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(With 20 text-figures)

Introduction

The genus-group taxon *Hylomyrma* was established by Forel (1912) as a subgenus of *Pogonomyrmex* for two new species, each based on a lone holotype: *columbica,* a worker from northern Colombia, and *goeldii* (= *reitteri*), a female from Rio de Janeiro. In his «Key to the genera and subgenera of ants» Wheeler (1922) gave *Hylomyrma* the well-deserved full generic ranking without casting doubts upon the evident affinity that vinculates this group with *Pogonomyrmex* and *Ephebomyrmex.*

Only much later (Brown, 1953) it was discovered that two other species previously described (*reitteri* and *balzani*) likewise belong to the present genus. These two species, because of the trenchant ridge formed by the postero-lateral clypeal border in front of the antennal fossa, were originally described in genus *Tetramorium.* In 1915, Emery, without direct knowledge of the original *Hylomyrma* species, and mislead by Forel who incorrectly described the antero-inferior bidentate clypeal apron as the labrum, created for *balzani* and *reitteri* a new genus-group taxon, *Lundella,* which is of course a junior synonym of *Hylomyrma.*

Kempf (1960) revised the generic definition and dealt with the species level taxonomy of *balzani* and *reitteri* which lead to the proposition of two new synonyms. Later (1961) he made known two new species from the Guianas, and in 1964 redescribed the holotype of the Panamanian *dentiloba* and offered the first key to the known species in this group. The Wheelers (1960) diagnosed the characters of the larvae.

Through the courtesy of my friend and colleage, Dr. W. L. Brown, Jr., of Cornell University, I received recently for study all the pertinent material accumulated in the Museum of Comparative Zoology at Harvard University (MCZ), consisting of numerous specimens from Central Brazil, the upper Amazon basin, Peru,

Guianas, Trinidad, Colombia, Panama, British Honduras, and Mexico. This collection proved very interesting not only account of the many different localities of origin, but also because of the presence of six new species, most of them represented by a good number of specimens.

Dr. Claude Besuchet, of the Museum d'Histoire Naturelle de Genève, Switzerland (MHNG), upon my request kindly sent me on loan the holotype of *columbica* which was not recognizable by the original description.

Mr. Fritz Plaumann continued to provide me with numerous specimens of *balzani* and *reitteri* from southeastern Brazil, and quite recently managed to capture the first winged female and the hitherto unknown male in the genus. Lt.-Cel. Moacyr Alvarenga sent me some time ago two isolated males from northeastern Brazil. This latter material is deposited in my private collection (WWK).

With all these specimens at hand, a full-scale revision was nearly mandatory, even though in the present case, the revisionary work consisted mainly in amplifying the roster of known forms. Nevertheless, the assimilation of the specific characters and the recognition of the mutual relationship and distinctness of the species involved, should justify the title of this study.

Acknowledgments. I am greatly indebted to all persons and institutions already mentioned above. Furthermore, I gratefully mention the financial help by the "Conselho Nacional de Pesquisas" of Brazil, in the form of a fellowship, and the gift of a new Zeiss-IV Zoom stereoscopic microscope by the "Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP)".

Genus **Hylomyrma** Forel

Tetramorium (in part): Mayr, 1887: 621. Emery, 1894: 165.
Pogonomyrmex subgen. *Hylomyrma* Forel, 1912: 16 (type of the subgenus: *P. (H.) columbicus* Forel, 1912, by original designation). Emery, 1922: 49.
Lundella Emery, 1915: 191 (type of the genus: *Tetramorium reitteri* Mayr, 1887, by original designation). Emery, 1922: 292.
Hylomyrma: Wheeler, 1922: 660. Brown, 1953: 3 (syn.). Kempf, 1960: 429.

Diagnostic Characters

Worker. Mandibles elongate, with strongly oblique chewing border, bearing apically 6 (5-7) small teeth; basall a bluntly rounded curvature marks the transition from the apical to the basal border (Fig. 16). Clypeus with a prominent inferior, bidentate, mesial apron which is separated from the posterior, longitudinally convex mesial lobe by a deep transverse incision.

Gular face of head without psammophores. Antennae 12-segmented. Funicular segments 2-7 more or less transverse, 8-11 forming a somewhat differentiated apical club (Fig. 15). Palpal formula (*balzani, reitteri*) 4:3. Thorax without distinct transverse sutures on dorsum. Propodeum armed with a pair of well-developed spines. Inferior propodeal plates, flanking the insertion of petiole, prominent and bidentate (Fig. 1). Petiole strongly pedunculate, node cylindrical and more or less differentiated from preceding peduncle. Mid and hind tibiae with minutely but distinctly barbulate apical spur. Base of tergum I of gaster with a transverse band of longitudinal or punctulate striae of variable length.

Female. With the same characters as the worker. In addition, the ocelli are small, not protruding. Pterothorax with a flat mesonotal scutum, which is predominantly longitudinally costate or rugose. Basal face of propodeum short; propodeal spines well-developed. Wings as shown in Figs. 19 and 20; note the presence of two closed cubital cells, due to the well-formed cross-veins *r-m*; radial cell either open or closed.

Male. Mandibles with 4 (5) teeth. Antennae 13-segmented; funiculus not forming a club; scapes shorter than funicular segment 2, the latter shorter than the apical segment (12). Eyes large, ocelli small. Occipital border without a pronounced flange. Mayrian furrows on mesonotal scutum may be imperfectly closed due to the lack of either *r-m* or *Mf4*. Radial cell closed, *Rs* attaining anterior margin of wing. Mid and hind tibiae with pectinate apical spur.

Larvae. The Wheelers have studied the larvae of «*columbica*» (= *versuta* sp. n.), and arrived at the following conclusions as regards their generic identity and relationship:

> "*Hylomyrma* has been regarded as the least specialized genus in the tribe Myrmicini. It has also been considered as a subgenus of *Pogonomyrmex*. Larval characters do not support either viewpoint. It is certainly generically distinct from *Pogonomyrmex* because of its mandibular shape and spinules and because of its hooked hairs. It is perhaps less specialized than *Pogonomyrmex* in mandibular shape and spinules but is more specialized in having fewer spinules on the other mouth parts and in the hooked body hairs". (Wheeler & Wheeler, 1960: 3-4).

Systematic position and relationship. *Hylomyrma* is doubtless a member of the more generalized and primitive Myrmicinae, and a close relative of *Pogonomyrmex* and *Ephebomyrmex*, because of the short frontal carinae, the 12-segmented antennae with ill-differentiated 4-segmented apical club, the lack of transverse sutures on thoracic dorsum, the armed propodeum, the pedunculate petiole and the subcampaniform post-

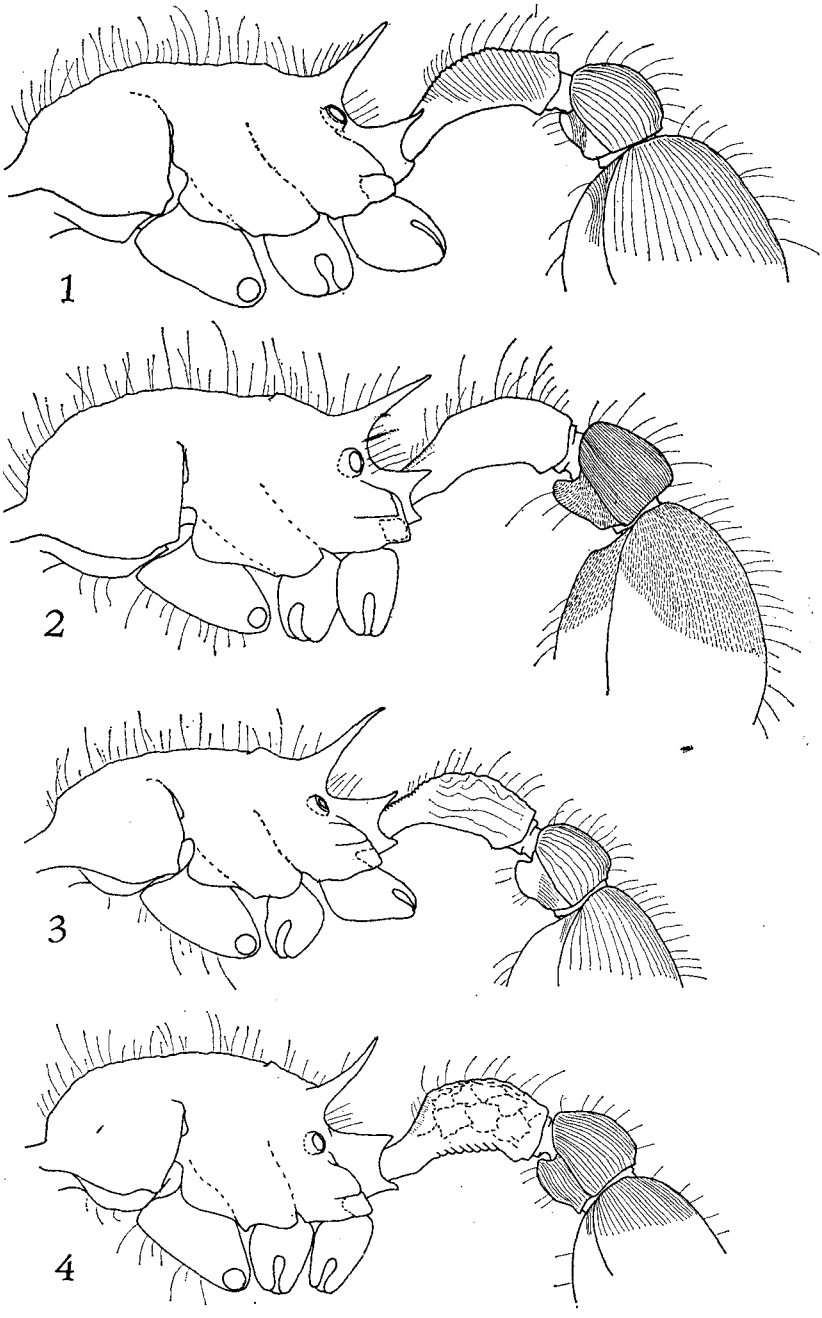
petiole with a transverse ventral swelling, the pectinate spur on mid and hind tibiae in workers and females. The generic distinction lies in the shape of the mandibles, the bidentate clypeal apron, the bidentate inferior propodeal plates. The male of *Hylomyrma* differs from that of *Pogonomyrmex* and *Ephebomyrmex* by the lack of a prominent occipital flange and the length of funicular segment 2 of antennae which is shorter than segment 12, the apical segment.

Whereas *Pogonomyrmex* and *Ephebomyrmex* ants are predominantly, if not exclusively, xerophilous granivores, the *Hylomyrma* ants have apparently retained the more primitive predatory habit and taken to the forest floor cover.

Morphologically the group *Hylomyrma* is very homogeneous, the specific distinctions being based principally on differences of sculpture, pilosity and shape of propodeal armature and petiole. Quantitative characters seem to be of lesser importance, although they do offer good separatory characters in a few instances, such as the length of the antennal scape and the length of hind femur as compared with the head width.

Note on measurements. *Head length* is the maximum measurable length of head proper, between two parallels drawn through the tip of the clypeal spines and the posteriormost part of occiput in full-face view. *Head width* is the maximum width of the head capsule measured in the same view as head length, behind eyes. *Scape length* is the chord length of the antennal scapes, excluding the basal condyle lodged within the antennal socket. *Weber's length of thorax* is the oblique length of thorax from side-view, measuring from the base of anterior pronotal declivity to metasternal extremity, in the present case, to the tip of the inferior tooth of propodeal plate. *Hind femur length* is the chord length of the hind femur. *Total length* of the body is the summed length of head plus closed mandibles, thorax length, axial lengths of petiole, postpetiole and gaster, measured separately.

Ethology and distribution. Because of their cryptic way of life, the ants of genus *Hylomyrma* have been poorly collected heretofore. But they have come to light, at least as rare, isolated individuals, whenever special collecting techniques have been employed. Thus Mr. Plaumann, of Nova Teutônia, S.C., has succeeded in obtaining during the past 20 years several centuries of specimens of *balzani* and *reitteri* from many localities of southeastern Brazil by his original method of «mass-sifting» of forest floor cover. Recently, S. & L. Peck obtained similar results both in southeastern Colombia as in British Honduras. At the former station they were able to capture five different species, four new to science, in berlesates of forest floor cover.



Hylomyrma, workers, Figs. 1-4; thorax and pedicel in side-view. 1. *praepotens* sp. n. 2. *immanis* sp. n. 3. *sagax* sp. n. 4. *dolichops* sp. n. (Kempf *del.*).

Yet the *Hylomyrma* ants have scarcely given away the secrets of their life, due to their apparently unobtrusive mode of living. Sifting of leaf-mold and trap-collecting reveal practically nothing about the biology of the captured specimens except for stablishing their presence in that particular environment, which in case of *Hylomyrma* means that they are denizens of the forest floor cover. The only additional information is from E. O. Wilson (quoted by the Wheelers) on *Hylomyrma columbica* (= *versuta* sp. n.), captured in Vera Cruz, Mexico, and kept for observation in an artificial nest: «In captivity workers of this species captured *Orosophila* spp., *Isotoma viridis* Bourlet, and a few other small insects offered them in the food chamber, and fed directly to the larvae». (Wheeler & Wheeler, 1960: 4).

The genus is now known to occur from Vera Cruz in Mexico to southeastern Brazil and adjoining areas of Argentina and Paraguay. Within this territory the individual species appear to be more or less regionalized, but collecting records are still too poor to speculate on this topic. It suffices to say that *reitteri* and *balzani* occur throughout southeastern Brazil, the latter having been recently found also in gallery forests of central Brazil, near Brasília. Two other species, *blandiens* and *immanis* (sp. n.), occur both in the Guianas and in the western part of the Amazon basin.

Hylomyrma balzani (Emery)

(Fig. 13)

Tetramorium balzani Emery, 1894: 165 (worker; Paraguay: Asunción).
Lundella balzani Emery, 1915: 191 (n. comb.). Santschi, 1933: 117 (Argentina, Misiones: Loreto).
Lundella speciosa Borgmeier, 1937: 241-2 (worker; Brazil, Rio de Janeiro; Itatiaia).
Hylomyrma balzani: Kempf, 1960: 434-6, figs. 12, 13 (worker, female; Argentina, Misiones: Loreto. Brazil, Rio Grande do Sul: Nova Petrópolis; Santa Catarina: Chapecó, Concórdia, L. Facão, Nova Teutônia, Xanxerê, Xaxim; Paraná: Porto Vitória; Rio de Janeiro: Itatiaia; Guanabara: Floresta da Tijuca, Rio de Janeiro).

The unique features of this species are the smooth disc of postpetiolar dorsum and the anteriorly strongly peaked petiolar node, above the peduncle. The differences that separate *balzani* from the sympatric *reitteri* are the following:

Worker. Total length 3.7-4.3 mm; head length 0.91-0.98 mm; head width 0.85-0.94 mm; Weber's length of thorax 1.05-1.27 mm. Sculpture of dorsum and sides of thorax decidedly coarser, more irregular and consisting of vermiculate and often reticulate rugae. Basal face of propodeum without regular and distinct transverse costulae. Transverse costulae on dorsum of petiolar peduncle superficial to obsolete, but quite distinct on ventral surface

of node. Petiolar node (Fig. 13) strongly peaked in front forming a right angle in side-view, coarsely and irregularly reticulate-rugose. Dorsum of postpetiolar node practically smooth and shining, especially on disc; longitudinal costulae, if present, at best superficial. Basidorsal striation of gaster superficial and distinctly shorter than half the length of the postpetiole.

Female. Total length 4.3-4.8 mm; head length 0.94-1.01 mm; head width 0.93-0.98 mm; Weber's length of thorax 1.27-1.41 mm. Head dorso-laterally, i. e. portion between eye and front, longitunally, not transversely nor obliquely, costate-rugose. Sides of pronotum with irregular, vermiculate and/or reticulate coarse rugae. Mesothoracic scutum at anterior margin usually with less than 3 transversely arched, concentric costae; longitudinal costae of scutum generally converging to a single point in front on anterior margin. Basal face of propodeum without distinct, regular, transverse costae. Upper tooth of inferior propodeal plate often blunt, occasionally the upper corner is completely rounded. Petiole with transverse costae on ventral surface. Dorsum of postpetiole with the longitudinal costulae superficial, sometimes vestigial, but never completely smooth. Basidorsal striation of gaster as short as in worker.

New locality records: Brazil, Paraná State: Laranjeiras, April 1965, F. Plaumann leg. (WWK n. 4551), and Rondon, April, 1965, F. Plaumann leg. (WWK n. 4772); Federal District: Brasília, Parque Nacional, gallery forest, 13-14 Mayr 1971, W. L. Brown, Jr. & D. E. Brown leg. (MCZ, WWK). This last record is surpresing inasmuch as it registers the species for the first time from Central Brazil.

Note. *Hylomyrma balzani* is also very close to the Mexican *versuta*, a new species described below, from which it differs in the shape of the petiolar node (cf. Figs. 8 and 13), the smooth postpetiolar dorsum, the irregularly rugose mesonotum, and the shorter hairs on gaster. For further differences see under *versuta*.

Hylomyrma blandiens Kempf

(Figs. 5, 11)

Hylomyrma blandiens Kempf, 1961: 500-1, fig. 8 (worker, female; Suriname: Dirkshoop, La Poulle).

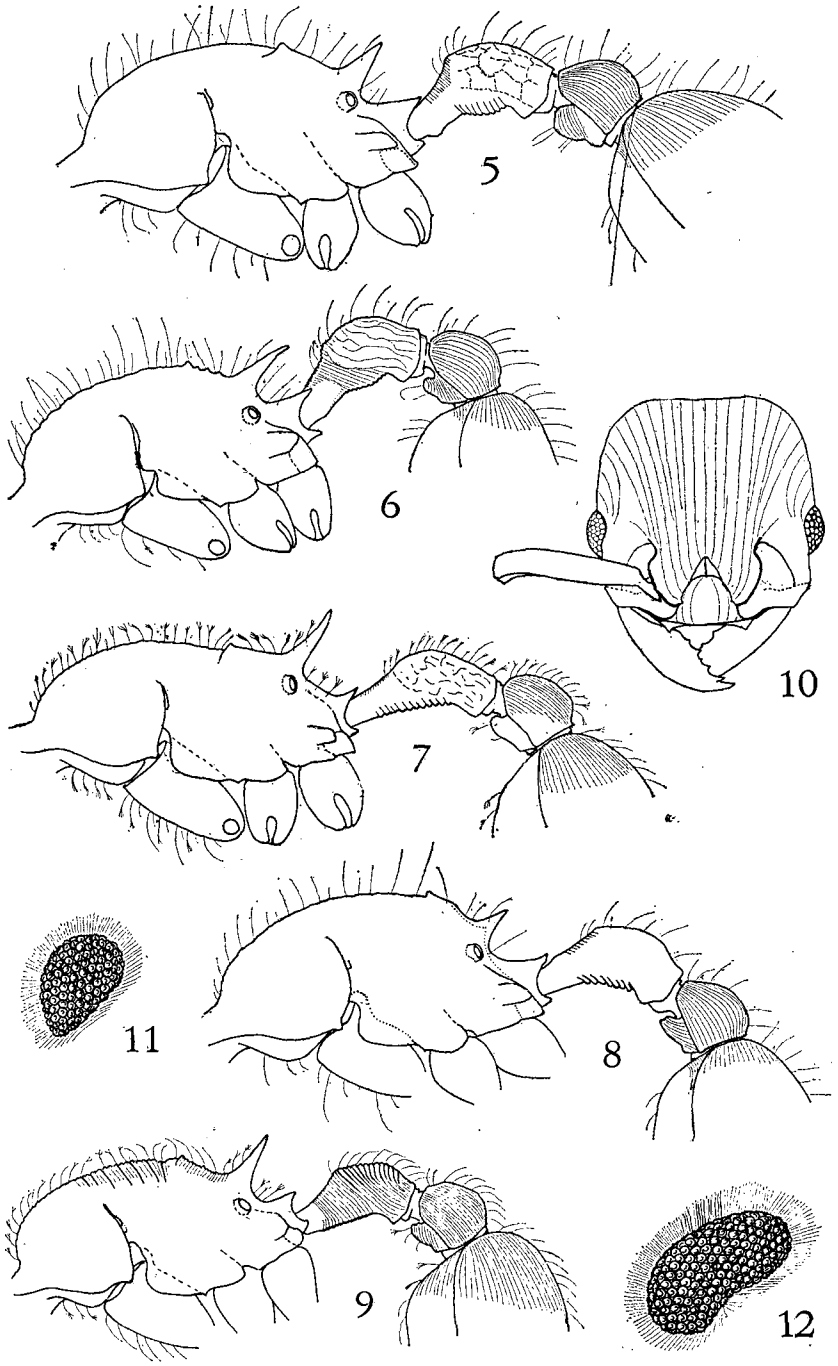
A close relative of the Panamanian *dentiloba, blandiens* is distinct by the transversely striate posterior surface of femora and the longitudinally striato-rugose extensor face of tibiae.

Worker. Total length 4.0 (4.2) mm; head length 0.85 (0.88) mm; head width 0.80 (0.84) mm; scape length 0.61 (0.67) mm; Weber's length of thorax 1.20 (1.27) mm; hind femur length 0.81 (0.85) mm (the first measurement is that of the holotype, the measurements in parentheses refer to the specimen from Trinidad). Frontal carinae less expanded laterad than in *dentiloba*, the maximum width between the outer border of each carina less than one half of head width. Coarse rugae on front and vertex of head less distinct, blunt, finely punctate and opaque. Posterior face of all femora cross-striated. Tibiae longitudinally striato-rugose on extensor face. Propodeal spines (Fig. 5) rather longer than upper tooth of inferior propodeal plates. Petiole with the node more distinctly marked off from the peduncle, forming in profile an obtuse angle at the junction of dorsum of node and the anterior ascending surface. Basidorsal costulae of gaster at least as long as postpetiolar node. Sculpture of head, thorax and petiolar node finely striolate-punctate, this microsculpture not being interrupted by, but extending over, the rugose or reticulate-rugose macrosculpture. Eyes (Fig. 11) distinctly shorter than one third of head length.

Female. Total length 4.2 mm; head length 0.85 mm; head width 0.80 mm; scape length 0.59 mm; Weber's length of thorax 1.25 mm; hind femur length 0.82 mm. Having the same diagnostic characters as the worker. Mesothoracic dorsum and sides regularly and more coarsely longitudinally striato-costulate, without superimposed reticulate-rugose macrosculpture; striae and costulae on scutum of varying gauge, stronger costulae are separated from each other by several finer ones. Basal face of propodeum with regular, transversely arched, very fine striation. Wings unknown.

Specimens examined: Suriname, Dirkshoop, soil sample from primary forest, May 1959, J. van der Drift leg., 1 worker (holotype, WWK); La Poulle, soil sample from shrub on sand, August 1959, J. van der Drift leg., 1 female (paratype, WWK). Trinidad, Nariva Swamp, April 23, 1935, N. A. Weber leg., n. 140, 1 worker (MCZ). Colombia, Amazonas: 7 km NW of Letícia, 20-25 February 1972, S. & J. Peck leg., n. 230, in berlesate of forest litter, 7 workers (MCZ, WWK). Peru, Loreto: Ramón Castillo (5 km NW of Letícia, Colombia), 23 February 1972, S. & J. Peck leg., n. 231, in berlesate of forest litter, 44 workers, 8 females (MCZ, WWK). Utinga, Pará (Kempf 1975

Discussion. The holotype and the specimen from Trinidad, aside from the characters already mentioned, have also a more or less



Hylomyrma, workers, Figs. 5-9: thorax and pedicel in side-view. 5. *blandiens* Kempf. 6. *versuta* sp. n. 7. *longiscapa* Kempf. 8. *dentiloba* (Santschi). 9. *transversa* sp. n. — Fig. 10. *dentiloba* (Santschi), head of worker. — Figs. 11-12: compound eye. 11. *blandiens* Kempf. 12. *dolichops* sp. n. (Kempf *del.*).

developed subpetiolar tooth, the basidorsal costulae of gaster distinctly longer than the postpetiolar length, the striolate microsculpture on mesonotum longitudinal, whereas the specimens from Colombia and Peru lack the subpetiolar tooth entirely, have the basidorsal costulae of gaster shorter, not longer than length of postpetiole, the macrosculpture of reticulate rugae a bit coarser on thorax and the striolate-punctate microsculpture on mesonotum usually transverse.

Six workers from the same lot taken near Leticia, Colombia (n. 230), are even more aberrant because of the nearly smooth femora and tibiae, the still shorter basidorsal costulae of gaster (shorter than postpetiolar length), approaching thus the condition obtained in *dentiloba*, from which they differ however in the long propodeal spines and the more narrowly expanded frontal carinae. Only with more material of the *dentiloba*-phase from Panama and the surrounding areas the *blandiens-dentiloba* problem may eventually be settled.

An even more serious doubt is cast upon the validity of *blandiens* by the holotype of *columbica*, just received during the final write-up of this paper. This problem will be discussed below under *columbica*.

Hylomyrma columbica Forel

Pogonomyrmex (*Hylomyrma*) *columbicus* Forel, 1912: 16-7 (worker; Colombia, Guajira: Road from Dibulla to San Antonio, Sierra Nevada de Santa Marta).

Worker (holotype). Total length 4.3 mm; head length 0.95 mm; head width 0.89 mm; scape length 0.65 mm; Weber's length of thorax 1.30 mm; hind femur length 0.84 mm. The specimen appears somewhat bleached; color light reddish brown; femora and tibiae light yellowish brown.

Mandibles elongate with strongly oblique chewing border which, albeit heavily worn, shows the presence of 6 small teeth; blades finely densely, longitudinally striato-costulate, with about 16-18 costulae across their greatest diameter.

Head subquadrate, opaque; sides and occiput gently convex; occipital corners broadly rounded. Antero-inferior mesial apron of clypeus little projecting with a pair of small but conspicuous teeth, one at each side; the interval between the teeth nearly straight. Mesial lobe of clypeus above and behind the apron without coarser, widely spaced costae and rugae. Frontal area impressed, traversed by two longitudinal, posteriorly confluent, costae. Frontal carinae short, gently convex, the maximum width between their outer edges equal to one half of head width. Compound eyes sublentiform, antero-inferiorly drawn out into a blunt point, their maximum diameter much less than one third of head length, less than twice the minimum diameter; about 11 facets across the greatest and 7 across the shortest diameter. The entire head capsule very finely and densely striolate-costulate; the striolae longitudinal on front, vertex and cheeks, nearly

transverse between front and eyes, semicircular within antennal fossae, longitudinal but converging mesad in front on gular surface; on front and vertex there are about 15 stronger, longitudinal, widely spaced costulae, the lateral ones diverging obliquely caudad; similar stronger costulae postero-laterally behind eyes and on occipital corners; microsculpture within striolae and on costulae at best vestigial; fine, serially arranged punctulae practically absent. Likewise the reticulate-foveate macrosculpture is generally absent, vestigial postero-laterally on head. Antennal scapes obliquely bent at base, longitudinally costulate-rugose above and on sides; funicular segments 2-7 strongly transverse, 8-10 almost as long as broad, 11 only slightly longer than 9 and 10 combined.

Thorax densely and rather regularly striolate-costulate, very indistinctly punctulate; the costulae variable in gauge, the stronger ones separated from each other by several finer ones; they are transverse anteriorly on pronotum, forming transverse arches on second half of pronotal disc and most of the mesonotum, the posterior third of which is mesially longitudinally costulate in front of the conspicuous transverse keel on basal face of propodeum; they are oblique on sides of pronotum, horizontal on mesopleura, oblique with a foreward slant on sides of propodeum, continuing transversely across the basal face. Coarse reticulate-foveolate macrosculpture practically absent on dorsum of thorax, vestigial only on sides of pronotum. Propodeal spines a bit longer than depth of petiolar node, little raised and diverging caudad. Inferior propodeal plates bidentate, the upper tooth much stronger than the inferior tooth, the former distinctly shorter than the propodeal spine. Coxae very finely, densely, transversely striate. Backside of all femora cross-striated. Extensor face and sides of tibiae longitudinally but superficially striato-rugose.

Petiole with peduncle smooth on sides, dorsally transversely striate. Node differentiated from peduncle in side-view, although the angle formed by the ascending and dorsal faces in profile is less distinctly marked than in *blandiens*. Dorsum of node transversely costulate-striolate on anterior half, the costulae continuing on sides and slanting obliquely downward to join up with the transverse costulae on ventral surface which lacks anteriorly a subpetiolar tooth. Posterior half of dorsum of node longitudinally striolate-costulate; coarse reticulate-foveolate macrosculpture absent. Postpetiole densely and finely longitudinally costulate above and below. Basidorsal costulae of gaster dense and a bit longer than length of pospetiole: base of sternum 1

of gaster laterally vestigially striolate-costulate, smooth in the middle.

Long, pointed standing hairs abundant on body; oblique on legs. Antennal scapes with 2 kinds of hairs on leading surface, longer erect ones with shorter oblique ones. Hairs on gaster nearly as long as thickness of tibiae.

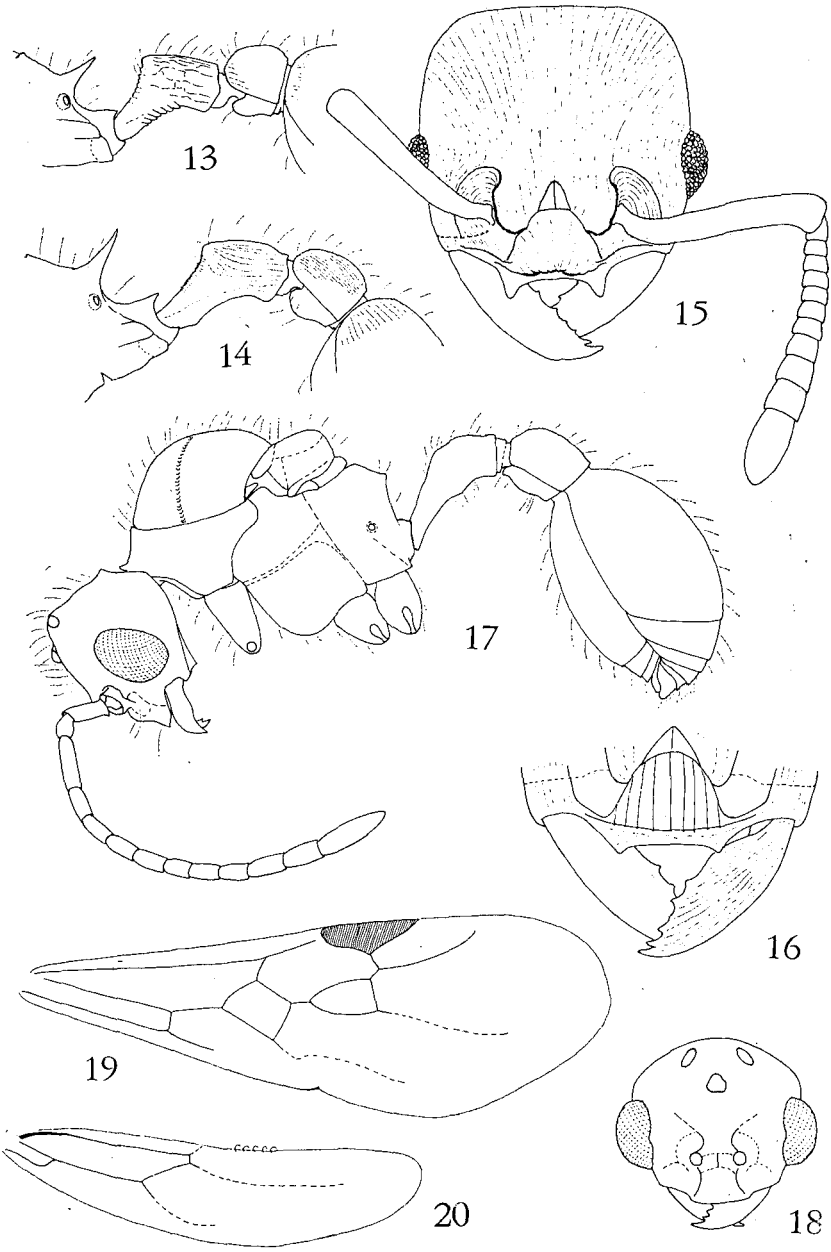
Specimen examined: Colombia, Guajira: Road between Dibulla and San Antonio, A. Forel leg. 1 worker (holotype, MHNG).

Discussion. The present species belongs to the group of forms which have a finely striato-costulate head, thorax and petiole, to which also pertain *blandiens, dentiloba* and *dolichops*. Whereas *dolichops* remains sufficiently distinct by its uncommonly larger eyes and the short hairs on gaster, *dentiloba,* and even more so *blandiens,* are dangerously close to *columbica,* and heir validity has become doubtful. Inasmuch as *columbica* is known only from the lone holotype, and *dentiloba* by just a few specimens besides the type, I believe it is too early for proposing full-scale synonymy. I prefer to wait for more pertinent material in order to solve this problem definitely. For the time being, there are a few characters that help to separate the three forms, although it is recognized that these characters are subject to variation and may eventually break down as distinguishing means.

First of all, *columbica* differs from relatively abundant though variable material of *blandiens* in the following characters: 1. clypeal teeth stronger, not vestigial, but never as strong as in *praepotens* and *sagax;* 2. rugae or costae on front and vertex more numerous and sharper (15 against 12 or less); 3. the nearly complete lack of the finely punctulate microsculpture on costulae and within striae on head, thorax and petiolar node, i.e. the costulae and their intervals are not "beaded"; 4. both sides of head and thorax lack completely the coarse reticulate-foveate macrosculpture which is very distinct in *blandiens.*

Sencondly, the differences between *columbica* and *dentiloba* are seemingly more conspicuous as follows: 1. mandibular costulae finer and more numerous (16-18) in *columbica,* coarser and fewer (at most 14) in *dentiloba;* 2. mesial lobe of clypeus with coarser, widely spaced costae besides the fine costulae in *dentiloba,* no coarse costae in *columbica;* 3. fewer rugae (12-13) on front and vertex in *dentiloba,* at least 15 in *columbica;* 4. coarse reticulate-foveate macrosculpture present in *dentiloba,* absent in *columbica;* 5. propodeal spines relatively short and subequal to upper tooth of inferior propodeal plates in *dentiloba,* much longer than the same tooth in *columbica;* 6. basidorsal costulae of gaster decidedly shorter than length of postpetiole in *dentiloba,* conspicuously longer than length of postpetiole in *columbica;* 7. the presence of fine and serially arranged punctulae on costae and striae in *dentiloba,* the absence of the same microsculpture in *columbica.*

It must be confessed that the recourse to such minutiae in separating the three species might perhaps be due to the subjective fear of recognizing in *columbica* a highly variable and widespread species. Yet according to the data I was able to glean from all specimens examined, *columbica* is not just an intermediate between the two extremes represented by *blandiens* and *dentiloba.* The former differs from the latter two in the already stated particulars of the macro and microsculpture, and the better developed clypeal teeth, its principal distinguishing features.



Hylomyrma, Figs. 13-14: propodeum and pedicel of worker in side-view. 13. *balzani* (Emery). 14. *reitteri* (Mayr). — Fig. 15. *praepotens* sp. n., head of worker. — Fig. 16. *reitteri* (Mayr), mandibles and clypeus of worker. — Figs. 17-18: *Hylomyrma* sp., male. 17. body in side-view. 18. head in full-face view. — Figs. 19-20: *reitteri* (Mayr), female. 19. fore wing. 20. hind wing (Kempf *del.*).

Note. The redescription of the holotype of *columbica* was given in a highly detailed fashion because the specimen, due to its mounting, did not lend itself to drawings.

Hylomyrma dentiloba (Santschi)

(Figs. 8, 10)

Lundella dentiloba Santschi, 1931: 271 (worker; Panama: France Field).
Hylomyrma dentiloba: Kempf, 1964: 52-4, figs. 8, 9 (worker; Panama: France Field; ?Nicaragua: Masilena Creek nr. Bluefields).

The scarcely collected species is a close relative of *blandiens* from which the worker (female still unknown) differs as follows:

Worker. Total length 3.7 (3.5-3.7) mm; head length 0.83 (0.78-0.83) mm; head width 0.75 (0.73-0.76) mm; scape length 0.53 (0.52-0.57) mm; Weber's length of thorax 1.15 (1.03-1.09); mm; hind femur length (0.67-0.73 mm) (the first measurement is that of the holotype examined years ago but not at hand at the write-up of this paper, the following measurements in parentheses are those of the newly discovered specimens). Frontal carinae (Fig. 10) more expanded laterad, the maximum distance between their outer edges slightly exceeds one half of the head width. Rugae on front and vertex distinct, sharper, not visibly punctate and therefore shining. Femora and tibiae entirely smooth and shining except for a few vestigial striae on base and apex of femora and on extensor face of tibiae. Petiole (Fig. 8) with a differentiated node, distinct from the peduncle but not sharply marked off antero-dorsally in profile, the junction being rounded. Basidorsal striae on gaster only half as long as the length of the postpetiole.

New locality record. Panama Canal Zone, Barro Colorado Island, January 1960, W. L. Brown, Jr. & E. S. McCluskey leg., n. B-43, 2 workers (MCZ, WWK).

Discussion. *Hylomyrma dentiloba,* with *blandiens* and *dolichops* is characterized by the peculiar sculpture pincipally of thorax but also of head and petiolar node, i. e. the finely striolate-punctulate ("beaded") microsculpture extending over, and not interrupted by, the macrosculpture consisting of coarse rugae. The problem of the difference between *dentiloba* and *blandiens,* which will not affect the validity of the present species, has already been dealt with above under *blandiens.* The differences that distinguish *dentiloba* from *columbica,* and the problems arising from their close morphological affinity are discussed under this species.

Note. The Nicaraguan specimen from Masilena Creek, nr. Bluefields, which I hesitantly placed under the new species *versuta* described below, even though this arrangement is not completely satisfactory. The possibility of a continuous cline of variation from the Guianian *blandiens* over the Panamanian *dentiloba* to the Mexican *versuta* remains open, but is presently just a surmise which lacks factual proof.

Hylomyrma dolichops sp. n.
(Figs. 4, 12)

Worker (holotype). Total length 4.6 (4.2-4.7) mm; head length 0.97 (0.89-1.00) mm; head width 0.92 (0.89-0.97) mm; scape length 0.67 (0.62-0.70) mm; Weber's length of thorax 1.35 (1.24-1.43) mm; hind femur length 0.94 (0.92-0.97) mm; Dark reddish brown; head, petiole, postpetiole and gaster infuscated; mid and hind coxae and inferior propodeal plates medium brown.

Mandibles with 6 teeth on chewing border, blades finely longitudinally costulate, over 15 costae across their greatest width.

Head subquadrate, opaque; sides scarcely convex, occipital corners very broadly rounded, occiput gently convex. Antero-mesial apron of clypeus feebly bidentate, little protruding in full face view. Mesial clpeal lobe with 6-8 stronger and widely spaced, longitudinal costae, with several longitudinal striae or fine costulae between each pair of costae. Frontal area indistinct. Frontal carinae narrow, little rounded. Front and vertex covered with coarse, longitudinal and somewhat vermiculate and parallel rugae, occasionally anastomosing with each other, none of them extending without interruptions from front to occiput, about 14 rugae across front at level of posterior end of frontal carinae. Finer rugae on sides of head that converge above eyes; gular surface finely and densely striato-costulate, the costulae converging mesad in front, some of them forming concentric arcs. Microsculpture of dorsum and sides of head consisting of very fine and punctulate («beaded») striolae or rugulae; even the coarse rugae on front and vertex are slightly punctulate. Eyes (Fig. 12) unusually elongate, with about 18 facets across the greatest, 8-9 across the shortest diameter; maximum diameter of eyes subequal to one third of head length. Antennal scapes obliquely bent at base, obliquely longitudinally rugulose above and on sides; funicular segments 2-7 transverse, 8-10 about as long as broad, 11 a little longer than 9 and 10 combined.

Thorax (Fig. 4) opaque, entirely covered (except the finely and regularly transversely striolate declivous face of propodeum) with minute, punctulate («beaded») striation, longitudinal on sides, mostly transverse on dorsum, not interrupted by, but extending over the macrosculpture. The latter reticulate-rugose on pronotum and sides of thorax, more or less transverse on mesonotum, irregular on basal face of propodeum, which bears in front a

slightly raised transverse keel. Propodeal spines longer than depth of petiolar node, obliquely raised and slightly curved cephalad apically when seen from the side, smooth and shining. Inferior propodeal plates with a much shorter, triangular upper tooth and a subequal, apically blunt, lower tooth. Fore coxae finely transversely striate with over 40 striae between base and origin of trochanter. Middle and hind coxae indistinctly striolate. Femora mostly smooth and shining, fore femora with vestigial cross-striation above and on sides of base. Extensor face of tibiae longitudinally striato-rugose, the other sides practically smooth and shining.

Petiole (Fig. 4) with a short and smooth peduncle, differentiated from the node proper which forms in front an obtuse peak in side-view. Ascending face of peduncle, below the peak, finely transversely costulate; node reticulate-rugose above and on sides, covered with the same type of microsculpture as thorax; ventral surface of node with about 6-8 transverse costae. Postpetiole trapezoidal from above, about as long as broad, regularly longitudinally and densely costate, with about 25 costae visible when seen from above; ventral surface likewise finely striato-costulate throughout. Tergum I of gaster with fine, longitudinal striation on base, striae a little shorter than length of postpetiole. Sternum I of gaster vestigially striate anteriorly on sides only, smooth in the middle behind the postpetiolar insertion.

Hairs abundant, erect or suberect, pointed and of unequal length on body; erect or suberect, slightly blunt at apex, shorter than maximum width of tibiae, on legs, postpetiole and on gaster. Antennal scapes having besides long erect hairs other short and subappressed ones.

Female (paratype). Total length 5.0 mm; head length 0.97 mm; head width 0.94 mm; scape length 0.67 mm; Weber's length of thorax 1.51-1.57 mm; hind femur length 1.00-1.03 mm. Resembling the worker except for the differences peculiar to the caste. Note the following: Ocelli very small and inconspicuous. Pronotum above indistinctly transversely rugulose, sides more coarsely reticulate-rugose. Mesonotum: scutum and scutellum longitudinally costate-rugose. Mesopleura regularly, rather coarsely horizontally costate. Basal face of propodeum finely longitudinally striato-costate in front, transversely striolate between propodeal spines and below on declivous face. Wings unknown.

Types. Colombia, Amazonas: 7 km NW of Leticia, 20-25 February 1972, S. & J. Peck leg., n. 230, in berlesate of forest

litter, 6 workers (holotype and paratypes) and 2 females (paratypes). Holotype, two paratype workers and a paratype female to be returned to the MCZ collection, the rest to be kept in the WWK collection.

Discussion. This species belongs to the difficult *blandiens*-group, characterized by the finely striolate-punctulate microsculpture extending over the macrosculpture on head thorax, and petiole. It differs from *blandiens, columbica* and *dentiloba* by the much larger, antero-inferiorly broadly rounded eyes, the much longer propodeal spines which in the worker caste are curved cephalad in side-view, the practically smooth femora (as in *dentiloba*), the short and bluntly tipped hair on postpetiole and on gaster.

Hylomyrma immanis sp. n.

(Fig. 2)

Worker (holotype). Total length 5.2 (4.4-5.3) mm; head length 1.13 (0.98-1.16) mm; head width 1.08 (0.95-1.11) mm; scape length 0.81 (0.73-0.86) mm; Weber's length of thorax 1.54 (1.35-1.57) mm; hind femur length 1.11 (0.98-1.13) mm. Fuscous reddish brown, gaster nearly black; funiculi, sides of thorax, and legs lighter.

Mandibles with 6 teeth on elongate chewing border; blades densely, finely, longitudinally costulate, with over 15 costae across their greatest width.

Head subquadrate, sides and occipital border practically straight, occipital corners broadly rounded. Antero-inferior mesial apron of clypeus feebly bidentate; mesial lobe finely, densely, longitudinally striate with about six widely spaced costae that are distinct in front but fade out caudad. Frontal area triangular, impressed, containing a pair of longitudinal, posteriorly confluent costae. Frontal carinae gently convex above antennal socket, slightly constricted behind, terminating approximately at level of anterior orbit of eyes. Inferior occipital border marginate. Integument opaque, with finely striolate-punctate microsculpture that involves also the superimposed reticulate-rugose macrosculpture; the latter becoming softer on gular face. Eyes lentiform, not as strongly compressed dorso-ventrally as in *reitteri* and *balzani,* but antero-inferior orbit likewise drawn out into a blunt lobe; maximum diameter of eyes subequal to one fourth of head length. Antennal scape strongly bent at base, the rest straight, apex not quite attaining the occipital border when scapes are laid back over the head as much as possible, finely longitudinally

costate-rugose. Funicular segments 2-7 distinctly broader than long, 8-10 about as long as broad, 11 scarcely longer than 9 and 10 combined.

Thorax (Fig. 2) subopaque, with excactly the same sculpture as on head, i. e. the finely striolate-punctate microsculpture covers also the raised network of coarse, intertwining rugae. A stronger, blunt, anteriorly concave, transverse carina in front on basal face of propodeum, just behind a very shallow and nearly obsolete metanotal impression; basal face lacking transverse striae or costae. Propodeal spines very long, longer than depth of petiolar node and upper tooth of inferior propodeal plates, slightly raised and diverging caudad, finely rugulose. Fore coxae very finely transversely striate, with well over 50 striae between base and origin of trochanter; middle and hind coxae indistinctly sculptured. Femora entirely sculptured, the fore femora transversely striolate-punctate on backside, this cross-striation being confined to the basal third on middle and hind femora, the rest being either longitudinally or irregularly striolate. Tibiae and first tarsite densely, finely, longitudinally costulate-rugulose on all sides.

Petiole (Fig. 2) elongate, pedunculate; as seen in profile, the strongly compressed and laterally smooth and shining peduncle grades imperceptibly into the node proper, not forming a peak or even a blunt angle at junction of both; dorsum of peduncle finely, transversely striato-costulate; node proper about twice as long as broad, cylindrical, with parallel sides, covered above and on the sides with the same macro and microsculpture as on thorax; ventral surface finely reticulate-punctate, not smooth, lacking distinct transverse costulae. Postpetiole trapezoidal in dorsal view, as long as broad, with the sides diverging caudad and nearly straight; dorsum extremely finely and densely longitudinally striato-costate, the same sculpture but definitely weaker is present on ventral face, longitudinal on sides and transverse in the middle; in side-view the tergum of the postpetiole is abruptly truncate behind, the posterior fourth of the tergum being perpendicular to the dorsum. Gaster smooth and shining with marked piligerous punctulae; anterior half of tergum I and anterior third of sternum I with very fine, dense, longitudinal sculpture, consisting of a combination of fine striae and serially arranged, aciculate punctures, which give the integument a silky appearance.

Standing hairs very copious, rather long, flexuous, pointed at tip, of variable length (fringing hairs shown in Fig. 2); longest hairs exceeding depth of petiole; on antennae and legs, the short

hairs are oblique, the longer hairs are a bit scarcer, erect or suberect; hairs on funiculi short and oblique.

Female (paratype). Total length 5.3 mm; head length 1.08 mm; head width 1.02 mm; scape length 0.81 mm; Weber's length of thorax 1.62 mm; hind femur length 1.08 mm. Closely resembling the worker with the same distinguishing characters. Note the following particularities of the caste: Ocelli present but inconspicuous. Entire pterothorax finely striolate-punctate, opaque, the microsculpture involving the coarsely reticulate-rugose macrosculpture, even on scutum and scutellum of mesonotum; the mesopleura are more distinctly and horizontally costate, and the declivous face of propodeum bears dense, fine, regular, transverse striae. Propodeal spines as long as in he worker, but broader at base. Wings unknown.

Types. Colombia, Amazonas: 7 km NW of Leticia, 20-25 February 1972, S. & J. Peck leg., n. 230, in berlesate of forest litter, 13 workers (holotype and paratypes) and 1 female (paratype). Guiana, between Cuyuni and Mazaruni Rivers, 8 September 1935, N. A. Weber leg., n. 357, 1 worker (paratype). The holotype worker and the paratype female, with half of the remaining paratypes are returned to the MCZ collection, the rest is kept in the WWK collection.

Discussion. This striking species possesses several characters which so far are unique in the genus: the total absence of longitudinal costae or rugae on front and vertex of head; the posteriorly perpendicularly truncate tergum of postpetiole; the peculiar sculpture of the basal portions of tergum and sternum I of gaster, consisting of a combination of extremely fine striae and serially arranged aciculate punctulae, giving the integument a silky aspect. The shape of the petiole, in side-view, with the anterior peduncle grading continuously in the node proper, is shared with *praepotens, sagax* and *longiscapa*. *H. immanis* differs from *longiscapa* in larger size, the antennal scapes which are shorter than the head width, the absence of plumose or multibranched hairs, the sculptured legs and the practically straight occipital border of head. As regards *praepotens* and *sagax, immanis* is distinct by the fine, striolate-punctulate microsculpture of head, thorax and petiolar node, the very fine costulae on dorsum of postpetiole, the only minute pair of denticles on antero-inferior clypeal apron, the very fine and peculiar striation on base of tergum I of gaster.

Variation. Aside from the variation in measurements, which is already given above in the description of the holotype, and is conspicuous in this species, there is only a difference in color among the specimens seen; the holotype is on the dark side, other specimens have the head and thorax much lighter, without the fuscous hues.

Hylomyrma longiscapa Kempf

(Fig. 7)

Hylomyrma longiscapa Kempf, 1961: 498-500, fig. 7 (Suriname; Dirkshoop, Vank).

This species, still known only from the types, possesses the unique feature of having the antennal scape as long as the head width, and the hind femora longer than the head length. While describing this species I missed another very important character which is added now: *longiscapa* has plumose or multibranched hairs as in the new species, *transversa,* to be described below, with the difference that in *longiscapa* these specialized hairs are even more widely distributed over the insect, occurring on occiput, scapes, the entire thorax, coxae, femora, petiole, postpetiole, and anterior half of gastric sternum I. In the following I give the principal diagnostic characters of *longiscapa* as compared with *transversa.*

Worker (holotype). Total length 4.0 mm; head length 0.88 mm; head width 0.78 mm; scape length 0.78 mm; Weber's length of thorax 1.13 mm; hind femur length 0.95 mm.

Head more elongate, the posterior half in full-face view almost continuously rounded and semicircular. Coarse costae on mesial lobe of clypeus distinct only on sides, the middle is densely and finely longitudinally striate. Costae on front somewhat more numerous, 14-16 costae between the posterior end of frontal carinae. Antennal scapes as long as head width and surpassing the occipital border when laid back over the head as much as possible. Funicular segments 2-7 not strikingly transverse, not much broader than long.

Thorax (Fig. 7) coarsely reticulate-rugose except on declivous face of propodeum which bears the costumary transverse striae. The areas enclosed by the network of rugae slightly foveate, finely punctulate to striolate, but superficially only without rendering the integument opaque. Propodeal spines longer than depth of petiolar node, much longer than the acute upper tooth of the inferior propodeal plates. Legs, except the striate coxae, generally smooth and shining; but on backside of fore femora there are vestiges of a nearly faded cross-striation.

Petiole in side-view with the node scarcely differentiated from the peduncle, the latter grading imperceptibly in the former. Node proper coarsely reticulate-rugose, the intervals distinctly, finely and irregularly striolate. Postpetiole with the longitudinal costulae fading out postero-laterally on tergum, lacking completely on

sternum. Longitudinal costulae on base of tergum I of gaster a little shorter than length of postpetiole, lacking completely on base of sternum I which is entirely smooth and shining.

Hairs substantially the same as in *transversa;* short, of nearly equal size, on scapes and legs, but not decumbent, only oblique. Multibranched or plumose hairs replacing normal hairs more widely than in *transversa,* as already stated above.

Note. This species was originally described upon three specimens taken in pitfall traps set up in primary forest near Dirkshoop, Suriname (type-locality), and in shrub on sand near Vank, Suriname. The holotype is in my collection (WWK), one paratype in the MCZ collection, the other has been returned years ago to the collector, J. van der Drift, of Holland.

Hylomyrma praepotens sp. n.

(Figs. 1, 15)

Worker (holotype). Total length 5.4 mm; head length 1.21 (1.19-1.24) mm; head width 1.16 (1.13-1.16) mm; scape length 0.84 (0.84-0.89) mm; Weber's length of thorax 1.57 (1.46-1.59) mm; hind femur length 1.19 (1.19-1.21) mm. Fuscous reddish brown; tergum and sternum I of gaster black.

Mandibles finely longitudinally costate above, with about 12 costulae across the greatest width; chewing border with 6 teeth, not including the bluntly rounded basal angle.

Head (Fig. 15) subquadrate, sides gently convex, occipital corners narrowly rounded, occipital border straight. Inferior apron of clypeus with an unusually stout and solid tooth on each corner; the subsequent mesial lobe is slightly impressed antero-mesially, covered with 12 anteriorly converging, strong and longitudinal costae. Frontal area deeply impressed, with a strong sagittal costa. Frontal carinae very gently rounded, little projecting laterad but covering the antennal socket from above. Eyes ovoid, drawn-out antero-inferiorly into a broadly rounded lobe, with about 15 facets across the greatest and 11 facets across the shortest diameter; the maximum diameter equal to one fourth of head length. The entire head covered with dense and rather regular costae; about 19 longitudinal, posteriorly diverging costae on front at level of posterior end of frontal carinae; costae mostly longitudinal on sides of head, longitudinal and of equal strength on gular face, but anteriorly converging, the mesial ones forming concentric arches in front. Costae shining and smooth; intercostal spaces

subopaque, indistinctly and superficially punctulate, occasionally indistinctly striolate. Antennal scapes not quite attaining the occipital border when laid back over the head, longitudinally costate-rugose. Funicular segments 2-7 transverse, 8-10 about as long as broad, 11 slightly longer than 9-10 combined.

Thorax (Fig. 1) strongly and rather regularly costate-rugose throughout; concentrically arched costae on disc of pronotum, laterally oblique in front, horizontal behind; costae longitudinal on mesonotum, horizontal on mesopleura including the anterior prominent flange, transverse on basal face of propodeum, the costae curving down and obliquely foreward on sides; declivous face of propodeum with finer transverse costulation. Fore coxae with relative coarse transverse striae, the outer face presenting about 20 striae from above to the origin of trochanter. Femora densely but superficially cross-striated on all sides. Extensor face of tibiae and first tarsite longitudinally costate-rugose. Interrugal spaces as on head, but microsculpture tends to be obsolete and the integument more shining. Propodeal spines long, needle-like, almost twice as long as upper tooth of inferior propodeal plates which is likewise drawn-out into a spine and much longer than the inferior tooth.

Petiole and postpetiole as shown in Fig. 1. The petiole has an anterior smooth and shining peduncle which in side-view grades imperceptibly into the ill-differentiated node; the latter coarsely transversely costate above, obliquely on sides; ventral face of peduncle and node smooth and shining. Pospetiole slightly broader than long, trapezoidal from above, densely longitudinally costulate above and more superficially so below. Gaster in front not truncate nor emarginate. Basal half of tergum I of gaster covered with dense, coarse, longitudinal costae. Anterior third of sternum more finely striato-costulate, forming concentric arches mesially in front.

Hairs relatively long, abundant, flexuous, pointed at tip, of unequal length, the longest hairs usually not exceeding the depth of the petiole (partly shown in Fig. 1), erect or suberect on body, oblique to subdecumbent on scapes and legs; both the scapes and the tibiae and tarsi have a few suberect hairs on upper face, but these are shorter and do not exceed the thickness of the scape of the tibiae.

Types. Colombia, Amazonas: 7 km NW of Letícia, 20-25 February 1972, S. & J. Peck leg., n. 230, in berlesate of forest litter, 7 workers (holotype and paratypes); Colombia, Meta:

Villavicencio, 1-4 March 1972, S. & J. Peck leg., n. 233, in berlesate of forest litter, 5 workers (paratypes). Holotype and half of the paratypes will be returned to the MCZ collection, the rest is retained in the WWK collection.

Discussion. *H. praepotens* shares with *immanis* the privilege of being the giant of the genus. It also resembles the same species in the long propodeal spines and the shape of the petiole but differs in the following characters: 1. clypeal teeth stout and protruding; 2. macrosculpture of head, thorax, petiole, postpetiole and basal half of gastric tergum consisting of strong, more or less longitudinal and rather regular costae; 3. erect and suberect hairs on antennal scapes and tibiae not longer than the thickness of the segment that bears them; 4. hairs on extensor face of femora subdecumbent; 5. upper tooth of inferior propodeal plate spine-like and much longer than the inferior tooth; 6. posterior margin of postpetiolar dorsum gently and obliquely curved down to insertion of gaster.

The presence of transverse costae on basal face of propodeum and the rather regular and longitudinal costate body sculpture are shared with *reitteri* from which *praepotens* differs as follows: 1. size much larger; 2. clypeal teeth solid, strong and protruding; 3. costae on mesial lobe of clypeus more numerous and converging in front; 4. propodeal spines much longer, likewise the upper tooth of inferior propodeal plates; 5. femora cross-striated; 6. petiole in side-view with node nôt set off from the peduncle; 6. basidorsal costulae of gaster much coarser and longer, covering approximately one half of tergum I.

The closest species however is the sympatric *sagax,* also new to science and described below, from which *praepotens* will separated under that species.

Variation. The differences in measurements have already been given above in the description of the holotype. In addition the mandibles may show an extra denticle. The few specimens from Villavicencio have the mesonotum more irregularly, not longitudinally, costate-rugose. A few workers have the head and thorax much lighter but the gaster invariably black. Otherwise all 12 specimens seen are very much alike.

Hylomyrma reitteri (Mayr)

(Figs. 14, 16, 19, 20)

Tetramorium reitteri Mayr, 1887: 621-2 (worker; Brazil, São Paulo State, loc. unknown).
Pogonomyrmex (*Hylomyrma*) *goeldii* Forel, 1912: 17 (female; Brazil, Guanabara: Rio de Janeiro).
Lundella reitteri: Emery, 1915: 191 (n. comb.).
Hylomyrma reitteri: Kempf, 1960: 430-4, figs. 10, 11 (worker, female; syn.; Brazil, Rio Grande do Sul: Nova Petrópolis, Tainhas; Santa Catarina: Chapecó, Nova Teutônia, P. Bormann, Seara, Xanxerê; Paraná: Rio Azul, Rondon; São Paulo: São Paulo city; Guanabara: Rio de Janeiro, Floresta da Tijuca).

This is the oldest species of the genus and belongs to the more common type of forms that have the anterior clypeal apron feebly bidentate (Fig. 16), the hind femora shorter than head width, and the petiole with a differentiated node (Fig. 14). *H. reitteri* is very close to the sympatric *balzani,* from which it differs in the ensuing characters:

Worker. Total length 3.9-4.6 mm; head length 0.87-1.07 mm; head width 0.85-1.06 mm; Weber's length of thorax 1.09-1.37 mm. Head dorso-laterally usually with oblique to transverse costae and striae at level of, and converging towards the eyes. Pronotum anteriorly on dorsum with about 5 transverse regular costae, followed by transversely arched costae which become longitudinal on mesonotum. Basal face of propodeum transversely costate, although the costae may vary in gauge and number among the individuals. Petiole transversely costulate-striate on posterior half of dorsum of peduncle, i. e. the ascending face just in front and below the anterior peak of node proper which is rather blunt and never rectangular in side-view (Fig. 14); dorsum and sides of node longitudinally costate-rugose; ventral surface without transverse costulae. Tergum of postpetiolar node longitudinally striato-costate, presenting only postero-laterally a smooth patch on each side. Basidorsal costulae of gaster at least half as long as length of postpetiole. Base of sternum I of gaster smooth as in *balzani*.

Female. Total length 4.3-4.8 mm; head length 0.96-1.07 mm; head width 0.87-1.06 mm; Weber's length of thorax 1.30-1.45 mm. With the same distinguishing features as the worker; especially the following details should be noted: Head dorso-laterally with oblique to transverse costae at level of, and converging towards eyes. Dorsum and sides of pronotum regularly costate, costae transverse above, continuing downward and caudad on sides. Mesothoracic scutum at anterior margin with 4-8 transverse costae forming concentric arches. Basal face of propodeum with regular, fine, transversely arched costulae. Petiole dorsally transversely striato-costulate on peduncle, but lacking striae on ventral surface; anterior peak of node proper not sharply raised nor laterally sharply marginate; dorsum of node generally regularly longitudinally rugose. Postpetiole dorsally longitudinally striato-costate. Basidorsal fine striae on first gastric tergum as long as half the length of the postpetiole. Wings as shown in Figs. 19 and 20.

New locality records; Brazil, Rio Grande do Sul State: Barão de Cotegipe, July 1960, F. Plauman leg. (WWK n. 3771); Santa Catarina State: Concórdia, November 1959, F. Plaumann leg. (WW n. 8295); Paraná State: Bocaiuva do Sul, May 1963, F. Plaumann leg. (WW n. 4002), Guaragi, May 1964, F. Plaumann leg. (WWK n. 4583), Laranjeiras, April 1964, F.

Plaumann leg. (WWK n. 4550); São Paulo State: Agudos, March 1960, C. Gilbert leg. (WWK n. 3525).

Variation. The Agudos worker (São Paulo State) is slightly discrepant. Besides having a single ocellus and a stouter yet not modified thorax, it has the sides of thorax coarsely and regularly costate, the posterior half of mesonotum and part of the dorsum of petiolar node transversely costate. It is probably an intercaste, a pseudogyne or a gynergate.

Hylomyrma sagax sp. n.

(Fig. 3)

Worker (holotype). Total length 4.4 mm; head length 1.00 (1.00-1.08) mm; head width 0.92 (0.92-1.00) mm; scape length 0.73 (0.73-0.78) mm; Weber's length of thorax 1.37 (1.37-1.46) mm; hind femur length 0.97 (0.97-1.03) mm. Fuscous reddish brown; antennae and legs medium brown; tergum I and sternum I of gaster nearly black. Very close to *praepotens* but exhibiting the following differences:

1. Clypeal teeth weaker but still better developed than in most other species.

2. Eyes similar in shape and proportions but 13 facets across greatest diameter and 10 facets across shortest diameter; maximum diameter subequal to one fourth of head length.

3. Head covered with fewer, more widely spaced, vermiculate costae that anastomose occasionally; 15 costae on front across level of posterior end of frontal carinae; more regular costae on gular face that converge mesad in front and form concentric arcs; intercostal spaces more distinctly punctulate, subopaque.

4. Thorax (Fig. 3) coarsely reticulate-rugose on sides, mostly longitudinally but not regularly rugose above behind a few transverse rugae in front on pronotum; basal face of pronotum without distinct and regular transverse costae.

5. Fore coxae more finely transversely striate, striae count above insertion of trochanter over 30. Femora indistinctly sculptured, only backside of fore femora often, not always, with distinct cross-striation.

6. Propodeal spines even more delicate and needle-like, and a bit longer; spines without hairs beyond base; upper tooth of inferior propodeal plates spine-like but less drawn-out and relatively shorter.

7. Dorsum of petiolar peduncle transversely costulate; node proper coarsely reticulate-rugose above, more or less longitudinally

rugose on sides. Costae of postpetiolar dorsum somewhat coarser, with about 14 costae apparent when seen from above.

8. Basal costae on tergum I of gaster very coarse but much shorter, covering less than one third of tergum length. Sternum I with only a few weak striae basally on sides, smooth and shining in the middle behind postpetiolar insertion.

Female (paratype). Total length 5.1 mm; head length 1.08 mm; head width 0.98 mm; scape length 0.76 mm; Weber's length of thorax 1.62 mm; hind femur length 1.05 mm. Resembling the worker with the same distinctive features, except for the difference of the caste. Note the following: Pronotum transversely rugose above, more irregularly rugose on sides; scutum of mesonotum very coarsely longitudinally costate, about 16 costae across greatest diameter; scutellum irregularly rugose; basal face of propodeum with about 6 transverse costae behind, between the bases of the very long, needle-like propodeal spines; catepisternum of mesonotum regularly horizontally costate. Wings unknown.

Types. Colombia, Amazonas: 7 km NW of Leticia, 20-25 February 1972, S. & J. Peck leg., n. 230, in berlesate of forest litter, 7 workers (holotype and paratypes) and 1 female (paratype). Holotype worker, 2 paratype workers and the paratype female returned to the MCZ collection, the remainder is kept in the WWK collection.

Discussion. The fact that *sagax* was apparently taken in the same berlesate sample that brought to light *praepotens*, and the undeniable closeness of the two forms might suggest specific identity. Yet I believe that the above related distinctive characters and the presence of a female that reproduces entirely the *sagax* features vouches for the validity of the latter as a distinct species.

Hylomyrma transversa sp. n.

(Fig. 9)

Worker (holotype). Total length 4.2 (3.9) mm; head length 0.92 (0.88) mm; head width 0.88 (0.84) mm; scape length 0.69 (0.65) mm; Weber's length of thorax 1.24 (1.11) mm; hind femur length 0.81 (0.80) mm. Light reddish brown; head and gaster and dorsum of petiole and postpetiole infuscated; scape, legs and mandibles yellowish brown; funiculus ferruginous.

Mandibles shining, elongate, much as in *reitteri*, dorsally densely longitudinally costulate, about 12 costulae across greatest

width of blades; chewing border stongly oblique, bearing 5 distinct teeth and another vestigial denticle between 2nd and 3rd basal tooth; basal angle obtusely rounded.

Head capsule subquadrate, somewhat shining, sides and occipital border gently convex, the latter almost straight, occipital corners broadly rounded. Clypeus with the bidentate anterior apron peculiar to the genus, the teeth very short as in *reitteri;* posterior portion of mesial lobe of clypeus densely costate, with 16 costae across the greatest diameter, about 6 of them become stronger than the remainder in front. Frontal area triangular, deeply impressed, containing a pair of posteriorly confluent sagittal costae. Frontal carinae gently convex, scarcely expanded laterad, little constricted behind, terminating at level of middle of eyes. Front, vertex and occiput with rather regular, longitudinal, subparallel and widely spaced costae, about 12 costae on front between the posterior ends of frontal carinae; the intercostal spaces contain minute longitudinal costulae and rare, indistinct punctulae; the fine striato-costulate sculpture becomes coarser on sides and gular face whereas the costae and rugae disappear entirely on these parts; fine costulae curving in front around antennal socket within antennal fossa; the same type of costulae forming semicircular arcs in front on gular face. Inferior occipital angles marginate. Compound eyes lentiform, not as strongly compressed dorso-ventrally as in *reitteri* and *balzani,* with about 14 facets across the greatest, 8 facets across the shortest diameter; maximum diameter of eyes little more than one fourth of head length. Antennal scapes obliquely bent at base, rest straight, densely, finely, longitudinally costate-rugose. Funicular segments 2-7 broader than long, 8-10 about as long as broad, 11 slightly longer than 9 and 10 combined.

Thorax as shown in Fig. 9; subopaque, finely and densely costulate-striate, the costulae irregular on pronotum, horizontal on sides of thorax, in both places the integument is also foveolate. Posterior portion of pronotal disc finely longitudinally costulate. Anterior three fourths of mesonotum transversely costate, costae of unequal strength or gauge, last fourth, in front of the prominent transverse keel, finely longitudinally costulate. Basal face of propodeum regularly transversely costate, transverse or arched costae continuing downward on declivous face. Propodeal spines as long as depth of petiolar node, slightly raised and diverging apicad, longer than the upper tooth of inferior propodeal plates. Fore coxae and upper face of mid and hind coxae very finely

and densely transversely striate, sides of the latter with obsolescent sculpture, almost smooth and shining. Fore femora transversely costulate-striate, extensor and anterior face of mid and hind femora obliquely costulate-rugose, posterior face transversely costulate at base to longitudinally costulate at apex. Tibiae and first tarsite finely longitudinally costulate-rugose.

Petiole (Fig. 9) similar in shape to that of *reitteri,* the node being distinct in side-view from the anterior peduncle, but the former is not conspicuously raised in front to form a pronounced peak as in *balzani.* Dorsum of peduncle, including the ascending face toward node, transversely striato-costate, the costae of the dorsum curve obliquely downward on sides to join up with the transverse costae present on ventral surface of petiole; dorsum of node with stronger and coarser transverse costae on anterior two thirds, the posterior third being irregularly costulate-rugose. Postpetiole trapezoidal, broader than long, sides diverging caudad but nearly straight; dorsum very finely, densely, longitudinally striato-costulate; the same sculpture is present on ventral surface of the same. Gaster smooth and shining, anteriorly narrowly truncate and shallowly excavate; tergum I with a narrow transverse band of dense longitudinal striae on base, the length of which exceeds slightly the postpetiolar length. The same sculpture is present on base of sternum I, but shorter and more superficial.

Hairs abundant, short, fine, pointed, mostly strongly curved; oblique to subdecumbent on head, dorsum of thorax, petiole, postpetiole and gaster; short, of equal length, subdecumbent on legs; oblique on scapes. In addition, anteriorly and laterally on pronotum, on sides of thorax, of petiole and postpetiole, and basally on sternum I of gaster, the hairs are plumose branching out apically into 2-5 tips.

Female (paratype). Total length 4.4 mm; head length 0.95 mm; head width 0.98 mm; scape length 0.71 mm; Weber's length of thorax 1.32 mm; hind femur length 0.89 mm. Similar to the worker with the usual caste differences. Note the following: Ocelli small, not protruding. Pronotum above very densely and regularly transversely striato-costate. Mesonotum: scutum and scutellum longitudinally costate; on scutum the intermediate costae, between the mesial and lateral ones, curve mesad in front and fuse with the ones from the opposite side, the mesial ones nearly fusing into a single point on anterior border. Mesopleura, i. e. anepisternum and catepisternum regularly horizontally costate.

Propodeum transversely densely striate both on basal and on declivous face. Plumose or multibranched hairs as in worker. Wings unknown.

Types. Peru, Loreto: Islandia, September 23, 1962, W. L. Brown, Jr. leg. in litter from a «varzia», 2 workers (holotype and paratype) and 1 female (paratype). Holotype worker and paratype female to be returned to the MCZ collection, the paratype worker to be kept in the WWK collection.

Discussion. On account of the regularly transversely striate basal face of propodeum and the regularly costate mesonotum and dorsum of petiolar node, the present species resembles *reitteri* from which the *transversa* worker differs as follows: 1. Median lobe of clypeus densely longitudinally costate, with 15-16 costae of subequal gauge; 2. costae on front and vertex of head less diverging caudad, the lateralmost costa attaining the occipital border inside of the rounded occipital corner; 3. compound eyes less compressed dorso-ventrally; 4. mesonotum and dorsum of petiolar node strongly transversely costate; 5. legs sculptured throughout as given in the description; 6. ventral face of petiole transversely costulate; 7. anterior end of gaster more broadly truncate and slightly emarginate, basidorsal striae longer than postpetiolar length, basiventral striae not interrupted in the middle by a smooth area; 8. microsculpture of fine striae and costulae much more distinct, especially on thorax; 9. body hairs generally shorter, curved and/or subdecumbent, especially on legs; 10. plumose or multibranched hairs present on sides of pronotum, on sides of thorax, petiolar node and postpetiole, a character shared so far only with *longiscapa*. The same distinguishing characters also hold true for the queen, except for the transversely costate mesonotum which in this caste is longitudinally costate as in *reitteri*.

The differences that separate transversa from *longiscapa* have been given above under this species.

Because of the body sculpture, *transversa* is also very close to *columbica* from which it differs in the fewer costae on front (only 12 instead of 15), the sculpture pattern of backside of mid and hind femora, the short and curved hairs in general and the presence of plumose hairs.

Hylomyrma versuta sp. n.

(Fig. 6)

Worker (holotype). Total length 4.1 (3.8-4.3) mm; head length 0.87 (0.84-0.92) mm; head width 0.81 (0.79-0.87) mm; scape length 0.62 (0.57-0.65) mm; Weber's length of thorax 1.19 (1.08-1.21) mm; hind femur length 0.75 (0.72-0.79) mm. Color fuscous reddish brown, gaster nearly black.

Mandibles of the shape typical for the genus, chewing border with 6 teeth, the first and third, beginning from the base, vestigial; blades longitudinally striato-costate, with about 12 costulae across the greatest width.

Head slightly elongate, not quite quadrate, not constricted in front, sides converging gently behind eyes, occipital corners broadly rounded, occipital border scarcely convex. Antero-inferior mesial apron of clypeus little protruding with a pair of minute denticles, one at each side. Mesial lobe of clypeus above and behind the apron, with about 7 coarse longitudinal costae, the intervals between each pair of costae being minutely striolate-costulate. Frontal area impressed, traversed by two longitudinal posteriorly confluent costae. Frontal carinae short, gently convex, the maximum distance between their outer edges equal to one half of the head width. Compound eyes sublentiform, antero-inferior orbit drawn out into a blunt point, their maximum diameter equal to one fourth of head length, with about 13 facets across the greatest and 8 facets across the shortest diameter. Front and vertex with longitudinal, shining and slightly wavy costae, about 12 costae at level of posterior end of frontal carinae; interspaces rather punctulate than striolate; the costae are weaker on cheeks, sides of head, occiput and gular surface and the intervals are distinctly and finely striolate-costulate, costae and striae longitudinal on cheeks, curving mesad above eyes, curved downward behind eyes, longitudinal but converging mesad anteriorly on gular surface where the mesial costulae form concentric arcs. Antennal scapes obliquely costulate-rugose. Funicular segments 2-7 broader than long, 8-10 about as long as broad, 11 little longer than 9 and 10 combined.

Thorax (Fig. 6) coarsely and irregularly costate-rugose, the rugae more or less vermiculate, presenting occasional anastomoses; rugae predominantly transverse on pronotal disc, obliquely slanted downward on sides, more or less longitudinal on mesonotum, transverse yet not quite regular on basal face of propodeum, more or less horizontal on sides of thorax. Declivous face of propodeum finely transversely striolate. Interspaces between rugae superficially punctulate and somewhat striolate, but this microsculpture does not extend itself over the coarser rugae which interrupt it and are quite shining. Transverse keel on anterior portion of basal face of propodeum well-developed and rather sharp. Propodeal spines somewhat raised and diverging apical, shorter than maximum depth of petiole, not conspicuously longer than upper tooth of inferior propodeal plates. Fore coxae finely transversely striate, with about 30 striae between base and origin of trochanter, middle and hind coxae vestigially striate on extensor face. Femora and tibiae practically smooth and shining throughout.

Petiole (Fig. 6) with the node differentiated from the peduncle in side-view; peduncle smooth and shining on sides, dorsally transversally costulate-striate including the ascending face towards node; the costulae bent obliquely downward on sides where they join up with the transverse costulae on ventral surface of node; node more coarsely, predominantly longitudinally but somewhat irregularly costate-rugose; intervals, especially on sides, superficially punctulate and more conspicuously striolate. Postpetiole trapezoidal from above, nearly as broad as long, dorsally densely and longitudinally striolato-costate with about 24 striae visible in dorsal view; ventral surface finely and superficially striolate, longitudinal on sides, forming transverse concentric arcs mesially in front. Basidorsal striae of gaster a bit longer than half the length of postpetiole; basiventral striation similar, vestigial in the middle.

Standing hairs abundant, long, pointed at tip, gently curved on petiole and postpetiole, oblique on legs; hairs of gaster as long as maximum thickness of hind tibiae; antennal scapes with long erect and shorter oblique hairs. Plumose hairs absent.

F e m a l e (paratypes). Total length 4.3-4.6 mm; head length 0.87-0.89 mm; head width 0.81-0.84 mm; scape length 0.59-0.62 mm; Weber's length of thorax 1.30-1.35 mm; hind femur length 0.79-0.81 mm. Resembles closely the worker with the peculiarities of the caste. Note the following; Ocelli small, not protruding. Pronotum densely, transversely costulate above, the costae continuing obliquely downward on sides where they become more widely spaced and somewhat irregular and vermiculate. Mesonotal scutum with about 20 longitudinal, coarse costae across its greatest width, the costae converging in front and fusing in part, forming a narrow band of 4-5 transversely arched fine costae. Scutellum longitudinally and regularly costulate. Sculpture on basal face of propodeum variable, usually with transversely arched costulae, often a single costa joins the bases of the propodeal spines protending an elongate arc foreward attaining the anterior border of propodeum; declivous face very finely and transversely striolate. Mesopleura coarsely and regularly horizontally costate. Wings as in *reitteri* but radial cell may be either open or closed.

T y p e s. British Honduras, Belmopan, in 2nd growth forest, 7 August 1972, S. & J. Peck leg. in berlesate n. 244, 12 workers (holotype and paratypes) and 4 females; Humming Bird Pass, 27 mi. NW of Stann Creek, 19 August 1972, S. & J. Peck leg.

in berlesate n. 246, 2 workers and 1 female (paratypes); Caves Branch, August 1972, S. & J. Peck leg. 9 workers and 1 female (paratypes). Mexico, Vera Cruz: Pueblo Nuevo nr. Tetzonapa, 14 August 1953, in rain forest, E. O. Wilson leg. n. 221, 3 workers (paratypes). The holotype and half of the paratypes will be returned to the MCZ collection, the rest to be kept in the WWK collection.

Discussion. *Hylomyrma versuta* is very close to *balzani* from southeastern Brazil. Workers (and females) of the former differ from those of the latter as follows: 1. Rugae on pronotum more predominantly transverse, longitudinal on mesonotum; microsculpture, i. e. striolae and punctulae more evident; 2. femora and tibiae entirely smooth and shining, including the extensor face of tibiae; 3. node of petiole in side-view not forming a rectangular peak in front but rather bluntly rounded; 4. postpetiole entirely striato-costate above whithout smooth patches; 5. basidorsal costulae of gaster at least as long usually longer, as one half the length of postpetiole; basiventral striae similar though more superficial, vestigially present also in the middle of sternum which does not have a smooth area behind the postpetiolar insertion; 6. hairs on gaster as long as thickness of hind tibiae.

Following are the differences that separate *versuta* (worker) from its closest neighbor, the Panamanian *dentiloba*: 1. mandibles more loosely striato-costate, only 12 costae across their greatest width; 2. thoracic rugae smooth and shining, definitely interrupting the rather inconspicuous microsculpture of fine striolae and punctulae; 3. thoracic dorsum with 5-6 transverse, coarse rugae on pronotum; mesonotum coarsely longitudinally rugose; 4. propodeal spines relatively longer, distinctly although not strikingly, exceeding the length of the upper tooth of the inferior propodeal plates; 5. basidorsal costulae of gaster longer than one half the length of postpetiole.

Notes. This is the species which was quoted as "*columbica*" in the 1960 paper on larvae by the Wheelers.

A lone specimen from Nicaragua, Masilena Creek, nr. Bluefield, from stomach of *Bufo coniferus*, previously (Kempf, 1964: 55) associated with doubt with *dentiloba*, now seems much closer to the present species, even though the much better developed striolate-punctae microsculpture of head, thorax and petiolar node reminds of the condition obtained in *dentiloba*. However, the specimen in question has stronger costulation on occiput and gular face, the mandibles less finely costulate, the basidorsal costulae of gaster nearly as long as postpetiole, the anterior part of the pronotal disc with several transverse, vermiculate rugae, characters pertaining to *versuta* under which this puzzling specimen is presently placed.

Hylomyrma sp.

(Figs. 17, 18)

An isolated male (WWK n. 8135), captured in December 1970 by F. Plaumann at Nova Teutônia, Santa Catarina, Brazil,

is the first of its sex to be recorded in the genus. The specimen belongs either to *balzani* or *reitteri* but bears no indication that would help to associate it definitely with one or the other. The following diagnosis is avowedly sketchy since it only serves the purpose of bringing out characters of possible generic significance.

Male. Total length 3.9 mm; head length 0.73 mm; head with (eyes included) 0.84 mm; scape length 0.19 mm; maximum diameter of eyes 0.33 mm; Weber's length of thorax 1.24 mm; hind femur length 0.95 mm; fore wing length 3.0 mm; hind wing length 2.3 mm. Brownish black; mandibles, antennae, and legs medium brown.

Head as shown in Figs. 17 and 18. Mandibles finely striolate, the basal border longer than the chewing border, the latter with 4 teeth. Mesial lobe of clypeus anteriorly truncate, convex on disc in both directions, laterally sharply marginate against the antennal fossae. Frontal carinae short. Frontal area indistinct. Eyes large, bulging, their maximum diameter nearly attaining one half of the head length. Ocelli small but protruding. Integument partly smooth, partly indistinctly sculptured, with scattered and irregular rugae or costae, especially on posterior half of head. Antennal scape short, subequal to third funicular segment; funicular segment 2 much longer than the following segments 3-11 individually, but shorter than the apical segment (12).

Thorax (Fig. 17) mostly smooth and shining, scutellum longitudinally striato-costulate, propodeum irregularly costate rugose on all sides. Mayrian furrows deeply impressed on scutum. Propodeal spines reduced to very short, rectangular teeth. Inferior propodeal plates prominent, the upper corner obtusely angulate. Mid and hind tibiae with a well-developed pectinate apical spur. Wings as described for female of *reitteri,* but the radial cell is closed and the second cubital cell open due to the lack of the cross-vein *r-m* on right wing, or the lack of Mf4 on left wing. Petiole claviform with ill-differentiated node which is somewhat rugose above and on sides; ventral surface without transverse striae or costae. Postpetiole and gaster smooth and shining, the latter lacking basidorsal striae or costulae.

Note. I have two additional isolated males, taken by M. Alvarenga at Caruaru, Pernambuco State, Brazil, in April 1972 (WWK n. 7585) which are essentially similar to the above described specimen, but certainly differ specifically from it because of the different head, shape, better developed sculpture and significantly larger size. One of these males has

5 teeth on mandibular chewing border instead of 4, both have a closed radial cell and a closed 2nd cubital cell in the fore wing. This record shows that the genus occurs also in northeastern Brazil, even though no workers have been captured there so far.

Key to the species of genus Hylomyrma Forel
Workers (and Females)

1. Front and vertex of head coarsely reticulate-rugose, lacking longitudinal costae or rugae; posterior fourth of postpetiolar dorsum perpendicularly truncate above the gastric insertion; base of tergum I of gaster with very fine striolate-punctate microsculpture which nearly covers the anterior half of the tergum, opaque (Fig. 2) .... *immanis* Kempf
— Front and vertex of head longitudinally costate or rugose; posterior fourth of postpetiolar dorsum gently curved towards gastric insertion; base of tergum I of gaster with regular, longitudinal, shining costulae or striae which usually, not always, cover less than the anterior third of tergum (Figs. 1, 3) 2

2. Sides of thorax and petiole with peculiar, curved, plumose or multibranched hairs (Figs. 7, 9) 3
— Sides of thorax and petiole with common, simple and single-pointed hairs (Fig. 3) 4

3. Antennal scapes as long as maximum head width behind eyes, surpassing the occipital border in full-face view when laid back over the as possible; mesonotum ~~transversely striato-costate;~~ hind femora longer than head length (Fig. 7) ..... *longiscapa* Kempf
— Antennal scapes shorter than maximum head width behind eyes, not attaining the occipital border when laid back over the head as much as possible; mesonotum transversely striato-costate; hind femora shorter than head capsule length (Fig. 9) ..... *transversa* Kempf

4. Anterior half of dorsum of tergum I of gaster coarsely longitudinally costate; dorsum of petiolar node coarsely transversely costate (Figs. 1, 15) ..... *praepotens* Kempf
— Basidorsal costulae of gaster usually finer and always shorter, not surpassing the anterior third in the middle of tergum I; dorsum of petiolar node either irregularly or longitudinally costate or reticulate-costate 5

5. Thorax very finaly striolate-costulate without differentiated macrosculpture, or striolate-punctate and the microsculpture extending over the low, blunt, coarse rugae and foveae giving the integument a subopaque and silky aspect 6
— Thorax coarsely costate, or rugose, or reticulate-rugose, costae and rugae sharp, practically smooth and shining; interrugal spaces either shining or finely punctulate and/or striolate 9

6. Eyes very long, their maximum diameter subequal to one third of head length, the minimum diameter less than one half of the maximum diameter; the anterior orbit of eye broadly rounded, not drawn out into a blunt point (Fig. 12); hairs on gaster blunt at apex and much shorter than width of hind tibiae (Fig. 4) .... *dolichops* Kempf

— Eyes smaller, their maximum diameter subequal to one fourth of head length, their minimum diameter more than one half of maximum diameter; anterior orbit of eyes narrowly rounded and drawn out into a blunt lobe (Fig. 11); hairs of gaster pointed at tip and nearly as long, or longer than width of hind tibiae 7

7. Head, thorax and petiolar node finely striolate-costulate, practically without fine, serially arranged punctulae on costulae and striae; thorax lacking coarse reticulate-foveate macrosculpture .... *columbica* Forel
— Head, thorax and petiolar node finely striolate-costulate, but both striae and costulae finely punctulate or "beaded" and opaque; thorax coarsely reticulate-foveate 8

8. Posterior face of fore femora sharply cross-striated; extensor face of tibiae densely and longitudinally costulate; basidorsal striae of gaster as long as length of postpetiole (Fig. 5) ... *blandiens* Kempf
— Posterior face of fore femora smooth and shining, sculpture, if any, at best vestigial and confined to the extremities; extensor face of tibiae practically smooth and shining; basidorsal striae of gaster only one half as long as the length of postpetiole (Fig. 8) ..... *dentiloba* (Santschi)

9. Basidorsal costulae of gaster coarse, as long as the length of postpetiole; petiole in side-view continuous above, the node scarcely differentiated from the preceding peduncle; propodeal spines needle-like, much longer than width of petiolar node (Fig. 3) ..... *sagax* Kempf
— Basidorsal costulae of gaster fine, at least slightly shorter than length of postpetiole; petiole in side-view with the node differentiated from the preceding peduncle, often by a prominent peak; propodeal spines shorter, scarcely longer or even shorter than width of petiolar node 10

10. Extensor face of tibiae smooth and shining; eyes moderately elongate and narrowed, their maximum diameter much less than twice the minimum diameter (Fig. 6) ..... *versuta* Kempf
— Extensor face of tibiae longitudinally striato-costulate; eyes conspicuously elongate and narrowed, their maximum diameter equal or subequal to twice the minimum diameter 11

11. Basal face of propodeum densely transversely costate; postpetiolar dorsum longitudinally striato-costate throughout; ventral surface of petiolar node without transverse costulae (Fig. 14) ... *reitteri* (Mayr)
— Basal face of propodeum irregularly rugose, without dense transverse costae; postpetiolar dorsum either smooth and shining on disc of with the longitudinal costulae only vestigial; ventral surface of petiolar node with transverse costulae (Fig. 13) ..... *balzani* (Emery)

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