

This ant is much more difficult to separate from *romainei*, to which it appears to be closely related. In the workers of *koso* the punctures of the side of the face are sparser, coarser, and less well defined than in *romainei*; this part of the face is conspicuously shagreened. The pronotal hairs are longer and more slender than the mesonotal hairs in *koso*, about equally long and thick in *romainei*. In both species the third tergum is pubescent, but the fourth is bare in *romainei*, usually pubescent in *koso*, except in the smallest workers.

The female of *koso* is easily separated from that of *romainei* by the sparsely punctate basal terga. Males of both species are similar, but that of *romainei* has much shorter erect hairs on the occiput and mesoscutum.

Myrmecocystus (Endiodictes) romainei Cole

Figures 136–145, 165, 177, 197, 198

Myrmecocystus melliger subsp. *mimicus* Wheeler 1908. Bull. Amer. Mus. Nat. Hist. 24:353–354. ♀♀ (in part); Wheeler 1912. *Psyche* 19:176 (in part).

Myrmecocystus melliger semirufus, Wheeler 1908, *Op. cit.* 355 (in part).

Myrmecocystus melliger semirufus var. *romainei* Cole 1936. Entomol. News 47:120. ♀.

Myrmecocystus semirufa, Creighton 1950. Bull. Mus. Comp. Zool. 104:449 (in part); Buren 1968. Jour. Georgia Entomol. Soc. 3:119 (misidentification).

Myrmecocystus melliger, Cole 1954. Jour. Tenn. Acad. Sci. 29:285 (in part).

Myrmecocystus semirufa Forel !, Cole 1954. Jour. Tenn. Acad. Sci. 29:285 (misidentification).

Myrmecocystus semirufus, Gregg 1963. Ants of Colorado, 653–655 (in part).

Diagnosis. Worker: In frontal view, malar area with 5–17 hairs extending beyond margin; HW not exceeding 1.55 mm; frons and vertex finely and closely punctate; longest occipital hairs less than $0.5 \times \text{MOD}$. **Female:** malar area with numerous erect hairs; parapsis finely and closely punctate; first three terga uniformly, densely micropunctate; frons abundantly punctate. **Male:** ventral lobe of aedeagus convex; mesoscutum and scutellum faintly tessellate, shiny; summit of petiolar scale distinctly incised; first two terga without obvious pubescence except at sides, discs smooth and polished; mesoscutal and occipital hairs less than half minimum eye diameter.

WORKER. Measurements. HL 0.90–1.53 (1.17); HW 0.75–1.47 (1.03); SL 1.00–1.67 (1.37); WL 1.3–2.4 (1.7); PW 0.6–1.0 (0.7).

Head: Distinctly longer than broad to as broad as long, CI 80–100 (89), as long as to a little longer than scape, SI 100–121 (117). In frontal view, side straight in small workers, distinctly convex and abruptly convergent below in largest; occiput, in frontal view, with margin evenly convex (smallest workers) to flattened (largest), without lateral angle. Eye small, $1.00\text{--}1.25 \times$ first flagellomere; OMD $1.45\text{--}2.00$ (1.67) \times EL. Mandible septemdentate.

Thorax: Moderately robust, PW 0.40–0.47 (0.42) \times WL. Basal face of propodeum broadly rounded onto posterior face, distinctly shorter than posterior face.

Petiole: Usually about as thick as high, but in largest individuals may be higher than thick; crest rounded or flattened in frontal view, notched in largest workers; in dorsal view, about $1.4 \times$ wider than long, in largest workers over twice wider than long and with distinctly projecting spiracles.

Vestiture: Pubescence sparse on clypeus, malar area and gula, conspicuously more abundant on frons and occiput; dense on thorax; dense and conspicuous on first three terga, sparse on following segments.

Erect hairs abundant on head, with ten or more present on malar area; longest occipital hairs 0.5, or less, \times MOD; pronotal hairs all shorter than EL, longest hairs on disc about one-third longer than shorter hairs and distinctly longer than those of hind tibia; mesonotum and propodeum with numerous fully erect hairs; petiolar scale with a few erect hairs; terga with abundant erect hairs, progressively a little longer on succeeding segments, those of first segment about as long as those of hind tibia. Appendages abundantly hairy; scape with erect hairs on all faces; femora and tibiae with erect hairs on all faces.

Integument: Clypeus polished, with scattered coarse punctures; frontal lobes, frons and occiput moderately shiny, lightly shagreened, frontal lobes finely and closely punctate, frons more coarsely and sparsely punctate and with abundant micropunctures; occiput more finely and sparsely punctate than frons; malar area moderately shiny and sparsely punctate, the punctures coarser and somewhat elongate near eyes, closely shagreened near mandibles and less shiny. Thorax slightly shiny and closely shagreened, without evident punctures. First three terga slightly shiny, densely shagreened, with scattered fine punctures and a few small poriform punctures.

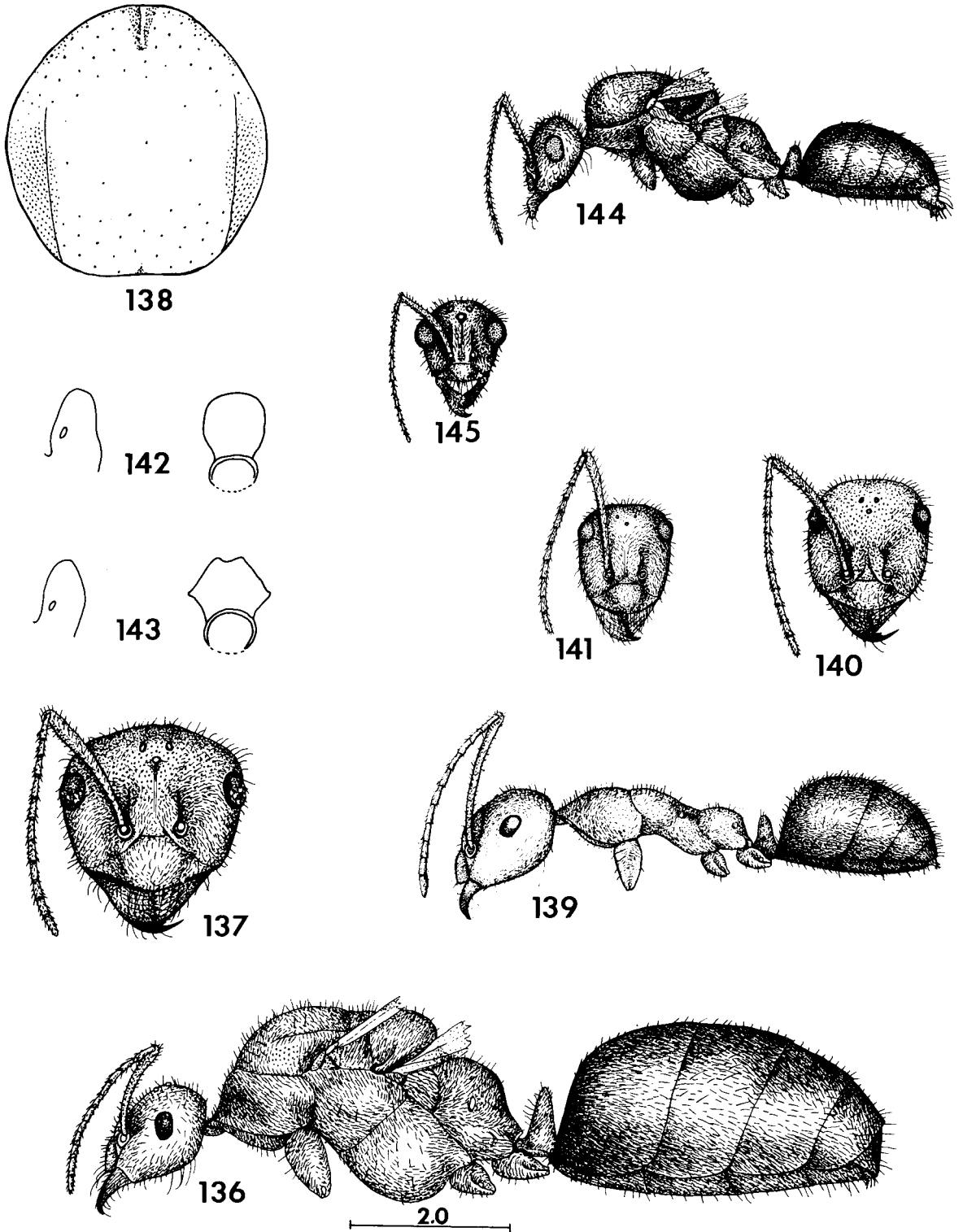
Color: Head, alitrunk and appendages ferruginous, gaster blackish brown (see DISCUSSION).

FEMALE. Measurements. HL 1.58–1.80; HW 1.67–1.88; SL 1.43–1.67; WL 3.8–4.3; PW 2.2–2.5.

Head: Sides straight, slightly convergent toward mandibular insertions; head as broad as, to broader than, long, CI 100–107; longer than scape, SI 88–94. Occiput, in frontal view, evenly convex from side to side, with broadly rounded lateral angles. Eye small, $1.09\text{--}1.20 \times$ first flagellomere; OMD $1.54\text{--}1.75 \times$ EL; OOD $3.3\text{--}5.5 \times$ OD; IOD $2.0\text{--}3.3 \times$ OD. Penultimate segment of maxillary palp slender, approximately parallel-sided. Mandible septemdentate.

Thorax: Moderately to very robust, PW $0.55\text{--}0.61 \times$ WL. Scutum and scutellum moderately flattened. Basal face of propodeum ill-defined, broadly rounded into posterior face.

Petiole: Strongly compressed, crest angulate; in frontal view, crest deeply incised.



FIGURES 136–145. *M. romainei*. 136, female, lateral view; 137, head of female, frontal view; 138, mesoscutum of female, distribution of punctures; 139, major worker, lateral view; 140, head of major worker, frontal view; 141, head of minor worker, frontal view; 142, petiole of major worker, lateral (left) and posterior (right) views; 143, variant petiole of largest workers, lateral (left) and posterior (right) views; 144, male, lateral view; 145, head of male, frontal view.

Vestiture: Pubescence diffuse on front of head and vertex, denser on occiput and malar area. Sparse on dorsum of thorax, longer and moderately dense on sides and on propodeum. Dense on first four terga.

Malar area with 15–20 erect hairs visible beyond margin in frontal view; longest occipital hairs about $0.5 \times \text{MOD}$. Longest mesoscutal hairs about equal to longest occipital; longest scutellar hairs subequal to MOD. Pleural hairs equal to shortest scutal hairs, very sparse, separated by their own length or more. Propodeal hairs about equal to longest scutal hairs. Petiole with abundant short, erect hairs on sides and crest. Terga with abundant erect, short hairs (those on disc of second segment about 0.1 mm), but those of apical segment about twice as long as on preceding segments; sparse and short on discs of ventral segments. Erect hairs abundant on all except posterior face of scape; abundant on extensor surface of femora; sparse on inner or fore femur; abundant on tibiae. Wing margins without fringe hairs.

Integument: Clypeus moderately shiny, lightly shagreened and with sparse coarse punctures; frontal lobes finely and densely punctate; frons and vertex moderately shiny, abundantly punctate, punctures finer and denser above; occiput closely micropunctate. Malar area slightly shiny, with abundant coarse, elongate punctures. Mesoscutum shiny, middle of disc impunctate, with sparse, fine punctures toward parapside; parapsis finely, closely punctate. Scutellum uniformly finely and closely punctate, punctures separated by a diameter or more. Pleura and propodeum slightly shiny, densely and finely punctate. First four terga moderately shiny, densely micropunctate and with scattered coarse piligerous punctures.

Color: Head, alitrunk and appendages ferruginous, gaster blackish brown. Wings whitish, veins and stigma yellowish.

MALE. Measurements. HL 0.80–0.93 (0.85); HW 0.77–0.90 (0.82); SL 0.80–0.93 (0.90); WL 1.8–2.2 (2.2); PW 1.1–1.2 (1.1).

Head: A little longer than broad to as long as broad, CI 95–100 (96), as long as, to shorter than, scape, SI 100–108 (106); in frontal view, sides straight and distinctly convergent toward mandibular insertions; occiput, in frontal view, evenly rounded, with broadly rounded lateral angle. OMD $0.78\text{--}0.89$ (0.89) \times EL; OOD $2.3\text{--}2.8$ (2.3) \times OD; IOD $2.3\text{--}3.3$ (2.3) \times OD. Mandible with a single tooth on apical margin or simple.

Thorax: Moderately robust, PW $0.49\text{--}0.64$ (0.52) \times WL. Propodeum with strongly sloping and poorly defined basal face.

Petiole: Moderately cuneate in profile, summit subangulate; in frontal view, crest broadly, shallowly concave.

Vestiture: Pubescence generally sparse, but moderately dense on occiput, pleura and propodeum.

Cephalic hairs sparse, short, longest occipital hairs less than $0.5 \times \text{MOD}$; malar area with 10–15 erect hairs. Mesoscutal hairs sparse, longest equal to about $0.5 \times \text{MOD}$; scutellar hairs longer, longest little shorter than MOD; pleural hairs sparse, shorter than $0.5 \times \text{MOD}$. Propodeum with a few short hairs laterobasally and on pleura. Petiolar scale with sparse, short hairs on sides and crest. Terga with scattered short hairs, longer on apical segment; sterna with hairs longer, sparse. Short, erect hairs abundant on scape and legs. Forewing without fringe hairs; hind wing with short, sparse fringe hairs on basal half of posterior margin.

Integument. Malar area dull, with close, fine punctures; rest of head slightly to moderately shiny, closely shagreened and with scattered fine punctures; discs of scutum and scutellum moderately shiny to shiny, lightly shagreened, more faintly in middle and with scattered fine, piligerous punctures. Pleura moderately shiny, moderately shagreened and with abundant fine punctures. Disc of propodeum smooth, impunctate and shiny, side moderately shiny, with abundant fine punctures. First three terga shiny, subpolished, very faintly shagreened; remaining terga and sterna less shiny, more distinctly shagreened.

Color: Blackish brown, mandibles, antennae and legs light brownish. Wings whitish, veins and stigma yellowish.

Terminalia: Figures 177, 197, 198.

Type Material. "Described from a series of 54 workers taken by Miss Marjorie Romaine, at Cameron, ARIZONA." Data labels on the specimens read: "57 mi. N Cameron, Ariz./5/15/32//M. Romaine." Holotype and most paratypes in LACM; additional paratypes in AMNH, MCZ, USNM.

Distribution. Western Kansas, Oklahoma and Texas, westward to Utah and central Arizona (Fig. 367).

Localities. UNITED STATES. Kansas: Sheridan Co.: Selden, 2 Aug. 1941 (W. F. Buren; WFB). *Colorado*: Pueblo Co.: 30 mi E Pueblo, 26 Aug. 1951 (A. C. Cole; LACM). Animas Co.: Trinidad, 26 Aug. 1951 (A. C. Cole; LACM). *Oklahoma*. Cimarron Co.: 3 mi E. Kenton, 4 May 1951 (W. S. Creighton; LACM). Texas: Hall Co.: 2 mi S Turkey, 6 May 1970 (C. W. O'Brien; TTU); 6 mi SE Turkey, 21 May 1970 (C. W. O'Brien; TTU). Lamb Co.: NW of Olton, 3 Aug. 1968 (C. Schaefer; TTU). Dickens Co.: 4 mi N Dickens, 6 May 1970 (C. W. O'Brien; TTU). Lubbock Co.: Couch Ranch, 15 June 1968 (E. W. Huddleston; TTU). Scurry Co.: Fluvanna, 24 Aug. 1967 (E. W. Huddleston; TTU). El Paso Co.: [El Paso (Buren, 1963)]; 12.5 mi SE El Paso, 3600', 23 Apr. 1973 (R. R. Snelling, Nos. 73–46, 47, 48; LACM); 18 mi E El Paso, 1 Sept. 1967 (E. W. Huddleston; TTU). *New Mexico*: McKinley Co.: 30 mi N Gallup, 29 July 1929 (W. S. Creighton; LACM). Otero Co.: White Sands, 24 Apr. 1944 (B. Rotger; USNM); White Sands Nat'l Mon., 15–17 Sept. 1951 (A. C. Cole; LACM); Tularosa Desert, no date (G. von Krockow; LACM). Doña Ana Co.: Mesilla Park, 12 July (J. Bequaert; MCZ); same locality, 12 July 1917 (W. M. Wheeler; MCZ); Jornada Experimental Range, 4000', various dates (C. A. Kay, R. R. Snelling; CAK, LACM); 20 mi W Las Cruces, 18 May 1932 (A. C. Cole; LACM, USNM);

Hatch, 4100', 10 June 1951 (W. S. Creighton; LACM). *Grant Co.*: 2 mi N San Juan, 3 Sept. 1951 (A. C. Cole; LACM). *Bernalillo Co.*: Albuquerque, 4943', 7 May 1905 (W. M. Wheeler; part of cotype series, *M. melliger mimicus*, MCZ). *Valencia Co.*: Las Lunas, 4850', 5 Aug. 1972 (C. A. Kay; CAK, LACM). *County unknown*: Kennedy, 13 Apr. 1910 (W. D. Hunter; MCZ). *Utah: Uintah Co.*: Jensen, Dinosaur Natl. Mon., 26 June 1950 (E. V. Gregg; USNM). *Emery Co.*: Green River, 12 July 1932 (W. S. Creighton; LACM). *San Juan Co.*: Bluff, 8 July 1963 (G. F. Knowlton; UCD). *Millard Co.*: Lyndyl, 24 Aug. 1960 (G. F. Knowlton; UCD); Delta, 24 Aug. 1960 (G. F. Knowlton; UCD). *Garfield Co.*: Dixie State Park, 19 June 1964 (G. F. Knowlton; UCD). *Iron Co.*: Beryl, 25 Aug. 1960 (G. F. Knowlton; UCD). *Washington Co.*: Enterprise, 25 Aug. 1960 (G. F. Knowlton; UCD); Leeds, 3 June 1934 (A. H. Sturtevant; USNM). *Nevada: Eureka Co.*: 12 mi NNW Eureka, 5800', 1 July 1971 (G. C. & J. Wheeler, No. Nev. 2246; GCW). *Arizona: Coconino Co.*: 57 mi N Cameron, 15 May 1932 (M. Romaine; type series *M. melliger semirufus* var. *romainei*, AMNH, LACM, MCZ, USNM); 30 mi N Flagstaff, 5000', 1 Aug. 1950 (Cohn, Boone, Cazier; AMNH); Flagstaff, 9 Sept. 1951 (A. T. McClay; UCD). *Mohave Co.*: Yucca, May 1905 (W. M. Wheeler; AMNH); Willow Valley, 4 May 1972 (LACM). *Maricopa Co.*: Phoenix, May 1905 (W. M. Wheeler; AMNH); Tempe, May 1905 (W. M. Wheeler; MCZ). *Pinal Co.*: Florence, 20 July 1917 (W. M. Wheeler; MCZ). *Pima Co.*: Tucson, May 1905 (W. M. Wheeler; AMNH); Avora Valley, 15 Mar. 1968 (D. E. Surber; USNM); Continental, 19 Sept. 1936 (R. H. Crandall; USNM); Madera Cyn., Santa Rita Mts., 30 May 1963 (L. M. Martin; LACM). *Cochise Co.*: Benson, 21 July 1917 (W. M. Wheeler; MCZ). *MEXICO: Chihuahua*: Samalayuca, 6 Aug. 1950 (R. F. Smith; AMNH).

Ecology. Habitats in which this species has been collected included: Bluestem-Grama Prairie, Piñon-Juniper Woodland, Trans-Pecos Shrub Savanna and Creosote bush-Tarbrush Grassland. The series from Selden, Kansas, was taken from a "road side nest." Colonies which I observed in Texas, southeast of El Paso, and at the Jornada Experimental Range, New Mexico, were all nesting in very deep, soft sand. Tumuli were low, somewhat irregular craters, with an external diameter up to 20 cm. Cole (1954) reported this ant, as *M. semirufa* "Forel" (!) from White Sands National Monument, the nests with "... neat, circular, sand craters ... in open level sand areas with bunchgrasses and yucca between dunes." Although he reported that the gasters of living workers were a brilliant metallic blue color, I am unable to verify this phenomenon although I looked specifically for it in the material observed at the Jornada Experimental Range.

C. A. Kay and I attempted excavation of one colony at the Jornada Experimental Range, with largely unsatisfactory results. The nest was in deep, soft sand. While most honey ant species have a vertical, or nearly vertical, main shaft of considerable diameter descending to the nest, this species apparently does not. Rather, there are a few chambers near the surface. Descent to the nest proper is by way of a single, narrow tunnel which is very difficult to follow in the loose sand. At a depth in excess of four feet we abandoned the effort because,

as the sand dried, the walls of the pit crumbled excessively. Since I found similar situations in sandy areas southeast of El Paso, this may be a normal response of this species in soil of this type. Known activity of the reproductives is summarized in Table 4.

Discussion. This species has been confused with others by previous authors. The confusion began as early as 1908, for Wheeler's cotype series of *mimicus* includes *romainei*. I have not been able to reassemble the entire type series, said to consist of "... numerous workers, six males and six females ...". A pin of *mimicus* cotypes in the MCZ consisting of one female and two workers, and another pin of three worker cotypes in the LACM, are definitely *romainei*; other cotype pins, all workers, are *mimicus* as herein interpreted.

Cole described *romainei* as a variety of *semirufa* (i.e., *kennedyi*) from specimens collected 57 mi N of Cameron, Coconino Co., Ariz. The original description was not very detailed and was concerned primarily with differences between the new form and *kennedyi*. Creighton (1950) correctly recognized the similarities of this ant to *mimicus* and synonymized it with that name. Since the characteristics of *mimicus* were not at all clear at that time, the decision to do so is not surprising. It is my opinion, however, that this was incorrect and that *romainei* is an unusually distinctive species.

This medium-sized species is best recognized, in the worker and female, by the abundant erect hairs of the malar area and the uniformly short hairs on the occiput, promesonotum and gaster. The worker caste is further characterized by the rather closely micropunctate frons and vertex. The exceptionally short pleural hairs of the female are shared only with those of sympatric populations of *mimicus*. Since the malar area of the latter species is sparsely pilose, separation of the two is not difficult. When *mimicus* females possess more than two or three erect hairs on the malar area, these are still confined to the lower half of the area. In *romainei* they are evenly distributed along the entire area between the lower eye margin and the mandibular base. There are, furthermore, conspicuous erect hairs along the head margin behind the eye which project beyond the outer margin of the eye in full face view.

Workers of *romainei* from Utah and central Arizona are characterized by a weakening of the punctures of the vertex to the extent that it may be virtually impunctate at the sides. Such specimens closely resemble samples of *flaviceps* from the Mojave Desert and may not always be recognizable as *romainei*. Available material is too limited for adequate analysis, but these variant *romainei* possess some pronotal hairs which are more than $0.5 \times \text{MOD}$; in *flaviceps* the pronotal hairs are less than $0.5 \times \text{MOD}$.

The male, because it lacks conspicuous appressed pubescence on the first three terga, is readily separable from all species except *kennedy* and *mimicus*. The

mesoscutal hairs of *kennedyi* males are half, or more, as long as the MOD; the frons, the center of the mesoscutum and the parapsis are polished and shiny. Males of allopatric *mimicus* populations also have long pleural hairs, but those of sympatric populations are more difficult to separate. The pleural hairs appear to average longer in such *mimicus*, about 0.12 mm, while in *romainei* they are shorter, about 0.08 mm.

The color of the head and thorax of *romainei* workers varies from light to medium ferruginous in the samples from Oklahoma, Texas, New Mexico, Arizona and Utah. The samples from Selden, Kansas, and Las Lunas, New Mexico, are unusually dark. These approach the brownish ferruginous color of *mimicus* from the same area but may be recognized by the closely micropunctate frons, densely pubescent frons, occiput, promesonotum and third tergum and more pilose malar area.

The Selden series consists of 21 workers from a single nest. In this series, 16 (76%) have a CI of 90 or more. In a similar series from the type locality and a single nest, selected as randomly as possible, 14 (67%) possess CI of 89 or less. The sample from Kenton, Oklahoma, consists of a dozen individuals of which 10 (83%) have a CI in excess of 90. These samples are very limited, but it appears there may be a tendency toward relatively broader heads in northeastern samples.

Another variation involves large workers in samples from New Mexico and Texas. More specimens with HW at or above 1.23 mm have the petiolar scale broadened at the level of the spiracle, with the spiracle itself prominently projecting. When the petiole is viewed from above, the scale, excluding the spiracle, is about twice wider than long. This contrasts sharply with the usual shape, the scale 1.5 or less wider than long. This feature, apparently unique in *Myrmecocystus*, is not consistent; one worker, HW 1.23 mm, has a normal appearing petiole.

Smith (1935) recorded "melliger subsp. or var." from Oklahoma: Wichita Natl. Forest; Comanche Co.; Washita Co. I have been unable to locate any specimens from these localities but suspect they may prove to be *romainei*. They could, however, be *mimicus* and so these records must remain questionable for the present.

FLAVICEPS GROUP

Myrmecocystus (Endiodictes) flaviceps Wheeler

Figures 146–154, 166, 178, 201, 202

Myrmecocystus melliger mimicus var. *depilis*, Wheeler 1908. Bull. Amer. Mus. Nat. Hist. 24:354 (in part); Cook 1953. Ants of California, pp. 342–343 (in part).

Myrmecocystus yuma var. *flaviceps* Wheeler 1912. Psyche 19:177. ♀; Cook 1953. Ants of California, p. 353 (in part).

Myrmecocystus flaviceps, Creighton 1950. Bull. Mus. Comp. Zool. 104:443; Wheeler and Wheeler 1974. Ants of Deep Canyon, p. 119, 121–122.

Myrmecocystus melliger subsp. *mimicus*, Cook 1953. Ants of California, p. 344 (in part).

Diagnosis. *Worker:* Malar area with twelve or fewer erect hairs; pronotal hairs short, stiff; third tergum with abundant appressed pubescence; gaster uniformly brown, without mediobasal yellowish blotches on first and second terga; CI usually (over 80%) in excess of 90; mandible septemdentate. *Female:* penultimate segment of maxillary palp slender, approximately parallel-sided; punctures of parapsis variably spaced, of two sizes; discs of second and third terga very sparsely punctate and sparsely pubescent; fore femur with few or no erect hairs on inner and dorsal faces, the outer and ventral faces with abundant long hairs; malar area with numerous erect hairs. *Male:* ventral lobe of aedeagus convex in profile; posterior half of mesoscutum wholly or partly polished; first two terga with abundant appressed pubescence; occipital hairs always less than $0.75 \times \text{MOD}$; HW less than 0.8 mm.

WORKER. Measurements. HL 0.83–1.23 (0.95); HW 0.73–1.23 (0.87); SL 0.97–1.43 (1.07); WL 1.23–1.80 (1.27); PW 0.53–0.87 (0.57).

Head: Longer than broad in small workers to slightly broader than long in largest, CI 87–103 (91), over 90 in more than 80% of samples; HL less than SL, SI 108–129 (123); in frontal view broadest at or below lower eye margin, sides straight or barely convex, little or not at all convergent toward mandibular insertion. Occiput, in frontal view, evenly rounded from side to side, without lateral corners. Eye small, $0.75\text{--}0.83 (0.75) \times$ first flagellomere; OMD 1.38–1.88 (1.63) \times EL. Mandible usually with seven teeth, range: 6–8.

Thorax: Slender to moderately stout, PW $0.41\text{--}0.49 (0.45) \times$ WL; mesonotum evenly sloping to metanotum. Propodeum higher than long; in profile, juncture of basal and posterior faces broadly rounded.

Petiole: In profile, bluntly cuneate, summit broadly rounded; crest, from behind, flat or slightly convex, without median notch.

Vestiture: Cephalic pubescence dilute, producing weak sheen on malar area and frons, more pronounced on occiput; pubescence moderately dense on thorax; denser on first three terga.

Malar area, in frontal view, with twelve or fewer fine, erect hairs; longest occipital hairs about $0.5 \times \text{MOD}$; pronotal disc with 10–14 short, erect hairs, longest 0.5, or less, $\times \text{MOD}$; mesonotum with about 12 short, erect hairs dorsally, longest less than $0.5 \times \text{MOD}$; propodeum with about an equal number on basal face; crest and sides of petiole with a few very short, erect hairs. First three terga with sparse discal hairs which are shorter than apical width of hind tibia, hairs longer on apical margins, succeeding segments and on sterna. Short, erect to subdecumbent hairs numerous on anterior and lateral surfaces of scape, all femora (except inner face of fore femur) and extensor surface of tibiae.