

REVISIONARY NOTES ON NEARCTIC *MICRODON*
FLIES (DIPTERA: SYRPHIDAE)

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Abstract.—A key to the adults and puparia of the species of *Microdon* Meigen found in America north of Mexico is given. For each species a short synonymy and summary of distribution and ant host records (new records for 11 species) are given. Lectotypes are designated for *M. aurulentus* Fabricius, *M. globosus* Fabricius, and *M. manitobensis* Curran. New synonyms are given for *M. globosus* (= *albipilis* Curran, = *conflictus* Curran, = *pseudoglobosus* Curran, and = *hutchingsi* Curran), *M. lanceolatus* Adams (= *modestus* Knab, = *senilis* Knab, and = *similis* Jones), *M. ruficrus* Williston (= *basicornis* Curran and = *champlaini* Curran), and *M. tristis* Loew (= *robusta* Telford). Three new species are described: *M. abditus* Thompson (New Hampshire, type-locality; eastern North America), *M. abstrusus* Thompson (Maryland, type-locality; Pennsylvania and West Virginia), and *M. adventitius* Thompson (Georgia).

Microdons have maggots that look like molluscan slugs and live with ants. The adults are typical flies. Interest in microdon biology has increased recently (Greene, 1955; van Pelt and van Pelt, 1972; Akre et al., 1973; Duffield, 1981), prompting a review of their taxonomy. My work has been done in conjunction with that of Duffield (1981), whose paper serves as a general introduction to mine.

Most of the north temperate species of *Microdon* are similar to one another, and their taxonomy has been considered difficult. Williston (1887), Johnson (1916), Knab (1917), and Curran (1925) have struggled with the taxonomy of Nearctic microdons, each successively contributing more to its resolution. Their works have been restricted to adults and have tended to divide intraspecific variation more finely and thus to recognize more species. I depart from this trend and recognize fewer species. Immatures and adults have been studied together, with the result that adults have been discovered to display more intraspecific variation than previously assumed possible. Akre et al. (1973) show that two distinct color morphs of *cothur-*

natus Bigot exist. This has led to a reevaluation of *lanceolatus* Adams, the color morphs of which were considered distinct species. Long series of adults reared by Duffield (1981) show that some adult characters vary. Altogether this study recognizes 30 species, 10 new synonyms, one new status, and 3 misidentifications.

Adult microdons are difficult to identify to species. Some new adult characters are used, such as pleural hair and wing microtrichia patterns, but the key to adults is still not perfect. This key distinguishes adults of most species and most adults of the other species. Characters that will discriminate adults of all species have not been found. Immatures differ distinctly between species. Associated material is readily identified, because species with similar adults usually have quite different immatures. Immatures are easily collected, and puparia are easily reared. Adults usually stay near their host ant nests, so when adults are collected, especially in numbers, the immatures may be nearby. Puparia are frequently found near the surface or openings of the ant colonies. Puparial exuviae should be glued to a card, and the card should be pinned and labeled in the same way as for adult specimens. Live puparia should be reared (see Duffield, 1981: 717). Larvae are usually found deep in the colony and should be fixed and then preserved in alcohol. Puparia are distinguished from larvae by the presence of anterior respiratory horns.

Genus *Microdon* Meigen

Microdon Meigen, 1803: 275. Type-species, *Musca mutabilis* Linnaeus (as *Mulio mutabilis* Fabricius; mono.).

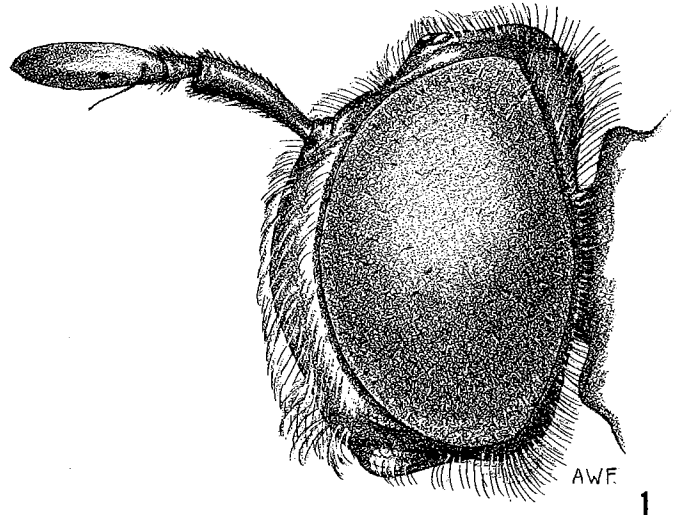
Microdon subg. *Serichlamys* Curran, 1925: 50. Type-species, *Aphritis rufipes* Macquart (mono.).

The taxonomy of the genus follows that of Curran (1925) except that the subgenus *Serichlamys* Curran is considered a synonym of the typic subgenus (Wirth et al., 1965: 597). The taxonomic placement of the genus is reviewed by Thompson (1969, 1972).

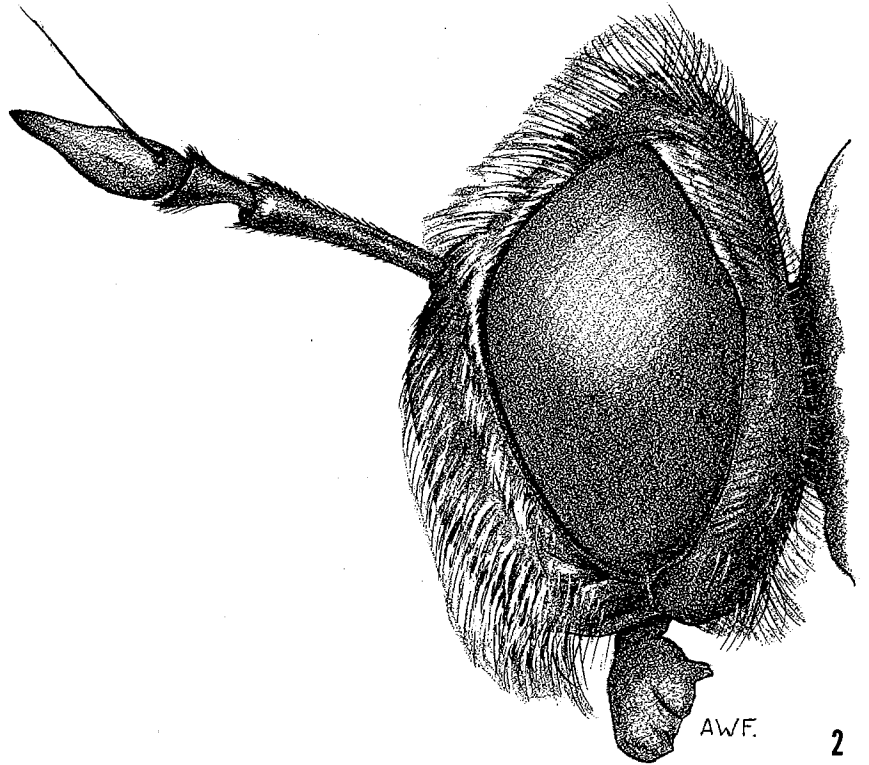
KEY TO THE ADULTS OF SPECIES OF *MICRODON* MEIGEN FOUND NORTH OF MEXICO¹

1. Abdomen narrow, narrower than thorax, parallel-sided, subcylindrical; 2nd tergum with sides arcuate, with strong basomedial depression and 2 sublateral depressions, subequal in length to 3rd tergum (Fig. 41); antenna short, shorter than face (Fig. 11); propleuron bare (sg. *Omegasyrphus*) 11

¹ In the keys a few supplemental characters are given in parentheses to further diagnose the species. The alternatives for these characters are found in the couplets that follow the ones with the parenthetical material.



1



2

Figs. 1-2. Heads, lateral view. 1, *Microdon laetoides*. 2, *M. lanceolatus*.

- Abdomen usually broad, broader than thorax, without parallel sides; 2nd tergum never with 3 distinct depressions and not subequal to 3rd tergum; if with narrow abdomen (*laetus* Loew and *craigheadi* Walton), then either antenna longer than face or propleuron haired 2
- 2. Apical crossvein strongly angulate on anterior $\frac{1}{3}$ and with an external spur at point of angulation; abdomen triangular, with 2nd tergum very short and rectangular basolaterally (Fig. 40); body metallic green (sg. *Chymophila*) *fulgens* Wiedemann
- Apical crossvein evenly curved, without a sharp angulation nor with an external spur; abdomen more elongate, with 2nd tergum longer (sg. *Microdon*) 3
- 3. Eye distinctly haired; bright metallic green, blue or purple flies; body hair sparse, extensively white, not obscuring ground color (scutellum with small apicomedial spines) 9
- Eye usually bare (*rufipes* Macquart with eye haired); brownish orange to black flies, not with bright metallic ground colors, rarely with metallic golden or silvery hair obscuring ground color 4
- 4. Propleuron usually haired; if not, then either sternopleuron with anteroventral hair patch or scutellum with spines 14
- Propleuron bare; sternopleuron without anteroventral hair patch; scutellum without spines (Fig. 15), although it may be emarginate 5
- 5. Arista thick, short, less than $\frac{1}{2}$ as long as 3rd antennal segment (Fig. 21) (δ hindtarsus not swollen; scutellum convex; alula microtrichose; 3rd antennal segment more than $2\times$ as long as 1st (Fig. 7)) *fuscipennis* (Macquart)
- Arista thin, longer, more than $\frac{1}{2}$ as long as 3rd segment 6
- 6. Alula bare medially; scutellum not strongly emarginate 8
- Alula microtrichose 7
- 7. Widespread, but not Californian; δ 3rd antennal segment usually having long pubescence, with pubescence as long or longer than arista width; δ hindtarsus frequently greatly swollen; scutellum usually deeply emarginate apically; 3rd antennal segment usually not much thicker basally than apically (Fig. 5) ... *globosus* (Fabricius)
- Californian; δ 3rd antennal segment having very short pubescence, with pubescence shorter than arista width; δ hindtarsus not greatly swollen; scutellum only slightly emarginate apically; 3rd antennal segment frequently large basally and gradually narrowed apically (Fig. 3) *marmoratus* Bigot
- 8. Third antennal segment long, about $3\times$ as long as 1st (Fig. 4); δ front broad; δ hindtarsus not swollen *adventitius* Thompson

- Third antennal segment short, shorter than 1st (Fig. 12); ♂ front narrow; ♂ hindtarsus swollen *abditus* Thompson
- 9. Tibiae more extensively dark, only pale narrowly on base and apex; fore- and midtibiae reddish brown; hindtibia metallic bluish green; ♀ 3rd antennal segment with elongate sensory pit (Fig. 9); 2nd basal cell bare. (Larger flies, longer than 8 mm) .. *craigheadii* Walton
- Tibiae orange except for narrow dark medial scars; ♀ 3rd antennal segment with a small oval sensory pit (Figs. 1, 10); 2nd basal cell microtrichose on most of apical $\frac{2}{3}$ 10
- 10. Front entirely and vertex extensively white-haired, only ocellar triangle black-haired; abdomen entirely white-haired; front smooth; larger flies, longer than 8 mm *laetoides* Curran
- Front and vertex black-haired; abdomen partially black-haired; front rugose; smaller flies, shorter than 8 mm *laetus* Loew
- 11. Wing with black maculae broadly connected anteriorly *pallipennis* Curran
- Wing with black maculae isolated 12
- 12. Abdomen metallic blue *coarctatus* Loew
- Abdomen not metallic blue 13
- 13. Abdomen almost entirely piceous red *painteri* Hull
- Abdomen largely metallic blackish green *baliopterus* Loew
- 14. First abdominal sternum bare and reduced or absent 15
- First abdominal sternum haired and well developed 17
- 15. Legs brown to black; mesonotum orange laterally; scutellum orange; eye bare *scutifer* Knab
- Legs extensively orange, only coxae, trochanters and basal $\frac{1}{3}$ of femora dark; mesonotum and scutellum dark 16
- 16. Abdomen entirely golden-yellow-haired; hindbasitarsus yellow-haired; fore- and midtarsi all pale orange; eye bare *diversipilosus* Curran
- Abdomen with large basolateral patches of black hair on terga; apical sterna with black hair medially; hindbasitarsus black-haired above; fore- and midtarsi with brown apical tarsomeres; eye haired *rufipes* Macquart
- 17. Third antennal segment short, conical, shorter than arista (Fig. 2). (Scutellum without distinct spines or tubercles (Fig. 14); sternopleuron with anteroventral hair patch) *lanceolatus* Adams
- Third antennal segment long, not conical, longer than arista 18
- 18. Entirely black-haired, metallic purplish black. (Scutellar spines minute and obscured by hair; sternopleuron with anteroventral hair patch) *newcomeri* Mann
- Partially yellow or pale-haired 19

19. Abdomen black-haired beyond 2nd segment; legs usually entirely black-haired. (Sternopleuron usually with anteroventral hair patch; scutellar spines minute or absent (Fig. 20)) *megalogaster* Snow
 – Abdomen and legs more extensively pale-haired 20
20. Third antennal segment elongate, longer than 1st segment, with apex thin and flared (Fig. 6); sternopleuron usually with anteroventral hair patch; scutellar spines large, haired (Fig. 19); trochanters and ventral surface of basal $\frac{1}{4}$ of femora pale orange
 *tristis* Loew
 – Third antennal segment shorter, usually shorter than 1st segment; if not, other characters different 21
21. Sternopleuron without anteroventral hair patch 27
 – Sternopleuron with anteroventral hair patch. (Legs usually dark, black to dark reddish brown) 22
22. Front and vertex extensively black-haired, with only a few marginal yellow hairs; abdomen black-haired beyond 3rd segment; metallic bluish green *piperi* Knab
 – Front, abdomen, or both, more extensively pale haired; not metallic bluish green 23
23. Femora entirely pale-haired 25
 – Femora usually extensively black-haired dorsoapically, almost always with some black hair at least on hindfemur 24
24. Second basal cell frequently bare basoposteriorly; scutellum frequently bright golden-haired; larger and more robust flies
 *manitobensis* Curran
 – Second basal cell frequently microtrichose; scutellum white-haired; smaller and more slender flies *albicomatus* Novak
25. Scutellum with distinct spines (Fig. 18); tibial hair dense and long
 *ocellaris* Curran
 – Scutellum usually without spines, rarely with small spines (Fig. 16); tibial hair sparse and short 26
26. Femora pale ventrally; eastern North America .. *abstrusus* Thompson
 – Femora black; Pacific Northwest *xanthopilis* Townsend
27. Thorax and abdomen extensively metallic golden-haired; wing completely microtrichose. (Scutellar spines large, haired; tibiae pale orange on basal $\frac{1}{2}$) *aurulentus* (Fabricius)
 – Thorax and abdomen pale yellow-haired to white-haired; wing usually partially bare 28
28. Scutellar spines large, haired (Fig. 17); legs entirely black
 *ruficrus* Williston
 – Scutellar spines minute or absent, bare; tibiae pale orange on basal $\frac{1}{2}$ 29

29. Second basal cell bare basoposteriorly; tibiae pale orange on basal $\frac{1}{2}$, frequently base and venter of femora also orange; basicosta yellow-haired *cothurnatus* Bigot
 – Second basal cell microtrichose; legs black; basicosta partially black-haired *albicomatus* Novak

KEY TO THE PUPARIA OF SPECIES OF *MICRODON*
 FOUND NORTH OF MEXICO

1. Dorsal surface smooth (Figs. 22, 23, 26, 28) 11
 – Dorsal surface reticulate or rugose (Figs. 24, 25, 27) 2
 2. Dorsal surface irregularly reticulate, with reticulations and hairs forming large patches, smooth between patches (Fig. 25); posterior spiracular tubercle cylindrical, ending in a medial cone, with spiracular openings lateral; anterior spiracular tubercle long, about $2\times$ as long as broad. (Marginal fringe broad) *rufipes* (Macquart)
 – Dorsal surface uniformly reticulate (Fig. 27); posterior spiracular tubercle not as above, with spiracular opening apical; anterior spiracular tubercle shorter, less than $2\times$ as long as broad 3
 3. Marginal band thin, with only a ventral fringe (Fig. 38); posterior spiracular openings forming two semicircular groups 5
 – Marginal band thick, with both a dorsal and ventral fringe (Figs. 37, 39); posterior spiracular openings divided into 4 groups 4
 4. Anterior spiracular tubercle long, about $1\frac{1}{2}\times$ as long as broad, with pores not protuberant; posterior spiracular tubercle without apical medial carina *ruficrus* Williston
 – Anterior spiracular tubercle shorter, only about as long as broad, with pores protuberant; posterior spiracular tubercle (Fig. 29) with apicomedial carina between spiracular openings .. *fulgens* Wiedemann
 5. Marginal fringe penicillate, that is, with tufts of longer hairs alternating with shorter hairs (Fig. 36) *abstrusus* Thompson
 – Marginal fringe of uniform width, all hairs of the same length 6
 6. Posterior spiracular tubercle with median carina separating spiracular openings *tristis* Loew
 – Posterior spiracular tubercle without carina 7
 7. Dorsal surface indistinctly reticulate (Fig. 22). (Anterior spiracular tubercle about as long as broad) *ocellaris* Curran
 – Dorsal surface distinctly reticulate 8
 8. Anterior spiracular tubercle smooth laterally 9
 – Anterior spiracular tubercle rugose laterally 10
 9. Posterior spiracular tubercle triangular in posterior view; anterior spiracular tubercle short, broader than long *cothurnatus* Bigot

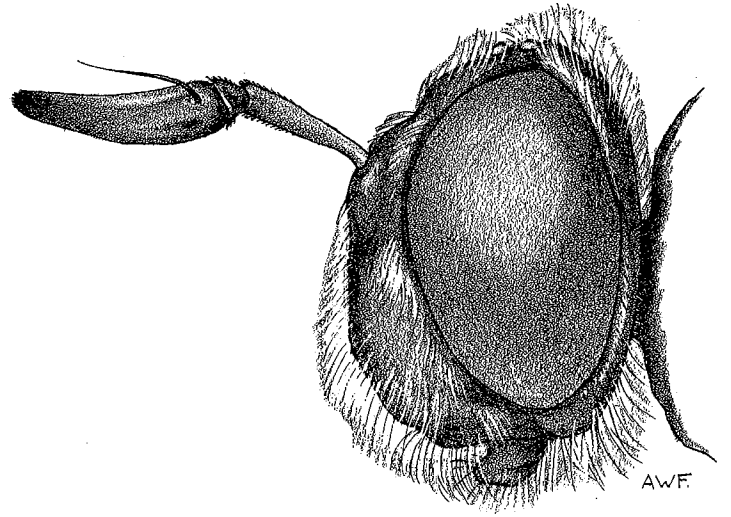
- Posterior spiracular tubercle semicircular in posterior view; anterior spiracular tubercle long, longer than broad . . . *xanthopilis* Townsend
- 10. Anterior spiracular tubercle long, twice as long as broad; dorsolateral surface without tubercles in middle of many reticulate areas *albicomatus* Novak
 - Anterior spiracular tubercle short, only about as long as broad; dorsolateral surface with 1-4 tubercles in middle of many reticulate areas *piperi* Knab
- 11. Posterior spiracular tubercle conical (Fig. 30); dorsal surface with peculiar lateral knoblike processes (Fig. 35) *Microdon (Omegasyrphus)* spp.
 - Posterior spiracular tubercle elongate, usually expanded apically; dorsal surface without knoblike processes 12
- 12. Submarginal fringe present (a thick-haired band dorsad to marginal fringe); marginal band thin 13
 - Submarginal fringe absent; marginal band thick 15
- 13. Posterior spiracular tubercle short, broader than long *ocellaris* Curran
 - Posterior spiracular tubercle long, longer than broad 14
- 14. Posterior spiracular tubercle concave posteriorly, with spiracular openings broadly separated and rugose, i.e., edges of openings slightly protruding to give the surface a rugose appearance (Fig. 33); marginal band broad, much broader than apical fringe (Fig. 38, a, b) *megalogaster* Snow
 - Posterior spiracular tubercle only slightly concave posteriorly, with openings not broadly separated, with surface smooth; marginal band very narrow, apical fringe much broader than band *manitobensis* Curran
- 15. Marginal band thin; posterior spiracular tubercle not flared apically *lanceolatus* Adams
 - Marginal band thick; posterior spiracular tubercle flared apically . . 16
- 16. Anterior spiracular tubercle short, less than 2× as long as broad; posterior spiracular tubercle smooth laterally, reticulate medially (Fig. 34) *globosus* (Fabricius)
 - Anterior spiracular tubercle long, more than 2× as long as broad; posterior spiracular tubercle reticulate all around base *fuscipennis* (Macquart)

Subgenus *Microdon* Meigen

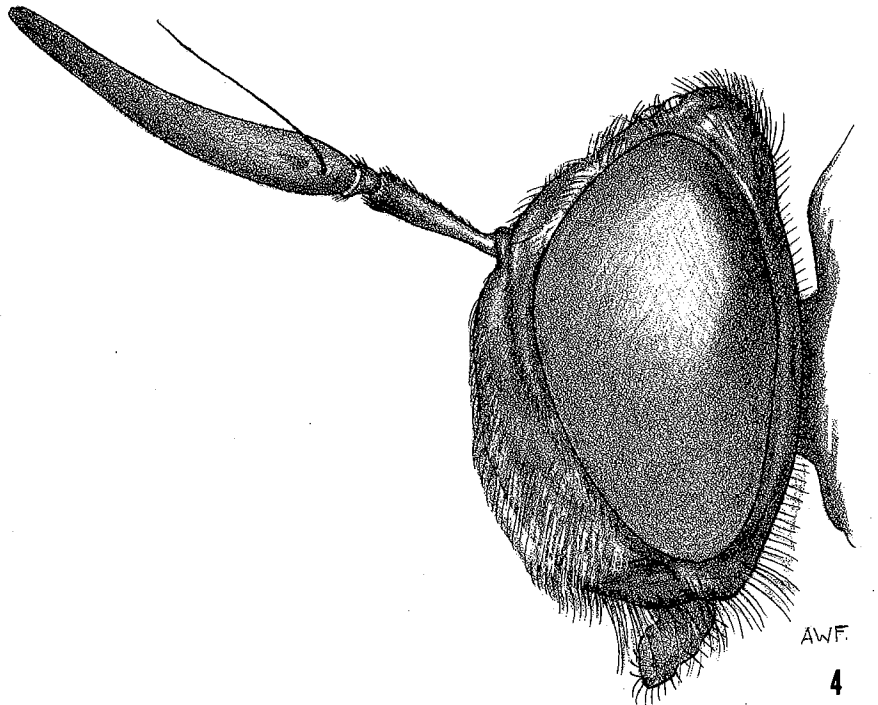
Microdon abditus Thompson, NEW SPECIES

Figs. 12, 23

globosus of Curran, 1925: 53 (descr., MG*, distr., syn. notes).



3



4

Figs. 3-4. Heads, lateral view. 3, *Microdon marmoratus*. 4, *M. adventitius*.

As there has never been any question as to the identity of this species since Williston (1887) first separated it from *globosus* Fabricius (as *fuscipennis*), I merely provide reference to the most recent description of it. This species is named *abditus* from the Latin meaning concealed, referring to the fact that this species was "concealed" under various incorrect names.

Material examined.—Holotype ♂, paratype ♀, NEW HAMPSHIRE, Coos County, 1st Connecticut Lake, 28 June 1976, L. V. Knutson, swept from grasses and sedges along the shore of the lake, deposited in U.S. National Museum. Paratypes: CANADA. QUEBEC: Joliette, 15 August, Aldrich, 1 ♂ (USNM); Covey Hill, 16–29 June 1927, W. J. Brown, 16 ♂ ♀ (CNC, USNM); Covey Hill, 23 June 1924, G. S. Walley (1 ♂ CNC); Wakefield, 24 June 1946, G. S. Walley, 18 ♂ ♀ (CNC, USNM); St. Martin, June, 1 ♂ (CNC); Beechgrove, 29 July 1962, J. R. Vockeroth, 1 ♂ (CNC); St. Ann's, 14 June 1940, D. J. McDonald, 1 ♂ (CNC); Abbotsford, 16 July 1937, G. Shewell, 1 ♂ (CNC); Brome, 8 June 1936, W. J. Brown, 1 ♂ (CNC); Farm Point, 10 July 1959, S. D. Hicks, 1 ♂ (CNC); Montreal Island, 1 ♂ 1 ♀ (MCZ). ONTARIO: Alfred, 17 June 1976, H. J. Teskey, 4 ♂ (CNC, USNM); Apple Hill, 1 July 1932, G. H. Hammond, 1 ♀ (CNC); Bridge End, 23 June 1940, D. J. McDonald, 1 ♂ (CNC); Britannia, 5 June 1948, S. D. Hicks, 3 ♂ (CNC); "Kilworth," 15 June 1934, 1 ♂ (CNC). U.S.A. CONNECTICUT: "Austan," 3 June 1918, H. C. Fall, 1 ♀ (MCZ); Lyme, 16 June 1918, S. W. Fisher, 3 ♂ 1 ♀ (USNM), 2 June 1918, Champlain, 1 ♂ (USNM), 3 June 1918, Champlain, 3 ♂ (USNM), 27 June 1918, Champlain, 1 ♂ (USNM), Williston, 1 ♂ (USNM); North Guilford, 12 June 1941, N. Turner, 1 ♀ (CNC). ILLINOIS: 3 miles south of Norris City, 27 May 1961, G. P. Waldbauer, 1 ♀ (Waldbauer Coll.). MAINE: Hollis, 12 June 1918, J. H. Emerton, 1 ♀ (MCZ); Saco, 27 June 1940, Wm. Nutting, 1 ♀ (MCZ). MASSACHUSETTS: Andover, June 1869, 1 ♂ (USNM); Beverly, 20 June 1868, 1 ♀ (USNM); Sherborn, 12 June 1915, C. A. Frost, 1 ♀ (USNM); Framingham, June, C. W. Johnson, 1 ♀ (MCZ); Wellesley, A. P. Morse, 1 ♀ (MCZ). MICHIGAN: Wexford County, 11 June 1949, R. R. Dreisbach, 2 ♀ (MCZ, USNM). NEW YORK: Fort Montgomery, 17–19 June 1919, F. M. Schoot, 2 ♂ (MCZ, USNM), 24 June 1917, F. M. Schott, 2 ♀ (MCZ, USNM); Keene Valley, 7 July 1917, H. Notman, 1 ♂ (USNM); Lake Champlain, Corlear Bay, July 1939, R. C. Shannon, 1 ♀ (USNM). NEW JERSEY: Middlesex County, 11 June, C. W. Johnson, 1 ♂ (MCZ); Morriston, 24 June 1926, 1 ♂ (USNM); Ramsey, 12–13 June 1916, J. Bequaert, 3 ♂ (MCZ, USNM); Westville, 10 September 1911, A. L. Melander, 1 ♀ (USNM); "Gt. Piece Mdw.," 30 May 1919, J. Bequaert, 1 ♂ (USNM). NEW HAMPSHIRE: Noxon Camp, 2000 ft, 5 July 1931, J. M. Aldrich, 1 ♀ (USNM). NORTH CAROLINA: Jackson County, 9 miles southeast of Cashiers, 24 May 1977, D. W. Webb, 3 ♂ (Maier & INHS). PENNSYLVANIA: Lancaster County, .6 miles southwest of Blainsport, 22 June 1978, C. Shiffer,

1 ♂ (Shiffer Collection), 21 June 1978, C. Shiffer, 1 ♀ (Shiffer Collection). WEST VIRGINIA: Pocahontas County, Rt. 28, circa 10 miles south of Frost, 9 June 1979, A. G. Wheeler, Jr., 1 ♂ 1 ♀ (USNM).

Microdon abstrusus Thompson, NEW SPECIES

Fig. 36

ruficrus of Greene, 1955: 9 (L* descr. (L P)).

Adult male.—*Head*: Brownish black, pale yellow-haired; face shiny except narrowly pale pollinose laterally, broad, $\frac{1}{2}$ of head width at its broadest; cheek pale pollinose; front and vertex shiny, about $\frac{1}{4}$ head width at its narrowest; ocellar triangle broad, ratio of longitudinal axis (from anterior ocellus to base) to latitudinal axis (between posterior ocelli) about 0.4; eye bare; occiput pale pollinose. Antenna black haired; 3rd antennal segment blunt apically; ratio—2.5:1.0:2.8.

Thorax: Brownish black, with slight greenish-blue iridescence, pale yellow-haired, extensively shiny; propleuron pollinose, haired above front coxa; sternopleuron with anteroventral hair patch; scutellum convex apically, without spines; squama and halter pale yellow. *Wing*: Hyaline, microtrichose; epaulet black-haired; basicosta yellow-haired. *Legs*: Brownish black except orange ventrally on femora and tibiae, pale yellow-haired.

Abdomen: Brownish black, with slight greenish blue iridescence, pale yellow-haired except black-haired narrowly basomedially on 3rd and 4th terga.

Female.—Same as male except for normal sexual dimorphism.

Larva and puparium described by Greene (1955: 9 as *ruficrus*). The specific name, *abstrusus*, is from the Latin meaning hiddened.

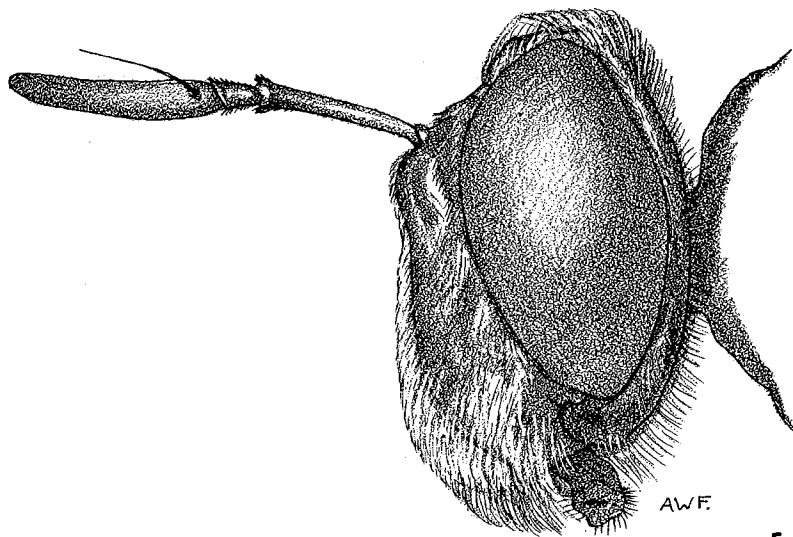
Ant host.—*Formica exsectoides* Forel.

Material examined.—Holotype ♂ and associated puparium, MARYLAND, Prince Georges County, Beltsville, 19 May 1979, R. M. Duffield and F. C. Thompson, from *Formica exsectoides* colony, deposited in U.S. National Museum. Paratypes: 19 ♂, 10 ♀, 9 puparia, all from same locality, but some collected 15 April 1978 and May 1980 (USNM). PENNSYLVANIA, Centre County, Colyer Lake, Potter Turnpike, 25 May 1977, F. D. Fee, 2 ♂ (Fee coll.). WEST VIRGINIA, Hardy County, 2 miles northwest of Mathias, 25 April 1980, R. D. Gordon, 3 larvae (USNM).

Microdon adventitius Thompson, NEW SPECIES

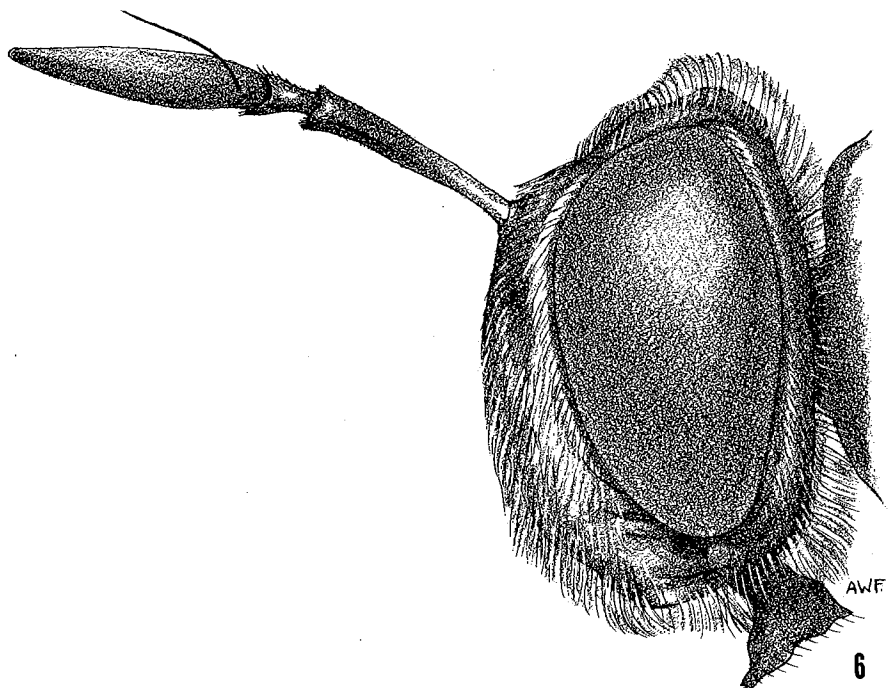
Figs. 4, 15

Adult male.—*Head*: Face orange, yellow haired, with sides slightly convergent dorsally, medially convex, dorsolaterally depressed; cheek brown, yellow-haired; front broad, about $\frac{1}{3}$ head width, parallel-sided, orange except brownish ventrolaterally, yellow-haired; vertex yellow, yellow-haired;



AWF.

5



AWF.

6

Figs. 5-6. Heads, lateral view. 5, *Microdon globosus*. 6, *M. tristis*.

ocellar triangle small, equilateral, yellow except ocelli bordered with black; occiput brown on ventral $\frac{2}{3}$, yellow dorsally, yellow-haired; eye brown, bare. Antenna brownish orange on first 2 segments, brownish black on 3rd, arista yellow; 3rd segment curved, with small sensory pit on base near aristal insertion; antennal ratio—4:1:13; arista long, about $\frac{2}{3}$ as long as 3rd segment, somewhat thick, about $\frac{1}{8}$ as thick as basal width of 3rd segment.

Thorax: Humerus orange, yellow-haired; propleuron bare; mesonotum brownish black except orange laterally, yellow-haired; scutellum orange, convex apically, without spines, yellow-haired; pleuron orange except darker brown on pectus, yellow-haired; sternopleuron without anterior hair patch. *Wing:* Brownish except darker brown anterior margin and apical crossveins, microtrichose except bare on base of 2nd basal cell and medially on alula. *Legs:* Orange except femoral scars brownish black dorsally, yellow-haired.

Abdomen: Brownish orange, generally yellow-haired, black haired narrowly and subapically on 2nd, on basal $\frac{2}{3}$ of 3rd, and basal $\frac{1}{2}$ of 4th terga, intermixed on 4th sternum; 1st sternum well developed.

Female.—Same as male except for normal sexual dimorphism.

Microdon adventitius is similar to and the sister-species of the species pair, *remotus* Knab (Cuba) and *fuscipennis* Williston (SE USA). These species are the sister group to the *globosus* complex (*abditus* Thompson + (*globosus* Fabricius + *marmoratus* Bigot)). The partially bare alula and the longer and less thickened arista separate *adventitius* from its immediate sisters, and the greatly elongate third antennal segment separates it from all its relatives. The specific name, *adventitius*, is from the Latin meaning extraordinary.

Material examined.—Holotype ♂ and paratype ♂, GEORGIA, Clarke County, Athens, 4 May 1976, J. F. MacDonald, deposited in U.S. National Museum. *Paratypes:* Georgia, Clarke County, Athens, R. Duffield, 1 ♂, 2 ♀ (USNM); Clarke County, Whitehall Forest, 8–11 March 1979, H. D. Pratt, 1 ♂ (Pratt Coll.).

Microdon albicomatus Novak

Microdon albicomatus Novak in Novak et al., 1977: 664 ♂ ♀ P* Idaho, Latah Co., 7 miles northeast of Harvard (HT ♂ WSU)².

² The format used for each specific name is: Name Author Date: Page of original description Stage(s) Described Type-locality (Kind of Type Stage of Type Location of Type). Author Date: Page of subsequent reference(s) (notes on contents of reference). Abbreviation used in the synonymy are (except for those used for the location of the type are given in the acknowledgements): A = Adult or Adult structures; E = Egg; HT = Holotype; IS = Immature Stages; L = Larva; LT = Lectotype; MG = Male genitalia; P = Puparium; ST = Syntypes; T = Type(s); and * = illustrated or examined.

Microdon albicomatus was described from Idaho, but it is wide-ranging. I have seen specimens from northernmost Yukon south to Washington and Idaho, and east to New Brunswick. *Microdon albicomatus* and *ocellaris* adults are very similar. They differ as follows: *albicomatus* usually has some black hair on the femora, whereas in *ocellaris* it is entirely pale-haired; *albicomatus* has only a few hairs on the propleuron, whereas *ocellaris* has numerous hairs there; and *albicomatus* has the 2nd basal cell almost completely microtrichose, whereas in *ocellaris* it is extensively bare on the posterobasal half.

Ant hosts.—*Formica obscuripes* Forel and *F. fusca* Linnaeus. New Host Record: OREGON, Tillamook, 26 March 1919, A. C. Burrill, in a log, *Formica fusca* Linnaeus, 3 larvae (USNM).

Material examined.—55. Canada: Alberta, British Columbia, Manitoba, New Brunswick, Northwest Territories, Quebec, Saskatchewan, Yukon. U.S.A.: Colorado, Idaho, New Hampshire, Oregon, Washington, Wyoming.

Microdon aurulentus (Fabricius)

Mulio aurulentus Fabricius, 1805: 185 ? "Carolina" (LT ♀ MNHN here design.). Macquart, 1842: 72 (12) (redescr. based on type); Curran, 1925: 80 (A* redescr., Penn., Va.).

Fabricius described *aurulentus* from material in the Bosc Collection. Macquart later redescr. this material. The material now consists of a single female (#1139) in box 34 of the Macquart Collection and is labeled "M. aurulentus/ n in Carolina Bosc," "No. 1082/ Aphritis/ aurulentus." This specimen is undoubtedly a syntype and probably the holotype, but I do not accept the assumption of holotype status for single remaining original specimens (for discussion of this point see Crosskey, 1974: 272 (pro) and Vane-Wright, 1975: 26–28 (con)). Thus, I have designated this single female as LECTOTYPE and have so labeled it.

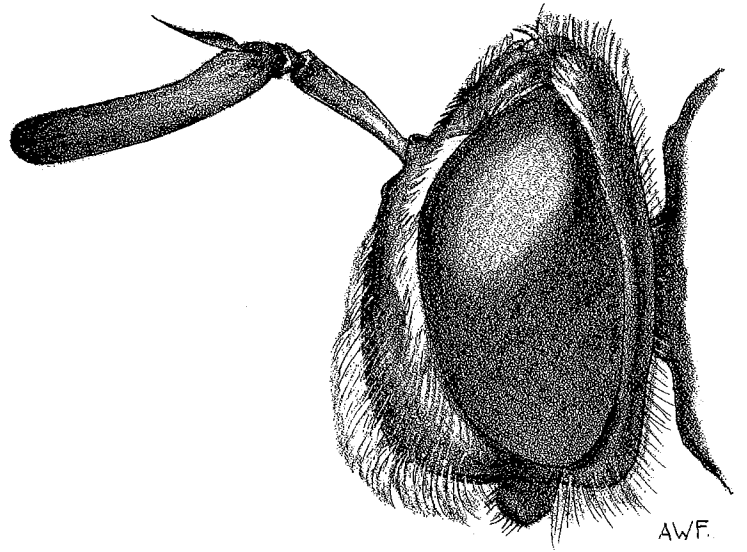
Material examined.—8. U.S.A.: Alabama, Georgia, Virginia.

Microdon cothurnatus Bigot

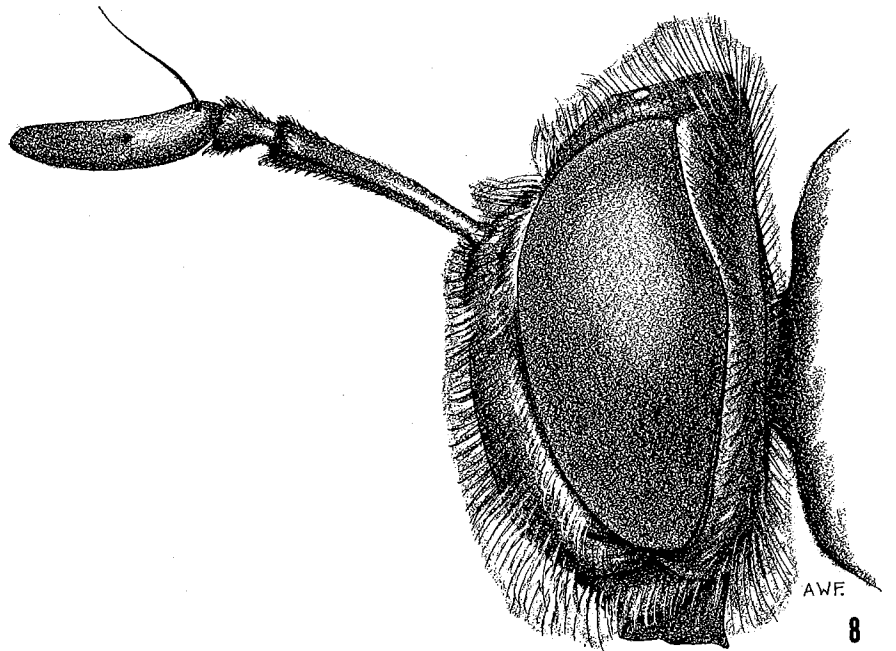
Figs. 24, 32

Microdon cothurnatum Bigot, 1883: 320 ♂ "Amer. septent. (Washingt. Territ.)" (HT ♂ BMNH). Johnson, 1916: 75 (diff. *tristis* Loew, distr. recs.); Knab, 1917: 134 (descr. note (A, L), distr. recs.); Cockerell, 1917: 15 (Colo., descr. note (P)); Curran, 1925: 65 (redescr., recognized 2 forms and 1 var.); Greene, 1955: 13 (descr. L*, P*).

Microdon tristis var. *cockerelli* Jones, 1922: 17 ♂ ♀ P Colorado, Boulder (STs ♂ P USNM). Cockerell and Andrews, 1916: 55 (Colo., descr. ♂ ♀



7



8

Figs. 7-8. Heads, lateral view. 7, *Microdon fuscipennis*. 8, *M. manitobensis*.

P); Novak et al., 1977: 664 (descr. A P*; Idaho). Syn. Curran, 1925: 65.
NEW STATUS.

I have examined the holotype of *cothurnatus* Bigot and the syntypes of *cockerelli* Jones and find them to represent the same species. All authors until Novak et al. (1977) correctly interpreted the name *cothurnatus*; but the limits of their concept were varied, and some described forms or races of the species. In the most recent of these treatments, Curran (1925: 65-67) divided *cothurnatus* into a western form called "typical," an eastern form, and a variety (*similis* Jones). This led Novak to apply incorrectly the name *cothurnatus* to Curran's western form, which is here called *xanthopillis* Townsend, and to use the subspecific name *cockerelli* for the true *cothurnatus* Bigot.

Ant hosts.—*Camponotus* spp. and *Formica* spp. New Host Records: MASSACHUSETTS, Bedford, 15 May 1926, P. J. Darlington, under bark of pine stump, *Camponotus novaeboracensis* (Fitch), 1 puparium (USNM). NEW HAMPSHIRE, Coos County, Pittsburg, Connecticut Lakes, Rt. 3, 19 June 1973, B. J. & F. C. Thompson, *Formica subnuda* Emery, 30 ♀ ♂ puparia (USNM); Coos County, Carroll, 28 June 1977, J. F. Burger & W. J. Morse, *Camponotus pennsylvanicus* (DeGeer) colony in a decomposing log, 10 ♂ ♀ puparia (USNM, UNH).

Material examined.—168. Canada: Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland, Nova Scotia, Ontario, Quebec, Saskatchewan. U.S.A.: Colorado, Connecticut, Idaho, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Oregon, Pennsylvania, Wisconsin.

Microdon craigheadii Walton

Fig. 9

Microdon craigheadii Walton, 1912: 463 ♂ ♀ Pennsylvania, Carlisle Junction (HT ♂ USNM). Curran, 1925: 83 (A* MG* descr.).

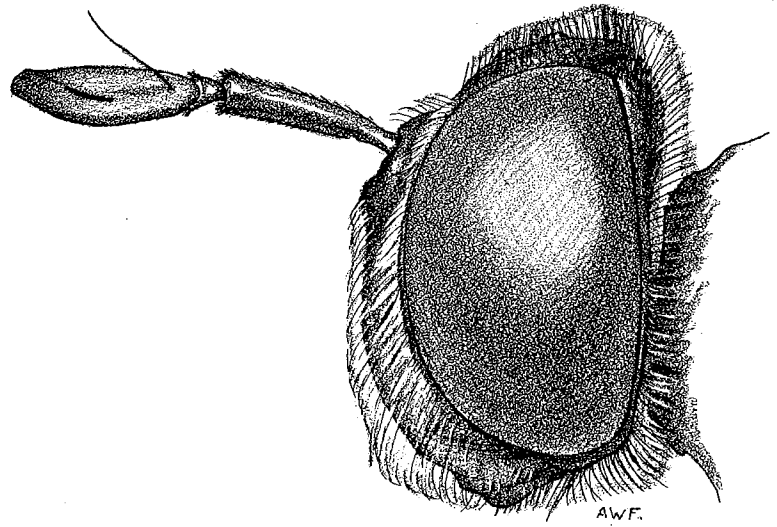
Material examined.—25. U.S.A.: Georgia, Maryland, New Jersey, Pennsylvania, Tennessee, Texas, West Virginia.

Microdon diversipilosus Curran

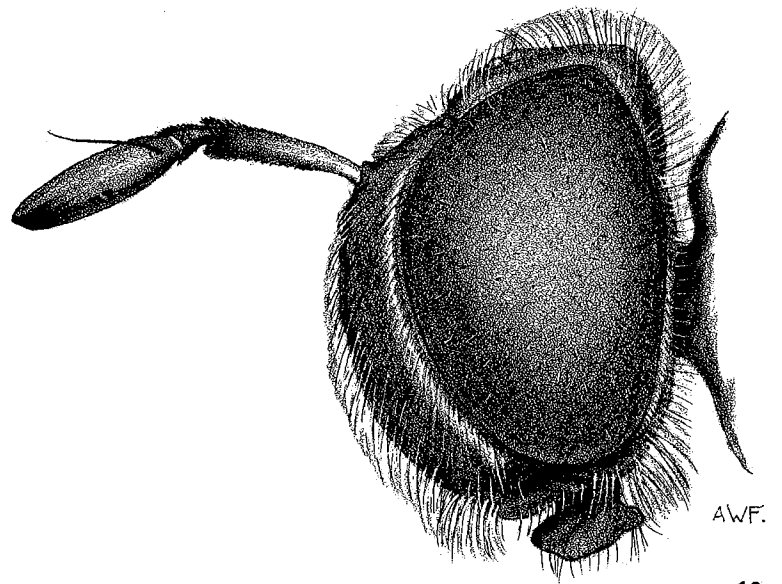
Microdon diversipilosus Curran, 1925: 76 ♂ Kansas, Clark County, 1962 ft (HT ♂ UKaL).

Wirth et al. (1965: 598) list *diversipilosus* Curran from a number of states in addition to the type-locality. I have not verified these additional records because the type is the only specimen I have seen. The genitalia of the type are missing.

Material examined.—1. U.S.A.: Kansas.



9



10

Figs. 9-10. Heads, lateral view. 9, *Microdon craigheadii*. 10, *M. laetus*.

Microdon fuscipennis (Macquart)

Figs. 7, 21

Ceratophya fuscipennis Macquart, 1834: 488 ? Pennsylvania, Philadelphia (T ? UMO). Curran, 1925: 77 (A* descr.).

Microdon agapenor Walker, 1849: 539 ♀ Georgia (STs ♀ BMNH).

Microdon pachystylum Williston, 1887: 8 ♂ Georgia (HT ♂ USNM). Syn. Curran, 1925: 77.

The biology of this species is covered in detail by Duffield (1981).

Ant hosts.—*Iridomyrmex pruinosus* (Roger).

Material examined.—123. U.S.A.: Alabama, Georgia, Florida, Kansas, Louisiana, Mississippi, New Mexico, North Carolina, South Carolina, Texas.

Microdon globosus (Fabricius)

Figs. 5, 34

Mulio globosus Fabricius, 1805: 185 ? "Carolina." (LT ♀ MNHN here design.). Macquart, 1842: 73 (13) (A*, redescr. of type); Greene, 1955: 5 (descr. L*).

Dimeraspis podagra Newman, 1838: 373 ? Illinois, Wanborough (HT ♂ BMNH). Syn. Walker, 1849: 540.

Microdon albipilis Curran, 1925: 54 ♂* Manitoba (HT ♂ CNC). N. SYN.

Microdon conflictus Curran, 1925: 58 A* MG* Virginia, Great Falls (HT ♂ CNC). Johnson, 1927: 45 (note on type). N. SYN.

Microdon pseudoglobosus Curran, 1925: 57 A* ♂ MG* New Jersey, Lucaston (HT ♂ UKaL). Johnson, 1927: 45 (note on type). N. SYN.

Microdon hutchingsi Curran, 1927: 89 ♀ Quebec, Aylmer, Queens Park (HT ♀ CNC). N. SYN.

fuscipennis of: Williston, 1887: 4 (descr.), and various earlier authors.

I, like Williston (1887), recognize only two species of globose *Microdon* species, *abditus* Thompson and *globosus* Fabricius. The species *globosus* may represent a complex. The antennal ratio and the size of the male hind tarsus vary geographically. The names *globosus*, *podagra*, *conflictus* and *pseudoglobosus* clearly apply to the southeastern populations, in which the third antennal segment is subequal to the 1st and the hindbasitarsis of the male is greatly swollen. Northward and westward, the third antennal segment becomes longer and the male hindbasitarsis less swollen. The names *albipilis* and *hutchingsi* apply to these populations. *Microdon marmoratus* Bigot is also part of the *globosus* complex. I am not certain that my interpretation is correct; but I leave it as it is because a colleague has expressed an interest in revising this complex.

The name of this species has been greatly confused, because no author

since Macquart (1842) has checked the types. Curran (1925) attempted to settle the confusion, which he stated was due "chiefly to carelessness." Unfortunately he fixed the name *globosus* to the wrong species. Fabricius described *globosus* from material in the Bosc Collection. Macquart (1842) redescribed this material. Williston (1887) recognized two "globose" *Microdon* species, one of which he called *fuscipennis* Macquart and the other *globosus* Fabricius. Snow (1895: 249 and Snow in Aldrich, 1905: 346) apparently believed (*teste* Curran, 1925: 54) that Williston inverted the names of these two species and, therefore, corrected that error. Curran (1925) correctly removed the name *fuscipennis*, a synonym of *pachystylum* Williston, from the confusion. Curran, then, accepted Williston's interpretation of *globosus* and described *pseudoglobosus* and *conflictus* for "*fuscipennis*" of Williston.

The material on which Macquart based his redescription is still present in his collection (#1138, box 34) and has been re-examined. Although neither specimen has a "Bosc" label, I accepted them as Bosc material because Macquart identified them as such. Both, therefore, could be considered syntypes, but I believe only one is. One is a specimen of *fuscipennis* Macquart, and the other is *globosus* Fabricius. Macquart in his redescription differentiated between these specimens on the basis of the shape of the abdomen, one he described as "*presque disciforme*" and the other as "*ovalaire*." I consider that the Fabrician description of the abdomen as "*magis globosum*" applies only to the *globosus* specimen, which I here designate as lectotype to eliminate any further confusion.

The type of *Dimeraspis podagra* Newman is in the British Museum (Natural History) and is the same as *globosus* as was noted by Walker (1849). Austen has labeled this specimen with a query, but I see no reason for not accepting it as the type because it does agree with the original description.

Ant hosts.—*Tapinoma sessile* (Say). New Host Records: GEORGIA, Union County, Hightower Gap, 7 May 1977, R. M. Duffield, *Tapinoma sessile* (Say), larvae, puparia, 5 ♂ 4 ♀ (USNM).

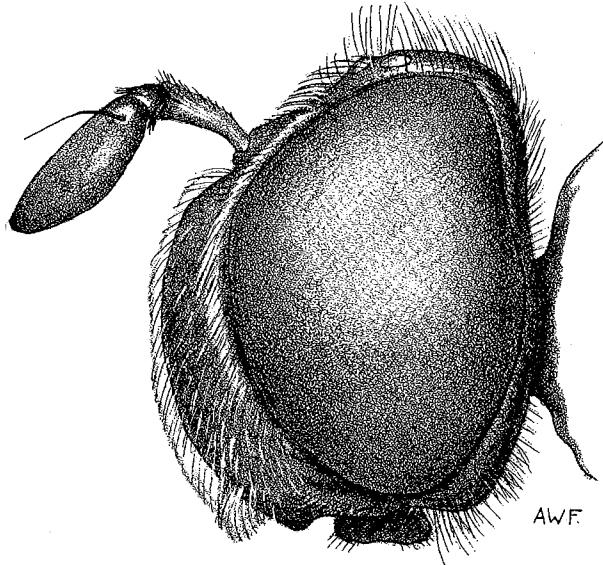
Material examined.—188. Canada: Alberta, British Columbia, Manitoba, New Brunswick, Ontario, Quebec, Saskatchewan. U.S.A.: Colorado, Connecticut, District of Columbia, Florida, Georgia, Kansas, Illinois, Maryland, Massachusetts, Michigan, New Jersey, New York, North Carolina, Pennsylvania, South Carolina, Texas, West Virginia, Wisconsin, Vermont, Virginia.

Microdon laetoides Curran

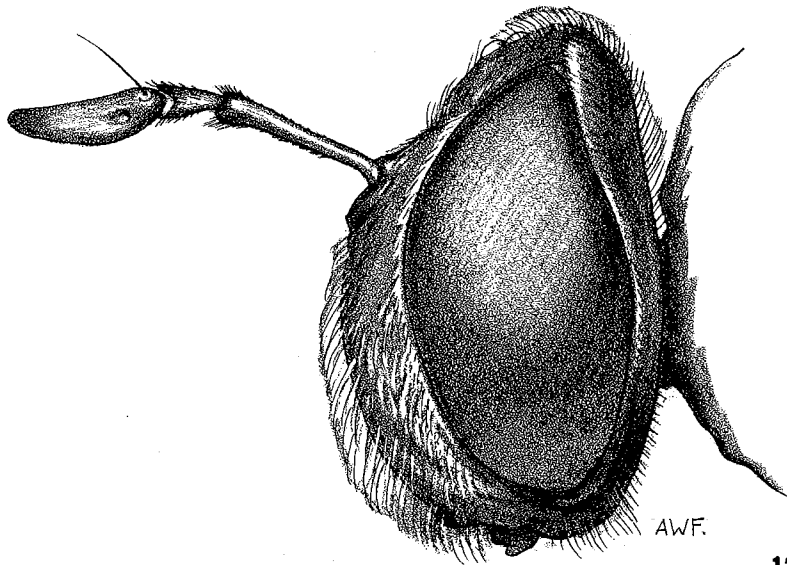
Fig. 1

Microdon laetoides Curran, 1935: 3 ♀ Arizona, Globe (HT ♀ AMNH).

Material examined.—2. U.S.A.: Arizona.



11



12

Figs. 11-12. Heads, lateral view. 11, *Microdon painteri*. 12, *M. abditus*.

Microdon laetus Loew

Fig. 10

Microdon laetus Loew, 1864: 74 ♂ ♀ Cuba (STs lost MCZ).*Microdon scitulus* Williston, 1887: 10 ♂ Florida (HT ♂ USNM). Curran, 1925: 84 (descr.). Syn. Wirth et al., 1965: 598.

In my review of the West Indian syrphid fauna (Thompson, 1981), I questioned the synonymy of *laetus* with *scitulus*. I have now re-examined the mainland populations (*scitulus*) and feel that the synonymy is reasonable.

Material examined.—67. U.S.A.: Alabama, Florida, Kansas, Louisiana, Maryland, Mississippi, Missouri. Cuba, Jamaica.

Microdon lanceolatus Adams

Figs. 2, 14

Microdon lanceolatus Adams, 1903: 222 ♂ Kansas, Clark County, Englewood (HT ♂ UKaL). Curran, 1925: 70 (A* descr.); Greene, 1955: 4 (descr. P*).*Microdon coloradensis* Cockerell and Andrews, 1916: 53 ♂* Colorado, Boulder, foot of Flagstaff Hill (HT ♂ USNM). Cockerell, 1917: 15 (Colo., descr. notes (A, P)); Knab, 1917: 138 (N. Mex., descr. note); Jones, 1922: 17, 44 (Colo.). Syn. Curran, 1925: 60.*Microdon modestus* Knab, 1917: 139 ♂ ♀ Nevada, Elko (HT ♂ USNM). Curran, 1925: 67 (cit.). N. SYN.*Microdon senilis* Knab, 1917: 139 ♀ California, Claremont (HT ♀ USNM). Curran, 1925: 62 (cit.). N. SYN.*Microdon similis* Jones, 1917: 219 ♀ Colorado, Poudre Canon (LT ♀ USNM here design.). Jones, 1922: 17, 41, 44 (A*, Colo.); Knab, 1917: 135 (?=*cothurnatus* Bigot); Curran, 1925: 67 (descr. as var. of *cothurnatus* Bigot). N. SYN.

The hair color is variable in *lanceolatus*, ranging from entirely yellow through yellow and black to entirely black. I have seen six different color morphs: All black hair (*modestus* allotype); all black hair except yellow and black hair on face (*senilis* holotype), yellow hair on head and thorax and yellow and black hair on abdomen (*lanceolatus* holotype); yellow hair on head and thorax and black hair on abdomen (*similis* lectotype); black hair on head, yellow hair on thorax, and yellow and black hair on abdomen (*modestus* holotype); and yellow and black hair on head, yellow hair on thorax, and yellow and black hair on abdomen (unnamed). These morphs are not discrete; intermediate forms with various amounts of yellow and black hair exist. No geographical, altitudinal or clinal pattern is apparent in the hair color variation. All these morphs are readily recognized as *lanceolatus* by the very short and conical third antennal segment.

Microdon similis Jones was described from two females. Both syntypes were found in his collection, and the one bearing his determination label is here designated as lectotype and is so labeled. Both syntypes are specimens of *lanceolatus* Adams, the typical color morph.

Ant host.—*Formica argentea* Wheeler.

Material examined.—22. Canada: Alberta, British Columbia. U.S.A.: California, Colorado, Montana, Nevada, New Mexico, Utah, Washington, Wyoming.

Microdon manitobensis Curran

Figs. 8, 13, 31

Microdon manitobensis Curran, 1924: 227 ♂ ♀ Saskatchewan, "Elmboro" (LT ♂ CNC here design.). Johnson, 1927: 45 (note on types); Curran, 1925: 62 (A* descr.); Greene, 1955: 4 (descr. L* P); Novak et al., 1977: 663 (key ref. (A, P*)).

Curran did not clearly designate a holotype for *manitobensis*, but he did label a specimen as holotype. This specimen is now in the Canadian National Collection and is designated LECTOTYPE.

Material examined.—79. Canada: Alberta, British Columbia, Manitoba, Nova Scotia, Ontario, Quebec, Saskatchewan. U.S.A.: Colorado, Maine, New Hampshire, New Mexico, New York, Washington.

Microdon marmoratus Bigot

Fig. 3

Microdon marmoratum Bigot, 1883: 320 ♂ ♀ California (STs UMO). Curran, 1925: 56 (A* descr.); Greene, 1955: 5 (descr. L* P).

Microdon marmoratus is very closely related to the northwestern populations of *globosus* (*q.v.*). I doubt the specific status of *marmoratus* and consider it only a distinctive population of *globosus*. The characters given in the key are those from Curran (1925: 49) and a colleague, but I find that they do not consistently separate *globosus* (in sense of the non-Californian populations) from *marmoratus* (the Californian populations). Gary Coover of Dayton Museum of Natural History, Ohio, has expressed an interest in resolving this complex, so the problem is left as is.

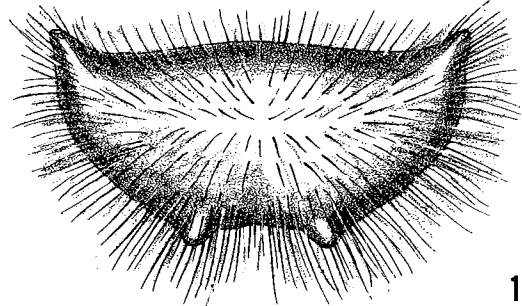
Material examined.—39. U.S.A.: California, Oregon.

Microdon megalogaster Snow

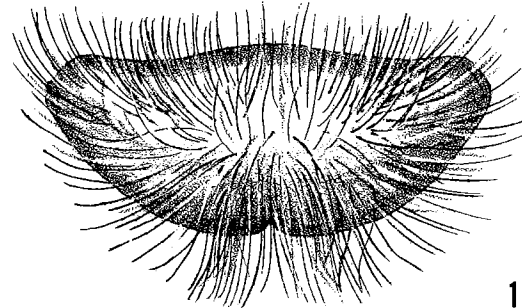
Figs. 20, 26, 33, 38

Microdon megalogaster Snow, 1892: 34 ♂* Illinois (Snow, 1895: 249, Hunter, 1897: 123) (HT ♂ UKaL). Jones, 1922: 17, 44 (Colo.); Greene, 1923b: 140 (descr. L, P*; Va.), 1955: 12 (descr. L, P*); Curran, 1925: 60 (descr.).

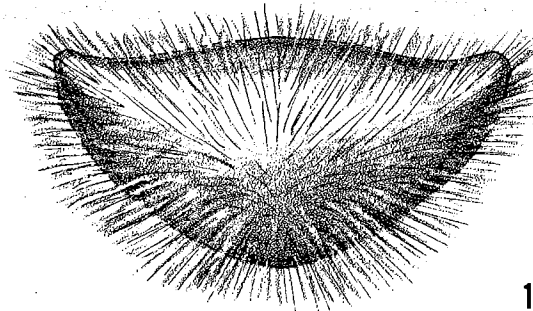
Microdon bombiformis Townsend, 1895a: 33 ♀ Virginia, Dixie Landing (near Washington, D.C.) (HT ♀ UKaL). Syn. Hunter, 1897: 123.



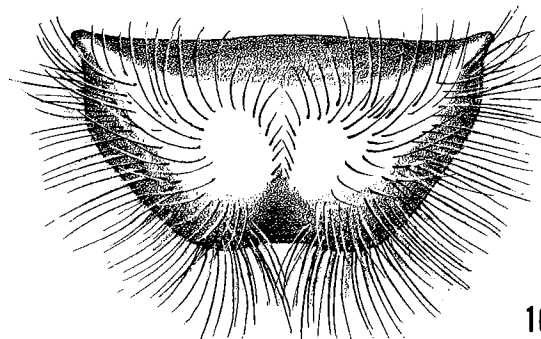
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15



16

Figs. 13-16. Scutella, dorsal view. 13, *Microdon manitobensis*. 14, *M. lanceolatus*. 15, *M. adventitius*. 16, *M. xanthopilis*.

Ant hosts.—*Formica subsericea* Say and *F. fusca* Linnaeus. New Host Records: GEORGIA, Union County, Hightower Gap, 7 May 1977, R. M. Duffield & D. Freeman, *Formica subsericea* Say, larvae, puparia (USNM).

Material examined.—79. Canada: Ontario, Quebec. U.S.A.: Connecticut, District of Columbia, Georgia, Illinois, Maryland, Massachusetts, Minnesota, New York, North Carolina, Pennsylvania, Tennessee, Virginia.

Microdon newcomeri Mann

Microdon newcomeri Mann 1924: 94 ♂ California, Portola (HT ♂ USNM).

Material examined.—3. U.S.A.: California.

Microdon ocellaris Curran

Figs. 18, 22

Microdon ocellaris Curran, 1924: 227 ♀ Pennsylvania, Linglestown (LT ♀ USNM) (Curran, 1925: 82). Johnson, 1927: 45 (note on type); Curran, 1925: 82 (descr., type design., distr.).

Ant host.—*Formica schaufussi* Mayr. New Ant Host Record: MASSACHUSETTS, Blue Hill, 6 May 1911, *Formica schaufussi* Mayr, 2 puparia (USNM).

Material examined.—39. U.S.A.: Alabama, Colorado, Connecticut, Georgia, Michigan, New Jersey, New York, Pennsylvania, Tennessee.

Microdon piperi Knab

Microdon piperi Knab, 1917: 136 ♂ ♀ Washington, Seattle (HT ♂ and associated puparium USNM). Curran, 1925: 78 (A* descr.); Greene 1955: 15 (descr. (L*,P*)); Novak et al., 1977: 663 (key ref. (A. P*)).

Ant host.—*Camponotus* species. New Ant Host Records: BRITISH COLUMBIA, Lavington, 8 May 1953, J. Grant, *Camponotus* sp., 4 ♂ ♀ puparia (USNM, CNC). WASHINGTON, Columbia County, 23 March 1939 & 26 May 1941, S. H. Lyman, *Camponotus herculeanus* (Linnaeus), 10 ♂ ♀ puparia (USNM).

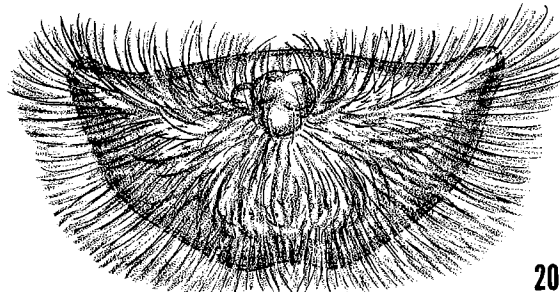
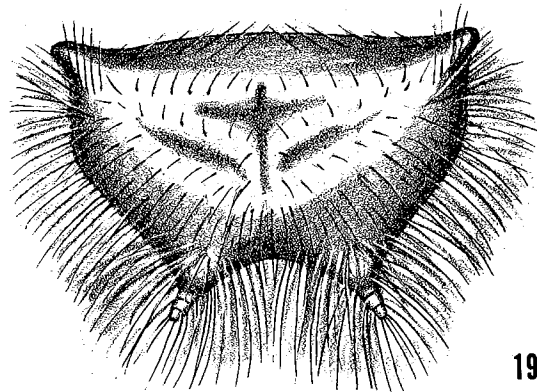
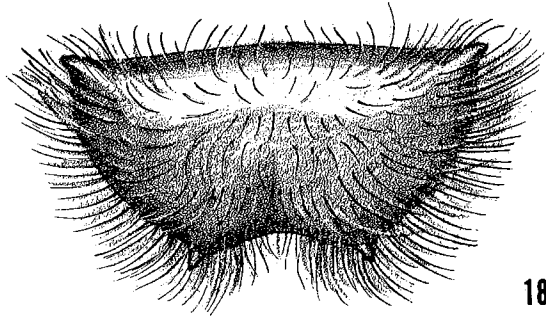
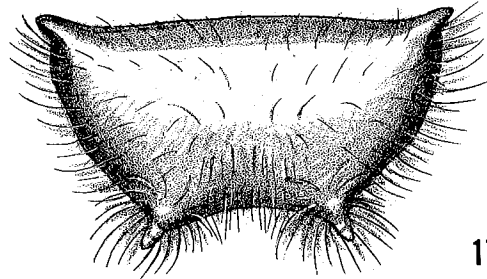
Material examined.—112. Canada: Alberta, British Columbia. U.S.A.: California, Colorado, Idaho, Montana, New Mexico, Oregon, Washington, Wyoming.

Microdon ruficrus Williston

Figs. 17, 37, 39

Microdon tristis var. *ruficrus* Williston, 1887: 7 ♂ Connecticut (HT ♂ USNM). Knab, 1917: 135 (elevated to sp. status, descr., distr.); Curran, 1925: 68 (A* descr.).

Microdon basicornis Curran, 1925: 79 ♂* New Brunswick, "Barber D." (HT ♂ CNC). N. SYN.



Figs. 17-20. Scutella, dorsal view. 17, *Microdon ruficrus*. 18, *M. ocellaris*. 19, *M. tristis*. 20, *M. megalogaster*.

Microdon champlaini Curran, 1925: 71 A* ♂ ♀ Pennsylvania, Linglestown (HT ♂ USNM). Greene, 1955: 10 (descr. (L*, P*)). N. SYN.

Curran (1925) separated *ruficrus*, *basicornis*, and *champlaini* on the basis of slight differences in the size and condition of the scutellar spines, the color of antennae, and the color of hair of the front. I consider these differences trivial. I have seen reared specimens that vary in these characters but are associated with identical puparia.

Ant host.—*Lasius* spp. New Host Records: GEORGIA, Union County, Hightower Gap, 11 April 1976, R. M. Duffield, *Lasius* sp., 1 ♂ puparium (USNM). ONTARIO, Ottawa, 14 December 1953, E. C. Becker, *Lasius alienus* (Foerster), eggs, larvae, puparia, ♂ ♀ (CNC).

Material examined.—106. Canada: New Brunswick, Nova Scotia, Ontario, Quebec. U.S.A.: Connecticut, District of Columbia, Georgia, Illinois, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Virginia, Wisconsin.

Microdon rufipes (Macquart)

Aphritis rufipes Macquart, 1842: 71 (11) ♀ Pennsylvania, Philadelphia (T ♀ UMO?). Knab, 1917: 140 (distr. recs., syn.); Curran, 1925: 50 (transl. orig. descr.).

Microdon limbus Williston, 1887: 8 ♀ Florida (HT ♀ USNM). Syn. Knab, 1917: 140.

Ant host.—*Pheidole dentata* Mayr. New Host Records: GEORGIA, Laura Walker State Park, 6 June 1976, R. M. Duffield, *Pheidole dentata* Mayr, 1 ♀ puparium (USNM).

Material examined.—31. U.S.A.: Florida, Georgia, Maryland, Texas, Virginia.

Microdon scutifer Knab

Microdon scutifer Knab, 1917: 141 ♂ Texas, Willis (HT ♂ USNM). Curran 1925: 75 (descr.).

Material examined.—4. U.S.A.: Alabama, Texas.

Microdon tristis Loew

Figs. 6, 19

Microdon tristis Loew, 1864: 73 ♀ Virginia (T ♀ MCZ lost). Wheeler, 1908: 204 (L* biol.); Johnson, 1916: 75 (diff. *cothurnatus* Bigot, distr. recs.); Knab, 1917: 135 (descr., distr. recs.); Jones, 1922: 17, 44 (A*, Colo.); Curran, 1925: 72 (A* descr., distr. rec.); Greene, 1955: 14 (L* P* descr. (L P)).

Microdon robusta Telford, 1939: 14 A* L* Minnesota, Ramsey Co., Battle Creek Park (HT ♀ UMSP). Greene, 1955: 11 (L* P* descr., distr. recs.). N. SYN.

The holotype of *robusta* is a specimen of *tristis*. Telford (1939) said his species was "very similar to *tristis*" but was "distinguished from it by the evenly rounded scutellum, rugose notum, and somewhat darker legs." Telford described *robusta* from two reared females, which are in teneral condition. The shape of the scutellum is greatly distorted, having not been inflated, but spines are distinctly present. The rugose condition of the notum is also due to the teneral condition of the types, and the leg color is well within the range of *tristis*. Telford's statement that "The larvae of the two are also decidedly distinct" is peculiar, because the larva of *tristis* was not known at that time. When requesting the loan of the *robusta* types, I was told that the immature material was now lost.

Ant host.—*Camponotus pennsylvanicus* (DeGeer) and *C. novaeboracensis* (Fitch). New Ant Host Record: CONNECTICUT, Middlesex County, 3.5 miles east of Killingworth, 4 June 1978, C. T. Maier, *Camponotus novaeboracensis* (Fitch), 1 puparium.

Material examined.—148. Canada: British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario, Quebec. U.S.A.: Connecticut, Illinois, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New York, Pennsylvania, Rhode Island, Vermont.

Microdon viridis Townsend

Microdon viridis Townsend, 1895b: 610 ♀ Mexico, Baja California, San Jose del Cabo (HT ♀ CAS). Curran, 1925: 83 (key ref., cit., distr. note).

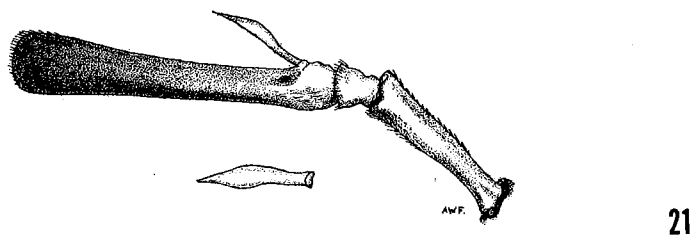
The holotype of *viridis* was destroyed in the 1906 San Francisco earthquake (Arnaud, 1979: 9). The original description indicates that *viridis* is similar to *laetus* and *laetoides* but can be distinguished from them by the "decidedly incrassate" hindbasitarsis. This species should be deleted from the fauna of America north of Mexico. I have seen no material that agrees with the original description. The eastern records of this species undoubtedly refer to either *laetus* or *craigheadii*, and the West Coast records may refer to *laetoides*.

Microdon xanthopilis Townsend

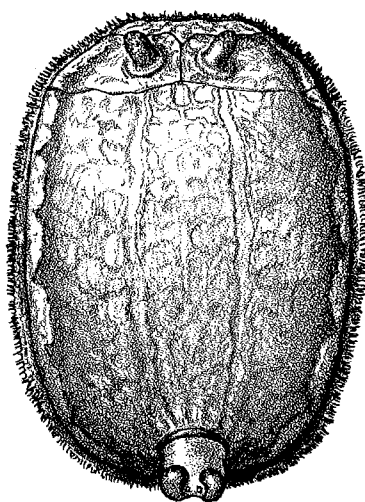
Fig. 16

Microdon xanthopilis Townsend, 1859b: 611 ♂ ♀ California (LT ♂ UKaL here designated). Curran, 1925: 64 (key ref., descr. based on syntype). *cothurnatus* of Akre et al., 1973: 327 (E* L* P* A* biol., behavior); Novak et al., 1977: 664 (P* key ref.).

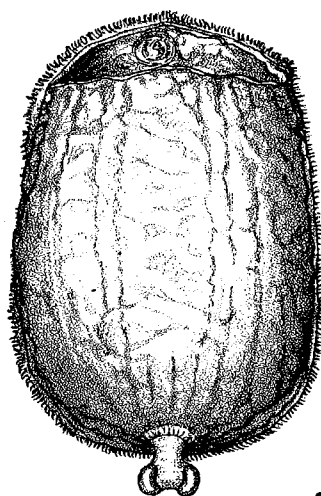
Microdon xanthopilis was described from two specimens. One was returned to the California Academy of Sciences and was destroyed in the 1906 earthquake (Arnaud, 1979: 9). The other was retained by Townsend and was later sold to the Snow Entomological Museum. This latter specimen was redescribed by Curran, is here designated lectotype, and has been so



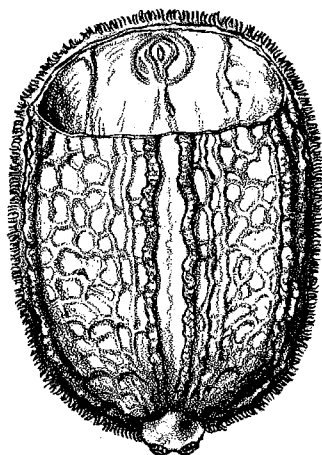
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22



23



24

Figs. 21-24. 21, Antenna, lateral view, with dorsal view of arista. 22-24, Puparia, dorsal view. 21, *Microdon fuscipennis*. 22, *M. ocellaris*. 23, *M. abditus*. 24, *M. cothurnatus*.

labeled. The lectotype is the species called *cothurnatus* by Akre et al. (1973).

Material examined.—37. Canada: Alberta, British Columbia. U.S.A.: California, Montana, Washington.

Subgenus *Chymophila* Macquart

Chymophila Macquart, 1834: 485. Type-species, *splendens* Macquart (mono.)

Microdon subg. *Eumicrodon* Curran, 1925: 50. Type-species, *Microdon fulgens* Wiedemann (Orig. design. (p. 46)).

Microdon fulgens Wiedemann

Figs. 27, 29, 40

Microdon fulgens Wiedemann, 1830: 82 ♀ "Neugeorgien" (T ♀ ZMHu) Knab, 1917: 140 (descr. notes, distr. recs.); Curran, 1925: 50 A* (descr., distr. recs.).

Chymophila splendens Macquart, 1834: 486 ? Pennsylvania, Philadelphia (HT ? UMO).

Ant hosts.—*Camponotus abdominalis* (Fabricius); *Formica schaufusi* Mayr and *Polyergus lucidus* Mayr. New Host Records. FLORIDA, Pine Key, February 1976, R. M. Duffield, *Camponotus abdominalis* (Fabricius); Dade County, Everglades National Park, 28 March 1978, R. M. Duffield, *C. abdominalis* (Fabricius), 1 ♀ puparium (USNM). GEORGIA, Clarke County, Athens, August 1975, R. M. Duffield, *Formica schaufusi* Mayr and *Polyergus lucidus* Mayr, 2 larvae, 2 puparia (USNM).

Material examined.—33. U.S.A.: Arkansas, Florida, Georgia.

Subgenus *Omegasyrphus* Giglio-Tos

Omegasyrphus Giglio-Tos, 1891: 4. Type-species, *Microdon coarctatus* Loew (sub. mon., Giglio-Tos, 1892: 3).

Currently four species of the subgenus *Omegasyrphus* are recognized. The differences between these species, given by Curran (1925: 50), are accepted here. However, I have not found them satisfactory nor do I understand the species limits in this subgenus. I would recognize only two species: *pallipennis* Curran of limited range and variation; and *coarctatus* Loew of wide range and variation, including all other names. Because Coovert has expressed an interest in revising *Microdon*, I leave this problem unresolved.

Microdon baliopterus Loew

Fig. 41

Microdon baliopterus Loew, 1872: 86 ♂ ♀ Texas (STs ♂ ♀ MCZ lost). Curran, 1925: 87 (A* MG* descr., distr. recs.); van Pelt & van Pelt, 1972: 977 (L*, biol., descr. (IS), Tex.).

Ant host.—*Monomorium minimum* (Buckley).

Material examined.—40. U.S.A.: Arizona, California, Colorado, Georgia, Kansas, Nebraska, Nevada, New Mexico, South Dakota, Texas, Utah, Wyoming.

Microdon coarctatus Loew

Figs. 28, 30, 35

Microdon coarctatus Loew, 1864: 74 ♂ ♀ District of Columbia (ST ♂ ♀ MCZ lost). Greene, 1923a: 82 (L* descr. (L P), host rec., Va & Tex.), 1955: 6 (L* P* descr. (L P), host rec., Va., Tex.); Curran, 1925: 86 (A*, descr., La.).

Ant host.—*Monomorium minimum* (Buckley), *Aphaenogaster fulva* (Roger).

Material examined.—10. U.S.A.: Louisiana, Montana, North Carolina, Texas, Virginia.

Microdon painteri Hull

Fig. 11

Microdon painteri Hull, 1922: 370 ♂ ♀ Mississippi, Greenville (HT ♂ CNC). Curran, 1925: 88 (A* MG* descr.).

Ant host.—*Monomorium minimum* (Buckley). New Host Records: GEORGIA, Clarke County, Bogart, 26 July & 12 August 1972, A. Lavalley, *Monomorium minimum* (Buckley), 9 ♂ (USNM).

Material examined.—11. U.S.A.: Arkansas, Georgia, North Carolina.

Microdon pallipennis Curran

Microdon pallipennis Curran, 1925: 89 A* MG* Colorado, Garden of the Gods and Texas, Austin (STs ♂ ♀ UKaL).

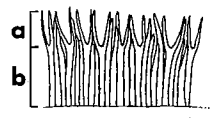
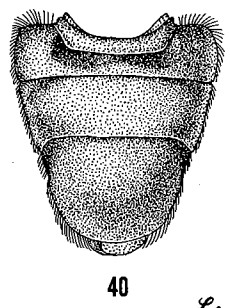
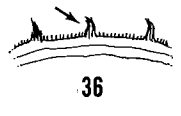
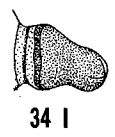
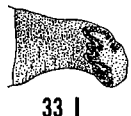
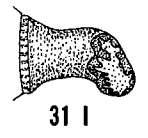
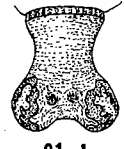
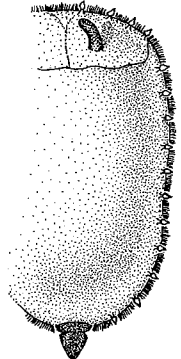
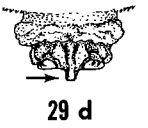
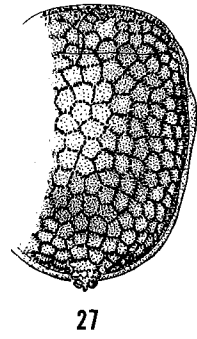
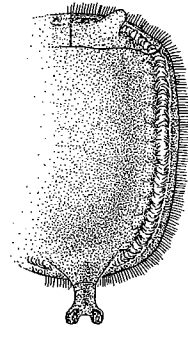
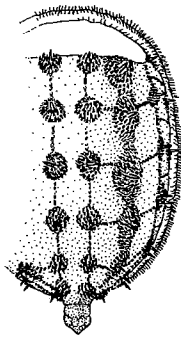
Material examined.—5. U.S.A.: Texas.

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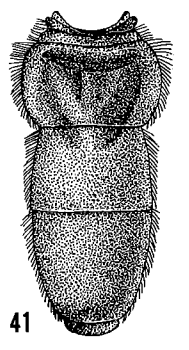
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Figs. 25–41. 25–28, Puparia, dorsal view. 29–34, Hind spiracular processes; c = caudal view; d = dorsal view; l = lateral view. 35, Abdominal process, dorsal view. 36–39, Marginal fringe, dorsal view except 37 is lateral view. 40–41, Abdomens, dorsal view. 25, *Microdon rufipes*. 26, 33, 38, *M. megalogaster*. 27, 29, 40, *M. fulgens*. 28, 30, 35, *M. coarctatus*. 31, *M. manitobensis*. 32, *M. cothurnatus*. 34, *M. globosus*. 36, *M. abstrusus*. 37, 39, *M. ruficrus*. 41, *M. baliopertus*.



He



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- 1925." The copy in the Smithsonian Institution library is dated as received on 4 January 1926. However, I have seen a number of reprints dated in Curran's own hand as "Issued Dec. 1, 1925." This is the date I have accepted.
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