

3. Scape and/or tibia, usually both, with conspicuous fully erect hairs; *or*, head moderately broad, CI 80 or more 4
Scape and tibia without erect hairs *and* head unusually elongate, CI 70–81 *perimeces*, n. sp.
4. Scape with conspicuous erect or semierect hairs; femora and tibiae with abundant erect hairs, some present on dorsal femoral surfaces; petiolar scale variable, but often compressed with summit distinctly notched ... 5
Scape with no erect hairs, except at apex; femora and tibiae with few erect hairs, none on dorsal femoral surfaces; petiolar scale thick in profile, crest flat or slightly convex *yuma* Wheeler
5. Scape with scattered erect and many semi-erect hairs; malar area with two or three erect hairs in frontal view, rarely as many as six present 6
Scape with abundant fully erect hairs; malar area with numerous (10+) erect hairs *hammettensis* Cole
6. Appressed pubescence abundant on frons and third tergum; petiolar scale thick, at level of spiracle distinctly more than twice the length of the spiracle, crest flat or convex *colei*, n. sp.
Appressed pubescence sparse on frons and third tergum, notably sparser on second than first; petiolar scale thin, at spiracular level less than twice the length of the spiracle, crest conspicuously notched. *tenuinodis*, n. sp.

FEMALES

1. Mesoscutum finely, densely and uniformly punctate 2
Mesoscutal punctation not uniform, punctures often of two sizes, with a large median impunctate area *or* with widely scattered punctures *or* with impunctate disc and median longitudinal punctate zone 3
2. Punctures on sides of clypeus subcontiguous, very coarse, distinctly coarser than those of upper half of mesopleura; occiput distinctly shiny, polished, with scattered fine punctures; mid and hind femora without fully erect hairs except a few along lower side *creightoni*, n. sp.
Punctures on sides of clypeus distinctly separated, no coarser than those of upper half of mesopleura; occiput slightly shiny, densely tessellate, with fine obscure punctures; mid and hind femora with conspicuous fully erect hairs on all faces *colei*, n. sp.
3. Fourth segment of maxillary palp elongate-clavate, conspicuously broader at apex than at base; parapsis sparsely punctate, punctures irregular in size and spacing, but mostly separated by two or more puncture diameters ... 4
Fourth segment of maxillary palp not clavate, about as broad in basal third as in apical third; parapsis with punctures uniform in size and spacing 5
4. Mesopleura uniformly shiny, with scattered coarse punctures; scutellum shiny, sparsely punctate; fifth segment of maxillary palp uniformly broad, not conspicuously narrowed near apex; frontal lobes with scattered coarse punctures *hammettensis* Cole
Mesopleura, at least in lower half, with abundant fine, round punctures; scutellum with abundant fine punctures; fifth segment of maxillary palp broad, conspicuously narrowed in apical one-fourth; frontal lobes with abundant fine punctures *tenuinodis*, n. sp.
5. Face with abundant fine punctures between eyes and frontal lobes; clypeus shiny, polished; appressed gastric pubescence whitish; mesopleural hairs about as long as those of mesoscutum *yuma* Wheeler
Face with sparse punctures between eyes and frontal lobes; clypeus dull, densely sculptured; appressed gastric pubescence brownish; mesopleural hairs conspicuously longer than those of mesoscutum, little shorter than those of scutellum *perimeces*, n. sp.

MALES

Since males are unknown for a majority of the species, it would be futile to present a key at this time. Refer to the descriptions for the characteristics of the males of *colei*, *creightoni* and *hammettensis*.

Myrmecocystus (Eremnocystus) colei new species

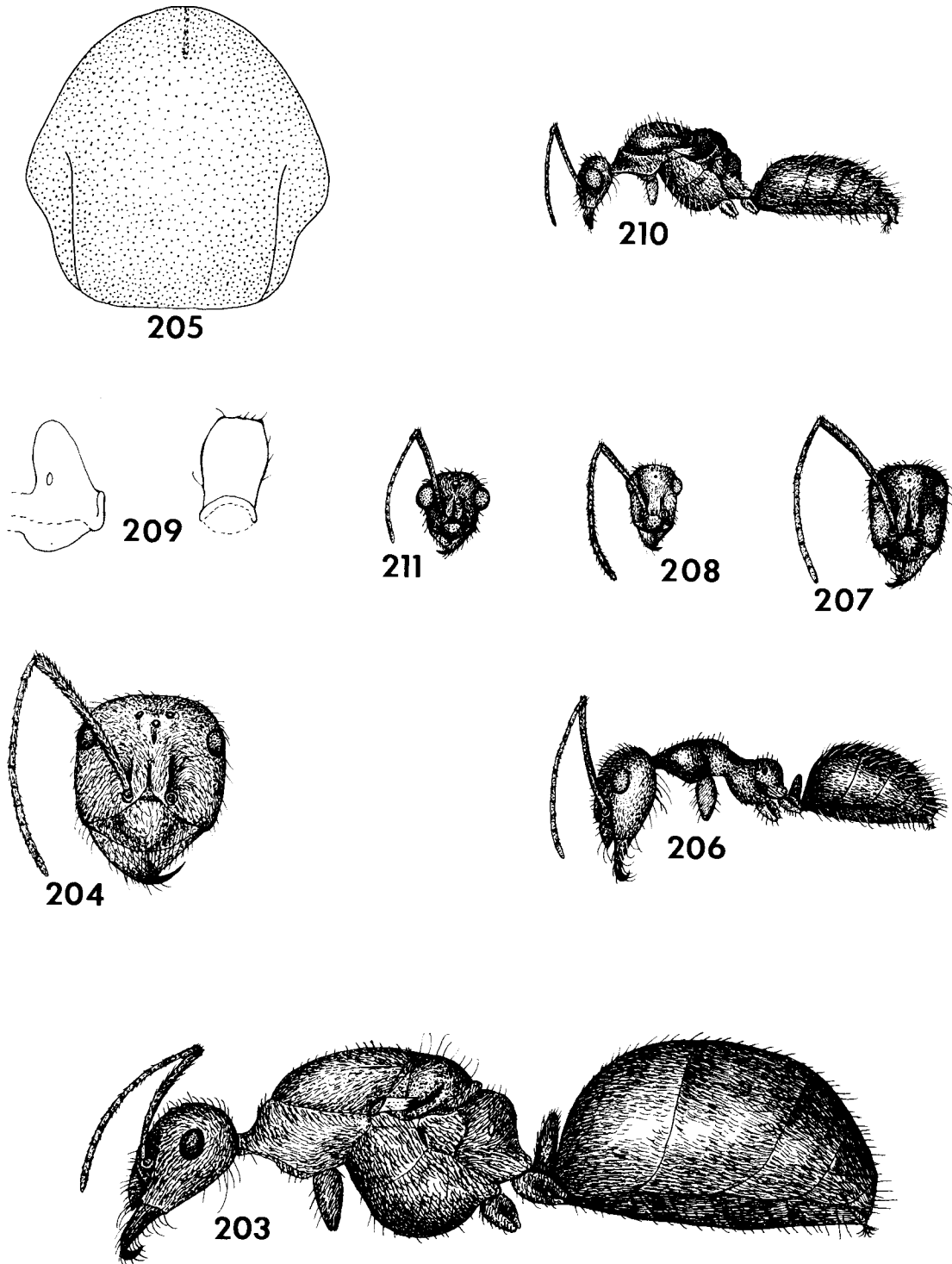
Figures 203–211, 255–258

Diagnosis. Worker: Scape with a few scattered erect hairs; dorsum of propodeum with erect hairs; petiolar scale erect but not compressed; erect pronotal hairs apically acuminate; hind femur with numerous erect hairs on inner face. *Female:* Mesoscutum finely, densely, uniformly punctate; occiput shiny, with scat-

tered fine punctures; mid and hind femora without conspicuous erect hairs except on ventral margin. *Male:* Forewing without marginal fringe beyond stigma; hindwing without marginal fringe; petiole not, or scarcely, emarginate.

WORKER. Measurements. HL 0.76–1.26 (1.06); HW 0.60–1.13 (0.93); SL 0.90–1.33 (1.20); WL 1.10–1.66 (1.46); PW 0.46–0.73 (0.66).

Head: In all sizes from distinctly to slightly longer than wide, CI 77–93 (87); in full face view, sides



FIGURES 203–211. *M. colei*. 203, female, lateral view; 204, head of female, frontal view; 205, mesoscutum of female, distribution of punctures; 206, major worker, lateral view; 207, head of major worker, frontal view; 208, head of minor worker, frontal view; 209, petiole of major worker, lateral (left) and posterior (right) views; 210, male, lateral view; 211, head of male, frontal view.

straight (barely convex in largest workers), slightly convergent toward mandibular insertions; occiput flat with corners rounded, but distinct; shorter than scape, SI 105–121 (112). Eye small, slightly longer than first flagellomere; OMD 1.25–1.75 (1.45) \times EL. Mandible septidentate, occasionally with intercalary denticle between basal and penultimate basal teeth.

Thorax: Moderately robust, PW 0.39–0.48 (0.47) \times WL. Mesonotum, in profile, evenly convex from front to back except in largest workers where it is abruptly declivitous behind. Basal face of propodeum distinct, sharply rounded into the longer posterior face.

Petiole: Scale erect, in profile about twice higher than thick; posterior face straight, anterior rather abruptly narrowed in upper third; crest narrow in frontal view, flat in smallest workers, slightly concave in largest; from above, about twice wider than long.

Vestiture: Pubescence sparse on malar area and clypeus; sparse to abundant on frontal lobes and abundant on occiput, but not obscuring surface; abundant and long on thoracic dorsum and pleura, but sparser and finer on propleura, loosely appressed to subappressed; abundant, but not concealing integument, on first three terga (sparser on third tergum of some minors), sparse on remaining segments.

Scape, inner face of fore femur, outer faces of middle and hind tibiae with fine suberect to erect hairs; malar area, in frontal view, with a few reclinate to suberect hairs; clypeal disc, front of head and occiput with numerous erect hairs, those of occiput about half as long as minimum eye diameter. Pronotum and mesonotum with conspicuous fully erect hairs, usually fewer than 15 on each segment, shorter than those of occiput; posterior half of propodeal dorsum with at least 10 fully erect short hairs. All terga with numerous erect, short hairs, progressively longer caudad.

Integument: Clypeus shiny, with scattered fine piligerous punctures; remainder of head moderately shiny, lightly shagreened. Thorax lightly shagreened, moderately shiny, more so on sides. Gaster moderately shiny, distinctly though finely shagreened.

Color: Integument light to dark brownish, appendages lighter; mandibles, clypeus and lower portions of malar area yellowish.

FEMALE. Measurements. HL 1.40–1.46; HW 1.36–1.43; SL 1.36–1.43; EL 0.36–0.40; OMD 0.53–0.56; WL 2.8–3.1; PW 1.8–2.0.

Head: As broad as, or broader than, long; CI 100–104; in full face view with sides straight, not convergent toward mandibular insertions; occiput flat or slightly convex, corners narrowly rounded; as long as, or longer than, scape, SI 96–100. Eye a little longer than first flagellomere; OMD 1.33–1.42 \times EL. Ocelli subequal; IOD 3.0–3.3 \times OD; OOD 2.6–3.0 \times OD. Mandible septidentate. Penultimate maxillary palpal segment elongate-triangular, greatly narrowed apically; segment three narrowed basally and apically, otherwise

uniform in breadth; segment four uniformly broadened from base to apex.

Thorax: Robust, PW 0.58–0.67 \times WL. Mesoscutum low in profile, somewhat flattened and gently curved into profile of scutellum; scutellum gently convex, a little more strongly sloping behind; propodeum with distinct transverse basal horizontal face and precipitous posterior face, their juncture sharply rounded.

Petiole: In profile, compressed above, crest sharp; in frontal view, sides convergent toward crest, crest broadly and deeply angularly excised; from above about three times wider than thick.

Vestiture: Pubescence sparse on clypeus; abundant elsewhere on head, thorax and gaster; long, subappressed to reclinate on occiput, pleura and propodeum.

Scape with abundant short, reclinate hairs; anterior femur without erect hairs on inner face; middle and hind tibiae with abundant suberect hairs. Malar area, in frontal view, with 6–8 long, erect yellowish hairs; clypeus with numerous erect yellowish hairs of highly variable length; frons with numerous erect yellowish hairs; occipital hairs much longer, some more than 0.5 \times MOD; scutum with numerous widely spaced erect yellowish hairs, less than 0.5 \times MOD; scutellum with longer erect hairs, some equal to MOD; metanotum with a few long erect hairs; propodeum with a few short erect hairs on dorsal face; pleura with scattered long erect yellowish hairs, more numerous below; petiolar scale with numerous fine whitish hairs; first three terga with short, erect yellowish hairs, becoming more abundant from first to third; subsequent terga with hairs longer, sparser than on third. Wing membranes with fine whitish hairs, costal margin of forewing, to stigma, with sparse fringe.

Integument: Clypeus polished, with coarse setigerous punctures; remainder of face shiny (but somewhat obscured by pubescence), with dense fine piligerous punctures and scattered coarse, setigerous punctures; malar area with abundant coarse, elongate punctures; occiput duller, closely shagreened, and with fine, close punctures. Mesoscutum shiny, uniformly finely, densely punctate; scutellum shiny, evenly, more sparsely punctate; pleura duller, closely shagreened and with abundant fine and sparser, coarser punctures; propodeum dull, densely shagreened, with dense fine, obscure punctures; terga shiny, lightly shagreened and with abundant fine punctures.

Color: Brownish, mesosoma darker; mandibles, sides of clypeus and lower half (or less) of malar area, yellowish.

MALE. Measurements. HL 0.63–0.73; HW 0.60–0.66; EL 0.26; SL 0.66–0.76; OMD 0.16–0.20; WL 1.30–1.66; PW 0.80–0.90.

Head: Margins nearly parallel below eyes, not notably convergent toward mandibular bases; head a little longer than broad, CI 90–95 (95), a little shorter than scape, SI 105–110 (105); occiput gently convex,

with distinct lateral angles. Eye large, OMD 0.63–0.75 (0.63) × EL; ocelli subequal; IOD 3 × OD; OOD 1.5–2.0 × OD. Mandibles with preapical cleft and low preapical tooth, margin edentate or with one or two minute denticles.

Thorax: Stout, PW 0.53–0.57 × WL. Mesoscutum broad, anterior face vertical, anterior half strongly convex, posterior half more flattened; scutellum nearly vertical behind; propodeum with transverse, horizontal basal area and vertical posterior face, their juncture angulate.

Petiole: In profile, cuneate; crest, seen from front, nearly flat or with obscure median emargination; in dorsal view, about twice wider than long.

Vestiture: Appressed white pubescence sparse on head; more abundant and somewhat yellowish on thoracic dorsum; more abundant, whitish, on pleura and propodeum; denser on first three terga.

Erect hairs sparse, conspicuously longer on occiput than elsewhere on head, those of scutellum longer than elsewhere on thorax; disc of first tergum with a few erect yellowish hairs; remaining terga with a more numerous, conspicuously longer yellowish hairs. Wing membrane, with numerous very short whitish hairs; fringe hairs present along costal margin of forewing to stigma.

Terminalia: Figures 256–258.

Type Material. Holotype worker, allotype male, 12 ♀♀, 73 ♂♂ and 29 ♀♀ paratypes: San Gabriel R., 500', Irwindale, Los Angeles Co., CALIF., 22 Feb. 1963 (R. H. Crandall and R. R. Snelling) in LACM. Additional paratypes: 8 ♂♂, 27 ♀♀, type locality, 24 Feb. 1963 (R. R. Snelling; LACM). Three paratypes to

each of the following collections: AMNH, GCW, MCZ, MNHG, and USNM.

Distribution. Known only from coastal and intermediate valleys of southern California (Fig. 368).

Additional Material. UNITED STATES. California: Los Angeles Co.: Altadena, 10 Apr. 1954 (R. H. Crandall; LACM); Eaton Canyon, San Gabriel Mts., 5 Feb. 1963 (R. H. Crandall; RHC). San Bernardino Co.: Cajon Canyon, 1000', 21 Apr. 1969 (R. R. Snelling, #69–118; LACM).

Etymology. Dedicated to Professor Arthur C. Cole, Jr., a warm and generous colleague.

Ecology. This ant is known to occur in the Coastal Sagebrush phytocenose, along stream drainages, up to areas where this habitat grades into the Oak-Juniper-Joshua Tree Association. Nests are constructed in compacted clayey soil, usually overlain with gravel or coarse sand. Foraging activities appear to be fully diurnal, with workers active out of the nest at midday. The workers are assiduous scavenger-predators and also collect large quantities of nectar from flowers. Activity of the reproductives is summarized in Table 6.

Discussion. This species does not appear to be very closely related to any of the other species of *Eremnocyctus*. In the abundant appressed pubescence it is most like *hammettensis*, but workers of that species possess numerous fully erect hairs on the scapes and cheeks. The female *colei* has the mesoscutum densely and uniformly covered with fine punctures while that of *hammettensis* has the scutum sparsely and coarsely punctate. In *colei* females the penultimate segment of the maxillary palp is broad basally and tapers to a narrow apex; it is nearly parallel-sided in *hammettensis*.

TABLE 6
Activity of Reproductives of:

Locality	Date	Activity
<i>M. colei</i> Snelling		
CALIF., Irwindale	22 Feb. 1963	♂♂, ♀♀ in nest
CALIF., Irwindale	24 Feb. 1963	♂♂ in nest
CALIF., Cajon Cyn.	21 Apr. 1969	♂♂ in nest
<i>M. creightoni</i> Snelling		
CALIF., 2 mi S Pearblossom	12 Feb. 1967	♂♂, ♀♀ in nest
CALIF., Dos Palmas	8 Mar. 1970	♀♀ in nest
CALIF., 6 mi SE Pearblossom	16 Mar. 1972	♀♀ in nest
CALIF., 4 mi SE Pearblossom	20 Mar. 1966	♀♀ on ground after rain
CALIF., Short Cyn.	3 Nov. 1967	♀♀ in nest
<i>M. hammettensis</i> Cole		
IDA., Hammett	30 May 1932	♂♂, ♀♀ in nest
<i>M. perimeces</i> Snelling		
B. CALIF., 0.5 mi N El Molino	29 Mar. 1971	♀ on ground
<i>M. tenuinodis</i> Snelling		
CALIF., 3 mi E Thousand Palms	16 Feb. 1963	mating flight after rain
CALIF., 5 mi E Thousand Palms	16 Feb. 1963	mating flight after rain