

3. Mesoscutum, between parapsides, with numerous very fine piligerous punctures and scattered coarse setigerous punctures; parapsis with abundant fine punctures only slightly coarser than those of disc; first tergum with scattered erect hairs on disc . . . . . *ewarti* Snelling  
Mesoscutum, between parapsides, with scattered very fine piligerous punctures and scattered coarse setigerous punctures; parapsis with dense punctures conspicuously coarser than fine discal punctures; first tergum without erect discal hairs . . . . . *pyramicus* M. Smith
4. Thorax and gaster brown, legs usually yellowish; HW usually less than 1.85 mm; penultimate segment of maxillary palp slender, parallel-sided . . . . . *testaceus* Emery  
Thorax and gaster light brownish yellow, legs concolorous with thorax; HW 1.90 mm or more, usually more than 2.0 mm; penultimate segment of maxillary palp distinctly broader basally . . . . . *mexicanus* Wesmael

## MALES

1. Scape and tibia without conspicuous standing hairs; hind wing with fringe hairs on posterior margin . . . . . 2  
Scape always and tibia usually with conspicuous standing hairs; posterior margin of hind wing (a) without fringe hairs, (b) with a few on basal one-fourth or (c) with a complete fringe . . . . . 3
2. Forewing with fringe hairs present on apical margin; forewing with discoidal cell; HL less than 0.8 mm . . . . . *ewarti* Snelling  
Forewing without fringe hairs on apical margin; forewing without discoidal cell; HL in excess of 0.9 mm . . . . . *pyramicus* M. Smith
3. Occipital hairs shorter than maximum diameter of lateral ocellus; posterior and/or apical margins of hind wing with at least a few long fringe hairs . . . . . 4  
Many occipital hairs longer than maximum diameter of lateral ocellus; hind wing without fringe hairs . . . . . *testaceus* Emery
4. Small species, HW less than 0.8 mm; scape with scattered erect hairs, tibia with numerous decumbent hairs; apical margin of forewing without vestiges of fringe . . . . . *navajo* Wheeler  
Large species, HW greater than 0.9 mm; scape and tibia usually with abundant erect or suberect hairs; if erect hairs reduced or absent, then apical margin of forewing with vestiges of a fringe . . . . . *mexicanus* Wesmael and *melanoticus* Wheeler

## MEXICANUS GROUP

*Myrmecocystus (Myrmecocystus) melanoticus* Wheeler

Figures 267-273, 318, 319, 330, 331

*Myrmecocystus mexicanus* var. *melanoticus* Wheeler 1914.  
Jour. N.Y. Entomol. Soc. 22:57. ♀ ♂.

*Diagnosis. Worker:* Numerous fully erect hairs on malar area, thoracic dorsum and appendages; propodeal dorsum evenly convex, juncture of dorsal and posterior faces broadly rounded; metanotal groove distinct; eye with numerous erect hairs longer than diameter of facets. *Female.* Unknown. *Male.* Forewing without fringe hairs on apical margin; eye with numerous erect hairs longer than diameter of facets.

**WORKER. Measurements.** HL 1.10-1.83 (1.50); HW 0.63-1.73 (1.30); SL 1.47-2.03 (1.80); WL 2.0-3.0 (2.4); PW 0.6-1.2 (0.9).

*Head:* Longer than broad in all sizes, CI 76-96 (87); distinctly shorter than scape, SI 110-136 (120). In frontal view, margins slightly convergent toward mandibular insertions in smaller workers, slightly to moderately convex in larger workers; top of eye much below top of occiput, occipital angle barely indicated in large workers, not at all in smallest, occipital margin flat. Eye moderately large, 1.08-1.50 (1.50) × length of first flagellomere; OMD 1.20-1.57 (1.20) × EL. Mandible with eight or nine teeth, space between penultimate and basal teeth often larger in area than basal tooth.

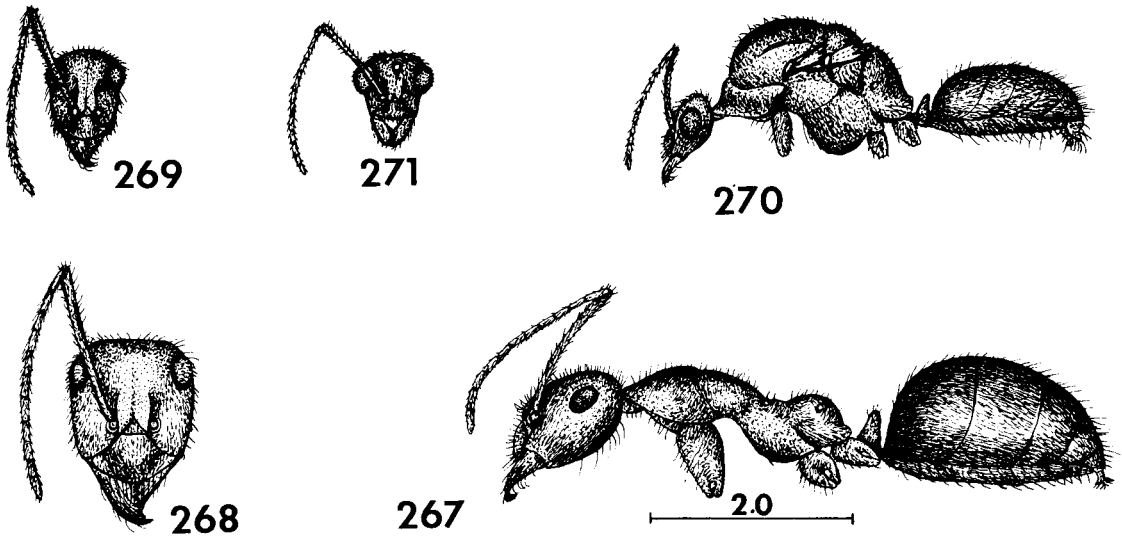
*Thorax:* Slender, PW 0.32-0.40 (0.36) × WL. Basal face of propodeum gently to strongly convex, without clearly demarked juncture with posterior face. Metanotal depression present.

*Petiole:* Cuneiform in profile, crest bluntly rounded; from front, crest narrow, either not notched or with a broad, shallow concavity.

*Vestiture:* Dorsa of head, thorax and first three terga with abundant fine, appressed pubescence, longest on front of head.

Malar area with ten or more erect hairs on each side; erect hairs on head mostly less than 0.10 mm, except beneath and along clypeal apex. Eye with scattered erect hairs which are longer (0.025-0.037 mm) than the diameter of an ocular facet. Erect hairs of thoracic dorsum numerous, evenly distributed, of about equal length, longest about 0.10 mm. Petiolar node with conspicuous short erect hairs. Discal hairs abundant on terga, about 0.10 mm on disc of second, longer along apical margins and on apical segments. Sterna with hairs sparser and longer. Appendages with abundant short (less than 0.10 mm) erect to suberect hairs, including lower and inner surfaces of fore femur.

*Integument:* Front of head moderately shiny, closely micropunctate and with scattered coarser shallower punctures (from which arise the erect hairs); micropunctures coarser on frontal lobes. Clypeus shinier than frons, with coarse and fine punctures closely interspersed, median line shinier, less closely punctate.



FIGURES 267–271. *M. melanoticus*. 267, major worker, lateral view; 268, head of major worker, frontal view; 269, head of minor worker, frontal view; 270, male, lateral view; 271, head of male, frontal view.

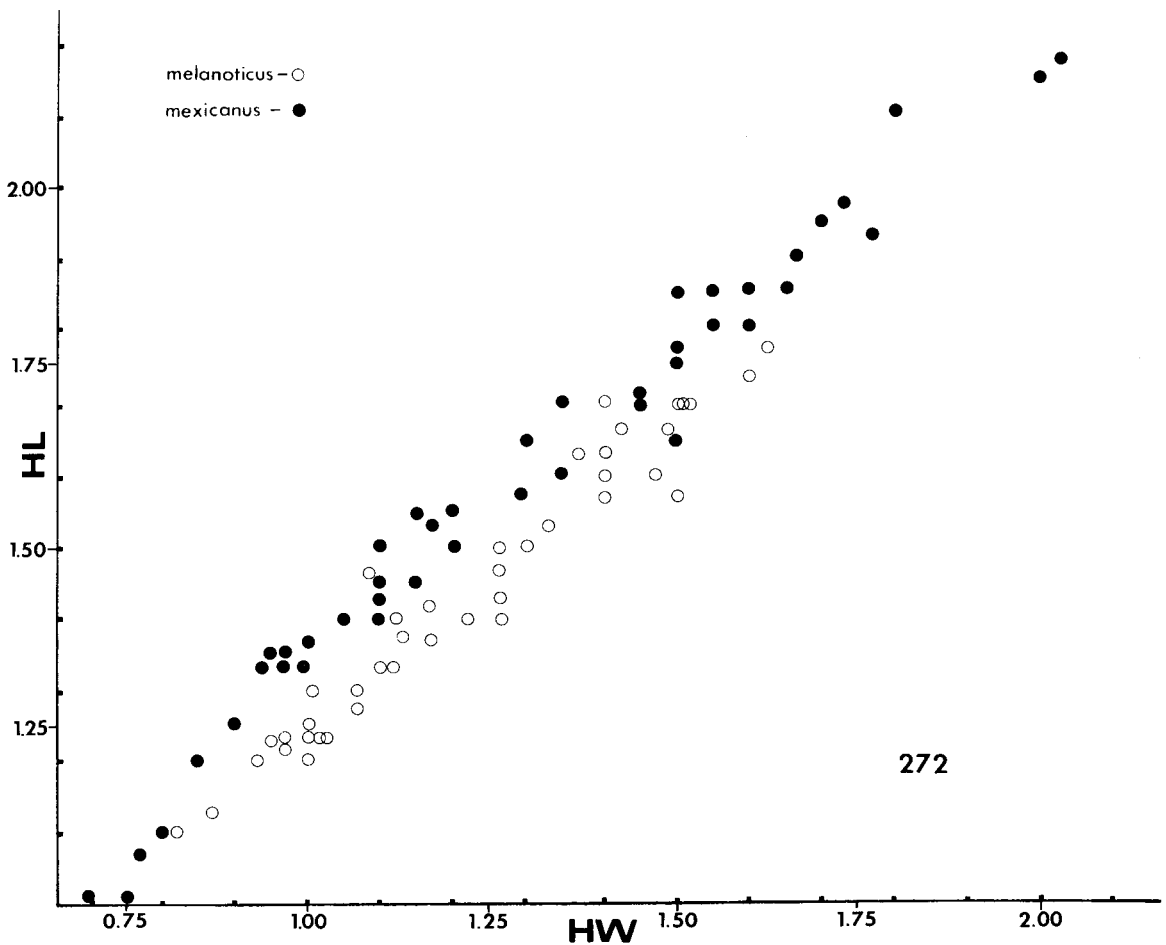


FIGURE 272. Sample regression of head length (HL) on head width (HW) in *M. melanoticus* (open circles) and *M. mexicanus* (solid circles).

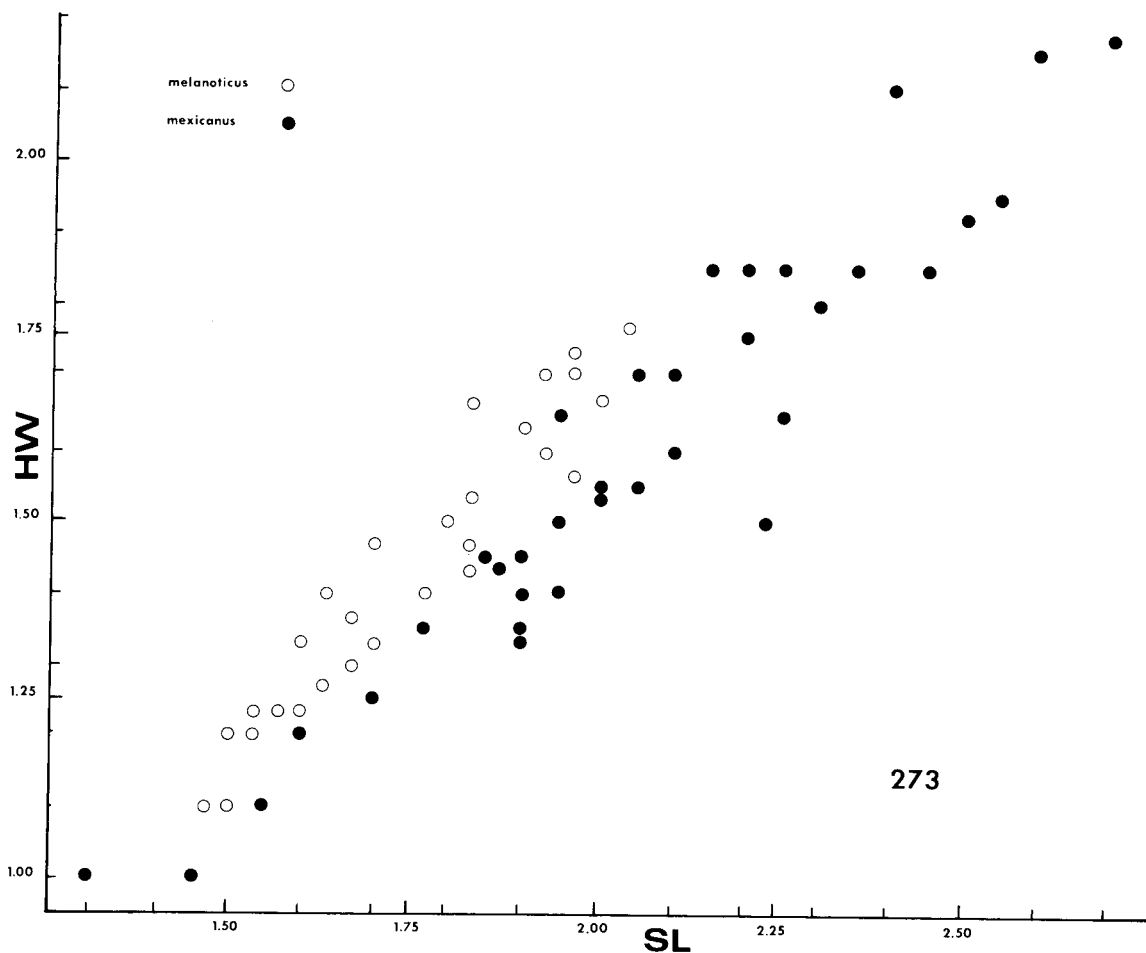


FIGURE 273. Sample regression of scape length (SL) on head width (HW) in *M. melanoticus* (open circles) and *M. mexicanus* (solid circles).

Integument otherwise finely shagreened and slightly shiny.

*Color*: Light to medium yellowish brown, appendages and lower portions of face usually contrastingly lighter; gaster usually a little darker.

*FEMALE*. *Unknown*.

*MALE*. *Measurements*. HL 0.83–0.97 (0.97); HW 0.77–0.93 (0.93); SL 0.93–1.17 (1.17); EL 0.37–0.40 (0.40); WL 2.0–2.3 (2.3); PW 1.2–1.3 (1.2).

*Head*: In frontal view sides of head slightly convergent toward mandibular insertion; head slightly longer than broad, CI 92–97 (97); distinctly shorter than scape, SI 112–121 (121); OMD 0.46–0.58 (0.58) × EL. Anterior ocellus a little smaller than lateral ocellus; IOD 2.7–3.0 (3.0) × OD; OOD 2.0–2.3 (2.3) × OD. Mandible with preapical notch and two or three poorly defined teeth basad.

*Thorax*: Moderately robust, PW 0.57–0.60 × WL. Propodeum without defined basal face.

*Petiole*: Cuneate in profile; crest, in frontal view, broadly notched; from above about twice wider than long.

*Vestiture*: Erect hairs yellowish, abundant on all body surfaces and appendages; longest scutellar hairs shorter than MOD. Fore and hind wing without fringe hairs.

Pubescence apparently generally distributed and fully appressed, dense on first three terga (available specimens are very badly rubbed).

*Integument*: Slightly shiny, lightly shagreened, with abundant micropunctures; clypeus roughened and dull; scutellum smoother and shinier than scutum.

*Color*: Uniformly light brownish, appendages more yellowish. Wings hyaline, veins and stigma yellowish.

*Terminalia*: Figures 319, 330, 331.

*Type Material*. Described by Wheeler from an unspecified number of specimens collected at Pachuca, Hidalgo, MEXICO, by W. M. Mann. Five workers and one male, marked as cotypes, are in the MCZ; four workers and two males, unmarked, are in the USNM. A Lectotype worker and lectoallotype male have been marked and returned to the MCZ; the remaining lectoparatype material in the LACM (one worker) and MCZ (three workers). The USNM specimens, although

indubitably of the original species, were not clearly marked as types and are here excluded.

*Distribution.* MEXICO. Known only from the States of Hidalgo and Puebla (Fig. 369).

*Specimens Studied.* MEXICO. *Hidalgo:* Pachuca, 8000' (W. M. Mann; MCZ, USNM); Hwy. 85, ca. 6 mi W Pachuca, 8250', 13 July 1973 (R. R. Snelling & T. W. Taylor; No. RRS 73-103; LACM). *Puebla:* 13 mi NW San Martin Texmelucan, 8600', 29 June 1961 (L. B. Carney; KU), "at light"; 1.5 mi E Azumbilla on road to Lagunas, 6700', 19 July 1973 (R. R. Snelling & T. W. Taylor; No. RRS 73-115; LACM).

*Ecology.* Little is known of this species. Elevation ranges from 6700–8600 feet. The specimens taken by L. B. Carney were "at light," indicating nocturnal foraging, as expected.

Sample No. RRS 73-103 was taken on an arid hilltop in a maguey field at the summit of Hwy. 85; the knoll, although surrounded by maguey plantings, was uncultivated, several acres in extent, and consisted largely of arborescent *Yucca* and *Acacia*. The nest was marked by a circular crateriform tumulus consisting of coarse particles of uniform size; the entrance was about 15 mm in diameter. No ants were foraging at 1530 when the nest was discovered, although the sky was cloudy and there were scattered light rain showers. Repletes, secured within 45 cm of the surface, were apparently known to local residents, who identified them as "venitas."

Sample No. RRS 73-115 was also taken in an area adjacent to maguey plantings, but the habitat was less severely stripped of native vegetation, especially on nearby slopes, too steep for cultivation. At 1200 hours the sky was heavily overcast; workers of *melanoticus* were foraging on nearby plants, some gathering nectar, others scavenging. The tumulus was lower than that of 73-103, composed of finer particles and the entrance smaller.

*Discussion.* It is my opinion that this species is the same as Wesmael's *mexicanus*, a conclusion based largely on distributional evidence. Since the problem appears insoluble, I have elected not to modify the traditional interpretation of Wesmael's name.

The relationship between *melanoticus* and *mexicanus* is a very close one and the above problem may be purely academic. It is quite possible that the two species may prove to be one when more material from central Mexico becomes available. Additional samples from western Puebla and Hidalgo, as well as from Tlaxcala, Mexico, and Querétaro may clarify the status of these names.

Although *melanoticus* is a darker form, *mexicanus* becomes darker in the southern portions of its range, and samples from near Dolores Hidalgo, in the State of Guanajuato, are nearly as dark as *melanoticus*. The size of *melanoticus* is, to judge from the material available, notably less variable than that of *mexicanus*. I

also regard it as a smaller species, even though its size is completely overlapped by that of *mexicanus*. In all sizes of workers, especially among the smaller individuals, the head appears less elongate. Thus, about 75% of the *melanoticus* studied have a CI in excess of 81, while this is true of about 35% of the *mexicanus* workers. The CI of both species are plotted in Fig. 272. As will be seen, the regression zone of *melanoticus*, while contiguous with and, to some extent lapped by that of *mexicanus*, persistently presents higher values. Similarly, *melanoticus* possesses a relatively shorter scape and when SL is plotted against HL (Fig. 273) yields a consistently lower value than does *mexicanus*.

The number of mandibular teeth is variable in both species, varying from eight to ten. However, while the mandible of *melanoticus* most commonly has nine teeth, specimens with eight on one or both mandibles are common. Ten mandibular teeth is a very rare occurrence in this species. Conversely, while *mexicanus* typically also has novemdentate mandibles, individuals with ten (or even eleven) teeth are common; an eight-toothed mandible is rare. As a rule, the space between the basal and subbasal teeth is larger in area than the basal tooth in *melanoticus*, smaller in *mexicanus*.

In the length of the hairs on the eyes these ants appear to be different. In *melanoticus* there are ten or more erect hairs in the central part of the eye; these hairs are from 0.025–0.037 mm long and exceed the diameter of the eye facets. Scattered erect hairs are present on the eyes of *mexicanus*, but even in the largest individuals are less than 0.017 mm in length.

It is possible that *melanoticus* is nothing more than a geographic segregate of *mexicanus*, a subspecies. I do not believe this to be true, since *mexicanus* in the southern parts of its range, shows little demonstrable tendency to assume the characteristics of *melanoticus*, other than in color. Thus the Cephalic Index and Scape Index of *mexicanus* remain "normal" as does the length of the ocular hairs. Neither does the mandibular dentition vary toward the *melanoticus* condition. If a subspecies situation were the case, then I would expect to find such tendencies in southern populations of *mexicanus*. I have thus chosen to accord full specific status to *melanoticus* until such a time as additional material permits a complete re-evaluation of this form.

*Myrmecocystus (Myrmecocystus) mexicanus* Wesmael

Figures 272–281, 316, 317, 328, 329

*Myrmecocystus mexicanus* Wesmael 1838. *Bull. Acad. roy. Sci. Belg.* 5:756–761; Emery 1893. *Zool. Jahrb. f. Syst.* 7:666; Wheeler 1908. *Bull. Amer. Mus. Nat. Hist.* 24:356–358; Wheeler 1912. *Psyche* 19:173, 178; Mallis 1941. *Bull. So. Calif. Acad. Sci.* 40:81; Creighton 1950. *Bull. Mus. Comp. Zool.* 104:446; Cook 1953. *The Ants of California*, 339–340; Cole 1954. *Jour. Tenn. Acad. Sci.* 29:285; Cole 1966. *Brigham Young Univ. Sci. Bul.* 7:21, 22; Wheeler and Wheeler 1968. *Ann. Entomol. Soc. Amer.* 61:213 (*larva*); Wheeler and Wheeler 1973. *Ants of Deep Canyon*, 122–124, Fig. 47.