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NOTICES BIOLOGIQUES SUR LES FOURMIS MEXICAINES

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Cette notice a été présentée par M. le D^r **Aug. Forel**.

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NOTES ON MEXICAN ANTS COLLECTED BY W.-M. WHEELER.

1. **Eciton crassicorne** Smith.

Foraging troops of this large and beautiful species were found at Cuernavaca (Dec. 27) and at Queretaro (Dec. 29). In the former locality they were moving along over and under the dead leaves near a stonewall and preying on the nests of a *Pheidole* and some small Carabid beetles. At Queretaro a troop was seen robbing a nest of *Pogonomyrmex barbatus* var. *molifaciens*. The *Ecitons* killed and carried the agricultural ants to their own nest which was under a large flat stone a few yards away.

2. **Eciton Sumichrasti** Norton.

Cuernavaca, Dec. 27. A single nest found under a large stone. The workers were swarming in masses like *E. Schmitti* Emery, which this species very closely resembles, and were guarding great numbers of eggs. The queen of the nest was not found as the galleries extended into such hard soil that excavation was very difficult.

3. **Odontomachus clarus** Rog. var.

Cuernavaca, Dec. 25-27. Colonies containing from about 50-100 ants were common under stones. In the nests there were usually several cocoons which the ants hastily removed. The peculiar leaping habit was not exhibited very freely, probably because the weather was not very warm.

4. **Ponera opaciceps** Mayr.

Cuernavaca, Dec. 26. Common under stones in moist, shady places, especially in a marshy spot near the head of one of the *barrancas*. The nests, consisting of a few irregular galleries, all contained larvae and pupae. These resemble the corresponding stages of *P. coarctata* except that the larvae have fewer pairs of dorsal adhesive tubercles. The ants are active and remove their offspring with considerable haste when the nest is disturbed.

5. *Ponera foeda* Forel.

Cuernavaca, Dec. 26. A single nest containing about a dozen ants with several larvae of various sizes, found under a stone on a shady hillslope. Larvae similar to those of *P. opaciceps*.

6. *Leptogenys Wheeleri* Forel.

Cuernavaca, Dec. 27. A single nest on a dry hill-slope under a large stone. The ants were exceedingly active and disappeared in the surrounding grass so quickly that only two workers and a few cocoons could be secured. The latter were slender and dark brown like those of *L. (Lobopelta) elongata* Buckley. Under the same stone was found a termite nest and an Embiid (*Olyntha Wheeleri* Melander).

7. *Atta fervens* Say.

This destructive leaf-cutting ant is very common everywhere about Queretaro and Cuernavaca, even excavating its huge nests in the paved and much-frequented roads. In Queretaro and some other parts of Mexico these ants are called "hormigas arrieras", in Cuernavaca they are commonly called "cuatalatas". The species certainly differs in several respects from the *Atta fervens* of Texas. The huge soldiers have glabrous heads and often two ocelli. They attend the files of smaller leaf-cutting workers. The Texan form is lighter in color and its soldiers have opaque velvety heads, without ocelli. There is also a difference in habits. At Queretaro, in three different nests, the ants were seen to have a special group of openings from which they had thrown whole bushels of the exhausted leaf-manure brought up from their subterranean fungus-gardens. In one case the same nest had openings on both sides of a broad road. The pieces of fresh leaves were being carried into the openings on the one side, and the exhausted vegetal debris was being dumped from the other set of openings. The Texan form appears to retain the exhausted substance in its chambers and piles the fresh material on top of it, so that in some nests the gardens may be several inches deep.

8. *Cyphomyrmex rimosus* Spinola, subsp. *dentatus* Forel.

Cuernavaca, Dec. 26. Not uncommon along the barrancas where it nests under stones, forming irregular chambers about the roots of the grasses. There are sometimes two queens in a nest. The older and darker queens and workers have the head and thorax covered with a bluish bloom. *C. rimosus* is said not to cultivate mushroom gardens, but this is scarcely correct. They certainly collect caterpillar excrement and on this they grow a peculiar fungus which is not in

the form of a white mycelium like that cultivated by some other species of *Cyphomyrmex* (*C. Wheeleri* Forel, for example) but consisting of clusters of small orange yellow, spherical or pyriform nodules about 5 mill. in diameter. The exhausted masses of caterpillar excreta are piled on the refuse heap in a distant corner of the nest. The eggs of *C. rimosus* are very broad and short, almost spherical.

9. **Cryptocerus aztecus** Forel.

Cuernavaca, Dec. 27. Common, nesting in the epiphytic Tillandsias in a small acacia grove south west of the town. Soldiers and workers, larvae and pupae were stored like sardines between the leaves of the Tillandsias. No males or f-males were seen. This species was often found in parabiosis with *Cremastogaster brevispinosa* Mayr (See Wheeler : The Double and Mixed Nests of American Ants. American Naturalist, 1901).

10. **Cryptocerus Wheeleri** Forel.

In the same situations as the preceeding but rarer. A single immature male was taken in one of the nests which was in the same Tillandsia bud as a nest of *Cremastogaster*.

11. **Tetramorium (Xiphomyrmex) Wheeleri** Forel.

Pacheco in Zacatecas, Dec. 21. A small colony found under a stone in the cactus-covered desert. This, or a very closely allied species, occurs also at Austin, Texas.

12. **Wasmannia auropunctata** Roger, var. **rugosa** Forel.

Cuernavaca, Dec. 25. A single large nest under a stone in a hilly pasture south of the town. The nest contained hundreis of workers with a single queen. In its movements and the style of its nest, which is an irregular chamber dug about the roots of the grasses, this ant reminds one of *Cyphomyrmex*. The nest contained a small mass of the same peculiar fungus as in the nests of *Cyphomyrmex rimosus* above described, but it was impossible to determine the nature of the substance on which it was growing.

13. **Leptothorax petiolatus** Forel.

Cuernavaca, Dec. 25. A single nest consisting of a deälated queen and about 25 workers in a Tillandsia in parabiosis with *Cryptocerus* and *Cremastogaster*.

14. **Stenamma (Ischnomyrmex) Cockerelli** André.

Pacheco in Zacatecas, Dec. 21. Common in the cactus-covered desert under moderately large stones. It makes large, irregular burrows in the coarse pebbly soil.

15. **Pogonomyrmex barbatus** Smith, var. **typicus** and **molifaciens** Buck.

The nests of these ants are seen in all their beauty between Aguas Calientes and the City of Mexico. South of the Ciudad they extend up onto the slopes of Ajusco to an altitude of between 8,000 and 9,000 feet, but they were not seen near the summit nor on the southern slopes as far as Cuernavaca. They were observed most carefully at Aguas Calientes where both varieties may often be found in neighboring nests. One mixed nest was found containing about equal numbers of workers of both the typical and the *molifaciens* variety.

16. **Pheidole tolteca** Forel.

Cuernavaca, Dec. 26. A few workers taken on the flowers in the Borda Garden.

17. **Pheidole carbonaria** Perg., var. **calens** Forel.

Aguas Calientes, Dec. 31. This feeble *Pheidole* was found in a number of instances inhabiting small nests within the precincts of the *Pogonomyrmex* colonies, either on the denuded disks or on the slopes of the gravel cones near the entrances of the agriculturalists. It was seen more frequently in this association than either *Dorymyrmex pyramicus* or *Forelius Maccooki*; and was not seen nesting by itself as is very frequently the case with these species.

18. **Pheidole optiva** Forel.

Cuernavaca, Dec. 26. Under stones in the shade of some trees at the bottom of one of the *barrancas*. Formicaries large. Ants, both soldiers and workers remarkably slow in their movements.

19. **Pheidole lævivertex** Forel.

In the same localities as *P. optiva*, which this species resembles very closely to the naked eye.

20. **Pheidole Hyatti** Emery.

Cuernavaca, Dec. 30. Common under stones on the moist, grassy hill-slopes used as pasture lands.

21. **Pheidole Vasliti** Perg., var. **hirtula** Forel.

Queretaro, Dec. 30. Common under stones on the dry hill-slopes about the town, usually in the vicinity of the nests of *Pogonomyrmex*. It is in all probability a carnivorous species as all the nests examined contained a number of dead agriculturalists. These it probably collects from the refuse heaps of its large and powerful neighbors. *P. Vasliti* belongs to a neotropical subdivision of the genus with polymorphic soldiers (like *P. Kingii* André var. *instabilis* Emery of Texas). All the nests contained a considerable number of soldiers

with heads intermediate in size between the typical soldiers and the workers.

22. **Pheidole Kingii** André, var. **instabilis** Emery.

Cuernavaca, Dec. 25-27. Common in small colonies under half-dried cow-dung. The soldiers are highly polymorphic, exhibiting all transitions in the size and shape of the head to the worker form. Stores up grass-seeds in its nest like *P. pilifer*. The Mexican form should, perhaps, constitute a variety of the Texan species, which is decidedly larger, forms more flourishing colonies, and lives under stones; never, so far as observed, under cow-dung.

23. **Solenopsis geminata** Fabr.

The " fire ant ", common at Cuernavaca, Queretaro and Aguas Calientes, as elsewhere throughout the tropics. Stores grass-seeds like many species of *Pheidole*, and stings severely. Specimens taken in the above mentioned localities agree in coloring with the typical form found throughout Central Texas.

24. **Solenopsis molesta** Say.

Cuernavaca, Dec. 26. Not hitherto recorded from Mexico. Lives as a thief-ant in the nests of *Odontomachus clarus* just as it lives with this and other large ants throughout large portions of the United States.

25. **Cremastogaster opaca** Mayr, var. **dentinodis** Forel.

Queretaro Dec. 30. Common under stones on the dry hills about the town.

26. **Cremastogaster brevispinosa** Mayr, var. **minutior** Forel.

Cuernavaca, Dec. 26-27. Common everywhere, running in loose files on the trunks and branches of the trees. It nests in the Tillandsias, often in parabiosis with other ants. It forms perforated partitions consisting of a black paper-like substance between the overlapping leaves of the epiphytes. One nest was also found in the cup-shaped cavity of one of the singular flower-like, woody excrescences on the guava trees. The ants had closed up the wide opening of the cup with an even layer of the papery substance, leaving a small orifice near its center to serve as an entrance.

27. **Pseudomyrma Künckeli** Emery.

Cuernavaca. Dec. 27. Found running on the trunks and branches of small acacias and living in the dry twigs of the same trees. When irritated these ants approach with their abdomens flexed to one side

of the legs and thorax and the sting directed forward. They sting severely.

28. **Pseudomyrma gracilis** Fab., var. **mexicana** Emery.

Cuernavaca, Dec. 29. Found running with great rapidity over the bark of the acacias and guavas and living with their larvae and pupae in dead branches or in the Tillandsias. In both kinds of nests the larvae of a *Microdon* were found.

29. **Iridomyrmex dispartitus** Forel, var. **nigellus** Emery.

Cuernavaca, Dec. 25. A few specimens found running about under stones and dead leaves in the coffee plantation.

30. **Dorymyrmex pyramicus** Roger.

Common at Cuernavaca, Queretaro and Aguas Calientes. This species has no definite association with *Pogonomyrmex* as claimed by Mc Cook.

31. **Forelius Mc Cooki** Forel.

Common at Aguas Calientes, exhibiting the same habits as in Texas. There is no definite association between this species and the agricultural ants as maintained by McCook.

32. **Camponotus maculatus**, subsp. **picipes** Oliv., var. **pilosula** Forel.

A single small nest found under a stone on a dry hill-slope near Queretaro.

33. **Camponotus maculatus**, subs. **simillimus** Sm., var. **flavopubens** Forel.

Cuernavaca, Dec. 26. Rare. Only two nests found under stones on the side of a *barranca*. One of these was an incipient colony consisting of a dealated queen with five or six diminutive workers; the other was a vigorous nest containing many workers and soldiers. This ant in life has the peculiar opaque bluish bloom so characteristic of several of the Cuernavaca ants (*Cyphomyrmex rimosus* and *Leptogenys Wheeleri*, for example).

34. **Camponotus fragilis** Pergande.

A few workers found running on the trunk of an acacia tree at Cuernavaca.

35. **Camponotus rubrithorax** Forel.

Cuernavaca, Dec. 25-27. On the moderately dry sides of the *barrancas*, under stones. The ants have a peculiar bounding movement when excited. They attack one with vigor, discharging their formic acid secretions very freely. There is only a single queen to a nest.

36. **Camponotus rectangularis** Emery, var. **rubroniger** Forel.

Cuernavaca, Dec. 27. Arboreal, nesting in the dead limbs of trees and also in the Tillandsias on the acacias and guavas, often in parabiosis with *Cryptocerus* and *Cremastogaster*.

37. **Camponotus abdominalis** Smith. var.

Cuernavaca, Dec. 25-27. Very common, nesting in three different places : under stones on moist hill-slopes, in dead tree trunks and, most frequently, in the Tillandsias, often in parabiosis with other Formicidae. When their nests are disturbed they rush out and attack the intruder with great fury.

38. **Camponotus mina** Forel.

Cuernavaca, Dec. 26. Several workers found on tall umbelliferous plants where they were attending some remarkable Membracidae much as our northern species of *Formica* attend the Aphidae.

39. **Myrmecocystus melliger** Förel, var. **depilis** Forel.

A few small mound-shaped nests of this species were observed in the cactus-covered desert near Pacheco in Zacatecas, Dec. 21. Only small workers were seen about the large openings of the nests.

40. **Brachymyrmex musculus** Forel.

Cuernavaca, Dec. 25. Very common under stones on the moist hill-slopes. Its habits, so far as they could be observed, are very similar to those of *B. Heeri* in similar situations on the hill-slopes of New-England.

41. **Prenolepis longicornis** Latreille.

Cuernavaca, Dec. 25-27. Common under stones in the coffee plantations and in the patio of Dr. Eugene Le Baron's sanitarium.
