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Prof. Dr. K. Gollwitzer

Studia Entomologica, vol. 7, fasc. 1-4, dezembro 1964

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**Miscellaneous Studies on Neotropical Ants.
III. (Hym. Formicidae)**

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Editôra Vozes Ltda., Petrópolis, Rio de Janeiro, Brasil

Miscellaneous Studies on Neotropical Ants. III.
(Hymenoptera, Formicidae)

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(With 23 text-figures)

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Introduction

In his daily work, probably no taxonomist is able to devote himself exclusively to rigidly programmed research projects, such as exhaustive revisions of well-delimited taxonomic groups. There is also a certain amount of routine work to be done, a great many subsidiary activities that engage and even distract one's attention. First of all, there are the many requests for identification of disparate material sent by interested amateurs, applied entomologists, agriculturists, Museum curators and the like, all eager to see a scientific name attached to the specimens they are dealing with. Moreover, the necessity and — let us confess — the pleasure of maintaining in order one's collection of study, the task of incorporating therein new accretions, all this has doubtless a dispersive effect upon the interest of the taxonomist. Thus, besides the big research project, a lot of minor, unrelated but interesting problems come to his attention and occupy part of his time and effort. Although they may not be dealt with conclusively at the time, there are always new facts to be recorded, new relationships to be discovered, errors to be mended, doubts to be brought out into the open. To my mind, the wealth of information accumulated by this sideline activity also deserves publication, because it usually contains profitable building stones for future more whole-hearted endeavor.

The present study, already the third in a series (cf. Kempf, 1960, 1962), is the outcrop from the afore mentioned distractions. It contains the description of two new species, the proposition of a new name and five new synonyms, new locality records that are seemingly significant, and comments regarding the status and relationship of already described species. I hope that this slovenly and preliminary gathering of scattered data will yet contribute toward the improvement of the classification of the Neotropical ants, which is still detained in a tremendous tangle.

A word of thanks to the many collectors who have given me material of study, particularly to my good friends Mr. Fritz Plaumann and Mr. Karol Lenko, who kept me busy with a constant supply of interesting ants. My gratitude goes also to the "Conselho Nacional de Pesquisas" for the financial support in the form of a fellowship.

Most of the material, on which this study is based, is in my private collection (WWK) which likewise contains the Borgmeier collection of ants (CTB). In addition, I have freely used the collection of the "Departamento de Zoologia da Secretaria de Agricultura do Estado de São Paulo" (DZSP), and examined a few types from the Santschi collection, received on loan from the Natural History Museum of Basel, Switzerland (NHMB).

Subfam. *Cerapachyinae****Sphinctomyrmex stali* Mayr**

This rare and striking species was recently rediscovered by F. Plaumann at Nova Teutônia, Santa Catarina State, Brazil. It is now also recorded from Rio de Janeiro, Guanabara State, Brazil. Dr. C. A. C. Seabra collected a lone worker in the Tijuca forests, in the environs of the city of Rio (Coll. Seabra).

***Cerapachys splendens* Borgmeier**

First described upon specimens collected by F. Plaumann at Nova Teutônia, this species is now known throughout southeastern Brazil. Following are the new records for *splendens*:

Brazil, Rio Grande do Sul State: Nova Petrópolis (F. Plaumann) 1 worker, Pardinho (Plaumann) 2 workers; Santa Catarina State: Concórdia (Plaumann) 2 workers, Ibicaré (Plaumann) 1 worker, L. Facão (Plaumann) 1 worker, Nova Teutônia (Plaumann) 8 additional workers besides types; Paraná State: Bocaiuva do Sul (Plaumann) 1 worker, Rio Azul (Plaumann) 2 workers; São Paulo State: Serra dos Agudos Grandes near São Paulo-Curitiba highway BR-2 (Plaumann) 1 worker; Guanabara State: Rio de Janeiro, Floresta da Tijuca (C. A. C. Seabra) 12 workers. (All specimens in WWK).

***Cerapachys toltecum* ? Forel**

1 female taken by C. Gilbert at Agudos, São Paulo State, and 1 worker collected by F. Plaumann at Nova Teutônia, Santa Catarina State (WWK), seem to belong to this species, hitherto known only from Central America. They represent the second species of *Cerapachys* to be recorded in Brazil.

***Cylindromyrmex brasiliensis* Emery**

So far, the present species has been reported from the Brazilian States of Santa Catarina and Rio Grande do Sul. More material is now available from the following localities:

Brazil, São Paulo State: Agudos (R. Mueller) 4 workers; Guanabara State: Rio de Janeiro, Floresta da Tijuca (C. A. C. Seabra) 7 workers, Reprêsa Rio Grande (F. M. Oliveira) 11 workers (WWK).

Cylindromyrmex brevitarsus Santschi

The type hails from Rio Negro, Paraná State, Brazil. In 1944, Dr. Helmut Sick took the species for a second time, discovering a worker on the Ilha Grande, an island off the shore of southwestern Rio de Janeiro State, Brazil (WWK).

Subfam. Ponerinae

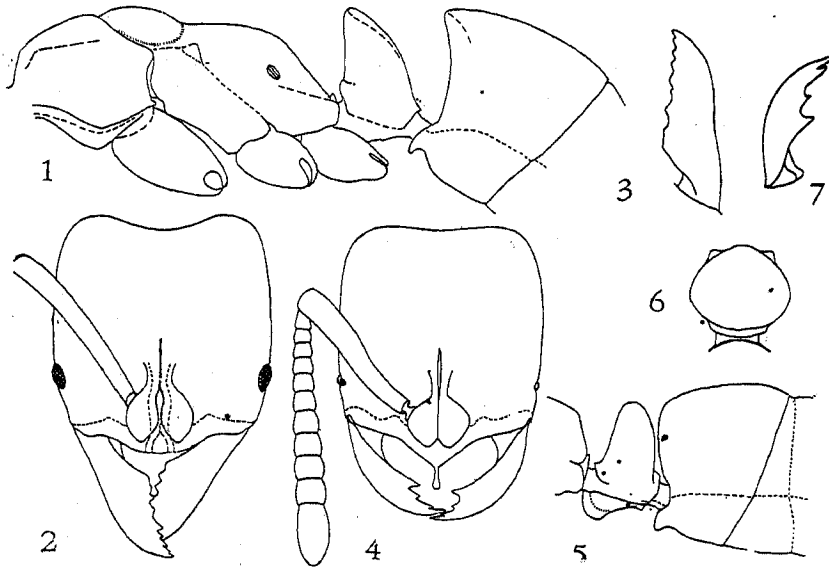
Simopelta curvata (Mayr)

(Figs. 4, 5, 7)

Belonopelta curvata Mayr, 1887: 532 (Worker; Brazil: Santa Catarina).
Simopelta curvata: Wheeler, 1935: 10, 13-14.

Heretofore, the species was known only from the holotype, presumably still in the Mayr collection in Vienna. My friend Karol Lenko, during an entomological expedition to the Serra do Caraça, State of Minas Gerais, Brazil, in November 1961, caught a small series of approximately 30 workers, at an altitude of 1350 m (DZSP, WWK).

These specimens agree perfectly with the diagnosis of the type. They also confirm Forel's suspicion that this *pergandei* from Guatemala and Costa Rica is extremely close to *curvata*. The differences given by Forel (1909: 244) and by Wheeler (1935: 13) still hold; *curvata* has the mandibles practically smooth and shining, with 4 teeth on chewing border (Fig. 7), whereas *pergandei* has the mandibles finely striolate and somewhat reticulate, with only 3 well-developed teeth on chewing border; the broad diastema between the basal and the subapical tooth in *pergandei* may be minutely denticulate. In addition, *curvata* has the petiole more compressed antero-posteriorly (Fig. 5) and the gastric constriction between first (postpetiole) and second segment rather feeble. The thoracic sculpture is more pronounced and the integument, as a consequence, is less shiny. One has to bear in mind, however, that presently the known ranges of both species are far apart from each other. Future collections in the huge intervening territory might turn up specimens with intermediate features, so far as the separatory characters are concerned, and bridge the rather feeble morphological gap.



Pachycondyla prociua Emery, worker: Fig. 1. Thorax and pedicel in profile. Fig. 2. Head in full-face view. Fig. 3. Mandible. Fig. 6. Petiole in dorsal view. — *Simopelta curvata* (Mayr), worker: Fig. 4. Head in full-face view. Fig. 5. Petiole in profile. Fig. 7. Mandible. — Kempf det.

Pachycondyla Fr. Smith

In a study of the Brazilian species of the genus (Kempf, 1961: 189-204) I have discussed the absence of a stridulatory organ in the more orthodox *Pachycondyla* species, and its value as a separatory character from *Neoponera*. I was not aware, then, of the fact that previously Haskins and Enzmann (1938: 121, Pl. 1; Pl. 3, fig. 1) already had noticed the presence of a stridulatory file on acrotergite of tergum II of gaster in *Neoponera villosa* and its absence in *Pachycondyla harpax*. I mention this to give these authors the credit they deserve.

My earlier prevision (1961: 191) that all *Pachycondylae* with a scale-like rather than a cuboid petiole have stridulatory organ did not hold true. It is present in *metanotalis* and *magnifica*, absent in *lenkoi* and *prociua*. Consequently, its value as a group character seems significantly decreased.

Among the problems that remain unsolved for *Pachycondyla*, I should like to stress the following ones: (1) The generic limits, . e. a good separation from the *Neoponera* and "Mesoponera" complexes; (2) the status of *fuscotra* and *purpurascens*,

presumably synonyms of *impressa*; (3) a comparative study of the males (and the larvae), still unknown for the critical species.

Here I present the description of the first worker of *procidua* and an up-to-date key for the identification of the workers of *Pachycondyla*.

***Pachycondyla procidua* Emery**

(Figs. 1-3, 6)

Pachycondyla procidua Emery, 1890: 72-74 (Female; French Guiana: Cayenne). — Santschi, 1921: 87 (Female; Peru: Cuzco).

Worker (undescribed). — Total length 13 mm; head length 2.92 mm; head width 2.68 mm; maximum diameter of eyes 0.35 mm; scape length 2.27 mm; thorax length 4.14 mm; pronotum width 1.68 mm; petiole length 1.04 mm; petiole width 1.25 mm; postpetiole (tergum I of gaster!) length 2.16 mm; postpetiole width 2.14 mm. Black; mandibles, antennae, frontal lobes, legs, apical segments of gaster, fuscous ferruginous.

Head as shown in Fig. 2; subquadrate, sides feebly convex, occiput broadly excised. Mandibles (Fig. 3) elongate triangular, outer border slightly impressed at middle, smooth and shining, basally with short superficial striae, blades sparsely covered with fine piligerous punctulae, a row of large piligerous pits along chewing border, which bears approximately 9 teeth (exact number hard to make out because dentition is considerably worn down in the only available specimen); mandibular line obsolete. Clypeus in profile oblique, not truncate, with a slightly raised and posteriorly pointed tumulus at middle; anterior border mesially convex and prominent. Frontal lobes semicircular, smooth and shining. Eyes separated from mandibular insertion by a distance which equals their greatest diameter. Head capsule rather densely punctate, more sparsely on sides; gular face discally smooth and shining. A few short rugulae on cheeks between eyes and antennal sockets. Antennal scapes in full-face view reaching the occipital corner, finely punctate and shining. All funicular segments longer than broad, II-V twice as long as broad, the following, except the apical segment, relatively and progressively shorter.

Thorax as shown in Fig. 1; rather shining. Pronotum and mesonotum with fine and superficial punctulae; a median longitudinal stripe, which is completely smooth and fulgid, on dorsum of pronotum. Sides of thorax, except for laterotergite of pronotum, obliquely rugulose. Pronotum laterally with a sharp

keel, the scapular angles sharply marginate and projecting. Mesonotum subcircular, gently convex in both directions. Metanotal groove somewhat impressed. Basal face of epinotum compressed, its sides submarginate. Declivous face of epinotum laterally immarginate, transversely rugulose. Legs with superficial piligerous punctulae, but quite shining.

Petiole as shown in Figs. 1 and 6; scale-like, in profile dorsally subacuminate, lacking a dorsal face; anterior face transversely convex, longitudinally somewhat concave, separated dorsally and laterally from gently convex posterior face by a dorsally marginate, laterally submarginate to arcuate transverse border. A prominent carinate tooth on each side of base at anterior face of node. Subpetiolar tooth blunt, posteriorly somewhat crenate. Integument mostly smooth and shining; sides, especially on postero-lateral border, with longitudinal rugulae. Gaster very finely and superficially punctate, shining. Tergum I in dorsal view anteriorly greatly rounded, in lateral view the anterior border overhangs the oblique, ventrally receding, transversely convex, anterior face, forming dorsally a prominent peak. The slightly concave anterior face fitting exactly the posterior face of petiole. Acrotergite of tergum II without a stridulatory file. Pygidium with a median smooth and hair-less area, flanked by punctate and hairy lateral portions.

Body and appendages, except for the extensor face of femora, with sparse, erect or suberect, brownish golden hairs. Pubescence long and conspicuous, especially on head, thorax, petiole and gaster, but never masking the integument. Mid and hind tarsi with oblique, short, stout setae.

Specimen examined. — 1 worker, taken by K. Lenko at Manaus, Amazonas State, Brazil, on September 12, 1962 (DZSP, n. 2603).

Discussion. — A comparison with the excellent description of the holotype female (Emery, 1890), leaves no doubt that this is the still unknown worker of *procidua*. It is at once distinct by the peculiar shape of the petiole and the antero-dorsally acuminate peak of tergum I of gaster, which overhangs the anterior face.

Key to the species of *Pachycondyla* - workers

1. Pygidium with three teeth on apex..... *crassinoda* (Latreille)
- Pygidium terminating apically in a single tooth..... 2
2. Petiole scale-like, without a distinct dorsal face, *i. e.* the posterior face begins at the antero-dorsal peak and slopes downward in a continuous curvature 3

- Petiole subcuboidal, with a horizontal dorsal face, separated from the vertical posterior face 6
3. Front and vertex of head and dorsum of pronotum coarsely longitudinally costate *magnifica* Borgmeier
- Front and vertex of head and dorsum of pronotum lacking coarse costulae, being rather finely punctate or at most reticulate-rugulose. 4
4. Segment I of gaster (postpetiole) antero-dorsally drawn out into a prominent peak that forms an acute angle in profile (Fig. 1); occiput in full-face view noticeably excised (Fig. 2); lateral borders of declivous face of epinotum immarginate. *procidua* Emery
- Segment I of gaster scarcely drawn out antero-dorsally, forming in profile a right angle; occiput in full-face view scarcely excised; lateral borders of declivous face sharply marginate. 5
5. Thorax length exceeding 3 mm; acrotergite of tergum II of gaster with a triangular stridulatory file; anterior clypeal border convex. *metanotalis* Luederwaldt
- Thorax length below 3 mm; acrotergite of tergum II of gaster without a stridulatory file; anterior clypeal border mesially drawn out into a tooth. *lenkoi* Kempf
6. Lateral border of dorsum of pronotum only obtusely marginate, lacking a sharp keel 7
- Lateral border of dorsum of pronotum sharply marginate, with a prominent keel 8
7. Pygidium with a smooth postero-mesial excavation, flanked by oblique to transverse rugae; anterior border of clypeus mesially notched. *impressa* (Roger)
- Pygidium lacking a postero-mesial excavation and postero-lateral rugae; anterior border of clypeus convex. *lenis* Kempf
8. Funicular segments VI-VIII at most as long as broad; thorax length below 3.5 mm *harpax* (Fabricius)
- Funicular segments VI-VIII longer than broad; thorax length above 3.5 mm *striata* Fr. Smith

Subfam. Myrmicinae

***Hylomyrma dentiloba* (Santschi)**

(Figs. 8, 9)

Lundella dentiloba Santschi, 1931: 271 (Worker; Panama: France Field).
Hylomyrma dentiloba: Kempf, 1960: 430.

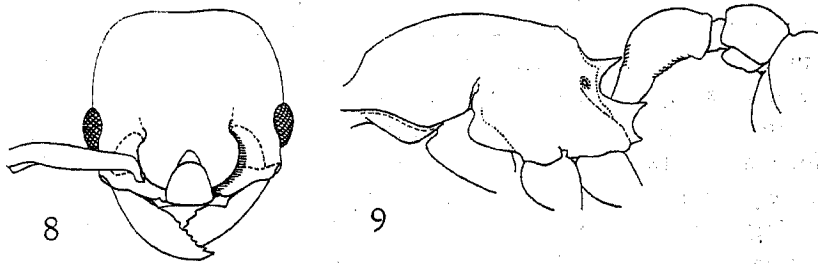
Type. — This species is based on a unique worker (holotype), collected by A. Bierig on June 2, 1930 (NHMB); examined.

Worker (holotype). — Total length 3.7 mm; head length 0.83 mm; head width 0.75 mm; maximum expansion of frontal carinae 0.40 mm; eye length 0.19 mm; scape length 0.53 mm; thorax length 1.15 mm; pronotum width 0.56 mm; petiole length 0.51 mm; petiole width 0.21 mm; postpetiole length 0.27 mm; postpetiole width 0.32 mm; gaster length 0.80 mm; gaster width

0.64 mm. Reddish brown; gaster fuscous brown; legs yellowish brown.

Mandibles elongate, subtriangular, dorsal face densely and longitudinally costulate; shape of blades and dentition much as in *reitteri*; costae count at level of basal angle about 14; chewing border with 6 teeth.

Head in full-face view shown in Fig. 8; note the broadly expanded, convex frontal carinae and the broadly rounded occipital corners. Median lobe of clypeus strongly vaulted above



Hylomyrma dentiloba (Santschi)

Worker (holotype): Fig. 8. Head in full-face view. — Fig. 9 Thorax in profile. — Kempf *del.*

bidentate anterior apron; the former with about 9 longitudinal, widely spaced, stronger costulae, the intervals with several longitudinal files of fine punctulae. Frontal area impressed. Frontal carinae slightly raised laterad. Front with widely spaced 13 longitudinal costae, the lateral ones diverging caudad on vertex toward occipital corner; intercostal spaces finely striolate-punctate, subopaque. Cheeks longitudinally costulate. Sides of head densely and finely striate; striae forming concentric arches around antennal socket between cheeks and front; striae arising from upper border of eyes first directed upwards, then backwards, running parallel to the horizontal striolae arising from the posterior border of eye. Postero-lateral portions of head also with vestigial reticulate-rugose and foveate macrosculpture. Eyes lentiform, much less constricted than in *reitteri*. Antennal scapes strongly bent at base, obliquely costulate on upper face, not reaching back to the occipital corner.

Thorax as shown in Fig. 9. Sculpture as in *blandiens*, *i. e.* reticulate-rugose and shallowly foveate macrosculpture less distinct than fine, dense and beaded striation of microsculpture.

Striolae forming transverse arches antero-laterally on pronotum. Promesonotum very distinctly longitudinally striolate. Mesoepinotal junction marked by a raised transverse ridge. Sides of thorax mostly horizontally striolate. Mesopleural and bidentate metasternal lobes superficially striolate, shinier than rest of thorax. Fore coxae densely transversely striolate on lateral face, without interstitial rows of punctulae, quite shining. Extensor face of apex of femora, of tibiae, and first tarsite, longitudinally and finely costate.

Petiole lacking a prominent peak between transversely costate ascending face of peduncle and the node proper, when seen in profile (Fig. 9); the peduncle grading almost imperceptibly into the node. The latter finely longitudinally striolate-punctate, the microsculpture being more distinct than the reticulate-rugose macrosculpture. Bottom of node with about 6 transverse costulae. Node about twice as long as broad. Postpetiole subtrapezoidal, densely and finely longitudinally costulate above and below, shining. Gaster smooth and shining. Tergum I with basidorsal costulae, which are about half as long as postpetiolar node.

Body and appendages with fine, long, rather sparse, flexuous hairs, sparser on head than in *blandiens*.

Discussion. — On account of the finely striolate microsculpture, this species is very close to *blandiens* Kempf, from which it differs as follows: (1) clypeus with few widely spaced, prominent costulae; (2) front and vertex with longitudinal costae much more distinct than the intercostal sculpture; (3) scape with a great bent at base; (4) petiole lacking a prominent peak between ascending face of peduncle and node proper; (5) frontal carinae more expanded and more convex; (6) basidorsal costulae on tergum I of gaster only half as long as postpetiole; (7) pilosity decidedly scarcer, especially on head.

Note. — A lone specimen from Masilena Creek near Bluefields, Nicaragua, taken from stomach of *Bufo coniferus*, comes rather close to the *dentiloba* holotype, presenting the ensuing differences: (1) coarse reticulate-rugose macrosculpture more prominent on thorax and petiolar node; (2) node of petiole somewhat shorter; (3) microsculpture in the form of fine striolation sharper, especially postero-laterally on head. I associate, with reservations, this specimen with *dentiloba*.

Key to the species of *Hylomyrma* - workers

(*H. columbica* Forel, unknown to me, is omitted from the key)

1. Antennal scape, laid back over the head as much as possible, distinctly surpassing the occipital border..... *longiscapa* Kempf
- Antennal scape, laid back over the head as much as possible, barely or not at all attaining the occipital border..... 2

2. Thorax very finely and longitudinally striolate, microsculpture not interrupted by the superimposed coarser rugae and foveae.....3
 — Thorax coarsely costate or reticulate-rugose; costae and rugae smooth and shining; interrugal spaces either shining or finely punctate... 4
3. Scape sharply bent at base; basidorsal costulae on tergum I of gaster shorter than postpetiole; longitudinal costulae on vertex of head rather distinct *dentiloba* (Santschi)
 — Scape weakly and obliquely bent at base; basidorsal costulae on tergum I of gaster longer than postpetiole; longitudinal costae on vertex of head indistinct..... *blandiens* Kempf
4. Dorsum of postpetiole rather smooth and shining on disc, striae weak to obsolete; basidorsal costulae of tergum I of gaster shorter than half the length of postpetiole; basal face of epinotum without regular transverse costae and striae..... *balzani* (Emery)
 — Postpetiolar disc longitudinally striate, subopaque; basidorsal costulae of first gastric tergite nearly as long as, if not as long as, postpetiole; basal face of epinotum with regular transverse striae.. *reitteri* (Mayr)

Pheidole Westwood

Following *Camponotus*, the genus *Pheidole* ranks second in number of species in the Neotropics. It comprehends, at the moment, approximately 200 described species with an equal number of named subspecies and varieties, most of them highly questionable.

The first and last synthesis was made by Mayr (1887), who gave a key to soldiers and workers of 54 New World species known to him, this number including 6 species which are strictly confined to the Nearctic Region. Unfortunately, Mayr confined the diagnosis of some of his new species to the respective couplets of the key. Consequently, the descriptions are exceedingly short and sketchy, and may, in several instances, fit different species.

Emery (1896) dealt with 11 of the small-sized species of the Neotropical region, arranging them in a key. Since then, all further contributions to the classification of the genus, the total of which amounts to 75% of presently recognized species, were made simply by adding to the group, without a serious effort of systematic assimilation. Significantly, the bulk of this work was performed by Forel and Santschi.

In a preliminary study (1915) and in the Myrmicinae section of *Genera Insectorum* (1921-22), Emery tried to split up the unwieldy group by introducing subgenera. But very few species could thus be separated. The bulk, left in subgenus *Pheidole*, still contains 180 species forming a compact and homogeneous assembly. Emery also attempted to divide the subgenus *Pheidole*

into six species-complexes, plus a catch-all of unclassified species. His division was principally based on characters of the antennal funiculus (shape of apical club), but proved of very little practical use.

Kusnezov's paper (1951) on the *Pheidole* species of the Argentine represents a healthy reaction. He erected new species groups and gave a key to most of the Argentine species. Varieties and subspecies were simply set aside. It is a pity that Kusnezov did not propose any formal synonymy. Although just an outline of a rather limited fauna, Kusnezov's study is basically sound.

From my experience with the genus I come to believe that the huge infraspecific variability, when recognized and duly analyzed, will help to reduce considerably the number of species. But a full-fledged revision is certainly still a distant project. Yet it is not too early to furnish building stones by discussing individual species and proposing synonymy, whenever it becomes evident. The ensuing discussion of 8 Neotropical species obeys this very purpose.

I wish to call the attention to the arrangement of gular teeth in the soldier caste, a character which is helpful in separating species and species complexes, and which so far has not been used toward this end.

***Pheidole claviscapa* Santschi**

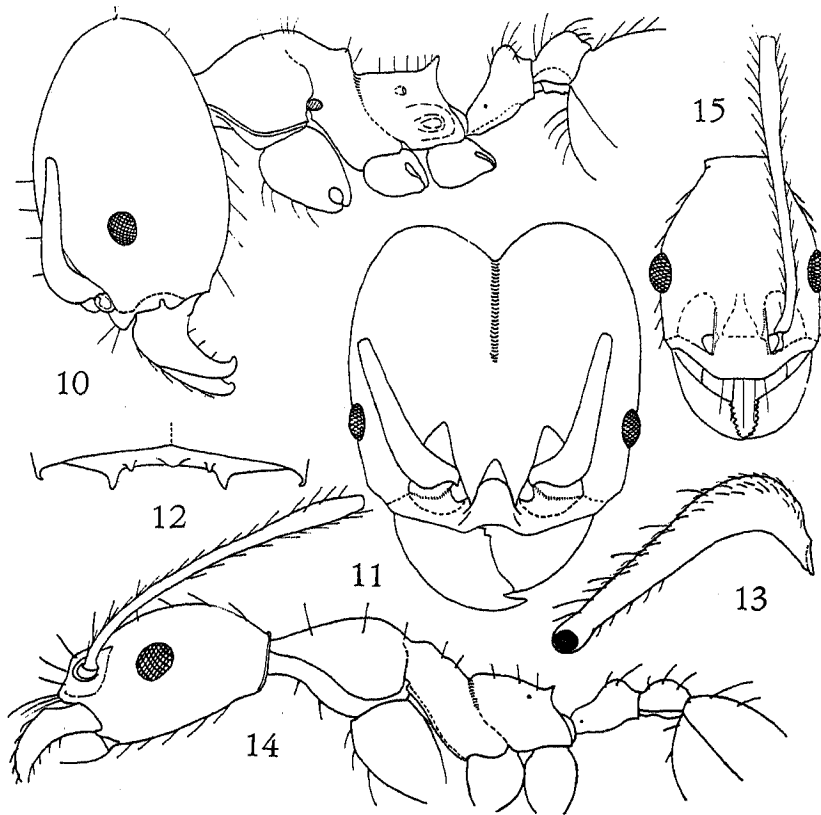
(Figs. 10-15)

Pheidole claviscapa Santschi, 1925: 224-6 (Soldier, worker; Brazil, Minas Gerais: Pirapora).

Types. — Soldier and workers presumably in the Santschi collection; not seen. Syntype workers in DZSP and WWK.

This relatively huge and interesting species was rather well-described by Santschi who, however, failed in expliciting its true relationships by comparing it only with *aequiseta* and *opaca*. The former, *aequiseta*, is known only in the worker caste, and differs from *claviscapa* principally in denser pilosity, presence of rugulae on cheeks, an extremely long basal face of epinotum (2.5 times as long as declivous face, says Santschi) that lacks conspicuous epinotal teeth, smooth and shining tergum I of gaster. On the other hand, *claviscapa* is quite removed from *opaca*, differing in the following characters:

Soldier. — Antennal fossae deeply impressed, their rim also laterally marginate (Fig. 10). Scapes strongly incrassate and curved at base (Figs. 11, 13). Frontal carinae scarcely expanded laterad, rather strongly diverging caudad. Sides of head



Pheidole claviscapa Santschi

Soldier: Fig. 10. Head, thorax and pedicel in profile. Fig. 11. Head in full-face view. Fig. 12. Gular dentition. Fig. 13. Scape. — Worker (syntype): Fig. 14. Head, thorax, and pedicel in profile. Fig. 15. Head in full-face view. (Figs. 13-15 drawn to a larger scale). — Kempf *del.*

more convex. Gular dentition (Fig. 12) quite different: midgular tubercle present; paired mesial teeth closer to lateral ones than to midgular tubercle. Pronotum lacking prominent lateral gibbosities (Fig. 10). Transverse mesonotal furrow and welt well-developed. Postpetiole, in dorsal view, much shorter, subelliptical. Pilosity on legs and antennae oblique. First tergum of gaster reticulate-punctate on anterior half, becoming gradually smooth and shining on posterior half.

Worker. — Differs from *opaca* as follows: Head (Figs. 14, 15) more elongate, occiput drawn out in a cone with collared, marginate "neck". Rugae on cheeks absent. Frontal carinae subparallel, not converging caudad. Pronotum without prominent lateral gibbosities. Transverse mesonotal furrow quite distinct. Epinotal spines much shorter. Postpetiole short, not elongate-

trapezoidal, but scarcely longer than broad. Femora not unusually incrassate. Pilosity on legs rather oblique.

Specimens examined. — Brazil, Mato Grosso State: Utariti, July 1960 (K. Lenko): 1 soldier, 2 workers (DZSP); Goiás State: Anápolis, February 1958, March 1964 (W. W. Kempf): 5 soldiers, 38 workers (WWK, DZSP); Minas Gerais State: Pirapora (E. Garbe): 5 workers (syntypes) (DZSP, WWK); Ceará State: Ubajara, December 1948 (C. R. Gonçalves): 5 soldiers, 2 workers (CTB).

Discussion. — The characters of the soldier, *viz.* the pointed and neatly separated apical tooth of mandibles, the basally strongly curved and incrassate antennal scapes, the deeply impressed and laterally marginate antennal fossae, the scarcely expanded and strongly divergent frontal carinae, show clearly that *claviscapa* is a member of the *fallax*-complex. Due to the tremendous and yet not perfectly analyzed variability of *fallax*, the soldier of *claviscapa* is not too easily separated from the former. Aside from shapes and general habitus, shown in Figs. 10-13, there are also some other features which are usually absent in soldiers of other species of the *fallax*-complex: head completely sculptured and opaque above and below, without shining and smooth areas inferiorly on occipital lobes and gular disc (but specimens from Ubajara, Ceará, are a bit shining on occipital lobes!); legs subopaque, superficially reticulate-punctate; posterior half of dorsum of head usually without longitudinal rugosities, just finely reticulate-punctate; erect pilosity much scarcer than in *fallax*.

The worker, however, is quite distinct by its slender habitus, light brown color, long legs, conical occiput, completely reticulate-punctate integument, including most of tergum I of gaster.

The drawings of the soldier were made upon a specimen from Anápolis, which differs slightly from the description of the type, by having the eyes rather circular than reniform, a variable feature for the species, according to the material examined. The drawings of the worker were based on a syntype specimen.

Bionomics. — In March 1964, I found a nest of this species in the typical savanna country around the city of Anápolis in Goiás State. The nest was in the soil, the small entrance being surrounded by a mound of loosely heaped up earth crumbs. Only swift-running workers were showing themselves on the outside. By partially digging out the nest, five slow-moving soldiers were also found, desperately trying to hide themselves as soon as they were uncovered.

Pheidole oxyops Forel

(Fig. 17)

- Pheidole oxyops* Forel, 1908: 337-8 (Soldier, female; Paraguay: San Bernardino). — Forel, 1911: 303 (Worker, male; Brazil, São Paulo City: Ipiranga). — Luederwaldt, 1918: 44 (Brazil, São Paulo: São Paulo, Salto Grande). — Santschi, 1925: 227 (Brazil, Minas Gerais: Pirapora). — Luederwaldt, 1926: 95-7 (Bion.). — Kusnezov, 1951: 24, 32, 33, 41, 55, 66 (Soldier, worker; Argentina, Salta: Urundel).
- Pheidole oxyops regia* Forel, 1908: 378-9 (Soldier, worker; Brazil, São Paulo City: Ipiranga). — Forel, 1909: 258 (Soldier, female; Paraguay: San Bernardino). — Forel, 1911: 303 (Brazil, São Paulo City: Ipiranga). — Forel, 1912: 224 (Brazil, São Paulo: Botucatu). — Luederwaldt, 1926: 281 (Bion.). — NOV. SYN.
- Pheidole genalis* Borgmeier, 1929: 199-201 (Soldier, worker; Brazil, Minas Gerais: Varginha). — NOV. SYN.

Types. — Those of *oxyops* typical and *oxyops regia* presumably in the Forel collection; not seen. Syntype soldiers and workers of *oxyops regia* in DZSP and WWK; examined. 1 soldier (lectotype) and 2 workers (paratypes) of *genalis* in CTB (now WWK); examined.

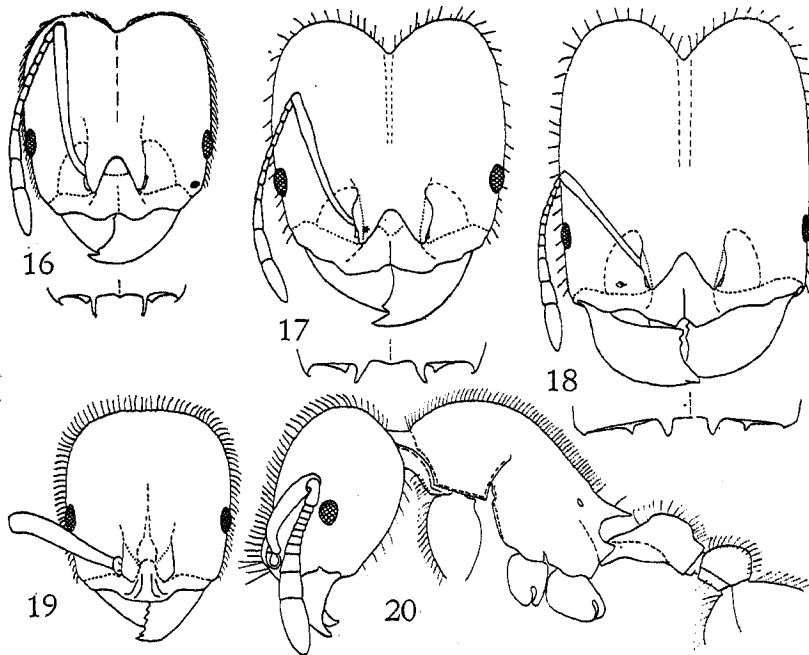


Fig. 16. *Pheidole susannae* Forel, soldier, head and gular dentition (more enlarged than Figs. 17 and 18). — Fig. 17. *Pheidole oxyops* Forel, soldier, head and gular dentition. — Fig. 18. *Pheidole schwarzmaleri* Borgm., soldier syntype, head and gular dentition. — Fig. 19. *Irogera foveata* sp. n., worker (holotype), head. — Fig. 20. *Irogera foveata* sp. n., worker (holotype), head, thorax and pedicel in profile. — Kempf del.

I give figures of the head of the soldier in full-face view and of the gular dentition (Fig. 17). Note the widely separated mesial teeth which are close to the lateral ones. The midgular tubercle is usually feebly developed or obsolete. Only the pilosity on contour of head capsule is shown, that on scapes, mandibles etc. is omitted.

The worker possesses an elongate, posteriorly conical and mostly smooth and shining head, and a shining and nearly sculptureless pronotum.

Specimne examined. — Brazil, São Paulo State: Agudos (W. W. Kempf, C. Gilbert), Agudos: Paulistânia (W.

W. Kempf), Botucatu: Serra de Botucatu (W. W. Kempf), Campinas (L. O. T. Mendes), Guaratinguetá (W. W. Kempf), Olímpia (O. Monte), Piracicaba, Salto Grande (H. Luederwaldt), São Paulo (H. Luederwaldt, W. W. Kempf) (including syntypes of *oxyops regia*); Minas Gerais State: Cambuquira (A. Marques), Pirapora (E. Garbe), Serra Cabral (E. Garbe), Serra do Caraça (K. Lenko), Varginha (T. Borgmeier) (lectotype and paratypes of *genalis*); Goiás State: Anápolis (W. W. Kempf), Goiânia: Campinas (S. Schwarzmaier); Mato Grosso State: Gustavo Dutra (C. R. Gonçalves), Utiariti (K. Lenko) (All specimens in WWK, CTB, DZSP). — A series of 1 soldier and 8 workers from Surinam, Dirkshoop (J. van der Drift) seems likewise to belong to the present species, although the soldier is strikingly larger, with a more elongate head, the sides of which are weakly convex; the gular dentition is identical with that of *oxyops*.

Discussion and synonymy. — Forel described *oxyops* and its "race" *regia* simultaneously, the former based on specimens from Paraguay, the latter from São Paulo City in Brazil. Later, however, he mentioned (1909, 1911) the typical *oxyops* from São Paulo City and *regia* from San Bernardino, Paraguay. Hence both forms were found living side by side, and their status as geographical races is highly improbable if not entirely impossible. Forel separates the two forms in the following manner:

Soldier. — *regia* is said to differ from the typical *oxyops* in greater size, in more convex sides of head which is more constricted in front and in the rear, in more convex eyes which are antero-inferiorly more distinctly pointed, in more abundant erect hairs that are short and bristle-like on head, in the presence of a neatly impressed promesonotal groove, and a deeply impressed transverse mesonotal furrow, followed by a prominent transverse welt, in the somewhat shorter epinotal spines, and finally in the darker color of the head.

Worker. — *regia* is supposed to differ from *oxyops* s. str. in greater size, lighter color, eyes inferiorly less distinctly pointed, sides of conical occiput more convex.

Having examined the types of *oxyops regia* and specimens identified as *oxyops* s. str. by Forel, and having seen a relatively great number of specimens from the localities already mentioned above, I came to realize that Forel's division just does not work. It is impossible to split the material into two definable groups upon the characters mentioned by Forel. The differences pointed out by him are mainly due to allometric variation and seem to be useless for distinguishing upon them systematic categories.

Pheidole genalis is perfectly identical with the types of *oxyops regia* and consequently a junior synonym. Borgmeier, misled by Menozzi, compared the *genalis* type with *balzani* which, according to Emery's description, is certainly quite a different form.

Kusnezov (1951) records *oxyops* from Salta Province in the Argentine. Although I have not seen any pertinent material from that country, I

believe that Kusnezov's identification is correct, to judge from the characters used in his key. The race *oxyops jujuyensis* Forel (1913), however, appears to me as a specifically distinct form, as will be explained further below.

Bionomics. — The striking nest structure of this species was briefly outlined by Forel (1909) and more completely described by Luederwaldt (1926), who also gave an interesting account of the predatory activities of *oxyops*. It preys on the small fungus growing ants *Mycosepurus goeldii* and termites of the genus *Microtermes*.

***Pheidole arcifera* Santschi**

Pheidole arcifera Santschi, 1925: 226-7 (Soldier, worker; Brazil, Minas Gerais: Pirapora).

Type s. — Presumably in the Santschi collection. A syntype soldier and worker in the Borgmeier collection (now WWK) were examined.

Although Santschi went to considerable length in diagnosing this species, he was noticeably remiss in pointing out differential characters and relationships to other species. Upon closer scrutiny, *arcifera* now proves an extremely close relative of *oxyops*. The workers of both species are practically indistinguishable. The soldier of *arcifera*, on the other hand, presents indeed several differences from *oxyops*, as follows:

Striate and costate sculpture more extensive, covering completely the cephalic dorsum, most of the sides of head and the lateral thirds of the gular face. The interstitial reticulate-punctate microsculpture is stronger, rendering the integument more opaque. Dorsally, on each occipital lobe, the striae form concentric arches (hence the name for the species!). Frontal area reticulate-punctate, opaque. Transverse costulae on dorsum of pronotum more numerous and generally better developed. General habitus, shape of body and gular dentition exactly as in *oxyops*.

A few soldiers taken by C. R. Gonçalves at Tremembé, a suburb of São Paulo City, are in several respects intermediate between *oxyops* and *arcifera*. The longitudinal costulae on dorsum of head extend farther backward than in *oxyops*, covering at least three fourth of the head capsule, yet the occipital lobes proper are still smooth and highly polished, lacking the concentric arches of striae of *arcifera*. The frontal area is smooth and shining as in *oxyops*.

These specimens suggest that the extent of intraspecific variation in *oxyops* might possibly include the extreme conditions obtained in *arcifera* which, on the other hand, is still separable from *oxyops* in the soldier caste. More material is needed to decide this problem. So far, only the type series of *arcifera* is known.

Pheidole jujuyensis Forel, nov. stat.

Pheidole oxyops jujuyensis Forel, 1913: 229 (Worker; Argentina: Jujuy).

This form, described as a race of *oxyops* solely upon workers, seems specifically distinct on account of the following characters contained in the description:

Worker. — Head more elongate than in *oxyops*, occiput drawn out into a longer cone, the sides of which are scarcely arched in full-face view. Body also more elongate and slender. Erect pilosity longer, strictly perpendicular, on the average twice as long as thickness of tibiae. Color black. The very long hair is probably the most striking feature of this form.

A lone worker taken by myself at Anápolis, Goiás State, Brazil and a small series of workers (accompanied by the respective soldiers) collected by Lenko at Sacramento, Minas Gerais State, Brazil, match the above description. If they should prove identical with the *jujuyensis* (depending from a future examination of the type), then the soldiers of these Brazilian collections establish definitely the case of specific diversity, because this caste differs strikingly from *oxyops*, being much closer to *tijucana* and *punctithorax*.

Pheidole schwarzmaieri Borgmeier

(Fig. 18)

Pheidole schwarzmaieri Borgmeier, 1939: 420-1, fig. 6 (Soldier, worker; Brazil, Goiás: Campinas).

Types. — 6 soldiers and 5 workers, collected by the Rev. Father S. Schwarzmaier, C.S.S.R., in Campinas, a suburb of Goiânia, in December 1933 (WWK, from CTB).

This species shares the habitat and general nest structure with *oxyops* but is quite distinct. The soldier is recognizable by the elongate, parallel-sided head (Fig. 18), the strongly vaulted mandibles and the different gular dentition. The worker has a completely reticulate-punctate thorax; the posterior portion of head is not prolonged in a conical fashion.

Specimens examined. — Brazil, Goiás State: Anápolis (W. W. Kempf) 6 soldiers, 12 workers (WWK), Goiânia: Campinas (S. Schwarzmaier) 6 soldiers, 6 workers (syntypes) (CTB); Mato Grosso State: Chapada dos Guimarães (C. Amann) 1 soldier (WWK); Minas Gerais State: Carmo da Cachoeira (E. V. Brettas) 1 soldier, 1 worker (WWK); São Paulo State: Agudos (W. W. Kempf) 6 soldiers, 8 workers, 3 males (WWK). — Argentina, Misiones: nr. Bernardo Irigoyen (R. Mueller) 1 soldier (WWK).

Discussion. — The soldier caste exhibits considerable variation, not only in color, but also in size, head proportions, thoracic sculpture. The latter may be practically smooth and shining on dorsum or feebly reticulate-punctate with even a few weak transverse rugae on pronotum. Borgmeier separates the species from *absurda*. But I believe that *stulta*, originally described by Forel upon specimens from Caravelas, Bahia State, Brazil, is much closer. Indeed, the possibility of *schwarzmaieri* eventually ending up as a synonym of *stulta* is not to be foreclosed. Incidentally, both are close relatives of *praeusta*, occurring in northern South America.

Pheidole susannae Forel

(Fig. 16)

Pheidole susannae Forel, 1886: 43-4 (Soldier, worker; Guatemala: Retaluleu). — Mayr, 1887: 589, 604 (Soldier, worker; key).
Pheidole incisa evoluta Borgmeier, 1929: 204-5 (Soldier, worker; Brazil, Rio Grande do Sul: Porto Alegre). — NOV. SYN.

The typical *susannae*, a light colored, ochraceous yellow species, is still only known from the types, hailing from Guatemala. Two races and one variety — *s. atricolor* Forel from northern Colombia, *s. atricolor* var. *fortunata* Forel from western Costa Rica, and the widespread *s. obscurior* Forel (originally described from Rio de Janeiro, but occurring from Central America and the Antilles to northern Argentina) — cover the darker variants with more or less heavier sculpture. The group bears revision. To my mind, all afore mentioned forms are conspecific and the observed variation does not assume a geographical pattern.

The typesé of Borgmeier's *incisa evoluta* key out with *susannae* in Mayr's key, and agree completely with the original description of *susannae obscurior*. They are identical with the latter brown variant, common in southeastern Brazil, where the dark variant (*atricolor*?) also occurs. I propose *evoluta* as a new synonym of *susannae*, since the races of the latter are quite questionable. Fig. 16 shows the head and gular dentition of the "*incisa evoluta*" (= *susannae*) soldier.

Pheidole diligens (Fr. Smith)

Atta diligens Fr. Smith, 1858: 168 (Soldier, worker; Brazil, Amazonas: Vila Nova).
Pheidole diligens: Mayr, 1886: 360.

Suggested by the description and confirmed by Mayr, who had seen the types; this is a true *Pheidole*. The small size (1.5 lines = 3.8 mm), the pale reddish-yellow color, the opaque head and thorax, the rounded sides of the head, the well-marked division the pro-, meso-, and epinotum — characters contained in the otherwise insufficient description of the soldier (and worker) — suggest something in the vicinity of *radoszkowskii* or *biconstricta*.

***Pheidole blumenauensis* n. n.**

Pheidole diligens Santschi, 1923 (nec Fr. Smith, 1858): 50-1 (Soldier, worker; Brazil, Santa Catarina: Blumenau). — Borgmeier, 1927: 80.

Even though I do not know Santschi's *diligens* in nature, the description leaves no doubt that it is different from *diligens* Fr. Smith. The soldier of the former is piceous black, has the posterior portion of head and the anterior portion of thorax smooth and shining. Consequently, *diligens* Santschi is a homonym of *diligens* Fr. Smith, and needs a new name. Santschi's species is a close relative of *longiscapa* Forel.

This homonymy was already discovered by Borgmeier (1927), who took no action, believing that *diligens* Fr. Smith was probably not a *Pheidole* at all. But Smith's description and Mayr's testimony leave no doubt about the generic placement.

***Irogera foveata* n. sp.**

(Figs. 19-20)

Worker (holotype). — Total length 3.6 mm; maximum length of head capsule 0.83 mm; maximum width of head behind eyes 0.72 mm; length of eyes 0.11 mm; length of scape 0.56 mm; Weber's length of thorax 1.04 mm. Reddish brown; mandibles, antennae, legs, apex of gaster more or less yellowish brown; rest of gaster black.

Head as shown in Figs. 19 and 20. Mandibles smooth and shining, with sparse and fine piligerous punctulae; a few more elongate and coarser punctulae laterally on base; chewing border dentate throughout, with 6 small and triangular teeth. Clypeus with strongly elevated, anteriorly subtruncate, laterally subcarinate, smooth and shining median lobe; lateral portions opaque and finely costulate, their posterior border level with antennal groove and cheeks. Frontal carinae rounded and curving mesad in front, subparallel behind, short, terminating at level of anterior orbit of eyes, concealing the antennal socket in full-face view. Frontal area vestigial, smooth and shining, impressed, traversed by a longitudinal costa. Antennal scape gently curved at base, slightly incrassate towards apex, failing to attain the occipital border by a distance which approximately equals its maximum width when laid back over the head as much as possible. Funicular segments (Fig. 20): I elongate; II-VIII shorter than broad; IX-XI longer than the rest of funiculus; XI longer than IX and X combined. Compound eyes rather small and little protruding, with about 7 facets across the greatest diameter, which is

distinctly shorter than the distance between the anterior orbit of eye and the mandibular insertion. Cheeks and front longitudinally rugose, a median sagittal costa extending back to the posterior third of head in full-face view. Rest of head coarsely reticulate-rugose and foveate, the bottom of the meshes finely and superficially reticulate-punctate; coarse sculpture fading out on gular disc, which is practically smooth and shining.

Thorax as shown in Fig. 20; dorsum and sides coarsely reticulate-rugose and foveate, finely reticulate-punctate on bottom of meshes; posterior portions of sides of thorax more horizontally rugose. Shoulders rounded, not marked nor angular. Antero-inferior corner of pronotum subdentate. Promesonotal suture absent. Mesoepinotal junction marked by a faintly raised, in dorsal view dorsally almost indistinguishable, transverse crest. Epinotal spines well-developed, almost as long as their distance at apex, laterally faintly rugulose. Metasternal lobe dentate above. Declivous face of epinotum smooth and shining, impressed, laterally sharply marginate. Bulla of metasternal gland not conspicuously protruding. Legs completely smooth and shining.

Petiole (Fig. 20) elongate, clavate; peduncle as long as scarcely differentiated node proper. Peduncle and bottom of node with extremely fine and superficial reticulations, the node proper reticulate-rugose, as on thorax. Postpetiole about as long as broad, sides scarcely constricted behind, sculpture as on dorsum of thorax. Gaster smooth and shining.

Dense, silky, erect hairs on body and appendages, as indicated on contours of Figs. 19 and 20 (hairs on scapes not shown).

Types. — 2 workers (holotype: DZSP, paratype: WWK) taken by K. Lenko at Manaus, Amazonas State, Brazil, in August 1962 (n. 2889).

Discussion. — There is a possibility that the present newly described species may be identical with *Rogeria blanda* (described by Fr. Smith, 1858, as *Myrmica blanda* and placed into *Rogeria* by Emery in 1894), likewise from the upper Amazon in Brazil. Smith's description does not have sufficient elements to decide this problem, the solution of which depends from an examination of the type.

On the other hand, *foveata* differs from the remaining species, presently associated with *Irogera* (cf. Kempf, 1961), in the densely reticulate-rugose sculpture of head, thorax and pedicel, and the extremely dense erect pilosity. In addition, it may be distinguished from *procera* by its smaller size, brownish red color, smaller eyes with lesser facets, more opaque and more heavily thoracic and pedicelar dorsum. The differences from *subarmata* are the following: presence of erect hairs on

scapes and legs, somewhat smaller eyes, well-developed epinotal spine, shiny and smooth declivous face of epinotum, completely smooth and shining fore coxae, strongly sculptured postpetiole, chewing border of mandibles dentate in its entire length.

Irogera procera (Emery)

So far, this species was known only from two specimens both taken on the lower Amazon river. K. Lenko, in August 1962, discovered a colony of the same species, and collected numerous specimens near Manaus, Amazonas State, Brazil (DZSP, n. 2205, WWK).

Key to the species of *Irogera* - workers

(*I. tonduzi* Forel is omitted)

1. Scapes and legs lacking erect hairs, with the exception of a few oblique hairs on flexor face of femora..... 2
— Scapes and legs with abundant erect hairs..... 3
2. Epinotal spines long and needle-like; superior corner of metasternal lobe acutely pointed..... *scandens* (Mann)
— Epinotal spines very short having the shape of a low triangular tooth; superior corner of metasternal lobe not acutely pointed.....
subarmata Kempf
3. Head and thorax reticulate-rugose and foveate, longitudinal costae only on cheeks and just behind the frontal carinae on vertex; color reddish brown *foveata* Kempf
— Head and thorax more or less longitudinally costate or rugose; color black *procera* (Emery)

Wasmannia auropunctata (Roger)

Tetramorium auropunctatum Roger, 1863: 182.
Wasmannia auropunctata: Forel, 1893: 383.
Wasmannia glabra Santschi, 1931: 272 (Female: French Guiana: St. Jean du Maroni). — NOV. SYN.

I have seen the holotype of *glabra*, kindly sent to me on loan from the Santschi collection (NHMB) through the courtesy of Dr. Fred Keyser. It is a robust callow female, which is partly damaged and practically hairless. Santschi thought that the glabrous condition was the original one, but I find that the pilosity has been rubbed off. The piligerous pits on the gastric terga are quite evident. I have been unable to detect other significant differences from *auropunctata* females, and thus cannot help placing *glabra* into synonymy of the former. One wonders how Santschi ever had the courage to propose a new species on a specimen in such a bad condition of preservation.

Acanthognathus brevicornis M. R. Smith

A stray worker, taken by Mr. F. Plaumann at Nova Petrópolis, Rio Grande do Sul State, Brazil, in November 1959 (WWK n. 3235) agrees well with the original description of *brevicornis* and doubtless belongs to this species, characterized by much smoother and shinier integument of head and thorax, shorter and slightly thicker scape, stouter and shorter mandibles, having the apical portions of inner border minutely denticulate (as compared with *ocellatus*). The present record is very interesting insofar as *brevicornis* was hitherto known only from Barro Colorado Island in the Panama Canal.

Acanthognathus ocellatus Mayr

This species is not uncommon in the wooded portions of southeastern Brazil. My collection (WWK) contains specimens from the following localities: Brazil, Rio Grande do Sul State: Tainhas; Santa Catarina State: Chapecó, Ibicaré, Nova Teutônia, Seara; Paraná State: Volta Grande; São Paulo State: Barueri, Guararema, Serra Cantareira, São Paulo City; Rio de Janeiro State: Itatiaia.

Strumigenys cordovensis Mayr

Heretofore known from southern Mexico, Central America, Trinidad and Dutch Guiana, this species was recently discovered in northern Brazil. Dr. R. P. H. Arlé found two workers in a berlesate of leaf mold at Serra do Navio, Amapá Territory, Brazil (WWK).

Strumigenys cultriger Mayr

Due to the efforts of Mr. Plaumann, this species was recently collected at several localities of southeastern Brazil: Rio Grande do Sul State: Bom Jesus, Cotegipe near Erechim, Sinimbu; Santa Catarina State: Nova Teutônia, Seara, Xaxim. Mr. Karol Lenko collected the same species on Buzios Island, a continental island off Caraguatatuba on the northeastern shore of São Paulo State, Brazil.

***Glamyromyrmex substrictus* n. sp.**

(Figs. 21-23)

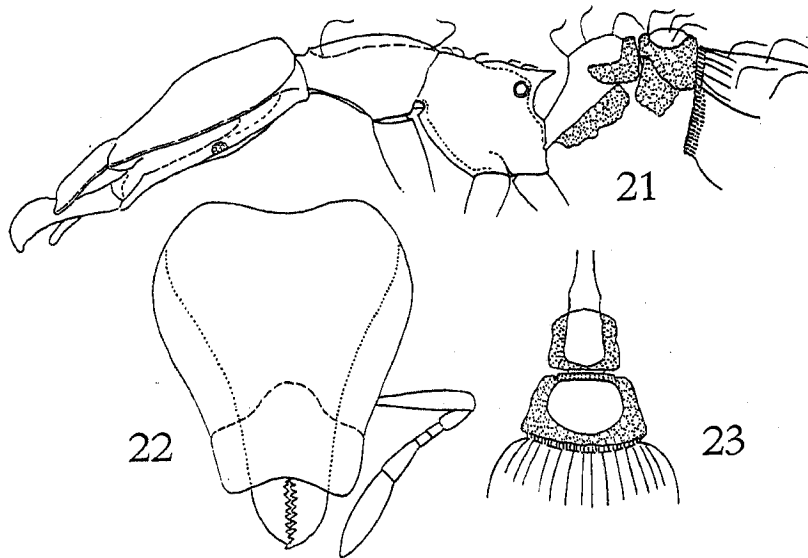
Worker (holotype). — Total length 3.3 mm; maximum length of head capsule 0.92 mm; maximum width of head 0.80 mm; Weber's length of thorax 0.86 mm; cephalic index 87; mandibulo-sephalic index 21. Color fuscous ferruginous; mandibles, antennae and legs brown; frontal carinas yellowish and transparent; spongiform appendages whitish.

Head as shown in Figs. 21 and 22; greatly depressed and flattened above and below. Mandibles smooth and shining; the dorsal face, as seen in profile, is more gently vaulted and more porrect than in most other species of the genus; chewing border with approximately 9 small triangular teeth in front of the basal lamella, which is completely concealed under the clypeal apron. Frontal carinae conspicuously projecting laterad beyond the head proper (shown by dotted lines in Fig. 22). Dorsum of head smooth and shining, with scattered, minute, piligerous punctulae; only lateral portions of clypeus, frontal carinae and posterior margins of head bear fine, superficial, reticulate-rugulose sculpture. Sides of head and gular face smooth and shining. Inferior border of sides of head sharply marginate and carinate. Eyes small with about a dozen facets. Antennal scape clavate, finely reticulate-punctate; funicular segments II and III distinctly longer than broad.

Thorax as shown in Fig. 21; somewhat compressed, mostly smooth and shining; mesonotum, basal and declivous face of epinotum, as well as most of the borders of all thoracic sclerites, finely reticulate-punctate, with longitudinal rugulae on mesonotum, basal face of epinotum and lateral border of pronotum. Humeral angles bluntly rounded. Dorsum of thorax laterally marginate in its entire length. Mesoepinotal suture vestigial, indicated by a slight depression behind a transverse ruga. Epinotal spines horizontal, scarcely diverging caudad, somewhat shorter than length of petiolar node, compressed, triangular in side-view, posterior base prolonged downwards as a prominent laminule flanking the declivous face of epinotum. Legs conspicuously granulate and subopaque.

Pedicel as shown in Figs. 21 and 23. Petiole conspicuously pedunculate; finely reticulate-punctate and subopaque; node forming in profile a distinct anterior peak, its dorsum also somewhat rugulose. Spongiform appendages both on sides and

posterior border of disc of node, and a prominent longitudinal crest on ventral face of both peduncle and node. Disc of postpetiole smooth and shining. Gaster smooth and shining. Tergum I with about 14 basidorsal costulae, sternum I with the usual pad of spongiform hairs.



Glamyromyrmex substrictus n. sp.

Worker (holotype): Fig. 21. Head, thorax and pedicel in profile. Fig. 22. Head in full-face view. Fig. 23. Pedicel in dorsal view. — Kempf *det.*

Erect hairs flagelliform, two pairs on pronotum, three pairs on both petiolar and postpetiolar node, more numerous and widely scattered on tergum I of gaster. Shorter decumbent hairs along lateral borders of gular face of head, of mesonotum and basal face of epinotum. Hairs on antennae and legs rather long and subappressed. Disc of dorsal face of head with minute, scattered and appressed hairs.

Type. — 1 worker (holotype), taken by Fritz Plaumann at Bocaiuva do Sul, Paraná State, Brazil, in December 1963 (WWK, n. 3834).

Discussion. — In my key to the species of *Glamyromyrmex* (Kempf, 1960: 447) the present species runs out with *convexiceps* Santschi on account of the well-developed ventral spongiform crest of petiole and postpetiole, but lacks erect hairs on posterior dorsum of head and differs also in the extremely flattened head, the excised anterior border

of clypeus and the sinuous borders of the frontal carinae, the long funicular segments II and III. *Glomyromyrmex beebei* Wheeler seems even closer, according to over-all similarity, but differs from *substrictus* in the narrower excision of the anterior border of clypeus, much shorter and more strongly vaulted mandibles, the low, gently rounded petiolar node, which lacks a prominent anterior peak, the punctulate-rugose gula and pleurae of thorax.

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