

localities with a warm, dry climate. No observations on the feeding habits of this species have been reported. Emery states that the nests are small and "subterranean." The male linked doubtfully with this species was taken separately in August.

#### QUADRISTRUMA new genus

1890. *Epitritus* Emery, *sensu* Emery, Bull. Soc. Ent. Ital., xxii, p. 70, part.  
1893-1948. *Epitritus* Emery, authors, part.

WORKER AND FEMALE.—Small ants with three funicular segments, superficially resembling *Epitritus*, but with a true apical fork of two spiniform teeth and a small posteriorly directed basal lobe on the mandible as in *Strumigenys*. Labral lobes very short and inconspicuous, the triggers or trigger-hairs set laterally to them and diverging widely anteriorly; labrum acutely cornuate on each anterolateral angle. Pilosity and sculpture much as in the majority of *Smithistruma* and *Strumigenys* species.

MALE.—Unknown.

GENOTYPE.—*Epitritus emmae* Emery, Bull. Soc. Ent. Ital., xxii, p. 70, Pl. 8, fig. 6, worker, by present designation.

This genus is understood to include, besides the genotype, the species *eurycera* (Emery), which was formerly included in *Epitritus*.

*Quadristruma emmae* ranges over a great part of the earth's tropics and subtropics in scattered localities.

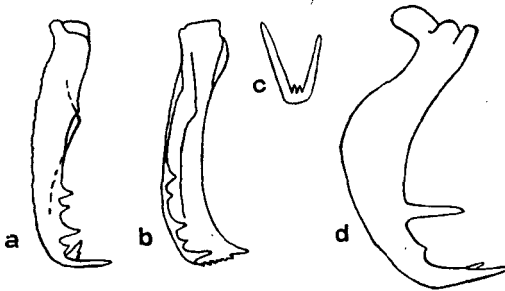


Figure 1.—Mandibles, *a* dorsal view, *b* medial view, *Epitritus argiolus* Emery, Arezzo, Italy. *c* apical fork, *d* dorsal view, *Quadristruma emmae* (Emery), Soledad, Cuba. Both from workers.

- Quadristruma emmae**<sup>2</sup> (Emery) (Figure 1: c, d.)
1890. *Epitritus emmae* Emery, Bull. Soc. Ent. Ital., xxii, p. 70, Pl. 8, fig. 6, worker.
1897. *Epitritus emmae* Emery, Term. Füzetek, xx, p. 581, worker.
1908. *Epitritus emmae* Wheeler, Bull. Amer. Mus. Nat. Hist., xxiv, p. 149, female.
1909. *Epitritus clypeatus* Szabó, Arch. Zool. (Budapest), I (7), p. 1, fig. 1, worker.
1913. *Epitritus clypeatus* var. *malesiana* Forel, Zool. Jahrb. Syst., xxxvi, pp. 83-84, worker, female.
1916. *Epitritus wheeleri* Donisthorpe, Ent. Record, xxviii, p. 121, worker.

This species has been described so many times, and figured as well, that a formal description would be superfluous. Only the worker and female are known, the female being slightly the larger of the two forms, with the usual thoracic differences and a slightly larger gaster. Otherwise, the female is quite similar in proportions of the head and mandibles.

Szabó was led to describe *clypeatus* because of differences he found in New Guinea specimens which had previously been determined as *emmae* by Emery. Szabó compared these specimens with Emery's 1890 figure of *emmae* and pronounced his new species as distinct from it on the basis of supposed differences in length of clypeus, form of antennal scape, and general size. Forel and Donisthorpe then described *malesiana* (Sumatra) and *wheeleri* (Hawaii) as forms intermediate between *emmae* and *clypeatus* in these very same characters! Although I have not seen the type of *emmae*, I believe that it is identical with *clypeatus* for the following reasons:

(1) Emery originally identified the specimens used as the types for *clypeatus* as his *emmae*, they differing only slightly in size from the St. Thomas specimens.

(2) Plates 7 and 8 of Emery's 1890 paper contain figures of several other dacetine species which I know to be seriously in

<sup>2</sup> After sending this paper off to press, I received two series of *Quadristruma emmae* from Dr. J. W. Chapman of the Silliman Institute. One lot was labelled simply "Philippines, Domingo Empeso," while the other was taken by Dr. Chapman at Dumaguete, Negros, Philippine Islands. Dr. Chapman also says that he has taken an "*Epitritus*" on another occasion in a graveyard at Dumaguete. So far as I can tell, there are no previous records from the Philippines.

error, so it seems safe to assume that the drawings, including that of *emmae*, were carelessly and hastily executed.

(3) The heads of several specimens tilted slightly out of the horizontal viewing plane gave outlines much the same as those of the original figure of *emmae*; these specimens were Hawaiian in origin.

(4) Cuban, Porto Rican and Dutch Guianan specimens of this form's New World populations were compared with Hawaiian specimens; no differences worth mentioning were found, either in size or details of form. These specimens agreed better with Szabó's figure of *clypeatus* than with any other figure listed in the synonymy, including that of *emmae* mentioned in (2) above.

(5) The records of distribution for *emmae* and its synonyms are distinctly indicative of tropicopolitan tramp habits like those of *Trichoscapa membranifera* Emery, thus destroying any arguments for validity of the synonyms on a basis of geographical isolation. Most of the records are from seaports or other coastal localities.

If *clypeatus* is a synonym of *emmae*, the forms *malesiana* and *wheeleri* must also be synonyms; anyone desiring confirmation of this fact has but to read the original descriptions of these forms, keeping in mind the considerations outlined above.

Workers of *emmae* from Hawaii, Cuba, and Porto Rico show the following measurements and proportions: total length, including mandibles, 1.4–1.8 mm., length of head proper 0.40–0.44 mm., cephalic index 77–83, mandibulo-cephalic index 28–30; based on 7 specimens.

Females from Cuba, Hawaii, and Paramaribo show the following: total length 1.8–2.1 mm., length of head proper 0.46–0.49 mm., cephalic index 81–85, mandibulo-cephalic index 28–32; based on four specimens.

The mandibles are strongly bowed and possess an apical fork of two long spiniform teeth, the dorsal of the pair nearly half again the length of the ventral; inner border adjacent to the condyle with a small, rounded lobe which points inwardly and somewhat posteriorly when the mandibles are closed, this lobe completely concealed except when the mandible is opened to nearly full extent; subapical tooth stout and acutely spiniform, situated between the midlength and the apex of the inner border. Some

specimens seem to have a small, indistinct denticle on the inner border in the space between the apical and subapical teeth; this tubercle, when present, is very difficult to see because of the hairs which obscure it. It seems not to be correlated in any way with distributional patterns. Two acute denticles between the two teeth of the apical fork.

*Range.—Type locality* (according to Emery), St. Thomas. Other reliable records include the following, the asterisks (\*) indicating that I have examined specimens:

HAWAIIAN ISLANDS: Oahu, *teste* Donisthorpe, as *wheeleri*. Oahu (without collector), det. M. R. Smith \*. Waimanaloa, Oahu (Swezey) \*.

GUAM: Oca Point (G. Wharton), det. M. R. Smith \*.

UNITED STATES: Miami, Florida (W. Buren), *teste* M. R. Smith.

PORTO RICO: Arecibo (M. R. Smith), det. M. R. Smith \*. Ensenada (M. R. Smith), det. M. R. Smith \*.

ST. VINCENT: Dry River, near sea (H. H. Smith), *teste* Forel.

CUBA: Havana (C. F. Baker), det. Wheeler \*. Soledad (F. G. Walsingham), det. Weber \*.

DUTCH GUIANA: Paramaribo (Buenzli) \*.

SUMATRA: Soengei Bamban (Buttel-Reepen), described by Forel as *clypeatus* var. *malesiana*.

SINGAPORE: (L. Biró), described by Szabó as *clypeatus*.

NEW GUINEA: Lemien, near Berlinhafen (L. Biró), determined as *emmae* by Emery; described as *clypeatus* by Szabó.

*Biology.*—Nothing is known of the food preferences. Many of the collecting records are of single females taken under objects lying on sea beaches; workers have been taken with the sieve and Berlese funnel in both forested and agricultural areas, usually near the sea. This ant seems to show tolerance for a wider range of environmental conditions than most dacetines. My guess is that the original range of this species lay in the Indomalayan-Papuan regions, since it seems adventitious in most of the other recorded localities, and since *Q. eurycera*, which is clearly related, is from the mainland of New Guinea.

#### **Quadristruma eurycera** (Emery)

1897. *Epitritus eurycerus* Emery, Term. Füzetek, xx, p. 581, Pl. 14, fig. 17, worker.

1922. *Epitritus eurycerus* Emery, Gen. Insect.: Hym., Fasc. 174, p. 327, Pl. 7, fig. 7, worker.

I have not seen specimens of this ant, which has not been taken since the type collection. Emery's short description gives the length as "1½-1½" (*sic!*) mm., and his figure portrays the head as in the neighborhood of cephalic index 90 and mandibulo-cephalic index about 30 or 31. The mandibles are very slender and rather straight, with two long equal or subequal spiniform teeth forming an apical fork, plus a single short spiniform tooth at about the apical third of the inner border. By far the most striking character, and one which separates *eurycera* from all other ants I have seen or seen figures of, is the amazingly extreme incrassation of the antennal scapes. These members form nearly equilateral triangles of an apparently lamellar nature, the total surface area of each exceeding the area of the entire clypeal disc! Of the thorax, Emery says, "Thorax suturis impressis, pronoto medio depressione longitudinale." And of other features, ". . . epinoti dentibus acutis. Petioli segmentum 1 nodo subrotundo, 2 transversim ovale, postice et lateribus margine spongioso."

And, "fusco-testacea . . . creberrime punctulata, opaca, gaster nitida, basi striatula; squamulis minutissimis, parce conspersa . . . clypeo antice arcuato." Only the worker caste is known.

*Range*.—Known only from *type locality*: "E silva Lemien, prope Berlinhafen . . ." (L. Biró), in what was formerly German New Guinea.

*Biology*.—Nothing known.

The types of *Epitritus argiolus*, *Quadristruma emmae* and *Q. eurycera* presumably rest in the collection of the late Prof. Carlo Emery either at Bologna or Genoa.

I wish to thank the following persons for aid in the matter of loans of specimens: Dr. M. R. Smith, Sr. Mario Consani and Dr. J. C. Bequaert of the Museum of Comparative Zoology; the checking of many of the original references is to be credited to my wife, Doris Evelyn Brown.