

A SINGULAR NEOTROPICAL ANT (*PSEUDOMYRMA  
FILIFORMIS* FABRICIUS).<sup>1</sup>

BY WILLIAM MORTON WHEELER.

In his "Systema Piezatorum," published in 1804, Fabricius described a remarkable neotropical ant as *Formica filiformis*, in the single sentence: "Formica elongata, filiformis, flava, abdominis basi nigricante, petioli binodi." In a second sentence, after the citation of the locality: "Habitat in America meridionale. Dom. Smidt, Mus. Dom. de Sehestedt," he reworded the description, with the addition of the adjective "parvum." The description undoubtedly refers to a dealated female specimen and not to a worker, as stated by Dalla Torre in his "Catalogus Hymenopterorum" (Vol. 7, 1893, p. 56).

In 1855 Frederick Smith described all three phases of the same ant from specimens taken by H. W. Bates at Villa Nova, Brazil, but named it *Pseudomyrma cephalica*. Smith was greatly interested in the ants of the genus *Pseudomyrma* and the ant under consideration seems to have been a particular favorite with him, for he published more figures of it than of any other species. What interested him most was undoubtedly the very aberrant character of the female, especially of its head, for in all other species of *Pseudomyrma* the female is very much like the worker. Though brief his description of all three phases of *filiformis* is clear, and his drawings though schematic enable one to recognize the species without difficulty.

Since the time of Frederick Smith myrmecological literature contains no unequivocal reference to the worker of Fabricius' species either under the name of *filiformis* or of *cephalica*. This is because Forel, in the *Biologia Centrali-Americana* (1899-1900), redescribed and figured the worker from Guatemala as *Ps. biconvexa* and continued to cite it under that name till 1912 when he published the latest reference I have seen of the insect. I am certain of the specific identity of *biconvexa* with *filiformis*, because during the winter of 1911-1912 I found two fine colonies in Guatemala, each containing, not only numerous females and males

<sup>1</sup> Contributions from the Entomological Laboratory of the Bussey Institution, Harvard University, No. 161.

agreeing with Fabricius' and Smith's descriptions of *filiformis* and *cephalica*, but also many workers agreeing perfectly with Forel's description and with a cotype of *biconvexa* which he kindly gave me many years ago.

The genus *Pseudomyrma*, owing to the great number and variability of its species is one of the most difficult of ant-genera. As a small contribution to the revision to which it must before long be submitted I give a fuller description of the worker, female and male of *Ps. filiformis*, with larger and more detailed and I trust also somewhat more accurate figures than those published by Smith.

#### *Pseudomyrma filiformis* (Fabr.).

*Formica filiformis* Fabricius, Syst. Piez. 1804, p. 405 ♀.

*Leptalea filiformis* Erichson, Arch. f. Naturg. 5, 1839, p. 309 ♀.

*Pseudomyrma cephalica* F. Smith, Trans. Ent. Soc. London (2) 3, 1855, p. 168, Pl. 13, Figs. 12-17, ♀ ♀ ♂; F. Smith, Cat. Hym. Brit. Mus. 6, 1858, p. 155, Pl. 10, Figs. 25, 26 ♀ ♀ ♂; Roger, Berlin, Ent. Zeitschr. 6, 1862, p. 289.

*Pseudomyrma filiformis* Mayr, Verhand. Zoöl. bot. Ges. Wien, 1863, p. 452 ♀; Roger, Berlin, Ent. Zeitschr. 1863, p. 24 ♀; Mayr, Sitzb. Akad. Wiss. Wien 61, 1870, p. 407 ♀; Dalla Torre, Cat. Hym. 7, 1893, p. 56; Forel, Sitzb. Bayr. Akad. Wiss. 1911, p. 278, ♀; Forel, Biol. Centr. Amer. Formicid. 1899-1900, p. 86 ♀.

*Pseudomyrma biconvexa* Forel, Biol. Centr. Amer. Formicid. 1899-1900, p. 95, Pl. 4, Fig. 10 ♀; Forel, Ann. Soc. Ent. Belg. 50, 1906, p. 229 ♀; Forel, Sitzb. Bayr. Akad. Wiss. 1911, p. 277 ♀; Forel, Mem. Soc. Ent. Belg. 20, 1912, p. 30 ♀.

*Worker* (Fig. 1). Length 4.5-5.8 mm.

Head about  $1\frac{1}{2}$  times as long as broad, subelliptical, with straight posterior border and evenly convex sides, scarcely narrower in front than behind; eyes about half as long as the sides, in front of the middle, rather flat. Mandibles with convex external border, apical border with two large terminal and four small basal teeth, the basal border with three small separated teeth. Clypeus short, emarginate on each side, with a short, subrectangular median lobe. Frontal carinæ short, closely approximated; frontal groove absent. Antennæ short, scapes scarcely reaching the middle of the internal

orbits; first and last funicular joints longer than broad, the remainder scarcely as long as broad. Thorax slender; pronotum distinctly longer than broad, scarcely broader in front than behind, submarginate on the sides posteriorly, with rounded humeri, in profile evenly convex above. Mesonotum circular, rather prominent, sloping to the mesoëpinotal suture, which lies in a rather deep impression bearing the metathoracic spiracles. Epinotum as long as the pro- and mesonotum together, broader in front than behind, somewhat compressed laterally, the base much longer than the declivity, in profile moderately convex and passing with an even curve into the declivity. Petiole more than twice as long as broad, the short peduncle passing gradually into the low rounded node which is only about  $\frac{1}{3}$  as high as the length of the segment, a little more abruptly constricted behind, the sides scarcely compressed, its ventral surface with a small tooth anteriorly. Postpetiole

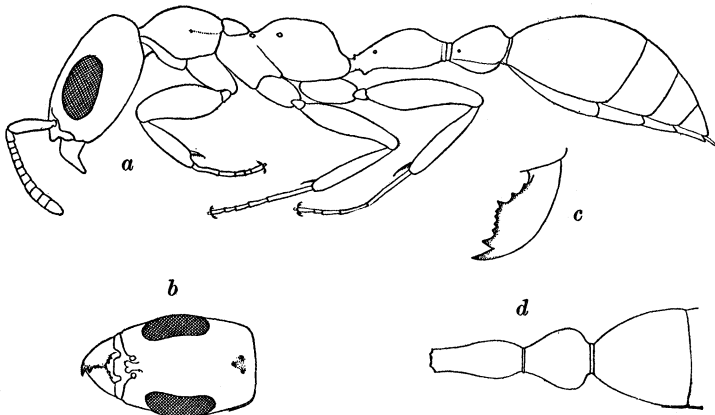


Fig. 1. *Pseudomyrma filiformis* Fabr. Worker. a, in profile; b, head from above; c, mandible; d, petiole, postpetiole and first gastric segment from above.

twice as broad as the petiole and about as broad as long, narrowed in front, subtriangular from above and laterally. Gaster rather long, first segment as long as broad. Legs moderately long, fore femora slightly swollen.

Subopaque or glossy; head more shining, especially above; mandibles striatopunctate; antennal scapes smooth and shining; body and legs very finely punctate, head and pronotum a little less densely than the remainder of the body.

Hairs and pubescence white, the hairs short and sparse, rather uniformly distributed on the body, absent on the legs; pubescence fine, dense and hiding the sculpture on the gaster, postpetiole, petiole, epinotum and legs, so that these parts appear pruinose, more dilute on the pronotum and especially on the head.

Head and pronotum yellowish red; mandibles, antennæ and clypeus lemon yellow; remainder of body fuscous; meso- and epinotum and petiole suffused with reddish; apical margin of first gastric segment and base and apex of succeeding segments, tarsi, trochanters, tips of coxæ, bases and tips of tibiæ and femora brownish yellow. Mandibular teeth and ocellar region blackish.

*Female.* (Fig. 2.) Length 6.5–7 mm.

Head nearly  $2\frac{1}{2}$  times as long as broad, suboblong, with broadly excised posterior border and straight, parallel sides, the eyes flat, about  $\frac{1}{4}$  as long as the head, their posterior orbits slightly behind its

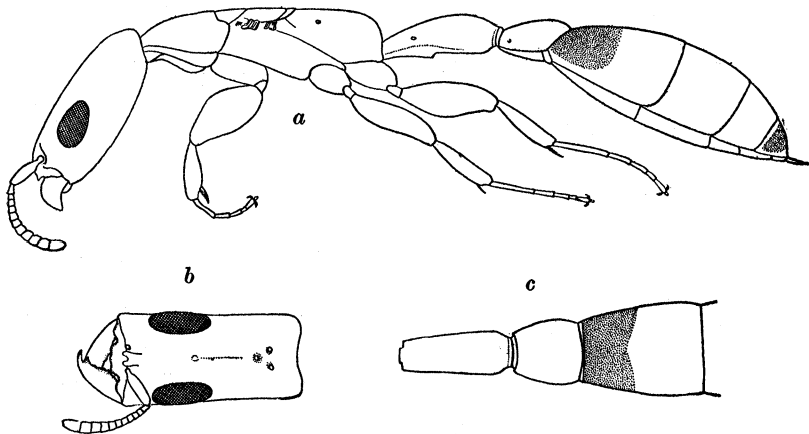


Fig. 2. *Pseudomyrma filiformis* Fabr. Female. *a*, lateral view; *b*, head and *c*, petiole, postpetiole and first gastric segment from above.

median transverse diameter. Ocelli small, only slightly larger than those of the worker. Mandibles and clypeus much as in the worker. Frontal carinæ very small and close together. Frontal groove represented by a shallow pit in the center of the head and a faint, impressed line running from it to the anterior ocellus. Antennæ shorter than in the worker, the scape scarcely reaching to the anterior orbit. Thorax very long and slender, nearly four times as long as broad, narrower than the head, the sides almost sub-

parallel, the pronotum and epinotum each forming about a third of the dorsal surface, the remaining third being formed by the mesonotum, scutellum and metanotum; the mesonotum very small, scarcely broader than long. In profile the thorax is flattened above, rounded in front and behind, the base of the epinotum long and straight and passing through a strong curve into the short, vertical declivity. Petiole from above nearly four times as long as broad, but little broader behind than in front, with nearly parallel sides; in profile feebly and evenly convex from before backwards, ventrally compressed and with an elongate blunt tooth near the middle. Postpetiole twice as broad as the petiole, somewhat longer than broad, subtrapezoidal, somewhat broader behind than in front, with convex rounded sides. Gaster long and slender, the first and second segments longer than broad, the first but little broader anteriorly than the postpetiole. Legs short, femora, especially the fore pair, flattened and dilated. Wings very short, scarcely 4 mm. long.

More shining throughout than the worker, the fine punctures being less dense, even on the thorax and gaster.

Hairs and pubescence much sparser than in the worker, the pubescence very dilute; only the base of the first gastric segment somewhat pruinose.

Brownish yellow; mesonotum, scutellum and epinotum sometimes a little darker; a broad spot at the base of the first gastric segment and nearly the whole dorsum of the fourth segment fuscous, or blackish; the middle and hind femora slightly infuscated; a minute spot in front of the insertion of the fore wing, one at each ocellus, and the teeth of mandibles black. Wings grayish hyaline, strongly iridescent, with pale brown veins and dark brown pterostigma.

*Male.* (Fig. 3.) Length 4.6–5 mm.

Head slightly longer than broad, subelliptical, with straight posterior border and behind the eyes with straight sides converging to the posterior corners. Eyes rather convex, about half as long as the head; ocelli large. Cheeks very short. Anterior clypeal border sinuately excised on each side, its middle produced as a distinct, bluntly pointed lobe. Mandibles convex, their apical borders finely and indistinctly denticulate. Frontal carinae short, much more widely separated than in the worker and female.

Frontal groove distinct. Antennæ long, filiform, 12-jointed; scape short, about twice as long as broad, first funicular joint as broad as long, remaining joints cylindrical, the second distinctly longer than the third. Thorax elongate; mesonotum prominent, with distinct Mayrian furrows. Petiole and postpetiole shaped somewhat as in the worker but less convex dorsally, the former without a ventral tooth. Gaster long and narrow. Legs long and slender, the femora not dilated.

Finely punctate, but the punctures more distinct than in the female, so that the surface of the body is somewhat less smooth and shining; mandibles smooth, sparsely punctate.

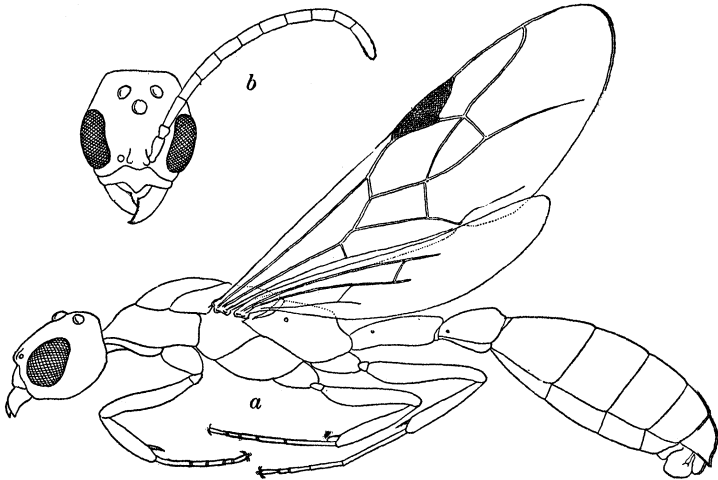


Fig. 3. *Pseudomyrma filiformis* Fabr. Male. *a*, lateral view; *b*, head of same, dorsal views.

Hairs whitish, short and very sparse; pubescence rather long and abundant, uniformly investing the body and appendages.

Brown; mandibles, clypeus, scape and first funicular joint, articulations and sutures of the body and legs dull ivory or brownish yellow. Wings a little darker than in the female.

Type-locality: "South America" (Smidt).

Brazil: Villa Nova (H. W. Bates).

Trinidad (Urich).

Colombia: Santa Marta (A. Forel).

Panama: (Stretch); Bugaba and Caldera (Champion).

Costa Rica (Tonduz).

Guatemala: (Stoll); Pantaleon (Champion); Zacapa and Patulul (Wheeler).

According to Frederick Smith "all the sexes of this species were found by Mr. H. W. Bates in their formicarium, the chambers of which were excavated in dead twigs." The colonies which I found at Zacapa and Patulul were nesting in dead branches lying on the ground in shady places. These branches, 5 to 7 feet long and 1 to 1½ inches in diameter, together with their twigs, had been tunnelled throughout by the ants. The colonies were very populous, comprising hundreds of individuals and therefore larger than those of most species of *Pseudomyrma*. *Ps. filiformis* seems also to differ from many species of the genus (*sericea*, *triplaridis*, *arboris-santæ*, *belti*, *spinicola*, *flavidula*, etc.) in preferring to live in the cavities of dead instead of living plants. There can be little doubt that *filiformis* is a rare or sporadic species. Dr. W. M. Mann, who collected ants assiduously in Brazil in the region explored by Bates, failed to find it, and although I found numerous colonies of many species of *Pseudomyrma* in Central America I saw only two of *filiformis*. It seems to me not improbable that the slender, smooth, aberrant female of this ant may start her colony as a temporary parasite on some other species of *Pseudomyrma*, presumably *Ps. flavidula*, which she so strangely resembles in color.

In his paper on the classification of the Myrmicinæ (Intorno alla classificazione dei Myrmicinæ, Rend. R. Accad. Sc. Bologna, 1914, p. 34) Emery states that the males of the tribe Pseudomyrmini have 13-jointed antennæ. This is certainly an error. All the numerous males I have examined of the various genera of the tribe, *Pseudomyrma*, *Tetraponera* (= *Sima* auct.), *Pachysima* and *Viticicola* gen. nov. (genotype *Sima tessmanni* Stitz of West Africa) have 12-jointed antennæ like the workers and females.

Forel has described the following variety, which I have not seen, as a variety of *Ps. biconvexa*:

**Pseudomyrma filiformis var. longiceps Forel.**

*Ps. biconvexa* var. *longiceps* Forel, Ann. Soc. Ent. Belg. 50, 1906, p. 229. ♂.

“*Worker*. A little larger than the typical form. The head especially is perceptibly longer, more than  $1\frac{1}{2}$  times as long as broad, with subparallel sides. In other respects identical with the typical form.”

Santa Marta, Colombia (A. Forel).





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