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THE ANTS OF CUBA.

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No. 17.— *The Ants of Cuba.*[1]

By William Morton Wheeler.

Myrmecologists have been inclined to assume that Cuba, as the largest of the Antilles, would yield, on careful exploration, a large and interesting ant-fauna. I, too, shared this opinion, although I had found that Porto Rico, the Virgin Islands, the Bahamas and Jamaica are very far from being as rich in species as equal areas of Central and tropical South America. But a visit of a few weeks to Cuba, in company with Dr. Thomas Barbour and Mr. L. A. Shaw, during January and February, 1913, has convinced me that Cuba, in proportion to its size, must be even poorer in ants than Jamaica, Porto Rico, and Haiti.[2]

Guérin (1845) and Mayr (1862) were the first to record a few ants from Cuba, but a much larger series was described by Roger in 1863. His specimens were collected by the celebrated Juan Gundlach, but no precise data that might guide the future collector to the type localities, were recorded. Within more recent years a few species or varieties have been added by Forel and Santschi.

On arriving in Havana I had the pleasure of meeting the talented Cuban naturalist Prof. Carlos de la Torre y Huerta, who very kindly helped me to an appreciation of Gundlach's work. He not only loaned me the manuscript note-book of Gundlach in his possession, but also conducted me to this naturalist's collection in the Istituto de Seconda Enseñanza and secured for me copies of two publications containing valuable data on the Cuban ants. These papers comprise the second part ("Hymenopteros") of Gundlach's work on the insects of Cuba and the "Catalogo Numerico del Museo Zoologico Cubano (Museo Gundlach)," published by A. Alvarez y Comp. Havana, 1895. With the aid of these papers and the note-book above mentioned I have been able to ascertain the precise localities in which many of Roger's types were collected. It appears that Gundlach sent a second lot of ants to Roger and that this myrmecologist died before he could study or return them. A few of them, as indicated by the remark

[1] Contributions from the Entomological laboratory of the Bussey institution, Harvard University, No. 66.

[2] Mr. W. M. Mann has recently made a very fine collection of ants in Haiti. We hope to be able to describe and list these in the near future.

"se perdió por la muerte de Roger" opposite their numbers in the note-book, were uniques and were irretrievably lost, but numbered duplicates of several, without names, are still in the Gundlach collection. This collection in its entirety is preserved in a small sealed box which cannot be opened. I was compelled, therefore, to study the specimens, which are carded, through the glass lid, and this is at such a distance from the specimens as to prevent satisfactory examination of fine structural details, especially in the smallest species, with a pocket lens. Still it is possible to recognize most of the species readily, and I have even described two new species of Macromischa from the collection, with sufficient detail, I trust, to enable any future myrmecologist to recognize them.

It will be remembered that Gundlach was a very painstaking and industrious naturalist, that he collected for many years and in many parts of Cuba, and that he also received insects from his friend, another Cuban naturalist, Felipe Poey. From these facts alone we may infer that Gundlach's ant collection was reasonably complete so far as the more common and more conspicuous Cuban species are concerned. My own brief acquaintance with a limited portion of the island only strengthens this inference. I have never collected in a region in which ants, apart from a few widely distributed species, are so scarce. Any one of our New England states is richer in colonies of these insects than this large tropical island, and I may add, quite as rich in species. That I have been able to find several forms not seen by Gundlach is in part due to the fact that he was not aware that many of the species nest as timid colonies in hollow twigs and that some are nocturnal. His collection, therefore, does not contain such common species as *Camponotus ramulorum*, *Tapinoma litorale*, *Pseudomyrma delicatula*, etc. Moreover, the nine beautiful species of Macromischa which save the Cuban ant-fauna from being utterly commonplace, and which almost certainly nest in hollow twigs, are each represented by only one or two stray worker specimens which he probably found in sweepings or running on bark or leaves.

Of the forty-four forms listed by Gundlach, two, *Heptacondylus sulcatus* Mayr and *Polyrhachis cubaënsis* Mayr were erroneously described as Cuban. The former is a synonym of *Myrmicaria eumenoides* Gerstaecker from South Africa and the latter is also from the same region. Omitting these, it will be seen that the list in the present paper adds thirty-five forms. The total number seventy-seven of ants now known from Cuba may be separated into three groups:—first, forms known only from this island and therefore to be regarded,

at least provisionally, as indigenous; second, forms known also from the neighboring islands or from the adjacent mainland (Florida, Mexico, Central and northern South America); and third, tropicopolitan forms of Old World origin comprising the "tramp" species which have been introduced into the island by commerce.

The indigenous forms, thirty-four in number and comprising 44.1% of the Cuban ant fauna, are the following:—

Euponera succedanea
Leptogenys falcata
Pseudomyrma opacior
" *pazosi*
" *cubaënsis*
Monomorium cinnabari
Macromischa purpurata
" *porphyritis*
" *squamifera*
" *versicolor*
" *iris*
" *lugens*
" *punicans*
" *gundlachi*
" *poeyi*
Crematogaster sanguinea
" *torrei*
Pheidole cubaënsis
" *bakeri*
" *barbouri*
Solenopsis cubaënsis
Atta insularis
Strumigenys gundlachi
Tapinoma cubaënsis
Plagiolepis flavidula
Prenolepis anthracina
" *gibberosa*
Myrmelachista kraatzi
" *rogeri*
Camponotus mestrei
" *sphaericus*
" *sphaeralis*
" *gilviventris*
" *riehli.*

Of these the most striking are the nine species of Macromischa, which show that Cuba is the center of distribution of this genus, the large *Atta insularis*, the only *Atta sens. str.* known to occur in the West Indies, and the small section of the genus Camponotus comprising the two peculiar species *C. sphaericus* and *sphaeralis*.

The following forms, thirty-six in number and constituting 46.7% of the ant-fauna, are more or less widely distributed through the West Indies and tropical continental America:—

Platythyrea punctata
Euponera stigma
Ponera ergatandria
" *opaciceps*
" *opacior*
Odontomachus insularis
" *pallens*
Odontomachus ruginodis
Pseudomyrma pallida
" *delicatula*
Wasmannia auropunctata
Pheidole fallax
" *flavens*
Solenopsis geminata

Solenopsis virgula
Atta octospinosa
" *borinquenensis*
Cyphomyrmex minutus
Cryptocerus varians
Strumigenys rogeri
" *alberti*
Epitritus emmae
Prenolepis fulva
" *fumata*
" *vividula*

Prenolepis antillana
" *steinheili*
" *minuta*
Iridomyrmex pruinosus
" *analis*
Dorymyrmex pyramicus
" *niger*
Camponotus santosi
" *inaequalis*
" *ramulorum*
" *planatus*

A considerable number of these occur also in the southern United States, especially in Florida, and in the Bahamas. Many of them may be very ancient inhabitants of Cuba.

The tropicopolitan species are seven in number, or 9% of the Cuban ant-fauna, namely:—

Monomorium pharaonis
" *floricola*
Cardiocondyla emeryi
Tetramorium guineense
Pheidole megacephala
Tapinoma melanocephalum
Prenolepis longicornis

The only strictly indigenous species which behaves as a dominant insect, at least throughout the lowlands of the island, is *Atta insularis;* the others are rare or local and, being nearly all very small, timid ants, have probably suffered considerably from the inroads of such dominant and predatory forms as *Pheidole megacephala, Solenopsis geminata, Prenolepis longicornis, Dorymyrmex niger, Iridomyrmex pruinosus,* and *Tapinoma melanocephalum.* Most or all of these have probably been introduced into Cuba within comparatively recent times.

A more detailed discussion of the bearing of the composition of the Cuban ant-fauna on the general distribution of these and other insects in the West Indies and on the geological history of these islands, cannot be profitably undertaken till the fauna of Haiti and San Domingo has been studied. A knowledge of this fauna and of some of the Lesser Antilles from which I have recently received specimens, together with the data I have already published on the ant-faunas of Porto Rico, Jamaica, and the Bahamas, may be expected to aid us in the solution of some of the problems of West Indian zoögeography.

In addition to the Gundlach and other published records and those taken from specimens collected by myself, I have included in this paper a number of valuable records from specimens received from Profs. C. F. Baker, and C. H. Eigenmann and Messrs. E. A. Schwarz, Aug. Busck, F. Rose, E. Palmer and C. V. Riley, and Patricio Cardin.

FORMICIDAE.

PONERINAE.

1. PLATYTHYREA PUNCTATA (F. Smith).

Pachycondyla punctata F. Smith, Cat. Hymen. Brit. mus., 1858, **6**, p. 108 ☿ ♂.

This species was taken by Gundlach at Baracoa, in the Province Oriente. His collection contains a single worker (no. 318).

2. EUPONERA (TRACHYMESOPUS) STIGMA (Fabricius).

Formica stigma Fabr. Syst. Piez., 1804, p. 400 ♀.

Gundlach says that he took this species in various localities in the western portion of the island. His collection contains two males, one female, and a worker (no. 128). I have taken the species in the Cienaga de Zapata near Bolondron and along the Rio Hanabana under old logs.

3. EUPONERA (TRACHYMESOPUS) SUCCEDANEA (Roger).

Ponera succedanea Roger, Berl. ent. zeitschr., 1863, **7**, p. 170 ☿ ♀ ♂.

Gundlach gives Bayamo as the locality of this form. His collection contains a male, female, and worker specimen (no. 322). These, so far as I was able to judge, are scarcely distinct from *E.* (*T.*) *stigma*. Roger's description gives a number of differences, especially in the shape of the petiole and frontal carinae, but the value of these characters can be determined only by the examination of more material.

4. PONERA ERGATANDRIA Forel.

Trans. Ent. soc. London, 1893, p. 365 ☿ ♀ ♂.

A single worker taken under a log on the banks of the Rio Hanabana in the Cienaga de Zapata.

5. PONERA OPACICEPS Mayr.

Verh. Zool. bot. gesellsch., 1887, **37**, p. 536 ☿ ♀.

I have taken several workers of this species under logs in moist places in the Cienaga de Zapata near Bolondron. A winged female from Cayamas (E. A. Schwarz) in my collection is also referable to this species.

6. PONERA TRIGONA Mayr var. OPACIOR Forel.

Trans. Ent. soc. London, 1893, p. 363 ☿ ♀.

Two workers from San Francisco de Morales in the Cienaga de Zapata. These were taken in a moist spot under a log.

7. LEPTOGENYS MAXILLOSA F. Smith var. FALCATA Roger.

Leptogenys falcata Roger, Berl. ent. zeitschr., 1861, **5**, p. 42 ☿.

Gundlach took this ant in various localities in the western part of the island, but only Havana and Firmina are cited in the note-book. The collection contains a male and a worker specimen, with the no. 234.

8. ODONTOMACHUS HÆMATODA (Linné) subsp. INSULARIS Guérin.

Odontomachus insularis Guérin, Iconogr. régn. anim., 1845, **7**, p. 423 ☿.

Several workers received from Mr. Patricio Cardin, who took them at Santiago de las Vegas, near Havana, are referable to the typical form of this subspecies. They are small, dark colored, rather hairy and pubescent and have the posterior surface of the petiole smooth.

9. ODONTOMACHUS HÆMATODA (Linné) subsp. INSULARIS Guérin var. PALLENS Wheeler.

Bull. Amer. mus. nat. hist., 1905, **21**, p. 82 ☿ ♀ ♂.

The specimens of *O. haematoda* in the Gundlach coll. (one male, one female, and one worker with the no. 90) belong to this pale variety. Gundlach states that he took it in both halves of the island.

I have taken it at Cogimar, near Havana, Aguada de Pasajeros, Bolondron, and at several localities in the Cienaga de Zapata (Sarabanda, Rio Hanabana, and San Francisco de Morales) and have seen specimens from Baracoa (Aug. Busck), Havana (C. H. Eigenmann) and El Guama, in the Province of Pinar del Rio (Palmer and Riley). It is certainly one of the commonest of Cuban ants, nesting under stones and logs or in indistinct crater nests about the roots of plants. Winged females were found in several of the nests during the first weeks of February.

10. ODONTOMACHUS HAEMATODA (Linné) subsp. INSULARIS Guérin var. RUGINODIS Wheeler.

Bull. Amer. mus. nat. hist., 1905, **21**, p. 82 ♀ ♀.

This variety, which is darker than the preceding and has the posterior surface of the petiole transversely rugose, was taken in the Botanical Garden in the city of Havana. I have also received specimens from the Province of Havana (C. F. Baker) and from Cayamas (E. A. Schwarz).

MYRMICINAE.

11. PSEUDOMYRMA LATINODA Mayr var. OPACIOR Forel.

Ann. Soc. ent. Belg., 1904, **48**, p. 170 ♀.

This variety was described from a single worker from Cuba (coll. Ballion *ex* coll. Puls). It is allied to the var. *nigrescens* Forel but differs from this and from the typical form of the species in having the body, and especially the head, more strongly punctate and from *nigrescens* in having the epinotum less angular. Forel was in doubt as to whether *opacior* should not rank as a subspecies.

12. PSEUDOMYRMA PALLIDA F. Smith.

Trans. Ent. soc. London, 1855, ser. 2, **3**, p. 159 ♀.

Gundlach took this species in the environs of Cardenas. He states that it and the other species of the genus are popularly called "muerdehuye." His note-book adds the localities Guanabo and Yatimo.

The collection contains three workers with the no. 273. They evidently belong to the species which has been passing in the literature as *pallida* Smith, being pale yellow, without black spots on the first gastric segment.

13. PSEUDOMYRMA FLAVIDULA F. Smith var. DELICATULA Forel.

Ps. delicatula Forel, Biol. Centr. Amer., 1899, p. 93, tab. 4, fig. 6 ☿ ♀.

This, I believe, is merely a small variety of *Ps. flavidula* and not a distinct species. A fine colony, containing a male and several winged females was taken during the last week of January at Cogimar, near Havana, in the thin twig of a bush.

14. PSEUDOMYRMA FLAVIDULA F. Smith var. PAZOSI Santschi.

Ps. pazosi Santschi, Bull. Soc. ent. France, 1909, p. 309 ☿ ♀.

This form which is, in my opinion, merely a color variety of *flavidula*, with the whole gaster of the female and worker black instead of being yellow like the head and thorax and with two black spots on the basal segment, was described from specimens taken at San Antonio de los Baños by Dr. Pazos. It is, however, a very constant variety, and seems to be widely distributed at least in the western half of the island. I have taken it nesting in the hollow twigs of trees and bushes and running on bark in various localities near and in the Cienaga de Zapata (Bolondron, Rio de Hanabana, Aguada de Pasajeros) and have long had in my collection two workers and a winged female taken by Prof. C. F. Baker at Cayamas and a worker taken in the same locality by Mr. E. A. Schwarz. Two workers were also recently sent to me from Galatre, in the Province of Pinar del Rio by Messrs. T. E. Holloway and G. N. Wolcott. A single worker (no. 136) marked Pseudomyrma sp. in Gundlach's collection shows that he recognized this form as distinct.

15. PSEUDOMYRMA ELONGATA Mayr var. CUBAËNSIS Forel.

Ann. Soc. ent. Belg., 1901, **45**, p. 342 ☿.

Forel gives the following diagnosis of this form:— "Differs from the typical form in having a much longer pedicel. The petiole, especially, is much longer than broad, less elevated, with its posterior

declivity oblique like the anterior. The postpetiole is rather longer than broad. The head is still narrower and more elongate than in the type: the antennae are still shorter and thicker. The median funicular joints are extremely transverse, much broader than long, in part almost $1\frac{1}{2}$ times broader. Finally, the frontal furrow is distinctly marked. The color is blackish brown, pruinose with pubescence." The types are from Bahia Honda (M. J. Schmitt).

This is certainly the most abundant of the Cuban Pseudomyrmas. I have seen it running on tree trunks and nesting in their twigs at Cogimar, near Havana, at Bolondron, Aguada de Pasajeros, in many localities in the Cienaga de Zapata (Rio Hanabana, San Francisco de Morales, Sarabanda, etc) and have received specimens from Cayamas (C. F. Baker and E. A. Schwarz). That it was known to Gundlach as a distinct form is shown by a worker specimen (no. 208) marked "Pseudomyrma sp." in his collection. This specimen was taken at Rangel. Forel records this same variety from Haiti (Mitth. naturk. mus. Hamb., 1907, **24**, p. 7.)

16. Monomorium pharaonis (Linné).

Formica pharaonis Linné, Syst. nat., 1758, ed. 10, **1**, p. 580.

This cosmopolitan tramp species could hardly be lacking in Cuba. The Gundlach coll. contains a female and two worker specimens labelled no. 23, "Monomorium sp.", but without locality. I have taken specimens in the Hotel Sevilla in Havana and in a hotel in Aguada de Pasajeros.

17. Monomorium floricola (Jerdon).

Atta floricola Jerdon, Madras journ. litt. sci., 1851, **17**, p. 107.

Gundlach cites this species under the name *M. poecilum* Roger from Colon and Bermeja Nueva. His collection contains a female and worker specimen (no. 149), which undoubtedly belong to the well-known tropicopolitan species of Jerdon. It is indeed very common in west central Cuba. I have taken it at Bolondron, Aguada de Pasajeros, and in various localities in the Cienaga de Zapata (Sarabanda, Rio de Hanabana, San Francisco de Morales). It nests by preference in Tillandsias and in hollow twigs, each nest containing numerous queens, sometimes as many as thirty or forty. These queens, as I have shown in a former paper (Bull. Amer. mus. nat. hist., 195, **21**, p. 88) are always apterous. The small black males, however, which are much more rarely found in the nests, have well-developed wings.

18. MONOMORIUM CINNABARI Roger.

Berl. ent. zeitschr., 1863, **7**, p. 199 ☿ .

The types of this form were taken by Gundlach in the environs of Cardenas. His collection contains two cotypes (no. 154). An examination of these leads me to believe that they represent merely a variety of *floricola*, but fresh specimens from the type locality should be examined before a definite statement can be made in regard to the status of this form.

19. CARDIOCONDYLA EMERYI Forel.

Mitth. Münch. ent. ver., 1881, **5**, p. 5 ☿ .

A single worker of this widely distributed form was taken by Mr. E. A. Schwarz at Cayamas. I have recorded it from various localities in Porto Rico, the Virgin Islands, and Jamaica, and Forel described it from St. Thomas. It is also known from India, Palestine, and Madagascar. Recently I have received a specimen from Miami, Florida.

20. TETRAMORIUM GUINEENSE (Fabricius).

Formica guineensis Fabr., Ent. syst., 1793, **2**, p. 357 ☿ .

This is another tramp species introduced from the Old World. Gundlach says that it inhabits various localities in the island and in his note-book mentions Cardenas as one of these. His collection contains two worker and three female specimens. I took several workers in an abandoned garden at the ingenio "Armonia" near Bolondron and several fine colonies under logs in the Cienaga de Zapata near San Francisco de Morales. I have also four workers taken at Cayamas by Mr. E. A. Schwarz.

21. WASMANNIA AUROPUNCTATA (Roger).

Tetramorium? auropunctatum Roger, Berl. ent. zeitsch., 1863, **7**, p. 182 ☿ ♀ ♂.

The types of this widely distributed neotropical ant were taken by Gundlach at Mata near Baracoa in the Province Oriente. He states that it is called "santanica" by the natives. His collection contains a female and three worker cotypes (no. 321). I have received a number of workers taken near Havana by Prof. C. F. Baker.

22. MACROMISCHA PURPURATA Roger.

Berl. ent. zeitschr., 1863, **7**, p. 184 ☿ .

This superb ant was taken by Gundlach at Santiago de Cuba and Yateras in the eastern part of the island. His collection contains a single worker cotype (no. 315).

23. MACROMISCHA PORPHYRITIS Roger.

Berl. ent. zeitschr., 1863, **7**, p. 185 ☿ .

Gundlach took this species near the city of Matanzas on the cliffs at the opening of the beautiful Yumuri Valley. His collection contains two cotypes bearing the no. 228. The Poey collection also contained this species (no. 176), which should therefore be represented in the collection of the Academy of natural sciences of Philadelphia.

24. MACROMISCHA SQUAMIFERA Roger.

Berl. ent. zeitschr., 1863, **7**, p. 186 ☿ .

This species was taken by Gundlach at Rangel. There is a single cotype with the no. 250 in his collection.

25. MACROMISCHA VERSICOLOR Roger.

Berl. ent. zeitschr., 1863, **7**, p. 187 ☿ .

Gundlach states that he found the types of this species "in the faral-lones near the village Nueva Gerona, on the Isla de Pinos." There is no specimen of it in his collection, and this is explained by the remark in his note-book: "se perdió por la muerte de Roger."

26. MACROMISCHA IRIS Roger.

Berl. ent. zeitschr., 1863, **7**, p. 188 ☿ .

The types of this species were given to Gundlach by Poey without any record of locality. There is a single cotype in the Gundlach coll. bearing the no. 121. In the Poey coll. it bore the no. 318, and should be represented in the collection of the Academy of natural sciences of Philadelphia.

27. MACROMISCHA LUGENS Roger.

Berl. ent. zeitschr., 1863, 7, p. 188 ♀.

Gundlach says that he found this species in the highlands of Camoa. It is represented by a cotype (no. 69) in his collection. It bore the no. 310 in the Poey coll. and is probably to be found in the collection of the Academy of natural sciences of Philadelphia.

28. MACROMISCHA PUNICANS Roger.

Berl. ent. zeitschr., 1863, 7, p. 189 ♀.

Gundlach gives as localities for this species "the farallones of Santiago de Cuba and Monte Toro in the mountains of Guantanamo" at the extreme eastern end of the island. His collection contains a single cotype (no. 314).

29. MACROMISCHA GUNDLACHI, sp. nov.

Worker. Length about 4 mm.

Body rather slender. Head subrectangular, somewhat longer than broad, with the eyes at the middle of its sides. Thorax, slender, broadest through the pronotum, without distinct mesoëpinotal constriction. Epinotum about twice as long as broad, with parallel sides and without spines. Petiole slender, fully three times as long as broad, pedunculate in front, broadest behind through the node, which is rounded and very low, passing gradually into the peduncle. Post-petiole campanulate, nearly twice as broad as the petiole, as broad as long, evenly rounded above. Femora strongly incrassated; tibiae and antennae slender.

Body rather shining but apparently very finely punctate; thorax above with coarse rather sinuous longitudinal rugae.

Hairs very fine, not distinctly visible.

Dark red, the whole body, including the legs and antennae with beautiful violet reflections, which are most intense along the sides of the thorax, so that the latter appears to have a broad paler band down its middle.

Described from a single specimen (no. 375) in the Gundlach coll., without precise locality.

This species resembles *M. iris* Roger in size and in the shape of the thorax but the sculpture is very different.

30. Macromischa poeyi, sp. nov.

Worker. Length fully 5 mm.

Head somewhat longer than broad, with the eyes at the middle of its sides. Whole body long and slender; thorax as broad behind as in front, feebly and rather broadly constricted in the middle. Epinotum rounded, unarmed. Petiole very long and slender, nearly six times as long as broad, with a long slender peduncle passing gradually into the very low, rounded node. Postpetiole campanulate, subtriangular from above, with straight sides, about as broad as long. Gaster small, elongate elliptical. Legs and antennae very long, the femora with their basal half thin and uniformly cylindrical, and the apical half suddenly incrassated. Tibiae slender, not clavate.

Thorax slightly opaque, very finely and densely punctate; remainder of body more shining; pronotum obliquely, meso- and epinotum longitudinally rugulose on the sides.

Hairs white, erect, and sparse, most distinct on the thorax.

Body dark red; gaster, incrassated portions of femora and the head blackish or dark brown; pronotum in front more yellowish.

Described from two specimens (no. 466) in the Gundlach collection, without precise locality.

This species resembles *M. lugens* Roger in the shape of the thorax, but the legs are very different and unlike those of any species of the genus known to me.

31. Crematogaster sanguinea Roger.

Berl. ent. zeitschr., 1863, **7**, p. 208 ♀.

The types of this species were taken by Gundlach near Cardenas. He states that it also occurs in the environs of Santiago de Cuba. There is in his collection a single cotype (no. 130) which agrees closely with Roger's description. It has the pronotum coarsely reticulate-rugose, the head, thorax, pedicel, legs, antennae, and base of the first gastric segment light red, the remainder of the gaster black. Two workers taken by Mr. E. A. Schwarz at Cayamas evidently belong to this form of the species.

32. CREMATOGASTER SANGUINEA Roger var. TORREI, var. nov.

Worker. Length 4–4.5 mm.

Differing from the preceding form in color, the gaster being entirely black and the head, thorax, pedicel, and appendages deep red, with the posterior part of the head and the middle portions of the femora and tibiae often darker or slightly infuscated. The posterior portion of the head is shining and finely and sparsely punctate.

Female (deälated). Length 7.5 mm.

Resembling the worker in color, but the mesonotum, scutellum, and pleurae are blackish. The thoracic dorsum is smooth and shining, with fine, sparse punctures; the pleurae are longitudinally rugulose. The epinotal spines are short, scarcely longer than broad at their bases and directed backward. The head is distinctly broader than long and its upper posterior surface is very finely, longitudinally striated.

Described from several workers from a single large colony taken at Aguada de Pasajeros in a dead branch and a single female taken from a hollow twig in the Cienaga de Zapata near the Rio de Hanabana. The variety is dedicated to the Cuban naturalist Dr. Carlos de la Torre y Huerta.

I find that the form which I described several years ago (Bull. Amer. mus. nat. hist., 1905, **21**, p. 94) as *C. lucayana* from the Bahamas should be regarded as a subspecies of *sanguinea.* It differs from the typical form of this species in having the thoracic sculpture much feebler and in the more brownish color of the red parts of the body and in having the antennal clubs infuscated. The base of the first gastric segment is more broadly red than in the typical *sanguinea.* The variety *etiolata* Wheeler described in the same paper has the sculpture of *lucayana* but the head, thorax, pedicel, bases of the gastric segments, and the appendages are pale yellow.

33. PHEIDOLE FALLAX Mayr.

Verh. Zool. bot. gesellsch. Wien, 1870, **20**, p. 980, 984 ♀.

The type of this species was from Cuba and was sent to Mayr by Gundlach. There are no specimens of it, however, in the Gundlach collection.

34. PHEIDOLE CUBAËNSIS Mayr.

Verh. Zool. bot. gesellsch. Wien, 1862, **12**, p. 747 ♀ ☿.

Mayr described this species from specimens taken in Cuba by Riehl. Gundlach states that he found specimens in the environs of Cardenas. His collection contains a soldier and worker marked no. 56. I found a few colonies under stones in rather moist soil in the Cienaga de Zapata on the finca of Sr. Perez about sixteen miles from Bolondron. The upper chambers of the nests contained numerous stored seeds, so that the species is evidently a harvester. All the soldiers taken had the head dark brown, whereas the Gundlach specimen has the head red and conforms with Mayr's description. A single soldier taken by Mr. E. A. Schwarz at Cayamas agrees with those I have taken, so that these may represent a distinct variety, but without fresh specimens from Cardenas and other parts of Cuba, I hesitate to establish a new name in a genus which is already embarrassingly complex.

35. PHEIDOLE ANDROSANA Wheeler subsp. BAKERI Forel.

Ph. bakeri Forel, Ent. mitth., 1912, **1**, p. 82 ♀ ☿.

This form was described by Forel from a single soldier and worker taken by Prof. C. F. Baker at Havana. I possess four soldiers and ten workers taken by the same collector in the same locality and in all probability belonging to the same lot as the specimens described by Forel. On comparing them with the types of *Ph. androsana* from Andros Island, Bahamas, I am unable to see that they represent anything more than a well-defined subspecies of this form. The soldier of *bakeri* differs from that of *androsana* in the following characters: — the body is smaller (4.5–5 mm.), the posterior half of the head is smooth and shining, with very sparse, minute, piligerous punctures; the thorax, petiole, and postpetiole are much less heavily sculptured and more shining, as is also the gaster. The epinotal spines are stouter, the teeth on the gula larger and the lateral conules of the postpetiole somewhat longer. The color is paler, the body being reddish yellow, a little darker than the appendages, with the tip of the gaster infuscated. The worker measures 2–2.5 mm. and differs from the worker of *androsana* in having the body smoother and more shining, especially the upper surface of the head and the pronotum.

The color, including that of the mandibles, is pale yellow, with the upper surface of the head and gaster slightly infuscated. The epinotal spines are distinctly smaller.

36. PHEIDOLE MEGACEPHALA (Fabricius).

Formica megacephala Fabr., Ent. syst., 1793, **2**, p. 361.

According to Gundlach, this ant "exists in various localities in Cuba, probably introduced with merchandise or plants." In his note-book he cites Cardenas as a locality, and single soldier, worker, female, and male specimens from this locality are preserved in his collection (no. 133.) I found large colonies of this ant at Cogimar, in the Botanical Garden of Havana, at the ingenio "Maria Victoria" near Aguada de Pasajeros, and near Sarabanda, in the Cienaga de Zapata. Mr. Patricio Cardin has sent me numerous specimens of all four phases from Santiago de las Vegas and from San Juan y Martinez in the Province of Pinar del Rio. The colonies nest under stones or logs or in obscure crater nests at the bases of trees, and each contains a number of deälated queens. The workers forage in files on the trees and bushes and are very fond of attending coccids.

37. PHEIDOLE PUNCTATISSIMA Mayr subsp. JAMAICENSIS Wheeler var. BARBOURI, var. nov.

Soldier. Length 2.5 mm.

Differing from the typical *jamaicensis* in its smaller size and in color. The head and thorax are reddish brown, the posterior portion of the former and the upper surface of the latter often slightly infuscated, the legs brownish yellow, with the femora usually infuscated in the middle, the gaster dark brown or blackish with the bases of the segments reddish. The posterior corners of the head are opaque and densely punctate.

Worker. Length 1.5 mm.

Closely resembling the worker of *jamaicensis* in color and sculpture and even in having the antennal clubs infuscated.

Described from numerous specimens taken from several large colonies nesting under the bark of old logs in rather damp soil on the banks of the Rio de Hanabana, in the Cienaga de Zapata.

38. PHEIDOLE FLAVENS Roger.

Berl. ent. zeitschr., 1863 **7**, p. 198, ♀ ☿.

The types of this species, according to Gundlach, were taken in Cogimar, near Havana. His collection contains two female, one soldier, and two worker cotypes, bearing the no. 289. I have taken this species in the type locality and also in several localities in the Cienaga de Zapata (Rio de Hanabana, Sarabanda, and San Francisco de Morales) and in Mr. Sanborn's garden at the ingenio "Armonia," near Bolondron. There is a worker specimen in my collection from Cayamas (E. A. Schwarz).

39. SOLENOPSIS GEMINATA (Fabricius).

Atta geminata Fabr., Syst. Piez., 1804, p. 423 ♀.

According to Gundlach, this ant occurs in many localities in the island and is known as "hormiga brava" on account of its sting. In his note-book he cites it from Cardenas, Havana, and Casilda. There are in the collection five workers, one female, and a male bearing the no. 132. I found this ant more or less abundant in all of the localities I visited (Cogimar, Aguada de Pasajeros, Bolondron, Cienaga de Zapata) and have received specimens from Galatre in the Province of Pinar del Rio (T. E. Holloway and G. N. Wolcott), Havana (C. F. Baker), and Baracoa (Aug. Busck). All of the specimens I have examined belong to the typical dark form of the species. It seems to be very common in the sugar plantations. In the fields of the ingenio "Maria Victoria" near Aguada de Pasajeros it was seen in great numbers attending large coccids which were evidently very injurious to the cane.

40. SOLENOPSIS GLOBULARIA (F. Smith) var. CUBAËNSIS, var. nov.

Worker. Closely resembling the var. *borinquenensis* Wheeler from Porto Rico, but even darker in color, the body being black, with the ventral portions of the head, thorax, and pedicel, the clypeus, mandibles, and anterior border of the head, the antennae, legs, sutures of the thorax, and apical margins of the gastric segments brownish yellow. The postpetiole is distinctly smaller and less transverse than

in the typical *globularia* and its vars. *lucayana* Wheeler and *borinquenensis*.

Described from several workers taken from two colonies living under stones, one at Cogimar, the other near San Francisco de Morales in the Cienaga de Zapata.

This ant was known to Gundlach, as I find among his unidentified specimens a male and two workers with the no. 319, but without a locality.

41. Solenopsis corticalis Forel var. virgula Forel.

Ann. Soc. ent. Belg., 1904, **48**, p. 172 ♀.

The Gundlach collection contains a few specimens (no. 83) which I refer to this variety. They bear no locality. The variety was originally described from Cuba by Forel.

42. Atta insularis Guérin.

Iconogr. régn. anim., 1845, **7**, p. 422 ♀.

Gundlach gives a good account of the habits of this, the largest and most destructive of the Cuban ants, which he calls *A. cephalotes*, and states that it occurs in both the eastern and western portions of the island. His collection contains one male, one female, and six worker specimens (no. 151).

I have seen it in the following localities:— Cogimar, Bolondron, and Aguada de Pasajeros and have in my collection specimens from Guines and Cayamas (E. A. Schwarz), El Guama, Pinar del Rio, and Guanajay (Palmer and Riley), Baracoa (Aug. Busck), and Santiago de las Vegas (M. T. Cook and C. F. Baker), Holguin, and Puerto de Golpe in Pinar del Rio (P. J. Schmitt). It is known also to occur in the Isla de Pinos.[1]

In the vicinity of Aguada de Pasajeros, both in the sugar cane fields and in the potreros, very large nests of this leaf-cutting ant may be seen. These nests are, in fact, conspicuous objects in the landscape, being great mounds twenty to forty feet in diameter and three to six feet high. The planters and gardeners wage an incessant warfare with this insect.

[1] See Wheeler, H. E., A collector in western Cuba and the Isle of Pines. *Nautilus*, 1913, **26**, p. 113. This author erroneously calls the species *Atta cephalotes*.

43. ATTA (ACROMYRMEX) OCTOSPINOSA (Reich).

Formica octospinosa Reich, Mag. d. thierr., 1793, **1**, p. 132 ♀.

This ant is cited as *A. hystrix* by Gundlach, who found it at Cogimar and at the Coliseo railway station. His collection contains two workers with the no. 146. I found it to be common in the coppice growth at Cogimar, but did not see it in other localities. It has probably been introduced into Cuba with merchandise from South America or Trinidad.

44. ATTA (MYCOCEPURUS) SMITHI Forel var. BORINQUENENSIS Wheeler.

Bull. Amer. mus. nat. hist., 1907, **23**, p. 718 ♀.

A number of workers taken from two colonies in the garden of the ingenio "Armonia" near Bolondron, agree very closely with this Porto Rican variety, though they lack the dark spot on the vertex. They have the pair of median occipital tubercles as large as those on the posterior corners of the head. The colonies were nesting in small crater nests one to one and one half inches in diameter, with central opening, in the deep shade of a sapodilla tree. One of the nests was excavated and on returning to it the following morning I found that the workers were moving in single file to a new crater which they had excavated during the night and were carrying bits of their garden with the fungus which they cultivate and on which they feed. As I have shown in a former paper (The fungus-growing ants of North America. Bull. Amer. mus. nat. hist., 1907, **23**, p. 774), *M. smithi* grows a peculiar fungus like that of *Cyphomyrmex rimosus* and unlike that of the typical Atta and its subgenera Acromyrmex and Moellerius, on a substratum of caterpillar excrement.

45. CYPHOMYRMEX RIMOSUS Spinola var. MINUTUS Mayr.

Cyphomyrmex minutus Mayr, Verh. Zool. bot. gesellsch. Wien, 1862, **12**, p. 691 ♀.

Gundlach cites the name of this ant as *Cataulacus deformis* F. Smith and took it at Cogimar and Cimarrones. His collection contains single male, female, and worker specimens (no. 2). A few colonies were found near a cave about three miles from Bolondron and at Aguada de Pasajeros. They were under stones. Only traces of

the fungus gardens were seen, and the ants were very inactive, probably owing to the drought. Some of the nests, however, contained males and winged females.

46. CRYPTOCERUS VARIANS F. Smith.

Trans. Ent. soc. London, 1876, p. 606, ☿.

This ant is cited by Gundlach as *C. discocephalus* F. Smith. He says that "it lives in the mountains in the western part of the island." His collection contains a female and soldier with the no. 188, from Vuelta Abajo, two workers with the no. 131, and a single worker with the no. 189. No localities are cited for these two numbers in the "Catalogo Numerico."

47. STRUMIGENYS GUNDLACHI Roger.

Pyramica gundlachi Roger, Berl. ent. zeitschr., 1862, **6**, p. 253 ☿ (*nec* ♀).

Gundlach found this species under dead bark at Cogimar or in the vicinity of Cardenas. This ambiguity is due to the fact that two species were described by Roger under this name (*vide infra*). The single worker specimen (no. 135) in the Gundlach collection is a cotype of the true *gundlachi*.

48. STRUMIGENYS ROGERI Emery.

Bull. Soc. ent. Ital., 1890, **22**, p. 31, pl. 7, fig. 6 ☿.

The types of this species are from St. Thomas, but Emery believes that the specimen described by Roger as the female of his *Pyramica gundlachi* belongs to this species. It is not represented in the Gundlach collection.

49. STRUMIGENYS ALBERTI Forel.

Trans. Ent. soc. London, 1893, p. 380 ☿ ♀.

A small colony of this ant, originally described from St. Vincent, was found under a stone in a moist spot in the Cienaga de Zapata about fifteen miles from Bolondron. The species is represented by a dark variety, *nigrescens* Wheeler, in Jamaica.

50. EPITRITUS EMMAE Emery.

Bull. Soc. ent. Ital., 1890, **22**, p. 70, pl. 8, fig. 6 ♀.

There is in my collection a winged female of this rare ant taken near Havana by Prof. C. F. Baker.

DOLICHODERINAE.

51. IRIDOMYRMEX PRUINOSUS (Roger).

Tapinoma pruinosum Roger, Berl. ent. zeitschr., 1863, **7**, p. 165 ♀.

The types of this species were taken at Cogimar, according to Gundlach. His collection contains two cotypes (no. 287). I have taken numerous specimens in the type locality and also at various other places (Bolondron, Aguada de Pasajeros, and at various spots in the Cienaga de Zapata (Sarabanda, Rio de Hanabana, and San Francisco de Morales). An examination of these specimens shows that the form differs only in its smaller size and dark color from *Iridomyrmex analis* Ern. André, which was originally described from Mexico but is common throughout the Southern States. This form is, therefore, to be regarded merely as a variety of *pruinosum* as Emery formerly surmised.[1] The connection between the two forms is established by a series of worker, female, and male specimens recently sent me by J. C. Bradley from Billy's Island in the Okefenokee Swamp of Georgia. The workers of this series are larger than those of the typical Cuban form but of the same form, color, and pilosity, while the females are colored like those of *I. analis*. *I. pruinosus* is also common in the Bahamas and in tropical Florida. It nests under stones or in small craters in the soil, and its workers forage in the hot sun in dense files.

52. IRIDOMYRMEX PRUINOSUS (Roger) var. ANALIS (Ern. André).

Tapinoma anale Ern. André, Rev. ent., 1893, p. 148 ♀.

Prof. C. F. Baker sent me three workers from Havana, which agree perfectly in size and coloration with the forms from Mexico, Texas, Arizona, etc.

[1] In his recent account of the Dolichoderinae in the "Genera Insectorum" 1912, p. 26, however, he cites the form as "*I. analis* var. *pruinosa*," thus reversing the true relation of the forms.

53. Tapinoma melanocephalum (Fabricius).

Formica melanocephala Fabr., Ent. syst., 1793, **2**, p. 353 ♀.

Gundlach, who cites this tropicopolitan ant as *Micromyrma melanocephala*, gives Cogimar as a locality. He states that "it is often found in houses and is known as 'hormiga boticaria'." There is a single worker (no. 286) in his collection. It was seen in all the localities which I visited (Cogimar, Havana, Aguada de Pasajeros, Bolondron, Sarabanda, etc.), and Mr. Patricio Cardin has sent me specimens from Santiago de las Vegas. It frequently nests in small hollow twigs or between the leaves of Tillandsias. The Cuban name "hormiga boticaria" probably refers to the peculiar "Tapinoma odor" of crushed specimens.

54. Tapinoma litorale Wheeler var. cubaënsis, var. nov.

The worker differs from that of the typical *litorale* of tropical Florida and the Bahamas only in having longer antennae, the scapes reaching about twice their diameter beyond the posterior corners of the head, with the basal funicular joints slightly longer than broad. In the female the upper surface of the body is uniformly dark brown, darker than in the female of the typical form and not variegated with yellow. The posterior borders of the gastric segments are only narrowly yellow and the body is slightly more pubescent and therefore more opaque. The male has the head and gaster black and the thorax dark brown, so that this sex is also much darker than the corresponding sex of *litorale*.

I have taken several colonies of this variety in hollow twigs along the banks of the Rio de Hanabana and about fifteen miles from Bolondron, also in the Cienaga de Zapata. There is a single worker from Cayamas (E. A. Schwarz) in my collection. The workers of a single colony taken in a Tillandsia at Aguada de Pasajeros are distinctly larger, but can hardly be supposed to represent a distinct variety, since the workers of Tapinoma often vary considerably in size in different colonies of the same species (*T. sessile erraticum*, etc.)

55. Dorymyrmex pyramicus (Roger).

Prenolepis pyramica Roger, Berl. ent. zeitschr., 1863, **7**, p. 160 ♀.

Several workers of the typical brown form of this species have been received from Mr. Patricio Cardin, who took them in Santiago de

las Vegas, near Havana, "living associated with the Cuban turtle-back scale (Lecanium sp.)."

56. DORYMYRMEX PYRAMICUS Roger var. NIGER Pergande.

Proc. Cal. acad. sci., 1895, ser. 2, **5**, p. 871 ♀.

It is strange that this ant is not mentioned by Gundlach since it is very common in Cuba, especially in the cane lands in the southern portions of the Provinces of Havana, Matanzas, and Santa Clara. I have seen it at Cogimar, Havana, Aguada de Pasajeros, Bolondron, and in many places in the Cienaga de Zapata, and have examined a number of specimens from Cayamas (E. A. Schwarz).

CAMPONOTINAE.

57. PLAGIOLEPIS FLAVIDULA Roger.

Berl. entom. zeitschr., 1863, **7**, p. 162 ♀.

Concerning this ant Gundlach says: — "Roger found this species among those of my collection, and thus I do not know where I collected it. I do not possess it now." This accounts for its absence from his collection. The species is very puzzling, because it has never been seen since Roger described it, because the genus Plagiolepis is peculiar to the Old World, and because the brief description will apply to *Tapinoma litorale*. That Roger did occasionally confound the Dolichoderinae and smaller Camponotinae is shown by the fact that he originally described *Dorymyrmex pyramicus* as *Prenolepis pyramica*.

58. PRENOLEPIS (NYLANDERIA) LONGICORNIS (Latreille).

Formica longicornis Latr., Hist. nat. fourmis, 1802, p. 113 ♀.

Gundlach gives no precise locality for this widely distributed "tramp" species. He says: — "I have observed it in various localities in this island. It is very common and known under the name "hormiga loca" [crazy ant], because it runs very rapidly, changing its direction every moment." His collection contains two female, one male, and five worker specimens (no. 226). I found the species

common in all the localities I visited: — Cogimar, Havana, Aguada de Pasajeros, Bolondron and in various places in the Cienaga de Zapata, both in houses and nesting under stones and logs out of doors. I have also several specimens taken by Mr. E. A. Schwarz at Cayamas.

59. PRENOLEPIS (NYLANDERIA) FULVA Mayr.

Verh. Zool. bot. gesellsch. Wien, 1862, **12**, p. 698 ☿ ♀.

Gundlach did not recall the precise locality in which he took this species, but states that it was in the western part of the island. His collection contains a single worker (no. 192). I found the species very common in the Botanical Garden in Havana, where it was running up and down the tree trunks. It was not seen in any of the other localities which I visited.

60. PRENOLEPIS (NYLANDERIA) FULVA Mayr var. FUMATA Forel.

Deutsch. ent. zeitschr., 1909, p. 264 ☿.

Numerous workers of this variety, which is merely a smaller and decidedly darker form than the type, were taken in the Botanical Garden in Havana running about on the plants.

61. PRENOLEPIS (NYLANDERIA) VIVIDULA Nylander.

Acta Soc. sci. Fennica, 1846, **2**, p. 900 ☿ ♀ ♂.

Mr. E. A. Schwarz has taken at Cayamas two workers which I believe belong to the typical form of this species.

62. PRENOLEPIS (NYLANDERIA) VIVIDULA Nylander var. ANTILLANA Forel.

P. guatemalensis subsp. *antillana* Forel, Trans. Ent. soc. London, 1893, p. 340 ☿ ♀ ♂.

I possess three workers of this variety which were taken by Prof. C. F. Baker in Havana.

63. Prenolepis (Nylanderia) steinheili Forel.

Trans. Ent. soc. London, 1893, p. 342 ☿.

This species is common under logs and stones at some points in the Cienaga de Zapata, especially along the banks of the Rio de Hanabana.

64. Prenolepis (Nylanderia) steinheili Forel var. minuta Forel.

Trans. Ent. soc. London, 1893, p. 343, ☿ ♀ ♂.

I collected several workers of this form from a small nest under a stone at Aguada de Pasajeros. Emery described a var. *minuta* of *Prenolepis imparis* Say in the same year (1893), but I am not sure which of these varietal names should be changed. Probably Forel's name will have to be abandoned, because his paper appeared in December and Emery's was presumably of earlier date.

65. Prenolepis (Nylanderia) anthracina Roger.

Berl. ent. zeitschr., 1863, **7**, p. 161 ☿.

Gundlach observed this species in Guanabo. His collection contains two worker, two female, and two male cotypes (no. 288), but I was unable to make a careful examination of them. They looked much like specimens of *P. steinheili*.

66. Prenolepis gibberosa Roger.

Berl. ent. zeitschr., 1863, **7**, p. 161 ☿.

Gundlach collected this species in various parts of the island. In his note-book he mentions Rangel, Santiago de Cuba, and Bayamo. His collection contains only a single specimen (no. 320). This I could not examine carefully, but it looked like a specimen of *P. fulva* Mayr. Roger's description, however, shows that he could not have based the species on such a specimen, because he notes the absence of erect hairs on the antennal scapes. He probably had before him some species of Iridomyrmex allied to *I. despertitus* Forel or *melleus* Wheeler. This would be only another instance of his describing a Dolichoderine ant as a Camponotine.

67. MYRMELACHISTA KRAATZI Roger.

Berl. ent. zeitschr., 1863, **7**, p. 163 ♀.

Gundlach says that this species was taken near Cardenas. There are no specimens in his collection and his note-book contains the phrase:— "se perdió por la muerte de Roger."

68. MYRMELACHISTA ROGERI Ern. André.

Rev. ent. 1887, **6**, p. 288 ♀.

This species, which has never been taken since it was described by André, seems to be very similar to *M. kraatzi*, but differs in its darker color and the shape of the petiole which, to judge from the descriptions, is inclined forward and less compressed anteroposteriorly. The locality given by André is simply "Cuba."

69. CAMPONOTUS SANTOSI Forel.

Verh. Zool. bot. gesellsch. Wien, 1908, **58**, p. 408 ♀.

The type specimens of this species, which belongs to the *maculatus* group, were received by Forel from Dr. Santos without precise locality. I have seen two colonies of this ant, one under a stone in a cane-field at the ingenio "Armonia" near Bolondron, and another nesting in a rotten stump in the Cienaga de Zapata about fifteen miles from that town. I have also several workers taken by Prof. C. F. Baker at Cayamas and a few taken by Prof. C. H. Eigenmann in the province of Havana. I find in my collection also some workers among the material taken by myself several years ago at West Bay, in the island of New Providence, Bahamas. All of these specimens agree closely with cotypes received from Professor Forel. There is also a major worker in the Gundlach collection without number or locality. A deälated female taken from the colony at Bolondron measures 10 mm. and closely resembles the major worker. The head, however, is proportionally narrower and with more nearly parallel sides; the middle of the pronotum, the paraptera, wing-insertions, epinotal declivity, and the petiole are yellow, the first gastric segment has a yellow crescent on its anterior border and the second and third segments each have a large anterior yellow band, narrow in the middle and much broader on the sides.

70. Camponotus inaequalis Roger.

Berl. ent. zeitschr., 1863, **7**, p. 147 ♀.

Gundlach states that this species is common throughout the island. His collection contains a male, a female, and five workers, four major and one minor (no. 127). I was surprised to find on examining these cotypes that they belong to the form which I described in a former paper as *C. zonatus* Emery var. *eburneus* from the Bahamas and not to the species which I referred to *inaequalis* (var. *ramulorum*) in the same publication. On rereading Roger's description after examining the cotypes, I am of the opinion that this author had before him a series of both species and that he described the worker minor from a specimen of this phase belonging to *ramulorum* and the worker media and major and the female from specimens corresponding to my *eburneus*. It seems best therefore to relegate this last form and possibly also Emery's *zonatus* to the synonymy of *inaequalis* and to regard *ramulorum* as a distinct species. It is not impossible that Roger's series may also have included immature specimens of Forel's *santosi* as this and the two other species are all closely related and highly variable in color and may have been readily confounded by Gundlach. I have not myself taken specimens of *C. inaequalis* in Cuba but have received a number of workers and females taken in Havana by Prof. C. F. Baker and Mr. F. Rose, and a few minor workers taken by Mr. Patricio Cardin at Santiago de las Vegas.

71. Camponotus ramulorum Wheeler.

Camponotus inaequalis var. *ramulorum* Wheeler, Bull. Amer. mus. nat. hist., 1905, **21**, p. 114.

Several colonies containing major and minor workers indistinguishable from those which I took in the Bahamas were found in hollow twigs of the sea-grape (*Coccoloba uvifera*) and other small trees in the coppices along the sea shore at Cogimar, near Havana.

72. Camponotus ramulorum Wheeler var. mestrei, var. nov.

This differs from the typical *ramulorum* and its variety *marcidus* Wheeler in its smaller size and in coloration. The major worker measures only 5.5–6.5 mm., the minor 3–4.5 mm. The brown color

of the head, thorax, and gaster are deeper and more blackish and extend further back on the head, leaving only the posterior border and posterior corners yellow. The whole upper surface of the thorax is blackish, variegated with brown, and the transverse stripes on the gaster are more sharply outlined both in the major and minor workers. The yellow portions of the body are more whitish than in the typical *ramulorum*.

I have seen numerous specimens of this new variety, which is dedicated to Prof. Aristides Mestre of the University of Havana, from two colonies, one taken by Prof. C. H. Eigenmann at Havana (type locality) in the dead pod of a leguminous vine and one by myself in the hollow twig of a shrub at Aguada de Pasajeros.

73. Camponotus planatus Roger.

Berl. ent. zeitschr., 1863, **7**, p. 148 ☿ ♀ ♂.

Gundlach took the types of this species at Sarabanda in the Cienaga de Zapata. His collection contains two major workers, a male, and a female cotype (no. 210). I have taken the species in the same locality and also at Cogimar, Bolondron, Aguada de Pasajeros, and at all the points visited in the Cienaga. It nests in hollow branches and the workers are often found running singly on the trunks, branches and leaves of trees.

74. Camponotus sphaericus Roger.

Berl. ent. zeitschr., 1863, **7**, p. 146 ☿.

Gundlach took this species in the vicinity of Santiago de Cuba. His collection contains a single specimen (no. 316). A single worker minor taken by Mr. E. A. Schwarz at Cayamas agrees well with Roger's description, except that the body is opaque and not shining. The pronotum in nearly twice as broad as long, the white hairs on the body are pointed and the appressed ones are not flattened and squamiform and not abundant on the gaster. The mandibles, legs, and antennae are uniformly red. The specimen measures only 4.5 mm. and is therefore considerably smaller than the types which measured 6–6.5 mm. It may, perhaps, represent a distinct subspecies.

75. Camponotus sphaeralis Roger.

Berl. ent. zeitschr., 1863, **7**, p. 147 ☿.

Gundlach says that he could not remember where he collected this species, and as the specimens were lost on Roger's death, it is not represented in the collection.

A single worker taken by Prof. C. F. Baker at Havana agrees very closely with Roger's description. It differs from *sphaericus* in having the pronotum longer in proportion to its width and the appressed hairs, or pubescence, on the body flattened, squamiform, and more abundant, especially on the gaster. The color and shape of the body are so much like those of *sphaericus* that one is tempted to regard it merely as a subspecies, but more material will be required to establish the relationship of the two forms.

76. Camponotus gilviventris Roger.

Berl. ent. zeitschr., 1863, **7**, p. 145 ☿.

According to Gundlach, this species lives in the mountains throughout the island. His collection contains a single cotype (no. 317).

77. Camponotus (Colobopsis) riehli Roger.

Berl. ent. zeitschr., 1863, **7**, p. 159 ♀.

Gundlach took this species in the western part of the island. There is a single winged cotype in his collection (no. 155).