mm 234
- 234. Abdominal tergites with marginal bristles and short recumbent hairs. Lower calypter strongly divergent from scutellum (as in Fig. 129). Anepimeral bristle well-developed, sometimes short. Ovipositor of female not visible in lateral view **Mesnilomyia** Kugler, part
see couplet 163.
- Abdominal tergites with discal and marginal bristles; erect hairs often not differentiated from weak bristles, thus the whole abdomen covered with setae of uniform size (Fig. 186). Lower calypter usually not or not as strongly divergent from scutellum. Anepimeral seta not differentiated from the usual anepimeral hairs. Ovipositor of female visible in lateral view (Figs 208–210) 235
- 235. Scutellum yellow. Abdominal tergites 2–4 each with a pair of dark spots near posterior margin (Fig. 186). Legs entirely or predominantly yellow. Ovipositor of female tube-like, bent below the abdomen (Fig. 210) **Pandelleia** Villeneuve
6 spp.; widespread; Mesnil 1944–1975: 1360–1364 (including *Aphrophasia* Curran).
- Scutellum black. Abdominal tergites not as above. Legs usually black, rarely more or less yellow. Ovipositor of female not as above (Figs 208–209) 236
- 236. Abdominal tergite 5 longer than tergite 4. Hind tibia usually with only two dorsal preapical setae. (Ovipositor of female not bill-shaped, see couplet 230, Fig. 208) **Rondania** Robineau-Desvoidy, males
7 spp.; widespread; Mesnil 1944–1975: 1365–1368.
- Abdominal tergite 5 shorter than tergite 4. Hind tibia with three strong dorsal preapical setae. Ovipositor of female bill-shaped (Fig. 209) **Microsoma** Macquart
2 spp.; widespread; Mesnil 1944–1975: 1368–1370.
- 237. Parafacial with hairs or bristles over most of its length (Figs 1, 57) or at least with an isolated patch of hairs or a few hairs below upper half (Fig. 42) 238
- Parafacial bare (Fig. 47) or with hairs below lowest frontal bristle at most on upper half 262
- 238. Facial ridge with setae on lower two-thirds or more (as in Fig. 4) 183
- Facial ridge with setae on less than lower half 239

239. Preapical posteroventral seta on hind tibia about as long as preapical anteroventral seta (as in Fig. 151). Scape without a hook-like basal prolongation 240
- Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta, but if nearly as long, then scape with a hook-like prolongation basally (Fig. 35) 244
240. Proepisternum setose. Second aristomere three to six times as long as its diameter. Upper part of head without black setulae behind the postocular row. Fourth costal section shorter than sixth costal section 241
- Proepisternum bare. Second aristomere at most as long as its diameter. Upper part of head with at least several black setulae behind the postocular row. Fourth costal section at least as long as sixth costal section 242
241. Abdominal tergites 3 and 4 each with median discal bristles and a narrow basal band of pruinescence. Vibrissa arising at level of lower facial margin. Two strong postsutural intra-alar bristles present. **Schineria** Rondani
3 spp.; Italy, Slovakia, southern Siberia, South of Russian Far East, China; Mesnil 1944–1975: 972–975.
- Abdominal tergites 3 and 4 without pruinescence or median discal bristles. Vibrissa arising above level of lower facial margin. Usually three postsutural intra-alar bristles present 80
242. Prementum short, less than three times as long as its diameter; labella without lobes. Scutum before suture appearing dark, without distinct longitudinal stripes. Abdomen black
Loewia Egger, part
see couplet 347.
- Prementum four to eight times as long as its diameter; labella with two lobes posteriorly. Scutum before suture with two to four dark longitudinal stripes, the lateral ones very broad. Abdomen usually red laterally 243
243. Abdominal tergites 3 and 4 with median discal bristles. Occiput with well-developed genal dilation. R_{4+5} setose at least halfway to crossvein R-M **Minthodes** Brauer et Bergenstamm, part
see couplet 290.
- Abdominal tergites 3 and 4 without median discal bristles. Genal dilation not or scarcely developed (as in Fig. 29). R_{4+5} setose only at base **Hyperaea** Robineau-Desvoidy, part
see couplet 290.
244. Wing cell r_{4+5} with a petiole at least as long as one-sixth section of M beyond bend (Fig. 175) 245
- Wing cell r_{4+5} open (Fig. 1) or at most with a minute petiole 251
245. Parafacial with strong proclinate bristles and hairs (Fig. 57). R_{4+5} usually setose on more than halfway to crossvein R-M (Fig. 175) 246
- Parafacial with fine hairs only (Fig. 35). R_{4+5} setose only at base or entirely bare 249

246. First aristomere three to five times as long as its diameter. First postsutural supra-alar bristle longer than notopleural bristles. Lower facial margin strongly turned forwards, prementum six to seven times as long as its diameter. Hind tibia with three dorsal preapical setae
Petinarctia Villeneuve
 1 sp., *P. stylata* (Brauer et Bergenstamm); northern Europe, Siberia; Mesnil 1944–1975: 1302–1303.
- First aristomere at most as long as its diameter. First postsutural supra-alar bristle shorter than notopleural bristles or absent. Lower facial margin not visible in lateral view and prementum distinctly shorter (Fig. 57), but if lower facial margin turned forwards and prementum elongate, then hind tibia with four dorsal preapical setae 247
247. Postpronotum with two bristles (Fig. 101) or with three bristles in a straight line (as in Fig. 90); a weak additional anterior seta sometimes placed anteriorly between middle basal bristle and inner basal bristle (Fig. 100). Outer vertical bristle at least half as long as inner vertical bristle
Wagneria Robineau-Desvoidy
 14 spp.; widespread; Mesnil 1944–1975: 1285–1292 (including *Aphelogaster* Aldrich).
- Postpronotum with three bristles arranged in a triangle (Fig. 99) or with three bristles in a straight line and a strong additional bristle placed exactly before middle basal bristle (as in Fig. 93) or anteriorly between middle basal bristle and outer basal bristle. Outer vertical bristle absent (Fig. 57) or at most half as long as inner vertical bristle 248
248. Scutellum with at least four erect setulae arising on dorsal surface. Abdominal tergites 3 and 4 with strong median discal bristles
Ramonda Robineau-Desvoidy
 10 spp.; widespread; Mesnil 1944–1975: 1296–1302 (including *Peteinomima* Mesnil).
- Scutellum with at most two erect setulae arising on dorsal surface near its anterior margin. Abdominal tergites usually without, rarely with weak median discal bristles
Periscepsia Gistel
 7 spp.; widespread; Mesnil 1944–1975: 1293–1296.
249. Ocellar bristles reclinate (Fig. 28). Occiput with well-developed genal dilation. Two postsutural intra-alar bristles present, separated from each other by a wide distance (as in Fig. 88). Hind tibia with three dorsal preapical setae. Apex of abdomen of female with pincers (as in Figs 189, 191)
Leucostoma Meigen, part
 see couplet 282.
- Ocellar bristles proclinate. Genal dilation not or only scarcely developed (as in Figs 29, 35). Three postsutural intra-alar bristles present, but if only two, then separated by a distance less than in Fig. 88. Hind tibia with two dorsal preapical setae. Abdomen of female without pincers 250
250. Scape without a prolongation. Vibrissa arising at level of lower facial margin. Prementum four to seven times as long as its diameter. Scutum before suture with two to four dark longitudinal stripes, the lateral ones very broad. Apical scutellar bristles crossed. Costal spine as long as crossvein R-M or longer 243
- Scape with a hook-like prolongation basally (Fig. 35). Vibrissa arising above level of lower facial margin. Prementum short, about two times as long as its diameter. Scutum before suture appearing dark, without longitudinal stripes. Apical scutellar bristles divergent. Costal bristle, if present, shorter than crossvein R-M
Richteriola Mesnil
 2 spp.; Middle Asia, Iran; Richter 1991: 238–241.

251. Costal spine two to four times as long as crossvein R-M. Parafacial with a single row of strong proclinate bristles and hairs (Fig. 29). Lateral scutellar bristles absent 252
- Costal spine, if present, at most as long as crossvein R-M. If parafacial with a single row of strong proclinate bristles, then scutellum with lateral bristles 253
252. R_{4+5} setose only at base. Second costal section bare ventrally. Scutum with two pairs of presutural acrostichal bristles. Anatergite with a group of minute hairs or setulae below lower calypter (as in Fig. 104). Abdominal tergites 3 and 4 each with strong median discal bristles
Engeddia Kugler
- 2 spp.; Spain, Israel; Tschorsnig 1991.
- R_{4+5} setose from base to beyond crossvein R-M. Second costal section with fine hairs ventrally. Scutum lacking presutural acrostichal bristles. Anatergite bare below lower calypter. Abdominal tergites 3 and 4 without or with median discal bristles Peteina Meigen
- 2 spp.; widespread; Mesnil 1944–1975: 1303–1305.
253. Postpronotum with three or four bristles, the three strongest bristles arranged in a nearly right-angled triangle (Figs 1, 97). Abdominal tergites 3 and 4 each with median discal bristles 254
- Postpronotum with the main bristles arranged in a more or less straight line. Abdominal tergites 3 and 4 without median discal bristles 258
254. Parafacial with a patch of small setae near midlength or below. Frontal bristles descending below level of base of arista. Hairs on posteroventral half of head usually predominantly pale. Apical scutellar bristles divergent, often hair-like. Hind tibia with two dorsal preapical setae, but if with three, then posterodorsal seta distinctly shorter than the two other ones. Palpus yellow 183
- Parafacial with proclinate bristles or strong hairs over most of its length (Fig. 1). Frontal bristles descending at most to level of lower margin of pedicel. Hairs or setulae on posteroventral half of head entirely or predominantly black. Scutellum with crossed apical bristles. Hind tibia with three dorsal preapical setae about equal in length. Palpus usually black 255
255. Prementum four to six times as long as its diameter. Scutum lacking presutural acrostichal bristles (Fig. 1). Scutum with two strong postsutural intra-alar bristles, but if with three, then sides of abdomen yellow. Abdomen uniformly covered with pruinescence. Abdominal syntergite 1+2 without median discal bristles. Male with proclinate orbital bristles and outer vertical bristle (Fig. 1) 256
- Prementum usually less than four times as long as its diameter. Scutum with two or three pairs of presutural acrostichal bristles. Scutum with three postsutural intra-alar bristles. Abdomen entirely black, with transverse bands of pruinescence. Abdominal syntergite 1+2 usually with median discal bristles. Male without proclinate orbital bristles or outer vertical bristle 257
256. R_{4+5} setose only at base. First flagellomere at most two times as long as pedicel. Arista thickened on basal two-thirds or less. Lateral scutellar bristles about as long as four-fifths of subapical bristles or longer Neoemdenia Mesnil
- 1 sp., *N. mirabilis* Mesnil; Palestine, Transcaucasia (Armenia); Mesnil 1944–1975: 1086–1087.

- R₄₊₅ setose nearly to crossvein R-M (Fig. 1). First flagellomere three to four times as long as pedicel. Arista thickened on basal three-fourths or more. Lateral scutellar bristles absent or at most half as long as subapical bristles
Brachymera Brauer et Bergenstamm
2 spp.; southern Europe, Transcaucasia, southern Siberia; Mesnil 1944–1975: 1085–1086.
257. First flagellomere about four times as long as pedicel. Arista thickened on basal two-thirds. Second aristemere three to four times as long as its diameter. Katepisternum with four bristles. Lateral scutellar bristles nearly as long as subapical bristles. Second costal section bare ventrally
Pseudopachystylum Mik
1 sp., *P. gonioides* (Zetterstedt); widespread; Mesnil 1944–1975: 1087–1088.
- First flagellomere at most two times as long as pedicel. Arista thickened on basal fourth or less. Second aristemere at most 1.5 times as long as its diameter. Katepisternum with three bristles. Lateral scutellar bristles absent. Second costal section with fine hairs ventrally
Eubrachymera Townsend
1 sp., *E. marginalis* Mesnil et Shima; Japan.
258. Mid tibia with a single anterodorsal bristle. Genal dilation not or only scarcely developed (as in Fig. 29). Bend of M distinctly obtuse. Abdominal tergite 5 about as long as tergite 4 259
- Mid tibia with three to five anterodorsal bristles. Occiput with well-developed genal dilation (Fig. 42). Bend of M nearly a right angle. Abdominal tergite 5 distinctly shorter than tergite 5 260
259. Frons without proclinate orbital bristles. Basicosta and legs yellow. Postpronotum with more than two bristles. Scutellum with one or two pairs of lateral bristles nearly as long as subapical bristles. Abdominal sternites exposed
Hamaxiella Mesnil
1 sp., *H. brunnescens* Mesnil; China (Shanghai).
- Frons with proclinate orbital bristles. Basicosta and legs black. Postpronotum with two bristles. Lateral scutellar bristles absent. Abdominal sternites concealed between margins of abdominal tergites 310
260. Parafacial with a patch of very fine hairs below upper half (Fig. 42). Three postsutural intra-alar bristles present. Abdomen uniformly covered with dense pruinescence. Middorsal depression on abdominal syntergite 1+2 confined to about anterior seven-eighths of that segment or more. Abdomen of female without pincers
Naira Richter
2 spp.; Transcaucasia, Middle Asia; Mesnil 1944–1975: 1135–1136.
- Parafacial with one or more rows of hairs over most of its length. Two postsutural intra-alar bristles present, separated from each other by a wide distance (as in Fig. 88). Abdomen with transverse bands of pruinescence. Middorsal depression on abdominal syntergite 1+2 confined to anterior half or less of that segment. Apex of abdomen of female with pincers (as in Figs 189, 191) 261
261. Bend of M with a continuation of M as long as one or two times crossvein R-M. Ocellar bristles, if present, proclinate in male, reclinate in female. Hind tibia with three dorsal preapical setae about equal in length. Base of R₄₊₅ with several hairs or setulae
Calyptromyia Villeneuve
1 sp., *C. barbata* Villeneuve; South of Russian Far East, Japan.

- Bend of M without a continuation. Ocellar bristles reclinate in male and female. Hind tibia with two dorsal preapical setae. Base of R_{4+5} with a single hair or setula
Eulabidogaster Belanovsky
 1 sp., *E. setifacies* (Rondani); warmer parts of Palaearctic.
262. Hairs or setulae on posteroventral half of head all black, without any pale hair 263
- Hairs or setulae on posteroventral half of head predominantly white, but if predominantly black, then at least with a few pale hairs along posteroventral margin of head 274
263. Antenna shorter than height of gena (as in Fig. 22). Proepisternum setose 38
- Antenna longer than height of gena (Fig. 47). Proepisternum bare 264
264. Preapical posteroventral seta on hind tibia about as long as preapical anteroventral seta (as in Fig. 151) 265
- Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta 267
265. Wing cell r_{4+5} with a petiole at least as long as two-thirds section of M beyond bend. R_{4+5} setose at least halfway to crossvein R-M **Bracteola** Richter
 1 sp., *B. anthracina* Richter; Caucasus, Transcaucasia.
- Wing cell r_{4+5} open or with a minute petiole. R_{4+5} setose only at base 266
266. Facial ridge with setae on lower fifth or less. Postpronotum with three bristles arranged in a triangle. Scutum with only one pair of presutural acrostichal bristles. Two postsutural intra-alar bristles present, separated from each other by a wide distance (as in Fig. 88). Hind tibia with three dorsal preapical setae. Abdomen with weak pruinescence **Pelamera** Herting
 1 sp., *P. atra* (Rondani); Switzerland, northern Italy; Mesnil 1944-1975: 1180-1181.
- Facial ridge with setae on lower two-fifths to two-thirds. Postpronotum with three bristles arranged in a straight line. Scutum with two or three pairs of presutural acrostichal bristles. Usually three postsutural intra-alar bristles present. Hind tibia with two dorsal preapical setae. Abdomen shiny, without pruinescence 138
267. Frons at least 1.3 times as wide as one eye in dorsal view. Male with proclinate orbital bristles. Arista thickened on basal half or more (Fig. 47). Apical scutellar bristles absent or very short; if present, then usually parallel or divergent (as in Fig. 119). Base of R_{4+5} with a strong single seta or with a strong seta and several finer additional setulae or hairs 268
- Frons at most 1.2 times as wide as one eye in dorsal view. Male without proclinate orbital bristles. Arista thickened at most on basal two-fifths. Scutellum with strong crossed apical bristles (as in Figs 132-133). Base of R_{4+5} bare, with a single hair or with fine setulae of equal length 271
268. Wing cell r_{4+5} with a petiole as long as one-fourth to half section of M beyond bend. Second aristomere at most as long as its diameter. Hind tibia with two dorsal preapical setae, but if with three, then posterodorsal seta distinctly shorter than the two other ones 195

- Wing cell r_{4+5} open or at most with a petiole as long as one-tenth section of M beyond bend. Second aristomere 2.5 to five times as long as its diameter (Fig. 47). Hind tibia with three dorsal preapical setae about equal in length 269
- 269. Face broadly visible in lateral view, lower facial margin strongly turned forwards (Fig. 47). Prementum at least five times as long as its diameter. First flagellomere subtriangular. Abdomen uniformly covered with pruinescence **Scomma** Richter
1 sp., *S. gobica* Richter; Mongolia (Gobi-Altai).
- Face not visible in lateral view, lower facial margin usually not visible in lateral view. Prementum about two times as long as its diameter. First flagellomere not subtriangular. Abdomen without pruinescence or with transverse bands of pruinescence 270
- 270. Palpus present, sometimes short. R_1 bare. Abdominal tergites 3 and 4 with median discal bristles **Neaera** Robineau-Desvoidy
3 spp.; widespread; Mesnil 1944–1975: 1183–1185.
- Palpus absent. R_1 setose on apical third or half. Abdominal tergites 3 and 4 without median discal bristles **Neoplectops** Malloch
1 sp., *N. pomonellae* (Schnabl et Mokrzecki); southern parts of Palaearctic; Mesnil 1944–1975: 1185–1186.
- 271. Lower facial margin not visible in lateral view. Bristles on postpronotum arranged in a triangle. Scutum with two pairs of presutural acrostichal bristles, three pairs of presutural dorsocentral bristles. Three postsutural intra-alar bristles present 233
- Lower facial margin visible in lateral view. Bristles on postpronotum not arranged in a triangle. Scutum with a single pair of presutural acrostichal bristles or none, two pairs of presutural dorsocentral bristles. Two postsutural intra-alar bristles present or less 272
- 272. Frons with hairs or setulae outside frontal row. Abdominal tergites 3 and 4 with median discal bristles. Base of R_{4+5} with three or more setulae. Terminalia of female normally developed **Dufouria** Robineau-Desvoidy, part
see couplet 137.
- Frons bare outside frontal row. Abdominal tergites 3 and 4 without median discal bristles. Base of R_{4+5} bare or with a single setula. Terminalia of female with special adaptations (Figs 190, 207) 273
- 273. Ocellar bristles reclinate (as in Fig. 28). Second costal section bare ventrally. Abdomen of male with pruinescence. Frons of male at most as wide as two-fifths eye in dorsal view. Apex of abdomen of female with pincers (as in Fig. 190) **Weberia** Robineau-Desvoidy
1 sp., *W. digramma* (Meigen); Mediterranean, Transcaucasia, Turkmenia; Dupuis 1968: 16–23, 37–38 (as *Lepidosyntoma* Becker).
- Ocellar bristles proclinate. Second costal section with fine hairs ventrally. Abdomen of male without pruinescence, but if with pruinescence, then frons at least as wide as three-fourths eye in dorsal view. Abdomen of female without pincers, abdominal segment 6 strongly developed, sternite 6 with a ventral process (Fig. 207) **Phania** Meigen
6 spp.; Europe, Israel, Transcaucasia; Tschorsnig and Herting 1994: 93.

274. Two postsutural intra-alar bristles present, separated from each other by more the distance between the first bristle and the suture (Figs 88–89), or only one postsutural intra-alar bristle present (as in Fig. 87) 275
- Three postsutural intra-alar bristles present (Figs 84–85), but if only two, then separated from each other by at most the distance between the first bristle and the suture (Fig. 86) 287
275. One postsutural intra-alar bristle present. Tegula and basicosta yellow 276
- Two postsutural intra-alar bristles present. Tegula black, basicosta usually black 277
276. Ocellar setae absent. Scutum before suture with one pair of broad dark longitudinal stripes (Fig. 83). R_{4+5} setose at least halfway to crossvein R-M. Bend of M with a continuation longer than crossvein R-M. Wing cell r_{4+5} closed or at most with a very short petiole. Abdominal tergites with strong median marginal and median discal bristles. Pedicel and legs predominantly yellow 289
- Ocellar bristles well-developed, reclinate. Scutum before suture without stripes, appearing dark. R_{4+5} setose only at base. Bend of M without a continuation. Wing cell r_{4+5} with a petiole about as long as section of M beyond bend. Abdomen without bristles dorsally. Pedicel and legs black
Carbonilla Mesnil
- 1 sp., *C. luteicosta* Mesnil; Mongolia; Mesnil 1944–1975: 1292–1293.
277. Abdominal tergites 3 and 4 with median discal bristles. Ocellar bristles proclinate 278
- Abdominal tergites 3 and 4 without median discal bristles, but if with a few irregular discal bristles between erect hairs, then ocellar bristles reclinate 280
278. Occiput with well-developed genal dilation. Hairs or setulae on posteroventral half of head predominantly black, only a few pale hairs along posteroventral margin of head. Postpronotum with two bristles. Scutum with two pairs of presutural dorsocentral bristles. Katepisternum with two bristles. Body length at most 6 mm 272
- Genal dilation not or only scarcely developed. Hairs on posteroventral half of head predominantly white. Postpronotum with four bristles. Scutum with three pairs of presutural dorsocentral bristles. Katepisternum with three bristles. Body length 6–15 mm 279
279. Facial ridge with hair-like setae on lower half to two-thirds. First flagellomere at least six times as long as pedicel. Scutellum with strong crossed apical bristles. Wing entirely darkly pigmented. Abdominal syntergite 1+2 without median marginal bristles. Ovipositor of female without piercer
Hermya Robineau-Desvoidy
- 3 spp.; China, Japan; Sun 1994.
- Facial ridge with setae at most on lower fourth. First flagellomere at most three times as long as pedicel. Scutellum without crossed apical bristles. Wing transparent. Abdominal syntergite 1+2 with a pair of strong median marginal bristles. Ovipositor of female with piercer
Zambesomima Mesnil
- 1 sp., *Z. hirsuta* Mesnil; southern Siberia (Chita), South of Russian Far East, Japan.

280. Ocellar bristles, if present, proclinate. Frons of male at least as wide as three-fourths eye in dorsal view. Abdominal sternites with connecting membrane exposed (as in Fig. 193). Abdomen of female without pincers, abdominal segment 6 strongly developed, sternite 6 with a ventral process (as in Fig. 207) **Besseria** Robineau-Desvoidy
8 spp.; widespread; Tschorsnig and Herting 1994: 92–93.
- Ocellar bristles reclinate (Fig. 28), but if proclinate (males of *Psalidoxena*), then frons at most as wide as one-third eye in dorsal view. Abdominal sternites usually concealed between margins of abdominal tergites. Abdominal segment 6 of female not as above, abdomen usually with pincers (Figs 189–192) 281
281. Scutum with a single pair of presutural acrostichal bristles. Frons with hairs outside frontal row. Lower calypter of male large (Fig. 130), extending to middle of syntergite 1+2 or beyond 282
- Scutum lacking presutural acrostichal bristles, but if with one pair of bristles (occasionally in *Brullaea*), then frons bare outside frontal row. Lower calypter of male usually not extending to middle of syntergite 1+2 284
282. Wing cell r_{4+5} with a petiole as long as two-fifths to four-fifths section of M beyond bend **Leucostoma** Meigen
12 spp.; widespread; Kugler 1966, Tschorsnig and Herting 1994: 89–91.
- Wing cell r_{4+5} open or at most with a minute petiole. 283
283. Postpronotum with four or five bristles. Katepisternum with three bristles. Abdomen with transverse bands of pruinescence. Ocellar bristles of male reclinate. Frons of male at least as wide as three-fifths eye in dorsal view. Inner margin of pincers of female armed with peg-like setae (Fig. 192). Body length 6–9 mm **Dionaea** Robineau-Desvoidy
3 spp.; widespread; Herting 1977: 14.
- Postpronotum with two or (occasionally) three bristles. Katepisternum with two bristles. Abdomen without pruinescence. Ocellar bristles of male proclinate. Frons of male at most as wide as one-third eye in dorsal view. Inner margin of pincers of female without peg-like setae. Body length about 4 mm **Psalidoxena** Villeneuve
1 sp., *P. transsylvanica* (Villeneuve); Europe (France, Italy, Hungary, Rumania); Dupuis 1968: 23–30, 38–40.
284. Abdomen at least laterally red or yellow, without pruinescence or at most with traces of pruinescence on anterior margin of tergite 4. Scutum before suture with one pair of broad dark longitudinal stripes (as in Fig. 83) or entirely dark 285
- Abdomen black, tergites 3 and 4 with transverse bands of pruinescence. Scutum without a pair of broad longitudinal stripes as in Fig. 83 286
285. First flagellomere less than two times as long as pedicel. Frons of male at most as wide as one-third eye in dorsal view, outer vertical bristle not differentiated. Abdomen of male without pruinescence. Apex of abdomen of female with pincers **Clairvillia** Robineau-Desvoidy
2 spp.; widespread.

- First flagellomere two to three times as long as pedicel. Frons of male at least as wide as two-thirds eye in dorsal view, outer vertical bristle present. Abdominal tergite 4 of male with traces of pruinescence on anterior margin. Abdomen of female without pincers

Brullaea Robineau-Desvoidy

1 sp., *B. ocypteroidea* Robineau-Desvoidy; Europe; Dupuis 1968: 10-16, 35-37.
- 286. Lower facial margin slightly protruding, visible in lateral view. Prementum five to eight times as long as its diameter. Scutum before suture with four dark longitudinal stripes. Katepisternum with three bristles. Apex of abdomen of female with pincers (Fig. 190). Body length 4-10 mm

Labigastera Macquart

3 spp.; Europe, northern Africa, Transcaucasia; Tschorsnig and Herting 1994: 91.
- Lower facial margin not visible in lateral view. Prementum at most three times as long as its diameter. Scutum before suture entirely dark, without longitudinal stripes. Katepisternum with two bristles. Apex of abdomen of female with a pair of semiglobular corpuscles. Body length about 4 mm

Clairvillioops Mesnil

1 sp., *C. breviforceps* (van Emden); Japan; Herting 1981: 14-15 (under *Paradionaea* Baranov).
- 287. Preapical posteroventral seta on hind tibia about as long as preapical anteroventral seta (as in Fig. 151) 288
- Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta 294
- 288. Hind tibia with two dorsal preapical setae. Lateral scutellar bristles absent or at most half as long as subapical bristles. Scutum before suture usually with one pair of broad dark longitudinal stripes, each about as wide as the pale median stripe (Fig. 83). Abdomen usually more or less red laterally, rarely entirely black. Tegula usually yellow or red 289
- Hind tibia with three dorsal preapical setae about equal in length, but if with two setae, then lateral scutellar bristles distinctly longer than half of subapical bristles. Scutum without a pair of broad longitudinal stripes as in Fig. 83. Abdomen entirely black. Tegula black or dark brown 291
- 289. Ocellar setae absent. Bend of M with a long extension beyond bend, distinctly longer than crossvein R-M. Wing cell r_{4+5} closed or with a petiole at most as long as one-tenth section of M beyond bend (Fig. 164) **Mintho** Robineau-Desvoidy, part

see couplet 10.
- Ocellar bristles well-developed. Bend of M without an extension. Petiole of wing cell r_{4+5} longer 290
- 290. R_{4+5} setose at least halfway to crossvein R-M. Scutum with two postsutural intra-alar bristles. Lateral scutellar bristles absent. Abdominal tergite 5 as long as two-thirds of tergite 4 or shorter. Abdominal tergites 3 and 4 usually with median discal bristles

Minthodes Brauer et Bergenstamm⁶

11 spp.; Mediterranean, Turkey, Transcaucasia, Tadjikistan; Mesnil 1944-1975: 1173-1180 (including *Pseudomintho* Brauer et Bergenstamm), Herting 1987: 9-10.

6 Included are the species formerly placed in *Pseudomintho* Brauer et Bergenstamm, because of the intermediate species *M. transiens* Herting.

- R₄₊₅ setose only at base. Scutum usually with three postsutural intra-alar bristles. Scutellum usually with short lateral bristles. Abdominal tergite 5 as long as four-fifths of tergite 4 or longer. Abdominal tergites 3 and 4 without median discal bristles **Hyperaea** Robineau-Desvoidy
4 spp.; Mediterranean; Mesnil 1944-1975: 1170-1172, Herting 1977: 11-12.
- 291. Face visible in lateral view, lower facial margin strongly turned forwards. Proboscis nearly as long as height of head **Munira** Richter
1 sp., *M. bella* Richter; Transcaucasia.
- Face and lower facial margin not visible in lateral view. Proboscis distinctly shorter 292
- 292. Mid tibia with a single anterodorsal bristle. Abdominal tergites 3 and 4 without median discal bristles. Lateral scutellar bristles absent. Scutum before suture with three dark longitudinal stripes. Labella with two lobes posteriorly **Palmonia** Kugler
1 sp., *P. hermonensis* Kugler; Palestine, Bulgaria; Mesnil 1944-1975: 1166-1167.
- Mid tibia with two or more anterodorsal bristles. Abdominal tergites 3 and 4 with median discal bristles. Lateral scutellar bristles present, sometimes hair-like. Scutum before suture with four dark longitudinal stripes or longitudinal stripes absent. Labella without lobes 293
- 293. Apical scutellar bristles crossed. Scutum with two or three pairs of presutural acrostichal bristles. Hairs or setulae on posteroventral half of head predominantly black, but with at least a few pale hairs along posteroventral margin of head. Frons of male at most as wide as one-third eye in dorsal view 152
- Apical scutellar bristles parallel or divergent. Scutum with one pair of presutural acrostichal bristles. Hairs on posteroventral half of head predominantly white. Frons of male about as wide as two-thirds eye in dorsal view 314
- 294. R₁ setose dorsally. Upper part of head without black setulae behind the postocular row. Head semicircular in profile (Fig. 23) 295
- R₁ bare, but if setose, then upper part of head with several rows of black setulae behind the postocular row. Head profile not semicircular 296
- 295. Male without, female with two proclinate orbital bristles. The three strongest bristles on postpronotum arranged in a triangle. Lateral scutellar bristles as long as subapical bristles, basal bristles short or occasionally absent. Mid tibia with three or more anterodorsal bristles. Antenna, basicosta and legs black **Phenicellia** Robineau-Desvoidy
1 sp., *Ph. haematodes* (Meigen); Europe, southern Siberia, Mongolia; Mesnil 1944-1975: 1341-1342.
- Male and female with a complete row of proclinate orbital bristles (Fig. 23). Bristles on postpronotum arranged in a straight line. Lateral scutellar bristles absent, basal bristles well-developed. Mid tibia with a single anterodorsal bristle. Antenna, basicosta and legs yellow **Halidaya** Egger
1 sp., *H. aurea* Egger; widespread; Mesnil 1944-1975: 1342-1345.
- 296. Antenna as long as or shorter than height of gena (Fig. 22) 297
- Antenna longer than height of gena (Figs 13, 38) 300

297. Parafacial with hairs on its upper anterior half. Scutum with two pairs of presutural dorsocentral bristles. Anatergite with a group of minute hairs or setulae below lower calypter (as in Fig. 104). Mid tibia with a single short anterodorsal bristle. Frons of male about as wide as two times basal diameter of arista Parhamaxia Mesnil
3 spp.; South of Russian Far East; Mesnil 1944–1975: 1240–1242, Richter 1991: 234–236.
- Parafacial bare or at most with a few hairs below lowest frontal seta. Scutum with three or more pairs of presutural dorsocentral bristles. Anatergite bare below lower calypter. Mid tibia with two or more anterodorsal bristles. Frons of male distinctly wider 298
298. Proboscis very short, prementum less than two times as long as its diameter; palpus strongly inflated (Fig. 22). Facial ridge with fine setae on lower one-third to two-thirds. Frons of male at most as wide as one-third eye in dorsal view 299
- Proboscis of normal length, prementum five to eight times as long as its diameter; palpus not strongly inflated. Facial ridge with setae on lower fourth or less. Frons of male as wide as half of eye in dorsal view or wider 37
299. Arista bare (Fig. 22). Abdominal tergites 3 and 4 with numerous median discal bristles. Fore tibia with a strong preapical anteroventral seta at least as long as preapical posteroventral seta Trixa Meigen
5 spp.; widespread; Mesnil 1980: 9–14 (including *Murana* Meigen).
- Arista short pubescent, the longest hairs nearly as long as basal diameter of arista. Abdominal tergites 3 and 4 without median discal bristles or at most with a few very short bristles on tergite 3. Fore tibia without a strong preapical anteroventral seta 36
300. Lower facial margin visible in lateral view (Figs 13, 38). Prementum four to twelve times as long as its diameter 301
- Lower facial margin not visible in lateral view, but if slightly so, then prementum distinctly stouter 307
301. Facial ridge with setae on lower half or more. Face deeply sunken. Arista thickened on basal two-thirds or more. Lateral scutellar bristles nearly as long as subapical bristles 190
- Facial ridge with setae on less than lower half. Face not sunken, usually visible in lateral view (Figs 13, 38). Arista thickened at most on basal half. Lateral scutellar bristles absent or distinctly shorter than subapical bristles 302
302. Two postsutural intra-alar bristles present. Katepisternum with two bristles. Preapical anterodorsal seta on fore tibia at least as long as preapical dorsal seta (as in Fig. 144). Hairs or setulae on posteroventral half of head predominantly black, but with at least a few pale hairs along posteroventral margin of head. Pedicel, tegula, abdomen and legs black 272
- Three postsutural intra-alar bristles present. Katepisternum with three or four bristles. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143). Hairs or setulae on posteroventral half of head entirely or predominantly pale. Pedicel, tegula, abdomen and legs usually more or less yellow, rarely black 303

303. Postpronotum with the three strongest bristles arranged in a triangle (as in Figs 97, 99). Ocellar setae hair-like or absent. Height of gena about one-tenth vertical diameter of eye or less. Second costal section bare ventrally **Atylostoma** Brauer et Bergenstamm
2 spp.; widespread; Mesnil 1944–1975: 1131–1134.
- Bristles on postpronotum not arranged in a triangle. Ocellar bristles well-developed (Figs 13, 38). Height of gena about one-sixth vertical diameter of eye or more. Second costal section with fine hairs ventrally 304
304. Abdominal tergites 3 and 4 with median discal bristles. Mid tibia with two or more anterodorsal bristles. Scutum with three pairs of presutural dorsocentral bristles **Bithia** Robineau-Desvoidy, part
see couplet 370.
- Abdominal tergites 3 and 4 without median discal bristles and mid tibia with a single anterodorsal bristle, but if rarely abdominal tergites 3 and 4 with short median discal bristles or mid tibia with two anterodorsal bristles, then scutum with two pairs of presutural dorsocentral bristles 305
305. Scutum with two pairs of presutural dorsocentral bristles. Upper part of head with one to three rows of black setulae behind the postocular row **Solieria** Robineau-Desvoidy
8 spp.; widespread; Mesnil 1944–1975: 1117–1124, Tschorsnig and Herting 1994: 78–79.
- Scutum with three pairs of presutural dorsocentral bristles. Upper part of head without black setulae or rarely with one row behind the postocular row 306
306. Prementum distinctly shorter than height of head, about five times as long as its diameter. Scutellum usually with lateral bristles. Abdominal syntergite 1+2 usually, tergite 3 always with one pair of median marginal bristles **Leskia** Robineau-Desvoidy
3 spp.; widespread; Mesnil 1944–1975: 1128–1130.
- Prementum about as long as height of head, at least eight times as long as its diameter (Fig. 38). Lateral scutellar bristles absent. Abdominal syntergite 1+2 and tergite 3 without median marginal bristles **Fischeria** Robineau-Desvoidy
1 sp., *F. bicolor* Robineau-Desvoidy; Mediterranean, Transcaucasia, Iran, Middle Asia; Mesnil 1944–1975: 1130–1131.
307. Abdominal tergites 3 and 4 without median discal bristles 308
- Abdominal tergites 3 and 4 with median discal bristles 311
308. Upper part of head without black setulae behind the postocular row. Scutellum entirely or predominantly yellow, with three or four pairs of lateral bristles. Bend of M with a continuation nearly as long as crossvein R-M. Legs yellow **Glaurocara** Thomson
2 spp.; South of Russian Far East, Korea; Richter 1988: 202–206.
- Upper part of head with black setulae behind the postocular row. Scutellum entirely black, with at most one pair of short lateral bristles. Bend of M without a continuation. Legs black 309
309. Apical scutellar bristles absent. Parafacial entirely bare below lowest frontal bristle 206
- Scutellum with crossed apical bristles. Parafacial with hairs or setulae below lowest frontal bristle 310

310. First flagellomere about as long as pedicel. Wing without costigial bristle. Costal spine one to three times as long as crossvein R-M. Wing cell r_{4+5} with a petiole. Hind tibia with two dorsal preapical setae 290
- First flagellomere at least four times as long as pedicel. Wing with a strong costigial bristle (Fig. 165). Costal bristle, if present, distinctly shorter than crossvein R-M. Wing cell r_{4+5} without petiole. Hind tibia with three dorsal preapical setae **Phyllomya** Robineau-Desvoidy, part see couplet 20.
311. Preapical anterodorsal seta on fore tibia nearly as long as or longer than preapical dorsal seta (as in Figs 144–145) 312
- Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143) 315
312. Prementum three to four times as long as its diameter. Scutellum with fine crossed apical bristles. Postpronotum with the three strongest bristles arranged in a triangle. R_{4+5} setose at least halfway to crossvein R-M. Hind tibia with two or three dorsal preapical setae. Palpus yellow 218
- Prementum about two times as long as its diameter. Apical scutellar bristles absent or parallel. Bristles on postpronotum usually not arranged in a triangle. R_{4+5} with setulae only at base. Hind tibia with three dorsal preapical setae. Palpus usually black 313
313. Frons at least as wide as 1.3 times eye in dorsal view. Wing cell r_{4+5} with a short petiole. Mid tibia with one or two anterodorsal bristles. Male with proclinate orbital bristles. Ovipositor of female with piercer. Body length 4–5 mm **Robinaldia** Herting
1 sp., *R. angustata* (Villeneuve); Europe, Morocco; Mesnil 1944–1975: 664 (as *Picconia* Robineau-Desvoidy).
- Frons at most as wide as one eye in dorsal view. Wing cell r_{4+5} usually without petiole. Mid tibia with three or more anterodorsal bristles. Male without proclinate orbital bristles. Ovipositor of female without piercer. Body length 6–10 mm 314
314. Scutellum without apical bristles. Scutum with three pairs of presutural dorsocentral bristles. Base of R_{4+5} with a single strong seta. Femur black, tibia red or yellow. Abdomen not laced at intertergal sutures 187
- Apical scutellar bristles divergent or parallel. Scutum with two pairs of presutural dorsocentral bristles. Base of R_{4+5} with one to three fine hairs. Legs black. Abdomen slightly laced at intertergal sutures **Paralypha** Mesnil
1 sp., *P. aberrans* Mesnil; Tadzhikistan; Mesnil 1944–1975: 1113–1115.
315. Mid tibia with a single anterodorsal bristle. Frons of male at most as wide as half of eye in dorsal view 316
- Mid tibia with two or more anterodorsal bristles. Frons of male wider than half of eye in dorsal view 317

316. Body with five distinct black transverse bands: scutum behind suture, anterior part or more of scutellum, abdominal syntergite 1+2, and about posterior half each of tergites 3 and 4
Trigonospila Pokorny
 3 spp.; widespread; Mesnil 1944–1975: 718–722, Shima 1979b: 298–304.
- Body not as above 399⁷
317. Postpronotum with the three strongest bristles arranged in a distinct triangle (as in Fig. 99) 218
- Bristles on postpronotum not arranged in a distinct triangle 318
318. Frons at most as wide as three-fourths eye in dorsal view. Arista thickened on basal fifth or less. Tibia yellow. Abdominal tergite 3 reddish laterally. Male without proclinate orbital bristles
Drinomyia Mesnil
 1 sp., *D. hokkaidensis* (Baranov); South of Russian Far East, Korea, Japan; Shima 1980b: 263–265.
- Frons about as wide as one eye in dorsal view or wider. Arista thickened on more than basal fifth. Tibia usually black. Abdomen entirely black. Male usually with proclinate orbital bristles 220
319. Dorsal surface of lower calypter with long hairs (Fig. 131), at least along outer dorsal margin 320
- Dorsal surface of lower calypter bare (Figs 128–130, 132–133) 322
320. Facial ridge with erect bristles on lower two-thirds or more (as in Fig. 7). Abdominal syntergite 1+2 with a pair of median marginal bristles. Prosternum setose **Austrophorocera** Townsend
 1 sp., *A. hirsuta* (Mesnil); China; Mesnil 1944–1975: 606–607, 609–611 (as *Spoggosia* Rondani).
- Facial ridge with decumbent setae at most on lower half. Abdominal syntergite 1+2 without median marginal bristles. Prosternum usually bare 321
321. Eye bare. Arista thickened on basal three-fourths or more; first and second aristomere each three to six times as long as its diameter. Parafacial with proclinate bristles and long hairs. Inner anterior surface of fore coxa bare. Preapical posteroventral seta on hind tibia as long as preapical anteroventral seta (as in Fig. 151)
Hystriomyia Portshinsky
 6 spp.; eastern Middle Asia (mountains), Altai, China; Mesnil 1944–1975: 986–987.
- Eye covered with dense hairs. Arista thickened at most on basal two-fifths; first and second aristomere each at most as long as its diameter. Parafacial bare or at most with fine hairs. Inner anterior surface of fore coxa covered with appressed setulae (as in Fig. 140). Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta
Nemoraea Robineau-Desvoidy
 10 spp.; widespread; Mesnil 1944–1975: 987–995.

7 Specimens with a strong costigial bristle (as in Fig. 165) and with the genal dilation strongly reduced (as in Figs 22, 29) belong to *Parhamaxia* Mesnil; return to couplet 297.

322. First flagellomere with sharply pointed apex (Fig. 70). Forms with the following characteristics present simultaneously: eye bare; arista thickened at most on basal two-fifths; abdominal tergite 5 without median discal bristles; abdominal sternites exposed 323
- First flagellomere not pointed apically, but if slightly so, then without such combination of characteristics present simultaneously 325
323. Prosternum bare. Frons of male without proclinate orbital bristles, at most as wide as four-fifths eye in dorsal view *Acemya* Robineau-Desvoidy
5 spp.; widespread; Mesnil 1944-1975: 781-788.
- Prosternum setose. Frons of male wider, with proclinate orbital bristles 324
324. Scutum with two pairs of presutural dorsocentral bristles. Katepisternum with two bristles. Mid tibia with two anterodorsal bristles *Ceracia* Rondani
2 spp.; Mediterranean, Transcaucasia, Tadzhikistan; Mesnil 1944-1975: 790-795 (as *Myiothyria* Wulp), Herting 1981: 9-12.
- Scutum with three pairs of presutural dorsocentral bristles. Katepisternum with three bristles. Mid tibia with a single anterodorsal bristle *Metacemyia* Herting
1 sp., *M. calloti* (Séguy); Mediterranean; Mesnil 1944-1975: 788-790 (as *Ceracia* Rondani).
325. Prosternum bare (Fig. 134) 326
- Prosternum setose (Fig. 136), at least one hair or setulae on each side (Fig. 135) 372
326. Preapical posteroventral seta on hind tibia nearly as long as preapical anteroventral seta (Fig. 151) 327
- Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta 349
327. First and second aristomere each at least three times as long as its diameter (Fig. 75) 328
- First aristomere at most two times as long as its diameter (Figs 36, 39) 331
328. Proboscis nearly as long as height of head. Subvibrissal ridge with a tuft of numerous bristles as strong as vibrissa. Bristles on postpronotum arranged in a triangle. Scutum lacking presutural acrostichal bristles. R_{4+5} setose only at base. Basicosta black. Hind tibia with two dorsal preapical setae. Body length 8 mm or more *Everestiomyia* Townsend
1 sp., *E. antennalis* Townsend; Himalaya.
- Proboscis distinctly shorter. Subvibrissal ridge not as above. Bristles on postpronotum not arranged in a triangle. Scutum with two or three pairs of presutural acrostichal bristles. R_{4+5} setose at least halfway to crossvein R-M (Fig. 178). Basicosta yellow or reddish. Hind tibia with three or four dorsal preapical setae. Body length at most 7 mm 329
329. Parafacial entirely bare below lowest frontal bristle. Upper part of head without black setulae behind the postocular row. Palpus reduced to a minute tubercle. Postpronotum with four or five bristles. Anepimeral bristle extending back to hind margin of lower calypter. Wing cell r_{4+5} with a short petiole (Fig. 178). Hind tibia with four dorsal preapical setae *Gymnoglossa* Mik
1 sp., *G. transsylvanica* Mik; Rumania, southern Siberia (Tuva, Chita); Mesnil 1944-1975: 1004-1006.

- Parafacial setose below lowest frontal bristle. Upper part of head with several rows of black setulae behind the postocular row. Palpus well-developed. Postpronotum with two or three bristles. Anepimeral bristle distinctly shorter. Wing cell r_{4+5} usually without petiole. Hind tibia with three dorsal preapical setae 330
- 330. Parafacial with proclinate bristles and hairs over its whole length. Face not visible in lateral view. Scutellum without crossed apical bristles. R_1 setose dorsally **Triarthria** Stephens
3 spp.; widespread; Mesnil 1944-1975: 1213-1216 (as *Digonochaeta* Bezzi).
- Parafacial with hairs or setulae on its upper half or less. Face visible in lateral view. Scutellum with a pair of strong crossed bristles in apical position. R_1 bare or setose dorsally **Trichactia** Stein
2 spp.; Europe, Canary Islands, Palestine; Mesnil 1944-1975: 1221-1223.
- 331. Second aristomere strongly elongate, six to fourteen times as long as its diameter (Fig. 36) **Germaria** Robineau-Desvoidy
10 spp.; widespread; Mesnil 1944-1975: 978-986; Richter 1987.
- Second aristomere distinctly shorter (Fig. 39) 332
- 332. Postpronotum with three basal bristles in a straight line, a strong anterior bristle placed before middle basal bristle (as in Fig. 93), and occasionally an inner anterior bristle (Figs 94, 98) 333
- Postpronotum not as above (Figs 96-97) 339
- 333. Prementum eight to fifteen times as long as its diameter (Fig. 39). Lateral scutellar bristles absent or hair-like 334
- Prementum shorter. Lateral scutellar bristles almost always well-developed 336
- 334. First flagellomere at most 1.5 times as long as pedicel (Fig. 39). Costal spine longer than crossvein R-M **Eriothrix** Meigen
15 spp.; widespread; Mesnil 1944-1975: 1314-1323, Kolomiets 1967.
- First flagellomere at least 2.5 times as long as pedicel. Costal bristle, if present, shorter than crossvein R-M 335
- 335. Proboscis about as long as height of head. Ocellar bristles well-developed. Scutellum with one to three pairs of nearly erect bristles on dorsal surface. Second costal section bare ventrally. Section of M beyond bend concave. Mid tibia with three or four anterodorsal bristles. Pedicel, scutellum and femur black **Trafoia** Brauer et Bergenstamm
3 spp.; Europe, Caucasus, Novaya Zemlya Islands; Mesnil 1944-1975: 1323-1326.
- Proboscis longer than height of head. Ocellar setae small or hair-like. Scutellum without erect bristles on dorsal surface. Second costal section with fine hairs ventrally. Section of M beyond bend straight. Mid tibia with one or two anterodorsal bristles. Pedicel, scutellum and femur entirely or predominantly yellow 353
- 336. Basicosta whitish, yellow or reddish. Bend of M usually with a continuation at least as long as half of crossvein R-M (Fig. 180). Face and lower facial margin well visible in lateral view. Upper part of head usually without black setulae behind the postocular row, rarely with one row.

- Palpus usually strongly reduced. Anterior and posterior lappets of posterior thoracic spiracle unequal in size (as in Figs 104–105) 337
- Basicosta black. Bend of M without continuation, occasionally with a very short stub. Face and lower facial margin often not visible in lateral view. Upper part of head with one or more rows of black setulae behind the postocular row. Palpus well-developed. Anterior and posterior lappets of posterior thoracic spiracle almost equal in size (as in Fig. 106) 338
337. Eye densely covered with long hairs (Fig. 63). Frontal vitta not sunken. First flagellomere at least 1.5 times as long as pedicel. Height of gena distinctly less than half of vertical diameter of eye. Wing cell r_{4+5} usually without petiole (Fig. 180) **Linnaemya** Robineau-Desvoidy
53 spp.; widespread; Mesnil 1944–1975: 1006–1037, Shima 1986.
- Eye almost bare. Frontal vitta sunken. First flagellomere about as long as pedicel. Height of gena at least half of vertical diameter of eye. Wing cell r_{4+5} with a petiole about as long as one-fifth section of M beyond bend **Microcerophina** Kugler
1 sp., *M. planifacies* Kugler; Palestine.
338. First flagellomere two to four times as long as pedicel. Frontal bristles descending to level of base of arista or below. Scutum with three pairs of presutural acrostichal bristles. Scutellum with fine crossed apical bristles. Frons of male about as wide as two-fifths eye in dorsal view **Lypha** Robineau-Desvoidy
3 spp.; widespread; Mesnil 1944–1975: 998–1001.
- First flagellomere about 1.5 times as long as pedicel. Frontal bristles descending to level of lower margin of pedicel. Scutum with two pairs of presutural acrostichal bristles. Apical scutellar bristles strong, divergent. Frons of male about as wide as one-fifth eye in dorsal view **Lyphosia** Mesnil
1 sp., *L. barbata* (Mesnil); Japan, Sakhalin; Mesnil 1944–1975: 1001–1003.
339. Lower facial margin well visible in lateral view (as in Fig. 13) 340
- Lower facial margin not visible in lateral view (Fig. 17) 345
340. Eye bare. Abdominal tergites 3 and 4 without median discal bristles. Parafacial with hairs over its whole length 341
- Eye densely covered with hairs. Abdominal tergites 3 and 4 with median discal bristles. Parafacial bare or with hairs 342⁸
341. Wing patterned with dark transverse stripes or bars (as in Fig. 173). Wing cell r_{4+5} with a petiole. Face with prominent oval central tubercle or carina. Arista thickened on about basal eighth. Proepisternum bare. Anepimeral bristle hair-like **Euthera** Loew
2 spp.; Mediterranean, Turkey, Iran, Japan; Crosskey 1976: 35.
- Wing unpatterned, transparent. Wing cell r_{4+5} open. Face not as above. Arista thickened at least on basal two-thirds. Proepisternum setose. Anepimeral bristle strong, duplicated 80

8 The four genera which key out here are nearly related; after a thorough revision they may possibly turn out as belonging to a common genus.

342. Inner vertical seta of male hair-like, slightly proclinate, not or only slightly differentiated from setae of postocular row; frons as wide as 0.15–0.50 times eye in dorsal view. Pedicel of female yellow; posterior outer orbital bristle proclinate **Ernestia** Robineau-Desvoidy
10 spp.; widespread; Zimin 1960: 726–735 (as *Panzeria* Robineau-Desvoidy and *Meriania* Robineau-Desvoidy), Mesnil 1944–1975: 1039–1046 (including *Meriania* Robineau-Desvoidy).
- Inner vertical bristle of male strong, convergent, crossed or reclinate; frons as wide as 0.25–1.25 times eye in dorsal view. Pedicel of female black or dark brown, but if yellow, then posterior outer orbital bristle lateroclinate 343
343. Scutellum without crossed apical bristles; subapical bristles separated from each other by a distance subequal to the distance between prescutellar acrostichal bristles. Scutum before suture with three dark longitudinal stripes. Posterior outer orbital bristle of female lateroclinate **Fausta** Robineau-Desvoidy
5 spp.; widespread; Zimin 1960: 736–741, Mesnil 1944–1975: 1046–1049.
- Scutellum with crossed apical bristles; subapical bristles separated from each other by a wider distance. Scutum before suture usually with four dark longitudinal stripes. Posterior outer orbital bristle of female proclinate 344
344. Second aristomere two to three times as long as its diameter. Costal spine usually as long as or slightly longer than crossvein R-M. Bend of M usually with a continuation as long as crossvein R-M **Appendicia** Stein
4 spp.; widespread; Zimin 1957: 527–530, Mesnil 1944–1975: 1050–1051.
- Second aristomere at most 1.5 times as long as its diameter. Costal bristle, if present, distinctly shorter than crossvein R-M. Bend of M without continuation, rarely with a very short stub **Eurithia** Robineau-Desvoidy
32 spp.; widespread; Zimin 1957: 506–527, 530–537 (as *Ernestia* Robineau-Desvoidy, *Eurythia* Robineau-Desvoidy and *Platythira* Rondani), Mesnil 1944–1975: 1051–1067.
345. Scutellum without crossed apical bristles. Section of M between crossveins R-M and dM-Cu shorter than section between dM-Cu and bend of M (as in Figs 161–163). Palpus reduced, at most as long as diameter of prementum. Hind tibia with three dorsal preapical setae. Parafacial with a few short setulae below upper half (Fig. 17). Postpronotum with two bristles **Petagnia** Rondani
1 sp., *P. subpetiolata* Rondani; central and southern Europe, Turkey, Transcaucasia; Mesnil 1944–1975: 1167–1168.
- Scutellum with crossed apical bristles. Section of M between crossveins R-M and dM-Cu as long as or longer than section between dM-Cu and bend of M. Palpus well-developed. Hind tibia usually with two dorsal preapical setae. Parafacial not as above, but if so, then postpronotum with three or four bristles 346
346. Frons about as wide as 1.5 times eye in dorsal view or more. Arista thickened on basal half or more. Hairs or setulae on posteroventral half of head entirely black, without any pale hair. Subapical scutellar bristles usually not extending back to level of apices of apical bristles 138
- Frons at most as wide as 1.2 times eye in dorsal view. Arista thickened at most on basal half. Posteroventral margin of head at least with a few pale hairs. Subapical scutellar bristles extending back at least to level of apices of apical bristles 347

347. Antenna inserted at level of middle of eye. First flagellomere not or only slightly longer than pedicel. Wing cell r_{4+5} usually with petiole, but if petiole absent, then scutum with four pairs of postsutural dorsocentral bristles **Loewia** Egger
14 spp.; widespread; Mesnil 1944–1975: 1204–1211 (including *Oestroloewia* Mesnil), Tschorsnig and Herting 1994: 69–70.
- Antenna inserted distinctly above level of middle of eye. First flagellomere at least 1.5 times as long as pedicel. Wing cell r_{4+5} without petiole. Scutum with three pairs of postsutural dorso-central bristles 348
348. Eye bare. Ocellar setae hair-like. Scutellum entirely black. Lateral scutellar bristles distinctly shorter than subapical bristles. Second costal section with fine hairs ventrally **Ziminia** Mesnil
1 sp., *Z. masiceraeformis* (Portshinsky); Mediterranean, Transcaucasia, Tadzhikistan; Mesnil 1944–1975: 1168–1170.
- Eye densely covered with long hairs. Ocellar bristles well-developed. Scutellum at least apically red or yellow. Lateral scutellar bristles as long as subapical bristles. Second costal section bare ventrally 153
349. Eye densely covered with long hairs (Fig. 37) 350
- Eye bare or apparently bare; if hairs present, then each hair no longer than combined diameter of two eye facets 354
350. Lateral scutellar bristles absent. Second costal section with fine hairs ventrally. Abdominal syntergite 1+2 without median marginal bristles 351
- Scutellum with lateral bristles. Second costal section bare ventrally. Abdominal syntergite 1+2 usually with median marginal bristles 407
351. Ocellar bristles reclinate (Fig. 37). Facial ridge with setae on lower two-thirds or more. Proepisternum setose (as in Fig. 102). Anepimeral bristle absent or hair-like **Campylocheta** Rondani
11 spp.; widespread; Mesnil 1944–1975: 1250–1255, Shima 1985a.
- Ocellar bristles proclinate. Facial ridge with setae at most on lower third. Proepisternum bare. Anepimeral bristle well-developed 352
352. Hairs or setulae on posteroventral half of head all black, without any pale hair. Face and lower facial margin not visible in lateral view. Scutellum, legs and abdomen black. Frons of male narrower than one-tenth eye in dorsal view **Macquartia** Robineau-Desvoidy, part
see couplet 139.
- Hairs on posteroventral half of head entirely or predominantly pale. Face and lower facial margin well visible in lateral view. Scutellum, legs and abdomen at least partially yellow or red. Frons of male about as wide as half of eye in dorsal view or wider 353
353. Proboscis shorter than height of head. Vibrissa arising above level of lower facial margin. Ocellar bristles well-developed. Tegula reddish, basicosta black. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143). Abdominal tergites 3 and 4 without median discal bristles **Demoticoides** Mesnil
1 sp., *D. pallidus* Mesnil; southern Siberia (Tuva), South of Russian Far East, Japan; Mesnil 1944–1975: 1134–1135.

- Proboscis longer than height of head. Vibrissa arising at level of lower facial margin. Ocellar setae small or hair-like. Tegula dark brown, basicosta yellow. Preapical anterodorsal seta on fore tibia at least as long as preapical dorsal seta (as in Fig. 144). Abdominal tergites 3 and 4 each with a pair of median discal bristles **Feriola** Mesnil
1 sp., *F. insularis* Richter; South of Russian Far East (Sakhalin); Richter 1986: 102–105, Shima 1988: 19–21.
- 354. Parafacial with proclinate bristles (as in Figs 26, 57). Wing cell r_{4+5} with a petiole at least as long as one-sixth section of M beyond bend (Fig. 175) 356
- Parafacial bare or with hairs, but if with bristle-like setulae (as in Fig. 14), then wing cell r_{4+5} open 356
- 355. Hairs on posteroventral half of head all black, without any pale hair. First flagellomere at most as long as pedicel. Frons of male about as wide as two-fifths eye in dorsal view **Kirbya** Robineau-Desvoidy
3 spp.; central and southern Europe, Turkmenia; Mesnil 1944–1975: 1283–1285.
- Hairs on posteroventral half of head entirely or predominantly pale or at least with numerous pale hairs along posteroventral margin of head. First flagellomere more than 1.5 times as long as pedicel. Frons of male at least as wide as four-fifths eye in dorsal view 247
- 356. Hairs on posteroventral half of head all black, without any pale hair 269
- Hairs on posteroventral half of head entirely or predominantly pale or at least with a few pale hairs along posteroventral margin of head 357
- 357. Frontal bristles reaching only to level of upper margin of scape (as in Figs 21–22, 46). Antenna at most as long as height of gena 31
- Frontal bristles usually reaching far below level of upper margin of scape (Figs 13, 40, 56), but if near this level, then antenna distinctly longer than height of gena 358
- 358. Preapical anterodorsal seta on fore tibia as long as or longer than preapical dorsal seta (as in Figs 144–145) 359
- Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143) 364
- 359. Prementum exceptionally slender, 1.2–1.8 times as long as height of head. Postpronotum with five bristles, the three strongest bristles arranged in a triangle. Genal dilation not or only slightly developed **Rhamphina** Macquart
2 spp.; southern Europe; Mesnil 1944–1975: 1306–1307.
- Prementum distinctly shorter than height of head (Fig. 20). Postpronotum not as above. Occiput with well-developed genal dilation 360
- 360. Arista thickened on basal three-fourths or more. Frons about twice as wide as one eye in dorsal view or wider 475
- Arista thickened at most on basal three-fifths. Frons distinctly narrower 361

361. Lower facial margin well visible in lateral view (Fig. 20). Parafacial with hairs (at least a few hairs below lowest frontal bristle). Scutellum with crossed apical bristles 362
- Lower facial margin not visible in lateral view. Parafacial entirely bare below lowest frontal bristle. Apical scutellar bristles divergent or absent 363
362. Vibrissa arising far above level of lower facial margin (Fig. 20). Upper part of head without black setulae behind the postocular row. Scutum with two postsutural intra-alar bristles. Abdominal tergites usually with paired dark spots (as in Figs 184, 186). Frons of male at most as wide as one-fifth eye in dorsal view **Stomina** Robineau-Desvoidy
6 spp.; widespread; Mesnil 1944–1975: 1329–1334, Herting 1977: 13.
- Vibrissa arising at level of lower facial margin. Upper part of head with several rows of black setulae behind the postocular row. Scutum with three postsutural intra-alar bristles. Abdominal tergites without paired dark spots. Frons of male about as wide as one eye in dorsal view or wider 260
363. Legs yellow. Upper part of head with several rows of black setulae behind the postocular row. Anepimeral seta hair-like. Second costal section with fine hairs ventrally. Wing cell r_{4+5} open. Abdominal sternites exposed. Frons of male about as wide as one-tenth eye in dorsal view
Redtenbacheria Schiner
1 sp., *R. insignis* Egger; widespread.
- Legs black. Upper part of head without black setulae behind the postocular row. Anepimeral bristle well-developed. Second costal section bare ventrally. Wing cell r_{4+5} with petiole. Abdominal sternites concealed between margins of abdominal tergites. Frons of male at least as wide as half of eye in dorsal view 491
364. Lower facial margin not visible in lateral view. Facial ridge often with setae on lower half or more 372
- Lower facial margin well visible in lateral view (Figs 13, 40, 56). Facial ridge with setae on distinctly less than lower half 365
365. Mid tibia with a single anterodorsal bristle 366
- Mid tibia with two or more anterodorsal bristles 368
366. Face entirely visible in lateral view, its height about as long as frons. Lower facial margin not as described below. First flagellomere at most three times as long as pedicel. Postpronotum with three bristles. Frons of male without proclinate orbital bristles 306
- Face (except lower facial margin) not visible in lateral view, its height at least 1.5 times as long as frons (Figs 40, 56). Lower facial margin with a pair of convex subtriangular sclerites anterolaterally. First flagellomere five to fifteen times as long as pedicel. Postpronotum with two bristles. Frons of male with proclinate orbital bristles 367
367. Prementum at least six times as long as its diameter (Fig. 56). Upper part of head with one or more rows of black setulae behind the postocular row. Scutum with two pairs of presutural

- dorsocentral bristles. Katepisternum with four bristles. Wing cell r_{4+5} without or with petiole. Scutellum, tegula and abdomen black **Clausicella Rondani**
3 spp.; southern parts of Palaearctic; Mesnil 1944–1975: 1124–1128 (including *Istoglossa* Rondani).
- Prementum at most four times as long as its diameter (Fig. 40). Upper part of head entirely bare behind the postocular row. Scutum with three pairs of presutural dorsocentral bristles. Katepisternum with three bristles. Wing cell r_{4+5} with petiole. Scutellum, tegula and abdomen at least partially red or yellow **Hasmica Richter**
1 sp., *H. xanthocera* Richter; Middle Asia (Turkmenia, Uzbekistan, Mongolia, Pakistan).
368. Lateral scutellar bristles at least as long as half of subapical bristles. Second costal section bare ventrally. Face (except lower facial margin) usually not visible in lateral view 475
- Lateral scutellar bristles absent or hair-like. Second costal section usually with fine hairs ventrally. Face visible in lateral view (Fig. 13) 369
369. Abdominal tergites 3 and 4 each with median discal bristles, but if median discal bristles absent (one species of *Bithia*), then arista thickened on distinctly less than basal half 370
- Abdominal tergites 3 and 4 without median discal bristles. Arista thickened on basal half or more 371
370. Arista thickened at most on basal half; second aristomere at most as long as its diameter (Fig. 13). Basicosta yellow or reddish **Bithia Robineau-Desvoidy**
20 spp.; widespread; Mesnil 1944–1975: 1137–1148, Tschorsnig and Herting 1994: 77–78.
- Arista thickened on basal three-fifths or more; second aristomere three to four times as long as its diameter. Basicosta black or dark brown **Demoticus Macquart**
2 spp.; widespread; Mesnil 1944–1975: 1154–1155.
371. Prementum at least as long as height of head, twelve times as long as its diameter or more. Basicosta yellow or reddish. Costal spine usually distinctly longer than crossvein R-M. R_{4+5} usually setose from base to crossvein R-M or beyond, rarely only at base. Hind tibia with three dorsal preapical setae **Aphria Robineau-Desvoidy**
7 spp.; widespread; Mesnil 1944–1975: 1148–1154.
- Prementum shorter than height of head, at most six times as long as its diameter. Basicosta black or dark brown. Costal bristle at most as long as crossvein R-M. R_{4+5} with a few hairs only at base. Hind tibia with two dorsal preapical setae **Prodemoticus Villeneuve**
2 spp.; Hungary, Palestine, Turkey; Mesnil 1944–1975: 1156–1157.
372. First postsutural supra-alar bristle shorter than notopleural bristles and usually shorter than first postsutural intra-alar bristle (Fig. 85), or absent 373
- First postsutural supra-alar bristle longer than notopleural bristles and usually longer than first postsutural intra-alar bristle (Figs 2–3) 406
373. Preapical posteroventral seta on hind tibia nearly as long as preapical anteroventral seta (as in Fig. 151). Anepimeral bristle strong, extending back to middle of lower calypter or beyond. Eye densely covered with long hairs 374

- Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta. Anepimeral bristle usually distinctly shorter. Eye with or without hairs 376
- 374. Palpus filiform, distinctly shorter than prementum. Bend of M with a continuation as long as crossvein R-M or longer. Basicosta yellow. Anterior and posterior lappets of posterior thoracic spiracle unequal in size (as in Figs 104–105). Body length up to 14 mm 337
- Palpus at least as long as prementum. Bend of M without continuation, rarely with a very short stub. Basicosta black. Anterior and posterior lappets of posterior thoracic spiracle each a fringe of plumose hairs about equal in size (as in Fig. 106). Body length less than 8 mm 375
- 375. Frons wider than one eye in dorsal view. Katepisternum with posterior bristle distinctly below level of anterior bristle. Lateral scutellar bristles usually shorter than subapical bristles. R₄₊₅ setose on more than halfway to crossvein R-M. Abdomen shiny, black, without pruinescence
Lydina Robineau-Desvoidy
 2 spp.; widespread; Mesnil 1944–1975: 997–998.
- Frons at most as wide as one eye in dorsal view. Posterior katepisternal bristle almost at level of anterior katepisternal bristle. Lateral scutellar bristles as long as subapical bristles. R₄₊₅ setose at most halfway to crossvein R-M. Abdomen covered with pruinescence with tessellated pattern 338
- 376. Wing membrane creased for a short distance distal to bend of M, appearing from above as a stub or continuation of M (Figs 158, 179). Outer margin of lower calypter not exceptionally convex 377
- Wing membrane flat at bend of M, not appearing as a continuation of M (Fig. 159); if with a real short stub (as in Fig. 175), then outer margin of lower calypter exceptionally convex (as in Fig. 128) 389
- 377. Upper part of head without black setulae behind the postocular row 378
- Upper part of head with a more or less complete row of black setulae behind the postocular row 385
- 378. Facial ridge with setae at most on lower half, but if reaching up to three-fifths, then setae decreasing markedly in length and thickness dorsally, becoming nearly hair-like above (as in Fig. 18) 379⁹
- Facial ridge on its lower two-thirds or more with long, stout, erect and evenly spaced bristles, retaining their bristle-like appearance nearly to the uppermost seta (Fig. 7) 381
- 379. Arista thickened nearly to apex. Katepimeron fully haired (as in Fig. 111) **Crassicornia** Kugler
 1 sp., *C. pilosa* (Kugler); Israel.
- Arista thickened at most on basal three-fifths. Katepimeron usually bare 380

9 The three genera which key out here are very nearly related; they may also be placed together in the common genus *Exorista*.

380. Ocellar bristles well-developed Exorista Meigen
 48 spp.; widespread; Mesnil 1944–1975: 560–603.
- Ocellar setae absent or hair-like, at most half as long as uppermost reclinate orbital bristle Neophryxe Townsend
 4 spp.; widespread; Mesnil 1944–1975: 563, 578 (as *Prosalia* Mesnil), 604 (as *Phorcidella* Mesnil).
381. Wing cell r_{4+5} with a petiole about as long as two-fifths section of M beyond bend. R_{4+5} setose from base to well beyond crossvein R-M. Basal half of R_1 setose dorsally Chaetoria Becker
 1 sp., *Ch. stylata* Becker; northern Africa, Greece, Uzbekistan; Mesnil 1944–1975: 628–630.
- Wing cell r_{4+5} open (Fig. 179) or with a petiole at most as long as one-eighth section of M beyond bend. R_{4+5} setose at most to crossvein R-M. R_1 bare 382
382. Fourth costal section as long as sixth costal section or shorter (Fig. 179). Back of head convex. Second aristomere at most two times as long as its diameter. Vibrissa usually arising slightly above level of lower facial margin. Eye covered with hairs or apparently bare. Anterior reclinate orbital bristle not exceptionally strong 383
- Fourth costal section longer than sixth costal section. Back of head usually flat. Second aristomere two to five times as long as its diameter (Fig. 7). Vibrissa arising at level of lower facial margin. Eye densely covered with long hairs. Anterior reclinate orbital bristle usually exceptionally strong (at least in female, Fig. 7) 384
383. Abdominal tergites with transverse bands of pruinescence, without dark spots. Apical scutellar bristles crossed, more or less erect. Costal spine as long as crossvein R-M or longer, but if shorter, then eye covered with hairs Chetogena Rondani
 21 spp.; widespread; Mesnil 1944–1975: 606–609, 611–628 (as *Spoggosia* Rondani).
- Abdomen uniformly covered with dense pruinescence, abdominal tergites 3 and 4 each with a pair of dark spots near posterior margins. Apical scutellar bristles absent or hair-like, parallel. Costal bristle, if present, shorter than crossvein R-M. Eye apparently bare Maculosalia Mesnil
 1 sp., *M. maculosa* (Villeneuve); northern Africa, Iran; Mesnil 1944–1975: 604–605.
384. Apical scutellar bristles erect. R_{4+5} setose nearly to crossvein R-M. Abdominal tergites 3 and 4 each with median discal bristles. Palpus black. Mid coxa and hind tarsus of female not as described below Phorinia Robineau-Desvoidy
 2 spp.; widespread; Mesnil 1944–1975: 630–632.
- Apical scutellar bristles horizontal. R_{4+5} setose only at base. Abdominal tergites 3 and 4 without median discal bristles. Palpus yellow. Mid coxa of female with strong spines, first segment of hind tarsus with two rows of spinulae ventrally Ctenophorinia Mesnil
 4 spp.; South of Russian Far East, Japan; Ziegler and Shima 1996: 442–451.
385. Ocellar bristles arising beside or in front of anterior ocellus (Fig. 64). Second aristomere four to five times as long as its diameter. Apical scutellar bristles absent. Eye with very short hairs, apparently bare Bessa Robineau-Desvoidy
 2 spp.; widespread; Mesnil 1944–1975: 632–634.
- Ocellar bristles arising behind anterior ocellus (as in Fig. 63). Second aristomere less than three times as long as its diameter. Apical scutellar bristles crossed, sometimes hair-like. Eye densely covered with long hairs 386

386. Scutum with three pairs of postsutural dorsocentral bristles. Fore tibia with preapical postero-dorsal seta. Syncercus of male spatulate in posterior view, broadest beyond middle. Sternite 6 of female V-like (Figs 201–202) **Phorocera** Robineau-Desvoidy
4 spp.; widespread; Mesnil 1944–1975: 634–635, 638–642.
- Scutum with four pairs of postsutural dorsocentral bristles. Fore tibia without preapical postero-dorsal seta. Syncercus of male and sternite 6 of female not as above 387
387. Abdomen entirely covered with pruinescence with tessellated pattern. Syncercus of male with long crisp hairs dorsally **Parasetigena** Robineau-Desvoidy
4 spp.; widespread; Mesnil 1944–1975: 635–638 (as *Phorocera* Robineau-Desvoidy).
- Abdominal tergites with broad transverse bands of pruinescence, posterior margins black. Syncercus of male without long crisp hairs 388
388. Section of M between crossvein dM-Cu and bend of M longer than distance between bend and wing margin. Fourth costal section slightly longer than sixth costal section. Palpus black. Parasitoid of Limacodidae **Chactexorista** Brauer et Bergenstamm
6 spp.; South of Russian Far East, China, Japan; Mesnil 1944–1975: 644–645, Shima 1973.
- Section of M between crossvein dM-Cu and bend of M shorter than distance between bend and wing margin. Fourth costal section as long as sixth costal section. Palpus yellow. Parasitoid of Diprionidae **Diplostichus** Brauer et Bergenstamm
1 sp., *D. janitrix* (Hartig); Europe, southern Siberia; Mesnil 1944–1975: 642–644.
389. Katepimeron bare (as in Fig. 112) or with at most three or four hairs on its anterior fourth. Eye bare or covered with hairs 390
- Katepimeron with hairs on its anterior two-thirds or more (Fig. 111). Eye densely covered with hairs 400
390. Proepisternum setose (Fig. 102). Vibrissa arising above level of lower facial margin 391
- Proepisternum bare (as in Fig. 103). Vibrissa usually arising at level of lower facial margin 392
391. Ocellar bristles well-developed. Height of gena at least one-fifth vertical diameter of eye. Katepisternum with four (or rarely three) bristles. Lateral scutellar bristles about as long as half of subapical bristles; apical bristles erect, parallel or divergent (Fig. 121). Abdomen of male not as described below. Female with proclinate orbital bristles **Meigenia** Robineau-Desvoidy
10 spp.; widespread; Mesnil 1944–1975: 703–711, Tschorsnig and Herting 1994: 44–45.
- Ocellar setae hair-like. Height of gena distinctly less than one-tenth vertical diameter of eye. Katepisternum with two bristles. Lateral scutellar bristles nearly as long as subapical bristles; apical bristles absent (as in Fig. 114). Abdominal tergite 5 of male without long recumbent hairs, with a tail-like process dorsally. Female without proclinate orbital bristles **Urodexia** Osten-Sacken
1 sp., *U. penicillum* Osten-Sacken; Japan (Ryukyu).
392. Abdominal tergites 3 and 4 without median discal bristles. Lateral scutellar bristles absent or hair-like. Second aristomere two to six times as long as its diameter (Fig. 30). Outer margin of lower calypter usually exceptionally convex (as in Fig. 128). Body length at most 4 mm 393

- Abdominal tergites 3 and 4 with median discal bristles. Lateral scutellar bristles at least as long as half of subapical bristles. Second aristomere at most two times as long as its diameter. Outer margin of lower calypter not exceptionally convex. Body length 3–10 mm 395
- 393. First aristomere about three times as long as its diameter. Gena not visible in lateral view (Fig. 30). Upper part of head bare behind the postocular row. Scutum with three pairs of presutural dorsocentral bristles. Basicosta yellow. Abdomen uniformly covered with dense pruinescence
Bampura Tschorsnig
1 sp., *B. angustigena* Tschorsnig; Transcaucasia, Iran.
- First aristomere at most as long as its diameter. Gena visible in lateral view. Upper part of head with one or more rows of black setulae behind the postocular row. Scutum with two pairs of presutural dorsocentral bristles. Basicosta black or dark brown. Abdominal tergites with narrow basal bands of pruinescence, divided at the dorsal midline of abdomen 394
- 394. Eye bare. Bend of M a right angle or acute, usually with a short stub. Parafacial strongly narrowed ventrally, at its narrowest point at most as wide as one-fourth of first flagellomere. First flagellomere three to four times as long as pedicel. Second aristomere four to six times as long as its diameter
Atylomyia Brauer
3 spp.; southern parts of Palearctic; Mesnil 1944–1975: 774–779, Herting 1981: 8–9.
- Eye covered with short hairs. Bend of M obtuse, without stub. Parafacial not or not as strongly narrowed ventrally, at its narrowest point at least as wide as half of first flagellomere. First flagellomere at most two times as long as pedicel. Second aristomere about two times as long as its diameter 401
- 395. Mid tibia with two or more anterodorsal bristles (as in Figs 146–147) 396
- Mid tibia with a single anterodorsal bristle (as in Fig. 148) 397
- 396. Eye bare. Postpronotum with four bristles, the three basal bristles arranged in a straight line (as in Fig. 100). Parafacial at its narrowest point usually more than half as wide as first flagellomere. Preapical anterodorsal seta on fore tibia as long as or longer than preapical dorsal seta (as in Figs 144–145). Female with spinulae along ventral margins of abdominal tergites 3 and 4, sternite 7 modified into piercer (as in Fig. 203)
Blondelia Robineau-Desvoidy
6 spp.; widespread; Mesnil 1944–1975: 752–759, Shima 1984b: 540–547.
- Eye covered with hairs. Postpronotum with three bristles, middle basal bristle slightly displaced anteriorly. Parafacial at its narrowest point at most as wide as half of first flagellomere. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143). Abdomen of female not as above 120
- 397. Eye densely covered with long hairs. Scutum with four pairs of postsutural dorsocentral bristles. Ocellar setae (almost always) absent. Abdomen of female carinate midventrally and with sternite 7 modified into piercer (Fig. 203)
Compsilura Bouché
1 sp., *C. concinnata* (Meigen); widespread; Mesnil 1944–1975: 737–739, Shima 1984b: 548–550.
- Eye bare or apparently bare. Scutum with three pairs of postsutural dorsocentral bristles. Ocellar setae usually well-developed, rarely hair-like. Abdomen of female not as above 398

398. Arista thickened on basal three-fourths or more. Scutellum with fine parallel or divergent apical bristles. Frons wider than one eye in dorsal view. Facial ridge with more or less erect bristles on lower three-fifths or more **Ligeriella** Mesnil
1 sp., *L. aristata* (Villeneuve); Europe, Tadzhikistan, Mongolia; Mesnil 1944–1975: 657–659.
- Arista thickened on basal two-fifths or less. Apical scutellar bristles absent. Frons narrower than one eye in dorsal view. Facial ridge with decumbent setae usually on less than lower three-fifths 399
399. Scutum with two pairs of presutural dorsocentral bristles. Scutellum with one pair of lateral bristles. Ovipositor of female flattened dorsoventrally (Figs 194, 211–212). Sternite 5 of male usually with a pair of tufts of curved setae, visible in lateral view (Fig. 198); abdominal tergites without patches of appressed hair **Medina** Robineau-Desvoidy
8 spp.; widespread; Mesnil 1944–1975: 726–731, Herting 1971: 3–7, Tschorsnig and Herting 1994: 45.
- Scutum with three pairs of presutural dorsocentral bristles. Scutellum with two pairs of lateral bristles. Abdomen of male and female not as above; ventral surface of tergites 4 and 5 of male each with a pair of patches of appressed hair (as on tergite 4 in Fig. 196) **Rioteria** Herting
1 sp., *R. submacula* Herting; southern Europe, Israel.
400. Outer margin of lower calypter exceptionally convex (Fig. 128), in questionable cases second aristomere at least two times as long as its diameter. Vibrissa arising at level of lower facial margin 401
- Outer margin of lower calypter not exceptionally convex (as in Fig. 133). Second aristomere at most slightly longer than its diameter. Vibrissa usually arising above level of lower facial margin 404
401. Scutum with two pairs of presutural dorsocentral bristles. Pedicel partially yellow. Body length about 4 mm **Ammonia** Kugler
1 sp., *A. carmelitana* Kugler; Israel.
- Scutum with three pairs of presutural dorsocentral bristles. Pedicel black. Body length usually 5–9 mm 402
402. Height of gena about one-third vertical diameter of eye or more. Upper part of head with two or three rows of black setulae behind the postocular row. Anterodorsal setae on hind tibia of male irregular in length and spacing **Prosethilla** Herting
1 sp., *P. kramerella* (Stein); Europe, southern Siberia; Mesnil 1944–1975: 59–60 (as *Chaetinella* Mesnil).
- Height of gena less than one-sixth vertical diameter of eye. Upper part of head with at most one row of black setulae behind the postocular row. Hind tibia of male with a regular row of anterodorsal setae (as in Figs 152–154) 403
403. Lateral scutellar bristles as long as apical bristles. Second aristomere nearly three to five times as long as its diameter. Abdomen usually more or less red laterally. Palpus yellow **Ethilla** Robineau-Desvoidy
1 sp., *E. aemula* (Meigen); central and southern Europe, Transcaucasia, Uzbekistan; Mesnil 1944–1975: 60–61.

- Lateral scutellar bristles absent or hair-like (Fig. 128). Second aristomere one to three times as long as its diameter. Abdomen entirely black in ground colour. Palpus black or yellow
Paratryphera Rondani
 6 spp.; widespread; Mesnil 1944–1975: 61–65, Shima 1980a: 8–13.
- 404. Postpronotum with five bristles, the three strongest of them arranged in a triangle (as in Fig. 92). Parafacial with hairs at least along anterior margin. Abdomen without metallic blue luster. Katepisternum usually with two bristles 414
- Postpronotum with three or four bristles. Parafacial bare, but if with hairs on upper half, then abdomen with metallic blue luster. Katepisternum with three bristles 405
- 405. Parafacial entirely bare below lowest frontal bristle. Postpronotum with four bristles, middle basal bristle slightly displaced anteriorly. At least posterior half of scutellum red. Abdomen with transverse bands of pruinescence, without metallic blue luster **Mycteromyiella** Mesnil
 1 sp., *M. marginalis* Shima; Japan; Shima 1976.
- Parafacial with hairs below lowest frontal bristle. Postpronotum with three bristles in a straight line. Scutellum entirely black in ground colour. Abdomen without pruinescence, with metallic blue luster **Calliethilla** Shima
 1 sp., *C. caerulea* Shima; China (Szechwan); Shima 1979c: 147–151.
- 406. Eye covered with (usually dense) hairs; each hair longer than combined diameter of three eye facets 407
- Eye bare or apparently bare (hairs often present, but so sparse and short as to be easily overlooked, each hair no longer than combined diameter of two facets) 475
- 407. Katepimeron with hairs on its anterior two-thirds or more (Fig. 111) 408
- Katepimeron bare (as in Fig. 112) or with at most three or four hairs on its anterior fourth 416
- 408. Outer margin of lower calypter exceptionally convex (Fig. 128) 409
- Outer margin of lower calypter not exceptionally convex (as in Fig. 133) 410
- 409. Lateral scutellar bristles as long as subapical bristles. Postpronotum with four bristles, middle basal bristle more or less displaced anteriorly. Body length 8–10 mm
Phorocerosoma Townsend
 1 sp., *Ph. vicarium* (Walker); Japan, China; Mesnil 1944–1975: 65–68.
- Lateral scutellar bristles absent or hair-like. Postpronotum with three or four bristles, the three basal bristles arranged in a straight line. Body length 4–7 mm 403
- 410. Postpronotum with five bristles, the three strongest of them arranged in a triangle (as in Fig. 92) 411
- Postpronotum with three or four bristles, usually not arranged in a triangle 415

411. Arista about as long as first flagellomere, thickened on basal four-fifths or more (Fig. 69). Hind tibia with three strong dorsal preapical setae **Rhaphiochaeta** Brauer et Bergenstamm
1 sp., *Rh. breviseta* (Zetterstedt); widespread; Mesnil 1944-1975: 71-72.
- Arista about as long as antenna, thickened on less than basal three-fifths. Hind tibia with two dorsal preapical setae 412
412. Parafacial bare or with at most a few hairs below lowest frontal bristle **Nemorilla** Rondani
2 spp.; widespread; Mesnil 1944-1975: 1389-1390, Tschorsnig and Herting 1994: 50.
- Parafacial with hairs on its upper half or below 413
413. Scutum with three pairs of postsutural dorsocentral bristles. Upper part of head with one or two rows of black setulae behind the postocular row **Smidtia** Robineau-Desvoidy
2 spp.; widespread; Mesnil 1944-1975: 72-73.
- Scutum with four pairs of postsutural dorsocentral bristles. Upper part of head usually without black setulae behind the postocular row, rarely with one or two rows 414
414. Hind tibia with comb-like row of anterodorsal setae of rather uniform length, with a bristle at midlength about twice as long as the other anterodorsal setae (as in Fig. 154), or anterodorsal setae on hind tibia irregular in length (as in Fig. 151). Hairs on abdomen erect. Katepisternum with three bristles. Mid tibia with three to five anterodorsal bristles. Abdominal tergite 5 more or less conical, entirely black **Timavia** Robineau-Desvoidy
9 spp.; widespread; Mesnil 1944-1975: 73-77 (as *Nemosturmia* Townsend).
- Comb-like row of anterodorsal setae on hind tibia without bristle at midlength (Fig. 152) or with a distinctly shorter bristle. Hairs on abdomen usually recumbent, rarely erect. Katepisternum with two (Fig. 111) or (rarely) three bristles. Mid tibia with one or two, rarely three anterodorsal bristles. Abdominal tergite 5 trapezoid, usually more or less red posteriorly **Winthemia** Robineau-Desvoidy
12 spp.; widespread; Shima, Chao and Zhang 1992; Mesnil 1944-1975: 79-98, Tschorsnig and Herting 1994: 48-50.
415. Facial ridge with setae on lower third or less. Vibrissa arising above level of lower facial margin. Arista thickened on less than basal half 405
- Facial ridge with setae on lower half or more. Vibrissa arising at level of lower facial margin. Arista thickened on more than basal half 450
416. Katepisternum with two bristles. Upper part of head without black setulae behind the postocular row. Ocellar setae well-developed. Palpus yellow. Height of gena smaller than width of parafacial at level of base of antenna (Fig. 6, both measured in lateral view) 417
- Katepisternum with three or four bristles, but if with two bristles, then either upper part of head with at least one row of black setulae behind the postocular row, ocellar setae absent or hair-like, or palpus black. Height of gena usually at least as great as parafacial at level of base of antenna, rarely smaller 418

417. Mid tibia with a ventral bristle (as in Fig. 148). Postpronotum with three bristles, the middle bristle more or less displaced anteriorly **Carcelina** Mesnil
4 spp.; Europe (North Russia: St. Petersburg), Japan, China (Kiangsi); Shima 1969: 238–239 (as subgenus of *Carcelia* Robineau-Desvoidy).
- Mid tibia without ventral bristle (Fig. 149). Postpronotum with three or four bristles, the three basal bristles arranged in a straight line **Senometopia** Macquart
14 spp.; widespread; Mesnil 1944–1975: 29, 31–37, Shima 1968a: 519–532 (as *Eucarcelia* Baranov), Tschorsnig and Herting 1994: 56–57.
418. Postpronotum with three to five bristles, the three strongest bristles arranged in a distinct triangle (Figs 91–92, 99) 419
- Bristles on postpronotum not arranged in a distinct triangle, the three basal bristles in a more or less straight line (Figs 90, 93, 100) 422
419. Arista thickened on basal three-fifths or more. Height of gena smaller than width of parafacial at level of base of antenna (both measured in lateral view). Scutum with three pairs of postsutural dorsocentral bristles. Hind tibia usually with three dorsal preapical setae. Male with proclinate orbital bristles **Thelymyia** Brauer et Bergenstamm
1 sp., *Th. saltuum* (Meigen); widespread; Mesnil 1944–1975: 490–492.
- Arista thickened on less than basal half (Figs 11, 19). Height of gena nearly as great as parafacial at level of base of antenna or greater. Scutum with four or (rarely) three pairs of postsutural dorsocentral bristles. Hind tibia with two dorsal preapical setae. Male without proclinate orbital bristles 420
420. Postpronotum with three strong bristles arranged in a triangle and one or two weak inner bristles, the latter often hair-like or even absent (Fig. 91). Lateral scutellar bristles 0.9–1.1 times as long as subapical bristles. Subcranial cavity (measured in ventral view) 0.7–1.0 times as long as frons (Fig. 11). Egg macrotype, with thin white or transparent chorion **Phebellia** Robineau-Desvoidy
19 spp.; widespread; Mesnil 1944–1975: 453–475, Shima 1981, Shima 1982, Tschorsnig and Herting 1994: 50–52.
- Postpronotum with three bristles arranged in a triangle and two additional inner bristles, the latter usually nearly as long as the weakest one of the bristles arranged in a triangle (Fig. 92). Lateral scutellar bristles 0.5–1.0 times as long as subapical bristles. Subcranial cavity 0.6–0.8 times as long as frons (Fig. 19). Egg microtype, with strongly thickened chorion 421
421. Abdominal tergites 3 and 4 each with median discal bristles. Mid tibia with one or (rarely) two anterodorsal bristles **Myxexoristops** Townsend
7 spp.; widespread; Herting 1964, Tschorsnig and Herting 1994: 58–59.
- Abdominal tergites 3 and 4 without median discal bristles. Mid tibia with three or four anterodorsal bristles **Euexorista** Townsend
1 sp., *E. obumbrata* (Pandellé); widespread; Mesnil 1944–1975: 451–453 (as subgenus of *Myxexoristops* Townsend).
422. Abdominal tergites 3 and 4 without median discal bristles, or at most tergite 4 with short median discal bristles 423
- Abdominal tergites 3 and 4 each with median discal bristles 446

423. Base of R_{4+5} with a single large bristle as long as crossvein R-M or longer (as in Fig. 160). Upper part of head usually without, or rarely with a few black setulae behind the postocular row. Katepisternum with four bristles (Fig. 112) 424
- Base of R_{4+5} with several short setulae, but if in rare cases with a single large setula, then either upper part of head with at least one row of black setulae behind the postocular row or katepisternum with three bristles 425
424. Ocellar bristles well-developed. Parafacial strongly narrowed ventrally, at its narrowest point at most as wide as one-fourth of first flagellomere. Abdominal tergites 3 and 4 each with a narrow basal band of pruinescence, divided in the dorsal midline of abdomen. Scutellum entirely black in ground colour. Abdomen of male without patches of short dense hair. Body length 4–6 mm *Cadurciella* Villeneuve
2 spp.; Europe, Israel, Japan; Mesnil 1944–1975: 426–428.
- Ocellar setae absent. Parafacial at its narrowest point at least as wide as three-fifths of first flagellomere. Abdominal tergites 3 and 4 covered with pruinescence, their hind margins black. Scutellum predominantly yellow. Abdominal tergites 4 and 5 of male each with a pair of patches of appressed hair ventrally (as on tergite 4 in Fig. 196). Body length 7–10 mm *Drino* Robineau-Desvoidy, part
see couplet 517.
425. Parafacial with one or more rows of hairs over most of its length 426
- Parafacial entirely bare, with a few hairs below lowest frontal bristle or (rarely) with a small isolated patch of hairs near lower margin of eye 428
426. Facial ridge with bristles on lower two-fifths to half. First flagellomere about two times as long as pedicel or less. Katepisternum with two bristles. Abdominal tergite 3 without median marginal bristles. Pedicel yellow, scutellum predominantly yellow 486
- Facial ridge with setae on lower third or less. First flagellomere three to four times as long as pedicel. Katepisternum with three or four bristles. Abdominal tergite 3 with median marginal bristles. Pedicel and scutellum black 427
427. Parafacial at its narrowest point at most as wide as half of first flagellomere. Scutum with four pairs of postsutural dorsocentral bristles. Katepisternum with four bristles. Second costal section bare ventrally. Palpus black 453
- Parafacial at least as wide as four-fifths of first flagellomere. Scutum usually with three pairs of postsutural dorsocentral bristles. Katepisternum with three bristles. Second costal section with fine hairs ventrally. Palpus yellow 486
428. Apical scutellar bristles inclined at 45–90° to horizontal (Figs 126–127). Mid tibia with a single anterodorsal bristle 429
- Apical scutellar bristles, if present, horizontal or inclined at most 30° to horizontal (Fig. 125). Mid tibia with one to five anterodorsal bristles 430

429. Ocellar bristles well-developed. One single reclinate upper orbital bristle present (Fig. 10). Upper part of head with at least one row of black setulae behind the postocular row. Palpus black. Abdomen of male without patches of short dense hair **Catagonia** Brauer et Bergenstamm
1 sp., *C. aberrans* (Rondani); central and southern Europe; Mesnil 1944–1975: 149–150 (as subgenus of *Sisyropa* Brauer et Bergenstamm).
- Ocellar setae hair-like or absent. Two or three reclinate upper orbital bristles present. Upper part of head without black setulae behind the postocular row. Palpus yellow. Abdominal tergite 4 of male with a pair of patches of appressed hair ventrally (as in Fig. 196) 544
430. First flagellomere as long as pedicel. Scutum with two presutural dorsocentral bristles. Tegula yellow. Wing cell r_{4+5} with a petiole as long as one-eighth to one-sixth section of M beyond bend. Hind tarsus of male with two rows of spinules ventrally; ventral surface of abdominal tergites 3 and 4 each strongly concave, covered with short appressed hair **Cestonioptera** Villeneuve
1 sp., *C. mesnili* Villeneuve; northern Africa; Mesnil 1944–1975: 274–276.
- First flagellomere distinctly longer than pedicel. Scutum with three presutural dorsocentral bristles. Tegula black. Wing cell r_{4+5} usually without petiole. Hind tarsus and abdomen of male not as above 431
431. Costal spine two to four times as long as crossvein R-M. Fourth costal section distinctly shorter than sixth costal section 472
- Costal spine, if present, at most as long as crossvein R-M. Fourth costal section as long as sixth costal section or longer 432
432. Facial ridge with strong erect bristles on lower two-thirds or more 454
- Facial ridge with setae on lower three-fifths or less, but if reaching up to lower two-thirds, then setae decumbent and slender, becoming hair-like above 433
433. Basal two-fifths of wing black. Abdomen and scutellum shiny black with light metallic blue luster, strongly contrasting with head and thorax, which are entirely gold or yellow pruinose. Scutellum with two pairs of lateral bristles **Calozenillia** Townsend
1 sp., *C. tamara* (Portshinsky); Bulgaria, Transcaucasia, South of Russian Far East, Japan, China; Mesnil 1944–1975: 226–227.
- Wing unpatterned, transparent. Abdomen with pruinescence, not contrasting with head and thorax as described above. Scutellum usually with only one pair of lateral bristles 434
434. Katepisternum with four bristles 435
- Katepisternum with three or (rarely) two bristles 439
435. Abdominal tergite 5 0.2–0.6 times as long as tergite 4. Two reclinate upper orbital bristles present. Second aristomere two to four times as long as its diameter. Abdominal tergite 5 and most of tergite 4 of male shiny black (except a very narrow basal pruinose band on tergite 4) **Aplomya** Robineau-Desvoidy
2 spp.; widespread; Mesnil 1944–1975: 329–334.

- Abdominal tergite 5 0.7–1.3 times as long as tergite 4, but if near 0.6 times, then only one reclinate upper orbital bristle present. Second aristomere at most two times as long as its diameter. Abdomen of male not as above 436
- 436. Height of gena smaller than width of parafacial at level of base of antenna (as in Fig. 6, both measured in lateral view) *Thecocarcelia* Townsend, part
see couplet 543.
- Height of gena at least as great as width of parafacial at level of base of antenna 437
- 437. Facial ridge with setae on lower half to two-thirds. Arista thickened on basal half or more. First flagellomere three to five times as long as pedicel *Nilea* Robineau-Desvoidy
5 spp.; widespread; Mesnil 1944–1975: 362–363, 365–368, 382–384.
- Facial ridge with setae on lower third or less. Arista thickened on basal two-fifths or less. First flagellomere two to three times as long as pedicel 438
- 438. One single reclinate upper orbital bristle present. Second costal section usually with fine hairs ventrally. Palpus yellow *Sisyropa* Brauer et Bergenstamm
2 spp.; China, Japan; Mesnil 1944–1975: 147–149, 152–156.
- Two or three reclinate upper orbital bristles present. Second costal section bare ventrally. Palpus black *Tlephusa* Robineau-Desvoidy
1 sp., *T. cincinna* (Rondani); widespread; Mesnil 1944–1975: 328–329.
- 439. Parafacial at its narrowest point 1.5–three times as wide as first flagellomere (Fig. 12) 440
- Parafacial at its narrowest point at most as wide as first flagellomere 441
- 440. Facial ridge not prominent, straight or concave in profile. Katepisternum with two or three bristles *Euhygia* Mesnil
2 spp.; South of Russian Far East, China (Szechwan); Mesnil 1944–1975: 225–226.
- Facial ridge prominent, strongly convex in profile (Fig. 12). Katepisternum with three bristles *Pexopsis* Brauer et Bergenstamm, part
see couplet 547.
- 441. Base of abdomen ventrally and sides of thorax with pale hairs. Postpronotum with three basal bristles in a straight line and an additional bristle placed before middle basal bristle (as in Fig. 93) *Sericozenillia* Mesnil
1 sp., *S. albipila* (Mesnil); Japan.
- Abdomen and thorax with black hairs. Anterior postpronotal bristle weak, placed anteriorly between middle and inner basal bristle (as in Fig. 100) 442
- 442. Wing cell r_{4+5} with a petiole as long as half of crossvein R-M. Facial ridge with setae on about lower half. Basicosta and legs yellow or red *Schembria* Rondani
1 sp., *S. meridionalis* Rondani; Malta, Israel; Mesnil 1944–1975: 1380–1381.
- Wing cell r_{4+5} without petiole. Facial ridge with setae on usually less than lower half. Basicosta and legs usually black 443
- 443. Upper part of head without black setulae behind the postocular row. Abdominal tergites 3 and 4 of male each with a pair of large patches of appressed hair ventrally 471

- Upper part of head with one or more rows of black setulae behind the postocular row. Abdomen of male not as above 444
- 444. Palpus black or dark brown. First flagellomere 1.5–2.5 (rarely three) times as long as pedicel **Alsomyia** Brauer et Bergenstamm
4 spp.; central and southern Europe, Transcaucasia, Turkmenia; Mesnil 1944–1975: 378–381 (as subgenus of *Platymya* Robineau-Desvoidy).
- Palpus yellow. First flagellomere about three to five times as long as pedicel 445
- 445. Mid tibia with two or more anterodorsal bristles. Second costal section bare ventrally **Nilea** Robineau-Desvoidy, part
see couplet 437.
- Mid tibia with a single anterodorsal bristle. Second costal section usually with fine hairs ventrally 438
- 446. Apical scutellar bristles inclined at 60°–90° to horizontal (Figs 3, 126). Wing cell r_{4+5} without petiole 447
- Apical scutellar bristles, if present, horizontal or inclined at most 30° to horizontal (Fig. 125), but if erect as above, then wing cell r_{4+5} with a petiole 450
- 447. Upper part of head without black setulae behind the postocular row. Outer vertical bristle absent or hair-like. Palpus yellow. Mid tibia with a single anterodorsal bristle **Paradrino** Mesnil
1 sp., *P. longicornis* Shima; Japan; Shima 1984a.
- Upper part of head with black setulae behind the postocular row. Outer vertical bristle usually strong. Palpus black or dark brown. Mid tibia with one to five anterodorsal bristles 448
- 448. Posterior ocelli separated from each other by a distance 0.14–0.22 times width of the frons (Fig. 67). Anterior postpronotal bristle placed anteriorly between middle and inner basal bristle (as in Fig. 100). Arista thickened on basal half or less. Mid tibia with a single anterodorsal bristle or more. Frons narrower or wider than one eye in dorsal view. Scutellum entirely black in ground colour **Pseudoperichaeta** Brauer et Bergenstamm
3 spp.; widespread; Mesnil 1944–1975: 232–233, 409–411, Tschorsnig and Herting 1994: 53.
- Posterior ocelli separated by a distance 0.20–0.28 times width of the frons. Anterior postpronotal bristle usually placed before middle basal bristle (Fig. 93), but if arranged as described above, then arista thickened on at least basal two-thirds. Mid tibia with at least two anterodorsal bristles. Frons always wider than one eye in dorsal view. Scutellum usually more or less red apically 449
- 449. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143). Facial ridge with setae on lower half or less, but if reaching up to lower two-thirds, then setae decumbent and slender (Fig. 18) **Phryxe** Robineau-Desvoidy
12 spp.; widespread; Mesnil 1944–1975: 394–399, 401–409, 411–422, Tschorsnig and Herting 1994: 52–53.
- Preapical anterodorsal seta on fore tibia as long as or longer than preapical dorsal seta (as in Figs 144–145). Facial ridge with erect bristles on about lower two-thirds **Madremyia** Townsend
1 sp., *M. clausa* (Villeneuve); northern Europe.

450. Parafacial with hairs or setulae over most of its length 451
 – Parafacial bare or with hairs at most on upper half 454
451. Frons about 1.7 times as wide as one eye in dorsal view. Parafacial at its narrowest point 1.5 times as wide as first flagellomere or more. First flagellomere five to ten times as long as pedicel. Arista thickened nearly to apex; second aristomere four to six times as long as its diameter
Lasiopales Villeneuve
 1 sp., *L. pachychaeta* (Villeneuve); Algeria, Turkmenia, Uzbekistan; Mesnil 1944–1975: 514–516.
- Frons and parafacial distinctly narrower. First flagellomere at most four times as long as pedicel. Arista thickened at most on basal three-fourths; second aristomere at most two times as long as its diameter 452
452. Scutellum predominantly red or yellow. Abdomen uniformly covered with pruinescence with tessellated pattern. Male with proclinate orbital bristles **Cavaleria Villeneuve**
 1 sp., *C. genibarbis* Villeneuve; southern France, Russia (lower Volga), Transcaucasia; Mesnil 1944–1975: 320–321.
- Scutellum entirely black in ground colour. Abdominal tergites with (usually narrow) basal bands of pruinescence. Male without proclinate orbital bristles 453
453. Katepisternum with four bristles. Fourth costal section distinctly longer than sixth costal section. Anterior margin of first flagellomere strongly convex **Epicampocera Macquart**
 1 sp., *E. succincta* (Meigen); widespread; Mesnil 1944–1975: 318–320.
- Katepisternum with three bristles. Fourth costal section as long as sixth costal section or shorter. Anterior margin of first flagellomere straight 466
454. Apical scutellar bristles absent, but if present, then parallel or divergent 455
 – Scutellum with crossed apical bristles 461
455. Facial ridge with setae on less than lower half 456
 – Facial ridge with setae on lower half or more 458
456. Scutum with three pairs of postsutural dorsocentral bristles. Anterior postpronotal bristle placed before middle basal bristle (as in Fig. 93). Scutellum with one or two pairs of erect setae on posterior third **Cyzenis Robineau-Desvoidy**
 2 spp.; widespread; Mesnil 1944–1975: 337–341.
- Scutum with four pairs of postsutural dorsocentral bristles. Anterior postpronotal bristle, if present, placed anteriorly between middle and inner basal bristle (as in Fig. 100). Scutellum without such erect setae 457
457. Scutum with three pairs of presutural dorsocentral bristles. Postpronotum with four or five bristles. Section of M between crossveins r-m and dM-Cu distinctly longer than section between dM-Cu and bend of M. Hind tibia with two dorsal preapical setae. Legs entirely or predominantly yellow **Phryno Robineau-Desvoidy**
 2 spp.; widespread; Mesnil 1944–1975: 341–343.

- Scutum with two pairs of presutural dorsocentral bristles. Postpronotum with three bristles. Section of M between crossveins r-m and dM-Cu about equal to section between dM-Cu and bend of M. Hind tibia with three dorsal preapical setae. Legs black
Erythroceria Robineau-Desvoidy, part
see couplet 537.
458. Wing cell r_{4+5} with a short petiole. First flagellomere at most two times as long as pedicel. Arista thickened on less than basal fifth. Scutum before suture with one pair of broad dark longitudinal stripes (as in Fig. 83) 463
- Wing cell r_{4+5} without petiole. First flagellomere at least three times as long as pedicel. Arista thickened on basal third or more. Scutum before suture with four or five narrower dark longitudinal stripes (as in Figs 81-82) 459
459. Ocellar setae absent or hair-like. Scutellum with two pairs of lateral bristles and with straight, nearly erect setae on dorsal surface anterior to apex. Hind tibia with comb-like row of anterodorsal setae of rather uniform length (except for a longer bristle at midlength) Takanomyia Mesnil
6 spp.; Japan, Nepal; Shima 1988: 26-32.
- Ocellar bristles usually well-developed. Scutellum with one pair of lateral bristles, without erect preapical setae. Anterodorsal setae on hind tibia irregular in length and spacing 460
460. Bristles on facial ridge short, decumbent. Lateral scutellar bristles nearly as long as subapical bristles. Tibia red or yellow. Body length 7-12 mm Bothria Rondani¹⁰
4 spp.; widespread; Mesnil 1944-1975: 334-337.
- Bristles on facial ridge long, erect. Lateral scutellar bristles about as long as half of subapical bristles. Tibia black. Body length 6 mm or less 469
461. Katepisternum with four bristles 437
- Katepisternum with three or (rarely) two bristles 462
462. Scutellum entirely black, without any trace of red or yellow in ground colour 463
- Scutellum more or less red or yellow, but if predominantly black, then with at least traces of red colouring near apex 468
463. Wing cell r_{4+5} with a short petiole. Scutum before suture with one pair of broad dark longitudinal stripes (as in Fig. 83). Mid tibia with a single anterodorsal bristle
Rhinomyodes Townsend
1 sp., *Rh. emporomyioides* Townsend; Japan; Mesnil 1944-1975: 289-291.
- Wing cell r_{4+5} without petiole. Scutum before suture with four or five narrower dark longitudinal stripes (as in Figs 81-82). Mid tibia with one to five anterodorsal bristles 464
464. Facial ridge with weak decumbent setae on lower one-fifth to two-fifths (Fig. 8), but if reaching up to lower half, then upper part of head without black setulae behind the postocular row 465

10 Included is the species formerly placed in *Anameriania* Zimin.

- Facial ridge with usually stout, erect bristles on lower three-fifths to four-fifths (as in Figs 4–5, 7), but if setae reaching only up to lower half, then upper part of head with at least one row of black setulae behind the postocular row 467
- 465. Upper part of head without black setulae behind the postocular row. Facial ridge with setae on lower two-fifths to half. Arista thickened on more than basal half **Eumeella** Mesnil
1 sp., *E. perdives* (Villeneuve); Mediterranean; Mesnil 1944–1975: 354–356.
- Upper part of head with at least one row of black setulae behind the postocular row. Facial ridge with setae on lower one-fifth to one-third (Fig. 8). Arista thickened on at most basal half 466
- 466. Scutum before suture with four dark longitudinal stripes. Parafacial at its narrowest point about as wide as one-fourth as at base of antenna. Fourth costal section about as long as sixth costal section, but if longer, then scutum with three pairs of postsutural dorsocentral bristles. Abdominal tergites 3 and 4 each with one pair of median discal bristles **Platymya** Robineau-Desvoidy
2 spp.; widespread; Mesnil 1944–1975: 370–377.
- Scutum before suture with five dark longitudinal stripes. Parafacial not as strongly narrowed ventrally (Fig. 8). Fourth costal section about twice as long as sixth costal section. Scutum with four pairs of postsutural dorsocentral bristles. Abdominal tergites 3 and 4 each with two pairs of median discal bristles, with one pair anterior to the other **Eumea** Robineau-Desvoidy
2 spp.; widespread; Mesnil 1944–1975: 372–373, 385–389 (as subgenus of *Platymya* Robineau-Desvoidy).
- 467. Arista thickened on basal two-thirds to four-fifths. Frons 1.3–1.8 times as wide as one eye in dorsal view. Abdominal tergites 3 and 4 of male with a narrow median longitudinal stripe of short recumbent hairs **Ceratochaetops** Mesnil
2 spp.; southern parts of Palaearctic; Mesnil 1944–1975: 363–364, 368–369 (as *Nilea* Robineau-Desvoidy).
- Arista less thickened. Frons narrower. Abdomen of male with or without above-mentioned such stripe 468
- 468. Facial ridge with stout, usually erect bristles on more than lower half. Hind tibia with two dorsal preapical setae 469
- Facial ridge with usually weak, decumbent setae at most on lower half, but if bristles reaching up to lower two-thirds, then hind tibia with three strong dorsal preapical setae 470
- 469. Two reclinate upper orbital bristles present, the anterior one at least as large as the posterior one. Abdominal tergites with broad transverse bands of dense pruinescence or abdomen uniformly covered with dense pruinescence. Abdominal tergites 3 and 4 of male usually with a narrow median longitudinal stripe of short recumbent hairs **Clemelis** Robineau-Desvoidy
6 spp.; widespread; Mesnil 1944–1975: 347–352.
- One single reclinate upper orbital bristles present (occasionally two in one dark species). Abdomen shiny black, usually with bluish luster; pruinescence, if present, very weak. Abdomen of male without above-mentioned stripe **Pales** Robineau-Desvoidy
12 spp.; widespread; Mesnil 1944–1975: 121–134 (as *Ctenophorocera* Brauer et Bergenstamm).
- 470. Face visible in lateral view. Preapical anterodorsal seta on fore tibia as long as or longer than preapical dorsal seta (as in Figs 144–145). Preapical posteroventral seta on hind tibia nearly as long as preapical anteroventral seta (as in Fig. 151). Palpus more or less reduced 337

- Face (except lower facial margin) not visible in lateral view. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143). Preapical posteroventral seta on hind tibia distinctly shorter than preapical anteroventral seta. Palpus well-developed 471
- 471. Upper part of head without black setulae behind the postocular row. First flagellomere at most twice as long as pedicel. Abdominal tergites 3 and 4 of male each with a pair of large patches of appressed hair ventrally **Nealsomyia** Mesnil
2 spp.; Egypt, Israel, Iran; Mesnil 1944-1975: 356-361.
- Upper part of head with one or more rows of black setulae behind the postocular row. First flagellomere more than twice as long as pedicel. Abdomen of male rarely as described above 472
- 472. Costal spine two to four times as long as crossvein R-M. Fourth costal section distinctly shorter than sixth costal section. Postpronotum with three basal bristles in a straight line and an additional bristle placed before middle basal bristle (as in Fig. 93). Scutum usually with three pairs of postsutural dorsocentral bristles. Hind tibia with three or two dorsal preapical setae. Palpus black or dark brown **Phonomyia** Brauer et Bergenstamm
2 spp.; southern parts of Palaearctic; Mesnil 1944-1975: 353-354.
- Costal spine, if present, at most as long as crossvein R-M. Fourth costal section longer than sixth costal section. Anterior postpronotal bristle, if present, placed anteriorly between middle and inner basal bristle (as in Fig. 100). Scutum with four pairs of postsutural dorsocentral bristles. Hind tibia with two dorsal preapical setae. Palpus yellow 473
- 473. One single reclinate upper orbital bristle present, but if two, then anterior one hair-like or at least smaller than the posterior one. Pruinescence on abdomen whitish or grey
Nilea Robineau-Desvoidy, part
see couplet 437.
- Two reclinate upper orbital bristles present, the anterior one at least as large as the posterior one. Abdomen with dense yellow pruinescence 474
- 474. Height of gena about one-fourth vertical diameter of eye or less. Pedicel, basicosta and legs black, but if yellow, then apical scutellar bristles strong **Zenillia** Robineau-Desvoidy
3 spp.; widespread; Mesnil 1944-1975: 321-326.
- Height of gena one-third to half of vertical diameter of eye. Pedicel, basicosta and legs entirely or predominantly yellow. Apical scutellar bristles weak, hair-like 457
- 475. Parafacial with hairs, setulae or bristles over most of its length (Figs 14, 49, 51), or at least with a patch of small setae or a few hairs below upper half (as in Fig. 42) 476
- Parafacial bare (Figs 3, 50) or with hairs at most on upper half 487
- 476. Ocellar bristles reclinate (Fig. 14) or (rarely) laterocline. Frons with one or two additional rows of reclinate or mediocline bristles lateral to frontal row (Figs 14, 49, 65) 477
- Ocellar bristles procline. Frons with scattered or dense hairs outside frontal row (Fig. 51), rarely with an additional row of reclinate bristles 481

477. Prementum short, about two times as long as its diameter. Arista thickened on about basal two-fifths; second aristomere about as long as its diameter (Fig. 49). Section of M between crossveins r-m and dM-Cu shorter than section between dM-Cu and bend of M. Wing cell r_{4+5} with a petiole about as long as one-fifth section of M beyond bend (Fig. 181). Legs reddish as the whole body
Manola Richter
 1 sp., *M. xenocera* Richter; Uzbekistan, Turkmenia.
- Prementum three to twelve times as long as its diameter. Arista thickened on basal half to apex; second aristomere one to twelve times as long as its diameter (Fig. 14). Section of M between crossveins r-m and dM-Cu distinctly longer than section between dM-Cu and bend of M. Wing cell r_{4+5} without petiole (except in one species of *Gonia*). Legs black or predominantly black
 478
478. R_{4+5} with setae on basal third up to crossvein R-M, but if with less setae, then either tegula yellow or wing with an apical dark spot
Gonia Meigen
 23 spp.; widespread; Mesnil 1944–1975: 517–532 (as *Salmacia* Meigen and *Turanogonia* Rohdendorf), 542–546 (as *Redia* Robineau-Desvoidy and *Eremogonia* Rohdendorf).
- R_{4+5} with a few setae at most on basal fifth. Tegula black or dark brown. Wing without apical dark spot
 479
479. Basicosta yellow. Second aristomere less than four times as long as its diameter. First flagellomere at most two times as long as pedicel
Spallanzania Robineau-Desvoidy
 6 spp.; widespread; Mesnil 1944–1975: 550–554.
- Basicosta black or dark brown. Second aristomere four to ten times as long as its diameter. First flagellomere usually more than two times as long as pedicel (rarely 1.5 times in females)
 480
480. Hairs on abdominal tergites 3 and 4 erect, but if recumbent (in female of one species), then abdomen shiny black, without pruinescence. Head yellow or red in ground colour, contrasting with dark thorax and abdomen. Hind tibia with three dorsal preapical setae
Onychogonia Brauer et Bergenstamm
 3 spp.; Europe (mountains), southern Siberia, Mongolia; Herting 1973, Tschorsnig and Herting 1994: 62.
- Hairs on abdominal tergites 3 and 4 recumbent. Abdomen with pruinescence. Head not contrasting with thorax and abdomen. Hind tibia with two dorsal preapical setae
Pseudogonia Brauer et Bergenstamm
 4 spp.; widespread; Mesnil 1944–1975: 532–538 (as *Isomera* Robineau-Desvoidy).
481. Base of R_{4+5} with a single large seta as long as one to three times crossvein R-M (as in Fig. 160). Katepisternum with four bristles (Fig. 112)
 482
- Base of R_{4+5} with several setae, rarely with a single, but distinctly shorter seta. Katepisternum with three or (rarely) two bristles
 483
482. Lower facial margin protruding, visible in lateral view. Ocellar bristles well-developed. Postpronotum with three basal bristles in a straight line and an additional bristle placed before middle basal bristle (as in Fig. 93). Abdominal tergite 4 with a pair of median discal bristles, in male without patches of appressed hair ventrally. Scutellum black, palpus black or dark brown
Chetina Rondani
 2 spp.; warmer parts of Europe, Israel, Transcaucasia, Turkmenia, Tadzhikistan; Mesnil 1944–1975: 424–426.

- Lower facial margin usually not visible in lateral view. Ocellar setae short or hair-like. Anterior postpronotal bristle placed anteriorly between middle and inner basal bristle (as in Fig. 100). Abdominal tergite 4 without median discal bristles, in male with a pair of patches of appressed hair ventrally (as in Fig. 196). Scutellum and palpus entirely or predominantly yellow
Drino Robineau-Desvoidy, part
see couplet 517.
- 483. Facial ridge with bristles on lower three-fifths to two-thirds. Apical scutellar bristles parallel or divergent (Fig. 119). Wing cell r_{4+5} with a petiole. Fourth costal section as long as sixth costal section or shorter
Gaedia Meigen
4 spp.; widespread; Mesnil 1944-1975: 270-274.
- Facial ridge with setae at most on lower half (Fig. 51). Scutellum with crossed apical bristles. Wing cell r_{4+5} without petiole. Fourth costal section longer than sixth costal section
484
- 484. Height of gena one-third to two-thirds vertical diameter of eye (Fig. 51). Facial ridge convex in profile
485
- Height of gena at most one-fourth vertical diameter of eye. Facial ridge straight or concave in profile
486
- 485. One single reclinate upper orbital bristle present, but if two, then anterior one hair-like or at least smaller than the posterior one (Fig. 51). Usually two pairs of lateral scutellar bristles present. Abdominal tergites 3 and 4 of male each with a pair of patches of appressed hair ventrally (as on tergite 4 in Fig. 196)
Pseudalsomyia Mesnil
1 sp., *P. hyrcanica* Richter; Transcaucasia (Talysh).
- Two reclinate upper orbital bristles present, the anterior one at least as large as the posterior one. Scutellum with one pair of lateral bristles. Abdomen of male without patches of appressed hair
547
- 486. Frons at least as wide as one eye in dorsal view. Katepisternum with three bristles. Scutum usually with three pairs of postsutural dorsocentral bristles. Scutellum with one pair of lateral bristles; apical bristles horizontal or inclined at most 30° to horizontal (as in Fig. 125). Abdominal tergite 3 with median marginal bristles. Pedicel and scutellum black
Buquetia Robineau-Desvoidy
2 spp.; widespread; Mesnil 1944-1975: 300-302.
- Frons distinctly narrower than one eye in dorsal view. Katepisternum with two bristles. Scutum with four pairs of postsutural dorsocentral bristles. Two pairs of lateral scutellar bristles present; apical bristles erect (as in Fig. 126). Abdominal tergite 3 without median marginal bristles. Pedicel and scutellum entirely or predominantly yellow
Sturmiopsis Townsend
1 sp., *S. emdeni* Mesnil; Palestine; Mesnil 1944-1975: 227-229.
- 487. Wing cell r_{4+5} with a petiole about as long as one-seventh to three-fifths section of M beyond bend
488
- Wing cell r_{4+5} open or (rarely) with a petiole at most as long as one-tenth section of M beyond bend
495
- 488. Abdomen shiny black, without pruinescence or at most with traces of pruinescence along anterior margins of tergites. Second costal section with fine hairs ventrally. Upper part of head

- with one or two rows of black setulae behind the postocular row. Hind tibia with two dorsal preapical setae 489
- Abdomen with broad transverse bands of pruinescence or uniformly covered with pruinescence. Second costal section bare ventrally. Upper part of head without black setulae behind the postocular row, but if black setulae present, then hind tibia with three strong dorsal preapical setae 490
489. Facial ridge setose on lower fifth or less. One single reclinate upper orbital bristle present. Arista thickened on basal four-fifths or more. Scutum with four pairs of postsutural dorsocentral bristles. Costal bristle, if present, distinctly shorter than crossvein R-M **Ramonella** Kugler
1 sp., *R. mesnili* (Kugler); Israel, Turkey.
- Facial ridge with bristles on about lower two-thirds. Two reclinate upper orbital bristles present. Arista thickened on about basal half. Scutum with three pairs of postsutural dorsocentral bristles. Costal spine 1.5–three times as long as crossvein R-M **Erynnia** Robineau-Desvoidy
1 sp., *E. ocypterata* (Fallén); widespread; Mesnil 1944–1975: 276–277.
490. Facial ridge with setae on lower third to two-thirds. Basicosta black or dark brown. Scutellum entirely black in ground colour 491
- Facial ridge with setae on lower fourth or less. Basicosta yellow or reddish. Scutellum more or less red or yellow, but if predominantly black, then with at least traces of red colouring near apex 492
491. Ocellar bristles well-developed. Postpronotum with two bristles. Scutum with four pairs of postsutural dorsocentral bristles, but if with three pairs, then body length less than 3 mm. Section of M between crossveins r-m and dM-Cu about equal to section between dM-Cu and bend of M. Abdominal tergite 5 about as long as or longer than tergite 4, conically pointed in female **Cestonia** Rondani
5 spp.; southern parts of Palaearctic; Mesnil 1944–1975: 282–286.
- Ocellar setae hair-like. Postpronotum with four bristles. Scutum with three pairs of postsutural dorsocentral bristles; body length at least 5 mm. Section of M between crossveins r-m and dM-Cu distinctly longer than section between dM-Cu and bend of M. Abdominal tergite 5 distinctly shorter than tergite 4, not conically pointed **Simoma** Aldrich
1 sp., *S. grahmi* Aldrich; Palestine, Japan, China; Mesnil 1944–1975: 286–288.
492. Scutum with four pairs of postsutural dorsocentral bristles. Prementum two to three times as long as its diameter 493
- Scutum with three pairs of postsutural dorsocentral bristles. Prementum four to five times as long as its diameter 494
493. Antenna not sunken in face; first flagellomere about two to three times as long as pedicel. Facial ridge straight or slightly concave. Upper part of head without black setulae behind the postocular row. Hind tibia with two dorsal preapical setae **Cestonionerva** Villeneuve
3 spp.; northern Africa, Israel, Middle Asia, Mongolia, China; Mesnil 1944–1975: 279–282.

- Antenna deeply sunken in face; first flagellomere six to ten times as long as pedicel. Facial ridge strongly convex. Upper part of head with black setulae behind the postocular row. Hind tibia with three dorsal preapical setae **Parapexopsis** Mesnil
2 spp.; Palestine, Mongolia.
494. Frons about as wide as one eye in dorsal view. First flagellomere two to three times as long as pedicel. Arista thickened on basal fourth or less; second aristomere at most slightly longer than its diameter. Katepisternum with three bristles in a straight line **Catena** Richter
1 sp., *C. serena* (Richter); Mongolia.
- Frons wider than 1.5 times eye in dorsal view. First flagellomere four to six times as long as pedicel. Arista thickened nearly to apex; second aristomere three to four times as long as its diameter. Katepisternum with four or five bristles **Mendelssohnia** Kugler
1 sp., *M. sinaica* Kugler; Egypt (Sinai).
495. Facial ridge with usually erect setae on lower three-fifths or more (Fig. 50) 496
- Facial ridge with recumbent setae at most on lower half (Figs 3, 52) 511
496. Lateral scutellar setae absent or hair-like. Upper part of head without black setulae behind the postocular row. One single reclinate upper orbital bristle present (Fig. 50) 497
- Lateral scutellar bristles at least as long as half of subapical bristles, but if shorter, then upper part of head with black setulae behind the postocular row. Two or three reclinate upper orbital bristles present 499
497. Ocellar bristles reclinate. Prementum four to five times as long as its diameter. Scutellum without apical bristles, but with a pair of straight nearly erect setulae on dorsal surface just anterior to apex (as in Fig. 123). Tegula yellow **Goniophthalmus** Villeneuve
1 sp., *G. halli* Mesnil; Israel, Uzbekistan, China (Yunnan); Mesnil 1944–1975: 547–549.
- Ocellar bristles proclinate (Fig. 50). Prementum at most two times as long as its diameter. Scutellum with crossed apical bristles, without erect preapical setulae. Tegula black 498
498. Second aristomere four to nine times as long as its diameter; arista thickened on basal two-fifths to apex (Fig. 50). First flagellomere four to ten times as long as pedicel **Dolichocolon** Brauer et Bergenstamm¹¹
3 spp.; Mediterranean, Transcaucasia, South of Russian Far East, Japan, China; Mesnil 1968: 175–176.
- Second aristomere one to 2.5 times as long as its diameter; arista thickened at most on basal half. First flagellomere less than four times as long as pedicel **Palesisa** Villeneuve
4 spp.; Mediterranean, Turkey, Turkmenia, Altai, Mongolia; Mesnil 1944–1975: 111–114.
499. R₄₊₅ setose from base to crossvein R-M or beyond 500
- R₄₊₅ setose at most halfway to crossvein R-M 501
500. Bristles on facial ridge erect. Scutellum with crossed apical bristles. Abdominal tergites 3 and 4 each with a pair of median discal bristles. Tegula and basicosta black **Synamphichaeta** Villeneuve
1 sp., *S. tricincta* Villeneuve; Canary Islands; Mesnil 1944–1975: 1378.

11 Included is the species formerly placed in *Kuwanimyia* Townsend.

- Bristles on facial ridge decumbent. Apical scutellar setae absent or parallel. Abdominal tergites 3 and 4 without median discal bristles. Tegula and basicosta yellow **Suensonomyia** Mesnil
1 sp., *S. nudinerva* Mesnil; Japan. 502
- 501. Legs entirely or predominantly yellow (at most tarsi black). Tegula reddish. Body length 4–7 mm 502
- At least femora black or dark brown, but if (rarely) red or yellow, then body length 8 mm or more. Tegula usually black 503
- 502. Bristles on facial ridge long, erect. Upper part of head without or at most with a few black setulae behind the postocular row. Scutum with four pairs of postsutural dorsocentral bristles. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143) **Hebia** Robineau-Desvoidy
1 sp., *H. flavipes* Robineau-Desvoidy; widespread; Mesnil 1944–1975: 246–247.
- Setae on facial ridge short, decumbent. Upper part of head with one to three rows of black setulae behind the postocular row. Scutum with three pairs of postsutural dorsocentral bristles. Preapical anterodorsal seta on fore tibia as long as or longer than preapical dorsal seta (as in Figs 144–145) 531
- 503. Height of gena one-tenth vertical diameter of eye or less, smaller than width of parafacial at level of base of antenna (measured in lateral view). Parafacial strongly narrowed ventrally, at its narrowest point at most as wide as one-sixth of parafacial at level of base of antenna **Periarchiclops** Villeneuve
1 sp., *P. scutellaris* (Fallén); widespread; Mesnil 1944–1975: 486–488.
- Height of gena one-sixth vertical diameter of eye or more, at least as great as width of parafacial at level of base of antenna. Parafacial not or not as strongly narrowed ventrally 504
- 504. Section of M between crossveins R-M and dM-Cu about equal to section between dM-Cu and bend of M, the latter section as long as or longer than section between bend and apex of M (Fig. 159) **Elodia** Robineau-Desvoidy
5 spp.; widespread; Mesnil 1944–1975: 247–251.
- Section of M between crossveins R-M and dM-Cu distinctly longer than section between dM-Cu and bend of M, the latter section shorter than section between bend and apex of M 505
- 505. Frons as wide as 1.4–2.5 times eye in dorsal view, but if only as wide as 1.2 times, then abdominal tergites 3 and 4 each with median discal bristles. Arista thickened on basal half to apex 506
- Frons about as wide as one eye in dorsal view or narrower. Abdominal tergites 3 and 4 without median discal bristles or at most tergite 4 with weak discal bristles. Arista thickened on less than basal half 508
- 506. Upper part of head without black setulae behind the postocular row (rarely with a few setae). Scutum with four pairs of postsutural dorsocentral bristles. Preapical anterodorsal seta on fore tibia distinctly shorter than preapical dorsal seta (as in Fig. 143) 507

- Upper part of head with one or more rows of black setulae behind the postocular row. Scutum with three pairs of postsutural dorsocentral bristles. Preapical anterodorsal seta on fore tibia about as long as preapical dorsal seta (as in Fig. 144) 532
- 507. Gena and sides of thorax with black hairs. Apical scutellar bristles inclined at 45–90° to horizontal (as in Figs 126–127). Abdominal tergites 3 and 4 usually without median discal bristles
Gymnophryxe Villeneuve
5 spp.; Mediterranean, Transcaucasia, Middle Asia, Altai, Mongolia; Mesnil 1944–1975: 508–514 (as *Archiclops* Bischof).
- Gena and sides of thorax with white or yellow hairs. Apical scutellar bristles horizontal or inclined at most 30 to horizontal (as in Fig. 125). Abdominal tergites 3 and 4 each with two or three pairs of median discal bristles, with one pair anterior to the other **Frontina** Meigen
5 spp.; widespread; Mesnil 1944–1975: 343–347, Shima 1988: 33–36.
- 508. Scutellum without apical setae, with one pair of short lateral bristles. Mid tibia with a single anterodorsal bristle. Ocellar bristles well-developed, about as long as uppermost reclinate orbital bristle **Clemelis** Robineau-Desvoidy, part
see couplet 469.
- Scutellum with crossed apical bristles and usually two pairs of lateral bristles. Mid tibia with two or more anterodorsal bristles. Ocellar setae usually hair-like or absent, at least distinctly shorter than uppermost reclinate orbital bristle 509¹²
- 509. Pedicel and scutellum entirely or predominantly red or yellow. Upper part of head without black setulae behind the postocular row. Male with proclinate orbital bristles. Body length 10–16 mm **Crosskeyas** Shima et Chao
2 spp.; China; Shima et Chao 1988.
- Pedicel and scutellum entirely or predominantly black. Upper part of head with or without black setulae behind the postocular row. Male without proclinate orbital bristles. Body length 5–11 mm 510
- 510. Palpus black or dark brown. Abdomen of male without patches of appressed hair. Anterodorsal bristles on hind tibia irregular in length and spacing (as in Fig. 151) **Prosopea** Rondani
1 sp., *P. nigricans* (Egger); widespread; Mesnil 1944–1975: 389–391.
- Palpus yellow. Abdominal tergite 4 of male with a pair of patches of appressed hair ventrolaterally. Hind tibia of male with comb-like row of anterodorsal setae of rather uniform length (as in Figs 152–154) 544
- 511. Base of R₄₊₅ with a single large seta, which is at least as long as crossvein R-M (as in Fig. 160) 512¹³
- R₄₊₅ with several setae at base, rarely with only one fine hair 521

12 Specimens with strong proclinate ocellar bristles, four katapisternal bristles, a regular row of anterodorsal setae on hind tibia (as in Figs 153–154), one strong and one very weak anterodorsal bristle on mid tibia, and with erect, crossed apical bristles on scutellum may belong to the American genus *Lespesia* Robineau-Desvoidy, which has been accidentally introduced in Europe.

13 Any specimen with a single large seta and an additional fine hair should be keyed out under both couplet 512 and couplet 521.

512. Abdominal tergites 3 and 4 each with median discal bristles (Figs 2-3) 513
- Abdominal tergites 3 and 4 without median discal bristles or at most tergite 4 with weak discal bristles 515
513. Height of gena at most one-tenth vertical diameter of eye. Scutum with two pairs of presutural dorsocentral bristles 520
- Height of gena at least one-sixth vertical diameter of eye (Fig. 3). Scutum with three pairs of presutural dorsocentral bristles (Fig. 2) 514
514. Katepisternum with three to five (usually four, Fig. 3) bristles. Mid tibia usually with two or more anterodorsal bristles. Pedicel and tibia black **Lydella** Robineau-Desvoidy
7 spp.; widespread; Herting 1959: 427-428, Tschorsnig and Herting 1994: 53-54.
- Katepisternum with two bristles. Mid tibia with a single anterodorsal bristle. Pedicel and tibia yellow **Scaphimyia** Mesnil
1 sp., *S. takanoi* Mesnil; Japan, China.
515. Scutellum predominantly red or yellow, but if predominantly black, then at least reddish near apex 516
- Scutellum entirely black, without any trace of red or yellow in ground colour 518
516. One single reclinate upper orbital bristle present (as in Figs 8, 10), but if two, then anterior one hair-like or at least distinctly smaller than the posterior one (Fig. 9) 522
- Two or three reclinate upper orbital bristles present; if two, then the anterior one about as large as the posterior one 517
517. Ocellar setae distinctly shorter than uppermost reclinate orbital bristle (often hair-like or absent), but if as long as that bristle, then upper part of head without black setulae behind the postocular row. Katepisternum with four bristles. Abdominal tergites of male usually with patches of appressed hair ventrally (as in Fig. 196) **Drino** Robineau-Desvoidy
14 spp.; widespread; Mesnil 1944-1975: 156-197.
- Ocellar bristles well-developed, at least as long as uppermost reclinate orbital bristle. Upper part of head with one row of black setulae behind the postocular row. Katepisternum with three or four bristles. Abdomen of male without patches of appressed hair 536
518. Katepisternum with two or three bristles. Scutum dull black, without pruinescence or stripes 540
- Katepisternum with four bristles. Scutum pruinescent, before suture with four narrow dark longitudinal stripes (as in Fig. 81) 519
519. Scutum with three pairs of postsutural dorsocentral bristles. Fourth costal section distinctly shorter than sixth costal section. Ventral surface of abdominal tergite 4 of male concave, with appressed hair arising from shiny black cuticle. Hind tarsus of male usually with two rows of strong setulae ventrally **Amphicestonia** Villeneuve
2 spp.; northern Africa, Israel, Transcaucasia, Turkmenia, Tadjikistan; Mesnil 1944-1975: 428-430.

- 17 Scutum with four pairs of postsutural dorsocentral bristles. Fourth costal section slightly longer than sixth costal section. Abdomen and hind tarsus of male not as above 520
520. Lower facial margin protruding, visible in lateral view. Arista thickened on lower three-fifths or more. Height of gena one-sixth vertical diameter of eye or more. Scutum with three pairs of presutural dorsocentral bristles. Mid tibia with two or more anterodorsal bristles
Chetina Rondani, part
see couplet 482.
- Lower facial margin not visible in lateral view. Arista thickened on lower third or less. Height of gena one-tenth vertical diameter or less. Scutum with two pairs of presutural dorsocentral bristles. Mid tibia with a single anterodorsal bristle Thelyconychia Brauer et Bergenstamm
5 spp.; widespread; Mesnil 1957: 5.
521. One single reclinate upper orbital bristle present (as in Figs 8, 10), but if two, then anterior one hair-like or at least distinctly smaller than the posterior one (Fig. 9) 522
- Two or three reclinate upper orbital bristles present (Fig. 52); if two, then the anterior one at least as large as the posterior one (as in Fig. 6) 529
522. Abdomen shiny black, without pruinescence. Upper part of head with one or more rows of black setulae behind the postocular row. Costal spine as long as crossvein R-M or longer. Scutellum entirely black in ground colour Arama Richter
1 sp., *A. gobica* Richter; Turkmenia, Mongolia.
- Abdomen with pruinescence. Upper part of head usually without black setulae behind the postocular row, rarely with one row. Costal spine, if present, usually shorter than crossvein R-M. Scutellum usually yellow or reddish at least near apex 523
523. Hind tibia with comb-like row of anterodorsal setae of rather uniform length, with (as in Fig. 154) or without a longer bristle at midlength (as in Figs 152-153) 524
- Anterodorsal bristles on hind tibia irregular in length and spacing (as in Fig. 151) 527
524. Frons wider than one eye in dorsal view. Scutum with dense pruinescence, longitudinal stripes not or only slightly differentiated. Abdomen of male without patches of short dense hair. Outer vertical bristle of female absent Datvia Richter
1 sp., *D. deserticola* Richter; Armenia (Arax valley).
- Frons at most as wide as one eye in dorsal view, usually distinctly narrower. Scutum before suture with four or five distinct narrow dark longitudinal stripes (as in Fig. 81). Abdominal tergite 4 of male with a pair of patches of short dense hair ventrally or laterally. Female with a short outer vertical bristle 525
525. Parafacial strongly narrowed ventrally, at its narrowest point as wide as one-sixth to one-third of parafacial at level of base of antenna (Fig. 9). Apical scutellar bristles inclined at about 45 to horizontal (as in Fig. 127). Abdominal tergite 5 with erect hairs only (strong in male). Comb-like row of anterodorsal setae on hind tibia with a longer bristle at midlength (as in Fig. 154)
Townsendiellomyia Baranov
1 sp., *T. nidicola* (Townsend); central and southern Europe, Turkey, Transcaucasia, Altai; Mesnil 1944-1975: 116-118.

- Parafacial not or not as strongly narrowed ventrally. Apical scutellar bristles horizontal or inclined at most 30° to horizontal (as in Fig. 125). Abdominal tergite 5 at least with marginal bristles. Comb-like row of anterodorsal setae on hind tibia usually without a longer bristle at midlength (as in Figs 152–153) (sometimes present in females) 526
- 526. Subapical scutellar bristles separated from each other by 1.5 to two times distance between subapical and basal bristles. Katepisternum with four bristles. Mid tibia with one or two anterodorsal bristles **Sturmia** Robineau-Desvoidy
1 sp., *S. bella* (Meigen); widespread; Mesnil 1944–1975: 134–137.
- Subapical scutellar bristles separated from each other by about the same distance as between subapical and basal bristles. Katepisternum usually with three bristles. Mid tibia with two to four anterodorsal bristles **Blepharipa** Rondani
13 spp.; widespread; Mesnil 1944–1975: 137–147 (as *Blepharipoda* Brauer et Bergenstamm).
- 527. Frons narrower than one eye in dorsal view. Arista thickened on about basal fourth. Height of gena about one-tenth vertical diameter of eye. Mid tibia with a single anterodorsal bristle. Pedicel, scutellum, and basicosta black **Etroga** Richter
1 sp., *E. efetovi* Richter; Turkmenia; Richter 1995: 743–745.
- Frons wider than one eye in dorsal view. Arista thickened on basal half or more. Height of gena one-fifth vertical diameter of eye or more. Mid tibia with two or more anterodorsal bristles. Pedicel, scutellum, and basicosta entirely or predominantly yellow 528
- 528. Antenna not sunken in face. First flagellomere at most three times as long as pedicel. Scutellum with one pair of lateral bristles. Wing cell r_{4+5} with a short petiole. Male without proclinate orbital bristles 547
- Antenna deeply sunken in face. First flagellomere about six times as long as pedicel. Two pairs of lateral scutellar bristles present. Wing cell r_{4+5} without petiole. Male with proclinate orbital bristles **Parapexopsis** Mesnil, part
see coupler 493.
- 529. Abdominal tergites 3 and 4 each with median discal bristles 530
- Abdominal tergites 3 and 4 without median discal bristles or at most tergite 4 with weak discal bristles 536
- 530. Scutum with three pairs of postsutural dorsocentral bristles. Preapical anterodorsal seta on fore tibia as long as or longer than preapical dorsal seta (as in Figs 144, 145). Hind tibia with three dorsal preapical setae 531
- Scutum with four pairs of postsutural dorsocentral bristles. Preapical anterodorsal seta on fore tibia usually distinctly shorter than preapical dorsal seta (as in Fig. 143). Hind tibia with two or three dorsal preapical setae 533
- 531. Arista thickened on basal three-fifths or less; second aristomere at most as long as its diameter. Section of M between crossveins R-M and dM-Cu about equal to section between dM-Cu and bend of M (as in Fig. 159), the latter section longer than section between bend and apex of M (as in Fig. 162). Tegula, basicosta, and legs yellow 50

- Arista thickened on basal three-fourths to apex; second aristomere two to six times as long as its diameter (Fig. 52). Section of M between crossveins R-M and dM-Cu distinctly longer than section between dM-Cu and bend of M, the latter section shorter than section between bend and apex of M. Tegula, basicosta, and legs black (at most tibia red) 532
- 532. Lower facial margin not visible in lateral view (Fig. 52). First flagellomere not subtriangular. Scutellum with a single lateral bristle and crossed apical bristles. R₄₊₅ setose only at base. Male without proclinate orbital bristles **Crapivnicia Richter**
2 spp.; northern Caucasus (Dagestan), Israel; Richter 1995: 740–743.
- Lower facial margin turned forwards, visible in lateral view. First flagellomere subtriangular. Two pairs of lateral scutellar bristles present, apical bristles absent. R₄₊₅ setose about halfway to crossvein R-M. Male with proclinate orbital bristles **Masistylodes Mesnil**
2 spp.; Kirgizia, Tadzhikistan.
- 533. Middle basal bristle of postpronotum displaced anteriorly (as in Fig. 99) **Allophorocera Hendel**¹⁴
7 spp.; widespread; Mesnil 1944–1975: 667–671, 1394 (as *Erycilla* Mesnil), Wood 1994: 667–671.
- Middle basal bristle of postpronotum in line with outer and inner basal bristles 534
- 534. Frons with additional reclinate bristles lateral to frontal row. Mid tibia with three to five anterodorsal bristles. Tibia yellow or red **Ceromasia Rondani**
1 sp., *C. rubrifrons* (Macquart); widespread; Mesnil 1944–1975: 312–314.
- Frons without additional reclinate bristles lateral to frontal row. Mid tibia with one or (rarely) two anterodorsal bristles. Tibia black 535
- 535. Section of M between dM-Cu and bend of M shorter than section between bend and apex of M. Second costal section bare ventrally. Apical scutellar bristles horizontal, crossed, longer than half of subapical bristles. Hind tibia with comb-like row of anterodorsal setae of rather uniform length, with a longer bristle at midlength (as in Fig. 154) **Xylotachina Brauer et Bergenstamm**
2 spp.; widespread; Mesnil 1944–1975: 302–305.
- Section of M between dM-Cu and bend of M as long as or longer than section between bend and apex of M (as in Figs 155, 159). Second costal section usually with fine hairs ventrally. Apical scutellar bristles shorter than half of subapical bristles. Anterodorsal bristles on hind tibia irregular in length and spacing 536
- 536. Section of M between dM-Cu and bend of M as long as or longer than section between bend and apex of M (as in Figs 155, 159), but if shorter, then second costal section with fine hairs ventrally (as dorsally in Fig. 156) 537
- Section of M between dM-Cu and bend of M shorter than section between bend and apex of M. Second costal section bare ventrally 540

14 Included are the species formerly in *Erycilla* Mesnil.

537. Scutum with two pairs of presutural dorsocentral bristles. Parafacial at its narrowest point as wide as first flagellomere or wider. Hind tibia with three dorsal preapical setae. Parasitoids of adult Coleoptera
*Erythrocer*a Robineau-Desvoidy
 4 spp.; Europe, South of Russian Far East, Japan; Mesnil 1944-1975: 252-258.
- Scutum with three pairs of presutural dorsocentral bristles. Parafacial at its narrowest point at most as wide as first flagellomere, usually distinctly narrower. Hind tibia with two or three dorsal preapical setae. Parasitoids of larvae of Lepidoptera 538
538. Abdominal tergites each with a narrow basal stripe of pruinescence (narrower than one-third length of each tergite). Scutellum with two or three pairs of lateral bristles. Male with two proclinate orbital bristles
Eurysthaea Robineau-Desvoidy
 1 sp., *E. scutellaris* (Robineau-Desvoidy); Europe, Transcaucasia, South of Russian Far East; Mesnil 1944-1975: 258-260.
- Abdominal tergites with broad bands of pruinescence or abdomen uniformly covered with pruinescence. Scutellum usually with only one pair of lateral bristles. Male without or at most with one proclinate orbital bristle 539
539. Apical scutellar bristles crossed, inclined at 45° to horizontal or more. Pedicel black
Bactromyia Brauer et Bergenstamm
 3 spp.; widespread; Mesnil 1944-1975: 260-268.
- Apical scutellar bristles, if present, horizontal, parallel or divergent. Pedicel yellow
Rhacodinella Mesnil
 2 spp.; widespread; Mesnil 1944-1975: 253-254 (as *Erythrocer*a Robineau-Desvoidy).
540. Scutum dull black, without pruinescence or stripes. Hairs on posteroventral half of head predominantly black. Abdomen dull black, tergites 4 and 5 with broad bands of white pruinescence
Cadurcia Villeneuve
 2 spp.; Mediterranean, Turkey, Transcaucasia, Tadzhikistan; Mesnil 1944-1975: 212-219.
- Scutum pruinescent, before suture with four narrow dark longitudinal stripes (as in Fig. 81). Hairs on posteroventral half of head entirely or predominantly white. Abdomen not as above 541
541. Either ocellar setae absent or short (distinctly shorter than uppermost reclinate orbital bristle) or height of gena smaller than width of parafacial at level of base of antenna (as in Fig. 6, measured in lateral view), or both 542
- Ocellar bristles well-developed, about as long as uppermost reclinate orbital bristle or longer. Height of gena at least as great as width of parafacial at level of base of antenna 545
542. Height of gena smaller than width of parafacial at level of base of antenna (as in Fig. 6, both measured in lateral view). Apical scutellar bristles horizontal. Abdomen of male without patches of short dense hair 543
- Height of gena at least as great as width of parafacial at level of base of antenna. Apical scutellar bristles usually more or less erect. Abdominal tergite 4 of male with a pair of patches of appressed hair ventrally or laterally (as in Fig. 196) 544

543. Fourth costal section distinctly longer than sixth costal section. Ocellar setae distinctly shorter than uppermost reclinate orbital bristle. Abdominal tergite 5 and most of tergite 4 of male shiny black (except a very narrow basal pruinescent band on tergite 4) **Weingaertneriella** Baranov
1 sp., *W. longiseta* (Wulp); Japan; Mesnil 1944–1975: 199–200 (as subgenus of *Drino* Robineau-Desvoidy).
- Fourth costal section about as long as sixth costal section. Ocellar bristles well-developed, usually about as long as uppermost reclinate orbital bristle or longer. Abdomen of male not as above **Thecocarcelia** Townsend
7 spp.; widespread; Mesnil 1944–1975: 1389.
544. Facial ridge with setae on less than lower half. Scutellum more or less yellow or reddish, at least near apex. Height of gena about one-tenth to one-eighth vertical diameter of eye **Isosturmia** Townsend
4 spp.; Japan, China; Mesnil 1944–1975: 200–206 (as subgenus of *Drino* Robineau-Desvoidy), Shima 1987a.
- Facial ridge usually with setae on lower half. Scutellum entirely black in ground colour. Height of gena about one-fifth vertical diameter of eye **Blepharella** Macquart
1 sp., *B. nigra* Mesnil; Japan.
545. Mid tibia with a single anterodorsal bristle 535
- Mid tibia with two or more anterodorsal bristles 546
546. Parafacial at its narrowest point about one to four times width of first flagellomere. Pedicel yellow. Abdominal syntergite 1 + 2 usually without median marginal bristles 547
- Parafacial at its narrowest point narrower than first flagellomere, but if about as wide as first flagellomere, then pedicel black. Abdominal syntergite 1 + 2 with one pair of median marginal bristles 548
547. Facial ridge strongly prominent, convex in profile. Outer vertical bristle absent or hair-like. Wing cell r_{4+5} usually without petiole **Pexopsis** Brauer et Bergenstamm
7 spp.; widespread; Shima 1968b; Mesnil 1944–1975: 206–212.
- Facial ridge not prominent, concave or straight in profile. Outer vertical bristle present. Wing cell r_{4+5} with a short petiole 493
548. Arista thickened on basal three-fifths (Fig. 72) or more. Lateral scutellar bristles as long as four-fifths of subapical bristles or longer. Male with proclinate orbital bristles. Abdominal tergite 5 of female at most as long as tergite 4 **Masicera** Macquart
3 spp.; widespread; Mesnil 1944–1975: 305–312, Tschorsnig and Herting 1994: 61.
- Arista thickened on basal half or less. Lateral scutellar bristles usually distinctly shorter than four-fifths of subapical bristles. Male without proclinate orbital bristles. Abdominal tergite 5 of female usually distinctly longer than tergite 4, sometimes conically pointed 549
549. Back of head convex. Scutellum more or less red or yellow; apical bristles crossed. Mid tibia with three or more anterodorsal bristles **Erycia** Robineau-Desvoidy
4 spp.; widespread; Tschorsnig and Herting 1994: 57–58.
- Back of head flat. Scutellum entirely black in ground colour; apical bristles usually parallel. Mid tibia with two anterodorsal bristles **Erycesta** Herting
2 spp.; southern parts of Palaearctic.

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