

WILLIAM MORTON WHEELER

W.C. Brown
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Ants collected by Professor F. Silvestri

IN

INDOCHINA.



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STAB. TIP. ERNESTO DELLA TORRE

1927

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WILLIAM MORTON WHEELER

ANTS COLLECTED BY PROFESSOR F. SILVESTRI

in

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The Formicidae described in the following pages were taken by Professor Silvestri in a number of localities in Indochina, a region from which few collections of these insects have been described. The series contains an unusual number of new or little known, diminutive forms which only a very expert entomologist would succeed in finding. I have included in my account also a few species taken at Chiengmai, Siam, by Dr. H. E. Crampton and sent me a few years ago by the American Museum of Natural History.

FAMILY **Formicidae.**

SUBFAMILY **Dorylinae.**

1. *Aenictus wroughtoni* Forel var. *sagei* Forel. — A number of workers from Chiengmai, Siam (H. E. Crampton).

SUBFAMILY **Ponerinae.**

2. *Stictoponera menadensis* Mayr subsp. *bicolor* Emery var. *minor* Forel. — Several workers from Coxan and Dong Mo.

3. *Centromyrmex fœ* Emery. — Ten workers from a single colony taken at Van Phu with several larvæ. The latter have not been seen before. They are unlike those of several genera of the tribe Ponerini (*Ponera*, *Pachycondyla*, *Euponera*, *Bothro-*

(1) Contribution from the Entomological Laboratory of the Bussey Institution, Harvard University. N.º 277.

ponera, Neoponera, etc.) in lacking tubercles on the body. This is slender and covered with sparse, bristly and rapidly tapering hairs. The head is rounded rectangular, with deeply bilobed labrum and well-developed tridentate mandibles.

4. *Odontoponera transversa* F. Smith. — A single worker from Langson.

5. *Diacamma rugosum* Le Guillou. — Six workers from Phuto and Than Hoa.

6. *Bothroponera rufipes* Jerdon. — Four workers from Van Phu.

7. *Ectomomyrmex astutus* F. Smith. — Six workers from Coxan and Laokay.

8. *Euponera* (*Brachyponera*) *luteipes* Mayr. — Five workers from Wacham.

9. *Euponera* (*Brachyponera*) *luteipes* subsp. *chinensis* Emery. — Numerous workers from Tocco concession (Chapa), Laokay, Coxan and Dong Mo.

11. *Euponera* (*Trachymesopus*) *sharpi* Forel. — Two workers from Langson.

11. *Leptogenys* (*Lobopelta*) *kitteli* Mayr. — One workers from Laokay.

12. *Leptogenys* (*Lobopelta*) *kitteli* subsp. *altisquamis* Forel. — Several workers from Chiengmai, Siam (H. E. Crampton).

13. *Anochetus punctiventris* Mayr. — Several workers from Van Phu, Langson and Laokay.

14. *Anochetus risi* Forel. — One worker and two males from Yen Bay.

Male (undescribed). Length 4,6 mm.

Head through the eyes broader than long, broad and evenly rounded behind; cheeks very short. Ocelli rather small but protuberant. Mandibles very small, blunt and vestigial. Clypeus bluntly subcarinate in the middle, with straight, transverse anterior border. Antennæ moderately long, scape one and one half times as long as broad, remaining joints more than twice as long as broad. Thorax not as broad as the head through the eyes; pronotum convex, exposed, mesonotum moderately convex, as broad as long; epinotum rather long; evenly convex and sloping, without distinct base and declivity. Petiole about one and one half times as long as broad, the node thick, conical, very bluntly pointed above. Gaster rather short, convex above, with small genital valves and distinct cerci. Pygidium without a spine. Legs rather long and slender.

Shining; head more opaque; whole body distinctly punctate, the mesonotum more coarsely and also irregularly rugulose, especially on the sides.

Antennæ, head, thorax and abdomen covered with rather long, dense, raised, yellowish pubescence; gaster with sparse, suberect hairs. Legs with short, appressed pubescence.

Yellowish brown, upper surface of body darker; a dark brown spot on the ocellar region and two dark brown, longitudinal stripes covering the parapsidal furrows of the mesonotum. Mouthparts whitish; legs pale yellow. Wings opaque brownish white, with dark brown veins and stigma.

15. *Odontomachus silvestrii* sp. nov. (Fig. 1). ✓✓

Worker. Length 10-12.5 mm.

Related to *O. infandus* F. Smith from the Philippines. Head similar, but

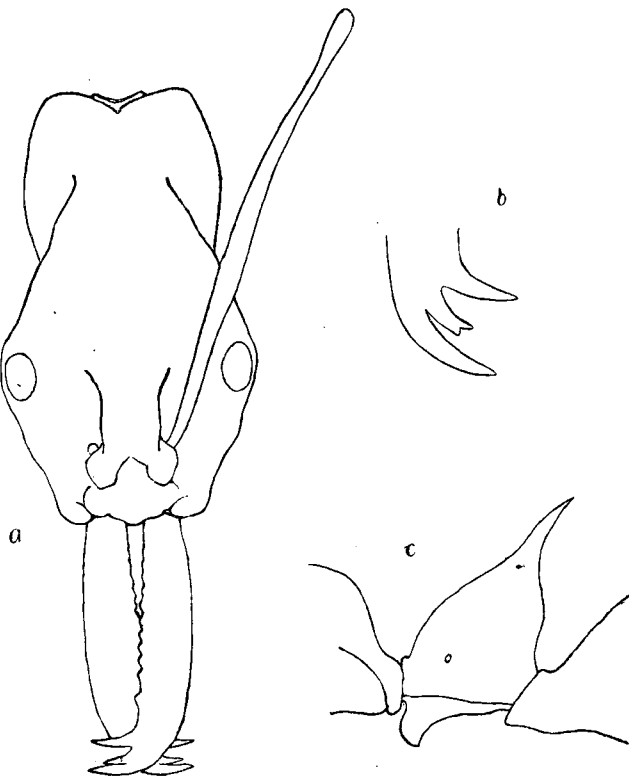


Fig. 1.

Odontomachus Silvestrii sp. nov. Worker.; a, head, from above; b, terminal mandibular teeth; c, petiole, in profile.

the occipital border very nearly straight, eyes distinctly less convex and mandibles somewhat narrower and less flattened and dilated in the

middle, with the subapical tooth very similar to the apical as in *infandus*, but the preapical tooth broadened and distinctly bidentate at the tip. Marginal denticles of the mandibles 12-15 in number, decreasing regularly in size basally. Antennæ considerably longer though equally slender, the scapes reaching nearly two fifths their length beyond the posterior corners of the head (in *infandus* less than one fifth); second funicular joint clearly twice as long as the first (in *infandus* only one and one half). Thorax very similar. Petiole with the spine shorter and more slender and at its base more abruptly expanding into the node; the anterior surface of the latter subangulate in profile. There is a strong, blunt, downwardly directed tooth on the anteroventral surface of the node as in *infandus*.

Subopaque, including the mandibles, gaster more shining; striation of head and thorax similar to that of *infandus* but finer and not visible under a magnification of ten diameters; on the pronotum in regular concentric circles, transverse and much coarser on the meso- and especially on the epinotum. Gaster very finely, sparsely and feebly punctate.

Hairs very sparse, visible only on the mandibles and gaster. Whole body, including the mandibles, covered with rather dense, yellowish pubescence, so that the surface, even of the gaster appears to be much more opaque than in *infandus*.

Brownish ferruginous, gaster a shade darker, mandibles, coxæ and femora pale yellow; mandibular teeth and denticles dark brown; tibiæ, tarsi and trochanters brownish ferruginous like the body.

Described from eight workers from Dong Mo.

✓✓ 16. *Odontomachus silvestrii* var. *substriatus* var. nov.

Worker. Differing from the preceding form in sculpture. Although the body is even more opaque, the striæ on the head, pro- and mesonotum are mostly effaced and replaced by fine punctures, the transverse striæ on the epinotum are weaker and the surface is also punctate. Color and pilosity the same as in the typical *silvestrii*.

Six workers from Tocco.

17. *Odontomachus rixosus* F. Smith. — Three workers from Chiangmai, Siam (H. E. Crampton).

18. *Odontomachus haematoda* L. — Four workers from Laokay.

SUBFAMILY **Myrmicinae**.

19. *Pheidole rhombinoda* Mayr. — Two soldiers and four workers from Laokay.

20. *Pheidole rhombinoda* var. *micantiventris* Forel. — Three soldiers and a dealated female from Than Hoa.

21. *Pheidole sulcaticeps* Mayr subsp. *indosinensis* (1) Wheeler. One soldier from Coxon.

22. *Crematogaster* (*Acrocœlia*) *dohrni* Mayr subsp. *artifex* Mayr. — Six workers from Laokay.

23. *Crematogaster* (*Acrocœlia*) *ferrarii* Emery. — Two workers from Chan Hoa.

24. *Crematogaster* (*Acrocœlia*) *brunnea* F. Smith subsp. *politula* Forel. — Two workers from Hanoi.

25. *Crematogaster* (*Orthocrema*) *biroi* Mayr. — Three ergatogynes and a single worker from Laokay. These probably represent a distinct variety, but the material is too meagre for description.

26. *Crematogaster* (*Oxygyne*) *ebenina* Forel var. *corax* Forel. — Several workers from Yi Leang, Yen Bay and Laokay.

27. *Cardiocondyla wroughtoni* Forel. — Ten workers from Phuto.

28. *Monomorium floricola* Jerdon. — A female and numerous workers from Phuto, Van Phu, Laokay and Coxan.

29. *Monomorium pharaonis* L. Four workers from Coxan.

30. *Monomorium silvestrii* sp. nov. (Fig. 2).

Worker. Length 2 - 2.3 mm.

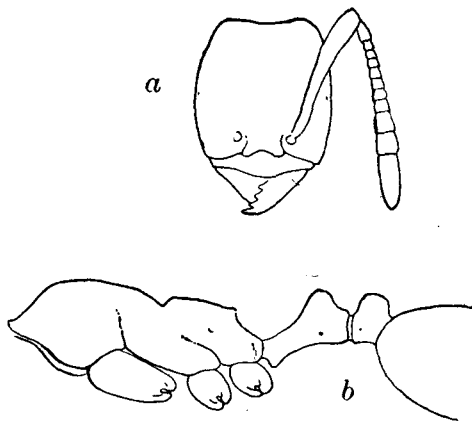


Fig. II.

Monomorium silvestrii sp. nov. Worker; a, head;
b, thorax and pedicel in profile.

Head subrectangular, distinctly longer than broad, a little broader in front than behind, with straight posterior border, distinct posterior corners and very feebly and evenly convex sides. Mandibles rather narrow, with oblique apical borders provided with four large, subequal teeth. Eyes minute, vestigial, apparently consisting of three or four extremely minute and indistinct facets, placed a little in front of the middle of the head.

Clypeus short, very convex and projecting in the middle, especially behind; without carinæ; the anterior border broadly rounded and entire. Frontal carinæ very small, approxim

(1) This species will be described in a paper on the ants of China.

ated; frontal area and groove obsolete. Antennæ 12-jointed, long and slender, the scapes reaching about twice their greatest diameter beyond the posterior corners of the head; funicular joints 2, 7 and 8 as broad as long, 3-6 somewhat broader than long; club 3-jointed, very distinct but neither swollen nor abruptly set off from the remainder of the funiculus; the terminal joint very long, longer than the two subequal basal joints together. Thorax rather long; pro- and mesonotum together forming a large, convex, hemispherical mass, without mesoëpinotal suture. Mesonotum sloping backwards to the short, deep mesoëpinotal impression. Epinotum with the base convex in front and horizontal behind, one and one-half times as long as the declivity, with which it forms on each side a minutely dentate right angle. Petiole small, distinctly pedunculate, with a minute anteroventral tooth, the node longer than the peduncle, as high as long, evenly rounded above and nearly as long as broad. Postpetiole a little broader and much smaller and lower than the petiolar node, rounded and transversely elliptical, twice as broad as long. Gaster elongate elliptical, apically pointed, the base of the first segment narrowly but sharply truncated in front, with an angulate corner on each side. Legs rather long and slender.

Smooth and shining throughout, with very minute, scattered piligerous punctures.

Hairs white, short and soft, only moderately abundant, suberect, most distinct on the gaster, head and appendages, more oblique on the latter.

Brownish yellow; teeth of mandibles, anterior border of clypeus, neck and sutures of thorax reddish; gastric segments brown in the middle above.

Described from six workers from Yen Bay (type - locality) and three from Van Phu.

This species is very interesting on account of the very minute eyes, which ally it to *M. subcœcum* Emery from the island of St. Thomas in the West Indies. The Indochinese species differs in the larger size, sparser pilosity, darker color, longer antennal scapes and broader nodes of the pedicel. In 1907 Forel described what he took to be a subspecies of *subcœcum* from New South Wales, Australia, under the name of *australicum*, as follows: « Length. 8 mm. Of a very pale yellow, paler than the type of the species. Slightly more robust than the latter. The carinæ on the clypeus slightly more separated. Mesoëpinotal impression deeper. Second node slightly higher. I can detect no other differences ». The discovery of *M. silvestrii* and the improb-

ability that the West Indian species is represented by a race in Australia, lead me to regard the latter as a distinct species, *M. australicum*. Now in some material from two Australian localities I find several workers which at first sight seem to belong to Forel's species, but they are larger, the mandibles and proportions of the head are very different and they possess no traces of clypeal carinæ. Forel who evidently had a typical specimen of *subcœcum* before him, could hardly have overlooked such differences. I therefore describe below the Australian specimens as a fourth species of minute-eyed *Monomorium*.

31. *Monomorium lippulum* sp. nov. (Fig. 5). = *Antrophilodes lippulum* Forel

Worker. Length 1.5 - 2 mm.

Head nearly square, as broad as long and as broad behind as in front, with nearly straight, subparallel sides and the posterior margin

straight but slightly and narrowly impressed in the middle. Eyes minute, of the same size as in *M. silvestrii*, but placed just in front of the median third of the head. Mandibles large and rather broad, with somewhat convex external borders, the apical borders with 7 or 8 denticles, alternating in size. Clypeus rather large, evenly convex in the middle, without carinæ, the anterior border thick, straight and entire in the middle. Frontal area distinct, triangular; frontal groove absent; frontal carinæ much farther apart than in *silvestrii*, strongly diverging posteriorly. Antennæ 12-jointed, rather stout; scapes not

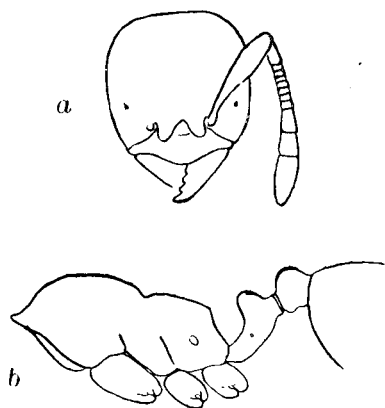


Fig. III.

Monomorium lippulum sp. nov. Worker; a, head; b, thorax and pedicel in profile.

reaching the posterior cornes of the head; joints 2-8 of the funiculus small, uniform, transverse, the club very abruptly separated from the remainder of the funiculus, with the terminal joint swollen and thicker but not longer than the two subequal basal joints together. Pro- and mesonotum not separated by a suture, together forming a single mass which is less convex and longer than in *silvestrii*. Mesonotum shorter and more convex, the mesoëpinotal impression short and acute, the epinotum as broad as long, somewhat broader behind than in front, the base in profile distinctly convex, a little longer than the sloping, somewhat concave declivity into which it passes with only a

see Brown, 1953, Brev-110? 18: 7.

feeble angle at each side. Petiole with indistinct peduncle, its ventral surface convex, without anterior tooth; node rounded, conical, about as long as broad. Postpetiole distinctly larger than the petiolar node, a little broader, subglobular, nearly as long as broad. Gaster elongate elliptical, the first segment more narrowed and less distinctly truncate anteriorly than in *silvestrii*.

Shining, distinctly and sparsely punctate. Mandibles subopaque, rather coarsely striate. Cheeks and sides of front near the frontal carinae longitudinally rugulose.

Pilosity white, similar to that of *silvestrii* but somewhat coarser and more abundant.

Yellow; borders of clypeus and mandibles, including the denticles, reddish.

Described from four workers from Port Lincoln, South Australia (type-locality), taken by Mr. A. M. Lea, and two workers taken by Mr. J. W. Finlayson in the McDonnell Range of Central Australia.

Whereas *M. silvestrii* may be at once recognized as a *Monomorium*, the affinities of *lippulum* are by no means so unequivocal. At first sight it seems to be a worker of some species of *Machomyrma* or *Pheidole*, but the worker of the former, though possessing minute eyes, has 11-jointed antennae and the thorax of *lippulum* is really quite unlike that of a worker *Pheidole*. Unless, therefore, the new species represents one of the worker phases of a still unknown genus of Australian Myrmicinae, it will have to be placed, for the present at least, in the already sufficiently heterogeneous genus *Monomorium*.

32. *Solenopsis geminata* Fabr. subsp. *rufa* Jerdon — Several workers from Saigon and Xa Doai.

33. *Pheidologeton diversus* Jerdon. — A dealated female from Dong Mo and several workers and intermediates from Chiangmai, Siam (H. E. Crampton).

34. *Aneleus cribriceps* sp. nov. (Fig. 4).

Soldier. Length nearly 3.5 mm.

Head nearly as broad as long, somewhat broader behind than in front, with broadly excised posterior border, feebly and evenly convex sides and rounded posterior corners; in profile evenly convex above and beneath, occipital groove shallow. Eyes small, flat, in front of the middle of the head. Mandibles stout and convex, with six coarse teeth, the two basal ones short. Clypeus flattened, depressed anteriorly in the middle, its border broadly sinuate laterally and medially. Frontal area

distinct, triangular. Antennal scapes extending to the middle of the sides of the head; funicular joints 2-7 broader than long, club more swollen than in *A. pygmaeus* Emery. Thorax shaped much as in that species but the pro- and mesonotum much less convex, the metanotum, however, much more projecting. Base of epinotum less convex, teeth somewhat larger. Petiole stout, much stouter than in *pygmaeus*, with a vertical, longitudinal semi transparent lamella depending from the midventral line posteriorly and no tooth anteriorly. Node thick and broad, rounded above, somewhat broader than long. Postpetiole not broader than the petiolar node, much lower and somewhat shorter,

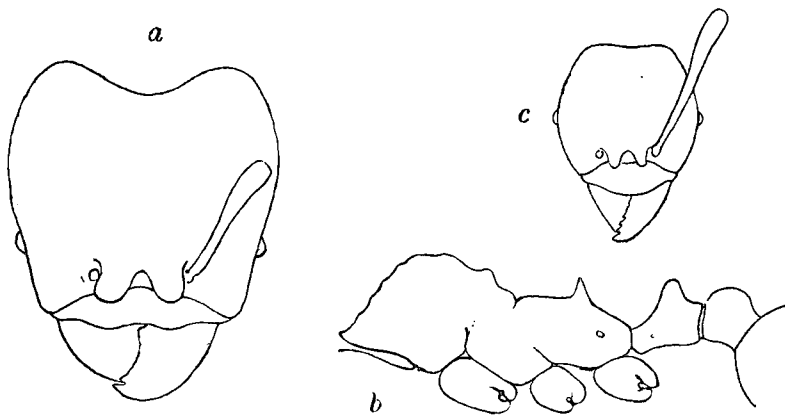


Fig. IV.

Aneleus cribriceps sp. nov.; a, head of soldier; b, thorax and pedicel of same in profile; c, head of worker.

transversely elliptical, about twice as broad as long. Gaster elongate elliptical, dorsoventrally compressed, emarginate anteriorly for the reception of the postpetiole. Legs moderately long.

Mandibles smooth and shining, sparsely and not very coarsely punctate; their external borders somewhat rugulose near the base. Clypeus smooth and shining in the middle, regularly longitudinally rugulose on the sides. Frontal area and a line along the frontal and occipital groove smooth and shining. Head, thorax and pedicel subopaque, the occiput, upper surface of the pro- and mesonotum and the gaster shining. Head rather evenly and closely umbilicately punctate, more densely on the posterior lobes, the interstices between the punctures forming a raised reticulation. There are no transverse rugæ on the occiput as in *pygmaeus* and *aborensis* Wheeler, but the front and sides are longitudinally and not very strongly rugulose, the rugules on the front diverging posteriorly and merging into the reticulations between

the umbilicate punctures about half way to the posterior border. Gula, pro- and mesonotum with coarse but sparser punctures; epinotum, pedicel and sides of thorax densely and finely punctate, or granular. Gaster regularly and conspicuously punctate but the punctures smaller and less dense than on the head. Scapes and legs finely punctate, somewhat shining.

Hairs and pubescence golden yellow; the latter rather long, subappressed, curved and uniformly covering the body and appendages, the hairs few and very sparse, long and erect, confined to the front of the head, clypeus, pronotum, nodes of pedicel and tip of gaster.

Ferruginous or reddish brown; epinotum and base of gaster somewhat paler; cheeks slightly more yellowish, clypeus and borders of mandibles black; antennæ and legs brownish yellow.

Worker. Length 1 - 1.2 mm.

Head convex above, nearly square, very slightly broader behind than in front, with nearly straight posterior border. Eyes small, just in front of the median third of the head. Mandibles rather narrow, 6-toothed. Clypeus high posteriorly, abrupt in front in the middle, the border nearly straight in the middle, sinuate on each side. Frontal area indistinct; frontal furrow obsolete. Antennal scapes three-fourths as long as the distance between their insertions and the posterior corners of the head; funicular joints 2-8 small, subequal, decidedly broader than long; terminal joint of club very large, swollen, more than three times as long as the penultimate joint. Promesonotum somewhat longer than broad, rounded and somewhat depressed above; mesoepinotal impression short and acute; epinotum small, the base evenly convex, not longer than the sloping declivity into which it passes through an indistinct, rounded angle. Petiole nearly twice as long as broad, broader behind, subpedunculate anteriorly, its ventral surface straight, without dependent lamella, the node rounded, hemispherical, scarcely transverse. Postpetiole very small, transversely elliptical, not broader than the petiolar node. Gaster elongate elliptical, distinctly excised at the base for the accommodation of the petiole. Legs rather slender.

Smooth and shining, sparsely punctate; epinotum, mesopleuræ, petiole and postpetiole, except their nodes, finely and densely punctate, or reticulate.

Hairs and pubescence white, the former consisting of a few long erect hairs on the clypeus, front and tip of gaster. Pubescence subappressed, short but distinct on the head and appendages.

Yellow, with a faint reddish tinge; legs and antennæ paler, borders of mandibles, clypeus and frontal carinæ reddish.

Described from a single soldier and sixteen workers taken at Dong Mo.

The soldier of this species is quite different in sculpture, shape of thorax and proportions of the petiolar and postpetiolar nodes from its two nearest East Indian allies, *A. pugmaeus* Emery and *aborensis* Wheeler. In both of these the occiput is conspicuously transversely rugose. The worker of *cribriceps* is closer to that of *aborensis* but is smaller and paler, with shorter antennæ, much less pronounced mesoëpinotal constriction, etc.

35. *Oligomyrmex* (*Hendecatella* subgen. nov.) *capreolus* sp. nov. (Fig. 5).

Soldier. Length 2.8 - 3 mm.

Head nearly half again as long as broad, somewhat broader behind than in front, cheeks straight and subparallel, the sides more convex

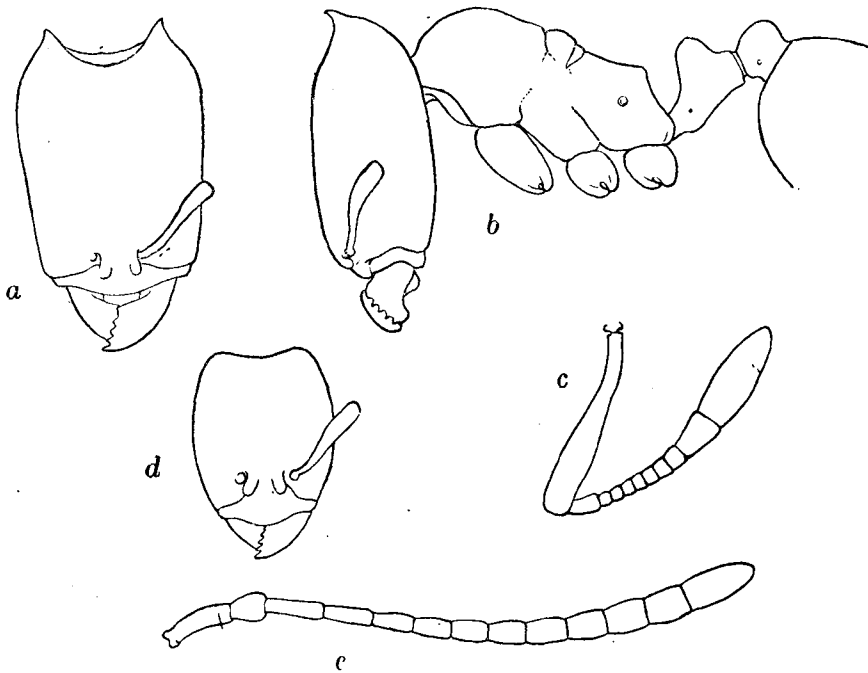


Fig. V.

Oligomyrmex (*Hendecatella*) *capreolus* sp. nov.; a, head of soldier; b, head, thorax and pedicel of same in profile; c, antenna of soldier; d, head of worker; e, antenna of male.

behind, the posterior border rather deeply and arcuately excised, each of the posterior corners produced as an acute, triangular, flattened tooth, a little longer than broad at its base and curved upwards and forwards. These two teeth are connected by an arcuate carina which

extends up to the tip of each of them and forms its medial border. There are no traces of eyes or ocelli. Mandibles strong and convex, with 5 coarse, subequal teeth. Clypeus short, rather flat in the middle, with broadly rounded, entire anterior border. Frontal area and furrow very small and indistinct. Antennæ short, 11-jointed; scapes curved, reaching to the middle third of the sides of the head; first funicular joint nearly as long as joints 2 - 5 together; joints 2 - 6 broader than long, the seventh about as broad as long; the terminal joint moderately swollen, nearly three times as long as the basal joint of the club. Thorax as long as the head without the mandibles and nearly two-thirds as broad through the pronotum, which is rounded and convex in front. Promesonotal suture distinct, mesonotum broader than long, transversely elliptical and feebly convex. Metanotal sclerite distinct. Mesoëpinotal constriction not very pronounced, narrow. Epinotum sub-cuboidal, the base lower than the mesonotum, as long as the declivity and forming with it an obtuse angle on each side, the dorsal surface between the angles concave and sloping. Petiole nearly as high as long, narrower in front than behind, the node cuneate in profile, rounded above and somewhat transverse. Postpetiole nearly twice as broad as long, lower and slightly broader than the petiolar node. Gaster voluminous, elongate elliptical, fully two and one half times as long as broad. Legs rather short and weak.

Shining; mandibles smooth, finely and sparsely punctate; head more coarsely punctate and very finely longitudinally striate, the striæ interrupted. Remainder of body more delicately punctured.

Hairs white, fine, short, erect, even and abundant, investing the whole body, longest on the head, thorax and pedicel; very short and oblique on the appendages.

Brownish yellow; head darker; gaster, legs and antennæ paler, whitish yellow; mandibular teeth and anterior border of clypeus red.

Worker. Length 1.3 - 1.5.

Head suboblong, only one and one fourth times as long as broad, as broad in front as behind, with feebly and evenly rounded sides and slightly sinuate posterior border, without occipital teeth. Eyes absent. Antennæ 11-jointed, scapes reaching half way to the posterior corners of the head; funicular joints 2-8 small, subequal, very transverse; club large and swollen. Thorax similar to that of the soldier but without metanotal sclerite, with a more distinct mesoëpinotal impression, the base of the epinotum shorter and more convex and not distinctly angulate on the sides. Nodes of the petiole and postpetiole more hemispherical and less transverse.

Head without striæ, merely punctate, the punctures being more distinct than on the remainder of the body

Pilosity similar to that of the soldier but proportionally shorter.

Pale whitish yellow, head scarcely darker; mandibular denticles reddish.

Male. Length 3 - 3.5 mm.

Head, including the eyes, broader than long, broadly rounded behind the orbits, the eyes and ocelli large but not projecting, cheeks nearly half as long as the eyes which are subcircular. Mandibles small, tridentate. Clypeus with a high conical elevation in the middle, the anterior border broadly rounded. Antennæ long, filiform, 13-jointed; scapes well-developed, more than three times as long as broad and distinctly longer than the second funicular joint. Mesonotum subcircular, as broad as long, convex in front and somewhat overhanging the pronotum. Epinotum sloping in profile, with distinct base and declivity, the former longer than the latter. Petiolar and postpetiolar nodes subequal, transverse, distinctly compressed anteroposteriorly. Genitalia prominent, exerted. Wings with venation like that of *Oligomyrmex* sens. str., but with the submarginal cell open.

Shining, sparsely punctate; head, mesonotum and scutellum finely, longitudinally striate.

Pilosity much sparser and less erect than in the soldier and worker.

Deep black; antennæ and legs piceous; femora black, except at their ends; wings grayish hyaline, with pale brown veins and stigma.

Described from ten soldiers, three workers and seven males taken at Van Phu.

This interesting species agrees with *Oligomyrmex*, except in having 11-jointed antennæ in the soldier and worker. In the « Genera Insectorum » Emery divided the genus into three subgenera: *Aëromyrma* with 10-jointed and *Oligomyrmex* sens. str. with 9-jointed antennæ in these two castes, and *Octella* with 8-jointed antennæ in the worker, the soldier being unknown. Here, however, a difficulty arises, because *Hendecatella* has the same number of antennal joints as *Aneleus* and because, as Emery noticed, the latter genus is also in other respects very closely related to *Oligomyrmex*. That these genera may be connected by intermediate forms is also indicated by an ant which Mann described from the Solomon Islands as *Oligomyrmex viehneyeri*. He was, I believe, led to assign it to this genus on account of its small size (soldier 2.5 mm., worker. 75 - 1 mm.) and the presence of flat teeth on the occipital lobes of the soldier. In his description he fails specifically to mention the number of antennal joints, but in six soldiers and four workers which he kindly gave

me I find that there are eleven and in a single female accompanying this series there are only nine joints. Moreover, the structure of the thorax, the size of the eyes, the sculpture and pigmentation are clearly those of *Aneleus*. Since occipital teeth occur also in some other species of this genus (e. g. *sarasinorum* Emery of Celebes), I believe that *viehmeyeri* should be transferred to *Aneleus*. In its small size and the characters of the female, however, it clearly approaches *Oligomyrmex*. In my opinion, *Aneleus* may be regarded as a subgenus of *Oligomyrmex*.

The male of *Aneleus* has never been described. I therefore include a brief description of this sex in *A. pygmaeus* var. *albipes* Emery, of which I possess numerous specimens of all four phases, taken by Mr. R. C. McGregor at Culasi, on the island of Panay, Philippines. The male resembles that of *Oligomyrmex*, but the epinotum is more angular. The venation, too, is the same, and also like that of *Pheidologeton*, but the head is proportionally much larger than in the latter genus. The mandibles are well-developed, 5-toothed, the antennal scape is short, only one and one-half times as long as broad and only half as long as the second funicular joint, and hence more as in the subgenus *Aëromyrma* of *Oligomyrmex*.

36. *Anillomyrma decamera* Emery subsp. *continentis* subsp. nov. — Four workers of this tiny blind ant from Van Phu.

Although these agree closely with Emery's description of the type taken in a termitarium in Ceylon, they may represent a distinct subspecies. They are somewhat smaller (not more than 1.5 mm.) and do not seem to be so elongate. Head scarcely one-fourth longer than broad, in profile with the dorsal and gular surfaces straight and subparallel, the clypeus very short and vertical, without carinæ. Both the labial and the maxillary palpi 2-jointed. The two apical mandibular teeth are subequal and contiguous, the two basal teeth very oblique and separated. Antennal scapes reaching to the middle of the sides of the head, the first funicular joint fully as long as the five succeeding very short and transverse joints, the two basal joints of the club broader than long. In the dried specimens the antennal club is flattened or compressed. Dorsal outline of thorax in profile nearly straight, the mesoëpinotal impression very feebly indicated. Epinotal declivity vertical, scarcely more than half as long as the base, and passing into it through an even curve. Petiolar node

longer than broad; postpetiole small and rounded, very nearly as long as broad and scarcely broader than the petiolar node. Gaster elongate, sting large and well-developed. Fore femora and tibiae expanded; tarsal joints beyond the first broad and bristly. Head and promesonotum slightly less shining than the remainder of the body, rather closely punctate. Hairs white, abundant, erect and fine, very short and even on the head and thorax, longer on the petiolar node and posterior gastric segments. Color yellowish white, head and thorax very feebly tinged with brownish, mandibular teeth reddish.

I do not believe with Emery that *Anillomyrma* should be regarded as a subgenus of *Monomorium*. It seems to be much more closely related to *Bondroitia* Forel and to be more properly placed near *Diplomorium*. Its affinities cannot be settled, however, till the sexual phases are known.

37. *Triglyphothrix striatidens* Emery — Three workers from Van Phu and two from Langson.

38. *Tetramorium guineense* Fabr. — Four workers from Tocco. These probably belong to the var. *indicum* Forel, but I have not been able to find the original description of the worker of this form. The crest on the pronotum in the specimens before me is more prominent than in the typical form of the species and the epinotal spines are longer, more slender and somewhat more curved forward. The gaster is scarcely darker than the head and thorax

39. *Tetramorium indosinense* sp. nov. (Fig. 6).

Worker. Length nearly 3 mm.

Head nearly square, slightly longer than broad, with straight sub-parallel sides, rounded posterior corners and nearly straight posterior border. Eyes small, convex, their posterior orbits at the median transverse diameter of the head. Mandibles rather large, with three large apical and four or five small and rather indistinct basal teeth. Clypeus moderately convex, with a sharp median and on each side two shorter carinae, the anterior border broadly rounded, scarcely sinuate in the middle. Frontal area triangular, impressed, with a median carinula; frontal groove represented by a fine ruga which fades out towards the middle of the head. Frontal carinae very short, strongly diverging posteriorly, continued as distinct rugae only as far as the middle of the head. There are no scrobes but on each side merely a large shallow impression, without peculiar sculpture. Antennae long, scapes reaching more than their greatest diameter beyond the posterior

border of the head; funicular joints 2-6 broader than long. Thorax small and short, not longer than the head including the mandibles, without promesonotal suture. Pronotum convex and rounded, continued into the straight horizontal outline of the mesonotum and base of epinotum with only a very faint impression at the mesoëpinotal suture.

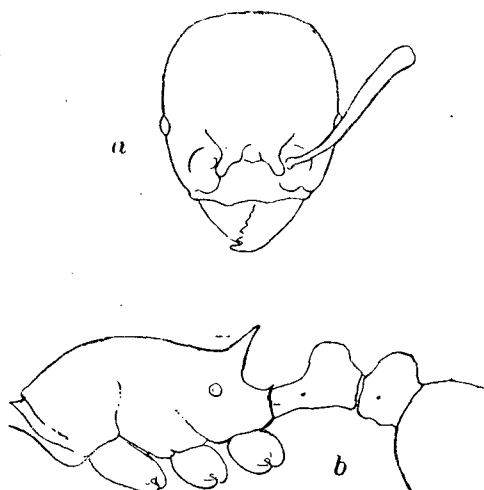


Fig. VI.

Tetramorium indosinense sp. nov. Worker; a, head; b, thorax and pedicel in profile.

Base and declivity of epinotum subequal, the latter sloping and concave, the spines as long as the base and longer than their interval, straight, acute, directed upward, backward and outward. Metasternal angles with minute, acute teeth. Petiole quite unarmed beneath, the peduncle nearly as long as the node, which seems subcuboidal in profile but when seen from above is elliptical, laterally compressed and distinctly longer than broad. Postpetiole convex and subhemispherical, somewhat broader than long and slightly broader

than the petiolar node. Gaster and legs of the usual conformation.

Shining; mandibles densely and rather coarsely striate. Head regularly reticulate rugose, with the rugæ diverging posteriorly on the front, parallel on the sides. Sculpture of thorax very similar to that of the posterior portion of the head, the pleuræ more longitudinally, the petiolar and postpetiolar nodes more indistinctly and more irregularly rugose. Gaster smooth, more shining than the head, thorax and pedicel, sparsely punctate.

Hairs yellowish, rather abundant, fine, very short and almost subappressed on the head, thorax and appendages, longer and more oblique on the abdomen.

Ferruginous red; mandibles and gaster darker, more reddish brown; legs yellow, with the knees infuscated; mandibular teeth black.

Described from six workers taken at Hanoi.

This species is quite different from any of the 28 East Indian species of *Tetramorium* of which I have seen specimens or de-

scriptions. In the absence of distinct antennal scrobes it resembles *inglebyi* Forel and *mixtum* Forel of India and *confucii* Forel of Formosa.

SUBFAMILY **Dolichoderinae.**

40. *Dolichoderus* (*Hypoclinea*) *affinis* Emery var. *mus* Santschi. — One worker from Than Hoa; several workers and three dealated females from Caibè.

41. *Dolichoderus* (*Hypoclinea*) *tuberculatus* Mayr var. *emarginatus* Santschi. — Numerous workers from Ihan Hoa, Vinh and Saigon.

42. *Dolichoderus* (*Hypoclinea*) *taprobanae* Emery var. *siamensis* Forel. — Ten workers from Xa Doai.

43. *Dolichoderus* (*Hypoclinea*) *feae* Emery. — Eight workers from Chiengmai, Siam (H. E. Crampton).

44. *Dolichoderus* (*Hypoclinea*) *feae* var. *caligatus* var. nov.

Worker: Differing from the typical form of the species and var. *fuscus* Emery in the coloration of the legs, the trochanters and femora being brownish yellow, the tips of the femora and the whole of the tibiae and metatarsi black, the remainder of the tarsi dark brown. The thorax, petiole and coxae are red as in the typical *feae*.

Seven specimens from Chiengmai, Siam (H. E. Crampton).

45. *Tapinoma melanocephalum* Fabr. — Numerous workers from Vinh and Laokay.

46. *Technomyrmex albipes* F. Smith. — Numerous workers from Wacham, Tocco, Hanoi, Langson, and Yen Bay and three winged females from Yen Bay.

47. *Technomyrmex setiferus* Emery. — Three workers from Dong Mo.

These specimens agree so closely with Emery's description and figure of his *Tapinoma setiferum* that I feel certain of the identification, although the types are from Sumatra. Emery was led to place the species in the genus *Tapinoma* on account of the structure of the gizzard, which he describes as being intermediate between those of *Tapinoma* and *Bothriomyrmex*. The specimens before me, however, clearly have the tip of the gaster and the general habitus of *Technomyrmex*.

SUBFAMILY **Formicinae.**

48. *Anoplolepis longipes* Jerdon. — Numerous workers and two dealated females from Long Mo; two workers from Hanoi.

49. *Acropyga (Rhizomyrma) silvestrii* sp. nov. (Fig. 7).

Worker. Length 2 - 2.3 mm.

Head subrectangular, as broad as long and as broad in front as behind, with feebly convex sides and feebly concave posterior border. Eyes small, but larger than in *A. myops* Forel, consisting of not more than a dozen facets, situated very near the anterior fourth of the head.

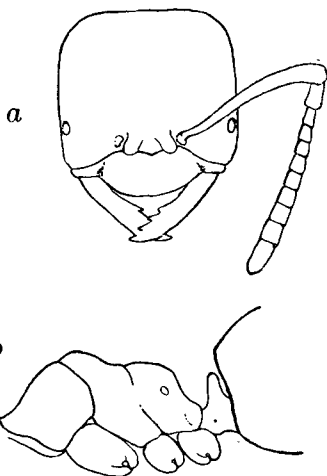


Fig. VII.

Acropyga (Rhizomyrma) silvestrii sp. nov.
Worker; a, head; b, thorax and petiole in profile.

Mandibles narrow, with oblique apical borders bearing five teeth, the third and fifth smaller than the others, the fourth and fifth separated, oblique. Clypeus depressed on the sides, convex and subcarinate in the middle, its anterior border straight, entire and transverse. Frontal area distinct, rather large, triangular; frontal groove obsolete; frontal carinae very short. Antennae moderately slender, 11-jointed; scapes reaching to or a little beyond the posterior corners of the head: funicular joints 2-6 one and one-fourth times as long as broad, 7-9 very nearly as broad as long, terminal joint as long as the two preceding joints together. Thorax short, thickset, not longer than the head including the mandibles. Pronotum transverse, nearly twice as broad

as long, slightly flattened, rising posteriorly to the mesonotum which is convex, rounded and transversely elliptical. Mesoepinotal constriction moderately deep. Epinotum short, subrectangular, broader than long, sloping, the base short and convex, curving into the longer, flattened declivity. Petiole small and narrow, its node nearly as thick above as below, with flattened anterior and posterior surfaces and blunt, rounded superior border. Gaster as in other species, voluminous and apically pointed. Legs rather slender.

Smooth and shining, very finely, superficially and indistinctly punctate; mandibles somewhat more opaque, finely and indistinctly striate.

Hairs and pubescence white, moderately abundant, the former erect or suberect on the body and appendages, longest on the gaster, the pubescence long and dilute, conspicuous only on the gaster.

Pale yellow; head slightly more orange; borders of mandibles narrowly blackish.

Described from three specimens from Coxan.

This species is quite distinct in the proportions of the funicular joints and the size of the eyes from other Indomalayan and Australian species of *Rhizomyrma*, such as *myops* Forel, *lauta* Mann, *oceanica* Emery and *sauteri* Forel.

50. *Oecophylla smaragdina* Fabr. — Two workers from Dong Mo.

51. *Camponotus (Dinomyrmex) gigas* Latr. — Two workers taken by Dr. Silvestri at Singapore and one taken by Dr. H. E. Crampton at Kuala Lumpor, Federated Malay States.

52. *Camponotus (Ianaemyrmex) variegatus* F. Smith var. *mitis* F. Smith. — Several workers from Laokay, Caiba, Coxan, Langson, Tocco, Van Phu and Dong Mo.

53. *Camponotus (Tanaemyrmex) variegatus* var. *dulcis* Emery. — Two workers from Yen Bay and Langson.

54. *Camponotus (Tanaemyrmex) nicobarensis* Mayr var. *exiguoguttatus* Emery. — Several workers from Tocco, Langson, Van Phu, Wacham and Dong Mo.

55. *Camponotus (Myrmosericus) rufoglaucus* Jerdon subsp. *paria* Emery. — Eight workers from Phuto, Yen Bay and Saigon.

56. *Polyrhachis (Myrmatopa) schang* Forel var. *laeviuscula* Viehmeyer. — Four workers from Coxan.

57. *Polyrhachis (Campomyrma) halidayi* Emery. — Four workers from Klinoi.

58. *Polyrhachis (Myrmhopla) armata* Le Guillou. — Two workers from Chiengmai, Siam (H. E. Crampton).

59. *Polyrhachis (Myrmhopla) dives* F. Smith. — Eight workers from Caibè.

60. *Polyrhachis (Myrmhopla) bicolor* F. Smith. — Several workers and males from Caibè, Yen Bay, Vinh and Saigon.

61. *Pseudolasius mayri* Emery. — Three workers from Tocco and one from Yi Leang agree perfectly with Emery's description of this form from Java, Borneo and Sumatra. The mandibles are 7-toothed, with the third and fifth tooth very small.

In the female the sixth and seventh are large and separated, but in the workers before me they are closely approximated. It must be admitted, however, that the workers and females have not been proved to belong to the same species. Emery merely inferred their conspecificity from the peculiar denition of the mandibles.

62. *Pseudolasius binghami* Emery. — I refer four workers from Tocco to this species which was based on a couple of specimens taken by Fea at Carin, Burma. Dr. Silvestri's specimens agree closely with Emery's description but are only 1.8-2.8 mm. long and therefore smaller than the types (3.3 mm.). The head is distinctly longer than broad, narrowed anteriorly, with straight converging sides and broadly but not very deeply concave posterior border. The scapes reach nearly to the posterior corners of the head. The epinotum (damaged in Emery's specimens) is gradually sloping in profile, feebly convex and without distinct base and declivity.

63. *Pseudolasius silvestrii* sp. nov. (Fig. 8, a).

Worker major. Length 3.3 mm.

Head large, cordate, strongly narrowed in front where it is only about three-fifths as broad as the posterior diameter; posterior border

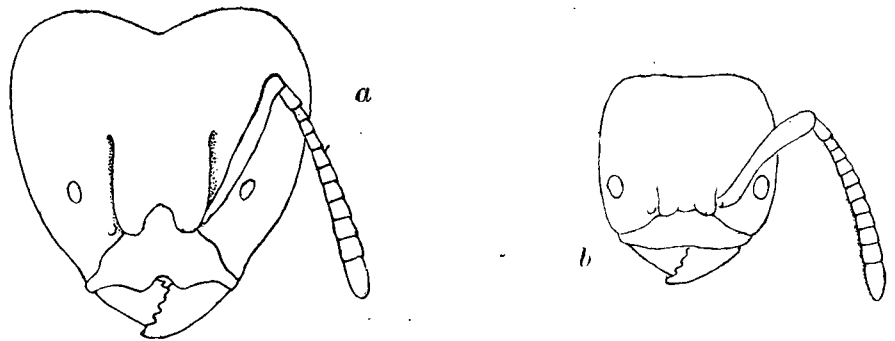


Fig. VIII.

a, *Pseudolasius silvestrii* sp. nov. Head of worker major; b, *Pseudolasius lasioides* sp. nov. Head of worker (probably minor).

deeply and angularly excised, posterior corners broadly rounded, sides and front convex. Eyes small, flat, with only six facets in their greatest diameter, placed at the anterior third of the head and well up on its dorsal surface. Mandibles stout, with convex external borders, the

apical borders somewhat oblique, armed with six large, flat teeth, which grow gradually smaller and shorter basally. The apical tooth is very broad, with a sharp cutting margin, the other teeth are blunt and rounded (worn?). Clypeus moderately convex, its posterior border semicircular, its anterior border sinuate on each side and deeply excised in the middle, the excision separated from the lateral sinus on each side by a broad, almost tooth-like projection. Frontal area and furrow obsolete. Frontal carinae straight, parallel, continued back somewhat beyond the middle of the head and forming the medial borders of narrow scrobe-like depressions which accommodate the basal half of the antennal scapes. Antennae slender; scapes reaching a little more than half the distance from the eyes to the posterior corners of the head; all the funicular joints very distinctly longer than broad. Thorax short and stout, not longer than the head without the mandibles. Promesonotum convex, subhemispherical, as broad as long. Mesoepinotal impression rather deep and wide, but the spiracles not very protuberant. Epinotum in profile with the base and declivity straight, together forming an obtuse angle, the declivity somewhat longer. Petiole small, with the node cuneate, inclined forward, its anterior and posterior surfaces very feebly convex, its superior border rather sharp, but not compressed, sinuately emarginate in the middle. Gaster elongate elliptical, convex above. Legs rather long.

Mandibles very smooth and shining, vaguely striated at the base externally. Head nearly opaque, very densely and evenly punctate and on the posterior corners and border with sparse black piligerous tubercles. Thorax, petiole, gaster and legs somewhat shining, with an oily lustre, very densely punctate like the head, but more finely and superficially. Promesonotum and dorsal surface of gaster with sparse, black, piligerous tubercles like those on the head.

Hairs abundant, erect, stiff and bristly, pointed, rather short on the head but long on the border of the clypeus, absent on the front, partly glistening white and partly dark brown. The hairs on the cheeks are white but those arising from the tubercles on the occiput, pro- and mesonotum are dark brown. On the gaster and to some extent on the legs they are brown at the base, with glistening white tips. Pubescence pale, except on the gaster where it has the form of sparse, suberect hairs.

Yellowish brown; mandibles red, with black borders; cheeks and clypeus paler and more yellowish; gaster dark brown above, with the margins of the segments and the anal region more yellowish. Legs and antennae a shade paler than the head and thorax.

A single specimen taken at Tocco concession.

This is a very aberrant *Pseudolasius*, quite unlike any of the described species in the shape of the head and especially in the

dentition of the mandibles, the elongate frontal carinæ and rudimentary scrobes for the antennæ. The specimen is obviously a worker major.

64. *Pseudolasius lasioides* sp. nov. (Fig. 8, b).

Worker. Length 1.6 mm.

Head rather thick dorsoventrally, subrectangular, as broad as long and as broad in front as behind, with very feebly convex sides and posterior border. Eyes rather large, flat, with nine or ten facets in their greatest diameter, placed just in front of the middle of the head. Mandibles moderately large, with somewhat oblique 6-toothed apical borders, the teeth all blunt (worn?), the apical tooth broad, the third and fifth smaller than the others but not minute. Clypeus evenly convex, with thick, transverse, very feebly trisinate anterior border. Frontal area and groove obsolete; frontal carinæ extremely short and low. Antennæ robust; scapes reaching to the posterior corners of the head; funicular joints 2-10 very distinctly broader than long. Thorax short and thickset, as long as the head including the mandibles. Pro- and mesonotum convex, the former fully one and one-half times as broad as long, rounded, the latter small, transversely elliptical. Mesoëpinal constriction short and deep; epinotum broader than long, in profile with an extremely short, convex base and very long, flat, sloping declivity. Petiole small, the node much compressed anteroposteriorly, strongly inclined forward, its border moderately sharp, rounded and entire. Gaster of the usual conformation. Legs stout.

Somewhat shining, minutely punctate; mandibles more subopaque and more densely punctate.

Pilosity and pubescence glistening white, the hairs erect, few and long, confined to the clypeus and gaster, the pubescence fine, abundant, appressed, uniformly covering the body and appendages and giving the insect a somewhat pruinose investment which dims the shining surface.

Dark brown; antennæ and legs a little paler; mandibular teeth black.

A single specimen taken at Coxan.

This peculiar diminutive ant, which at first sight resembles a very small *Lasius alienus* or *L. americanus*, is quite different from the other described species of *Pseudolasius* in coloration and pilosity. I am somewhat doubtful as to its being a *Pseudolasius* but there is no other genus to which it can be assigned.

65. *Paratrechina longicornis* Latr. — Four workers from Vinh.

66. *Paratrechina* (*Nylanderia*) *picta* sp. nov. (Fig. 9).

Worker. Length 1.8 - 2 mm.

Head a little longer than broad, scarcely broader behind than in front, with feebly rounded sides, broadly rounded posterior corners and short, slightly sinuate posterior border. Eyes small, flat, with about six facets in their greatest diameter, situated in front of the head, their distance from the clypeus somewhat greater than their length. Mandibles long and narrow, with oblique, 6-toothed apical borders, the second, third and fifth tooth minute. Clypeus short, somewhat more than twice as broad as long, evenly convex, the anterior border very feebly and broadly sinuate in the middle. Antennal scapes extending about two-fifths their length beyond the posterior border of the head; first funicular joint a little longer than the second and third joints together, second broader than long, remaining joints longer than broad. Thorax with strongly marked sutures. Pronotum rounded, in profile rather straight, sloping upward to the mesonotum which is straight and horizontal with a short, abrupt descent at its posterior end to the pronounced mesoepinotal constriction into which the spiracles protrude. Epinotum evenly rounded, convex and sloping, without differentiated base and declivity. Seen from above the pro- and mesonotum together are as long as broad, the latter small and semicircular, the epinotum broader than long. Petiole ventrally convex, the node rather low, as usual strongly inclined forward, narrow below, with rounded, entire superior border. Gaster and legs of the usual conformation.

Very smooth and shining; the surface very feebly and indistinctly shagreened; mandibles distinctly punctate and basally slightly striate.

Hairs dark brown, sparse and erect, pointed, more blunt on the gaster; uniformly distributed on the head, short, very sparse and oblique on the scapes and legs. Mandibles with delicate white hairs. Pubescence white, distinct only on the appendages, especially on the apical half of the antennal scapes and on the funiculi

Clear yellow; legs and gaster paler, whitish or ivory yellow, the first to fourth gastric segments each with a sharply defined dark brown band across the middle of its dorsal surface.

Male. Length 1.7 mm.

Head shaped somewhat like that of the worker but broader and more rounded behind. Eyes large and projecting, nearly a third as long as the head. Mandibles narrow, slightly overlapping, with three subequal teeth. Clypeus longer than in the worker; antennæ more slender, the scapes extending at least half their length beyond the posterior border of the head. Thorax somewhat broader than the head; mesonotum subsemicircular anteriorly, broader than long. Epinotum long, sloping, feebly convex in profile, without distinct base and de-

clivity. Petiole like that of the worker. Genitalia small, with the structure shown in Fig. 9. Legs slender. Wings narrow.

Smooth and shining, obscurely and sparsely punctate.

Hairs pale, delicate, erect, rather numerous, but confined very largely to the head and gaster. Pubescence undeveloped.

Yellowish brown; gaster and posterior portion of head deep castaneous; antennæ and legs pale brown, genitalia, mouthparts and tarsi whitish. Wings grayish hyaline, with very pale, grayish veins.

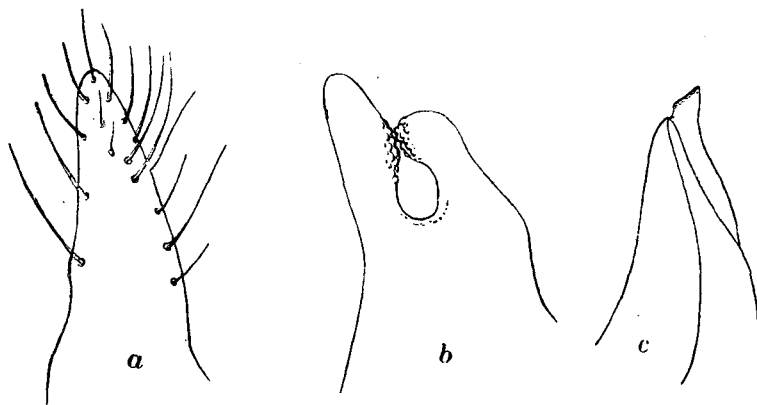


Fig. IX.

Paratrechina (Nylanderia) picta sp. nov.; a, external; b, median; c, internal genital valve of male.

Described from fifteen workers and a single male taken at Laokay.

This pretty species seems to be quite distinct from the Indomalayan species of which I have seen specimens or descriptions. It closely approaches *P. (N.) kraepelini* Forel of Java in many of its characters but is larger, the coloration of the gaster, shape of the epinotum and proportions of the second funicular joint are different. The male of *picta* is also larger than that of *kraepelini* and differently colored. Only the outer genital appendages of the latter are described by Forel and these have a long, slender, very hairy process.

67. *Prenolepis melanogaster* Emery var. *carinifrons* Sant-schi. — A single worker from Laokay.

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