

**A survey of the European species of Apanteles Först.
(Hymenoptera, Braconidae: Microgastrinae),
X. The glomeratus-group 2 and the cultellatus-group**

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J. PAPP: A survey of the European species of Apanteles Först. (Hymenoptera, Braconidae: Microgastrinae), X. The glomeratus-group 2 and the cultellatus-group. — *Annl. hist.-nat. Mus. natn. hung.* 1987 79, 207–258.

Abstract — A key to the species of the *glomeratus*-subgroup completing the entire species-group *glomeratus* (the subgroups *tibialis* and *brevicornis* are keyed in part IX) as well as to the species of *cultellatus*-group. The *glomeratus*-subgroup and the *cultellatus*-group comprise 103 *Apanteles* species (i.e. 62 European, 15 East Palaearctic and 26 Nearctic species). A new species, *Apanteles peltoneni* sp. n. ♂, is described. Original type-examinations revealed the following new synonymies: 1. *Apanteles kurdjumovi* TELENGA, 1955 (sen. name) = *Apanteles laverna* NIXON, 1974 syn. n. 2. *Apanteles salebrosus* MARSHALL, 1885 (sen. name) = *Apanteles callunae* NIXON, 1974 syn. n. 3. *Microgaster affinis* NEES, 1834 (sen. name) = *Apanteles okamotoi* WATANABE, 1932 syn. n.; = *Apanteles planus* Watanabe, 1932, syn. n. 4. *Microgaster cajae* BOUCHÉ, 1834 (sen. name) = *Microgaster difficilis* NEES, 1834 syn. n. 5. *Microgaster rubripes* HALIDAY, 1834 (sen. name) = *Apanteles coryphe* NIXON, 1974 syn. n. All species included in key as well as the synonymous names are listed in alphabetical order. Designation of lectotype for the species *Microgaster juniperatae* BOUCHÉ, 1834, and taxonomical remarks on *Microgaster picipes* BOUCHÉ, 1834. With 231 figures.

THE GLOMERATUS-SUBGROUP

The following features characterize the species of the *glomeratus*-subgroup: 1. Outer side of hind coxa smooth and shiny, at most with fine and rather disperse punctation, or uneven and rather subshiny. 2. Mesonotum punctate with variable size, notaulix either distinct or absent. Scutellum usually smooth. 3. Antenna of females about as long as body, frequently somewhat longer; that of males always longer. 4. First tergite of variable size broadening posteriorly, sometimes subparallel-sided (i.e. faintly broadening posteriorly). 5. Head, meso- and metasoma usually black or brownish black, legs either dark-coloured or with reddish yellow pattern.

KEY TO THE SPECIES OF THE GLOMERATUS-SUBGROUP

Females

- 1 (16) Hypopygium conspicuously large and pointed, usually surpassing tip of last tergite; ovipositor sheath straight (Figs 1, 14, 16, 226). Metacarp (of the European species) relatively short, about as long as pterostigma, i.e. its own length 2.5–2.7 times longer than distance between its distal end and tip of radial vein (Figs 2, 15).
- 2 (5) Third tergite on its basal half to two-thirds with posteriorly somewhat weakening rugosity; tergites 1–2 with strong rugosity.

- 3 (4) First tergite relatively large and somewhat broadening posteriorly; second tergite more transverse, 2.5–2.8 times wider behind than long medially (Fig. 60). Ovipositor sheath exerted well beyond end of metasoma, apically somewhat incrassate and here with stiff hairs (Fig. 61). For further details see couplet 68 (69)

A. hyphantriae RILEY, 1887 (!)¹⁾

- 4 (3) First tergite relatively smaller and distinctly broadening posteriorly; second tergite less transverse, about twice as wide behind as long medially (Fig. 69). Ovipositor sheath exerted, tapering to pointed apically, with upstanding hairs (Fig. 70). For further details see couplet 72 (73)

A. scabriculus REINHARD, 1880 (!!)¹⁾

- 5 (2) Third tergite smooth to polished, tergites 1–2 rugose.
6 (9) Inner spur of hind tibia longer than half basitarsus, pair of spurs clearly unequal in length (Fig. 4). Pterostigma long, 2.5–3 times as long as wide, issuing radial vein distinctly distally (Figs 5, 9).
7 (8) First tergite as long as wide at hind, distinctly broadening posteriorly (Fig. 7). Pterostigma 2.5–2.7 times as long as wide, i.e. in comparison to *A. judaicus* pterostigma somewhat less long (Fig. 5). *d2* only somewhat, 1.1–1.2(–1.3) times longer than *d1*, i.e. nervulus issuing rather near to middle of *d* (Fig. 6). Hind femur somewhat less thick, 3.5 times as long as broad (Fig. 8). Ocelli relatively small, hind imaginary tangent to fore ocellus either touching or just before hind pair of ocelli. Tegulae black, very rarely brownish yellow or brown. Wings hyaline. ♀♂: 2.8–3 mm, usually 2.8 mm. — Palaearctic Region. (= *difficilis* NEES, 1834, **syn. n.**)²⁾

A. cajae (BOUCHÉ, 1834) (!!)²⁾

- 8 (7) First tergite about 1.3–1.4 times longer than wide at hind, hardly broadening posteriorly and with slightly arched sides (Fig. 10). Pterostigma thrice as long as wide, i.e. in comparison to *A. cajae* pterostigma somewhat longer (Fig. 9). *d2* distinctly 1.5–1.8(–2) times longer than *d1*, i.e. nervulus issuing far from middle of *d* (Fig. 11). Hind femur rather thick, thrice as long as broad (Fig. 12). Ocelli relatively large, hind imaginary tangent to fore ocellus cutting hind pair of ocelli. Tegulae brownish yellow to yellow. Wings infuscate. ♀♂: 2.8–3.1 mm. — Isreal, Hungary

A. judaicus PAPP, 1970 (!!)

- Pterostigma less long, 2.1–2.5 times as long as wide. First tergite slightly more broadening posteriorly. Scutellum smooth. Third femur somewhat less thick, 3.2–3.3 times as long as broad. Otherwise similar to *A. judaicus* (and *A. spurius*). ♀♂: 2.8–3.2(–3.5) mm. — Nearctic Region (western Canada and USA)

A. electrae VIERECK, 1912 (!)

- Pterostigma less long, 2–2.5 times as long as wide; metacarp distinctly longer than pterostigma. Hind basitarsus relatively short, as long as hind tarsal joints 2–3. Scutel-

¹⁾ (!) = I have studied authenticated specimen(s), i.e. specimens identified by MARSHALL, NIXON, REINHARD, TELENGA, TOBIAS, WILKINSON (Palaearctic Region), and MARSH, MASON, MUESEBECK, WATANABE (Nearctic and East Palaearctic Region).

(!!) = I have studied either the holotype or paratype(s).

²⁾ The synonymy of *A. difficilis* (NEES) with *A. cajae* (BOUCHÉ) was mentioned by NEES himself (1834: 403). Both names were erected in 1834, however, the type of *A. cajae* still exists and is deposited in the Berlin Museum; in this museum there are two female specimens which I identified in 1986 as *A. cajae*, and D. S. Wilkinson identified them in 1936 as *A. difficilis*, and on the pin of one specimen he attached the label "Type". I do not consider these specimens as original type material from Klug's Collection (see also SHENEFELT 1972: 490), consequently, the name *A. cajae* (BOUCHÉ) is valid and *A. difficilis* (NEES) is suppressed in synonymy:

Microgaster cajae BOUCHÉ, 1834: Naturg. Insect. p. 151 ♀, type loc.: Berlin, Germany (in the original description not indicated), lectotype in Zoologisches Museum, Berlin.

Microgaster difficilis NEES, 1834: Hym. Ichtn. affin. Mon. 1: 132 ♀, type loc.: "Berolini" (Germany), syntype(s) destroyed **syn. n.**

lum polished and with a few punctuation. (*A. judaicus*: metacarp as long as pterostigma, hind basitarsus almost as long as tarsal joints 2-4, scutellum punctate, shiny to subshiny). ♀♂: 2.8-3 mm. — Nearctic Region (USA)

A. euchaetis ASHMEAD, 1897 (!)

- 9 (6) Inner spur of hind tibia shorter than or at most as long as half basitarsus, pair of spurs subequal in length (Fig. 17). Pterostigma less long, about twice as long as wide, issuing radial vein less distally from its middle (Figs 2, 15). First tergite somewhat longer than its greatest width before its hind end (Figs 3, 18).
- 10 (11) In lateral view hypopygium conspicuously surpassing end of hind tergite, clearly pointed apically (Fig. 1). Metasoma more or less compressed laterally, in dorsal view giving an elongated form to it. First tergite slightly more rounded at its hind end (Fig. 3), hind half of first tergite and entire second tergite rather longitudinally rugose-rugulose, subshiny. Notaulix distinct by crowded to confluent punctuation on mesonotum. Legs including all coxae reddish yellow, tergites 1-3(-4) with more or less reddish to reddish yellow suffusion, sternites yellow or reddish yellow except brownish to blackish last 2-3 sternites and posterior half of hypopygium. Wings subhyaline or faintly infuscate. Tegulae brown or yellowish brown, rarely blackish. ♀♂: 2-3 mm, usually 2.5-2.8 mm. — Europe, USSR (Ukraine, European part of Russia, Armenia, Georgia, Soviet Middle Asia), Israel (= *cultrator* MARSHALL, 1885)

A. acuminatus REINHARD, 1880 (!)

- Outer side of hind coxa rugose to rugose-punctate, less frequently rugulose; first tergite more broadening posteriorly and about as long as wide at hind (Fig. 227); third tergite somewhat, i.e. 1.1-1.2 times longer than second tergite. (*A. acuminatus*: hind coxa smooth, first tergite (Fig. 3) less broadening posteriorly and somewhat longer than wide at hind, third tergite distinctly, 1.3-1.5 times longer than second tergite). Hypopygium apically less pointed (Fig. 226). Coxae brownish to black, tergites black. Otherwise similar to *A. acuminatus*. ♀♂: (2.1-)2.8-3 mm. USSR (Lithuania), Hungary

A. acutulus TOBIAS, 1973

- Third tergite only somewhat longer than second tergite, i.e. second tergite less transverse; first tergite parallel-to almost parallel-sided (Fig. 13). Pterostigma long, 2.7-3 times as long as wide and issuing radial vein clearly distally from its middle (cf. Fig. 5). distinctly, 1.3-1.5 times, longer than second tergite; first tergite somewhat though distinctly broadening posteriorly, Fig. 3; margin of hypopygium straight to almost straight, Fig. 1). Colour of body similar to that of *A. acuminatus*. ♀♂: 2.6-3 mm. — Nearctic Region (eastern half of USA)

A. diacrisiae GAHAN, 1917 (!)

- 11 (10) In lateral view hypopygium less conspicuously, i.e. somewhat surpassing end of hind tergite, apically less pointed (Figs 16, 130-131). Metasoma not compressed laterally, i.e. usual in form. First tergite less rounded at its hind end (Figs 18, 133).
- 12 (13) Mesonotum punctate, densely punctate, notaulix distinct by its rugosity, rough rugosity. Head in dorsal view less transverse, 1.7-1.8 times broader than long (Fig. 132). *r1* of fore wing short, distinctly shorter than, and usually about half as long as, width of pterostigma, *cuqul* longer than *r1* (Fig. 134). Hind half of first tergite and entire second tergite rugose. Hypopygium in lateral view usually small to normal in size, sometimes and rather exceptionally enlarged so that somewhat surpassing end of last tergite (Figs 130-131). ♀♂: 2-2.5 mm. For further details see couplet 140 (141)

A. vanessae REINHARD, 1880 (!)

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- 13 (12) Mesonotum punctate of finely punctate, notaulix indistinct. Head in dorsal view more transverse, at least twice broader than long. *r1* of fore wing distinctly longer than half width of pterostigma, *cuqul* shorter than *r1* (Fig. 69 in PAPP 1986: 245 and Fig. 15). Hind half of first tergite and second tergite rather laterally rugulose-uneven, medially more or less smooth, shiny. Wings hyaline. Tegulae black. Legs dark-coloured, all coxae and femora 2-3 black(ish).
- 14 (15) Mesonotum shiny to glistening and with fine, posteriorly weakening punctuation. Hypopygium apically pointed, ovipositor sheath as long as second joint of hind tarsus (Fig. 68 in PAPP 1986: 245). Light colour of legs yellow to light brownish yellow. Body strongly built, ♀♂: 2.5-3.5(-4 mm). For further details see couplets 20 (19), 39 (40) and 180 (181)

A. kazak TELENGA, 1949 (!)

- 15 (14) Mesonotum densely and finely punctate, dull, or at most subshiny. Hypopygium apically blunt, ovipositor sheath clearly shorter than second joint of hind tarsus (Fig. 16). Light colour of legs rather infusate yellow. Body less strongly built, ♀♂: 1.6-2.8 mm, usually 2.4-2.6 mm. — Western Palearctic Region, a frequent species

A. pieridis (BOUCHÉ, 1834) (!)

— Second tergite and first tergite usually polished. Mesonotum glistening, with disperse punctuation, notaulix indicated by somewhat crowded punctuation. Penultimate 3-4 joints of antenna short, 1.4-1.3 times as long as broad (*A. pieridis* and *A. acuminatus*: penultimate 3-4 joints 1.8-1.6 times as long as broad). Femora 2-3 reddish yellow, tegulae yellowish brown. ♀♂: 2.2-2.6 mm. — Nearctic Region (Canada, USA)

A. atalantae (PACKARD, 1881) (!)

— Body a little elongated in form, mesosoma in lateral view 1.3-1.4 times as long as high. Notaulix indicated by crowded sculpture on mesonotum. Pterostigma 2.7-2.8 (-3) times longer than wide (cf. Fig. 5). Temple in lateral view as wide as eye. (*A. pieridis*: mesosoma 1.2 times as long as high; temple somewhat less wide.) Legs light coloured, femora 2-3 always, coxae usually reddish yellow. Similar to *A. acuminatus* too, but hypopygium shorter and less pointed, pterostigma long, temple wide, tergites black. ♀♂: 2.3-2.6 mm. — Japan

A. sasakii (WATANABE, 1932) (!)

- 16 (1) Hypopygium not large and rather blunt, usual in form; only in a few species somewhat surpassing tip of last tergite, usually ending before tip; ovipositor sheath usually not straight; i.e. somewhat downcurved. Metacarp variable in length.
- 17 (32) Tergites 1-2 almost smooth to smooth, frequently polished; both tergites at most laterally with weak sculpture. Inner spur of hind tibia usually longer than half basitarsus (Figs 25, 32).
- 18 (21) Tergites 1-2 weakly sculptured to almost smooth, however, inner spur of hind tibia clearly shorter or at most half as long as hind basitarsus. First tergite subparallel-sided, i.e. hardly broadening posteriorly (Figs 66-67 in PAPP 1986: 245 and Fig. 18). Hypopygium in lateral view large, surpassing end of last tergite (Fig. 68 in PAPP l.c. and Fig. 16).
- 19 (20) Mesonotum densely and finely punctate, dull or at most subshiny. Metacarp as long as pterostigma. Hypopygium apically blunt, ovipositor sheath clearly shorter than second joint of hind tarsus (Fig. 16). Pterostigma opaque light brown, veins proximally from pterostigma opaque yellowish to brownish coloured. Body less strongly built, ♀♂: 1.6-2.8 mm, usually 2.4-2.6 mm. For further details see couplets 13 (12) — 15 (14)

A. pieridis (BOUCHÉ, 1834) (!)

- 20 (19) Mesonotum shiny to glistening and with fine, posteriorly weakening punctation. Metacarp somewhat though clearly longer than pterostigma. Hypopygium apically pointed, ovipositor sheath as long as second joint of hind tarsus (Fig. 68 in PAPP 1986: 245). Pterostigma brown, vein proximally from pterostigma colourless. Body strongly built, ♀♂: 2.5–3.5(–4 mm). For further details see couplets 14 (15), 39 (40) and 180 (181)
- A. kazak** TELENGA, 1949 (!!)
- 21 (18) Tergites 1–2 and length of inner spur as in couplet 17 (32); first tergite more or less broadening posteriorly (Figs 19, 22, 26, 30). Hypopygium in lateral view not large, not surpassing end of last tergite (Figs 20, 27).
- 22 (23) First tergite conspicuously broadening posteriorly, i.e. its hind width about one-fourth to one-fifth greater than its length medially; second tergite about thrice wider behind than long, distinctly shorter than third tergite (Fig. 19). Mesonotum shiny to glistening and with posteriorly weakening fine punctation. Antennal joints 14–17 1.5 times as long as broad, antenna clearly shorter than body. Hind margin of hypopygium more or less rounded, apically blunt (Fig. 20). Wings hyaline, pterostigma brownish with a more or less distinct light basal spot. Hind femur black(ish), frequently with reddish to brownish suffusion. ♀♂: 2–3 mm, usually 2.2–2.5 mm. See also couplet 91 (92). — Germany, Hungary, Bulgaria, Israel, USSR (European Russia, Ukraine, Kazakhstan, Dagestan, Georgia)
- A. glabratus** TELENGA, 1955 (!!)
- 23 (22) First tergite usually less broadening posteriorly, never wider behind than long medially, i.e. more or less subquadrate in form; second tergite 2–2.5(–3) times wider behind than long medially (Figs 26, 30, 33, 37). Pterostigma without a light basal spot.
- 24 (29)³⁾ First tergite subquadrate in form, its median length about equal with greatest width before its hind end (Figs 22, 26, 30). Metacarp somewhat though clearly longer than pterostigma, radial vein issuing distally from middle of pterostigma (Fig. 28). Pair of hind spurs unequal to subequal in length, inner spur more or less longer than outer spur (Fig. 25).
- 25 (26) Disc of mesonotum and especially scutellum flattened, best seen in lateral view (Fig. 23). Penultimate 3–4 joints of antenna short, 1.4–1.2 times as long as broad, penultimate joint frequently subcubic. In comparison to the next two species first tergite somewhat more narrowing basally, second tergite 2–2.2 times wider behind than long medially (Fig. 22). Mesonotum anteriorly and laterally with fine though discrete punctation, shiny. Pterostigma brown or opaque brown, frequently with a basal light spot. Otherwise its colour similar to that of *A. abjectus*. ♀♂: 2.3–3.2 mm, usually 2.6–2.8 mm. — England, Germany, Czechoslovakia, Hungary
- A. isolde** NIXON, 1974 (!!)
- 26 (25) Mesonotum and scutellum not flattened, slightly convex as usually (Fig. 24). Penultimate 3–4 joints of antenna not short, at least 1.5–1.7 times as long as broad, penultimate joint never subcubic. In comparison to *A. isolde* first tergite less narrowing basally (Figs 26, 30).
- 27 (28) Second tergite more transverse, (2.8–)3–3.2 times wider behind than long, its hind margin faintly sinuate; first tergite slightly less large, widest at hind half

³⁾ The subsequent two pairs of species (*A. abjectus* / *A. gades* and *A. calodetta* / *A. evagatus*) expounded within the couplets, 27 (28) — 28 (27) and 29 (24) — 31 (30) are very difficult to determine. Good practice is required to recognize visually their specific distinctive features given in the key.

(Fig. 26); both tergites usually rugose-rugulose laterally, otherwise smooth and shiny. Penultimate joint of antenna usually 1.5–1.6 times, rarely 1.7–1.8 times, as long as broad. Spinules on outer-upper surface of hind tibia somewhat less numerous and somewhat more prickly in comparison to next species *A. gades* (Fig. 29). Black, legs reddish yellow, coxae 1–2 brownish black, coxa 3 black, hind femur with variable infuscation. Tegula black, sometimes yellow or brown. Wings hyaline or subhyaline, pterostigma brown or opaque brown. ♀♂: 2.5–3 mm. See also couplet 37 (38). — Europe. (= *complanatus* LYLE, 1916)

A. abjectus MARSHALL, 1885 (!)

— A strongly built species. Hind half of first tergite rugose, only second tergite smooth and laterally uneven, both tergites glistening. Pterostigma long, thrice as long as wide, issuing radial vein clearly distally from its middle. Mesonotum rather densely punctate, notaulix indicated by crowded sculpture. Metasoma reddish yellow, only tergites 1–2 black or dark brown, third tergite fuscous medially, last two tergites dark. (*A. abjectus*: pterostigma about 2.2–2.3 times as long as wide, issuing radial vein less distally from its middle (Fig. 28); notaulix not indicated; metasoma entirely black.) ♀♂: 2.5–3.2 mm. — Japan

A. amphypyrae WATANABE, 1934 (!!)

— Sculpture of tergites 1–2 weak, shiny; first tergite somewhat, i.e. 1.2 times, longer than wide at hind. Otherwise very similar to *A. abjectus*. ♀: 2.5 mm. — Japan

A. aphae WATANABE, 1934 (!)

— First tergite somewhat more narrowing basally, i.e. tergite less subquadrate. Notaulix indicated by slightly crowded punctation. Tegula yellow. Otherwise similar to *A. abjectus*. ♀♂: 2.5–2.7 mm. — Nearctic Region (USA: New Jersey)

A. cerurae MUESEBECK, 1926 (!)

28 (27) Second tergite less transverse, about 2.2–2.4 times wider behind than long, its hind margin strongly sinuate; first tergite slightly larger, widest at its middle (Fig. 30); both tergites polished. Penultimate joint of antenna usually twice, rarely 1.7–1.8 times, as long as broad. Spinules on outer-upper surface of hind tibia somewhat more numerous and somewhat less prickly in comparison to previous species *A. abjectus* (Fig. 31). Colour of body agreeing with that of *A. abjectus*. Pterostigma with a weak to almost indistinct pale basal spot. ♀♂: 3–3.2 mm. — Germany, Hungary

A. gades NIXON, 1974 (!!)

— Inner spur of hind tibia shorter than half basitarsus. *r1* clearly longer than *cuq1*, issuing more distally from pterostigma. ♀♂: 2.6–2.8(–3) mm. (*A. gades*: inner spur of hind tibia longer than half basitarsus, *r1* slightly longer than *cuq1*, issuing less distally from pterostigma.) — Nearctic Region (Canada, USA)

A. smerinthi RILEY, 1881 (!)

29 (24) First tergite less subquadrate in form, its median length somewhat, i. e. 1.2–1.25 times, longer than hind width (Figs 33, 37). Metacarp somewhat though clearly shorter than pterostigma, radial vein issuing from middle of pterostigma (Fig. 38.) Pair of hind spurs equal in length (Fig. 32).

30 (31) First tergite hardly broadening posteriorly (Fig. 33); third tergite only somewhat longer than second tergite. In lateral view field of ocelli somewhat more prominent, temple (behind eye) slightly narrowing ventrally (Fig. 34). Ocelli small, distance between fore and a hind ocelli greater than diameter of an ocellus, hind pair of ocelli somewhat nearer to eye than to each other, i.e. POL > OOL (Fig. 35). Penultimate joint of antenna 1.5 times as long as broad. *Cu* of hind wing relatively small, *n. bas.* and *r1* about equal in length (Fig. 36). Body brownish black

to dark brown. Tegula yellow to brown. Legs reddish yellow, coxae brown. Wings hyaline. ♀♂: 2–2.2 mm. — USSR (Turkmenia), Jordan

A. evagatus PAPP, 1973 (!)

- 31 (30) First tergite clearly broadening posteriorly (Fig. 37), third tergite 1.5 times longer than second tergite. In lateral view field of ocelli less prominent than usually, temple (behind eye) not narrowing ventrally, i.e. evenly wide (Fig. 39). Ocelli medium-sized, distance between fore and a hind ocelli shorter or, less frequently, as long as diameter of an ocellus, distance between hind pair of ocelli and that between hind ocellus and eye equal to subequal, i.e. POL = OOL (Fig. 40). Penultimate joint of antenna subcubic to 1.3 times as long as broad. *Cu* of hind wing relatively large, *r1* about 1.5–2 times longer than *n. bas.* (Fig. 41). Body black. Tegula black. Legs black or brown, hind tibia yellow and darkening distally. Wings glass clear. ♀♂: 2.2–2.4 mm. — Sweden

A. calodetta NIXON, 1974 (!)

- 32 (17) Tergites 1–2 rugose to scabrose, at most with smooth fields.
 33 (46) Mesonotum antero-posteriorly with weak to very weak punctation, shiny to glistening.
 34 (35) Second tergite conspicuously less transverse, about 1.5 times as wide behind as long medially: first tergite long and moderately broadening posteriorly, 1.2–1.3 times longer than wide at hind (Fig. 42). Penultimate joint of antenna 1.3–1.4 times as long as broad. Pterostigma issuing radial vein somewhat distally from its middle, *r1* somewhat longer than *cuqul* (Fig. 43). Metasoma reddish yellow, hind half of first tergite and sometimes middle of second tergite black to blackish. Legs entirely reddish yellow. Antenna reddish yellow, last flagellar joints 6–8 darkening. Tegula yellow. ♀♂: 2.5–3 mm. — USSR (Far East Maritime Territory)

A. kaspanyi TOBIAS, 1976 (!)

— Second tergite about twice wider behind than long medially, first tergite only slightly longer than wide at hind. Penultimate joint of antenna 1.8–2 times as long as broad. *r1* more or less longer than *cuqu 1*. Metasoma black. Legs reddish yellow, hind coxa black. ♀♂: 2.5–3 mm. — Nearctic Region (USA)

A. pyrophilae MUESEBECK, 1926 (!)

- 35 (34) Second tergite more transverse, about 2.5–2.8(–3) times as wide behind as long medially; first tergite usually somewhat longer than wide at hind (Fig. 45), or slightly broader behind than long medially (Fig. 47). Penultimate joint of antenna at least 1.6–1.7 times as long as broad. *r1* usually more or less longer than *cuqul* (Fig. 46).
 36 (41) First tergite less broadening posteriorly (Fig. 26). Pterostigma relatively wide, about 2–2.2 times longer than wide, *r1* usually slightly to rather indistinctly longer than *cuqul* (Fig. 28).
 37 (38) First tergite subquadrate in form, i.e. as long medially as wide behind (Fig. 26,) its hind half together with second tergite usually smooth to polished, and rather exceptionally its lateral sculpture more or less strong and extending to middle. Inner spur of hind tibia longer than half basitarsus. Second tergite transverse, (2.8–)3–3.2 times wider behind than long. Penultimate joint of antenna 1.5–1.6 times, rarely 1.7–1.8 times, as long as broad. Legs reddish yellow, coxae dark. Tegula black, sometimes yellow or brown. For further details see couplet 27 (28)

A. abjectus MARSHALL, 1885 (!)

— First tergite less subquadrate, slightly though distinctly longer than broad at hind. Second tergite less transverse, about twice wider behind than long medially. (*A. abjectus*: second tergite 2.8–3.2 times wider behind.) Inner spur of hind tibia shorter than half basitarsus. Tegula yellow. ♀♂: 2.6–2.8(–3) mm. — Nearctic Region (Canada, USA)

A. smerinthi RILEY, 1881 (!)

- 38 (37) First tergite longer than wide at hind (Figs 66–67 in PAPP 1986: 245), its hind half together with second tergite rugo-rugulose to subrugulose. Inner spur of hind tibia shorter than half basitarsus.
- 39 (40) Penultimate joint of antenna subcubic to somewhat, i.e. 1.1–1.3 times, longer than broad. *rl* 1.4–1.5(–1.6) times as long as *cuqul* (Fig. 69 in PAPP 1986: 245). In lateral view hypopygium large, ovipositor sheath about as long as second joint of hind tarsus (Fig. 68 1.c.). Legs dark coloured, hind and middle femora black. Pterostigma brown. ♀♂: 2.5–3.5(–4) mm. For further details see couplets 14 (15), 20 (19) and 180 (181)

A. kazak TELENGA, 1949 (!)

- 40 (39) Penultimate joint of antenna 1.6–1.8 times as long as broad. *rl* at most somewhat, i.e. 1.1–1.2 times, longer than *cuqul* (Fig. 44). In lateral view hypopygium less large, usual in size, ovipositor sheath at most as long as half second joint of hind tarsus. Legs yellow, coxae 1–2 brown, coxa 3 black. Tegula yellow. Pterostigma opaque yellow. ♀♂: 2.5–2.8 mm. — Japan

A. suzumei WATANABE, 1932 (!)

- 41 (36) First tergite more broadening posteriorly (Figs 45, 47). Pterostigma relatively less wide, about 2.5 times longer than wide. *rl* distinctly (Fig. 46) or slightly (Fig. 21) longer than *cuqul*. At least hind coxa black or blackish.
- 42 (43) First tergite 1.1–1.25 times as long as broad at hind, in comparison to next species tergite somewhat less large; second tergite somewhat less transverse, 2.8–3 times wider behind than long medially, 3rd tergite 1.3–1.4 times longer than second tergite (Fig. 45). Inner spur of hind tibia just shorter than half basitarsus. Penultimate joint of antenna 1.6–1.8 times as long as broad. Pterostigma issuing radial vein usually less distally (Fig. 46). Ocelli in a low triangle, posterior imaginary tangent to fore ocellus cutting to distinctly touching hind pair of ocelli. Legs reddish yellow, hind coxa (almost) entirely to (hardly) at its base with dark suffusion. Tergites black or frequently tergites 2–3 to 2–7 reddish to reddish yellow with more or less dark suffusion. Pterostigma usually light brown. ♀♂: 2.5–3 mm. — Palaearctic Region. (= *euphorbiae* BOUCHÉ, 1834; = *harpyiae* NIEZABITOWSKI, 1910; = *okamotoi* WATANABE, 1932 **syn. n.**; = *planus* WATANABE, 1932 **syn. n.**; = *vinulae* BOUCHÉ, 1834)

A. affinis (NEES, 1834) (!)⁴⁾

- 43 (42) First tergite as long as broad at hind, or wider at hind than long; second tergite somewhat more transverse, 3–3.2 wider at hind than long medially (Figs 19, 47). Inner spur of hind tibia longer than half basitarsus. Pterostigma issuing radial vein more distally (Fig. 21). Ocelli in a high triangle, hind imaginary tangent to fore ocellus at most touching hind pair of ocelli.

⁴⁾ My synonymization is based on the examination and comparison of authenticated specimens of the three taxa in question as well as their original description:

Microgaster affinis NEES, 1834: Hym. Ichn. affin. Mon. 1: 176 ♀♂, type loc: "prope Sickershausen" (Federal Republic of Germany), syntypes destroyed. Neotype in Zoological Museum, Berlin (designated by WILKINSON 1945).

Apanteles okamotoi WATANABE, 1932 (new name for *A. smerinthi* OKAMOTO, 1921): Ins. matsum. 7: 86 **syn. n.**

Apanteles planus WATANABE, 1932: Ins. matsum. 7: 84 ♀♂, type loc.: "Hokkaido (Sapporo)" (Japan), holotype in Entomological Laboratory, Hokkaido University, Sapporo; **syn. n.**

- 44 (45) First tergite somewhat broader at hing than long medially, minute deviation possible, in comparison to *A. affinis* and *A. glabratus* tergite large, second and third tergites of equal length (Fig. 47). Penultimate joint of antenna 2–2.2 times as long as broad, antenna about as long as body. Tergites 1–2 rugose. Metasoma reddish yellow, first tergite black to blackish brown, second tergite sometimes infusate. Tegula yellow. Legs reddish yellow. In comparison to next species body strong, ♀♂: 3–3.2 mm. — Japan. (= *smerinthi* MIYOSHI, 1923 nec RILEY, 1881 or OKAMOTO, 1921)

A. miyoshii WATANABE, 1932 (!)

- Penultimate three joints of antenna subcubic, only slightly longer than broad. Mesonotum shiny to glistening though with fine to very fine punctation. Tegula yellow (*A. affinis*: tegula black). Otherwise similar to *A. affinis*. ♀♂: 2.3–2.7 mm. — Nearctic Region (Canada, USA)

A. acaudus PROVANCHER, 1886 (!)

- Second tergite about twice wider behind than long medially. Third tergite rugose-rugulose baso-laterally, first and second tergite rugose (*A. affinis*: third tergite polished, first tergite rugo-rugulose, second tergite rugulose to uneven). Tegula bright yellow (*A. affinis*: black or blackish brown to brown). ♀♂: 2.5–3 mm. — Nearctic Region (USA)

A. pyrophilae MUESEBECK, 1926 (!)

- 45 (44) First tergite conspicuously broadening posteriorly, i. e. its hind width about one-fourth to one-fifth greater than its length medially: in comparison to *A. miyoshii* tergite usual in size (Fig. 19). Penultimate joint of antenna 1.5 times as long as broad, antenna shorter than body. Metasoma black. Legs dark coloured, hind and middle femora black(ish), frequently with reddish to brownish suffusion; tibiae and tarsi yellowish brown variably infumate. Disc of mesonotum usually punctate, however, punctation frequently weak to very weak, surface of mesonotum shiny to glistening. For further details see couplets 22 (23) and 91 (92)

A. glabratus TELENGA, 1955 (!!)

- 46 (33) Mesonotum with distinct sculpture, i. e. with discrete to more or less confluent punctation, rugulose to rugose, shiny to dull or pruinose.
- 47 (76) Third tergite with at least its basal half and antero-posteriorly somewhat weakening rugose-rugulose sculpture. Tergites 1–2 usually with strong rugosity.
- 48 (53) Metasoma reddish yellow (sternites rather yellow) excepting tergites 1–2 or 1–3(–4). Third tergite usually smooth, sometimes its basal third to fourth with faint though distinct sculpture.
- 49 (50) Mesosoma reddish yellow; propodeum and metapleuron always black, mesopleuron and middle lobe of mesonotum sometimes with variable dark to blackish suffusion. Head in dorsal view cubic, distinctly broader than mesonotum between tegulae (Fig. 2 in PAPP 1986: 243). ♀♂: (1.7–)2.5–3 mm. For further details see in the *tibialis*-subgroup, couplet 2 (3) (PAPP 1986)

A. ferrugineus MARSHALL, 1885 (!)

- 50 (49) Mesosoma black, never with reddish yellow colour. Head in dorsal view transverse and never distinctly broader than mesonotum between tegulae.
- 51 (52) Mesonotum with discrete punctation, interspaces shiny, notaulix indistinct. Head relatively less transverse, 1.7–1.8 times broader than long. In lateral view mesosoma somewhat elongated, 1.6–1.7 times as long as high. Third tergite rather exceptionally (rugose-)rugulose basally. ♀♂: (2.2–)2.7–3.2 mm. For further details see in the *tibialis*-subgroup, couplet 5 (6) (PAPP 1986)

A. analis (NEES, 1834)

- 52 (51) Mesonotum with crowded to almost confluent punctation, notaulix distinct by more confluent punctation, mesonotum faintly shiny. Head transverse, twice broader than long. In lateral view mesosoma not elongated, 1.3–1.4 times as long as high. Third tergite rugose to rugulose basally. ♀♂: 2.2–2.7 mm. — China (Hunan, Mandzhuria)

A. anomidis WATANABE, 1942 (!)

- 53 (48) Metasoma black, at most (in a few species) tergite(s) 3(–4) either laterally or posteriorly nearly entirely rusty to reddish yellow.
- 54 (57) Hypopygium weakly sclerotized, laterally with more or less longitudinal creases as well as medio-longitudinally infolded. Ovipositor sheath at least as long as hind basitarsus. Two aberrant species of the *laevigatus*-group.
- 55 (56) Mesonotum dull, with discrete punctation, interspaces with microsculpture (Fig. 3 in PAPP 1978: 268). Ovipositor sheath short, as long as third basitarsus. Discoidal cell wider, 1.3 times wider than high (Fig. 45 1.c.). Second tergite distinctly shorter than third tergite, its sculpture clearly weaker than that of first tergite. Third tergite with very weak sculpture, i.e. rugulose to uneven. Penultimate two joints of antenna 1.6–1.8 times as long as brown. Body somewhat elongated. ♀: 2.8–3 mm. A species of the *laevigatus*-group with transitional features (propodeum rugose, mesonotum + tergites 1–2 rugose to rugulose, tergite 3 rugulose to uneven, ovipositor sheath short) towards *glomeratus*-group. For further details see couplets 17 (18) within *laevigatus*-group (PAPP 1978) and 134 (135)

A. artissimus PAPP, 1971 (!!)

- 56 (55) Mesonotum less dull, with crowded to confluent and strong punctation. Ovipositor sheath somewhat longer than hind tibia. Discoidal cell less wide, at most slightly wider than high. Tergites 2–3 equal in length; tergites 1–3 roughly rugose, rugosity of tergites 2–3 slightly weaker than that of tergite 1. Penultimate joint of antenna rather transverse. Body normal, not elongated. ♀: 3 mm. A species of the *laevigatus*-group with transitional features (rough sculpture of body, distinctly broadening first tergite) towards the *glomeratus*-group. For further details see couplet 14 (15) within the *laevigatus*-group (PAPP 1978)

A. scaber TOBIAS, 1976 (!)

- 57 (54) Hypopygium strongly sclerotized, laterally without creases, medio-longitudinally not infolded. Ovipositor sheath short.
- 58 (61) Pair of spurs of hind tibia unequal in length, inner spur distinctly longer than half basitarsus, outer spur shorter than to almost as long as half basitarsus (Fig. 50). Pterostigma rather narrow, about 3–3.5 times as long as wide and issuing radial vein distinctly distally from its middle, *r*1 more or less directed outwards (Fig. 51).
- 59 (60) Penultimate joint of antenna 1.4–1.6 times as long as broad (Fig. 48). Basitarsal joint of hind tarsus relatively long, i.e. tarsal joints 2–5 1.4–1.5 times longer together than basitarsus (Fig. 49). Mesonotum dull and slightly less roughly sculptured though rugosity more crowded, notaulix indicated by sculpture. Hind femur black, hind tibia rather yellowish. ♀♂: 2.7–3 mm. — Bulgaria, Czechoslovakia, Hungary, Sweden, Switzerland

A. setebis NIXON, 1974 (!!)

— Mesonotum subshiny to faintly pruinose, its punctation weak and shallow, notaulix not indicated by crowded sculpture. Hind femur yellow, tegula also yellow (*A. setebis*: black). ♀♂: 3 mm. — Nearctic Region: Canada (Quebec), USA (eastern half)

A. murtfeldtae ASHMEAD, 1897 (!)

- 60 (59) Penultimate joint of antenna twice to almost twice as long as broad (Fig. 52). Bastiarsal joint of hind tarsus relatively short, i.e. hind tarsal joints 2–5 only 1.3 times longer together than basitarsus (Fig. 53). Mesonotum somewhat shiny, rugosity somewhat less crowded and with more or less punctate elements, notaulix somewhat less indicated by crowded sculpture. Hind femur usually reddish yellow and apically black(ish), dark colour frequently variably extended. ♀♂: 3–3.5 mm. See also couplets 93 (94) and 107 (108). — Bulgaria, Czechoslovakia, Hungary, Finland, Ireland
A. callimone NIXON, 1974 (!)

— Mesonotum with dense and discrete punctation, shiny to subshiny, notaulix faintly indicated by crowded punctation. hind femur yellow, tegula also yellow to bright yellow (*A. callimone*: black to brownish black). ♀♂: 3–3.2 mm. — Nearctic Region (USA)

A. fiskei VIERECK, 1910 (!)

- 61 (58) Pair of spurs of hind tibia subequal in length, inner spur somewhat longer than outer spur and shorter than half basitarsus (Fig. 64). Pterostigma usually not narrow; *r1* usually not directed outwards (Fig. 63).
- 62 (63) Penultimate (or 17th) joint of antenna either cubic or at most somewhat longer than broad; antennal joints 16–15 also short, 1.1–1.2 times as long as broad (Fig. 54). First tergite conspicuously broadening behind, its hind width 1.2–1.3 times greater than medially long; third tergite evenly and nearly entirely rugose, this sculpture hardly weaker than that of tergites 1–2 (Fig. 11 in Papp 1986: 243). ♀: 2.8–3 mm. Outer side of hind coxa usually with strong and almost confluent punctation, less frequently with fine punctation. For further details see couplet 16 (17) in *tibialis*-subgroup (PAPP 1.c.)
A. inductus PAPP, 1973 (!)

— Penultimate three (or 17–15th) joints of antenna subcubic, hardly longer than broad. Outer side of hind coxa uneven or subrugulose. Tergites 1–3 with somewhat weaker rugosity. ♀: 2.8–3 mm. Very similar to *A. inductus*. — Nearctic Region (Canada, USA)

A. cyaniridis RILEY, 1889 (!)

- 63 (62) Penultimate (or 17th) joint of antenna at least 1.3–1.4 times longer than broad; antennal joints 16–15 distinctly longer than broad (Figs 62, 65). First tergite broadening behind in usual size, its hind width not greater than median length (Figs 55, 60, 66, 69), third tergite usually less strongly sculptured than tergites 1–2.
- 64 (67) Scutellum dull to subshiny, with fine though distinct and usually more or less dense punctation. Body relatively less strong, rather exceptionally longer than 2.5 mm.
- 65 (66) Mesonotum with rather fine and very dense rugosity giving it a characteristic sooty dullness. Maxillar palp 5-jointed, i.e. 5th ant 6th joints fused (Fig. 56). Head in dorsal view less transverse, 1.7–1.8 times broader than long (Fig. 13 in PAPP 1986: 243). Discoidal cell one-fourth wider than high, *r1* and *cuqul* about equal in length (Fig. 12 1.c.). Third tergite anteriorly rather weakly sculptured, its extent variable. A dark-coloured species. Wings subhyaline or faintly fumous, pterostigma opaque brownish. Femora and tegula black. Antenna black. ♀♂: (2–)2.3–2.6 mm. See also couplets 17 (16) — 18 (19) in *tibialis*-subgroup (1.c.). — A frequent species in Europe. (= *opaculus* THOMSON, 1895, !; ? = *sessilis* FOURCROY, 1785⁵); = *subcutaneus* LINNÉ, 1758 sensu ZETTERSTEDT, 1840)
A. tetricus REINHARD, 1880 (!)

⁵) The name *Ichneumon sessilis* FOURCROY seems to refer either to the species *A. tetricus* REINHARD (see also footnote No. 7 in PAPP 1986: 229), or to the species *A. popularis* (HALIDAY) and *A. juniperatae* (BOUCHÉ) considering GEOFFROY' (1762), FOURCROY's (1785) as well as SPINOLA's (1808) and NEES's (1834) descriptions.

- 66 (65) Mesonotum with fine and dense punctation, subshiny to feebly dull (without sooty dullness). Maxillar palp 6-jointed as usually (Fig. 59). Head in dorsal view transverse, twice broader than long (Fig. 57). Discoidal cell indistinctly wider than high, *rl* somewhat longer than *cuqul* (Fig. 58). Not so dark-coloured as previous species. Wings hyaline, pterostigma brownish to brown. Femora yellow or reddish yellow, tegula brownish yellow. First seven to nine antennal joints yellow to dark brownish below, further joints black. ♀♂: 2–2.5 mm. — Hungary, Yugoslavia, USSR (Moldavia, Ukraine), Japan

A. ocneriae IVANOV, 1899 (!)

- First tergite subparallel-sided, i.e. hardly broadening posteriorly. Mesonotum with fine and less dense punctation, subshiny. Legs including coxae yellow, tegula yellow, Scape and pedicel yellow, flagellum brown. ♀♂: 2–2.1 mm. — Nearctic Region. (eastern USA)

A. empretiae VIREECK, 1913 (!)

- Scutellum weakly punctate and shining. Fifth joint of fore tarsus with a curved spinule. Antennae black, at least basally with brownish or yellowish tint. Coxae black. (*A. ocneriae*: fifth joint of fore tarsus without spinule, coxae 1–2 yellow). ♀♂: 2–2.5 mm. — Japan

A. schaeferi MARSH, 1979

- First tergite less broadening posteriorly, i.e. 1.5 times wider behind than at base. Penultimate three joints of antenna cubic-subcubic, at most somewhat longer than broad. (*A. ocneriae*: first tergite 1.7 times wider behind than at base, penultimate three joints of antenna distinctly longer than broad.) ♀♂: 2–2.5 mm. — Nearctic Region (USA: Arkansas, Missouri, Texas)

A. sorghiellae MUESEBECK, 1933 (!)

- 67 (64) Scutellum smooth and shiny to glistening, at most with a few and disperse fine punctures. Body usually and relatively strong, corporal length above 2.5 mm.
- 68 (69) First tergite relatively large and somewhat broadening posteriorly; second tergite more transverse, 2.5–2.8 times wider behind than long medially (Fig. 60). Penultimate joint of antenna 1.8–2 times, usually twice, as long as broad (Fig. 62). Ovipositor sheath exerted well beyond end of metasoma, apically somewhat incrassate and here with stiff hairs; hypopygium rather large (Fig. 61). Ocelli large, posterior imaginary tangent to fore ocellus cutting hind pair of ocelli, distance between fore and a hind ocelli about equal with diameter of an ocellus. Mesonotum punctate, densely punctate, notauxil indicated by crowded punctation. Legs reddish yellow, coxae black. Wings hyaline. ♀♂: 3–3.8 mm, usually 3–3.3 mm. See also couplet 3 (4). — Nearctic Region: Canada, USA, Mexico. Palaearctic Region: England, Nederland, Germany, Czechoslovakia, Hungary, Yugoslavia, Japan. Supposedly widely distributed in the Holarctic Region

A. hyphantriae RILEY, 1887 (!)

- Second tergite 2.4–2.5 times wider behind than long medially. Ovipositor sheath not incrassate apically. Very similar to *A. hyphantriae*. ♀♂: 3–3.2 mm. — Japan, China (Mandchoukuo)

A. dictyoplocae WATANABE, 1940 (!!)

- 69 (68) First tergite smaller or usual in size, distinctly broadening posteriorly; second tergite less transverse, about twice as wide behind as long medially (Figs 66, 69). Penultimate joint of antenna about 1.4–1.8(–2) times as long as broad. Ovipositor sheath not incrassate apically (Fig. 70).
- 70 (71) Fifth joint of fore tarsus with a spinule (seen rather laterally, Fig. 67). First tergite broad, about as wide as to somewhat wider than long medially; second tergite

somewhat less transverse, usually about twice as wide behind as long medially (Fig. 66). Penultimate joint of antenna 1.4–1.8(–2) times as long as broad, usually 1.7–1.8 times. Temple in dorsal view rounded (Fig. 68). Hind and middle femora with variable colour, hind femur entirely black to entirely reddish yellow, middle femur on its basal half to two-thirds black(ish) to entirely reddish yellow. Wings hyaline, pterostigma opaque brownish to dark brown, basally with an indistinct pale spot. ♀♂: 2.5–3.2 mm. Outer side of hind coxa usually smooth, sometimes roughened; see also couplet 19 (18) in the *tibialis*-subgroup (PAPP 1986). — Frequent in the Palaearctic Region, introduced into the Nearctic Region. (= *creatus* BALEVSKI, 1980;⁶) = *solitarius* RATZEBURG, 1844)

A. melanoscelus (RATZEBURG, 1844) (!)

— First tergite less broad (1.1–)1.3–1.4 times as long as broad at hind (Figs 182–183). Penultimate joint of antenna 1.4–1.5 times as long as broad. Third tergite usually smooth, only exceptionally with rather fine sculpture on its anterior half to third. For further details see couplet 178 (179)

A. jucundus MARSHALL, 1885 (!)

71 (70) Fifth joint of fore tarsus without spinule as usually. First tergite less broad, somewhat less wide behind than long medially and at most as wide behind as long; second tergite somewhat more transverse, 2–2.5 times, usually 2.1–2.3, wider behind than long medially (Fig. 69). Penultimate joint of antenna 1.4–1.6(–1.8) times as long as broad. Hind and middle femora reddish yellow.

72 (73) Temple in dorsal view strongly rounded (Fig. 71). Hypopygium in lateral view strongly produced and pointed, usually surpassing tip of last tergite; ovipositor sheath about as long as hind basitarsus and with stiff, upstanding hairs (Fig. 70). Penultimate joint of antenna 1.4–1.6 times as long as broad. Mesonotum shiny to subshiny, with weak to very weak punctation, punctation frequently rather confluent giving an impression of uneven-subrugulose surface. hind and middle femora reddish yellow or yellow, at most rarely with dark suffusion. Wings hyaline, exceptionally subhyaline; pterostigma brown or dark brown. ♀♂: 2.8–3.2 mm, usually about 3 mm. See also couplet 4 (3). — Western Palaearctic Region. (? = *eguchi* WATANABE, 1935; ? = *olenidis* MUESEBECK, 1922)⁷

A. scabriculus REINHARD, 1880 (!)

— Third tergite anteriorly rugulose-subrugulose; second tergite less transverse (Fig. 203), twice wider behind than long medially, third tergite hardly longer than second tergite (*A. scabriculus*: second tergite transverse, 2.5–2.7 times wider behind than long medially, third tergite longer than second tergite). Penultimate joint of antenna 1.2–1.3 times as long as broad. Body strongly built, ♀♂: 3.2–3.4 mm. See also couplet 209 (210). — England, Austria

A. errator NIXON, 1974 (!)

— Temple in dorsal view less strongly rounded. Species with rather robust body. Pterostigma wide, 2.1–2.2 times longer than wide, *rl* directed somewhat outwards and as long as *cuqul*. First tergite large and characteristically broadening posteriorly (see

⁶) On the basis of its original description *A. creatus* BALEVSKI seems to be a junior synonymous name of *A. melanoscelus*, (RATZEBURG). The single difference between the two descriptions is confined to the wings: that of *A. melanoscelus* hyaline, that of *A. creatus* fumous. The specimens with fumous wings are rather an aberrant form of the same taxon and not a separate species.

⁷) On the basis of authenticated specimens of *A. eguchi* and *A. olenidis* as well as of their original descriptions, I guess that these two names refer to *A. scabriculus*. Mesonotum of *A. eguchi* with somewhat stronger punctation, body of *A. olenidis* somewhat smaller than *A. scabriculus*. Both forms have strong hypopygium and well-projecting ovipositor sheath as in *A. scabriculus*. If the conspecificity of these forms will be proved on the basis of type-examinations, the species *A. scabriculus* has a Holarctic distribution.

arrow on Fig. 72), second tergite distinctly shorter than third tergite (Fig. 72). Penultimate joint of antenna 1.3–1.4 times as long as broad. (*A. scabriculus*: pterostigma about 2.5 times as long as wide, *r1* not directed outwards but perpendicular to fore margin of pterostigma and somewhat longer than *cuqul*; second tergite only slightly shorter than third tergite.) ♀: 3.1–3.5 mm. — Nearctic Region (eastern USA, Canada: Ottawa)

A. clisiocampae ASHMEAD, 1903 (!)

— Temple in dorsal view less strongly rounded. Third tergite rather medially and on its basal fifth to third rugulose-subrugulose. First tergite broadening posteriorly and as long as to somewhat longer than wide at hind (Fig. 73). Body, in comparison to *A. scabriculus*, less strong. *r1* and *cuqul* equal in length. ♀♂: 2.4–2.7 mm. Also similar to *A. jucundus* MARSHALL, see couplet 206 (207). — Nearctic Region (Canada)

A. mahoniae MASON, 1975 (!!)

73 (72) Temple in dorsal view less strongly rounded as usually (cf. Fig. 68). Hypopygium in lateral view not produced, rather truncate and ending before tip of last tergite; ovipositor sheath shorter than hind basitarsus and with rather short and adpressed hairs (Fig. 74). Penultimate joint of antenna 1.3–1.4(–1.5) times as long as broad. Hind and middle femora black.

74 (75) Anterior half to two-thirds of third tergite distinctly rugose-subrugose. Metacarp distinctly longer than pterostigma, its own length four times greater than distance between its distal end and tip of radial cell (Fig. 75, see arrows). *r1* perpendicular to fore margin of pterostigma (Fig. 75), or at most slightly oblique to it (i.e. slightly directed outwards), usually clearly longer than *cuqul*. Wings hyaline, less frequently subhyaline to weakly fumous. ♀♂: 2.7–3 mm. See also couplet 88 (87). — England, Sweden, Switzerland, North Italy, Hungary, Bulgaria. (= *callunae* NIXON, 1974, !, syn. n.⁸⁾

A. salebrosus MARSHALL, 1885 (!)

— Third tergite latero-basally rugo-rugulose otherwise smooth. Second tergite less transverse, twice wider behind than long medially, third tergite minutely longer than second tergite. Tegula yellow. Legs yellow to reddish yellow. (*A. salebrosus*: third tergite distinctly longer than second tergite, tegula black to brown, legs dark coloured.) ♀♂: 2.5–3 mm. — Nearctic Region (eastern Canada and USA)

A. pyrophilae MUESEBECK, 1926 (!)

75 (74) Third tergite at most on its anterior fifth to third and rather at its middle rugulose to uneven, usually almost entirely smooth. Metacarp about as long as pterostigma, its own length at most thrice greater than distance between its distal end and tip of radial cell (Fig. 207, see arrows). *r1* oblique to fore margin of pterostigma, i.e. distinctly directed outwards, usually slightly to indistinctly longer than *cuqul* (Fig. 207). Third tergite usually smooth and shiny, sometimes its basal half to two-thirds rugo-rugulose to subrugulose. Wings weakly fumous to subhyaline, less frequently hyaline. See also couplet 217 (218). ♀♂: 2.5–2.8 mm. — Germany, Nederland, Switzerland, Austria, Czechoslovakia, Hungary, Spain, Italy, Yugoslavia, Bulgaria, Turkey, Israel, Japan

A. ancilla NIXON, 1974 (!!)

76 (47) Third tergite smooth to polished, i.e. without conspicuous sculpture; at most with weak to very weak rugosity / more or less confluent punctation close at its base.

⁸⁾ The name *A. callunae* is an evident junior synonym of *A. salebrosus*:

Apanteles salebrosus MARSHALL, 1885: Trans. R. ent. Soc. Lond. p. 158 (in key) and p. 164 (description) ♀, type loc: "Scotland", syntypes in British Museum (Nat. Hist.), London.

Apanteles callunae NIXON, 1974: Bull. ent. Res. 64: 462 (in key) and 470 (description) ♀♂, type loc.: "England: Sussex, Ashdown Forest", holotype (♀) in British Museum (Nat. Hist.), London; syn. n.

- 77 (132) Inner spur of hind tibia distinctly longer than half basitarsus, pair of spurs of hind tibia usually unequal in length (cf. Fig. 25).
- 78 (115) First tergite short, about as long as wide at hind (minute deviations feasible), and distinctly broadening posteriorly (Figs 79, 85–86, 92, 95, 97, 100). Punctuation of mesonotum with variable size and strength.
- 79 (106) Species with dark-coloured legs: hind femur entirely, middle femur basally to almost entirely black or blackish, at most hind femur with more or less reddish suffusion; light colour of legs rather soft.
- 80 (89) Pterostigma relatively wide, 2–2.2(2.3) times longer along its fore margin than wide; radial vein issuing relatively less distally from its middle (Figs 38, 75, 77, 81).
- 81 (82) Temple in dorsal view strongly rounded to rather constricted; ocelli relatively large, hind imaginary tangent to fore ocellus transecting hind pair of ocelli (Fig. 78). Penultimate joint of antenna 1.5–2 times, usually 1.7–1.8 times, as long as broad. Second tergite 2.5–2.8 times wider behind than long medially, Mesonotum with dense and discrete punctuation, shiny or subshiny. Hind femur usually black, rather exceptionally brown(ish) with reddish tint. Tegula black or brown. Body strong, ♀♂: 3–3.5 mm. See also couplet 109 (110). — England, Nederland, Slovakia (ČSSR), Hungary, Transylvania (Romania), Yugoslavia, northern Italy

A. risilis NIXON, 1974 (!)

- 82 (81) Temple in dorsal view rounded as usually; ocelli less large, Hind imaginary tangent to fore ocellus touching or just cutting hind pair of ocelli (Fig 76).
- 83 (84) Pterostigma conspicuously wide, 2–2.1 times as long as wide and issuing radial vein from its middle or slightly distally; *rl* usually distinctly shorter than width of pterostigma and at most as long as *cuqul* (Fig. 38). Tergites 1–2 usually polished, sometimes laterally roughened. For further details see couplet 31 (30). ♀♂: 2.2–2.4 mm

A. calodetta NIXON, 1974 (!)

- 84 (83) Pterostigma not conspicuously wide, 2.3(–2.4) times as long as wide and issuing radial vein distally from its middle; *rl* about as long as width of pterostigma (Figs 75, 81). Tergites 1–2 rugose.
- 85 (86) Fifth joint of fore tarsus laterally with a spinule, opposite of spinule joint not or at most slightly emargined (Fig. 82) (spinule very fine thus easily to be broken). In comparison to following two species (*A. gastropachae* and *A. salebrosus*) first tergite relatively somewhat less broadening posteriorly, second tergite less transverse, about twice as wide behind as long medially (Fig. 79), rugose-rugulose with more or less little polished fields. Mesonotum with fine punctuation throughout, subshiny to pruinose. Pterostigma sometimes 2.2–2.3, usually 2.5–2.8 times as long as wide (Fig. 80–81). For further details see couplet 104 (105)

A. spurius (WESMAEL, 1837) (!)

— Fifth joint of fore tarsus without spinule.⁹⁾ Mesonotum with somewhat more discrete punctuation; rugosity of tergites 1–2 stronger. Otherwise very similar to *A. spurius*. ♀♂: 2.7–3 mm. — Nearctic Region

A. cingilae MUESEBECK, 1931 (!)

- 86 (85) Fifth joint of fore tarsus without spinule. First tergite broadening posteriorly as usually, second tergite transverse, 2.3–2.6 times wider behind than long medially (Fig. 95).

⁹⁾ I have 4♀ + 2♂ specimens from Canada (det. W. R. M. Mason) preserved in the Hungarian Natural History Museum (Budapest), fifth joint of their fore tarsus without any spinule. If the species is characterized by a spinule on fore tarsal joint 5 then the spinule of each specimen was broken.

87 (88) Third tergite smooth and shiny to polished. Penultimate joint of antenna long, 1.8–2 times longer than broad. In comparison to the following two species tergites 1–2 somewhat less strongly rugose and with small polished fields; basal field not coextensive with whole of second tergite, tergite laterally delimited rather oblique to arched (Fig. 95). Mesonotum usually with finer punctation. Hind femur usually reddish yellow, though sometimes infusate to blackish. ♀♂: 2.3–3 mm. For further details see couplet 111 (112)

A. gastropachae (BOUCHÉ, 1834) (!)

88 (87) Third tergite never entirely smooth, at least medio-basally rugulose, usually its fore half to two-thirds rugose-rugulose. In comparison to the previous species tergites 1–2 throughout rugose without polished fields; basal field coextensive with whole of second tergite, tergite delimited laterally rectangularly (cf. Fig. 69). Mesonotum usually with less fine punctation. Hind femur black. ♀♂: 2.7–3 mm. For further details see couplet 74 (75)

A. salebrosus MARSHALL, 1885 (!)

89 (80) Pterostigma relatively less wide, (2.3–)2.5–3(–3.5) times longer along its fore margin than wide; issuing radial vein relatively more distally from its middle (Figs 51, 81, 84, 87–88, 93, 102).

90 (99) *r*l oblique to fore margin of pterostigma, i.e. directed to distal end of fore wing (Figs 21, 51, 84, 87–88, 93).

91 (92) Tergites 1–2 smooth and shiny, sometimes laterally with weak rugulosity which sculpture rarely extending medially, tergites otherwise usually polished. For further details see couplets 22 (23) and 45 (44)

A. glabratus TELENGA, 1955 (!)

92 (91) Tergites 1–2 rugose to scabrose.

93 (94) Third tergite at least antero-medially with rather weak sculpture, otherwise usually its fore half to two-thirds posteriorly with somewhat weakening rugo-rugulosity. Outer surface of hind coxa with fine punctation. Hind femur variable in colour. For further details see couplet 60 (59) and 107 (108)

A. callimone NIXON, 1974 (!)

94 (93) Third tergite smooth and shiny to polished, at most close along its base aciculate-rugulose (*A. kurdjumovi*).

95 (96) Mesonotum shiny and with weak punctation, its median and lateral weak punctation contrasting with roughened sculpture of notaulic courses. Scutellum smooth, shiny to polished, at least with very fine and disperse punctures. Penultimate 2–3 joints 1.4–1.6(–1.7) times as long as broad (Fig. 83), antenna shorter than body. Wings usually hyaline, less frequently subhyaline. Hind tibia usually darkening yellow, distally infusate. Body small ♀♂: 2–2.2 mm. — England, Germany, Hungary, Bulgaria, Turkey, USSR (Ukraine). (= *laverna* NIXON, 1974, !, **syn.n.**¹⁰) ? = *placidus* HALIDAY, 1834¹¹)

A. kurdjumovi TELENGA, 1955 (!)

¹⁰ My synonymization is based on the examination of the paratypes of both taxa, the name *A. laverna* is an evident junior synonym of *A. kurdjumovi*:

Apanteles kurdjumovi TELENGA, 1955: Faune de l'URSS Hymenoptera V/4: 37 (in key) and 147 (description) ♀, type loc: "СССР, Полтава" (= USSR, Poltava), lectotype in the Zoological Institute, Leningrad.

Apanteles laverna NIXON, 1974: Bull. ent. Res. 64: 458 (in key) and 509 (description) ♂♂, type loc.: "England: Kent, Bexley", holotype in the British Museum (Nat. Hist.), London; **syn. n.**

¹¹ In the Zoological Museum Berlin October 1979 I saw and studied a pair of old female specimens with the name "Microgaster placidus H.". As a result of my further examination the two females proved to be conspecific with *A. kurdjumovi* TEL. (= *A. laverna* NIXON). On the basis of this, though not quite evident and convincing diagnostic datum, I conjecture the synonymy of the two names, however, with a question-mark. If in the future my supposed synonymization would be verified, the senior name *placidus* HALIDAY is the valid name of this taxon.

- 96 (95) Mesonotum dull to lustre with fine and dense punctation, notaulix indicated by crowded punctation giving a rugulose impression. Scutellum finely and dispersely punctate. Antenna as long as body.
- 97 (98) Penultimate joint antenna usually twice and at least 1.8 times as long as broad (Fig. 89). Pterostigma usually relatively longer, 2.6–2.7(–2.8) times as long along its fore margin as wide (Fig. 87). First tergite usually slightly longer than broad at hind, relatively somewhat more broadening posteriorly, second tergite twice wider behind than long medially (Figs 85–86). Hind tibia yellow or vivid yellow, usually apically faintly infusate, or less usually its distal fourth to third darkening. Hypopygium truncate and ending before tip of metasoma (Fig. 90), frequently large and pointed, more or less surpassing tip of metasoma (Fig. 91).¹²⁾ ♀♂: 2.5–2.8(–3) mm. See also couplet 126 (123). — Frequent in the Palaearctic Region

A. zygaenarum MARSHALL, 1885 (!)

- 98 (97) Penultimate joint of antenna usually 1.3–1.5 times, and at most 1.6–1.7 times, as long as broad (Fig. 94). Pterostigma usually relatively less long, 2.4–2.5 times as long along its fore margin as wide (Fig. 93). First tergite usually somewhat, i.e. 1.2–1.3 times longer than wide at hind, exceptionally as long as wide, relatively less broadening posteriorly; second tergite somewhat more than twice as wide behind as long medially (Fig. 92). Hind tibia yellow, its distal third (to half) darkening. ♀♂: 2.5–2.8 mm. See also couplet 126 (123). — England, France, Hungary, Bulgaria

A. euryale NIXON, 1974 (!)

- 99 (90) *r1* perpendicular to fore margin of pterostigma, i.e. not directed to distal end of fore wing (Figs. 81, 102).
- 100 (101) Metacarp short, usually somewhat shorter than and at most as long as pterostigma, or metacarp about twice as long as distance between its distal end and tip of radial vein (Fig. 102, see also arrows). First tergite rounded at its hind end, usually 1.3–1.4(–1.5) times longer than broad behind (Fig. 103), less usually indistinctly longer (Fig. 104); second tergite about twice as wide behind as long medially (Figs. 103–104). Fifth joint of fore tarsus laterally with a curved spinule (Fig. 105). ♀♂: 2.5–2.8 mm. For further details see couplet 116 (117)

A. chares NIXON, 1965 (!)¹³⁾

¹²⁾ The form with large and pointed hypopygium (Fig. 91) is reminiscent of the species *A. cajae* (BOUCHÉ), in this case the distinction of the two species is very difficult and requires special practice in order to properly recognize the features in question:

A. cajae (BOUCHÉ)

1. Second tergite distinctly more than twice as broad as long (Fig. 7).
2. Mesonotum subshiny, its punctation not as dense as that of *A. zygaenarum*.
3. Third femur blackish with variable reddish suffusion.
4. Body somewhat stronger.

A. zygaenarum MARSHALL

1. Second tergite about twice as broad as long (Fig. 85).
2. Mesonotum dull to luster, its punctation dense.
3. Third femur black.
4. Body somewhat less strong.

¹³⁾ In the case of first tergite of *A. chares* being but indistinctly longer than broad at hind and metacarp as long as pterostigma, the specific distinction between the species *A. chares* and *A. spurius* is very difficult to recognize. Below I have tabulated the few distinguishing features of these two species:

A. chares NIXON

1. First tergite relatively more rounded behind (Fig. 103).
2. Body somewhat less strong.
3. Penultimate joint of antenna 1.5–1.7 (–1.8) times as long as broad.

A. spurius (WESMAEL)

1. First tergite relatively less rounded behind (Fig. 79).
2. Body somewhat stronger.
3. Penultimate joint of antenna 1.7–2 times as long as broad.

101 (100) Metacarp long, either as long as or longer than pterostigma, or metacarp about 2.5–3 times longer than distance between its distal end and tip of radial vein (Figs 80, 96). First tergite less rounded at its hind end (Figs 79, 95).

102 (103) Mesonotum with fine and dense to more or less confluent punctation, dull to lustre; notaulix clearly indicated by crowded sculpture. *rl* usually oblique to fore margin of pterostigma (Fig. 87), sometimes less oblique to almost perpendicular (Fig. 88). For further details see couplet 97 (98)

A. zyaenarum MARSHALL, 1885 (!)

103 (102) Mesonotum with fine to very fine and less dense punctation, subshiny to shiny or somewhat pruinose; notaulix less clearly indicated by slightly stronger punctation. *rl* perpendicular to fore margin of pterostigma (Figs 80, 96).

104 (105) Fifth joint of fore tarsus laterally with a spinule, opposite of spinule joint not or at most slightly emargined (Fig. 82) (spinule very fine thus easily to be broken). First tergite relatively somewhat less broadening; second tergite less transverse, about twice as wide behind as long medially (Fig. 79). Hind femur usually black, though frequently either partly or entirely reddish yellow. ♀♂: 2.5–3.3 mm. See also couplet 85 (86). — Frequent to common in Palaearctic Region. (= *insidiens* RATZBURG, 1844)

A. spurius (WESMAEL, 1837) (!!)

— Fifth joint of fore tarsus without spinule. First tergite somewhat greater. Otherwise very similar to *A. spurius* (and *A. judaicus*). ♀♂: 2.8–3.2(–3.5) mm. — Nearctic Region (western Canada and USA)

A. electrae VIERECK, 1912 (!)

105 (104) Fifth joint of fore tarsus without spinule. First tergite broadening posteriorly as usually, second tergite transverse, 2.3–2.6 times wider behind than long medially (Fig. 95). For further details see couplet 111 (112)

A. gastropachae (BOUCHÉ, 1834) (!!)

106 (79) Species with light-coloured legs: at most coxae (1–2)–3 or (1)–2–3 black, blackish to brown, otherwise legs reddish yellow, hind femur sometimes infuscate or with dark suffusion. Light colour of legs rather vivid.

107 (108) Third tergite at least antero-medially with rather weak sculpture, otherwise usually its fore half to two-thirds posteriorly with somewhat weakening rugulosity. Outer surface of hind coxa with fine punctation, frequently rugulose. Hind femur variable in colour, usually reddish yellow and apically black(ish). Pterostigma conspicuously narrow, 3–3.5 as long along its fore margin as wide (Fig. 51). For further details see couplets 60 (59) and 93 (94)

A. callimone NIXON, 1974 (!!)

108 (107) Third tergite smooth and shiny to polished. Outer surface of hind coxa smooth to partly (or entirely) uneven, very finely and dispersely punctate. Pterostigma not conspicuously narrow (Fig. 96).

109 (110) Temple in dorsal view strongly rounded to rather constricted (cf. Fig. 71). Hind femur usually black, rather exceptionally brown(ish) with more or less reddish tint. For further details see couplet 81 (82)

A. risilis NIXON, 1974 (!!)

110 (109) Temple in dorsal view rounded as usually (cf. Fig. 68).

111 (112) Mesonotum with less sharp punctation, tergites 1–2 less strongly rugose and with small polished fields. Propodeum rugose and usually without any transverse cristule(s). Basal field not coextensive with whole of the second tergite, tergite

laterally delimited rather oblique or arched (Fig. 95) Hind femur reddish yellow, sometimes infusate to blackish to a variable extend. Tegula black to brown. ♀♂: 2.3–3 mm, usually 2.6–2.8 mm. See also cuoplets 87 (88) and 105 (104). — Palearctic Region

A. gastropachae (BOUCHÉ, 1834 (!))

— First tergite somewhat less broadening posteriorly. Tegula yellow. Legs yellow (coxae 1–2 brown to brownish yellow, coxa 3 black). Otherwise very similar to *A. gastropachae*. ♀♂: 2.5–3 mm. — Nearctic Region

A. congregatus (SAY, 1836) (!)

A. hemileuca (RILEY, 1881) (!)¹⁴⁾

112 (111) Mesonotum with sharp and discrete (i.e. not confluent) punctation, tergites 1–2 strongly rugose. Propodeum rugose to scabrous and frequently with transverse cristule(s). Basal field coextensive with whole of second tergite (Figs 97, 100).

113 (114) Posterior polished band of scutellum interrupted at middle (on downcurved apex of scutellum) by a patch of rugosity (Fig. 98). First tergite relatively more broadening posteriorly (Fig. 97). *r1* frequently oblique to fore margin of pterostigma, i.e. directed to distal end of fore wing (cf. Fig. 87). Sculpture of body somewhat rougher. Legs rather reddish yellow, hind femur apically black(ish), hind tarsus usually dark infusate. Wings brownish fumous throughout. Setae of membrane of fore wing along *n. med.* (on basal and subbasal cells) evenly dense as elsewhere on wings (Fig. 99). Tegula reddish yellow or yellow. Body strongly built, ♀♂: 2.8–3.5 mm, usually 3.2–3.5 mm. — Frequent in Europe; introduced into Australia, Tasmania, New Zealand as well as Canada

A. rubecula MARSHALL, 1885 (!)

114 (113) Posterior polished band of scutellum not interrupted at middle by rugosity, at most and rarely subrugulose to uneven. First tergite relatively less broadening posteriorly (Fig. 100). *r1* rather perpendicular to fore margin of pterostigma, i.e. not or indistinctly directed to distal end of fore wing (cf. Fig. 80–81). Legs rather yellow(ish), hind tarsus less or not infumate. Wings hyaline and at most subhyaline. Setae of membrane of fore wing along *n. med.* (on basal and subbasal cells) more or less disperse (Fig. 101). Tegula yellow or vivid yellow. Body somewhat less strongly built, ♀♂: 2.5–3 mm, usually 2.8–3 mm. — Europe. (= *coryphe* NIXON, 1974, !!, *syn. n.*¹⁵⁾

A. rubripes HALIDAY, 1834 (!)

115 (78) First tergite long, 1.2–1.7 times, usually 1.3–1.5 times as long as wide at hind or before its hind end (i.e. at its widest part), usually somewhat less distinctly broadening posteriorly (Figs 103–104, 106, 109, 116, 122, 124). Mesonotum usually with discrete, dense and rather strong punctation, notaulix indicated by crowded to confluent punctation.

¹⁴⁾ The forms named as *A. congregatus* or *A. hemileuca* are extremely similar to each other and, furthermore, the specific distinction of these two taxa given by MUESEBECK (1921) in his key to the Nearctic *Apanteles* species is hard to recognize and rather unconvincing.

¹⁵⁾ On my opinion the distinctive features between *A. coryphe* and *A. rubripes* disclosed by NIXON (1974) in his key to the north-western European *Apanteles* species as well as in his description of both taxa do not satisfy the requirements of the taxon species, thus the name *A. coryphe* is an evident junior synonym of *A. rubripes*:

Microgaster rubripes HALIDAY, 1834: Ent. Mag. 2: 253 ♀, type loc.: England, syntype(s) in the National Museum of Victoria, Melbourne.

Apanteles rubripes (HALIDAY): MARSHALL, 1872 Cat. Br. Hym. p. 106.

Apanteles coryphe NIXON, 1974: Bull. ent. Res. 64: 458 (in key) and 473 (description) ♂♂, type loc.: "England: Surrey, Shackleford Common", holotype in the British Museum (Nat. Hist.), London *syn. n.*

116 (117) Metacarp short, usually somewhat shorter than and at most as long as pterostigma, or metacarp about twice as long as distance between its distal end and tip of radial vein (Fig. 102, see also arrows). First tergite usually 1.3–1.4 (–1.5) times as long as broad behind (Fig. 104) less usually indistinctly longer (Fig. 103); second tergite about twice as wide behind as long medially (Figs 103–104). Fifth joint of fore tarsus laterally with a curved spinule (Fig. 105). ♀♂: 2.5–2.8 mm. See also couplet 100 (101). — England, Hungary

A. chares NIXON, 1965 (!)

117 (116) Metacarp long, usually longer than pterostigma, or metacarp 2.5–3 times as long as distance between its distal end and tip of radial vein (Figs 112, 114, 120, see also arrows).

118 (121) First tergite relatively more broadening posteriorly (Figs 106, 109). Outer surface of hind coxa (of the two European species: *A. ordinarius*, *A. sibyllarum*) with discrete and rather strong punctation (Fig. 110).

119 (120) Scutellum and face with relatively strong punctation (Fig. 108). First tergite on its hind third to half also with strongly and closely placed pit-like punctation, behind relatively somewhat more rounded; basal field not coextensive with whole of second tergite, its lateral margin convergent oblique, margin itself straight to somewhat arched (Fig. 106). Tarsal joints of fore leg relatively less attenuated, in dorsal view fourth joint of fore tarsus only somewhat longer than broad (Fig. 107). Legs yellow to straw yellow. Space yellow, flagellum brown to dark brown, ventrally yellowish. ♀♂: 2.7–3.5 mm, usually 3.2–3.5 mm. — England, Germany; NIXON (1974) indicated its occurrence in the Nearctic Region (USA: Massachusetts)

A. sibyllarum WILKINSON, 1936 (!!)

— Outer surface of hind coxa smooth. Scutellum smooth, face with fine punctation. Scape and flagellum black or blackish. Mesonotum relatively somewhat less sharply punctate. ♀♂: 3–3.3 mm. Otherwise similar to *A. sibyllarum*. — Nearctic Region (Maine, Massachusetts)

A. halisidotae MUESEBECK, 1931, (!)

120 (119) Scutellum and face with weak and rather sparse punctation. First tergite on its hind half rugose-punctate to punctate, medially almost smooth and shiny, behind relatively somewhat less rounded; basal field coextensive or almost coextensive with whole of second tergite, its lateral margin not oblique (Fig. 109). Tarsal joints relatively more attenuated, in dorsal view fourth joint of fore tarsus twice to almost twice as long as broad (Fig. 111). Legs reddish yellow. Scape black(ish), flagellum dark brown to blackish. ♀♂: 2.8–3.5 mm, usually 3–3.3 mm. — Palae-arctic Region. (= *dendrolimi* MATSUMURA, 1926)

A. ordinarius (RATZEBURG, 1844) (!)

— Outer surface of hind coxa smooth. First tergite on its hind half entirely rugose-punctate. Tarsal joints not attenuated. ♀♂: 2.7–3 mm. Otherwise similar to *A. ordinarius*. — Canada (British Columbia)

A. enypiae MASON, 1959 (!!)

121 (118) First tergite relatively less broadening posteriorly to subparallel-sided (Figs 38, 40 in PAPP 1986: 244; Figs 116, 122, 124). Outer surface of hind coxa either punctate or smooth.

122 (127) Scutellum punctate, either with sharp and rather dense punctation (*A. capucinae*) or with less sharp and rather disperse punctation (*A. euryale*, *A. geryonis*, *A. zygaenarum*).

- 123 (126) Outer surface of hind coxa with punctuation similar to that of scutellum. Hind and middle femora reddish yellow, colour of legs rather vivid reddish yellow. *r1* perpendicular (*A. capucinae*, Fig. 112) or oblique (*A. geryonis*; Fig. 114) to fore margin of pterostigma.
- 124 (125) Scutellum (Fig. 113) and outer surface of hind coxa with sharp punctuation. Mesonotum with discrete, sharp and rather dense punctuation, notaulix indicated by crowded punctuation (Fig. 39 in PAPP 1986: 244). Metacarp long, 4–4.5 times as long as distance between its distal end and tip of radial vein (Fig. 112). Third tergite slightly longer than second tergite (Fig. 38 1.c.). Black; sternites vivid yellow to yellow, last 2–3 sternites brown to dark brown, tergites 3–5(–7) laterally reddish yellow, hind part of third tergite usually, that of fourth (and fifth) tergite(s) sometimes also reddish yellow. Tegula and legs reddish yellow. Flagellum fulvous. ♀♂: 3–3.2 mm. — Yugoslavia
- A. capucinae* FISCHER, 1961 (!)**
- 125 (124) Scutellum (Fig. 115) and outer surface of hind coxa with less sharp punctuation. Mesonotum with somewhat less sharp and rather confluent punctuation, notaulix indicated by rather rugose sculpture (Fig. 41 in PAPP 1986: 244). Metacarp less long, about 3–3.5(–3.7) times as long as distance between its distal end and tip of radial vein (Fig. 114). Third tergite longer than second tergite (Fig. 40 1.c.). Colour of body similar to that of *A. capucinae*, though light pattern less vivid, and only tergite(s) 3(–4) with reddish yellow mark postero-laterally. Tegulae brownish. Flagellum black(ish). ♀♂: (2–)2.3–2.8 mm. — England, Germany, Switzerland, Italy, Hungary, Bulgaria
- A. geryonis* MARSHALL, 1885 (!)**
- 126 (123) Outer surface of hind coxa smooth or with (much) finer and less distinct punctuation than that of scutellum. Hind and middle femora black(ish), colour of legs dark and their light pattern rather soft yellow. *r1* oblique to fore margin of pterostigma (Figs 87–88, 93). First tergite usually about as long as wide at hind, frequently more or less longer; for further details see souplets 96 (95) — 98 (97)
- A. euryale* NIXON, 1974 (!)**
- A. zyaenarum* MARSHALL, 1885 (!)**
- 127 (122) Scutellum smooth and shiny to polished. Outer surface of hind coxa either smooth and at most uneven, indistinctly punctate (*A. cleora*, *A. limbatus*), or with more or less sharp punctuation (*A. orestes*).
- 128 (129) Temple in dorsal view strongly rounded (Fig. 117). Fifth joint of fore tarsus without spinule. First tergite subparallel- to almost parallel-sided, second tergite less transverse, 1.8–2 times wider behind than long medially (Fig. 116). Mesonotum coarsely and densely punctate, notaulix indicated by subconfluent-confluent punctures. Tergites 1–2 roughly rugose, rugosity of first tergite with vermicular elements. Outer surface of hind coxa with more or less sharp punctuation. Pterostigma long, 3–3.2 times as long as wide, issuing radial vein conspicuously distally from its middle (Fig. 119). Phragma of scutellum very narrow (Fig. 118). Legs yellow, hind femur and tibiae darkened apically. Sometimes below antennal insertions a small yellowish spot. ♀♂: 2.5–3 mm. — England, Nederland, Germany, Finland, USSR (Russia: Kalinin district)
- A. orestes* NIXON, 1974 (!)**
- 129 (128) Temple in dorsal view rounded as usually (Fig. 121). Fifth joint of fore tarsus laterally with a spinule (cf. Fig. 67). First tergite somewhat broadening posteriorly (Figs 122, 124). Mesonotum less coarsely and somewhat less densely punctate,

notaulix indicated by rather crowded punctation. Tergites 1–2 rugose, sometimes rather rugulose. Outer surface of hind coxa smooth to uneven or indistinctly punctate.

- 130 (131) First tergite relatively less long or somewhat more broadening (Fig. 122). Pterostigma conspicuously long, 3–3.2 times as long as wide, *cuqul* usually somewhat longer than *rI* (Fig. 120). Nervellus of hind wing somewhat less incurved, i.e. submedian cell relatively wide (Fig. 123). Fifth joint of fore tarsus with a spinule, opposite of spinule joint not emarginate (spinule easily to be broken) (cf. Fig. 82). Penultimate joint of antenna 1.8–2 times as long as broad. Phragma of scutellum concealed. Facial ridge close before antennal insertion black. Flagellum blackish to brown, rarely yellowish. ♀♂: 2.5–3 mm. — Europe, ?Japan. (? = *kawadai* WATANABE, 1934)¹⁶⁾

A. limbatus MARSHALL, 1885 (!)

- 131 (130) First tergite relatively slightly longer or somewhat less broadening (Fig. 124). Pterostigma not conspicuously long, about 2.5 times as long as wide (Fig. 125). Nervellus of hind wing somewhat more incurved, i.e. submediallan cell relatively less wide (Fig. 126). Fifth joint of fore tarsus with an S-form spinule, opposite of spinule joint emarginate (↑, Fig. 127, see arrow). Penultimate joint of antenna 2–2.2 times as long as broad. Phragma of scutellum very narrow, not concealed (cf. Fig. 118). Facial ridge just below antennal insertion yellow. Flagellum brownish yellow to yellowish. ♀♂: 2.7–3 mm. — England

A. cleora NIXON, 1974 (!)

- 132 (77) Inner spur of hind tibia shorter than, and at most as long as half basitarsus, pair of spurs of hind tibia usually subequal in length (i.e. outer spur somewhat shorter than inner spur) (Figs 17, 64).

- 133 (182) First tergite relatively long and usually moderately to indistinctly broadening posteriorly, its median length (1.2–)1.3–1.6(–1.8) times greater than hind width (Figs 133, 137, 139–140, 149, 157, 161, 164, 166, 172–173, 176, 179).

- 134 (135) Ovipositor sheath in lateral view as long as, or somewhat shorter than, hind basitarsus. Mesonotum dull, with discrete, relatively large and rather concentrically situated punctation. Third tergite usually rugulose to uneven, sometimes almost smooth; second tergite rugose(–rugulose), first tergite strongly rugose. For further details see couplets 17 (18) within *laevigatus*-group (PAPP 1978) and 55 (56)

A. artissimus PAPP, 1971 (!)

- 135 (134) Ovipositor sheath in lateral view short, at most half as long as hind basitarsus. Mesonotum with less discrete and not concentric punctation.

- 136 (137) Propodeum carinated, rarely poorly carinated; its surface smooth to uneven; above lunule with a median areola, areola itself and above areola (i.e. propodeum medially) frequently rugose. Ovipositor sheath in lateral view about half as long as hind basitarsus. A species of the *ultor*-group with transitional features (propodeum sculptured, ovipositor sheath short, mesonotum with dense punctation and notaulix indicated by crowded punctation) towards the *glomeratus*-group. For further details see couplet 30 (31) within *ultor*-group (PAPP 1981).

A. cerialis NIXON, 1976 (!)

¹⁶⁾ By an exchange 1 ♀ paratype of *A. kuwadai* WATANABE was purchased by the Hungarian Natural History Museum, Budapest. This paratype specimen is quite conspecific with *A. limbatus*. Examination of the holotype is necessary to confirm the synonymy.

- 137 (136) Propodeum never carinated and above lunule never with an areola, its surface-rugose to scrobiculate. Ovipositor sheath in lateral view shorter than half basitarsus.
- 138 (161) Metacarp relatively short, its length equal to that of pterostigma (Figs 134, 141, 159, 160, 163).
- 139 (142) *rI* of fore wing short, distinctly shorter than, and usually about half as long as, width of pterostigma; *cuqul* usually longer than *rI* (Fig. 134). Head in dorsal view somewhat less transverse, 1.7–1.8(–1.9) times broader than long (Fig. 132). Ocelli small to very small, hind imaginary tangent to fore ocellus clearly before hind pair of ocelli.
- 140 (141) Mesonotum punctate, densely punctate, notaulix distinct by rugosity, rough rugosity. Discoidal cell 1.3–1.4 times wider than high, *d2* 1.4–1.5 times as long as *dI* (Fig. 134). Basal field nearly coextensive with second tergite, less transverse, about twice as wide behind as long medially (Fig. 133). Hypopygium slightly more truncate apically (Fig. 130). Eye relatively somewhat smaller than usually, in dorsal view eye and temple usually equal in length (Fig. 132). Colour of legs variable, in European forms hind and middle femora usually dark (brown to blackish), and sometimes partly to entirely reddish yellow (African forms). Metasoma black, rarely more or less brown to brownish yellow. A rather slender-built species. ♀♂: 2–2.5 mm, usually 2.3–2.5 mm. See also couplets 12 (13), 140 (141), 153 (154) and 189 (190). — Palaearctic Region, Ethiopian Region (Aethiopia)

A. vanessae REINHARD, 1880 (!)

- Ocelli less small, hind imaginary tangent to fore ocellus transecting hind pair of ocelli. Head in dorsal view somewhat more transverse, 1.9–2 times broader than long. Legs, except coxae, reddish yellow to dark yellow. Otherwise very similar to *A. vanessae*. ♀♂: 2–2.3 mm. — Nearctic Region (USA)

A. orobanae FORBES, 1883 (!)

- 141 (140) Mesonotum punctate, finely punctate, notaulix indistinct. Discoidal cell slightly to very slightly wider than high, *d2* twice as long as *dI* (Fig. 136). Basal field distinctly not coextensive with second tergite, somewhat more transverse, 2.2–2.5 times wider behind than long medially (Fig. 137). Hypopygium less truncate behind (Fig. 138). Eye usual in size, in dorsal view more or less longer than temple. Hind and middle femora black, basal two-thirds of fore femur black(ish), light-coloured parts of legs fuscous yellow. ♀♂: 2.5–2.7 mm. — Mongolia

A. flagitatus PAPP, 1971 (!)

- 142 (139) *rI* of fore wing not short, at most indistinctly shorter and usually more or less longer than half width of pterostigma and usually longer than *cuqul* (Figs 129, 141, 150, 180).
- 143 (152) Legs including hind femur reddish yellow, coxae dark yellowish to black(ish); hind femur and tibia apically usually darkening to blackish, hind tarsus fumate.
- 144 (147) Species with small body, corporal length at most 2 mm. First tergite feebly broadening posteriorly (Figs 128, 179). Pterostigma wide, 2–2.1(–2.3) times as long as wide, issuing radial vein at most slightly distally from its middle (Figs 129, 180). Legs variable in colour.
- 145 (146) Antenna shorter than body, first 2–3 flagellar joints about twice, penultimate joint cubic to 1.1–1.2(–1.3) times as long as broad. Second tergite somewhat more transverse, 2.8–3 times wider at hind than long medially; first tergite slightly more broadening (Fig. 128). Mesonotum with discrete and rather dense punctation,

notaulix indicated by crowded to rather confluent punctation. Metacarp as long as pterostigma (Fig. 129). Tergites usually reddish to reddish yellow, first tergite (basally) black(ish) or tergites with variable dark suffusion. Legs usually reddish yellow to soft yellow, hind (and middle) femur/femora frequently darkening to blackish. ♀♂: 1.8–2 mm. — Ireland, England, Germany, Yugoslavia

A. bignellii MARSHALL, 1885 (!)

146 (145) Antenna at least as long as body, first 2–3 flagellar joints (2.5–)2.8–3 times, penultimate joint 1.4–1.7 times as long as broad. Second tergite somewhat less transverse, 2.4–2.5 times wider behind than long medially; first tergite less broadening posteriorly (Fig. 179). Mesonotum with fine and dense punctation, usually pruinose, notaulix indistinct. Metacarp slightly longer than pterostigma (Fig. 180). Tergites black or blackish. Legs usually dark-coloured, hind and middle femora frequently with reddish yellow suffusion of variable extent. For further details see couplets 172 (171) and 176 (177)

A. nothus MARSHALL, 1885 (!)

147 (144) Body of usual size, almost above 2.2–2.3 mm. First tergite more broadening posteriorly (Figs 139–140, 149, 157, 228). Pterostigma (2.3–)2.5–3 times longer than wide and usually issuing radial vein distinctly distally from its middle (Figs 141, 150, 159). Legs reddish yellow. Third tergite polished, setae restricted to its hind third or along hind margin.

148 (149) Hypopygium in lateral view short and rather small, apically with weak concave emargination (Fig. 142). Head in dorsal view somewhat more transverse, 2–2.2 times broader than long, temple nearly half as long as eye (Fig. 143). Hind femur relatively thick, 3–3.2 times as long as broad (Fig. 144); hind tarsal joints relatively short, basitarsus 2.3–2.5 times longer than second joint (Fig. 145). Scutellum distinctly domed, in lateral view as in Fig. 146. Mesonotum shiny, densely and clearly punctate, interspaces shorter to much shorter than punctures; notaulix antero-laterally distinct by crowded punctation, this punctation behind more or less weakening to obsolescent. Legs reddish yellow or yellow. Tegula dark brown to black(ish). ♀♂: 2.5–3.2 mm, usually 2.8–3 mm. — Frequent to common in the Palearctic Region; Nearctic Region (Canada, USA); introduced (and ?distributed) in several countries of the Indo-Australian and Neotropical Regions. (= *crataegi* RATZEBURG, 1844; = *nawaii* ASHHEAD, 1906; ? = *nigriventris* NEES, 1834; *pieridis* PACKARD, 1881 nec BOUCHÉ, 1834; = *reconditus* NEES, 1834; = *stellatarum* BOUCHÉ, 1834, !, syn. n.¹⁷⁾

A. glomeratus (LINNAEUS, 1758) (!)

— Hypopygium similar in form though somewhat less emarginate apically (Fig. 147). First tergite somewhat narrowing at its hind end (Fig. 148). Pterostigma wide, 2.2–2.3 times as long as wide and issuing radial vein from its middle or near to it. Otherwise similar to *A. glomeratus*. ♀♂: 2.6–3 mm. — Japan

A. tatehae WATANABE, 1932 (!)

¹⁷⁾ On the basis of the examination and comparison of authenticated specimens of *A. glomeratus* as well as type specimens of *A. stellatarum* I could unambiguously established that the two names refer to the same species, consequently the name *stellatarum* is an evident junior synonym:

Ichneumon glomeratus LINNAEUS, 1758: Syst. Nat. ed. 10: 568 ?♀♂, type-loc.: ?"Mer. eurp.", syntypes ?lost.

Apanteles glomeratus (LINNAEUS): Marshall 1872 Cat. Br. Hym. p. 106.

Microgaster stellatarum BOUCHÉ, 1834: Naturg. Insekt. p. 157 sex?, type loc.: ?Germany, lectotype (♂) in Zoologisches Museum, Berlin syn. n.

In the Berlin Museum the taxon *M. stellatarum* BOUCHÉ is represented by a single male specimen with the label "Type" which I consider as the lectotype and originating from the locality "Berlin".

— Hypopygium pointed. Second tergite transverse, 2.7–2.9 times wider behind than long medially. Pterostigma issuing radial vein from its middle. Hind basitarsus 1.8–2 times as long as second tarsal joint. Head in dorsal view just less than twice as broad as long. (*A. glomeratus*: second tergite less transverse, twice wider behind than long medially; pterostigma issuing radial vein distally from its middle.) ♀: 2.5 mm. Otherwise similar to *A. glomeratus*. — Nearctic Region (eastern USA)

A. teleae MUESEBECK, 1926 (!)

149 (148) Hypopygium in lateral view usual in size, truncate and apically more or less pointed (Figs 151, 154). Head in dorsal view somewhat less transverse, 1.8–1.9 times broader than long (Figs. 153, 155). Hind femur 3.8–4 times as long as broad (Fig. 156). Scutellum not domed, flattened as usually, in lateral view as in Fig. 152. Tegula light brown to brown.

150 (151) First tergite relatively large (Fig. 149), distinctly broadening to its middle, posteriorly less broadening; second tergite less transverse, 1.8–1.9 times wider behind than long medially (Fig. 149), rugose with few longitudinal elements. Temple in dorsal view less rounded, eye 1.2 times as long as temple (Fig. 153). Hind tarsal joints relatively short, basitarsus 2.3(–2.5) times longer than second joint (cf. Fig. 145). Mesonotum shiny, densely and clearly punctate similar to that of *A. glomeratus*, notaulix distinct also as in *A. glomeratus*. Pterostigma issuing radial vein more distally from its middle (Fig. 150). Legs rather reddish yellow. Pterostigma evenly opaque brown. ♀♂: 2.5–3 mm. — Switzerland, Nederland

A. berberis NIXON, 1974

— Metasoma compressed laterally, its colour reddish yellow except tergites 1–2, further tergites with brownish tints. Penultimate two joints of antenna cubic to subcubic, i.e. at most hardly longer than broad; antenna shorter than body. (*A. berberis*: Metasoma black, basal 2–3 sternites brownish yellow to yellow. Penultimate two joints of antenna 1.4–1.5 as long as broad, antenna about as long as body.) ♀♂: 2.8 mm. — Nearctic Region (USA)

A. pholisorae RILEY, 1889 (!)

151 (150) First tergite relatively little (Figs 157, 228), evenly broadening posteriorly, either somewhat longer than or as long as broad behind; second tergite transverse, 2.1–2.3 times wider behind than long medially (Figs 157, 228), rugulose with longitudinal elements. Temple in dorsal view somewhat more rounded, eye about 1.3–1.4 times as long as temple (Fig. 155). Hind tarsal joints relatively long, basitarsus only twice longer than second joint (Fig. 158). Mesonotum glistening with disperse and rather fine punctation, notaulix distinct by fine rugulosity. Pterostigma issuing radial vein less distally from its middle (Fig. 159). Legs rather yellow. Pterostigma rather opaque light brown with a faint yellowish basal spot. ♀♂: 3 mm. See also couplets 193 (192) and 207 (206). — Finland

A. peltoneni sp. n.¹⁸⁾

152 (143) Legs dark-coloured, hind femur black to brownish black, less frequently brown; distal third to fourth of hind tibia frequently darkening to blackish. Middle femur also black(ish), apically reddish yellow. Hind tarsus fumate.

153 (154) *r*1 somewhat indistinctly longer than half width of pterostigma, usually as long as or shorter; pterostigma less wide, 2.5–3 times as long as wide, issuing radial vein clearly distally from its middle (Fig. 134). For further details see couplets 139 (142) to 141 (140)

A. vanessae REINHARD, 1880 (!!)

A. flagitatus PAPP, 1971 (!!)

¹⁸⁾ Description of *A. peltoneni* sp. n. see on page 241.

154 (153) *r/l* distinctly longer than half width of pterostigma; pterostigma wide, only 2–2.2 times as long as wide, issuing radial vein less distally from its middle (Figs 160, 163, 185).

155 (156) First tergite just, i.e. 1.1–1.2 times as long as broad at hind (Fig. 182). Metacarp rather exceptionally as long as pterostigma, usually longer (Figs 184–185). Along median vein of fore wing median and submedian cells with much less setae than elsewhere (Fig. 186). Fifth joint of fore tarsus with a spinule frequently hardly visible (and frequently broken) (Fig. 187). For further details see couplet 169 (170), 178 (179), 206 (207) and 211 (212)

A. jucundus MARSHALL, 1885 (!)

— Head in dorsal view slightly less transverse, 1.9 times broader than long. Mesonotum with somewhat stronger punctation. Ground colour of body dark to blackish brown. Hind and middle femora always reddish yellow or yellow. ♀♂: 2.2–2.8 mm. Otherwise extremely similar to *A. jucundus*. (*A. jucundus*: head in dorsal view distinctly twice broader than long, ground colour of body black, ♀♂: 3–3.2 mm.) — Nearctic Region (Canada, USA)

A. phobetri ROHWER, 1915

— Very similar to *A. jucundus*. Second tergite less transverse, about twice as wide behind as long medially (*A. jucundus*: second tergite 2.5–3 times wider). Body less strong. Mesonotum with somewhat stronger punctation, dull. Hind and middle femora reddish yellow. ♀♂: 2.5–3 mm. — Nearctic Region (Canada, USA)

A. schizurae ASHMEAD, 1898 (!)

156 (155) First tergite clearly longer than broad at hind (Figs 161, 164, 166). Metacarp always as long as pterostigma or somewhat to indistinctly shorter (Figs 160, 163).

157 (158) First tergite relatively large and relatively more broadening posteriorly up to its widest part, behind more or less rounded; second tergite less transverse, about twice as wide behind as long medially (Fig. 161). *r/l* directed somewhat outwards, i.e. not perpendicular to fore margin of pterostigma (Fig. 160). Nervellus (of hind wing) less incurved (!), thus submedial cell relatively wide (Fig. 162). Penultimate joint of antenna 1.5–1.6 times as long as broad. Hind tibia fuscous yellow. ♀♂: 2.8–3 mm. — England, Germany, Hungary, Japan

A. gonopterygis MARSHALL, 1897 (!)

158 (157) First tergite smaller and less broadening posteriorly; second tergite more transverse, 2.4–3 times as wide behind as long medially (Figs 164, 166). *r/l* not directed outwards, i.e. perpendicular to fore margin of pterostigma (Figs 163, 167). Nervellus (of hind wing) more incurved, thus submedial cell relatively less wide (Fig. 165). Hind tibiae also fuscous yellow.

159 (160) Antenna shorter than body, its penultimate 2–3 joints 1.3–1.5(–1.6) times as long as broad. Pterostigma issuing radial vein near to very near to its middle (Fig. 163). First tergite slightly more rounded behind, second tergite 2.8–3 times wider behind than long medially (Fig. 164); hind half of first tergite with variable sculpture, rugose with pits laterally, frequently rugulose and medially becoming smooth, shiny. Mesonotum shiny and finely punctate. Ground colour of metasoma brownish black. ♀♂: 2.5–2.8 mm. — Europe, Turkey. (= *gabrielis* GAUTIER et RIEL, 1919)

A. lineola (CURTIS, 1830) (!)

160 (159) Antenna as long as body, its penultimate joint twice as long as broad. Pterostigma issuing radial vein clearly distally from its middle (Fig. 167). First tergite less rounded behind, second tergite 2.4–2.5 times as wide behind as long medially (Fig. 166); hind half of first tergite laterally rugulose without pits, otherwise

smooth to polished. Mesonotum dull and punctate, confluent punctate. Ground colour of metasoma black. ♀: 2.5–2.8 mm. — USSR (Azerbaijan, Kazakhstan), Hungary

A. shemachaensis TOBIAS, 1976 (!)¹⁹⁾

- 161 (138) Metacarp long, its length greater than that of pterostigma (Figs 177, 180, 184).
 162 (173) Hind and middle femora reddish yellow; legs usually reddish yellow, hind coxa dark.
 163 (166) Metasoma either almost entirely (*A. kasparyani*) or only tergites 2–3 and fore sternites 2–3(–4) reddish yellow.
 164 (165) Mesonotum antero-posteriorly with weakening punctation, shiny to glistening. Second tergite conspicuously less transverse, about 1.5 times as wide behind as long medially (Fig. 42). Penultimate joint of antenna 1.3–1.4 times as long as broad. Metasoma reddish yellow, hind half of first tergite and sometimes middle of second tergite black to blackish. ♀♂: 2.5–3 mm. For further details see couplet 34 (35)

A. kasparyani TOBIAS, 1976 (!)

- 165 (164) Mesonotum with dense and strong punctation, dull. Second tergite transverse as usually, about 2.5 times as wide behind as long medially. Penultimate joint of antenna twice as long as broad. Metasoma black, tergites 2–3 reddish yellow, Sternites 1–3 bright yellow. ♀♂: 2.7 mm. — USSR (Azerbaijan)

A. rufiventris ABDINBEKOVA, 1969

- 166 (163) Metasoma black or brown, basal sternites brown to reddish yellow.
 167 (168) *rl* and *cuqul* meeting at most in a weak angle, usually forming an arched vein; pterostigma issuing radial vein distally from its middle (Fig. 168). Tergites 1–2 rugulose-subrugulose to uneven-smooth, shiny. Hypopygium round truncate (Fig. 169). Penultimate joint of antenna 1.5–1.7 times as long as broad. Ground colour of body blackish brown; legs yellow, coxae basally more or less darkening. Antenna reddish yellow, distally darkening. Wings hyaline. ♀: 2.3 mm. — USSR (Uzbekistan)

A. bactrianus TELENGA, 1955 (!)

- 168 (167) *rl* and *cuqul* meeting angularly, i.e. *rl* and *cuqul* forming an angled vein; pterostigma issuing radial vein either from about its middle (Fig. 180, 185) or rather distally (Fig. 184).
 169 (170) First tergite just, i.e. 1.1–1.2 times as long as broad at hind (Fig. 182). Along median vein of fore wing median and submedian cells with much less setae than elsewhere (Fig. 186). Fifth joint of fore tarsus with a spinule frequently hardly visible (and frequently broken) (Fig. 187). Hind and middle femora usually black to blackish, sometimes with reddish suffusion or partly to (almost) entirely reddish yellow. For further details see couplets 155 (156), 178 (179), 206 (207) and 211 (212)

A. jucundus MARSHALL, 1885 (!)

- 170 (169) First tergite clearly longer than broad at hind (Figs 176, 179).
 171 (172) Metacarp relatively long, about four times as long as distance between its distal end and tip of radial vein (Fig. 177, see arrows). Nervellus (of hind wing) incurved (Fig. 178). First tergite somewhat more rounded behind (Fig. 176); its hind half laterally rugose with pit elements, medially becoming smooth, shiny. Tergites light brown to brown, last 2–3 tergites blackish brown. Head and mesosoma

¹⁹⁾ *A. shemachaensis* is very similar to *A. lineola*, and I do not warrant of its specific validity though I could examine the holotype specimen. All differences between the two forms are revealed in the key, however, they do not provide solid evidence to consider the specific validity of *A. shemachaensis* unambiguously. Further and mainly bred material is needed to present a definitive answer to this taxonomic problem. (Three female specimens of *A. shemachaensis* were at my disposal in my present survey.)

brownish black. Body less small, ♀♂: 2.2–2.5 mm. — England, Hungary, USSR (Armenia). (= *avetyanae* TOBIAS, 1976, !!)

A. onaspis NIXON, 1974 (!!)

172 (171) Metacarp relatively short, about thrice as long as distance between its distal end and tip of radial vein (Fig. 180). Nervellus (of hind wing) almost straight, i.e. less incurved proximally (Fig. 181). First tergite somewhat less rounded behind (Fig. 179); its hind half evenly rugose-rugulose. All tergites black. Head and mesosoma also black. Hind femur usually blackish to black, sometimes light brown to brownish yellow. Body small, ♀♂: (1.7–)1.8–2(–2.1) mm. For further details see couplets 146 (145) and 176 (177)

A. nothus MARSHALL, 1885 (!)

173 (162) Hind and middle femora black, blackish to blackish brown; legs dark coloured, hind coxa black.

174 (175) Second tergite conspicuously less transverse, 1.9–2.2 times, usually twice, as wide behind as long medially (Fig. 172); first tergite sometimes less broadening posteriorly. Pterostigma rather wide, 2–2.3 times as long as wide, issuing radial vein more or less distally from its middle, *r*1 slightly directed outwards (Fig. 174). Antennal joint 17th 1.2 times, antennal joints 16–14th 1.25–1.3 times as long as broad. Temple in dorsal view strongly rounded behind (Fig. 175). Mesonotum with fine and dense punctation, interspaces dull and at most subshiny. Face about one-third wider than high, inner margin of eyes parallel. Light-coloured parts of legs reddish or yellowish brownish. Wings faintly fumous. ♀♂: (2.7–)3–3.4 mm. — England, Germany, Switzerland, Hungary. (? = *sessilis* FOURCROY, 1785)

A. juniperatae (BOUCHÉ, 1834) (!!)²⁰

175 (174) Second tergite transverse, at least 2.5 times as wide behind as long medially (Fig. 66 in PAPP 1986: 245; Figs 176, 179, 182–183).

176 (177) Metacarp relatively short, about thrice as long as distance between its distal end and tip of radial cell; pterostigma issuing radial vein about from its middle (Fig. 180). Penultimate two joints of antenna 1.7–1.8 times as long as broad. First tergite less rounded behind (Fig. 179). Head in dorsal view less transverse, 1.7–1.8 times as broad as long. Mesonotum more or less pruinose, finely and densely punctate, notauxil hardly distinct by somewhat crowded punctation. Nervellus (of hind wing) almost straight (Fig. 181). Hind and middle femora black or blackish, sometimes light brown to brownish yellow, rarely with rusty suffusion. Wings hyaline, pterostigma brown or opaque brown. Body small, ♀♂: (1.7–)1.8–2(–2.1) mm. See also couplets 146 (145) and 172 (171). — England, Germany, Hungary

A. nothus MARSHALL, 1885 (!)

177 (176) Metacarp usual in length, four to five times as long as distance between its distal end and tip of radial vein (Figs 177, 184). Penultimate 2–3 joints of antenna short, 1.1–1.5 times, usually 1.3–1.4 times, as long as broad.

178 (179) Fifth joint of fore tarsus laterally with a spinule (usually hardly visible and frequently broken; Fig. 187). Along median vein of fore wing both median and submedian cells clearly with less setae than elsewhere (Fig. 186). Penultimate joint of antenna usually 1.4–1.5 times as long as broad. In lateral view hypopygium not large, of usual size, ovipositor sheath shorter than second joint of hind tarsus (Figs 188–189). First tergite 1.3–1.4 times as long as broad and less clearly broadening posteriorly (Fig. 183), sometimes only 1.1–1.2 times as long as broad

²⁰ Designation of lectotype see on page 242. — See also footnote No. 5 on page 217.

and more clearly broadening posteriorly (Fig. 182). Mesonotum with fine, discrete and more or less dense punctation, interspaces subshiny to dull; notaulix almost indistinct. Pterostigma issuing radial vein distally from its middle (Fig. 184). Hind middle femora black to blackish, however, less usually with reddish suffusion or partly to entirely reddish yellow, yellow. Hind tibia frequently straw yellow or yellow. Pterostigma brown, frequently with a pale basal spot. ♀♂: (2.8–)3–3.2 mm. See also couplets 70 (71), 155 (156), 169 (170), 206 (207) and 211 (212). — Ireland, England, France, Switzerland, Germany, Austria, Czechoslovakia, Hungary, Finland, USSR (Armenia). (= *nigrinervis* THOMSON, 1895)

A. jucundus MARSHALL, 1885 (!)

179 (178) Fifth joint of fore tarsus without spinule. Along median vein of fore wing both median and submedian cells evenly to almost evenly setose (Fig. 191). Penultimate joint of antenna usually 1.1–1.3(–1.4) times as long as broad. First tergite less clearly broadening posteriorly (Figs 66–67 in PAPP 1986: 245). Hypopygium relatively large, ovipositor sheath about as long as second joint of hind tarsus (Fig. 68. l.c.).

180 (181) Body with weak sculpture. Mesonotum shiny to glistening and with fine, posteriorly weakening punctation. Propodeum rugulose with a few rugose elements. Tergites 1–2 rugulose to uneven, shiny. In lateral view eye distinctly wider than temple (Fig. 192, see arrows). In comparison to the next species hind leg relatively somewhat less long, hind femur rather 3–3.3 times and hind tibia 4–4.5 times as long as broad (Fig. 193). Wings hyaline. Pterostigma brown, *rl*+*cuqul* brownish, metacarp and carpal vein yellowish, other veins colourless whitish. ♀♂: 2.5–3.5(–4) mm. See also couplets 14 (15), 20 (19) and 39 (40). — Portugal, Bulgaria, Greece, Morocco, Turkey, Israel, USSR (European part, Armenia, Azerbaidzhan, Soviet Middle Asia), Mongolia

A. kazak TELENGA, 1949 (!!)

181 (180) Body with strong sculpture as usually. Mesonotum with dense and less fine, posteriorly indistinctly weakening punctation. Propodeum rugose to scabrous, usually with a rather strong medio-longitudinal carina. Tergites 1–2 rugose. In lateral view eye and temple of equal width (minute deviation feasible; Fig. 194). In comparison to previous species hind leg relatively somewhat longer, hind femur distinctly 3.5 times and hind tibia five to six times as long as broad (Fig. 195). Wings subhyaline to faintly fumous; pterostigma blackish brown, *rl*+*cuqul* brown to brownish, further veins yellowish to brownish. ♀♂: 2.8–3.2 mm. — England, Denmark, France, Germany, Czechoslovakia, Hungary

A. numen NIXON, 1974 (!)

182 (133) First tergite less long and usually clearly boadening posteriorly, its median length and hind width equal with each other (minute deviation feasible) (Figs 198, 203, 205, 219–220).

183 (184) Temple in dorsal view (Fig. 85 in PAPP 1984: 293) constricted, eye 1.6–1.8 times as long as temple. Second tergite conspicuously transverse (Fig. 86 l.c.), usually four times as wide behind as long medially. In lateral view ovipositor sheath as long as hind tarsal joints 1–2. Black; sternites 1–2(–3) yellowish to reddish yellow, second tergite laterally more or less reddish yellow. Legs together with coxae and trochanters reddish yellow to reddish, middle and hind femora with blackish suffusion to almost entirely black. ♀♂: 2–4 mm. For further details see in PAPP 1984 (p. 287). A species of the *suevus*-group with a few features reminiscent of the *glomeratus*-subgroup

A. suevus REINHARD, 1880 (!!)

- 184 (183) Temple in dorsal view rounded as usually, eye at most somewhat longer than temple (Fig. 211). Second tergite less transverse, about 2.5 times as wide behind as long medially (Figs 203, 205, 219–220). In lateral view ovipositor sheath distinctly shorter than hind tarsal joints 1–2. Colour of legs different.
- 185 (186) Malar space unusually long, 1.2–1.5 times as long as basal width of mandible; eye in lateral view rather small, 1.5–2 times as high as wide (Figs 81 and 104 in PAPP 1986: 246–247). Antennal joints 14–17 subcubic to somewhat, i.e. 1.2–1.3(–1.4) times, longer than broad. For further details see couplets 12 (15) to 13 (14) in *brevicornis*-subgroup

A. tenebrosus (WESMAEL, 1837) (!!)

- 186 (185) Malar space short as usually, shorter than or at most as long as basal width of mandible; eye in lateral view usual in size, about 2–2.2 times as high as wide (Fig. 210).
- 187 (194) Head in dorsal view less transverse, 1.7–1.8 times and at most 1.9 times as broad as long (Figs 132, 155).
- 188 (191) *r1* of fore wing short, more or less shorter than *cuqul* and usually about half as long as width of pterostigma (Fig. 134). Mesosotum punctate, densely punctate, notaulix distinct by rugosity, rough rugosity.
- 189 (190) Body black; metasoma also black, rarely more or less brown to brownish yellow. Hind femur less thick, 3.8–4 times as long as broad (Fig. 135). In lateral view hypopygium apically somewhat less blunt (Fig. 130–131). Second tergite rugose, less shiny. Legs dark-coloured; hind and middle femora usually brown to blackish, sometimes partly to entirely reddish yellow. ♀♂: (2–)2.3–2.5 mm. For further details see couplet 140 (141)

A. vanessae REINHARD, 1880 (!!)

- 190 (189) Body reddish yellow. Hind femur 3–3.3 times as long as broad (Fig. 170). In lateral view hypopygium somewhat blunter (Fig. 171). Second tergite rugulose to uneven with smooth fields, shiny. Legs together with coxae reddish yellow. ♀♂: 2–2.5 mm. — USSR (Russia: Orenburg, Georgia)

A. aururus TELENGA, 1955 (!!)

- 191 (188) *r1* of fore wing not short, usually more or less longer than and at least as long as, *cuqul*, and always longer than half width of pterostigma (Figs 184–185, 202, 204, 207).
- 192 (193) Mesonotum with rather fine and very dense rugosity giving it a characteristic sooty dullness. Maxillar palp 5-jointed, i.e. fifth and sixth joints fused (Fig. 56). Third tergite anteriorly rather weakly to almost indistinctly sculptured, usually rugulose. For further details see couplet 65 (66)

A. tetricus REINHARD, 1880 (!!)

- 193 (192) Mesonotum glistening, with disperse and rather fine punctation, notaulix distinct by fine and dense rugosity. Maxillar palp 6-jointed as usually. Third tergite polished. Head in dorsal view 1.9 times as broad as long (Fig. 155). Discoidal cell slightly wider than high (Fig. 159). Hypopygium strong, behind truncate (Fig. 154). For further details see couplet 151 (150)

A. peltoneni sp. n.²¹⁾

- 194 (187) Head in dorsal view distinctly transverse, at least twice as broad as long (Fig. 211).

²¹⁾ Description of *A. peltoneni* sp. n. see on page 241.

195 (196) Mesosoma dorso-ventrally somewhat compressed, in lateral view 1.5(-2) times as long as high (Fig. 196). Metacarp shorter than pterostigma, its length only somewhat greater than distance between its distal end and tip of radial vein; pterostigma issuing radial vein distally from its middle (Fig. 197). Mesonotum glistening, with disperse and fine punctation, notaulix indicated by stronger punctation. Hind femur thrice as long as broad. Black. Femora dark brown to blackish, light colour of legs soft yellow. Tegula black(ish). Wings hyaline, pterostigma opaque yellowish brown. ♀: 2-2.3 mm. — USSR (Kazakhstan)

A. depressithorax TOBIAS, 1964 (!)

196 (195) Mesosoma dorso-ventrally not compressed, in lateral view somewhat, i. e. 1.1-1.2(-1.3) times, longer than high. Metacarp either as long as or longer than pterostigma, its length distinctly greater than distance between its distal end and tip of radial vein (Figs 129, 159, 184-185, 199, 212).

197 (208) Legs reddish yellow, coxae either reddish yellow or coxae 1-2 brown(ish) and coxa 3 black(ish). *r1* usually perpendicular or almost perpendicular to fore margin of pterostigma (Figs 129, 159, 184-185, 199).

198 (201) Metasoma either entirely or partly reddish yellow. Penultimate joint of antenna subcubic, slightly as long as broad.

199 (200) In comparison to next species first tergite somewhat less broadening posteriorly and more rounded behind (Fig. 128). Pterostigma wide, 2-2.1(-2.3) times as wide as long (Fig. 129). Mesonotum with discrete and rather dense punctation, notaulix indicated by crowded to rather confluent punctation. Mesosoma black, tergites usually reddish to reddish yellow, first tergite (basally) black(ish) or tergites with variable dark suffusion, sternites rather yellow(ish). Body small, ♀♂: 1.8-2 mm. — Ireland, England, Germany, Yugoslavia

A. bignellii MARSHALL, 1885 (!)

200 (199) In comparison to previous species first tergite somewhat more broadening posteriorly and less rounded behind (Fig. 198). Pterostigma less wide, 2.5-2.6 times as wide as long. Mesonotum with fine and rather disperse punctation, notaulix indistinct. Mesosoma rusty brown, metasoma reddish yellow or yellow. Body usual in size, ♀♂: 2.5 mm. — USSR (Uzbekistan)

A. turkestanicus TELENGA, 1955 (!)

201 (198) Tergites black, at most and exceptionally brownish. Penultimate joint of antenna distinctly, at least about 1.5 times as long as broad.

202 (203) Mesonotum dull with discrete, closely placed and rather strong punctation. *r1* slightly though distinctly longer than width of pterostigma, latter not wide, 2.6-2.7 times as long as wide; metacarp distinctly longer than pterostigma (Fig. 199). Third tergite anteriorly sculptured of variable strength, sometimes almost smooth or weak sculpture restricted close to its base. Body strong, ♀♂: 3-3.2 mm. — Japan, China (Manchukuo)

A. dictyoplocae WATANABE, 1940 (!)

203 (202) Mesonotum shiny to subshiny, at most faintly dull, with less discrete and less closely placed punctation. *r1* not longer than width of pterostigma (Figs 184-185). Third tergite smooth, shiny or polished.

204 (205) In lateral view eye relatively small, width of eye equal to width of temple (Fig. 200, see arrows). All coxae reddish yellow, at most hind coxa dorsally with brownish or blackish suffusion. Mesonotum with distinct and rather dense punctation, course of notaulix indicated by more or less confluent punctation. Metacarp indistinctly longer than pterostigma, along median vein of fore wing both median and sub-

median cells evenly to almost evenly setose. Penultimate joint of antenna twice as long as broad. In lateral view hypopygium truncate and somewhat pointed (Fig. 201). Sternites and hypopygium reddish yellow, last 2–3 sternites and hypopygium laterally with brownish suffusion. Tegula brownish yellow. ♀♂: 2.5–3 mm. — USSR (Irkutsk, Vladivostok)

A. prozorovi TELENGA, 1955 (!)

205 (204) In lateral view eye usual in size and distinctly wider than temple (Fig. 210). Coxae dark, fore and median coxae brown to black, hind coxa black. Mesonotum with fine to very fine punctation, notaulix indicated by other sculpture. Metacarp either indistinctly (*A. peltoneni*) or somewhat (*A. jucundus*) longer than pterostigma (Figs 159, 184–185). Penultimate joint of antenna usually 1.4–1.6 times as long as broad. Fore 2–3(–4) sternites yellow, further sternites and hypopygium brown, dark brown to black(ish). Tegula brown to black. First tergite either as long as broad at hind or somewhat longer (Figs 157, 182–183, 228).

206 (207) Mesonotum with fine, discrete and more or less dense punctation, interspaces shiny, subshiny to dull; notaulix almost indistinct. Fifth joint of fore tarsus laterally with a spinule (usually hardly visible and frequently broken; Fig. 187). Along median vein of fore wing both median and submedian cells with much less setae than elsewhere on wing (Fig. 186). Second tergite rugose, strongly rugose. For further details see couplets 155 (156), 169 (170), 178 (179) and 211 (212)

A. jucundus MARSHALL, 1885 (!)

— Fifth joint of fore tarsus without spinule. Penultimate 2–3 joints of antenna short, 1.1–1.3 times as long as broad. Body slightly less strong. Otherwise similar to *A. jucundus*. ♀♂: 2.5 mm. — Nearctic Region (Canada, USA)

A. acaudus (PROVANCHER, 1886) (!)

— Fifth joint of fore tarsus with a very fine and hardly visible spinule. Third tergite basally usually weakly rugulose, exceptionally almost smooth. Otherwise very similar to *A. jucundus* though nearest to *A. scabriculus*, see also couplet 72 (73). — Nearctic Region (Canada)

A. mahoniae MASON, 1975 (!)

— Head in dorsal view slightly less transverse, 1.9 times broader than long. Mesonotum with somewhat stronger punctation. Ground colour of body dark to blackish brown. Hind and middle femora always reddish yellow or yellow. Body smaller, ♀♂: 2.2–2.8 mm. Extremely similar to *A. jucundus*. — Nearctic Region (USA)

A. phobetri ROHWER, 1915 (!)

— Second tergite less transverse, twice as broad behind as long medially; third tergite latero-basally rugo-rugulose otherwise smooth. Fifth joint of fore tarsus without spinule. Tegula yellow, all femora reddish yellow. ♀♂: 2.5–3 mm. — Nearctic Region (eastern Canada and USA)

A. pyrophilae MUESEBECK, 1926 (!)

207 (206) Mesonotum glistening with disperse and rather fine punctation, notaulix distinct by fine rugulosity. Fifth joint of fore tarsus without spinule. Along median vein of fore wing both median and submedian cells evenly setose as elsewhere on wing. Second tergite rugulose with longitudinal elements. For further details see couplet 151 (150)

A. peltoneni sp. n.

208 (197) Legs dark-coloured, coxae + trochanters brown to black, middle and hind femora black(ish), light colour of legs rather soft yellow. *r1* usually more or less oblique to fore margin of pterostigma, i.e. directed somewhat outwards (Figs 202, 204, 207, 212).

209 (210) Second tergite (Fig. 203) less transverse, twice as broad behind as long medially; third tergite hardly longer than second tergite, anteriorly rugulose-subrugulose, see also couplet 72 (73). Penultimate joint of antenna 1.2–1.3 times as long as broad. Metacarp somewhat longer than pterostigma (Fig. 202). Mesonotum dull, finely punctate. Wings subhyaline. Body strong, ♀♂: 3.2–3.4 mm. — England, Austria

A. errator NIXON, 1974 (!)²²⁾

210 (209) Second tergite (Figs 182–183) transverse, at least 2.5 times as wide behind as long medially; third tergite distinctly longer than second tergite, smooth.

211 (212) Fifth joint of fore tarsus laterally with a spinule (usually hardly visible and frequently broken; Fig. 187). Along median vein of fore wing both median and submedian cells with clearly less setae than elsewhere (Fig. 186). For further details see couplets 155 (156), 169 (170), 178 (179) and 206 (207)

A. jucundus MARSHALL, 1885 (!)

212 (211) Fifth joint of fore tarsus without spinule. Along median vein of fore wing both median and submedian cells evenly to nearly evenly setose as elsewhere on wing (cf. Fig. 191).

213 (216) Pterostigma wide (Figs 204, 229), 2–2.3 times, usually twice as long as wide and issuing radial vein about from its middle; metacarp usually as long as pterostigma or less frequently somewhat shorter. First tergite moderately broadening posteriorly (Figs 205, 230). Ovipositor sheath straight and usually somewhat though distinctly surpassing end of last metasomal segment (Figs 206, 231).

214 (215) *r1* usually oblique to fore margin of pterostigma, i.e. directed to distal end of fore wing (Fig. 204); less frequently hardly oblique to nearly perpendicular; *r1 + cuqul* frequently relatively thickened (Fig. 204). Mesonotum usually dull to subshiny, densely and finely punctate. Tergites 1–2 rugose to densely rugose without polished fields. Penultimate two joints of antenna 1.3–1.5 times as long as broad. Hind tibia soft to brownish yellow, distally darkening. Hypopygium black. Wings hyaline or subhyaline. In comparison to next species body somewhat stronger, ♀♂: 2.2–3 mm usually 2.6–2.8 mm. — England, Spain, France, Nederland, Germany, Hungary, Finland, USSR (Lithuania, Azerbaidzhan)

A. cupreus LYLE, 1925 (!)

— First tergite somewhat more broadening posteriorly, otherwise very similar to *A. cupreus* (the synonymization of the two names presumable). ♀♂: 2–2.5 mm. — Nearctic Region (Canada: Quebec, USA)

A. cyaniridis RILEY, 1889 (!)

— Tergites 1–2 rugulose and shiny. Penultimate 3–4 joints of antenna cubic. Ground colour of body brownish black. ♀♂: 2–2.3 mm. — Nearctic Region (USA, Mexico)

A. theclae RILEY, 1881 (!)

215 (214) *r1* perpendicular to fore margin of pterostigma (Fig. 229), *r1 + cuqul* never thickened. Mesonotum shiny, with fine and disperse punctation. Tergites 1–2 rugulose with polished small fields. Penultimate joint of antenna 1.3 times as long as broad.

²²⁾ The two species, *A. errator* NIXON and *A. juniperatae* (BOUCHÉ), see couplet 174 (175), are very similar to each other considering their strong built body and less transverse second tergite. Their specific distinction is tabulated below:

A. errator NIXON

1. In dorsal view temple rounded.
2. Pterostigma less wide, 2.3–2.5 times as long as wide (Fig. 202).
3. First tergite as long as broad at hind (Fig. 203).

A. juniperatae (BOUCHÉ)

1. In dorsal view temple strongly rounded (Fig. 175).
2. Pterostigma wide, 2–2.3 times as long as wide (Fig. 174)
3. First tergite about 1.3 times as long as broad at hind (173).

Hypopygium blackish brown. Otherwise similar to *A. cupreus*. In comparison to this species body less strong, ♀: 2.2 mm. — Bulgaria, Slovakia (ČSSR)

A. subancilla BALEVSKI, 1980

216 (213) Pterostigma less wide and issuing radial vein more or less distally from its middle (Figs 207, 212). First tergite somewhat more broadening posteriorly (Figs 219–220)

217 (218) In comparison to next two species mesonotum with less sharp punctation (Fig. 208), interspaces dull to subshiny, rather exceptionally shiny. Penultimate joint of antenna 1.3–1.5(–1.7) times as long as broad. Ocelli relatively small, posterior imaginary tangent to fore ocellus touching hind two ocelli anteriorly. Prescutellar furrow as well as suture between meso- and metapleuron costate as usually (Fig. 209). Metacarp usually as long as pterostigma or slightly shorter and rather exceptionally somewhat longer, *r1* usually as long as to slightly longer than *cuqul* (Fig. 207). Third tergite usually smooth and shiny, sometimes its basal half to two-thirds rugo-rugulose to subrugulose. Pterostigma usually opaque light brownish, less usually brown. Hind tibia yellow to straw yellow, distally rather faintly darkening. Body usual in size. ♀♂: 2.5–2.8 mm. See also couplet 75 (74). — Germany, Nederland, Switzerland, Austria, Czechoslovakia, Hungary, Spain, Italy, Yugoslavia, Bulgaria, Turkey, Israel, Mongolia

A. ancilla NIXON, 1974 (!)

218 (217) In comparison to previous species mesonotum with sharp punctation (Fig. 214), interspaces subshiny to shiny. Penultimate joint of antenna either cubic to sub-cubic, i.e. 1.1–1.2 times as long as broad (*A. saltatorius*, Fig. 218) or about twice as long as broad (*A. saltator*, Fig. 215). Ocelli relatively large, posterior tangent to fore ocellus more or less transecting hind two ocelli. Precutellar furrow as well as suture between meso- and metapleuron strongly costate (Fig. 216). Metacarp usually somewhat though distinctly longer than pterostigma, *r1* usually distinctly longer than *cuqul*. Body strongly built.

219 (220) Penultimate joint of antenna twice as long as broad (Fig. 215). Mesosoma stout, in lateral view at most somewhat longer than high. Punctation of mesonotum (Fig. 214) slightly more sharp than that of *A. saltatorius*. Head in dorsal view clearly twice (2–2.2 times) as broad as long, though somewhat less broad than mesonotum between tegulae. Scutellum moderately domed (clearly seen in lateral view). First tergite distinctly and usually evenly broadening posteriorly, either about as long as broad (Fig. 219) or slightly broader at hind than long (Fig. 220); second tergite 2.6–2.8(–3) times as wide behind as long medially, both tergites rugose. Hind femur about thrice as long as broad (Fig. 217); hind coxa strong, somewhat higher than long. Pterostigma 2.3–2.5(–2.7) times as long as wide, issuing radial vein distinctly distally from its middle (Fig. 212). Hypopygium relatively small (Fig. 221). Wings hyaline. ♀♂: 3.2–3.5 mm. — Sweden, Germany, Czechoslovakia, Hungary, Yugoslavia, Bulgaria, Corsica (France), Lebanon, Israel, Iran, USSR (Armenia)

A. saltator (THUNBERG, 1822)

220 (219) Penultimate joint of antenna cubic to subcubic, i.e. 1.1–1.2 times as long as broad (Fig. 218). Mesosoma less stout, in lateral view 1.3(–1.4) times as long as high. Punctation of mesonotum slightly less sharp than that of *A. saltator*. Otherwise similar to *A. saltator*. ♀♂: 3–3.3(–3.5) mm. — Bulgaria, Yugoslavia, Hungary, Turkey, Mongolia

A. saltatorius BALEVSKI, 1980 (!)

Apanteles peltoneni sp. n.
(Figs 154-159, 228)

♀. Body 2.9-3 mm. Head in dorsal view (Fig. 155) transverse, 1.8-1.9 times as broad as long, eye about one-third as long as temple latter rounded. Eye in lateral view twice as high as wide, its width more or less greater than width of temple. Ocelli on a low triangle, distance between fore and a hind ocelli either as long as diameter of an ocellus (Fig. 155), or latter slightly greater. Face about one-third wider than high, inner margin of eye subparallel. Clypeus about 2.5 times wider below than high medially. Malar space somewhat longer than basal width of mandible. Head shiny, face almost smooth, frons + vertex polished. Antenna about as long as body, first flagellar joint 2.5-3 times as long as broad, further joints gradually shortening so that penultimate joint twice as long as broad.

Mesosoma in lateral view 1.4(-1.5) times as long as high, in dorsal view about as broad between tegulae as breadth of head. Mesonotum shiny with fine punctation, notaulix indicated by somewhat crowded punctation + rugulo-subrugulosity on interspaces, interspaces of mesonotum rather greater than diameter of punctures. Scutellum polished. Propodeum rugose with scrobiculate elements, with a less conspicuous medio-longitudinal keell. Mesopleuron above and anteriorly punctate-subpunctate, otherwise polished. Hind femur (Fig. 156) 3.8-4 times as long as broad. Hind tarsus about one-fourth longer than hind tibia. Hind basitarsus twice as long as second tarsal joint (Fig. 158).

Fore wing about as long as body. Pterostigma (Fig. 159) 2.5-2.7 times as long as wide, issuing radial vein distally from its middle; metacarp either as long as pterostigma or slightly shorter, metacarp about thrice longer than distance between its distal end and tip of radial vein; *r*1 as long as *cuqul* or slightly shorter. Discoidal cell slightly wider than high, *d*2 usually twice as long as *d*1 or, less usually, somewhat shorter. Nervellus straight to almost straight.

Metasoma as long as mesosoma and distinctly shorter than mesosoma and head together. First tergite either somewhat longer than wide behind (Fig. 157), or about as long as wide (Fig. 228); second tergite 2.3-2.4 times wider behind than long medially and distinctly shorter than third tergite (Fig. 157). First tergite rugose, posteriorly roughly rugose; second tergite rather longitudinally rugulose; further tergites polished; setae of third tergite restricted behind in a row (similar to that of *A. glomeratus*). Hypopygium in lateral view (Fig. 154) medium sized, slightly S-like truncate; ovipositor sheath about as long as fourth joint of hind tarsus.

Body black. Clypeus and oral part dark brown to brownish, palpi yellow. Mandible brown. Tegula brown. Legs yellow, coxae 1-2 brownish black, coxa 3 black. Tip of hind femur darkening. Tarsal joints brownish fumous. Wings hyaline, pterostigma brownish to light brownish with a rather effaced pale basal spot. *r*1 + *cuqul* light brownish to yellowish brownish, other veins pale pigmented.

♂. Similar to female. Antenna somewhat longer than body, flagellar joints not shortening distally, i.e. every joint 2.5-3 times as long as broad. First tergite longer than broad behind (Fig. 157).

Host: *Acronicta leporina* (LINNAEUS) (Lep. Noctuidae).

Locality — Holotype (♀) and 15 paratypes (13♀ + 2♂): Finland Helsinki, 4 August 1960, leg. et educ. ex *Acronicta leporina* (L.) by E. O. Peltonen.

The new species is dedicated to MR. ERKKI O. PELTONEN (Helsinki), eminent Finnish entomologist who collected and bred it from its lepidopterous host.

Holotype and 2 ♀ paratypes deposited in the Zoological Museum of the University, Helsinki; 2 ♀ paratypes in the Department of Agricultural and Forest Zoology of the University, Helsinki; and 8 ♀ + 2 ♂ paratypes in the Hungarian Natural History Museum, Budapest, Hym. Typ. Nos 7101-7110 (8 ♀: 7101-7108, 2 ♂: 7109-7110).

The new species, *A. peltoneni* sp. n., is closely related to *Apanteles glomeratus* (LINNAEUS) and *A. berberis* NIXON, the three species may be separated by their following features:

<i>A. peltoneni</i> sp. n.	<i>A. glomeratus</i> (L.)	<i>A. berberis</i> NIXON
1. Head in dorsal view (Fig. 155) less transverse, 1.8-1.9 broader than long. Temple more rounded; eye about 1.3-1.4 times as long as temple.	1. Head in dorsal view (Fig. 143) slightly more transverse 2-2.2 times broader than long. Temple rounded; eye 1.2-1.3 times as long as temple.	1. Head in dorsal view (Fig. 153) slightly less transverse, 1.8-1.9 times broader than long. Temple rounded, eye 1.2 times as long as temple.

<i>A. peltoneni</i> sp. n.	<i>A. glomeratus</i> (L)	<i>A. berberis</i> NIXON
2. Mesonotum with disperse and rather fine punctation, notaulix distinct by fine rugulosity.	2. Mesonotum densely and clearly punctate, interspaces shorter to much shorter than punctures; notaulix antero-laterally distinct by crowded punctation behind weakening to obsolescent.	2. Mesonotum densely and clearly punctate similar to that of <i>A. glomeratus</i> .
3. Scutellum flattened.	3. Scutellum domed (Fig. 146)	3. Scutellum flattened (Fig. 152).
4. First tergite either somewhat longer than broad (Fig. 157) or as long as broad at hind (Fig. 228); second tergite 2.1–2.3 times as wide behind as long medially (Figs 157, 228).	4. First tergite 1.7–1.8 times as long as broad at hind, second tergite about 2.5 times as wide behind as long medially (Figs. 139–140).	4. First tergite relatively large, about 1.3 times as long as broad at hind; second tergite less transverse, 1.8–1.9 times as wide behind as long medially (Fig. 149).
5. Hind femur 3.8–4 times as long as broad (Fig. 156). Hind tarsal joints relatively long, basitarsus only twice longer than second tarsal joint (Fig. 158).	5. Hind femur relatively thick, 3–3.2 times as long as broad (Fig. 144). Hind tarsal joints relatively short, basitarsus 2.3–2.5 times longer than second tarsal joint (Fig. 145)	5. Hind femur 3.8–4 times as long as broad. Hind tarsal joints as in <i>A. glomeratus</i> .
6. Hypopygium in lateral view (Fig. 154) medium-sized, slightly S-like truncate.	6. Hypopygium in lateral view (Fig. 142) short and small, apically weakly emarginate.	6. Hypopygium in lateral view (Fig. 151) medium-sized, truncate.

Apanteles juniperatae (Bouché)

Microgaster juniperatae BOUCHÉ, 1834: Naturg. Insekt. p. 154 ♀♂, type locality: ?Berlin (Germany), lectotype in Zoologisches Museum, Berlin.

Apanteles juniperatae (BOUCHÉ): REINHARD, 1880 Dt. ent. Z. 24: 364 (in key) and 1881 idem 25: 34 (descr.).

During my visit in October 1979 in the Zoological Museum (Berlin) I found 3 syntype specimens (1 ♀ + 2 ♂) under the name *Apanteles juniperatae* (BOUCHÉ). One of the 2 male specimens was designated by me as the lectotype because Bouché's original description best refers to it, the rest of the syntypes (1 ♀ + 1 ♂) represent herewith paralectotypes. However, the specific characters are better manifested in the female sex having only a paralectotype status.

Designation of the lectotype (♂) (data are quoted according to the sequence of the labels) — first label: "Berlin" (printed); second orange label: "Type" (printed); third label: "13116" (printed); fourth label: "Juniperatae Bouch." (handscript, Bouché's handscript?); fifth label: "Seen" (handscript) "D. S. Wilkinson 193" (printed) "6" (handscript) "Det." cancelled; sixth label is my lectotype label.

2 paralectotypes (1 ♀ + 1 ♂) with similar labels excepting third and fourth ones.

Apanteles picipes (BOUCHÉ)

Microgaster picipes BOUCHÉ, 1834: Naturg. Insekt. p. 158 (?) ♂, type locality: ? Germany, "Type" in Zoologisches Museum Berlin.

Apanteles picipes (BOUCHÉ): MARSHALL 1889 in ANDRÉ: Spec. Hym. Eur. Alg. 4: 490.

MARSHALL (l.c.) indicated the name *A. picipes* among "espèces d'*Apanteles* douteuses ou imparfaitement décrites". Examining the male "Type" specimen of *A. picipes*, I myself could not decide its taxonomic-systematic status. The male specimen at hand represents *A. xanthostigma* HALIDAY and the original description of *M. picipes* (l.c.) refers quite well to this specimen. However, in one respect there is a contradiction between the "Type" specimen and the description. Namely, according to the description tergites 1-2 roughly rugose, that of the specimen manifests another sculpture, first tergite rugose, second tergite almost smooth and only behind uneven-subrugulose. I consider the male "Type" specimen of *M. picipes* as conspecific with *A. xanthostigma* and rather provisionally the name *picipes* as a junior synonym of *xanthostigma*.

THE *CUTELLATUS*-GROUP

The following features characterize species of the *cutellatus*-group: 1. Metasoma compressed laterally (Figs 223-224). 2. Antenna short, its penultimate 4-5 joints cubic. 3. Ovipositor sheath about as long as hind tibia.

The host(s) of the species of *A. cutellatus*-group is (are) unknown.

The *cutellatus*-group comprises but a single species in the Palearctic Region (in Uzbekistan in the USSR):

— — Head in dorsal view transverse, 2.5 times as broad as long. Antenna distinctly shorter than body, first 2-3 flagellar joints twice as long as broad, further joints shortening so that penultimate 4-5 joints cubic. First tergite slightly broadening posteriorly similarly to the species of the *popularis*-group. Second tergite subquadrate, hardly wider behind than long medially (Fig. 222). First tergite rugose, second tergite longitudinally rugose. Sculpture of body similar to that of the species of the *glomeratus*-group. Metasoma compressed laterally (Figs 223-224). Ovipositor sheath in lateral view as long as hind tibia. Pterostigma somewhat more than twice as long as wide, issuing radial vein distally from its middle, *r1* shorter than *cuqul* (Fig. 225). Black, legs with reddish yellow pattern. ♀: 2.7 mm. — Uzbekistan (USSR)

A. cutellatus TOBIAS, 1966 (!!)

CORRIGENDA

In the previous part (No. IX) of my survey (PAPP 1986) a few species were not included into the key to the *tibialis*-subgroup. The following species were omitted: *Apanteles acutulus* TOBIAS, *A. callimone* NIXON, *A. setebis* NIXON and *A. sibyllarum* WILKINSON. Subsequently I modify my key in the following way: the key-couplet to which the species in question runs is numbered similarly to that of the original couplet, further couplets are inserted and lettered as A (B), B (A) etc.

CORRECTED KEY-SECTIONS OF *TIBIALIS*-SUBGROUP

(See also PAPP 1986: 226–235)

- 25 (26) Hind coxa rugose-rugulose, never punctate (Fig. 1 in PAPP 1986: 243). Mesonotum with dense punctation, notaulix rugose forming a large rugose field behind. Tergites 1–2 roughly rugose to scabrous without polished interspaces (Fig. 20 l.c.).
- A (D) Inner spur of hind tibia shorter than (Fig. 23 l.c.) or at most as long as (cf. Fig. 17) half basitarsus, less frequently two spurs of equal length; inner spur usually shorter than half basitarsus.
- B (C) Hypopygium in lateral view medium-sized, never surpassing last tergite, apically truncate (Fig. 24 l.c.) or blunt (Fig. 25 l.c.). Second tergite transverse, about thrice as wide behind as long medially (Figs 20, 28, in PAPP 1986: 243 and 244). Pterostigma less wide, 2.6–3 times as long along its fore margin as wide, issuing radial vein somewhat more distally from its middle (Fig. 22 l.c.). Hind basitarsus relatively short, hind tarsal joints 2–5 1.4–1.5 times as long as basitarsus (cf. Fig. 49). Black; legs reddish yellow, coxae always brown (coxae 1–2) to brownish black/black (coxa 3); hind femur variable in colour, either reddish yellow to yellow (late spring and early summer generation) or black to nearly black (summer generation). Male flagellum of dark-legged generation conspicuously yellowish distally, that of light-legged generation less obviously paler. ♀♂: 2–3.3 mm, usually 2.5–3 mm. — Palaearctic Region, frequent to common. (= *atrator* CURTIS, 1830; = *claustratus* GAUTIER et BONNAMOUR, 1923; *congestus* NEES, 1834; *globatus* BOUCHÉ, 1834; *gracilipes* THOMSON, 1895;²³) = *gracilis* CURTIS, 1830;²³) = *intricatus* HALIDAY, 1834; = *similis* SZÉPLIGETI, 1901; = *simulans* LYLE, 1917; ? = *xylinus* SAY, 1836)
- A. *tibialis* (CURTIS, 1830) (!)
- C (B) Hypopygium in lateral view (Fig. 226) large, always clearly surpassing last tergite, apically pointed. Second tergite slightly less transverse, 2.2–2.5 times as wide behind as long medially (Fig. 227). Pterostigma wide, 2.4–2.5(–2.6) times as long along its fore margin as wide, issuing radial vein somewhat less distally from its middle (cf. Fig. 17 in PAPP 1986: 243). Hind basitarsus relatively long, hind tarsal joints 2–5 1.1–1.2 times as long as basitarsus (cf. Fig. 53). Black; legs reddish yellow, coxae 1–2 brown to blackish, coxa 3 black, hind femur apically blackish fumous. ♀♂: 2.1–3 mm. — USSR (Lithuania), Hungary
- A. *acutulus* TOBIAS, 1973 (!!)
- D (A) Inner spur of hind tibia always distinctly longer than, outer spur usually as long as half basitarsus (Fig. 50), or less frequently longer or shorter. Pterostigma rather narrow, about 3–3.5 times as long as wide and issuing radial vein distinctly distally from its middle (Fig. 51). Outer side of hind coxa either rugose to rugulose, or punctate of variable size; scutellum also of variable sculpture. For further details see couplet 58 (61) — 60 (59) (p. 216)
- A. *callimone* NIXON, 1974 (!!)
- A. *setebis* NIXON, 1974 (!!)

* * *

²³ In the previous part (No. IX) of my survey (PAPP 1986: 230) the two names *gracilipes* and *gracilis* were "amalgamated" under the authorship as "*gracilipes* CURTIS, 1830" — a typographical misprint unfortunately escaped my attention in the proof. Herewith I disclose the true citation of the two synonymous names.

33 (28) Hind coxa punctate, subpunctate to almost smooth, rather exceptionally with crowded punctures, or at most partly subrugulose-rugulose, shiny.

34 (37) Inner spur of hind tibia distinctly longer than half basitarsus (Fig. 50). First tergite less broadening posteriorly, either longer than wide (*A. orestes*, *A. ordinarius*), or about as long as wide at hind (*A. callimone*, *A. setebis*).

A (B) First tergite about as long as wide at hind. *r1* oblique to fore margin of pterostigma, i.e. directed to distal end of fore wing (Fig. 51). For further details see couplet 58 (61) — 60 (59) (p. 216)

A. callimone NIXON, 1974 (!)

A. setebis NIXON, 1974 (!)

B (A) First tergite 1.3–1.5 times as long as wide at hind (Figs 109, 116). *r1* (almost) perpendicular to fore margin of pterostigma, i.e. not directed to distal end of fore wing (Fig. 119). For further details see couplets 120 (119) and 128 (129)

A. ordinarius (RATZEBURG, 1844) (!)

A. orestes NIXON, 1974 (!)

* * *

38 (21) Scutellum densely punctate to punctate, or less often rugose-rugulose.

⋮

41 (44) Inner spur of hind tibia distinctly longer than half basitarsus.

A (B) First tergite about as long as wide at hind, *r1* oblique to fore margin of pterostigma, i.e. directed to distal end of fore wing (Fig. 51). Scutellum usually distinctly and rather strongly punctate, less usually with fine punctation to uneven. For further details see couplets 58 (61) — 60 (59) (p. 216).

A. callimone NIXON, 1974 (!)

A. setebis NIXON, 1974 (!)

B (A) First tergite 1.2–1.5 times as long as wide at hind. *r1* (almost) perpendicular to fore margin of pterostigma, i.e. not directed to distal end of fore wing (Fig. 119) excepting *A. geryonis* (Fig. 114).

C (D) First tergite relatively more broadening posteriorly, behind clearly rounded; second tergite with oblique lateral margin, i.e. basal field not coextensive with whole of second tergite (Fig. 106). Tarsal joints of fore leg relatively less attenuated, in dorsal view fourth joint of fore tarsus only somewhat longer than broad (Fig. 107). Legs yellow to straw yellow. Scape yellow, flagellum brown to dark brown, ventrally yellowish. ♀♂: 2.7–3.5 mm, usually 3.2–3.5 mm. — England, Germany

A. sibyllarum WILKINSON, 1936 (!)

D (C) First tergite relatively less broadening posteriorly, behind less rounded; second tergite with not oblique lateral margin, i.e. basal field coextensive with whole of tergite (Figs 38, 40 in PAPP 1986: 244). Tarsal joints of fore leg attenuated as usually. Legs reddish yellow, flagellum either fulvous (*A. capucinae*) or black(ish) (*A. geryonis*). For further details see couplets 42 (43) — 43 (42) in PAPP 1986: 233 and in the present key couplets 123 (126) — 125 (124) (p. 227)

A. capucinae FISCHER, 1961 (!)

A. geryonis MARSHALL, 1885 (!)

THE SPECIES OF THE *GLOMERATUS*-SUBGROUP (*GLOMERATUS*-GROUP)

(Synonyms are in italics, numbers refer to couplet-numbers; Corr. = in Corrigenda on p. 243.)

- abjectus* MARSHALL 27 (28), 37 (38)
acaudus PROVANCHER 44 (45), 206 (107)
acuminatus REINHARD 10 (11)
acutulus TOBIAS 10 (11), Corr.
affinis NEES 42 (43)
amphypyrae WATANABE 27 (28)
analis NEES 51 (52)
ancilla NIXON 75 (74), 217 (218)
anomidis WATANABE 52 (51)
aphae WATANABE 27 (28)
atalantae PACKARD 15 (14)
aururus TELENGA 190 (189)
avetyanae TOBIAS 171 (172)
bactrianus TELENGA 167 (168)
berberis NIXON 150 (151)
bignellii MARSHALL 145 (146, 199 (200))
cajae BOUCHÉ 7 (8)
callimone NIXON 60 (59), 93 (94), 107 (108),
 Corr.
callunae NIXON 74 (75)
calodetta NIXON 31 (30), 83 (84)
capucinae FISCHER 124 (125), Corr.
cerurae MUESEBECK 27 (28)
chares NIXON 100 (101), 116 (117)
cingiliae MUESEBECK 85 (86)
cleora NIXON 131 (130)
clisiocampae ASHMEAD 72 (73)
complanatus LYLE 27 (28)
congregatus SAY 114 (113)
coryphe NIXON 114 (113)
crataegi RATZEBURG 148 (149)
creatus BALEVSKI 70 (71)
cultrator MARSHALL 10 (11)
cupreus LYLE 214 (215)
cyaniridis RILEY 62 (63), 214 (215)
dendrolimi MATSUMURA 120 (119)
depressithorax TOBIAS 195 (196)
diacrisiae GAHAN 10 (11)
dictyoplocae WATANABE 68 (69), 202 (203)
difficilis NEES 7 (8)
?eguchi WATANABE 72 (73)
electrae VIREECK 7 (8), 104 (105)
empretiae VIREECK 66 (65)
enypiae MASON 120 (119)
errator NIXON 72 (73), 209 (210)
euchaetis ASHMEAD 8 (7)
euphorbiae BOUCHÉ 42 (43)
euryale NIXON 98 (97), 126 (123)
evagatus PAPP 30 (31)
ferrugineus MARSHALL 49 (50)
fiskei VIREECK 60 (59)
flagitatus PAPP 141 (140), 153 (154)
gabrielis GAUTIER et RIEL 159 (160)
gades NIXON 28 (27)
gastropachae BOUCHÉ 87 (88), 105 (104), 111
 (112)
geryonis MARSHALL 125 (124), Corr.
glabratus TELENGA 22 (23), 45 (44), 91 (92)
glomeratus LINNAEUS 148 (149)
gonopterygis MARSHALL 157 (158)
halisidotae MUESEBECK 119 (120)
harpyiae NIEZABITOWSKI 42 (43)
hemileuca RILEY 111 (112)
hyphantriae RILEY 3 (4), 68 (69)
inductus PAPP 62 (63)
insidiens RATZEBURG 104 (105)
isolde NIXON 25 (26)
jucundus MARSHALL 70 (71), 155 (156), 169
 (170), 178 (179), 206 (207), 211 (212)
judaicus PAPP 8 (7)
juniperatae BOUCHÉ 174 (175)
kasparyani TOBIAS 34 (35), 164 (165)
?kawadai WATANABE 130 (131)
kazak TELENGA 14 (15), 20 (19), 39 (40), 180
 (181)
kurdjumovi TELENGA 95 (96)
laverna NIXON 95 (96)
limbatus MARSHALL 130 (131)
lineola CURTIS 159 (160)
mahoniae MASON 72 (73), 206 (207)
melanoscelus RATZEBURG 70 (71)
miyoshii WATANABE 44 (45)
murtfeldtae ASHMEAD 59 (60)
nawaii ASHMEAD 148 (149)
nigrinervis THOMSON 178 (179)
?nigriventris NEES 148 (149)
nothus MARSHALL 146 (145), 172 (171), 176
 (177)
numen NIXON 181 (180)
ocneriae IVANOV 66 (65)
okamotoi WATANABE 42 (43)
?olenidis MUESEBECK 72 (73)
onaspis NIXON 171 (172)
opaculus THOMSON 65 (66)
ordinarius RATZEBURG 120 (119), Corr.
orestes NIXON 128 (129), Corr.
orobanae FORBES 140 (141)
peltoneni sp. n. 151 (150), 193 (192)
phobetri ROHWER 155 (156), 206 (207)
pholisora RILEY 150 (151)
pieridis BOUCHÉ 15 (14), 19 (20)
pieridis PACKARD 148 (149)
?placidus HALIDAY 95 (96)
planus WATANABE 42 (43)
prozorovi TELENGA 204 (205)
pyrophilae MUESEBECK 34 (35), 42 (43), 74 (75),
 206 (207)
reconditus NEES 148 (149)
risilis NIXON 81 (82), 109 (110)
rubecula MARSHALL 113 (114)
rubripes HALIDAY 114 (113)
rufiventris ABDINBEKOVA 165 (164)
salebrosus MARSHALL 74 (75), 88 (87)
saltator THUNBERG 219 (220)
saltatorius BALEVSKI 220 (219)
saskii WATANABE 15 (14)

scabriculus REINHARD 4 (3), 72 (73)
 schaeferi MARSH 66 (65)
 schizurae ASHMEAD 155 (156)
 ?sessilis FOURCROY 65 (66), 174 (175)
 setebis NIXON 59 (60), Corr.
 shemachaensis TOBIAS 160 (159)
 sibyllarum WILKINSON 119 (120), Corr.
 smerintheta MIYOSHI 44 (45)
 smerintheta RILEY 28 (27), 37 (38)
 solitarius RATZEBURG 70 (71)
 sorghiellae MUESEBECK 66 (65)
 spurius WESMAEL 85 (86), 104 (105)
 stellatarum BOUCHÉ 148 (149)
 subancilla BALEVSKI 215 (214)

?subcutaneus LINNAEUS sensu ZETTERSTEDT 65 (66)
 suzumei WATANABE 40 (39)
 tatehae WATANABE 148 (149)
 teleae MUESEBECK 148 (149)
 tenebrosus WESMAEL 185 (186)
 tetricus REINHARD 65 (66), 192 (193)
 theclae RILEY 214 (215)
 turkestanicus TELENGA 200 (199)
 vanessae REINHARD 12 (13), 140 (141), 153 (154), 189 (190)
 vinulae BOUCHÉ 42 (43)
 zygaenarum MARSHALL 97 (98), 102 (103), 126 (123)

TRANSITIONAL SPECIES TOWARDS THE *GLOMERATUS*-SUBGROUP

(Respective species-group in parenthesis,
 numbers refer to couplet-numbers)

artissimus PAPP 55 (56), 134 (135)
 (laevigatus-group)
 cerialis NIXON 136 (137)
 (ultor-group)

scaber TOBIAS 56 (55)
 (laevigatus-group)
 suevus REINHARD 183 (184)
 (suevus-group)

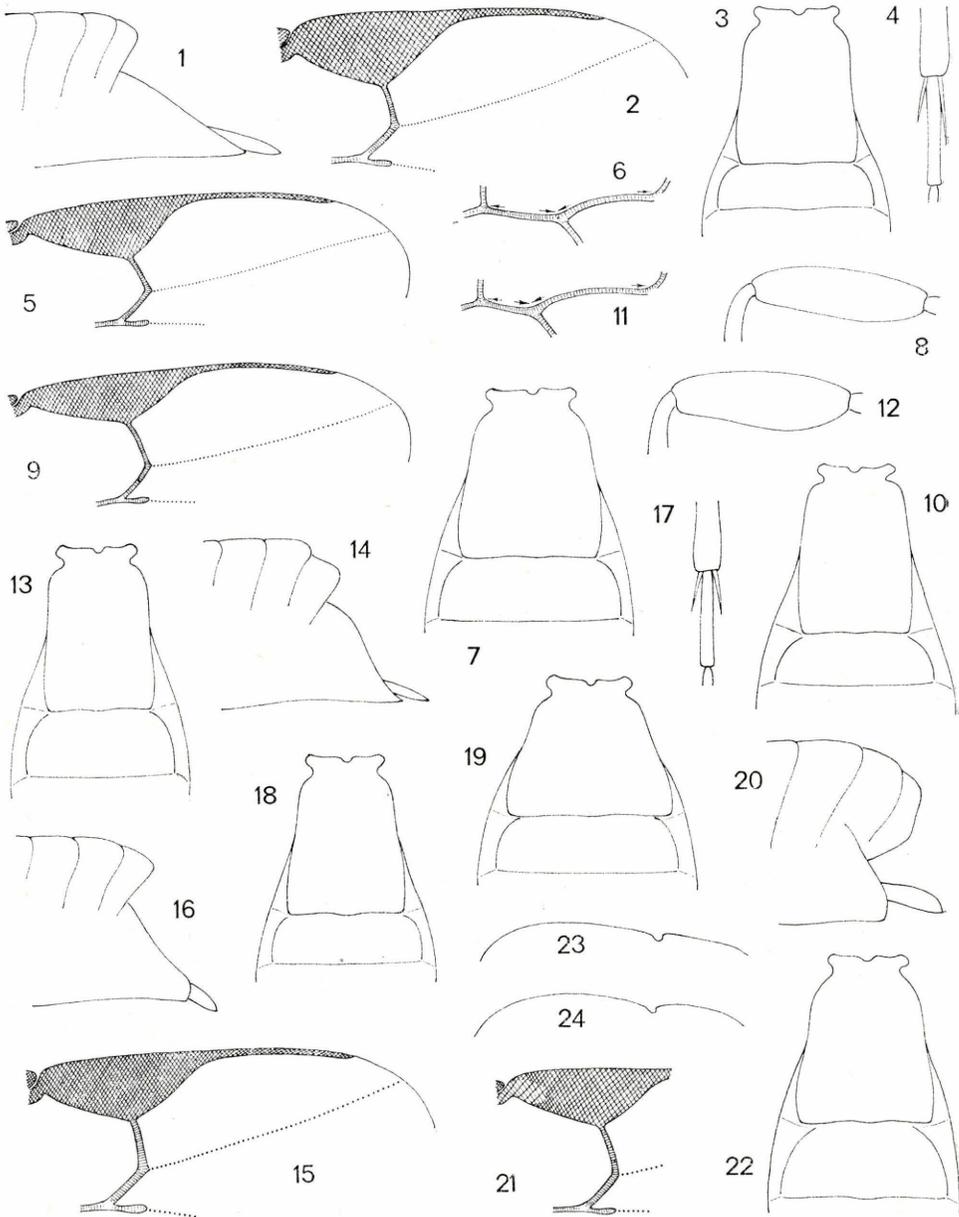
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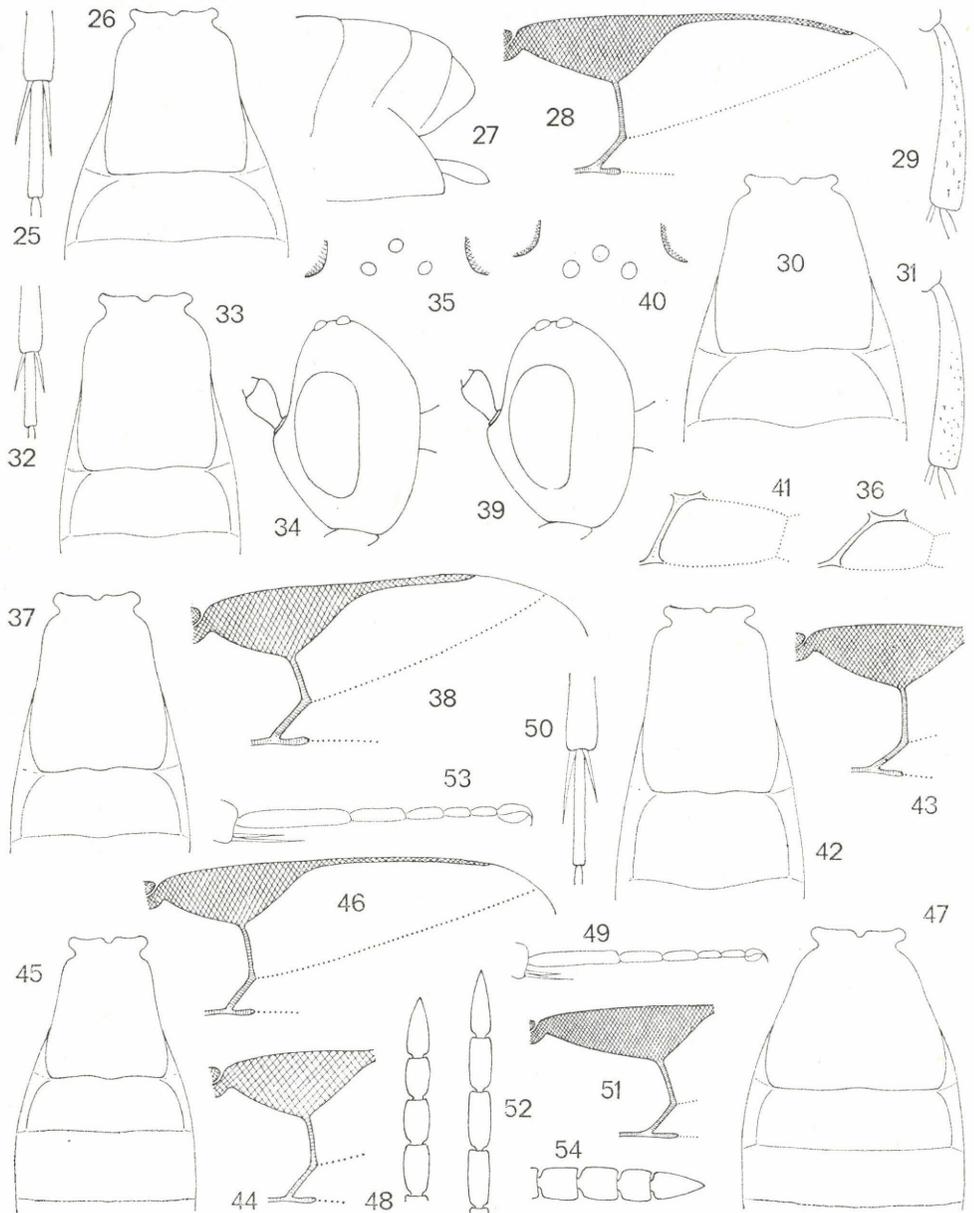
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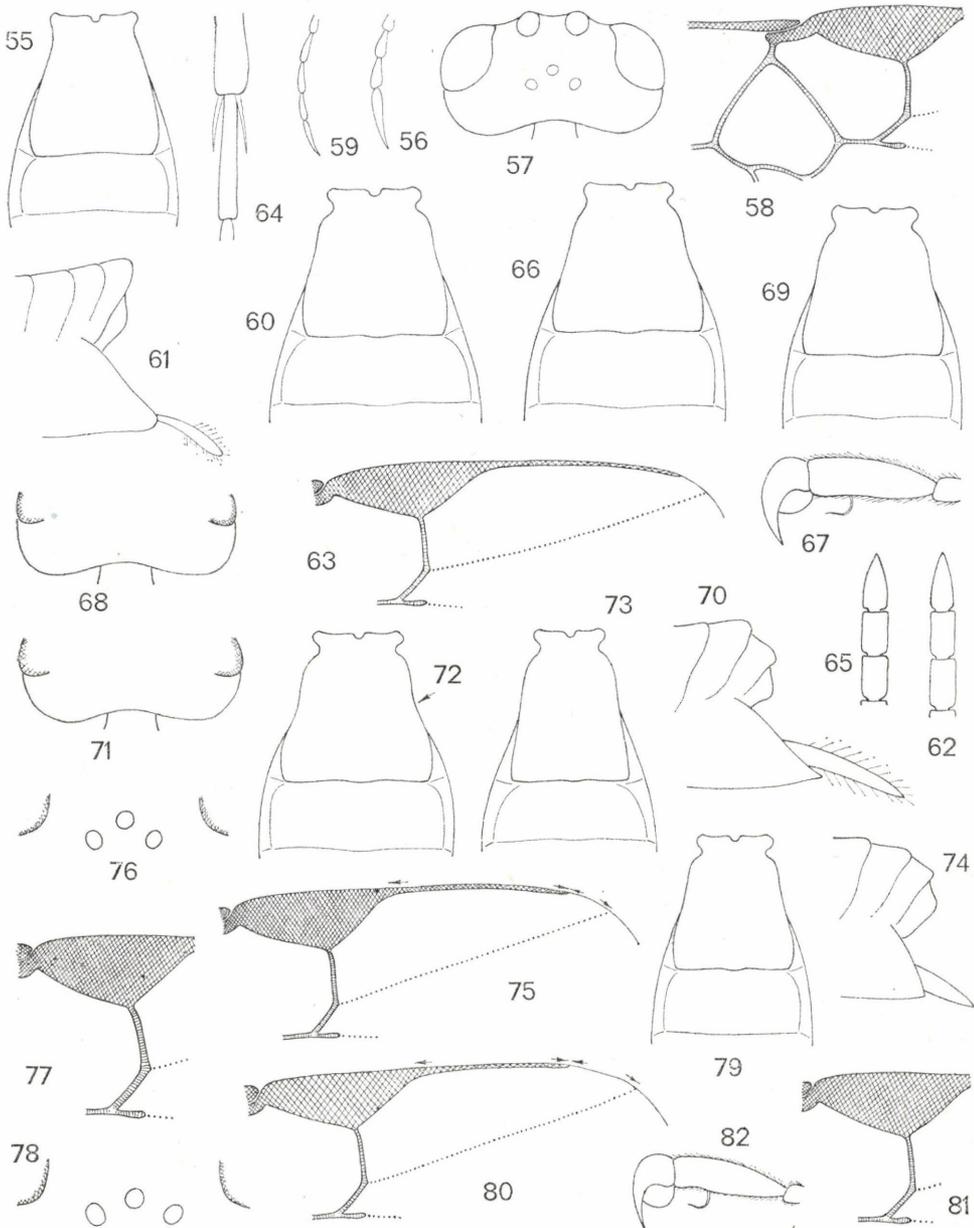
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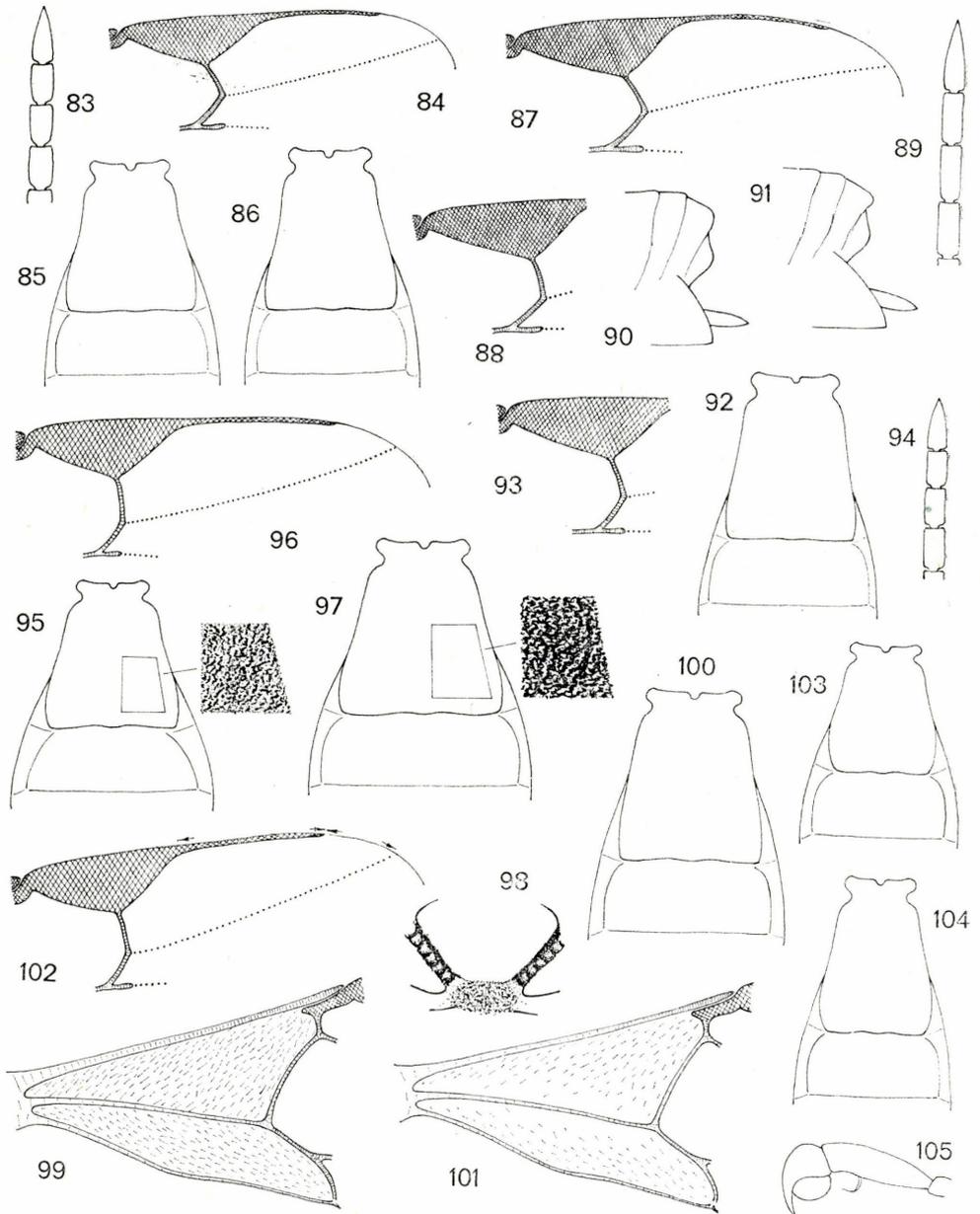
Figs 1-3. *Apanteles acuminatus* REINHARD: 1 = posterior end of metasoma with hypopygium and ovipositor sheath, 2 = distal part of right fore wing, 3 = tergites 1-2. — Figs 4-8. *A. cajae* (BOUCHÉ): 4 = hind tibia with spurs and basitarsus, 5 = distal part of right fore wing, 6 = two sections ($d1 + d2$, see also arrows) of discoidal vein of fore wing, 7 = tergites 1-2, 8 = third femur. — Figs 9-12. *A. judaicus* PAPP: 9 = distal part of right fore wing, 10 = tergites 1-2, 11 = two sections ($d1 + d2$, see also arrows) of discoidal vein of fore wing, 12 = third femur. — Figs 13-14. *A. diacrisiae* GAHAN: 13 = tergites 1-2, 14 = posterior end of metasoma with hypopygium and ovipositor sheath. — Figs 15-18. *A. pieridis* (BOUCHÉ): 15 = distal part of right fore wing, 16 = posterior end of metasoma with hypopygium and ovipositor sheath, 17 = hind tibia with spurs and basitarsus, 18 = tergites 1-2. — Figs 19-21. *A. glabratus* TELENGA: 19 = tergites 1-2, 20 = posterior end of metasoma with hypopygium and ovipositor sheath, 21 = pterostigma, $r1 + cuqul$ and $cu3$ of right fore wing. — Figs 22-23. *A. isolde* NIXON: 22 = tergites 1-2, 23 = outline of mesonotum and scutellum in lateral view. — Fig. 24. *A. abjectus* MARSHALL: outline of mesonotum and scutellum in lateral view



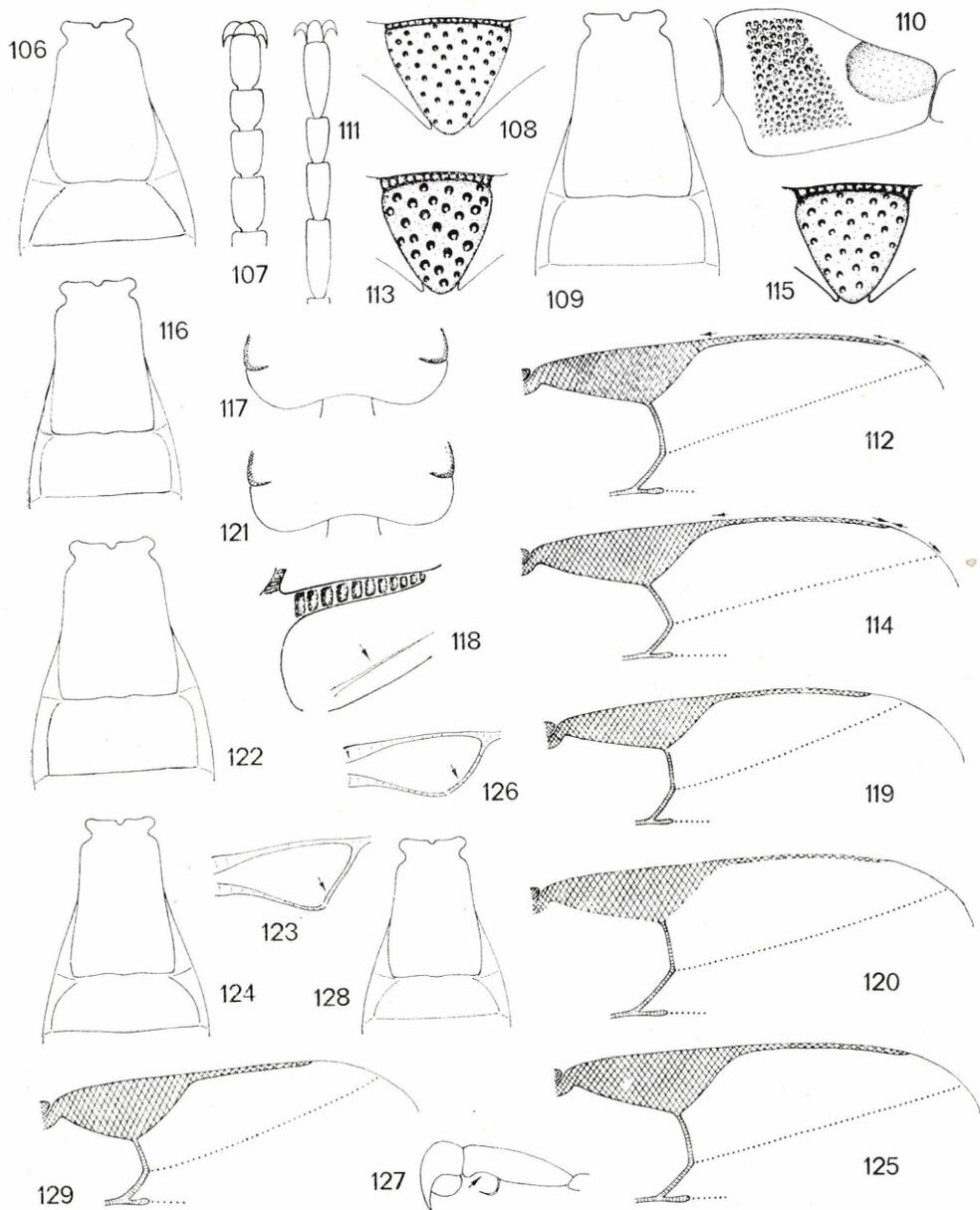
Figs 25-29. *Apanteles abjectus* MARSHALL: 25 = hind tibia with spurs and basitarsus, 26 = tergites 1-2, 27 = posterior end of metasoma with hypopygium and ovipositor sheath, 28 = distal part of right fore wing, 29 = outer side of hind tibia with spinules. — Figs 30-31. *A. gades* NIXON: 30 = tergites 1-2, 31 = outer side of hind tibia with spinules. — Figs 32-36. *A. evagatus* PAPP: 32 = hind tibia with spurs and basitarsus, 33 = tergites 1-2, 34 = head in lateral view, 35 = ocelli, 36 = Cu of right hind wing. — Figs 37-41. *A. calodetta* NIXON: 37 = tergites 1-2, 38 = distal part of right fore wing, 39 = head in lateral view, 40 = ocelli, 41 = Cu of right hind wing. — Figs 42-43. *A. kasparyani* TOBIAS: 42 = tergites 1-2, 43 = pterostigma, r1+cuq1 and cu3 of right fore wing. — Fig. 44. *A. suzumei* WATANABE: pterostigma, r1+cuq1 and cu3 of right fore wing. — Figs 45-46. *A. affinis* (NEES): 45 = tergites 1-3, 46 = distal part of right fore wing. — Fig. 47. *A. miyoshii* WATANABE: tergites 1-3. — Figs 48-49. *A. setebis* NIXON: 48 = antennal joints 15-18, 49 = hind tarsus in lateral view. — Figs 50-53. *A. callimone* NIXON: 50 = hind tibia with spurs and basitarsus, 51 = pterostigma, r1+cuq1 and cu3, 52 = antennal joints 15-18, 53 = hind tarsus in lateral view. — Fig. 54. *A. inductus* PAPP: antennal joints 15-18



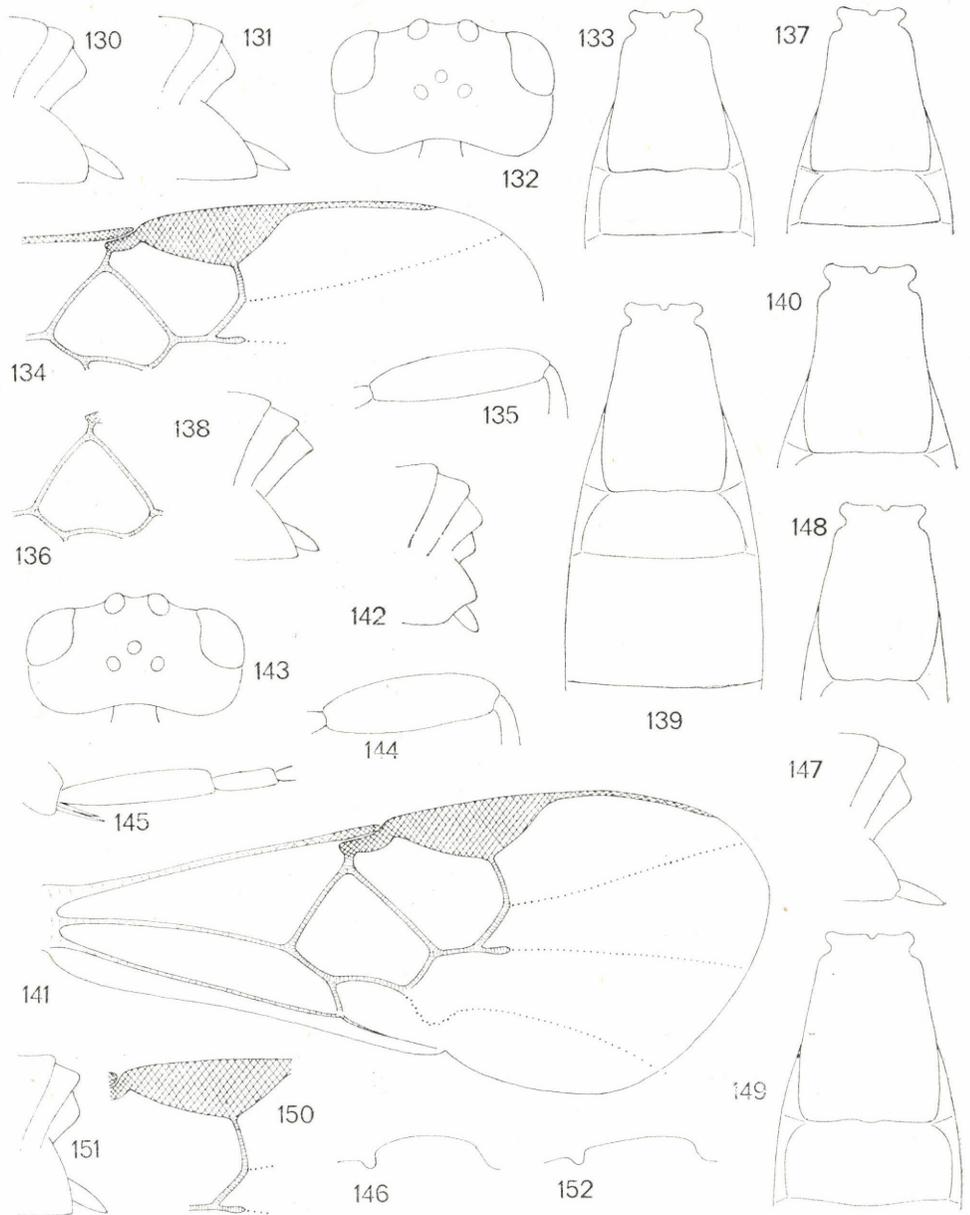
Figs 55-56. *Apanteles tetricus* REINHARD: 55 = tergites 1-2, 56 = joints 3-5(+6) of maxillary palp. — Figs 57-59. *A. ocneriae* IVANOV: 57 = head in dorsal view, 58 = middle part of right fore wing (pterostigma, $r1+cuqul+cu3$, D), 59 = joints 3-6 of maxillary palp. — Figs 60-62. *A. hyphantriae* RILEY: 60 = tergites 1-2, 61 = posterior end of metasoma with hypopygium and ovipositor sheath, 62 = antennal joints 16-18. — Figs 63-68. *A. melanoscelus* (RATZBURG): 63 = distal part of right fore wing, 64 = hind tibia with spurs and basitarsus, 65 = antennal joints 16-18, 66 = tergites 1-2, 67 = fifth joint of fore tarsus with spinule, 68 = head behind eyes in dorsal view. — Figs 69-71. *A. scabriculus* REINHARD: 69 = tergites 1-2, 70 = posterior end of metasoma with hypopygium and ovipositor sheath, 71 = head behind eyes in dorsal view. — Fig. 72. *A. clisiocampae* ASHMEAD: tergites 1-2. — Fig. 73. *A. mahoniae* MASON: tergites 1-2. — Figs 74-76. *A. salebrosus* MARSHALL: 74 = distal part of right fore wing, 75 = distal part of right fore wing, 76 = ocelli. — Figs 77-78. *A. risilis* NIXON: 77 = pterostigma, $r1+cuqul$ and $cu3$ of right fore wing, 78 = ocelli. — Figs 79-82. *A. spurius* (WESMAEL): 79 = tergites 1-2, 80 = distal part of right fore wing, 81 = pterostigma, $r1+cuqul$ and $cu3$, 82 = fifth joint of fore tarsus with spinule



Figs 83-84. *Apanteles kurdjumovi* TELENGA: 83 = antennal joints 15-18, 84 = distal part of right fore wing. — Figs 85-91. *A. zyaenarum* MARSHALL: 85-86 = tergites 1-2, 87 = distal part of right fore wing, 88 = pterostigma, *r1+cuqul* and *cu3* of right fore wing, 89 = antennal joints 15-18, 90-91 = posterior end of metasoma with hypopygium and ovipositor sheath. — Figs 92-94. *A. euryale* NIXON: 92 = tergites 1-2, 93 = pterostigma, *r1+cuqul* and *cu3* of right fore wing, 94 = antennal joints 15-18. — Figs 95-96. *A. gastropachae* (BOUCHÉ): 95 = tergites 1-2 with indication of rugosity of first tergite, 96 = distal part of right fore wing. — Figs 97-99. *A. rubecula* MARSHALL: 97 = tergites 1-2 with indication of rugosity of first tergite, 98 = rugosity of apical end of scutellum, 99 = proximal part of right fore wing. — Figs 100-101. *A. rubripes* (HALIDAY): 100 = tergites 1-2, 101 = proximal part of right fore wing. — Figs 102-105. *A. chares* NIXON: 102 = tergites 1-2, 103-104 = tergites 1-2, 105 = fifth joint of fore tarsus with spinule



Figs 106-108. *Apanteles sibyllarum* WILKINSON: 106 = tergites 1-2, 107 = fore tarsal joints 2-5, 108 = scutellum. — Figs 109-111. *A. ordinarius* (RATZEBURG): 109 = tergites 1-2, 110 = hind coxa in lateral view, 111 = fore tarsal joints 2-5. — Figs 112-113. *A. capucinae* FISCHER: 112 = distal part of right fore wing, 113 = scutellum. — Figs 114-115. *A. geryonis* MARSHALL: 114 = distal part of right fore wing, 115 = scutellum. — Figs 116-119. *A. orestes* NIXON: 116 = tergites 1-2, 117 = head behind eyes in dorsal view, 118 = lateral polished field of scutellum with phragma (↓), 119 = distal part of right fore wing. — Figs 120-123. *A. limbatus* MARSHALL: 120 = distal part of right fore wing, 121 = head behind eyes in dorsal view, 122 = tergites 1-2, 123 = submedial cell with nervellus (↓). — Figs 124-127. *A. cleora* NIXON: 124 = tergites 1-2, 125 = distal part of right fore wing, 126 = submedial cell with nervellus (↓), 127 = fifth joint of fore tarsus with spinule. — Figs 128-129. *A. bignellii* MARSHALL: 128 = tergites 1-2, 129 = distal part of right fore wing



Figs 130-135. *Apanteles vanessae* REINHARD: 130-131 = posterior end of metasoma with hypopygium and ovipositor sheath, 132 = head in dorsal view, 133 = tergites 1-2, 134 = distal part of right fore wing, 135 = third femur. — Figs 136-138. *A. flagitatus* PAPP: 136 = discoidal cell (*D*) of right fore wing, 137 = tergites 1-2, 138 = posterior end of metasoma with hypopygium and ovipositor sheath. — Figs 139-146. *A. glomeratus* (LINNAEUS): 139 = tergites 1-3, 140 = first tergite, 141 = right fore wing, 142 = posterior end of metasoma with hypopygium and ovipositor sheath, 143 = head in dorsal view, 144 = third femur, 145 = hind tarsal joints 1-2, 146 = outline of scutellum in lateral view. — Figs 147-148. *A. tatehae* WATANABE: 147 = posterior end metasoma with hypopygium and ovipositor sheath, 148 = first tergite. — Figs 149-152. *A. berberis* NIXON: 149 = tergites 1-2, 150 = pterostigma, *r1+cuq1* and *cu3* of right fore wing, 151 = posterior end of metasoma with hypopygium and ovipositor sheath, 152 = outline of scutellum in lateral view

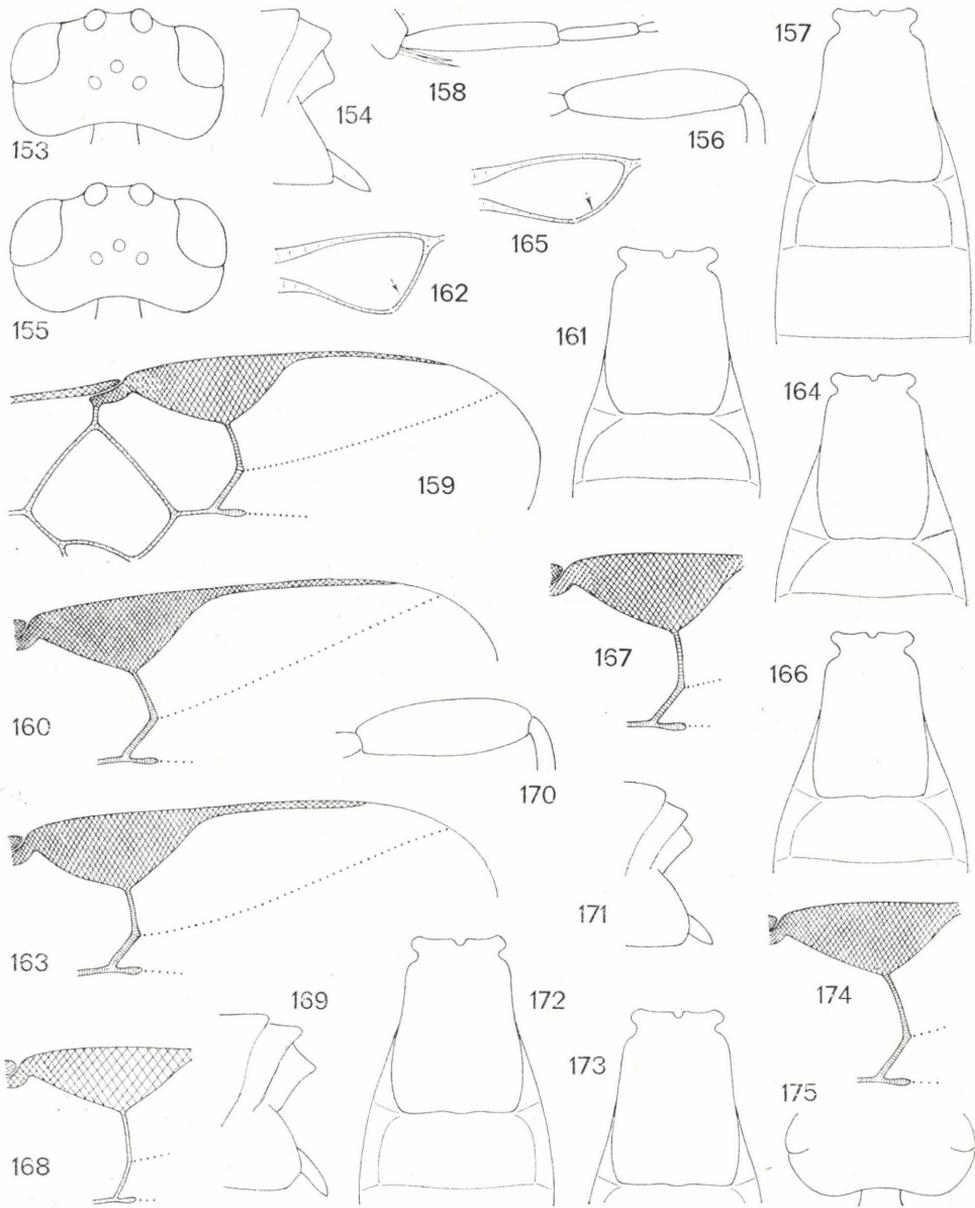
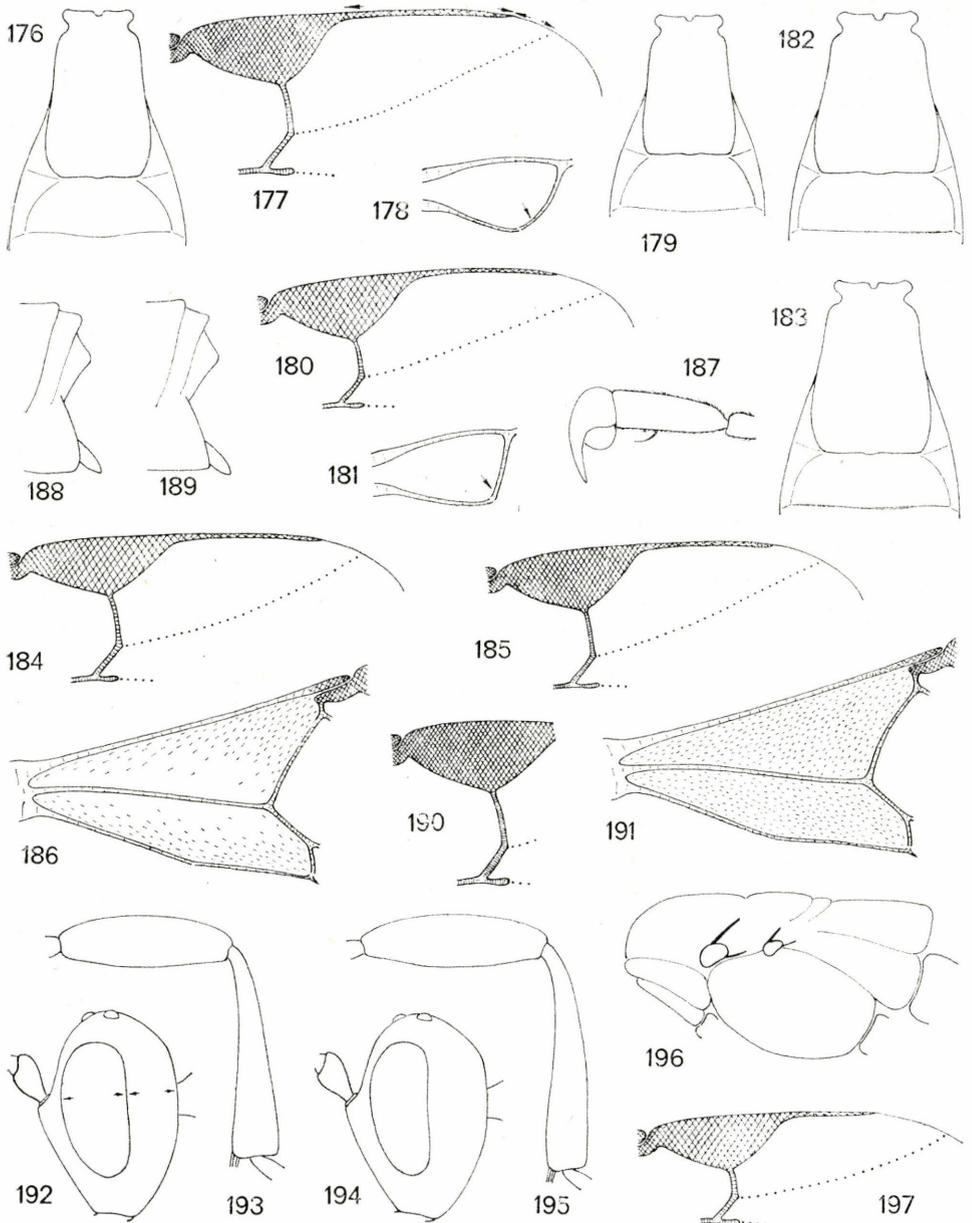


Fig. 153. *Apanteles berberis* NIXON: head in dorsal view. — Figs 154–159. *A. peltoneni* sp. n.: 154 = posterior end of metasoma with hypopygium and ovipositor sheath, 155 = head in dorsal view, 156 = third femur, 157 = tergites 1–3, 158 = hind tarsal joints 1–2, 159 = distal part of right fore wing. — Figs 160–162. *A. gonopterygis* MARSHALL: 160 = distal part of right fore wing, 161 = tergites 1–2, 162 = submediallan cell with nervellus (\downarrow). — Figs 163–165 *A. lineola* (CURTIS): 163 = distal part of right fore wing, 164 = tergites 1–2, 165 = submediallan cell with nervellus (\downarrow). — Figs 166–167. *A. shemachaensis* TOBIAS: 166 = tergites 1–2, 167 = pterostigma, *r1*+*cuq1* and *cu3* of right fore wing. — Figs 168–169. *A. bactrianus* TELENGA: 168 = pterostigma, *r1*+*cuq1* and *cu3* of right fore wing, 169 = posterior end of metasoma with hypopygium and ovipositor sheath. — Figs 170–171. *A. aururus* TELENGA: 170 = third femur, 171 = posterior end of metasoma with hypopygium and ovipositor sheath. — Figs 172–175. *A. juniperatae* (BOUCHÉ): 172 = tergites 1–2, 173 = first tergites, 174 = pterostigma, *r1*+*cuq1* and *cu3* of right fore wing, 175 = head behind eyes in dorsal view



Figs 176–178. *Apanteles onaspis* NIXON: 176 = tergites 1–2, 177 = distal part of right fore wing, 178 = submedial cell with nervellus (\downarrow). — Figs 179–181. *A. nothus* MARSHALL: 179 = tergites 1–2, 180 = distal part of right fore wing, 181 = submedial cell with nervellus (\downarrow). — Figs 182–189. *A. jucundus* MARSHALL: 182–183 = tergites 1–2, 184–185 = distal part of right fore wing, 186 = proximal part of right fore wing, 187 = fifth joint of fore tarsus with spinule, 188–189 = posterior end of metasoma with hypopygium and ovipositor sheath. — Figs 190–193. *A. kazak* TELENGA: 190 = pterostigma, *r1* + *cuqul* and *cu3* of right fore wing, 191 = proximal part of right fore wing, 192 = head in lateral view, 193 = hind femur and tibia. — Figs 194–195. *A. numen* NIXON: 194 = head in lateral view, 195 = hind femur and tibia. — Figs 196–197. *A. depressithorax* TOBIAS: 196 = mesosoma in lateral view, 197 = distal part of right fore wing

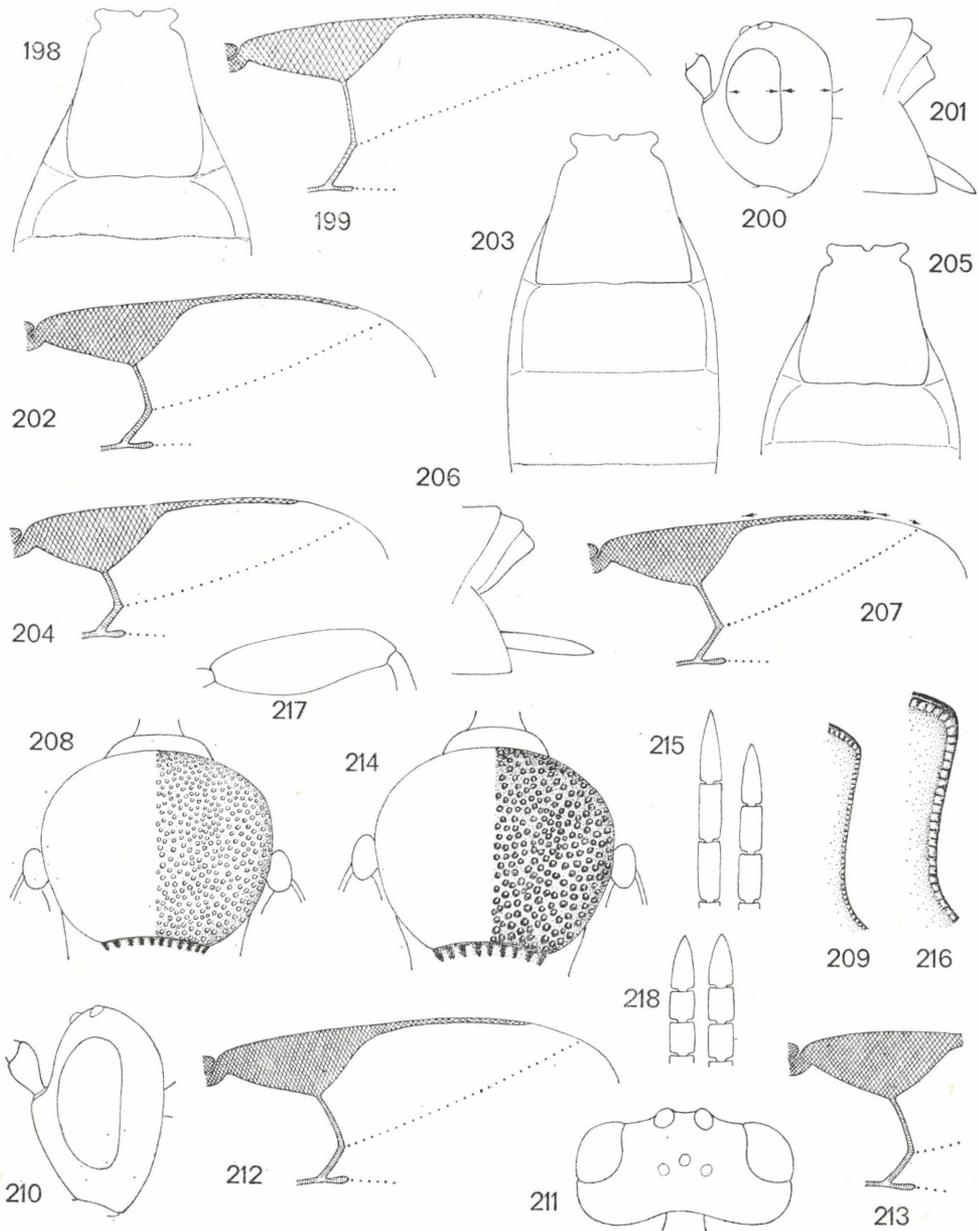
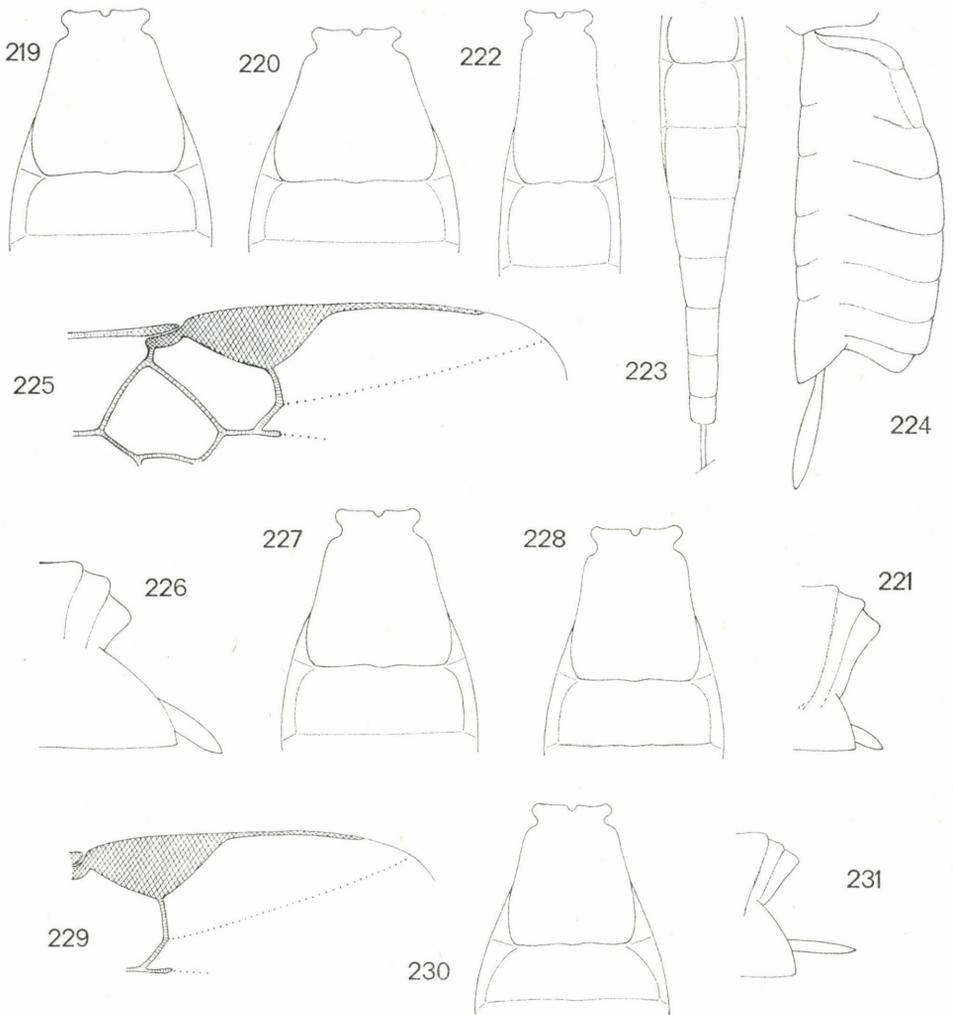


Fig. 198. *Apanteles turkestanicus* TELENGA: tergites 1-2. — Fig. 199. *A. dictyoplocae* WATANABE: distal part of right fore wing. — Figs 200-201. *A. prozorovi* TELENGA: 200 = head in lateral view, 201 = posterior end of metasoma with hypopygium and ovipositor sheath. — Figs 202-203. *A. errator* NIXON: 202 = distal part of right fore wing, 203 = tergites 1-3. — Figs 204-206. *A. cupreus* LYLE: 204 = distal part of right fore wing, 205 = tergites 1-2, 206 = posterior end of metasoma with hypopygium and ovipositor sheath. — Figs 207-209. *A. ancilla* NIXON: 207 = distal part of right fore wing, 208 = mesonotum with less sharp punctation, 209 = costate suture between meso- and metapleuron. — Figs 210-217. *A. saltator* (THUNBERG): 210 = head in lateral view, 211 = head in dorsal view, 212 = distal part of right fore wing, 213 = pterostigma, *r1* + *cu3* of right fore wing, 214 = mesonotum with sharp punctation, 215 = antennal joints 16-18, 216 = costate suture between meso- and metapleuron, 217 = third femur. — Fig. 218. *A. saltatorius* BALEVSKI: antennal joints 16-18



Figs 219-221. *Apanteles saltator* (THUNBERG): 219-220 = tergites 1-2, 221 = posterior end of metasoma with hypopygium and ovipositor sheath. — Figs 222-225. *A. cultellatus* TOBIAS: 222 = = tergites 1-2, 223 = metasoma in dorsal view, 224 = metasoma in lateral view, 225 = distal part of right fore wing. — Figs 226-227. *A. acutulus* TOBIAS: 226 = posterior end of metasoma with hypopygium and ovipositor sheath, 227 = tergites 1-2. — Fig. 228. *A. peltoneni* sp. n.: first tergite. — Figs 229-231. *A. subancilla* BALEVSKI: 229 = distal part of right fore wing, 230 = tergites 1-2, 231 = posterior end of metasoma with hypopygium and ovipositor sheath