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European species of *Metasyrphus*: key, descriptions and notes
(Diptera, Syrphidae)

ABSTRACT

A key based on males for identification of the 16 known European species of *Metasyrphus* is presented, and also a key based on females so far as possible. A new species *M. nielseni* is described. The species *M. punctifer* (Frey) comb. n. and *M. flaviceps* (Rondani) comb. n. are revised and notes on *M. interrumpens* (Walker) comb. n., *M. latifasciatus* (Macquart) and *M. nitens* (Zetterstedt) are given including new synonymy and figures and descriptions of the male terminalia. Lectotype designations are made for *M. punctifer* and *M. flaviceps*.

European species of *Metasyrphus*: key, descriptions and notes (Diptera, Syrphidae)

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Taxonomy, *Metasyrphus nielseni* sp. n., variability, lectotype, synonymy

The present work continues our previous paper (DUŠEK & LÁSKA, 1973). It contains a key to the known European species of the genus *Metasyrphus* MATSUMURA, 1917, which now total 16, a description of a new species *M. nielseni*, a redescription of the species *M. punctifer*, *M. flaviceps*, and notes on the species *M. interrumpens*, *M. latifasciatus* and *M. nitens*. The male terminalia of these species are also described and figured. The terminalia of other European species have been described and figured in our previous papers (DUŠEK & LÁSKA, 1967, 1973). A mutual correlation of colour characters has been taken into account in the key as well as in the descriptions. As previously found (BENESTAD, 1970; DUŠEK & LÁSKA, 1973, 1974), under lower temperatures the developing specimens are generally darker, but under higher temperatures are generally lighter. We have taken the extent of covering of the wing membrane by microtrichia as an important distinctive character, the importance of which was pointed out by VOCKEROTH (1958). For subdivision of the genus *Metasyrphus* we have accepted the conception of VOCKEROTH (1969).

Key to males

- 1 a Metasternum bare; vein r_{4+5} strongly dipped at middle. Postocular orbits near vertical triangle extremely narrow; lateral margin of tergite 5 usually dark. Holarctic. Body 8.6—11.4 mm, wing 8—10 mm (sg. *Lapposyrphus* DUŠEK & LÁSKA). *M. lapponicus* (ZETT.)
- b Metasternum hairy; vein r_{4+5} only slightly curved at middle (sg. *Metasyrphus* MATSUMURA) 2
- 2 a Upper $\frac{2}{3}$ of eye with an area of distinctly enlarged facets; anterior angle of approximation of eyes broad — about 120° ; microtrichia covering about $\frac{1}{2}$ of the wing membrane. Large *Scaeva*-like species. North Europe. Body 10—13 mm, wing 8—10 mm *M. lundbecki* (SOOT RYEN) (syn. *M. arcuatus* auct. neo. FALL.)
- b Eye without area of distinctly enlarged facets; anterior angle of approximation of eyes about 90° or less, at most 105° (in *M. nielseni*); microtrichia covering more than $\frac{1}{2}$ of the wing membrane 3
- 3 a Male terminalia remarkably large (Fig. 87). Postocular orbits near vertical triangle very broad; scutellum usually pale haired. Palaearctic, Ethiopian. Body 8—10 mm, wing 6.6—8.6 mm *M. corollae* (FABR.)
- b Male terminalia small (Figs. 46—50) 4
- 4 a Legs completely yellow; long hairs on the front femur yellow; face narrow (Fig. 5). Face completely yellow; yellow spots on tergites 3 and 4 usually connected; hairing generally short. Southern Palaearctic. Body 8—10 mm, wing 7—8 mm *M. interrumpens* (WALK.) (syn. *M. rufinasutus* [BIGOT], *M. novigradensis* [COE])
- b At least the base of femurs dark; long hairs on the front femur at least in apical part of femur black; face broader (Figs. 1, 2, 4) 5

- 5 a Postocular orbits near vertical triangle broad (Fig. 89), (broader than in *M. luniger*) . 6
 b Postocular orbits near vertical triangle narrow (Fig. 88) (as in *M. luniger* or narrower) 11
- 6 a Microtrichia covering almost whole wing membrane, more than $\frac{1}{2}$ of the second basal cell and whole alula covered by microtrichia 7
 b Microtrichia not covering almost whole wing membrane, at most $\frac{1}{2}$ of the second basal cell covered by microtrichia, basal part of alula with a bare area in middle 9
- 7 a Yellow spots on tergites 3 and 4 usually connected (Figs. 37—39), if separated then their upper margin is almost straight and situated rather close to the base of tergite (Fig. 40). Holarctic. Body 8.8—9.4 mm, wing 6.6—7.4 mm *M. latifasciatus* (MACQ.)
 b Yellow spots on tergites 3 and 4 separated, their upper margin concave, if the upper margin is not distinctly concave, then the spots are well removed from the base of tergites 8
- 8 a Postocular orbits very broad (Fig. 89); head of pyxis*) elongate, about twice as broad as high (Fig. 94). North Europe. Body 7—9.4 mm, wing 6.6—7.5 mm
 *M. abiskoensis* DUŠ. & LÁS.
 b Postocular orbits somewhat narrower; head of pyxis not so elongate (Fig. 93). North Europe. Body 8 mm, wing 6.6 mm *M. borealis* DUŠ. & LÁS.
- 9 a Hairs on the lateral margin of tergite 4 long and erect; a distinct groove present between facial tubercle and oral margin; oral margin not usually continuously dark
 *M. vandergooti* DUŠ. & LÁS. (see 14 a)
 b Hairs on the lateral margin of tergite 4 shorter and subappressed; no distinct groove present between facial tubercle and oral margin; oral margin usually continuously dark 10
- 10 a Less than $\frac{1}{2}$ of second basal cell covered by microtrichia; yellow spots on tergites 3 and 4 of characteristic shape, oblique and broadened towards the middle of tergite; wing membrane outside marginal veins very broad. Alps. Body 8.6—10.6 mm, wing 7.8—8.4 mm
 *M. tirolensis* DUŠ. & LÁS.
 b About $\frac{1}{2}$ of second basal cell covered by microtrichia; yellow spots on tergites 3 and 4 not distinctly broadened towards the middle of tergite; membrane of wing outside marginal veins not unusually broad. Corsica. Body 7.8 mm, wing 6.8 mm . *M. lambecki* DUŠ. & LÁS.
- 11 a Long hairs on the front femur all black; hairs on the lower half of face usually mainly black; lateral margin of tergite 5 usually dark (except *M. punctifer*) 12
 b Long hairs on the basal part of front femur usually partially pale; hairs on the lower half of face usually mainly pale; lateral margin of tergite 5 pale 14
- 12 a Lateral margin of tergite 5 pale, exceptionally partially dark; male terminalia with distinct upper tooth on the head of pyxis (Fig. 91); face broad (Fig. 90). North Europe. Body 7.6—10.5 mm, wing 7.2—8.8 mm *M. punctifer* (FREY)
 b Lateral margin of tergite 5 dark, if pale, then face is not broad (Fig. 2) and the male terminalia without upper tooth on the head of pyxis (Figs. 70—72) 13
- 13 a Postocular orbits near vertical triangle very narrow (Fig. 7); yellow spots on tergites 3 and 4 usually connected; more than $\frac{1}{2}$ of second basal cell and whole alula covered with microtrichia; male terminalia without upper tooth on the head of pyxis (Figs. 70—72); anterior angle of approximation of eyes less than 90°. Palaearctic. Body 9—11 mm, wing 6.7—8.8 mm *M. nitens* (ZETT.)
 b Postocular orbits near vertical triangle narrow (Fig. 6), but slightly broader than in previous species; yellow spots on tergites 3 and 4 almost always separated; less than $\frac{1}{2}$ of second basal cell covered by microtrichia, a bare area present in the middle of basal part of alula (except some specimens from Central Europe); male terminalia with well developed upper tooth on the head of pyxis (Figs. 78—85); anterior angle of approximation of eyes distinctly broader than 90° (except some specimens from Alps). North and Central Europe. Body 8.8—10.4, wing 8—8.4 mm
 *M. nielsenii* sp. n. (syn. *M. arcuatus* auct. nec FALL., *M. punctifer* auct. nec FREY)
- 14 a Hairs on the lateral margin of tergite 4 long and erect; a distinct groove present between facial tubercle and oral margin. Yellow spots on tergites 3 and 4 usually of characteristic shape broadened towards the middle of tergite. Corsica. Body 8.4—11.6 mm, wing 7.4 to 9.8 mm *M. vandergooti* DUŠ. et LÁS.
 b Hairs on the lateral margin of tergite 4 shorter and subappressed; no distinct groove present between facial tubercle and oral margin 15
- 15 a Upper margin of yellow spots on tergites 3 and 4 about straight or convex, the spots often connected but separated from the lateral margin of tergites; facial tubercle large and rounded, usually pale; hind tibia often with the dark ring in middle; vertical triangle

* Mid part of aedeagus.

- undusted along the eyes (Fig. 14). Central Europe, Balcan. Body 9.6—13.6, wing 7.8 to 10.8 mm *M. flaviceps* (ROND.) (syn. *M. braueri* /EGGER/)
- b Upper margin of yellow spots on tergites 3 and 4 concave, if the spots connected then often reaching the lateral margin of tergites; facial tubercle smaller and rather more pointed; hind tibia usually without dark ring in the middle; vertical triangle dusted close to the eyes in the basal part (as in Fig. 13) 16
- 16 a Anterior angle of approximation of eyes about 90° or more; oral margin usually dark; dark spots on sternites usually almost rectangular, elongate and narrower; light specimens (with yellow spots on tergite 2 reaching the lateral margin of tergite) having yellow spots on tergites 3 and 4 usually connected, darker specimens (with yellow spots on tergite 2 separated from lateral margin of tergite) having yellow spots on tergites 3 and 4 at least approaching; in British and Central European specimens usually more than 1/2 of second basal cell and whole alula covered by microtrichia. Europe. Body 9—12 mm, wing 8 to 9.5 mm *M. latilunulatus* (COLLIN)
- b Anterior angle of approximation of eyes less than 90°; oral margin usually not continuously dark; dark spots on sternites mostly oval; yellow spots on tergites 3 and 4 separated, connected in very light specimens only; usually less than 1/2 of second basal cell covered by microtrichia, a bare area present in the middle of basal part of alula. Palaearctic. Body 8—12 mm, wing 7.9—9.5 mm *M. luniger* (MEIG.)

Key to females

(Female of *M. borealis* Duš. & Lás. not positively known and not included in the key)

- 1 a Metasternum bare; vein r₄₊₅ strongly dipped at middle. Yellow spots on tergites 3 and 4 usually separated *M. lapponicus* (ZETT.)
- b Metasternum hairy; vein r₄₊₅ only slightly curved at middle 2
- 2 a Microtrichia on wing membrane greatly reduced, wing membrane outside marginal veins usually bare; frons rather inflated, covered by dense hairs (Fig. 100). Dust spots on frons present *M. lundbecki* (SOOT RYEN) (syn. *M. arcuatus* auct. nec FALL.)
- b Microtrichia covering most of wing membrane, wing membrane outside marginal veins usually entirely covered by microtrichia; frons less inflated with less dense hairs (Fig. 99) 3
- 3 a Face very narrow (Fig. 3); all legs pale; all long hairs on front femur pale; face entirely pale. Yellow spots on tergites 3 and 4 usually connected *M. interrumpens* (WALK.), (syn. *M. rufinasutus* /BIGOT/, *M. novigradensis* /COE/)
- b Face not very narrow (Fig. 95); front and mid femora dark at base or whole femora pale; long hairs on front femur all black or black in the apical part of femur only; if whole femora pale, then at least few black hairs intermingled in the apical part of front femur; facial tubercle often dark 4
- 4 a Frons without dust spots. Wing membrane outside marginal veins broad 5
- b Frons with more or less distinct dust spots 6
- 5 a Yellow spots on tergites 3 and 4 separated, characteristic in shape, oblique and broadened towards the middle of tergite; alula with a bare area in the middle of basal part *M. tirolensis* Duš. & Lás.
- b Yellow spots on tergites connected or — less frequently — separated; if separated then not oblique and not broadened towards the middle of tergite, upper margin of spots almost parallel with the base of tergite *M. latifasciatus* (MACQ.)
- 6 a Frons with dust spots small, so that distance between spots greater than half of width of frons; legs unicolorous, yellow to brownish; long hairs on the front femur usually all black; yellow spots on tergites 3 and 4 narrow, in most cases connected and reaching the lateral margin of tergite. About 1/2 of second basal cell and whole alula usually covered by microtrichia. Abdomen broad *M. nitens* (ZETT.)
- b Frons with dust spots larger, so that distance between spots is less than half width of frons, frequently less than one-third width of frons; at least front and mid femora dark at base; if all femora almost unicolorous and pale, then also long hairs on the basal part of front femur pale, if the long hairs on the basal part of front femur black, then yellow spots on tergites 3 and 4 distinctly separated 7
- 7 a Almost whole of wing membrane covered by microtrichia, more than 1/2 of second basal cell and whole alula covered by microtrichia. Semilunular yellow spots on tergites 3 and 4 approaching to or reaching lateral margin of tergite but distinctly separated in middle of tergite *M. abiskoensis* Duš. & Lás.
- b Wing membrane covered by microtrichia in less extent, less than 1/2 of second basal cell covered by microtrichia 8

- 8 a Lateral margin of tergite 5 dark, completely in dark specimens and at least partially in lighter specimens; long hairs on front femur black usually also at base; dark spot on sternite 4 distinct, almost as large as dark spot on sternite 3. Yellow spots on tergites usually separated *M. nielseni* sp. n.
 b Lateral margin of tergite 5 pale, partially dark in very dark specimens only; long hairs on front femur at least at base pale, if also black at base, then dark spot on sternite 4 absent or much smaller than on sternite 3 9
- 9 a Long hairs on front femur all black; dark spot on sternite 4 absent or much smaller than on sternite 3. Face broad. Yellow spots on tergites 3 and 4 separated but approaching to or reaching margin of tergite *M. punctifer* (FREY)
 b Long hairs on front femur at least at the base pale; if in extremely dark specimens all black, then dark spot on sternite 4 well developed 10
- 10 a Black colour on front usually reaching $\frac{1}{4}$ to $\frac{1}{3}$ of distance between front ocellus and base of antennae; second anal vein little curved into cell 1A before apex (Fig. 97). Scutellum almost always wholly pale haired *M. corollae* (FABR.)
 b Black colour on front reaching beyond $\frac{1}{3}$ of distance between front ocellus and base of antennae; second anal vein almost straight before apex (Fig. 96) 11
- 11 a Hairs on the margin of tergite 4 distinctly long and erect (Fig. 98a); between facial tubercle and oral margin a distinct groove present; yellow spots on tergites 3 and 4 usually very broad towards the middle of tergite *M. vandergooti* DUŠ. & LÁS.
 b Hairs on the margin of tergite 4 not distinctly long and erect (Fig. 98b,c); no distinct groove present between facial tubercle and oral margin; yellow spots on tergites 3 and 4 only slightly broadened 12
- 12 a Long hairs on front femur all pale, or some black hairs intermingled in apical part of femur; hairs on the margin of tergite 4 rather short (Fig. 98c) (reliable separation from the following species is impossible) *M. flaviceps* (ROND.) (syn. *M. braueri* [EGG.]
 b Long hairs on front femur in apical part at least partly black (except some very light specimens); hairs on the margin of tergite 4 little longer (Fig. 98b) 13
- 13 a Usually whole alula covered by microtrichia (in Mid-European and British specimens); light specimens (with yellow spots on tergite 2 reaching the lateral margin of tergite) having yellow spots on tergites 3 and 4 usually connected, darker specimens (with yellow spots on tergite 2 separated from lateral margin of tergite) having yellow spots on tergites 3 and 4 at least approaching; dark spots on sternites rather narrow. Hairs on scutellum in light specimens usually predominantly yellow *M. latilunulatus* (COLLIN)
 b Alula with a bare area in the middle of basal part; yellow spots on tergites 3 and 4 separated, narrowly connected in very light specimens only; dark spots on sternites rather oval. Hairs on scutellum almost always predominantly black on disc *M. luniger* (MEIG.)

Metasyrphus (Metasyrphus) nielseni sp. n.

(Figs. 1, 6, 12, 15, 18, 24, 34, 35, 36, 49, 59, 60, 61, 62, 63, 64, 78, 79, 80, 81, 82, 83, 84, 85, 86)

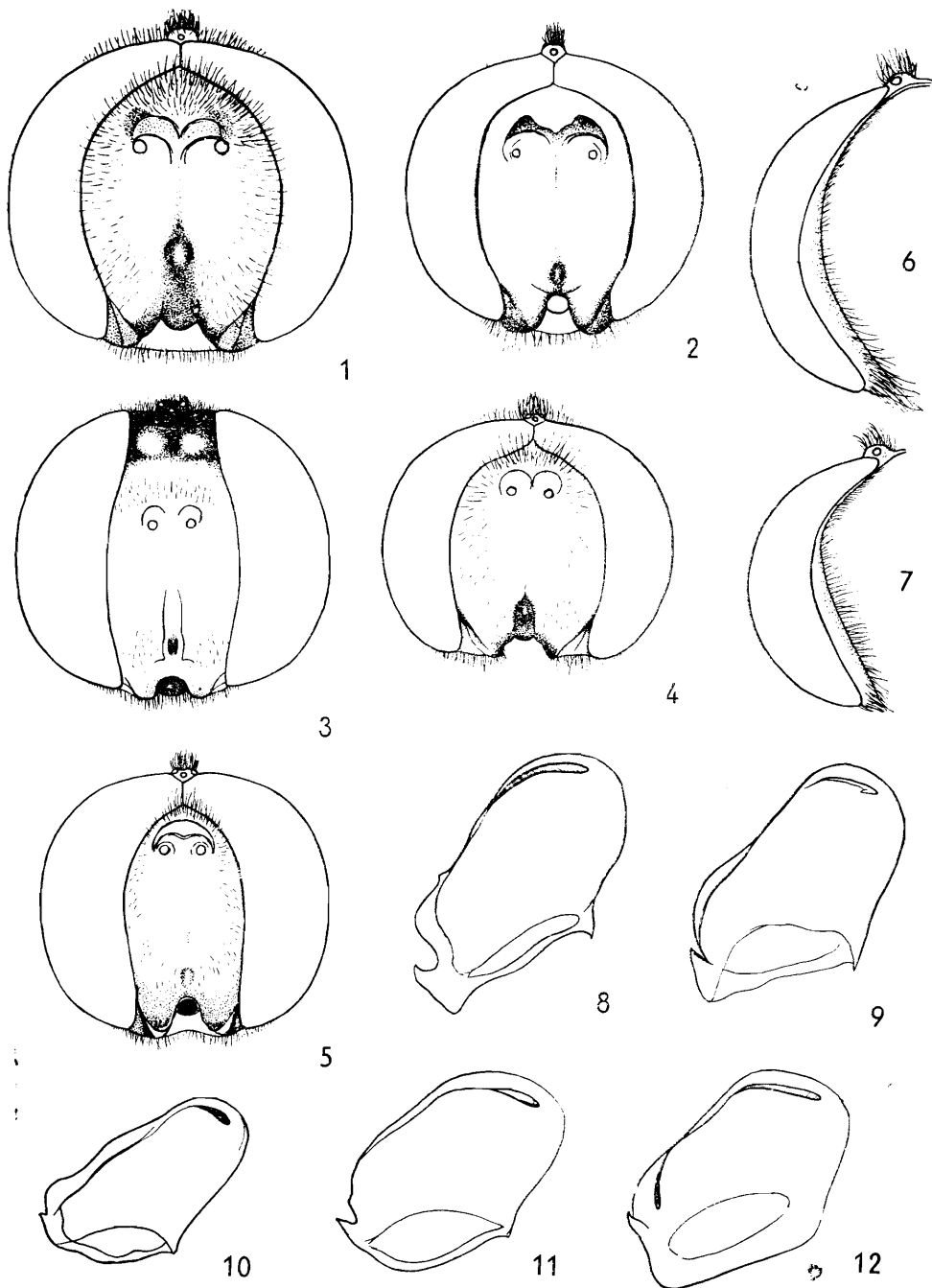
Syrphus arcuatus: COLLIN, 1931: 70; COE, 1953: 28; nec *Scaeva arcuata* FALLÉN, 1817.*

Posthosyrphus punctifer: HIPPA, 1968: 43; nec *Syrphus punctifer* FREY in KANERVO, 1934.

Male. Eye bare or with scattered minute hairs maximally 50 μ long. Anterior angle of approximation of eyes 92°—105°. Face broad with lateral margins from the level of antennae to the oral margin almost parallel. Frons usually with dark spots above the antennae. Facial tubercle and oral margin continuously black or dark. Hairs on the lower part of face mainly black. Postocular orbits on average slightly narrower than in *M. luniger*, but slightly broader than in *M. nitens*. Antenna usually pale brown.

Scutellum with almost all hairs black, also the long hairs most apically situated black. Wing membrane covered by microtrichia in similar extent as in *M. luniger*, more than $\frac{1}{2}$ of second basal cell and an area in the centre

* Suppressed by Opinion 978 I.C.Z.N. in favour of *Syrphus venustus* MEIGEN, 1822. (*Bull. zool. Nomencl.*, 29 (1) : 9—10, 1972).



Figs. 1—12: 1—5. Heads in frontal view: 1 — *Metasyrphus nielseni* ♂, holotype (Salla). 2 — *M. nitens* ♂ (Vel. Inovec). 3 — *M. interrumpens* ♀ (Israel). 4 — *M. latifasciatus* ♂ (Sortavala). 5 — *M. interrumpens* ♂ (Novi Grad). Figs. 6—7. Postocular orbits: 6 — *M. nielseni* ♂, holotype (Salla). 7 — *M. nitens* ♂ (Vel. Inovec). Figs. 8—12. Parameres of hypandria: 8 — *M. nitens* ♂ (Vel. Inovec). 9 — *M. flaviceps* ♂ (Zobor, 29. 8. 56). 10 — *M. interrumpens* ♂ (Palestine). 11 — *M. latifasciatus* ♂ (Sortavala). 12 — *M. nielseni* ♂, holotype (Salla).

of basal part of alula bare. About $1/4$ — $1/3$ of front and mid femora and $1/2$ — $3/4$ of hind femur dark. All long hairs on front femur black.

Yellow spots on abdomen usually slightly narrower than in *M. luniger*, separated from each other and from lateral margin of tergite, except spots on tergite 2 which may reach the side margin. Tergite 5 with partially or completely black or dark lateral margins. Hairs on tergites slightly longer and more sparse than in *M. luniger*. Dark spots on sternites more rectangular than in *M. luniger*.

Male terminalia. Hypandrium about 0.5 mm, angular, almost square in outline, with upper part strongly wrinkled. Side corners regularly conical with distinct and strong lateral protuberances. Lingula absent. Upper tooth of pyxis of normal width and the head of pyxis regularly rounded.

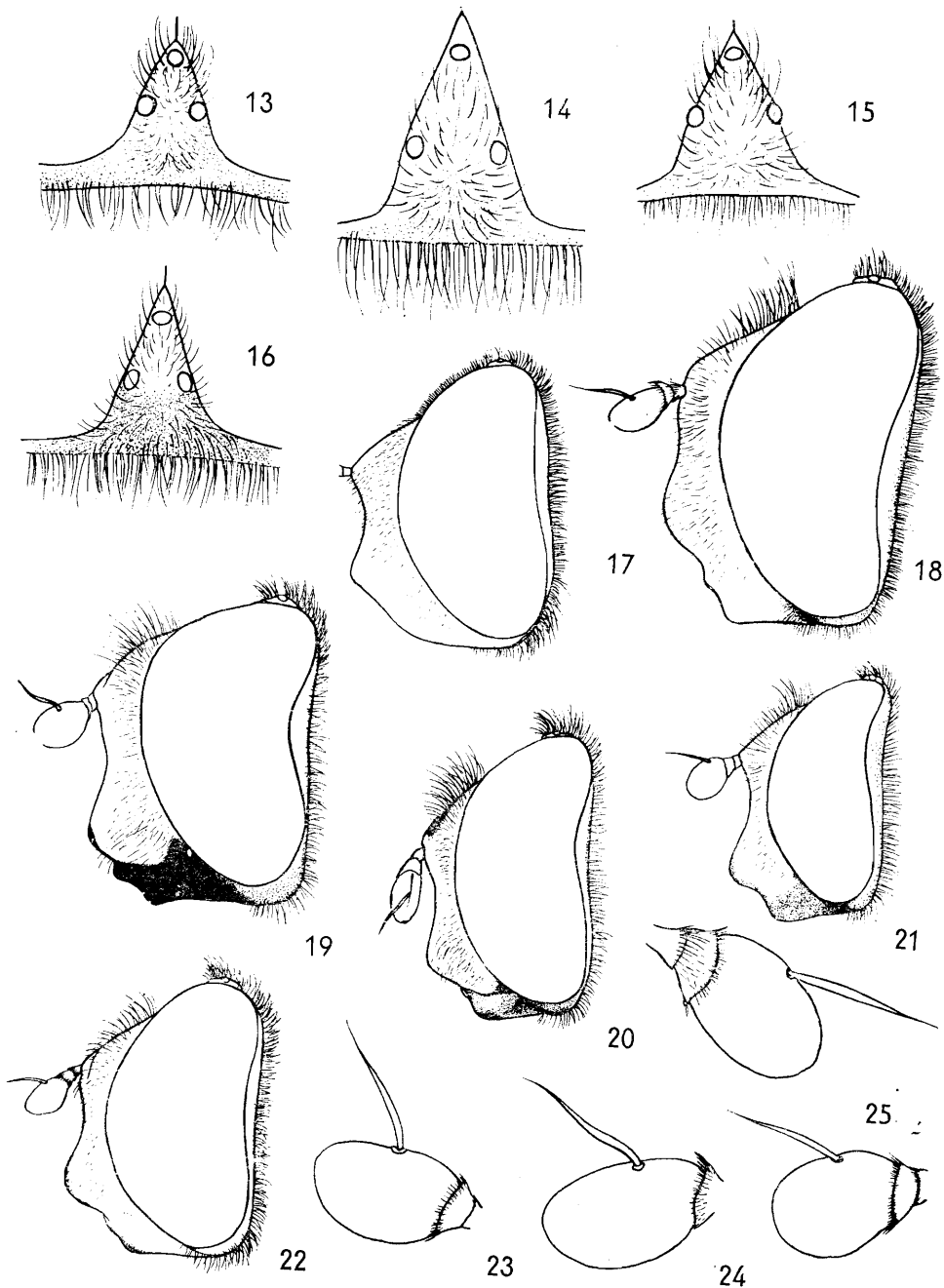
Female. Face broad, broadest at about level of antennae. Distance between eyes in vertex equal to $1/5$ — $1/4$ of the width of head. Dust spots on frons occupying only about $1/2$ — $3/4$ of width of frons, rarely more. Oral margin dark or partially pale. Hairs on the lower part of face more frequently predominantly pale than predominantly black. About basal $1/5$ — $1/3$ of front and mid femora and basal $1/2$ — $3/4$ of hind femur usually dark. Yellow abdominal spots slightly narrower than in male. Lateral margin of tergite 5 usually completely or partially dark, only exceptionally entirely yellow

Length: body 8.8—10.4 mm, wing 7.7—8.6 mm.

Holotype ♂: Finland, Ks., Salla, (Mus. Hels. 8126) (leg. R. Frey). Length: body 10 mm, wing 8 mm, width: head 3.3 mm, abdomen 3.7 mm. Deposited in the Zoological Museum, Helsinki.

Paratypes (if the name of locality written on label differs from the present official name, then the original name as written on the data label is given in brackets): Finland — Le., Kilpisjärvi, Saana 1 ♀ (leg. Nordman — No. 1); Ob., Oulu (Uleåborg) 1 ♂ (No. 2) and 1 ♀ (No. 3) (leg. W. Nyland); Ob., Pudasjärvi 1 ♀ (leg. Brander — No. 4); Ks., Kuusamo 2 ♀♀ (leg. R. Frey — No. 5 and 6); Om., Karleby — Kaarlela (G. Karleby) 1 ♂ (leg. Hellström — No. 7); Om., Pietarsaari — Jakobstad (Jakobstat) 1 ♀ (leg. B. Poppius — No. 8); Kb., Ilomantsi (Ilomants) 1 ♀ (leg. Woldstedt — No. 9); Kb., Eno 1 ♀ (leg. Woldstedt — No. 10); Ta., Urjala, 5. vi. 1964 1 ♀ (leg. T. Brander — No. 11); Ta., Pirkkala (Birkkala) 1 ♀ (leg. R. Frey — No. 12); Ta., Somerniemi 1 ♀ (leg. J. Kuusinen — No. 13); Alandia 1 ♀ (leg. A. Palmén — No. 14) (det. as lapponicus by Bonsd.); Al., Sund 1 ♀ (leg. R. Frey — No. 15); Al., Finström (Finnström) 1 ♂ (leg. R. Frey — No. 16); Ab., Pargas 1 ♀ (leg. R. Frey — No. 17); Ab., Salo, Eriksberg 1 ♂ (No. 18) and Uskela 1 ♂ (No. 19) (both leg. E. J. Bonsdorff); N., Helsinki 1 ♀ (leg. Tuomikoski — No. 20); Helsinki, Huopalahti (Hoplax) 1 ♀ (leg. Haglund — No. 21); N., Pernaja (Pärnä) 1 ♂ (leg. Nordström — No. 22); N., Espoo (Esbo) 1 ♀ (leg. B. Poppius — No. 23). USSR: Kola peninsula — Lmur., Gavrilovo (Gavrilova) 2 ♂♂ (leg. R. Frey — No. 24, leg. Hellén — No. 25); Lv., Kuzomen (Kusomen) 2 ♂♂ (leg. R. Frey — No. 26, leg. Hellén — No. 27). Ik. Sakkola 2 ♂♂ (leg. R. Frey — No. 28 and 29). Car. Iad. (sic!) 1 ♂ (leg. F. Silén — No. 30). Finnish gulf, Lavansaari insula 1 ♀ (leg. Hellén — No. 31), Sweden — ÅsL., Åsele 5. vii. 1967 1 ♂ (No. 32) and Vb., 10 km NW Umeå, 6. vii. 1967 1 ♂ (No. 33) (both leg. J. W. Boyes). Norway (South) — B., Hol, 14. vi. 1972 1 ♂ (No. 34); B., Hol, Geilo 14. vi. 1973 1 ♂ (No. 35) and 2 ♀♀ (No. 36 and 37), 15. vi. 1973 1 ♂ (No. 38) and 3 ♀♀ (No. 39—41); B., Hol, Pålgaard, 15. vi. 1973 2 ♂♂ (No. 42 and 43). (All Norwegian specimens leg. T. Nielsen.) Paratypes from Finland and USSR (No. 1—31) are deposited in the Zoological Museum, Helsinki, paratypes from Sweden (No. 32 and 33) in CNC Ottawa, and those from Norway in the collection of Tore R. Nielsen (Sandnes Gymnas).

Other specimens studied (no type status): Great Britain: Scotland — Inverness, Nethy Bridge, 7. viii. 1898 1 ♂ and 9. viii. 1898 1 ♀ (leg. Collin), Loch An Eillan. 28. vi. 1965 1 ♂ and 1 ♀ (leg. Speight), Cairngorm, 3. vii. 1934 1 ♀ (leg. Collin), Aviemore 25. v. 1904 1 ♀ (leg. Collin); Perth, Rannoch, Black Wood 7. vii. 1962 1 ♀ and 27. vi. 1965 1 ♂ (leg. Speight). Austria, Tirol, Igls, 2000 m, 8. vii. 1953 2 ♂♂ (leg. Vockeroth). Italia — Udine, Malga Laussari, 1600—1800 m, 14. viii. 1958 1 ♂ and Tarvisio 30. vii. 1957 1 ♀ (leg. Theowald — van der Goot); South Tirol, Pontresina, vii. 1962 1 ♂ (leg. Thieme). Czechoslovakia: Bohemia — Lysá (200 m only!), 4. v. (?) 1 ♂ (leg. Čepelák); Moravia — Karlov nr. Bruntál (submont.), 23. v. 1964 1 ♂ (leg. Bičík).



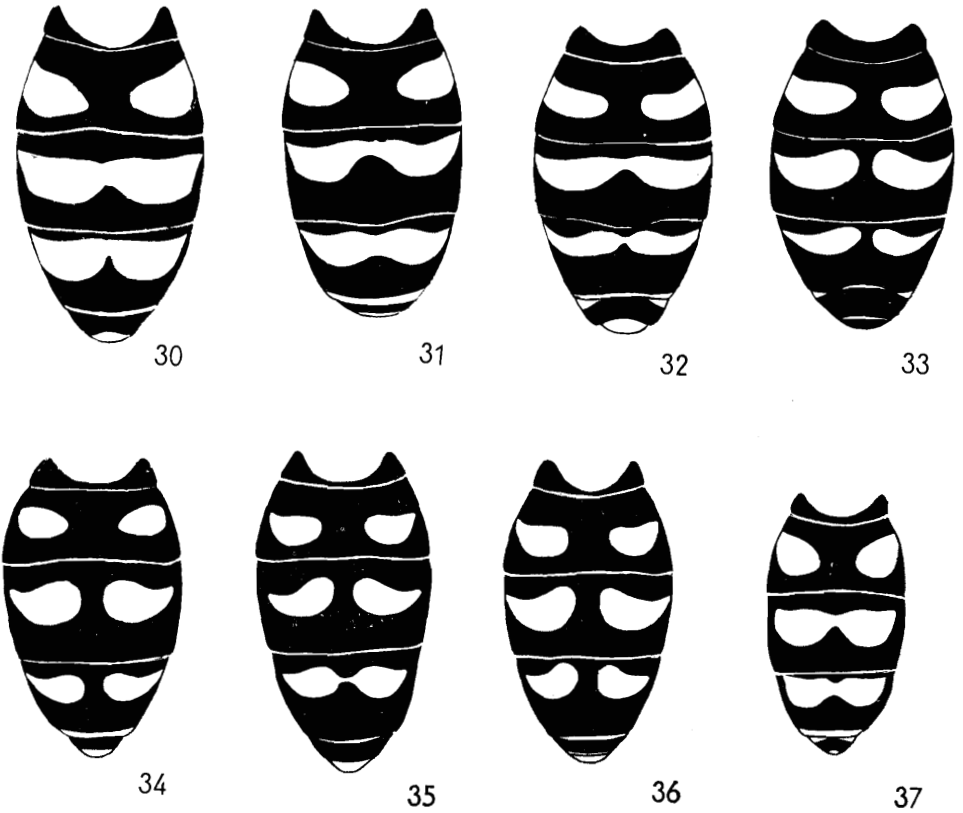
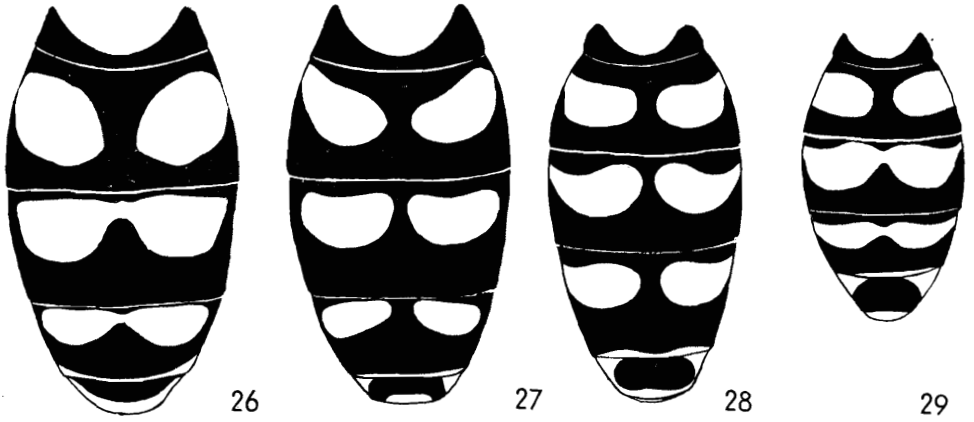
Figs. 13—25: 13 — *Metasyrphus latifasciatus* ♂ (Sortavala). 14 — *M. flaviceps* ♂ (Zobor, 18. 8. 56). 15 — *M. nielseni* ♂, holotype (Salla). 16 — *M. interrumpens* ♂ (Novi Grad). Figs. 17—22. Heads in profile: 17 — *M. interrumpens* ♀ (Israel). 18 — *M. flaviceps* ♂ (Zobor, 18. 8. 56). 19 — *M. nielseni* ♂, holotype (Salla). 20 — *M. nitens* ♂ (Vel. Inovec). 21 — *M. latifasciatus* ♂ (Sortavala). 22 — *M. interrumpens* ♂ (Novi Grad). Figs. 22—25. Antennae: 23 — *M. interrumpens* ♂ (Novi Grad). 24 — *M. nielseni* ♂, holotype (Salla). 25 — above — *M. nitens* ♂ (Vel. Inovec), below — *M. latifasciatus* ♂ (Sortavala).

Geographical variability. The Fennoscandinavian specimens studied are relatively uniform as compared with those from other parts of Europe and the above description is based on Fennoscandinavian material. The antennae of some specimens from Scotland and the Alps are darker as compared with the Fennoscandinavian ones. Some Scottish and most Alpine specimens have the wing membrane covered with microtrichia more extensively than the Fennoscandinavian ones, sometimes also the whole alula is covered with microtrichia. The anterior angle of approximation of the eyes varies in the Alpine specimens; in two specimens (Igls) it equalled only 87°. Czechoslovak specimens have the angle of approximation of the eyes more constant and have somewhat fewer microtrichia on the wings as compared with the Alpine ones. Concerning the shape of the terminalia, the Scottish specimens differ from the Fennoscandinavian in having a non-wrinkled upper part to the hypandrium with side corners bearing only thin lateral protuberances. Upper tooth of the pyxis is slender at the base and the head of the pyxis is rather irregular. The Alpine (Igls) specimens have the hypandrium somewhat larger (0.53—0.55 mm) than the Fennoscandinavian, and it is of a cask-like shape, with side corners huge and high, and is irregularly narrowed at the base, the lingula is wide and blunt, the upper tooth of the pyxis is strong, at the basal part as wide as long.

Generally, however, the differences between the Fennoscandinavian, Scottish and Central European specimens are not so great and constant as to be sufficient for the description of subspecies. Nevertheless, for the purpose of the possible future formal subdivision of this species the type series has been restricted to Fennoscandinavian specimens only, and could thus serve if necessary as the type series of a nominate subspecies.

Discussion. The species is probably boreoalpine, although one specimen was caught in the lowlands of Central Europe (Lysá). According to the number of findings the Fennoscandinavian population is much more frequent than that of other parts of Europe where low population density is likely to contribute to greater variation. The low population density may be connected with food specialization of the larvae to some species of aphids or other insects living on mountain conifers. In Scotland (pers. comm. from Dr. M. Speight) this species is in association with a relict pine, *Pinus sylvestris* v. *caledonicus*. In Central Europe some other pine species or varieties may be involved. Another species of aphidophagous syrphids with a boreoalpine distribution — *Dasysyrphus friuliensis* (VAN DER GOOT) — has a frequent Central European population (nominate subspecies) and is consequently uniform. There is an interesting parallelism concerning both the Fennoscandinavian population of *M. nielsenii* and the Fennoscandinavian subspecies of *D. friuliensis* (ssp. *postclaviger* ŠTYS & MOUCHA) which have lighter antennae than their Central European opposites.

Differential diagnosis. Like *M. nitens*, this species differs from others of the subgenus *Metasyrphus* by the dark lateral margin of tergite 5 and, by having the scutellar hairs black also on apex of scutellum. The male differs from *M. nitens* by the slightly broader postocular orbits, usually also by broader anterior angle of approximation of eyes, by less microtrichia on wing membrane and in particular by the terminalia having a well developed upper tooth on pyxis. The female differs from *M. nitens* by the dark basal part of



Figs. 26—37. Abdomens, dorsal: Figs. 26—29. *Metasyrphus flaviceps*: 26 — ♂, Schneeberg. 27 — ♂, Austria, coll. Egger. 28 — ♀, Bezovec. 29 — ♀, paralectotype (Italia). Figs. 30—33. *M. nitens*: 30 — ♂, Udine. 31 — ♂, Špindlerův Mlýn. 32 — ♀, Hrubá Voda. 33 — ♀, Karlov. Figs. 34—36. *M. nielsenii*, ♂♂: 34 — holotype (Salla). 35 — paratype No. 2 (Oulu). 36 — Karlov. Fig. 37 — *M. latifasciatus* ♂ (Sortavala).

femora. Both sexes have the yellow spots on tergites separated, which occurs in *M. nitens* rarely.

Derivatio nominis. The species is named after Dr. Tore R. Nielsen (Sandnes gymnas), who provided us with the material and helped to distinguish the species *M. punctifer*, *M. abiskoensis* and *M. nielseni*.

Metasyrphus (Metasyrphus) punctifer (FREY) **comb. n.**

(Figs. 44, 45, 90, 91)

Syrphus punctifer FREY in KANERVO, 1934: 125

Male. Vertical triangle longer than sutura of eyes. Anterior angle of approximation of eyes 82° — 93° . Face broad, distinctly broader in lower part than in upper part at the level of antennae. Above the antennae light brownish spots, facial tubercle dark, oral margin broadly and continuously black or dark. Long hairs on the lower half of face dark or with pale hairs intermingled. Postocular orbits about as in *M. luniger* or a little broader, but narrower than in *M. abiskoensis* and *M. borealis*. Hairs along postocular orbits pale (lectotype), or with some black hairs intermingled. Segment 3 of antenna more rounded and shorter than in *M. luniger*, pale brown or brown with paler base.

Scutellum with predominantly black hairs but long hairs on the apex of scutellum usually pale. Wing membrane covered with microtrichia more extensively than in *M. luniger*, $\frac{1}{2}$ — $\frac{3}{4}$ of second basal cell and whole alula covered by microtrichia. About $\frac{1}{2}$ of front and mid femora and $\frac{2}{3}$ of hind femur dark. All long hairs on the front femur black.

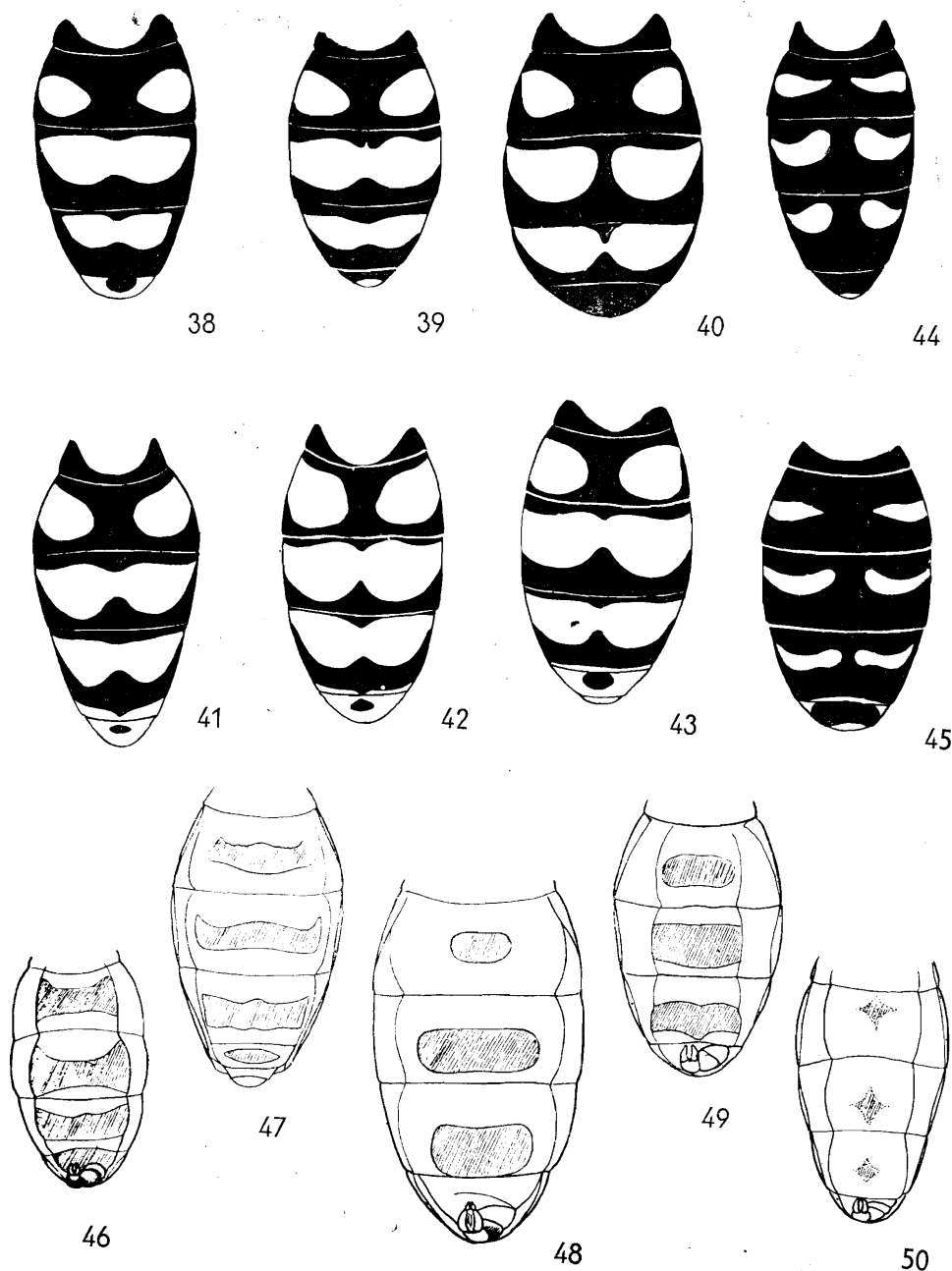
Yellow spots on tergites 3 and 4 separated, narrower than in *M. luniger*, inner and outer end of spots about equally distant from the base of tergite. Lateral margin of tergite 5 pale. Dark spots on sternites rather smaller, semilunular to rounded, often the dark colour only a little darker than ground colour.

Male terminalia. Hypadrium relatively small (0.40—0.43mm), more or less angular in frontal view, about square in outline. Side corners short, rather blunt. Lingula very short. Head of pyxis similar as in *M. luniger* and upper tooth relatively robust.

Female. Dust spots on frons about as in *M. luniger* or smaller. Oral margin broadly dark as in male. Hairs on the lower part of face usually all pale. Wing membrane with microtrichia more reduced than in male, usually a little less than half of second basal cell covered by microtrichia but alula remaining wholly hairy. About $\frac{1}{3}$ of front and mid femora and $\frac{1}{3}$ — $\frac{1}{2}$ of hind femur dark. Long hairs on front femur all black as in male. Yellow spots on tergites 3 and 4 narrower than in *M. luniger* and characteristic in shape (Fig. 45), in light specimens distinctly reaching lateral margin of tergite with their upper corners. Dark sternal spots present on sternite 2 and 3 but absent on sternites 4 and 5, at most small spot present on sternite 4, usually much smaller than spot on tergite 3.

Length: body 7.6—10.5 mm, wing 7.2—8.8 mm.

Lectotype ♂: USSR, Lps. (Petsamo), Nautsi (leg. E. Kanervo), length: body 9 mm, wing 7.4 mm, width: head 2.9 mm, abdomen 2.8 mm; relatively pale specimen, right antenna and left wing missing. Deposited in the Zoological Museum in Turku.



Figs. 38—50: 38—45. Abdomens, dorsal: Figs. 38—40. *Metasyrphus latifasciatus* ♂♂: 38 — Rakov. 39 — Dolánky. 40 — Washers Pit. Figs. 41—43. *M. interruptens*: 41 — ♂, Palestine. 42 — ♂, Novi Grad. 43 — ♀, Israel. Figs. 44—45. *M. punctifer*: 44 — ♂, lectotype (Nautsi). 45 — ♀, Abisko. Figs. 46—50. Abdomens, ventral: 46 — *M. nitens* ♂ (Vel. Inovec). 47 — *M. nitens* ♀ (Hrubá Voda). 48 — *M. flaviceps* ♂ (Zobor, 18. 8. 56). 49 — *M. nielsenii* ♂, paratype No. 22 (Pernaja). 50 — *M. interruptens* ♂ (Novi Grad).

Other specimens examined: Finland, Sb., Kiuruvesi 1 ♀ (leg. Palmén). Sweden, TL, Abisko, 10. vii. 1961 1 ♀ and 31, VII. 1961 1 ♂ (both leg. Vockeroth). Norway, STi., Oppdal, Kaldvella, 1100 m 29. VII. 1966 1 ♂ and Hoj, Eidfjörd, Maursef 22. VII. 1973 1 ♀ (both leg. Nielsen).

Choice of lectotype. In the introduction to his work KANERVO (1934) states that all holotypes and paratypes are deposited at the Zoological Museum in Turku; in his description, however, he does not point out which of the two types cited is the holotype. Neither of the two syntype (♂ and ♀) found by Dr Heikki Hippa at the museum of Turku is designated as holotype. We have chosen the male as lectotype. It is fully identical with the description, even concerning the individual character within the scope of variation of the species (all hairs behind the eyes pale). The other syntype — a female — is not conspecific with the lectotype and perhaps may belong to the species *M. borealis*.

Differential diagnosis. In both sexes, *M. punctifer* differs from the similar Scandinavian species *M. abiskoensis* and *M. borealis* by less extensive covering of wing membrane by microtrichia. The male differs also by the narrower postocular orbits and the female by the characteristic narrow yellow spots on tergites 3 and 4. It differs from *M. luniger* particularly by the black colour of the long hairs on front femur also at base of femur, by the narrower yellow spots on tergites 3 and 4 and in the female also by the reduction of the dark spots on sternites 4 and 5.

Metasyrphus (Metasyrphus) flaviceps (RONDANI) **comb. n.**

(Figs. 9, 14, 18, 26, 27, 28, 29, 48, 56, 57, 58, 73, 74, 75, 76, 77, 98c)

Syrphus flaviceps RONDANI, 1857 : 126.

Syrphus braueri EGGER, 1858 : 714; **syn. n.**

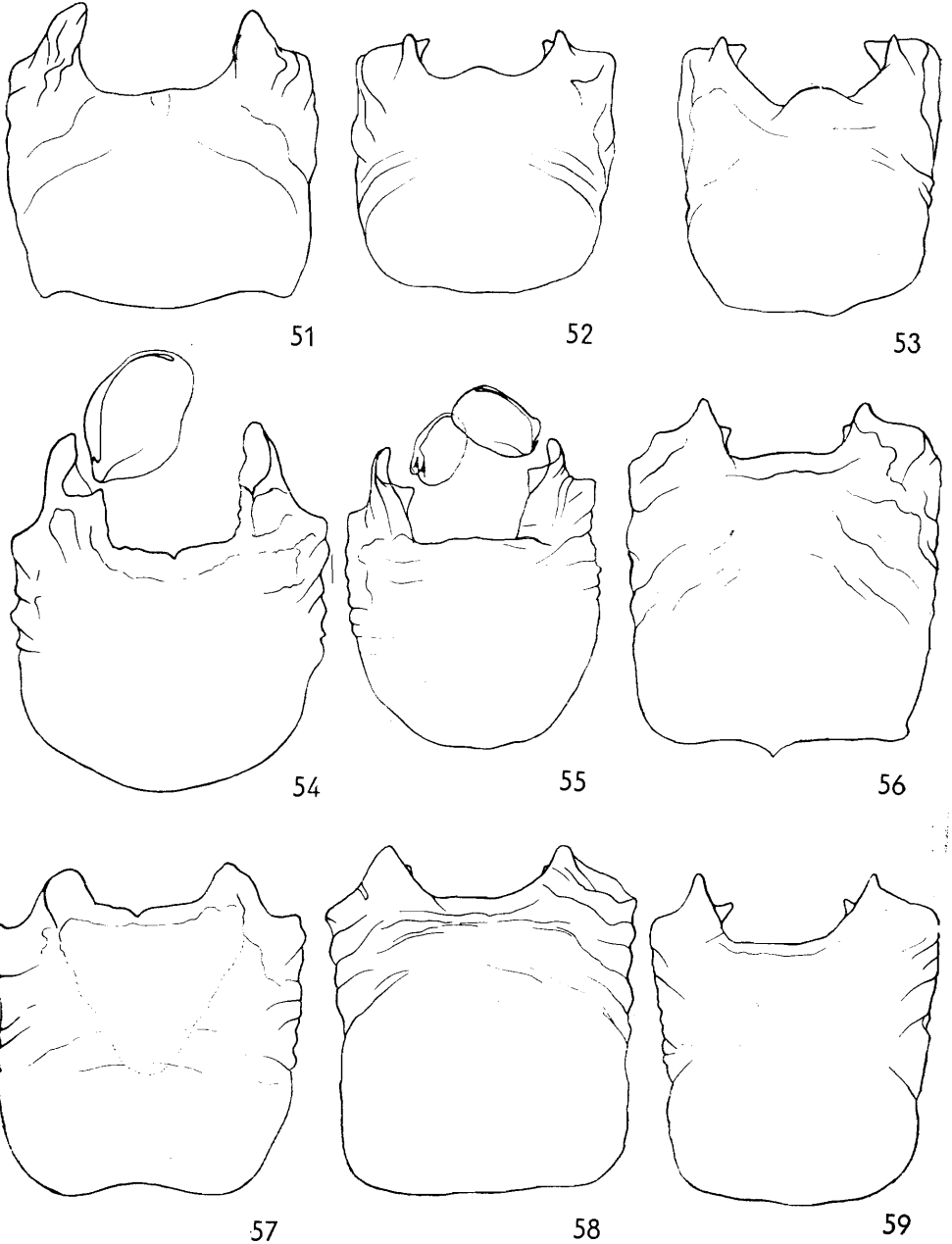
Male. Eye bare, anterior angle of approximation of eyes 82°—89°. Vertical triangle slightly less dusted at base than in *M. luniger*, with a clear stripe close to eyes. Facial tubercle rather large but low, symmetrical in profile. Face entirely yellow, at most oral margin slightly darker in middle. Antenna usually lighter than in *M. luniger*.

Thorax slightly shorter but more densely haired than in *M. luniger*. Hairs on scutellum pale or black or mixed on disc. Microtrichia on wing membrane about as in *M. luniger*. A dark ring usually at middle of hind tibia.

Yellow spots on tergites 3 and 4 separated from the lateral margin of tergite, but often connected in middle of tergite. Spots with upper margin convex or about straight, broadest about in middle of their length. Spots on sternites usually a little larger than in *M. luniger*. Hairs on lateral margin of abdomen slightly shorter than in *M. luniger*. The hairing of body generally shorter than in *M. luniger*.

Male terminalia. Hypandrium (0.51 mm) angular, rather rectangular in outline, higher than broad. Upper half strongly and roughly wrinkled. Side corners distinct, but inner protuberances small and sometimes not distinctly apparent. Lingula small or absent. Head of pyxis regularly rounded, upper tooth suddenly narrowing near middle — this character, however, is not distinct in some specimens.

Female. Very similar to *M. luniger*. Face yellow or with dark oral margin in middle or also with dark facial tubercle. Hairs on frons only very slightly



Figs. 51—59. Hypandria, dorsal: 51 — *Metasyrphus latifasciatus* ♂ (Washers Pit). Figs. 52—53. *M. interruptens* ♂♂: 52 — Palestine. 53 — Syria. Figs. 54—55. *M. nitens* ♂♂: 54 — Udine. 55 — Špindlerův Mlýn. Figs. 56—58. *M. flaviceps* ♂♂: 56 — Zobor, 29. 8. 56. 57 — lectotype (Italia). 58 — coll. Gerst. 59 — *M. nielsenii* ♂, holotype (Salla).

shorter than in *M. luniger*. Also thoracic hairs a little shorter. Scutellum sometimes wholly pale haired. Basal part of femora little less extensively dark than in *M. luniger*. In contrast to male, hind tibia without dark ring in middle. Long hairs on front femur all or almost wholly pale. Yellow spots on tergites 3 and 4 often reaching lateral margin of tergite and having upper margin concave (not so in male!), slightly broader than in *M. luniger* and with outer corners situated rather closer to base of tergite than in *M. luniger*. Hairs on lateral margin of hind half of abdomen slightly shorter than in *M. luniger*.

Length: body 9—12.6 mm, wing 7.3—10.2 mm.

Lectotype ♂: labelled No. 216, in the Zoological Museum in Florence; without precise data, but apparently from Italy.

Paralectotype ♀: also labelled No. 216 in the Zoological Museum, Florence.

Other material examined: Czechoslovakia, Slovakia m. — Zobor nr. Nitra, 600 m, 18. VIII. 1956 1 ♂ and 29. VIII. 1956 1 ♂ (leg. Čepelák), Bezovec, 26. VII. 1958 1 ♀ (leg. Čepelák), Kováčovské kopce (Kováčov hills) nr. Štúrovo, 396 m, 7. v. — 16. VII. 1969 63 ♂♂ (leg. Stollár and Zabák) and 3. IX. 1969 1 ♀ (leg. Zabák). Austria „Alte Sammlung“ in the Zoological Museum, Wien, 4 ♂♂ (coll. et det. Egger as *S. braueri*), 1 ♂ (coll. Gerst.); Schneeberg, 26. VIII. 1866 2 ♂♂ (leg. Bergenst.); Dürrenstein, 2340 m 1 ♂ (coll. Becker). Albania, Pashtrik (Mt.), 1969 m, 4.—14. VII. 3 ♂♂ (alban. Exp. Mus. Wien).

Choice of lectotype. From the pair of conspecific syntypes we have selected the male as lectotype, because in other descriptions we also preferred the male. The female is designated as paralectotype.

Synonymy. We could not obtain the holotype of *Syrphus braueri* for examination but all the specimens of *braueri* caught in the type locality (Wiener Schneeberg) or in its vicinity belonged to the species *M. flaviceps*. The lectotype of *M. flaviceps* also agrees with the original description of *S. braueri*.

Differential diagnosis. Male recognizable according to shape of yellow abdominal spots. Light forms of females may be distinguished from *M. luniger* by pale facial tubercle and all pale hairs on front femur, darker females may be distinguished according to slightly shorter hairs on the margin of abdomen (not reliably).

Metasyrphus (Metasyrphus) interrumpens (WALKER) comb. n.

(Figs. 3, 5, 10, 16, 17, 22, 23, 41, 42, 43, 50, 52, 53, 67, 68, 69)

Syrphus interrumpens WALKER, 1871 : 273.

Syrphus rufinasutus BIGOT, 1884 : 88.

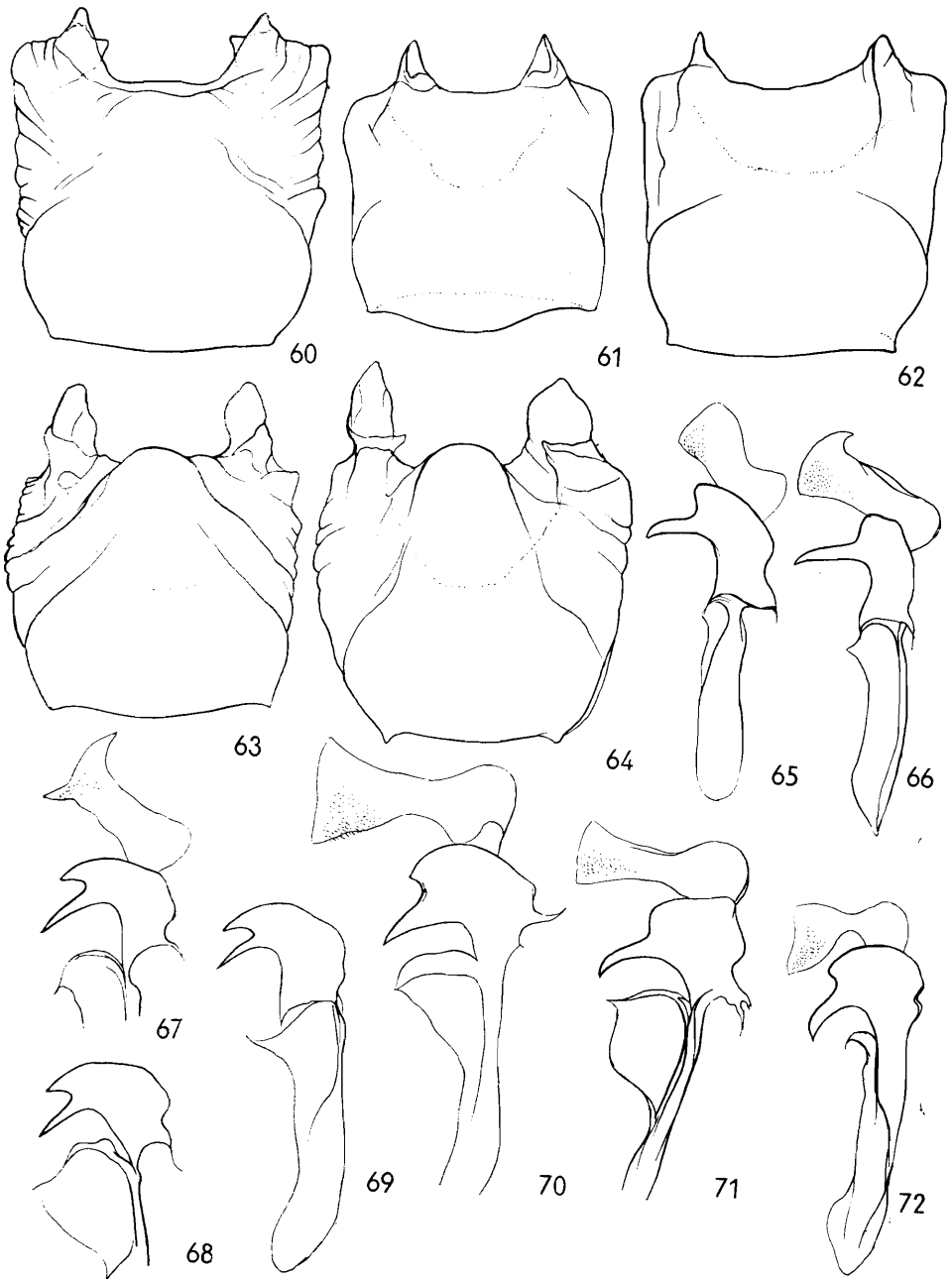
Syrphus novigradensis COE, 1960 : 73; syn. n.

Superficial characters are described in detail by COLLIN (1949) and COE (1960).

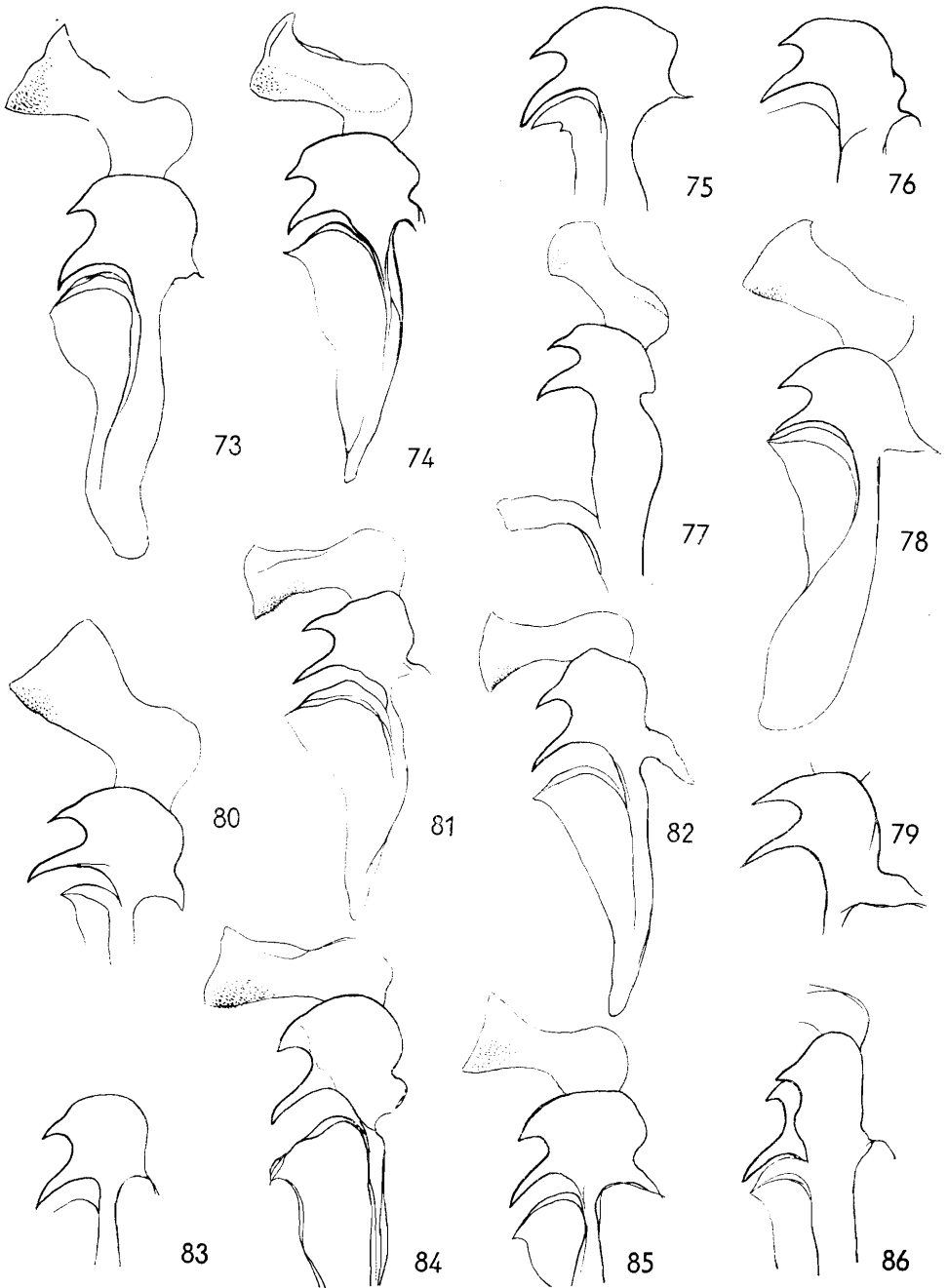
Male terminalia. Hypandrium relatively small (0.39 mm), about as wide as high. Side corners about as great as inner protuberances, only very little higher. Lingula short but distinct. Head of pyxis rather flat and long. Teeth slender and not very distant each from other.

Figured specimens. Yugoslavia, Dalmatia, Novi Grad, 27.—31. V. 1958 1 ♂ (leg. Coe — holotype of *S. novigradensis*). Palestine, Wadi Sukko nár, 13. IV. 1918 1 ♂ (leg. Austen). Syria, Beirut, 25. III.—30. IV. 1919 1 ♂ (leg. Sewell). Israel, Kefar Shemmel, 19. IV. 1968 1 ♀ (leg. Bleszynski).

Other material examined originated from Armenia (USSR) and Nepal.



■ Figs. 60—72: 60—64. Hypandria, dorsal: *Metasyrphus nielseni* ♂♂: 60 — holotype (Salla). 61 — Nethy Bridge. 62 — Loch an Eilan. 63 — Igls a. 64 — Igls b. Figs. 65—72. Aedeagi, lateral: Figs. 65—66. *M. latifasciatus* ♂♂: 65 — Sortavala. 66 — Washers Pit. Figs. 67—69. *M. interruptens* ♂♂: 67 — Syria. 68 — Novi Grad. 69 — Palestine. Figs. 70—72. *M. nitens* ♂♂: 70 — Vel. Inovec. 71 — Udine. 72 — Špindlertův Mlýn.



Figs. 73—86. Aedeagi, lateral: Figs. 73—77. *Metasyrphus flaviceps* ♂♂: 73 — Zobor, 29. 8. 56. 74 — lectotype (Italia). 75 — Zobor, 18. 8. 56. 76 — coll. Gerst. 77 — Alte Sammil Austria. Figs. 78—86. *M. nielsenii* ♂♂: 78 — holotype (Salla). 79 — paratype No. 16 (Finström). 80 — paratype No. 22 (Pernaja). 81 — Nethy Bridge. 82 — Loch an Eillan. 83 — Pontresina. 84 — Iglis a. 85 — Iglis b. 86 — anomal, paratype No. 2 (Oulu).

Differential diagnosis. Distinguished from other European species by the wholly pale legs and face, at most the facial tubercle being a little darker in some cases. From the male of *M. flaviceps*, which also has the face pale, it differs by the pale colour of legs, the more intensively dusted basal part of vertical triangle and by the anterior angle of approximation of eyes being only 71° — 82° . Females are similar to the light females of *M. flaviceps*, but differ by the narrower face and more intensively dusted pleurons.

Synonymy. *S. novigradensis* was found to be identical with the type of *S. interrumpens* at the British Museum and with other specimens labelled as *S. interrumpens*. The synonymy of *S. rufinasutus* was made by COLLIN (1949).

Metasyrphus (Metasyrphus) latifasciatus (MACQUART)

(Figs. 4, 11, 13, 21, 25, 37, 38, 39, 40, 51, 65, 66)

Syrphus latifasciatus MACQUART, 1829 : 242.

Metasyrphus latifasciatus: FLUKE, 1950 : 147.

Notes on variability. Oral margin may be or pale or dark, hairs on the lower half of face usually pale, sometimes with black hairs intermingled or, less frequently, the hairs are mainly black. Yellow spots on tergites 3 and 4 usually connected (Figs. 37, 38, 39) but may be also separated; then their upper margin remains almost straight (Fig. 40). Wing membrane in males is more intensively covered by microtrichia than in females. Second basal cell is covered in males almost entirely by microtrichia, whereas in females it is only about half covered ($1/3$ — $3/4$).

Male terminalia. Hypandrium (cca 0.5 mm) broadly cask-like with side corners of medium size. Lingula almost absent. Head of pyxis relatively small with no upper tooth but with lower tooth normally developed.

Figured specimens: Czechoslovakia, Bohemia, Rakov 1 ♂ (leg. Vimmer), Dolánky 1 ♂ (leg. Čepelák). Finland, Sortavala, 4. IX. 1936 1 ♂ (leg. Tiensuu). Great Britain, Wiltshire, Washers Pit, 18. IV. 1965 1 ♂ (leg. Speight).

Metasyrphus (Metasyrphus) nitens (ZETTERSTEDT)

(Figs. 2, 7, 8, 20, 25, 30, 31, 32, 33, 46, 47, 54, 55, 70, 71, 72)

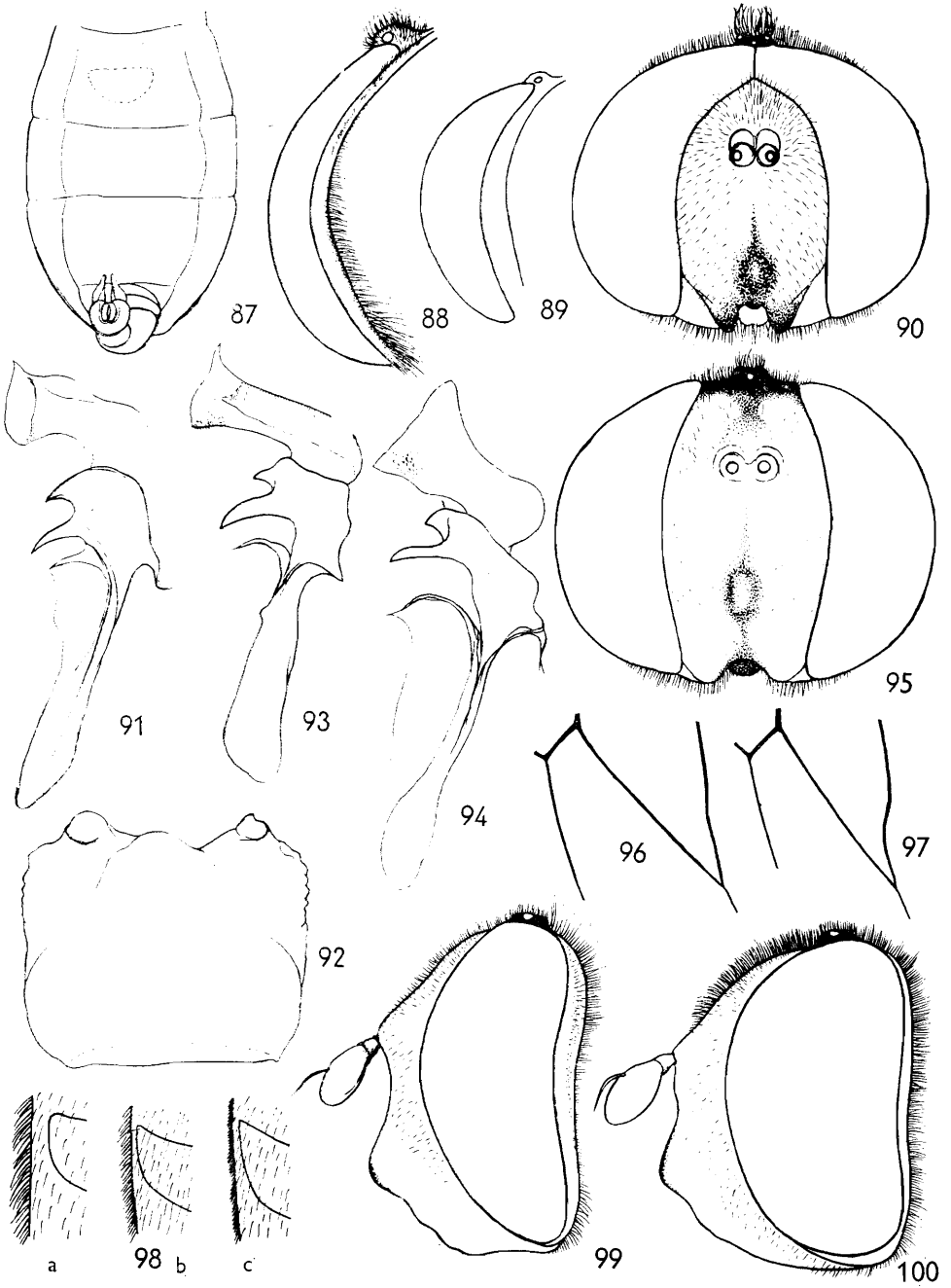
Scaeva nitens ZETTERSTEDT, 1843 : 184.

Metasyrphus nitens: FLUKE, 1950 : 147.

Note on variability. Yellow spots on tergites 3 and 4 normally connected and forming bands, but may sometimes be separated (Fig. 33).

Male terminalia. Hypandrium cask-like in frontal view, regularly oval below. Upper part irregularly wrinkled. Side corners high, spoon-like curved, with distinctly stronger inner protuberances. Cut between corners of angular shape. Lingula absent. Head of pyxis similar as in *M. latifasciatus*. Upper tooth greatly reduced, having the form of blunt tubercle; lower tooth long, slightly curved at end.

Figured specimens. Czechoslovakia — Bohemia, Krkonoše, Špindlerův Mlýn, 26. VIII. 1962 1 ♂ (leg. Moucha); Moravia, Hrubý Jeseník, Karlov 23. V. 1964 2 ♀♀ (leg. Bičík); Slovakia, Vef. Inovec, 21. VI. 1958 1 ♂ (leg. Ptáček). Italia, Udine, Gruppo Jof. Fuart, Rif. Grego Laghetto, 1400—1500 m, 19. VIII. 1958 1 ♂ (leg. Theowald & van der Goot).



Differential diagnosis. Normally coloured specimens have a yellow band on tergites 3 and 4 which is non-interrupted. Male with postocular orbits narrower than in any other species except *M. (Lapposyrphus) lapponicus* from which is easily recognizable by its hairy metasternum. Atypical females with bands on tergites 3 and 4 interrupted (Fig. 33) differ from similar *M. nielsenii* by narrower yellow spots on tergites, by not darkened or only slightly darkened base of femora and by dark spots on sternites being a little longer and narrower and often broadening towards lateral margin.

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Figs. 87—100. 87 — *Metasyrphus corollae* ♂ (Nessebar), abdomen, ventral. Figs. 88—89. Postocular orbits: 88 — *M. luniger* ♂ (Vysoké Tatry). 89 — *M. abiskoensis* ♂, holotype (Abisko). 90 — *M. punctifer* ♂, lectotype (Nautsi), head in frontal view. Figs. 91—92. *M. punctifer* ♂, lectotype: 91 — Aedeagus, lateral. 92 — Hypandrium, dorsal. Figs. 93—94. Aedeagi, lateral: 93 — *M. borealis* ♂, holotype (Ponj). 94 — *M. abiskoensis* ♂, holotype (Abisko). Fig. 95. *M. luniger* ♀, (Nová Paka), head in frontal view. Figs. 96—97. Second anal veins: 96 — *M. luniger* ♂ (Vysoké Tatry). 97 — *M. corollae* ♂ (Nessebar). Fig. 98 — Hairs on the margin of abdomens♀♀: a — *M. vanderhooti*, b — *M. luniger*, c — *M. flaviceps* (all schematized). Figs. 99—100. Heads in profile: 99 — *M. luniger* ♀ (Nová Paka). 100 — *M. lundbecki* ♀ (Lithuania).

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