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TWO NEW FORMS OF *MONOMORIUM* (FORMICIDÆ)

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In the Nearctic fauna we have one very widely distributed species of *Monomorium* (*M. minimum* (Buckley)), and several other species of more local occurrence, and while *minimum* is a quite variable ant, it seems not unlikely that some of the variations may be distinct populations that warrant recognition. Examples of such are present in my collection, and are here described with the conviction that they are valid, although subsequent information might make it necessary to alter this conclusion.

*Monomorium peninsulatum* sp. nov.

Plate 9.

*Worker*. — Length 1.8–2.0 mm.

Head almost rectangular, convergence anteriorly nearly imperceptible; occipital angles abrupt but rounded, posterior margin straight; clypeus produced in front and furnished with two carinæ which project as distinct, sharply pointed teeth beyond the border; posterior clypeal margin extending deeply between the frontal carinæ, which are short and do not continue far behind the antennal insertions. Antennæ 12-segmented, the last three segments forming a distinct club; scape failing to reach the posterior angle of the head by a distance equal to  $1\frac{1}{2}$  times its width at the apex; mandibles evenly curved, 4-toothed; maxillary palpi 1-segmented; labial palpi 2-segmented. Eye separated from mandibular fossa by a distance equal to  $1\frac{1}{4}$  times its diameter.

Thorax at the rounded humeral angles  $\frac{2}{3}$  as wide as the head; long and narrow, in profile moderately and evenly arched; mesoëpinal impression distinct and fairly deep. Epinotum with rounded angle, so that the basal and declivious faces pass gradually into each other; epinotal spines absent. Petiolar surface rounded, the sides subparallel and the superior border

entire; anterior face flat, posterior face convex; peduncle short but evident and without ventral spine. Postpetiole globose and approximately equal to petiole in width, slightly lower in height. Gaster pyriform.

Sculpture: Entire body glabrous, except the mesoëpinotal impression and mesonotal and epinotal pleuræ which have very fine rugulations, and the mandibles which are finely striate.

Pilosity: Long, fairly numerous hairs on dorsum of head (including clypeus), thorax, petiole, postpetiole, coxæ, trochanters, femora, prosternum, gula, and venter of gaster. Pubescence conspicuous on antennæ and legs, extremely dilute on gaster, apparently absent on the head and thorax, and merging into hairs on the scapes.

Color: Deep, metallic, bluish black like the queen but not as pronounced as in that caste; mandibles and tarsi yellow; antennæ, coxæ, femora and tibiæ brownish.

*Female.* — Length 4.5–5.0 mm.

Head, excluding mandibles, slightly wider than long, with rounded occipital angles, and decidedly convergent anteriorly; posterior border straight. Clypeus broadly rounded with two widely separated, longitudinal carinæ which project anteriorly as rather short, blunt teeth, the border of the clypeus between them appearing as a wide, shallow emargination. Frontal carinæ short, extending posteriorly and parallel until near their termination opposite the anterior edge of the eyes, where they diverge in evenly rounded curves. Eyes moderate and oval in outline, placed mid-way between the mandibular fossæ and the posterior angles of the head. Ocelli prominent. Antennæ 12-segmented, the last four segments forming an indistinct club; scape evenly curved at the base. Mandibles 4-toothed, the basal tooth blunt, and the rest increasing in length to the rather long, sharp, apical tooth. Maxillary palpi 2-segmented. Labial palpi 2-segmented.

Thorax from above as wide as the head and evenly tapered from end to end; in profile the mesonotum is moderately elevated and curved dorsally; scutellum divided into two lateral triangles which are separated by the forward extension of the postscutellum to meet the scutum; parapsidal furrows distinct but shallow; metanotum in the form of the usual transverse band. Epinotum in profile is evenly rounded and descends abruptly from the metanotum, there being no angular separa-

tion of basal and declivious faces. Petiole with a well-marked peduncle bearing a long, low, mid-ventral keel terminating in a small tooth; anterior surface of node rather steep and flat, posterior surface convex; summit of node truncated and with a broad, shallow emargination across its whole width, the lateral angles rounded. Postpetiole globose, and  $\frac{1}{3}$  wider than the petiole, its dorsal border flat and entire. Abdomen egg-shaped as usual in ant queens. Legs slender. Wings hyaline and with veins much reduced; costal, median and radial cells present, one closed discoidal cell weakly indicated.

Sculpture: Front and sides of head with fine, longitudinal rugæ, and clypeus longitudinally striated except in the median area; vertex and gula non-striated; all surfaces of the head except the front and clypeus pitted with abundant, deep punctures; mandibles striato-punctate. Thorax, including the epinotum, with numerous though more scattered punctures, and its surface very shining; a few striations appear on the postscutellum and on the pleuræ just below the wing insertions; metanotum with rather coarse, transverse rugæ, and the epinotum has coarse, parallel rugæ on all surfaces, trending antero-posteriorly on the sides and transversely across the base and the declivity. Petiole and postpetiole, except the dorsal surfaces, with distinct rugulations. Abdomen smooth and shining, but having deep, piligerous punctures.

Pilosity: Head, thorax, petiole, postpetiole, and abdomen covered with abundant, long, light yellow, flexuous hairs, except the mid-dorsal areas from anterior to posterior in each of these regions; legs, scapes, and antennal funiculi equally pilose. Pubescence on all parts absent or at most extremely dilute.

Color: Yellowish brown to brown on the head, thorax, legs, scapes, funiculi, and sides of petiole and postpetiole; mandibles, tibiæ, and tarsi lighter; postero-dorsal portion of head, the mesonotum, petiole, and postpetiole darker and in some specimens almost black; entire gaster, except the posterior tip, of a deep, bluish black, metallic luster.

Type locality: South Miami, Florida.

Cotypes: in the author's collection (1 queen and 1 worker).

Paratypes: in the author's collection and in the U. S. National Museum.

Described from 64 females (only one of which retained a fore and a hind wing), and numerous workers collected by my wife,

Ella Virginia Gregg, in a pine-palmetto woodland. The nest was indicated by a crater in a rather sandy patch of soil. Upon excavation to obtain the colony, a great deal of porous limestone was encountered, and many of the ants were distributed through the interstices of the rock. My wife's attention was attracted by the ever increasing number of dealated females which issued from the crevices, but her efforts to continue digging met with much difficulty. Although over 60 queens were secured, we are certain many more were beyond our reach. A heavy shower put an end to operations and we were unable to return to the site to ascertain the extent of the colony. *Monomorium* is known at times to have many queens, and occasions such as this case probably indicate the adoption of recently dealated females either of the same or adjacent nests.

The worker of *peninsulatum* differs from that of *minimum* in the following respects: the petiolar node is noticeably larger and higher, and its anterior face is more vertical so that the peduncle appears more distinct; the mesopleuræ and sides of the epinotum have delicate rugulations unlike those parts in *minimum* which are smooth and shining; the coloration is a deeper black, with bluish, metallic reflections in certain lights, and the clypeal teeth are slightly further apart.

The *peninsulatum* female may be distinguished by the fact that it is of larger size (*minimum* being about 4 mm.), the ocelli are much larger and more prominent, the clypeal teeth are blunter and a little more widely separated, and the whole body appears quite shining though the sculpturing is more pronounced. Punctures are deep and numerous on the head and thorax, and obvious, coarse rugæ cover the entire epinotum (present on *minimum* only at the extreme ventral aspect of the declivity). Petiole and postpetiole are more quadrate and angular, and the superior face of the former is depressed into a wide, shallow notch. Peduncle is more pronounced and has a ventral ridge and tooth which are almost absent in *minimum*. Hairs are coarser and more abundant. Color of much of the head and thorax is yellowish or reddish brown, and the gaster is of a dark, bluish black that is more noticeable than in the worker, the entire ant contrasting strongly with the queen of *minimum* which has a uniformly brownish black body.

Notwithstanding the fact that the worker of this species and that of *M. minimum* are very similar, they still can be separated

by certain constant characters as indicated above. The queens, moreover, show decided differences, and it is felt the specimens represent a new form which deserves specific rank. While *minimum* is widely distributed from east to west, there seems to be little cause for questioning the distinctness of the form I have called *peninsulatum* after the portion of the country from which it was obtained. In all probability it will be found on some of the adjacent islands; it may even be a West Indian ant which has entered continental United States at its most southern extremity. If this remains an undoubted species, the known formicid fauna of Florida will have increased to 118 ants. Dr. M. R. Smith (1944), in an addition to the list of ants of that state, brought the total from 107 to 117 species.

The new ant appears to be very similar to one described by W. L. Brown as *Monomorium viridum* from New Jersey. Judging from the description of this species, the female *M. peninsulatum* may be said to differ from that of *viridum* in the following respects. There are no transverse striae in the ocellar triangle nor behind it, the anterior faces of the petiole and postpetiole are sculptured and not smooth, the clypeal teeth are quite short and blunt, the head and thorax have slight or no indication of metallic blue, and the color of the abdomen is metallic blue, not green. The size is a little smaller than *viridum*, the female measuring 4.5 to 5.0 mm. instead of 5.3 to 5.7 mm., and the worker being 1.8 to 2.0 mm. instead of 1.8 to 2.8 mm.

*Monomorium minimum* subsp. *emersoni* subsp. nov.

*Worker*. — Length 1.6–1.8 mm.

Practically indistinguishable from the same caste of *M. minimum* (typical) except that it is perhaps a shade lighter in color.

*Female*. — Length 4.3 mm.

Differs from the queen of *minimum* in the much more slender construction of the head and thorax, being much narrower than in the typical form; abdomen, however, of the same width. The petiole and postpetiole are both slightly wider than in *minimum*, and the petiolar node is more rounded and with a more concave anterior face which causes the peduncle to contrast with the node; sides finely rugose. The thorax bears wings, as shown by their stumps, but none were present on the specimens examined.

The epinotum is transversely striated over its complete upper and lateral surfaces, contrary to that of the type; the angle between the base and the declivity is more pronounced, and the whole structure is longer and higher. Slight tubercles are present in the positions usual for epinotal spines. Surface somewhat less shining than in *minimum*, especially the head which is almost opaque. Hairs slender and abundant on all parts, but longer on the gaster. Color dark brown instead of black; antennæ and legs lighter, with tibiæ and tarsi yellowish.

Described from one queen and numerous workers taken by Dr. A. E. Emerson in April, 1937 at Globe, Arizona, and the writer derives pleasure in naming this ant after his former teacher. The nest was under a stone at an elevation of 6,300 feet. Two additional colonies of the species, each with a deaëlated female, were collected by Dr. Emerson, the one at Austin and the other at San Marcos, Texas, and these seem to be identical with the types from Arizona.

Cotypes: in the author's collection (1 queen and 79 workers).

Paratypes: in the author's collection and the U. S. National Museum.

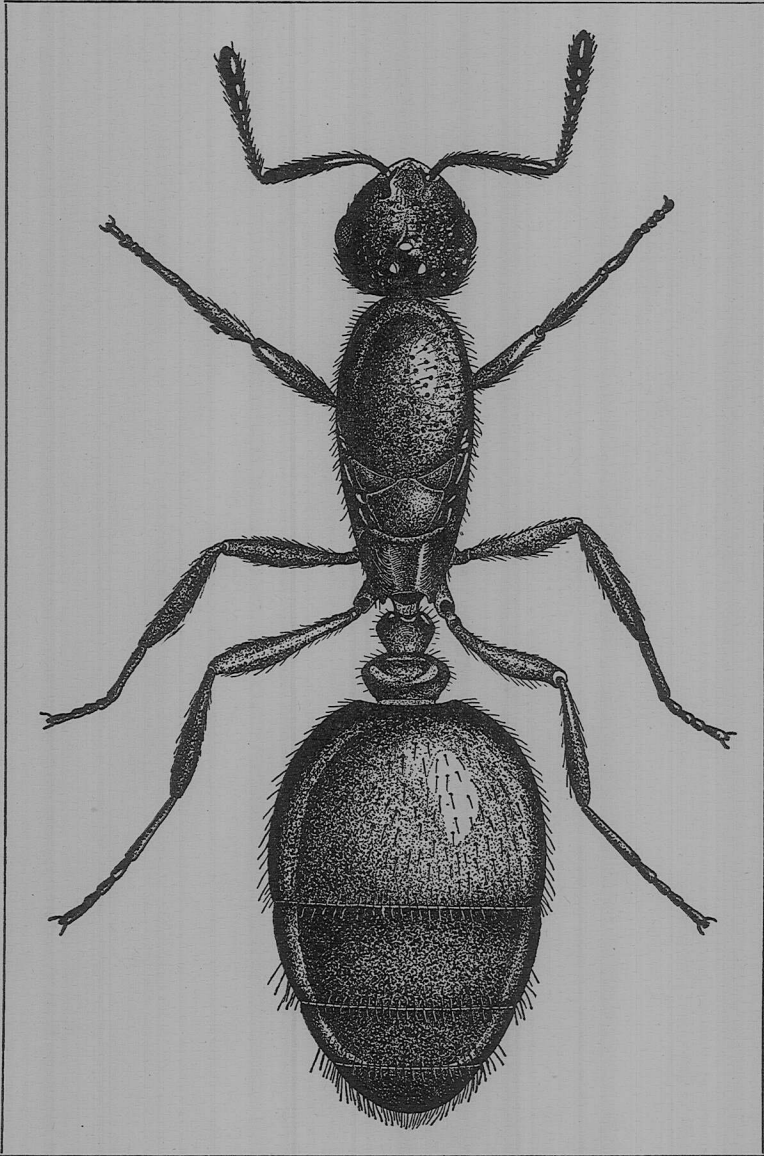
Both *Monomorium minimum* subsp. *emersoni* and *M. peninsulatum* can be distinguished readily from *M. minimum* subsp. *ergatogyna* Wheeler from Santa Catalina Island, California, and the subspecies *cyaneum* and *compressum* Wheeler from Hidalgo, Mexico, as well as the European *M. minutum* Mayr, by the fact that the females are winged while those of the latter are wingless and ergatoid as far as observed (Wheeler 1914). The bluish black color of *peninsulatum* might lead to confusion with *cyaneum*, but the apterous condition of the latter makes the distinction possible, and also their wide geographic separation lends support to this judgment. From *M. carbonarium* F. Smith and its subspecies *ebeninum* Forel, all of the above species may be differentiated by the rounded shape of the epinotum and the superior border of the petiolar node, as these structures are angular and the node has the upper surface weakly notched in the former insects.

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