

abundant erect body hairs and dense pubescence suggests this may be so. These hairs presumably function to radiate excess heat and stabilize body temperatures.

Discussion. The worker of this species is readily recognized by the abundance of erect hairs on the dorsal body surfaces and all appendages. The only other abundantly hairy species is *colei*, in which there are seldom more than two or three erect hairs on the malar area and the scape has only scattered erect hairs.

The female differs from those of all species of *Eremnocyclus*, as far as known, in the polished, very sparsely punctate areas of the first and second terga. The polished and sparsely punctate pleura appear also to be unique.

The lack of fringe hairs on the apical margin of the forewing will separate the male of *hammettensis* from that of *creightoni*, as will the presence of a number of erect hairs on the scape. The male of *colei* also lacks erect hairs on the scape and the scutum and scutellum are uniformly closely punctate, rather than with extensive impunctate areas.

Myrmecocystus (Eremnocyclus) lugubris Wheeler

Figures 230–233

Myrmecocystus lugubris Wheeler 1909. Jour. N. Y. Entomol. Soc. 17:98. ♀; Wheeler 1912. Psyche 19:176; Creighton 1950. Bull. Mus. Comp. Zool. 104:443; Creighton 1956. Amer. Mus. Novit. 1807:1–4 (in part); Cole 1966. B. Young Univ. Sci. Bull. 7:21; La Rivers 1968. Occ. Papers, Biol. Soc. Nev. 17:9.

Diagnosis. Worker: Scape and propodeal dorsum without erect hairs; malar area without erect hairs or with fewer than 5 on each side; pronotum and mesonotum with at least 8 conspicuous fully erect hairs; hind femur without erect hairs on upper surface. *Female:* unknown. *Male:* unknown.

WORKER. Measurements. HL 0.72–0.97 (0.78); HW 0.62–0.97 (0.68); SL 0.75–1.02 (0.85); WL 0.82–1.42 (1.15); PW 0.42–0.65 (0.46).

Head: Distinctly longer than broad in smallest workers to as broad as long in largest, CI 86–100 (87); usually shorter than scape, rarely slightly longer, SI 97–113 (109); in frontal view, sides of head straight, little narrowed toward mandibular insertions, slightly convex in largest workers; occiput, in frontal view, flat, broadly rounded at sides. Eye small, slightly longer than first flagellomere; OMD 1.22–1.75 (1.46) × EL. Mandible septedentate.

Thorax: Moderately stout, PW 0.40–0.51 (0.40) × WL. Mesonotum, in profile, nearly straight in smallest workers to moderately convex in largest, but not abruptly declivitous behind. Basal face of propodeum flat, narrowly rounded into posterior face, latter about twice as long as basal face.

Petiole: Scale, in profile, about twice higher than thick, crest narrowly rounded; from front, sides con-

vergent above, emargination shallow, angulate; from above, about twice wider than thick.

Vestiture: Cephalic pubescence short, scattered, a little denser on occiput; thoracic pubescence abundant but not concealing surface even on pleura and propodeum; first three terga with abundant pubescence, producing sheen; third and following segments with scattered pubescence.

Cephalic hairs restricted to clypeus, frontal lobes and occiput; rarely, one or two erect hairs on malar area near mandibular insertions; longest occipital hairs less than 0.5 × MOD. Pronotum and mesoscutum with eight or more erect hairs each; metanotum and summit of propodeal declivity without erect hairs. Crest and sides of petiolar scale usually without erect hairs, rarely one or two very fine erect hairs. First and second terga with scattered short, erect, discal hairs, third and following with longer erect hairs.

Scape without erect hairs or, rarely, fewer than eight very fine short reclinate hairs; fore femur without erect hairs on inner face; all femora without erect hairs on upper surface; tibiae usually without erect hairs on outer face, rarely with up to eight fine reclinate hairs.

Integument: Clypeus polished and shiny, with scattered setigerous punctures; frontal lobes moderately shiny, finely shagreened and with sparse fine setigerous punctures; frons and occiput shinier, with scattered fine, setigerous punctures; malar area moderately shiny, with scattered elongate, setigerous punctures, denser near eyes and mandibular insertions. Thorax slightly shiny, densely shagreened; propodeum a little duller. Terga slightly shiny, finely and densely shagreened and with abundant fine, obscure piligerous punctures.

Color: Light brownish to blackish brown, appendages paler; mandibles and sides of clypeus often yellowish.

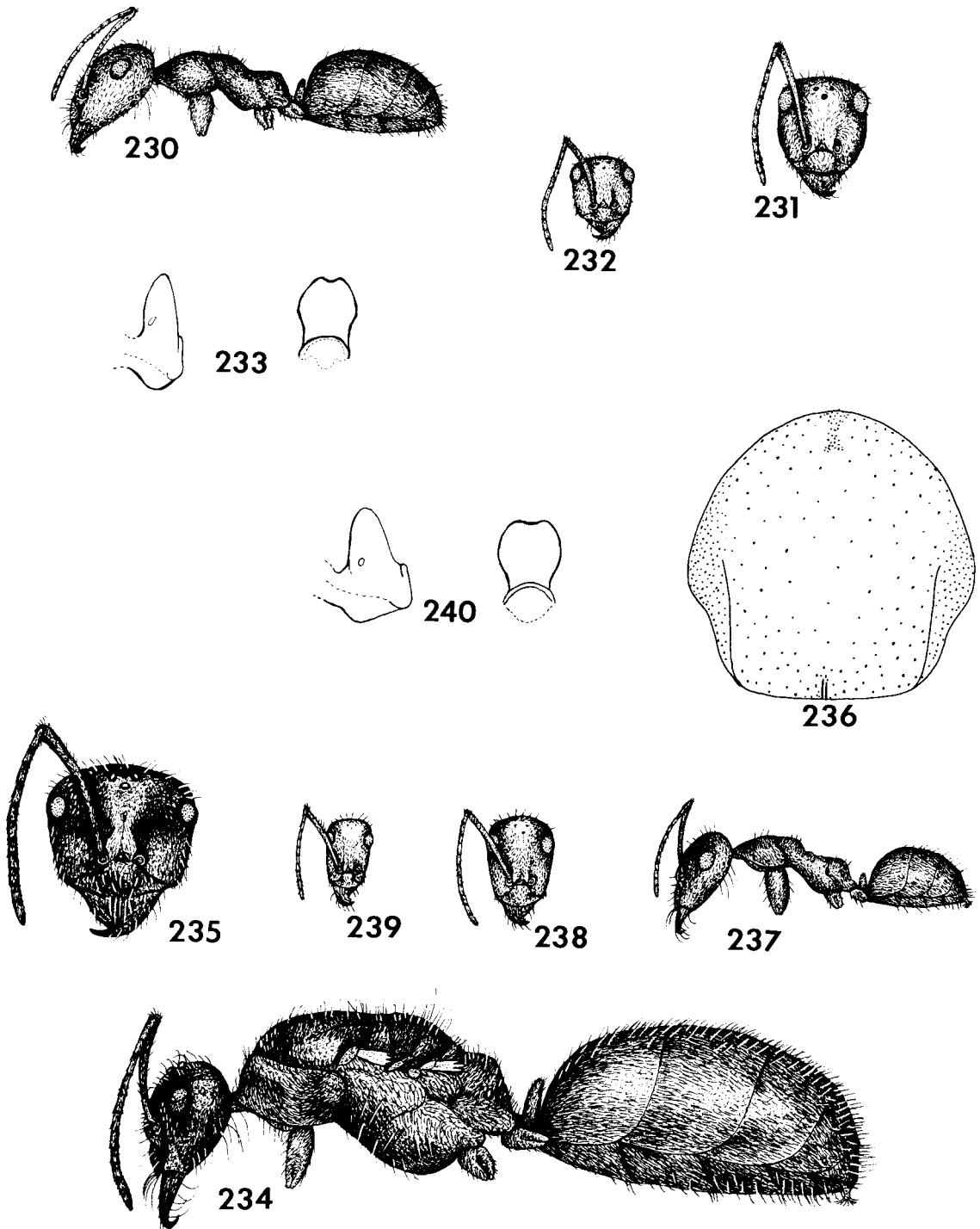
FEMALE: Unknown.

MALE: Unknown.

Type Material. Described from an unspecified number of worker specimens from Otis, San Bernardino Co., CALIF., collected 16 Sept. 1908 by J. C. Bradley. Cotype material in AMNH and MCZ. Lectotype, by present designation, agreeing with above basic description, parenthetical data and label data in AMNH, lectoparatypes in AMNH, MCZ.

Distribution. Mojave Desert of California and Nevada (Fig. 368).

Localities. UNITED STATES. Nevada: Nye Co.: AEC Nevada Test Site, Mercury, 19 Apr. 1971 (LACM). *California:* Inyo Co.: Mesquite Spg., 1600', Death Valley Natl. Mon., 30 Apr. 1952 (W. S. Creighton; AMNH, LACM, USNM); Ashford Mill, 0', Death Valley Natl. Mon., 23 Apr. 1952 (W. S. Creighton; AMNH, LACM); same locality, 2 Nov. 1970 (J. P. Donahue; LACM); same locality, 5 Nov. 1967 (R. R. Snelling, No. 67–282, LACM); Beatty Jct., –200', Death Valley Natl. Mon., 25 Jan. 1968 (G. C. and J. Wheeler, No. Calif. 294; GCW); Shorty's Well, –100',



FIGURES 230–233. *M. lugubris*. 230, major worker, lateral view; 231, head of major worker, frontal view; 232, head of minor worker, frontal view; 233, petiole of major worker, lateral (left) and posterior (right) views. FIGURES 234–240, *M. perimeces*. 234, female, lateral view; 235, head of female, frontal view; 236, mesoscutum of female, distribution of punctures; 237, major worker, lateral view; 238, head of major worker, frontal view; 239, head of minor worker, frontal view; 240, petiole of major worker, lateral (left) and posterior (right) views.

Death Valley Natl. Mon., 4 Nov. 1967 (R. R. Snelling, No. 67-281; LACM); Stovepipe Wells, Death Valley Natl. Mon., 12 Mar. 1931 (A. H. Sturtevant; USNM). *San Bernardino Co.*: Otis, 16 Sept. 1908 (J. C. Bradley; AMNH, MCZ; cotypes of *lugubris*).

Ecology. Little is known about this species. The type locality is Mojave Desert Creosote Bush Desert. Most of the samples available are from areas of Saltbush-Greasewood Desert. Nests are located in fine sand, with a crateriform tumulus up to 10 cm in diameter. Workers forage both matinally and crepuscularly and are general food gatherers. Repletes have been collected from nests in Death Valley.

Within Death Valley, where the species is common, the elevation range is from -200' to 1600'. At Ashford Mill, in Death Valley, I found workers departing from the nest and running along a single trail toward a foraging area. The trail was very poorly defined and it is not certain it can be properly called a trail. It might be that this was merely the most commonly used route to a known foraging area.

Since the sexual forms are unknown, it follows that nothing is known of flight activities. Presumably mating flights take place after spring and/or autumnal rains.

Discussion. As indicated in my discussion of *yuma*, I do not accept the synonymy of that form with *lugubris* as proposed by Creighton (1956). The worker of this species is easily recognized by the characteristics given above under *Diagnosis*. The sexual forms are unknown.

Myrmecocystus perimeces new species

Figures 234-240

Diagnosis. Worker: Recognizable by the unusually elongate, narrow head; antennal scape without erect hairs; hind tibia without erect hairs on outer face. *Female:* mesoscutum with entire disc with scattered coarse, setigerous punctures only; thoracic pleura with abundant long, erect hairs; clypeus only moderately shiny, densely shagreened, punctures obscure; crest of petiolar scale only slightly excised. *Male:* unknown.

WORKER. Measurements. HL 0.80-1.16 (1.06); HW 0.56-0.93 (0.80); SL 0.80-1.10 (1.00); WL 1.1-1.7 (1.4); PW 0.43-0.73 (0.56).

Head: In all sizes distinctly longer than wide, CI 70-81 (75); in full face view, sides straight, only slightly narrowed toward mandibular insertions; occiput barely convex, occipital corners rounded; as long or longer than scape, SI 94-100 (94). Eye small, about as long as first flagellomere; OMD 1.67-2.14 (2.00) × EL. Mandibles septendentate.

Thorax: Slender, PW 0.38-0.47 (0.40) × WL. Mesonotum, in profile, convex, rather sharply sloping behind. Basal face of propodeum broadly rounded into posterior face.

Petiole: Scale erect; in profile, about twice higher than thick, weakly cuneate; in frontal view, crest narrow, weakly or not at all notched in middle; from above, no more than twice wider than thick.

Vestiture: Pubescence very short, scattered, on head, a minute area on vertex denser than elsewhere on head; very fine, rather sparse on pronotum, denser on meso- and metanotum, and especially on pleura and propodeum. First two gastric terga with short, fine abundant pubescence not obscuring surface, remaining segments with a few scattered appressed hairs.

Scape, inner face of fore femur, outer faces of middle and hind tibiae and sides of head without erect hairs; clypeal disc and frons with a few scattered short, erect hairs; occiput with 16-24 erect hairs, less than MOD. Pronotum and mesonotum each with a few hairs (>10), shorter than on occiput; propodeum with a variable number (usually >10) of very fine erect hairs. First two terga with scattered short, stiff hairs on disc; following segments with scattered longer hairs.

Integument: Clypeus polished, with sparse, coarse punctures; remainder moderately to strongly shiny, but not polished, lightly shagreened, with sparse to scattered fine punctures, denser on frontal lobes. Thorax rather strongly shiny, lightly shagreened; propodeum duller, more conspicuously shagreened. Gaster shiny, lightly shagreened.

Color: Uniformly light to dark brownish, appendages lighter; mandibles and lower part of cheeks yellowish.

FEMALE. Measurements. HL 1.63; HW 1.73; SL 1.53; EL 0.43; OMD 0.63; WL 3.7; PW 2.2.

Head: Broader than long, CI 94; in full face view, sides straight, converging slightly toward mandibular insertions; occiput slightly, evenly convex, corners well rounded; longer than scape, SI 94. Eye small, slightly longer than first flagellomere; OMD 1.46 × EL. Ocelli subequal; IOD 4.3 × OD; OOD 4.0 × OD. Mandible with seven teeth. Penultimate segment of maxillary palp broadest at base, strongly tapering toward apex; segments three and four ribbon-like, about equally broad throughout their lengths.

Thorax: Robust, PW 0.59 × WL. Apical two-thirds of mesocutum, in profile, barely convex, posterior margin below anterior margin of scutellum; scutellum barely convex, except at extreme base, strongly sloping toward rear; propodeum with broad shallow impression at summit of declivity.

Petiole: In profile elongate-cuneate, anterior and posterior faces strongly sloping toward crest; in frontal view, sides of crest rounded, middle shallowly excised; in dorsal view, about twice as wide as thick.

Vestiture: Pubescence sparse on clypeus, malar area and frons, dense on occiput, but not concealing surface; sparse and short on most of pronotum, conspicuously longer and denser along dorsal margin; long,