

NEW SPECIES OF AFRICAN HYMENOPTERA  
 No. 7

BY DR G. ARNOLD

Family FORMICIDAE

Subfamily PONERINAE

*Bothroponera variolosa* n.sp. (Figs. 1, 1a) ✓✓

♀. 11 mm. long. - Black. Mandibles dark castaneous, tarsi brownish black, the apical joint paler, the apical abdominal segment reddish brown. Mandibles shining, sparsely and coarsely punctured over the inner half. Apical margins of the first to third abdominal segments narrowly reddish in the middle. Clypeus subcarinate, the anterior half in the middle flattened, smooth and shining, the apical margin obtusely angular. Frontal carinae wide, shining and sparsely punctured over the anterior two-thirds, striate-punctate behind. The cheeks between the eyes and the base of the mandibles longitudinally striate. The third and fourth tergites dull, finely longitudinally striate and with a few large shallow punctures, the apical tergite dull, very finely punctured. The sculpture on the rest of the dorsal surface of the body consists of a very large and deep puncturation or pitting. The pits are separated by narrow and trenchant interspaces, except on the second tergite where the punctures are oblique or open posteriorly and the interspaces wider and longitudinally striate. The posterior half of the first tergite is also striate between the pits. The pitting is largest on the epinotum, petiole and first tergite, a little smaller on the pronotum, yet smaller on the head and smallest on the anterior half of the mesonotum. Mesopleura and sides of the epinotum over the anterior half, closely and longitudinally striate. Femora and tibiae shallowly and sparsely punctured. The pubescence all over is short, oblique and fulvous and fairly sparse.

First, third and fourth joints of the flagellum as long as wide, the second a trifle longer than wide and barely longer than the first, the fifth to tenth wider than long, the apical joint nearly twice as long as wide and rufescent at the tip. The scapes extend back to the occipital margin, which is almost straight. Mandibles with seven teeth. Head, excluding the mandibles, one-seventh longer than wide, parallel-sided, the posterior angles rounded. Eyes situated in front of the middle. Pronotum

one and a half times longer than wide. Declivity of the epinotum oblique, flat and smooth. Node of the petiole trapezoidal, half as wide again behind as in front, a little, one-fifth, wider behind than long, the anterior and posterior faces vertical, the dorsal face convex in front, the posterior margin almost straight, but with a feeble median depression. First tergite two-fifths wider behind than in front, as long as wide in front.

Mariepskop, Transvaal (*J. C. Faure*). In a nest with numerous workers. This might be taken for *cariosa* Em. recorded from Delagoa Bay, which is only 100 miles distant, but for the node of the petiole, which is clearly not 'depressed in the middle of the posterior margin so as to make it appear widely emarginate'. Moreover, the pubescence is not dense, and the mandibles are not striated.

This is larger than *B. mlanjiensis* Arn., far more coarsely punctured and has a longer node of the petiole.

### **Bothroponera cavernosa Rog.**

1860, Berlin, *Ent. Z.* IV, 288.

This species has the mandibles, flagellum, tibiae and tarsi ferruginous, the scapes and femora fusco-ferruginous. Roger describes the sculpture as consisting of 'coarse and somewhat confluent punctures'. This, to judge by a specimen from Darling, Cape Province (leg. Péringuey) is hardly correct. The large punctures on the head and thorax and first abdominal segment are separated by finely punctured interspaces which are for the greater part two to three times wider than the large punctures, the punctures on the node of the petiole are smaller than those of the first tergite and are not contiguous.

Two specimens from the Steenberg Mountains, Cape Peninsula, represent a variety, var. *montivaga* n.var. which differs in the much stronger sculpture, and the colour of the legs, the femora and tibiae being black. The scapes are brownish black. The punctures, or rather pits, are largest on the node of the petiole and contiguous, and are about as wide as the first joint of the flagellum at its apex. The pits on the head, thorax and first tergite are not much smaller, and are separated by a width less than their own diameter. The interspaces are longitudinally rugulose. The node of the petiole is wider in front than in the type of the species, and the occipital margin of the head is more concave.

Length 13 mm. as in the type of the species.

### **Ponera transvaalensis** n.sp. (Figs. 2, 2a)

♀. 5.5 mm. long. Dark brown, the head almost black. Mandibles, legs and antennae pale yellowish brown, the apical margin of the joints of the flagellum, dark brown. The pubescence over the whole body, including the legs and antennae is short, decumbent, yellowish grey and fairly abundant. Mandibles shining, sparsely punctured, with nine teeth on the inner margin. The rest of the body fairly dull, except the thorax

which is slightly glossy, closely and finely punctured (20 diameters) the interspaces larger than the punctures except on the dorsal surface of the head, which is reticulate-punctate. Mesopleura shining, very sparsely punctured, the sides of the epinotum closely and longitudinally striolate. Femora and tibiae finely punctured. Head, excluding the mandibles, one-ninth longer than wide, the sides feebly, the dorsal surface strongly convex, the hind margin feebly concave, the posterior corners rounded. Eyes very small, placed at the first third of the sides. Apical margin of the clypeus obtusely angular.

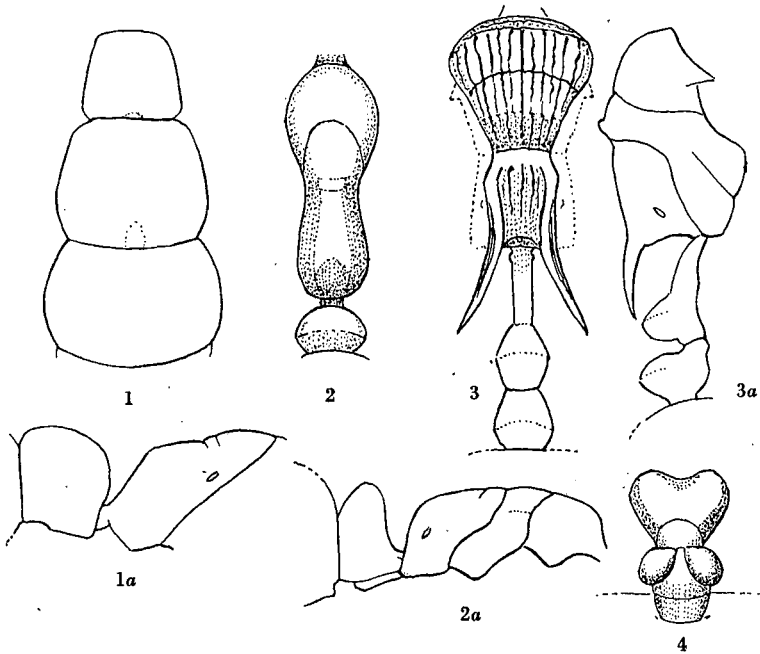


Fig. 1. *Bothroponera variolosa* ♀, node and first two tergites, × 12.  
 Fig. 1a. *Bothroponera variolosa* ♀, node and epinotum, × 12.  
 Fig. 2. *Poner a transvaalensis* ♀, thorax and node, × 27.  
 Fig. 2a. *Poner a transvaalensis* ♀, thorax and profile, × 27.  
 Fig. 3. *Myrmicaria faurei* ♀, thorax and petiole, × 15.  
 Fig. 3a. *Myrmicaria faurei* ♀, thorax and profile, × 15.  
 Fig. 4. *Crematogaster meneliki-fuliginosa* ♀, petiole, × 45.

The scapes extend back almost to the occipital margin. All the joints of the flagellum, excepting the first and last, wider than long, the apical joint nearly twice as long as wide. Frontal carinae small. Pro-mesonotal suture distinct, the meso-metanotal a little less so, the meta-epinotal faintly indicated. Pronotum nearly half as wide as long. Mesonotum as wide as long, the metanotum twice as wide as long. The dorsum of the epinotum moderately widened caudad, fairly flat, shorter than the declivity which it joins in an obtuse and wide angle. Node of the petiole two-thirds higher than wide (lengthwise) at the base, convex transversely

on the dorsal face, feebly so on the anterior, and almost flat on the vertical posterior face. Ventral lamella broad, not dentate. First tergite one-fourth wider behind than long, the second one-fourth longer than the first. Middle and hind tibiae each with one spur.

Mariepskop, Transvaal (J. C. Faure).

Larger and not closely related to any of the other African species, differing from them all by the metanotum being defined.

#### Subfamily MYRMICINAE

#### *Myrmicaria faurei* n.sp. (Figs. 3, 3a)

♀. 6.5–6.7 mm. long. Black. The last four joints of the tarsi, and the peduncle of the first joint of the petiole, fusco-ferruginous. Pilosity black and fairly abundant. Shining, including the base of the first abdominal segment. Mandibles striate-rugose, with four teeth. Clypeus with a median carina and two to three longitudinal rugae on each side. The rest of the head longitudinally rugose, strongly so at the sides, less strongly and more sparsely in the middle, the rugae extending to the occipital margin, and behind the level of the eyes connected by transverse anastomoses. Pronotum with three transverse rugae on the anterior declivous face, the dorsal face and the sides very strongly and longitudinally rugose, the rugae extending backward over the mesonotum to its hind margin. Pro-mesonotal suture defined. The anterior ventral teeth of the pronotum acute, as long as wide at the base. Meso-metapleura and sides of the epinotum longitudinally rugose, more closely and much less coarsely than the dorsum. Lateral margins of the mesonotum raised posteriorly, in front of the posterior face, forming triangular lobes. Dorsum of the epinotum marginate at the sides and with three longitudinal rugae which end before the base of the spines, widest a little behind the anterior margin, one-fourth longer than wide. The spines are very long, or about three times longer than wide across the dorsal base, divergent, curved upwards and posteriorly, and striated at the sides. They extend back as far as the middle of the first node of the petiole. First node of the petiole a little shorter than its peduncle, and not quite so high as the latter is long, transversely compressed in its upper part, the anterior face oblique and with a median carina, the posterior face vertical. Second node widest a little in front of the hind margin, barely wider there than the first node, its dorsal surface shorter than that of the first. Eyes situated just behind the middle of the sides of the head, the head widest at the level of the eyes and gradually narrowed anteriorly. The scapes extend back beyond the hind margin of the head by a fourth of their length. All the joints of the flagellum longer than wide, the second joint three times longer than wide at the apex, the apical joint three and a half times longer than wide and four-fifths longer than the preceding joint.

Mariepskop, Transvaal (J. C. Faure).

Allied to *M. natalensis* Sm. from which it differs by the colour, and from it and all other species by the very long and divergent epinotal

spines. Santschi revised the genus (1924, *Ann. Soc. Ent. Belg.* XLIV) and raised the rank of many varieties and subspecies. A large proportion of these species and subspecies are, in my opinion, artificial, being based on such variable characters as size and colour. In incipient or young nests, i.e. those with not more than three or four dozen workers, the colour is very often paler than in workers of populous nests, and the size, especially of the first three or four broods, distinctly smaller. These facts can be proved very easily in an area like that of Broken Hill, Northern Rhodesia, where *M. natalensis* var. *eumenoides* Gerst. is the dominant ant. There in every acre are to be found at least a dozen very large nests, with thousands of workers in each, and numerous smaller nests, starting from incipient ones containing the queen and a few workers.

### *Crematogaster constructor* Em.

1895, *Ann. Soc. Ent. Fr.* LXIII, 29.

A slight variety of this species, differing only in the slightly larger size (3.5–3.7 mm. long), darker colour, black instead of piceous, and slightly stronger sculpture on the mesonotum, was found in a carton nest on a small *Uapaca Kirkii* tree in the Tandai River Valley, Southern Rhodesia. The nest contained thousands of exceedingly aggressive ♂♂. Unfortunately the nest, tied to the back of a car, dropped off during the journey, and the opportunity to break open the nest and find the queen was lost.

Emery, in the *Gen. Insectorum*, places this species in the subgenus *Acrocoelia*, but it should be noted that the frontal carinae are just as short as in the subgenus *Nematocrema*, and that the first node of the petiole is not trapezoidal as in nearly all species of *Acrocoelia*. Furthermore, Emery's statement that the sides of the first node are bisinuate is hardly correct. The sides are convex and widest in the middle, and the anterior angles are rounded. The second node is feebly impressed longitudinally and only over the posterior third. The head is sub-circular, barely one-seventh longer than wide, and widest across the eyes, which are placed just behind the middle of the sides. The second to sixth joints of the flagellum are all a little longer than wide, the first nearly twice as long as wide.

### *Crematogaster meneliki* For. st. *completa* Santschi

For. 1894, *Mitt. Schweiz. Ent. Ges.* IX, 97, ♀.

Santschi 1928, *Rev. Zool. Afr.* XVI, 63, ♀.

Var. *fuliginosa* n. var. (Fig. 4).

♀. 3.3–3.5 mm. long. Mandibles dark reddish brown, flagellum fusciferrous, tarsi dark brown, otherwise deep black. Differs from the type of the subspecies not only in colour but also as follows: Head larger, more than twice as wide as the pronotum, distinctly less than twice in *completa*. Scapes much shorter, falling short of the occipital margin by as much as the length of the first two joints of the flagellum. The longitudinal rugulosity on the thorax stronger, especially on the anterior half

of the pronotum. As in the subspecies, one or sometimes two fine white setae arise from near the tip of the short epinotal spines. The median groove of the post-petiole much widened behind, so that the lateral lobes appear divergent caudad.

Broken Hill, Northern Rhodesia. Climbing the trunks of *Brachystegia* trees.

Subfamily FORMICINAE

***Camponotus rufoglaucus* Jerd.**

This species, the type form of which is Indian, has numerous African subspecies and varieties. Many of the varieties merge into one another, and I would hesitate to add another variety to the list, but for the fact that the form described below is found without variation over such a large area of country.

Race **flavo-marginata** Mayr, var. **miniata** n.var.

In this variety the whole of the head, thorax and petiole are of a bright red, excepting the mandibles, anterior margin of the clypeus and anterior angles of the head which are a little darker red. The bright red colour (approximately Séguy, C.U.C. orange no. 172) is brighter than in any other varieties except *rufigenis* For. but in that variety the posterior two-thirds of the thorax and petiole are black. The pubescence on the abdomen is bronzy golden, not brassy as in var. *contraria* Santschi with which it agrees in structural characters.

Northern Rhodesia, from Broken Hill to Luanshya on the west and Ndola on the north. A very common insect with populous nests in the ground.

***Polyrachis* (subgen. *Myrma*) **gamaii** Sant. (Figs. 5, 5a and 5b)**

1917, *Ann. Soc. Ent. Fr.* LXXXV, 295, ♀.

♀. 7.5–8 mm. long (hitherto undescribed). Black. Mandibles fusco-ferruginous. Last four joints of the flagellum dark brown, second to fifth joints of the tarsi yellowish brown, the femora and tibiae somewhat rufescent. Pilosity and pubescence absent. Head moderately, the abdomen very shining. Head finely reticulate (20 diameters), the sculpture effaced on the clypeus and between the frontal carinae. The dorsal surface of the thorax a little more distinctly reticulate, the sides, and including the petiole, sharply and closely reticulate-punctate, the declivity of the epinotum smooth. The dorsum of the thorax has a slight gloss, the sides are dull. Abdomen smooth and shining. Mandibles with five teeth, nitidulous, sparsely and finely punctured.

Head, excluding the mandibles, as long as wide, very globose, the clypeus subvertical, the sides strongly convex, the posterior margin feebly concave, the posterior angles rounded. Clypeus one-third wider in front than long, and twice as wide there as at the base, subcarinate medially over the basal third, the anterior margin convex and with a row of six large piligerous punctures behind it. Eyes placed in the middle of

the sides. Scapes long, extending beyond the hind margin by as much as the length of the first two joints of the flagellum. The first six joints of the flagellum at least twice as long as wide, the first three times longer than wide. Thorax not marginate, pronotum without humeral spines, but the sides are produced at the middle into obtuse angles; it is as wide between the angles as long. Pro-mesonotal and meso-metanotal sutures distinct. Mesonotum obpyriform, two and a half times wider in front than at the base. There is a short metanotum, more clearly defined on the pleura than on the dorsum. The dorsum of the epinotum is a little more than half as long again as wide, almost parallel-sided, flat, raised into a small hump on each side behind the anterior margin, and with a short, obtuse tooth, as long as wide at the base, at the posterior angles. Declivity of the epinotum longer than the dorsum. The scale of the petiole is convex in front and behind, the inner spines are long and acute, slightly divergent and erect, nearly as long as the space between their apices; below them there is a short triangular tooth.

St Lucia, Zululand. Seven specimens, from Department of Entomology, Pretoria University. Although so different in several structural characters, this is without doubt the ♀ of *gamaii*. The shape of the pronotum and the presence of a metanotal area, make it difficult to place this species in any of the subgenera, but it is nearer to *Myrma* than any of the others.

### Family SPHECIDAE

#### Subfamily AMPULICINAE

#### *Ampulex lugubris* n.sp. (Figs. 6, 6a and 6b)

♂. 6-8 mm. long. Black. The last three joints of the tarsi brownish black. Underside of the antennae rufescent. Wings hyaline, with two cubital cells, the median and submedian cells faintly tinged with brown, and with a pale brownish cloud covering the radial, second cubital cell and the apical third of the first cubital cell and of the second discoidal cell; pterostigma and veins black. Mesopleura, mesonotum, lateral margins of the declivity and posterior margin of the sides of the epinotum and upper side of the coxae, with decumbent, white or silvery pubescence, otherwise almost glabrous. Clypeus moderately shining, finely and sparsely punctured, the raised median portion dull in the basal half. Median area of the clypeus strongly convex and gibbous, the anterior

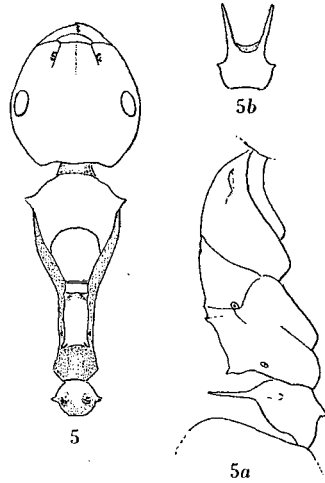


Fig. 5. *Polyrachis gamaii* ♀, head and thorax, × 10.

Fig. 5a. *Polyrachis gamaii* ♀, head and profile, × 10.

Fig. 5b. *Polyrachis gamaii* ♀, petiole, from in front, × 10.

half narrower and feebly carinate, the base separated from the frontal triangle, which is also gibbous, by a fine suture; the anterior margin of the clypeus without teeth. Face and vertex dull, very finely and closely punctured, the lower half of the face with a few larger punctures superimposed and a few transverse rugae just above the antennal sockets. A median impressed line extends from the bottom of the face almost to the anterior ocellus. Neck of the pronotum longitudinally costate. Dorsal face of the pronotum dull, with a fundamental close and microscopic puncturation, on which is superimposed a very deep and large puncturation which extends as far back as the posterior fourth; a little behind the middle are two transversely placed, low and blunt teeth, and a median impressed line extends from the anterior margin almost as far as the hind margin. The sides of the pronotum are moderately shining, feebly punctured and have a deep median transverse groove. Mesothorax with a fundamental puncturation, barely visible with a magnification of 20 diameters, the interspaces about twice as wide as the punctures. On the mesonotum and mesopleura, a much larger puncturation, not quite so large as that of the pronotal dorsum, is superimposed, fairly sparse on the middle of the mesonotum and on the mesopleura, the latter also with a feeble longitudinal rugosity. Metapleura smooth and shining. Upper margin and posterior half of the sides of the epinotum coarsely reticulate, the anterior half smooth and shining. Dorsum of the epinotum shining, as wide at the base as long, moderately narrowed caudad, the posterior margin convex and on each side with a tooth which is longer than wide at the base, directed upwards and curved inwards at the apex; the median and the third carinae do not extend backwards much beyond the middle of the segment, the second and fourth reach the hind margin, and the lateral margin of the dorsum is reflected upwards and widely excised in front of the apical teeth. The spaces between the carinae are transversely rugose, more closely between the third and first, than between the latter and the median; a small area between the first and third carinae, near the hind margin, is smooth and without rugae. Declivity of the epinotum widely reticulate. Abdomen smooth and shining, the second tergite with a few very small and scattered punctures. Inner orbits slightly divergent below, the interocular distance on the vertex equal to the length of the first two joints of the flagellum.

Cheeks as long as the first joint of the flagellum. Posterior ocelli two and a half times farther from the eyes than from each other. Second joint of the flagellum long, four and a half times longer than wide at the apex, and half as long again as the third joint. Dorsum of the pronotum moderately narrowed cephalad, as long as wide at the hind margin, and a quarter longer than wide in the middle. Second tergite three-fifths wider than long, and one-fourth longer than the first, the petiole about as long as the third joint of the flagellum. Third joint of the hind tarsi a little more than twice as long as the fourth. Fourth and following segments of the abdomen invaginated under the third.

♀. 10 mm. long. Black. Mandibles and apical abdominal segments flavo-ferruginous, the last three tarsal joints a little paler than in the ♂,



and the clouding on the wings darker than in that sex. The fine puncturation of the head is closer than in the ♂, and the larger punctures and the transverse rugae above the antennal sockets present in that sex are lacking. The major puncturation on the pro-mesonotum is a little smaller than in the ♂. The longitudinal rugosity on the mesopleura is stronger, and the posterior third and upper margin of the sides of the epinotum

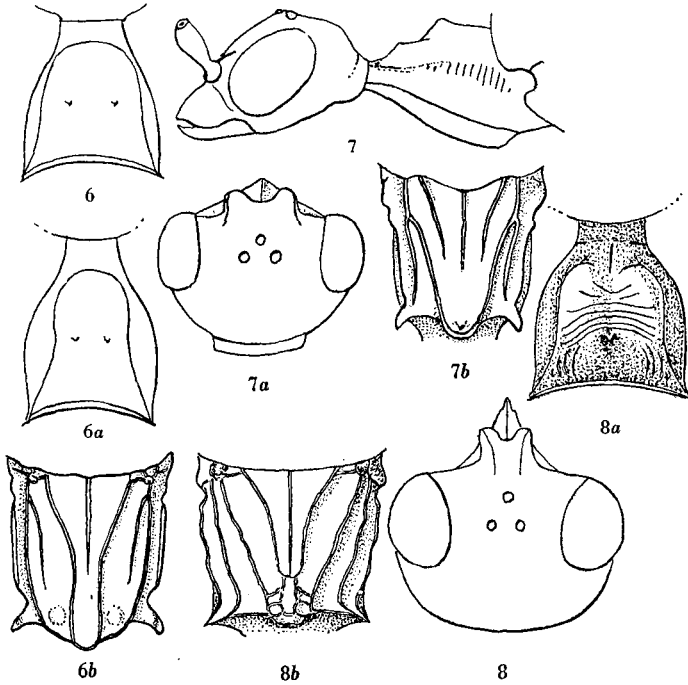


Fig. 6. *Ampulex lugubris* ♂, pronotum,  $\times 15$ .  
 Fig. 6a. *Ampulex lugubris* ♀, pronotum,  $\times 15$ .  
 Fig. 6b. *Ampulex lugubris* ♂, epinotum,  $\times 15$ .  
 Fig. 7. *Ampulex occipitalis* ♂, head and pronotum,  $\times 12$ .  
 Fig. 7a. *Ampulex occipitalis* ♂, head from above,  $\times 12$ .  
 Fig. 7b. *Ampulex occipitalis* ♂, epinotum,  $\times 12$ .  
 Fig. 8. *Ampulex viridescens* ♀, head,  $\times 9$ .  
 Fig. 8a. *Ampulex viridescens* ♀, pronotum,  $\times 9$ .  
 Fig. 8b. *Ampulex viridescens* ♀, epinotum,  $\times 9$ .  
 (In Figs. 6b, 7b and 8b the transverse carinulae have been omitted.)

are obliquely costate. The apical teeth of the epinotal dorsum are more acute and less incurved at the apex. Median area of the clypeus tectiform, sharply carinate lengthwise and ending in a tooth, the apical margin also produced into a sharp tooth on each side of the median tooth. Cheeks obsolete. Interocular distance on the vertex equal to the length of the first two joints of the flagellum plus one-third of the third joint. Inner orbits parallel. Antennae slender; second joint of the flagellum six times

longer than wide at the apex and twice as long as the third. Neck of the pronotum smooth. The dorsum of the pronotum narrower than in the ♂, nearly twice as long as wide in the middle. Second tergite one and a half times wider than long and a little longer than the first. Sixth sternite transversely compressed. Otherwise like the ♂.

Zomba, Nyasaland. November. 3 ♂♂, on trunks of Eucalyptus trees. Penhalonga, Portuguese East Africa. October. 1 ♀.

Allied to *denticollis* Cam. from which it can be distinguished in both sexes by the colour of the legs, the longer antennal joints and the shining abdomen. The ♂ differs from that of *denticollis* also in the gibbous and non-tectiform median area of the clypeus.

### ***Ampulex occipitalis* n.sp. (Figs. 7, 7a and 7b)**

♂. 9-10.3 mm. long. Steel blue, the head and the third and following abdominal segments slightly greenish blue, the antennae, mandibles and tarsi black. Wings hyaline, with two cubital cells; the radial, second cubital and the apical part of the first cubital and second discoidal, and the submarginal cells pale fuscous. Clypeus with a thin grey pubescence, the posterior margin of the pronotum, the sternum and mesopleura, and the posterior lower angles of the epinotum and the middle of the metanotum with whitish pubescence. Head, pro-mesonotum, femora and tibiae with sparse, erect and white hairs. Clypeus dull, finely punctured, a row of large punctures behind the anterior margin. Face, vertex and temples with a large puncturation, the interspaces narrower than the punctures and forming a reticulation; the punctures behind the ocellar area and on the temples larger and deeper than those of the face, about two-thirds as large as one of the posterior ocelli.

Dorsum of the pronotum with a median low conical protuberance and the anterior angles slightly raised. Behind the median protuberance the surface is coarsely, shallowly and not closely punctured, and in front of it indistinctly transversely rugose. The upper part of the sides sparsely punctured above the indistinct longitudinal groove, vertically costate in the posterior third, and below the groove smooth. Mesonotum coarsely punctured, the punctures larger than those of the vertex, the posterior lateral excavations very deep, the scutellum and mesopleura more sparsely punctured, the interspaces about twice as wide as the punctures.

Dorsum of the epinotum a quarter longer than wide at the base, the median and second carinae not extending much beyond the middle of the segment, the third carinae extending to the posterior margin and connected by a median protuberance, the third and fourth coalesced over the basal fourth of the segment, the interspaces between the carinae fairly closely and transversely costate, the teeth at the posterior angles directed upwards and slightly outwards, incurved at the apex and as long as wide at the base. Abdomen shining, the first two tergites shallowly, finely and very sparsely punctured, the remaining tergites a little more closely punctured and dull. Second sternite black, very

finely and sparsely punctured and with a few larger shallow punctures superimposed. Coxae, femora and tibiae strongly but not closely punctured. Median area of the clypeus tectiform and strongly carinate, the carina not forming a tooth at the apex, the anterior margin without teeth. Frontal carinae well developed, ending at about the level of the middle of the eyes. Head, behind the eyes, considerably narrowed and long, the distance from the posterior ocelli to the occipital margin equal to the distance from the posterior ocelli to the antennal sockets. Inter-ocular distance on the vertex equal to six-sevenths of the length of the second joint of the flagellum. Posterior ocelli twice as far from the eyes as from each other. Second joint of the flagellum four times longer than wide at the apex and two-fifths longer than the third. The dorsum of the pronotum moderately narrowed cephalad, and a little longer than wide at the base. First tergite about twice as wide at the hind margin as long, and a little shorter than the petiole; second tergite in the middle nearly twice as wide as the first, and two-elevenths wider than long. Apical joint of the hind tarsi a little more than twice as long as the penultimate joint.

Zomba, Nyasaland. November. 3 ♂♂, running over the trunks of Eucalyptus trees. Allied to *A. moebii* Kohl, from which it is distinguished by much closer puncturation of the head, the narrower and longer occiput, the wider and much less coarsely punctured second tergite and the longer pronotum.

#### *Ampulex nigrocoerulea* Sauss.

1892, Distant, *Naturalist in the Transvaal*, p. 212.

*Ampulex spilopectera* Cam., 1905, *Rec. Albany Mus.* 1, 255; 1928, Arnold, *Ann. Transv. Mus.* XII, 215.

A re-examination of the material at my disposal leads to the conclusion that *spilopectera* Cam. should sink as a synonym of Saussure's species. The statement in my description of *spilopectera* ♀ that the second joint of the flagellum is four-fifths longer than the third is erroneous, as it is the same as in *nigrocoerulea*, or one-half longer. The other supposed differences in the sculpture are all within the range of individual variation. The shape of the pronotum, the proportions of the first two tergites and the arrangement of the carinae of the epinotum are as in *nigrocoerulea*.

The size of the typical form, i.e. those with the pro-mesonotum entirely black, ranges from 12–18 mm. long in the ♀; in the smallest the puncturation of the head is closer and the frontal carinae a little shorter. Two specimens ♀, 19 mm. long, from Abercorn, Northern Rhodesia (*H. J. Brédo*) bear a strong resemblance in the colour of the thorax and abdomen to *viridescens*, described below, but the head is greenish black. But like this typical form, they have a patch of fine grey pubescence on each side of the second tergite, and similar pubescence on the whole of the third tergite.

**Ampulex viridescens** n.sp. (Figs. 8, 8a-c)

♀. 21 mm. long. Metallic dark green, the vertex and first two tergites bluish green, the femora bluish green, the tibiae black, tinged with green, the tarsi blackish brown. Mandibles, apical half of the median area of the clypeus and the underside of the scapes ferruginous. Fifth and sixth abdominal segments fusco-ferruginous. Fore-wing fuscous over the basal half and beyond the middle, the middle and the apical margin hyaline like the hind-wing. A patch of silvery pubescence on the lower posterior corner of the mesopleura and sides of the epinotum, otherwise glabrous. Clypeus dull, the face nitidulous, the rest of the body shining. Anterior margin of the clypeus with a blunt tooth on each side of the median tooth formed by the carina, the latter bent near the apex. Face and vertex punctured, the punctures not large, the interspaces about three times as wide as the punctures and with a fundamental puncturation, barely visible with a magnification of 20 diameters. Occiput and temples impunctate. Pronotum with a few fine punctures on the upper half of the sides, the dorsum impunctate, transversely striate in front of the median cone and concentrically at the sides behind it; the declivous anterior face of the dorsum has a short median groove and a few punctures. Mesonotum and mesopleura sparsely punctured, the punctures deeper and a little larger than those on the vertex. Scutellum and metanotum finely and very sparsely punctured. Dorsum of the epinotum a little wider across the middle than long, the apical teeth short, acute and triangular, the median or first carina and the second carinae ending at about the second third of the length, the third and fourth separated almost to the base, the interspaces closely and evenly carinate. Declivity of the epinotum transversely rugose-reticulate, the sides of the segment obliquely costate-reticulate in the upper third. First four tergites and second sternite very sparsely and finely punctured, the third tergite not so shining as the first three; first tergite twice as wide behind as long, not much narrowed cephalad, the second tergite a little, one-ninth, wider than long, the fifth and sixth segments transversely compressed. Femora and tibiae finely and very sparsely punctured.

Frontal carinae short, with a trace of a median carina between them. Interocular distance on the vertex a little shorter than the second joint of the flagellum. The latter fully four times longer than wide at the apex and four-ninths longer than the third. Pronotal dorsum one-third wider behind than long. Penultimate joint of hind tarsi two-fifths as long as the last joint.

Abercorn, Northern Rhodesia (*H. J. Brédo*). December. 1 ♀.

Allied to *lazulina* Kohl., but differing therefrom by the narrower vertex, and the presence of three cubital cells.

**Ampulex bredoi** n.sp. (Figs. 9, 9a-c)

♀. 21 mm. long. Superficially very similar to *viridescens* and with the same colour, excepting the following parts: clypeus entirely black, the mandibles black, the apex fusco-ferruginous. Scapes black, the upper-

side tinged with green, the last two abdominal segments black. The arrangement of the longitudinal carinae of the epinotum is the same as in *viridescens*, but the basal half of the space between the median carina and the second carina is only feebly carinulate and the third and fourth carinae are closer together in the basal half. The differences between it and *viridescens* are as follows.

Face and vertex coarsely and more closely punctured, the interspaces raised and narrower than the punctures; the frontal carinae parallel, wider apart and extending back almost to the anterior ocellus, the space

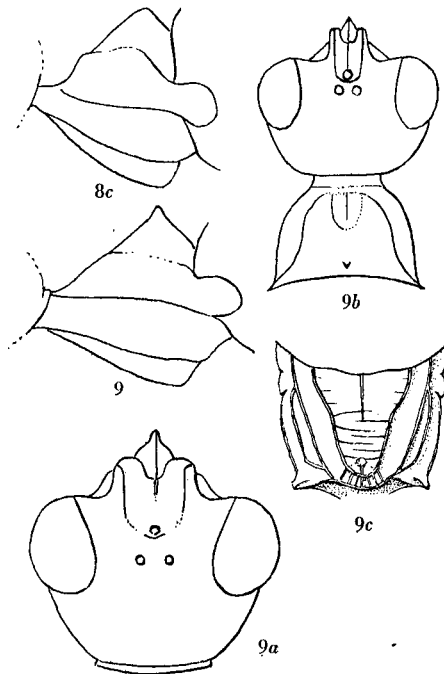


Fig. 8c. *Ampulex viridescens* ♀, pronotum, × 9.  
 Fig. 9. *Ampulex bredoi* ♀, pronotum, × 9.  
 Fig. 9a. *Ampulex bredoi* ♀, head, × 9.  
 Fig. 9b. *Ampulex bredoi* ♂, head and pronotum, × 9.  
 Fig. 9c. *Ampulex bredoi* ♂, epinotum, × 9.

between them obliquely rugose, the sides of the face in the anterior third transversely rugulose. Temples sparsely and distinctly punctured, the punctures smaller than those on the vertex. Head behind the eyes longer and much more narrowed caudad than in *viridescens*.

Dorsal face of the pronotum closely and strongly, transversely rugose, narrower cephalad, the median cone higher and more acute, the slope from its apex to the neck more oblique and longer. Propleura strongly punctured. Mesonotum, mesopleura and the mesosternum much more strongly punctured, the largest punctures on the mesonotum fully half as wide as the anterior ocellus. Scutellum with a few large punctures.

Apical teeth of the epinotum longer. Inner orbits more convergent dorsad, the interocular distance on the vertex equal to five-sixths of the length of the second joint of the flagellum. The latter four and a third times longer than wide at the apex and half as long again as the third. First three tergites less sparsely and a little more strongly punctured than in *viridescens*, especially the third. Second tergite a quarter wider than long. Head and thorax with a sparse, erect and whitish pilosity.

♂. 13.5 mm. long. Metallic green, the epinotum bluish green, the third and following abdominal segments and the tibiae purple. Wings hyaline, slightly tinged with fuscous. The whole body, including the legs with a long, erect and whitish pilosity, but nowhere dense and obscuring the sculpture as in *A. senex* Bisch. Whole body shining. Clypeus and lower third of the face at the sides finely punctured, the space between the frontal carinae sparsely and finely punctured and indistinctly rugose, and with a median carina; the rest of the face, the vertex and temples reticulate-rugose. Propleura closely punctured, the pronotum fairly strongly, but not closely punctured, the dorsal face just behind the neck concave and transversely striate, the median cone low, not acute, and situated just in front of the hind margin. Mesonotum and scutellum sparsely punctured, the largest punctures, as large as those of the pronotum, in the anterior third of the segment. Mesopleura and mesosternum closely punctured with small and large punctures intermixed. Sides of the epinotum irregularly and finely rugose, the declivity reticulate-rugose.

The arrangement of the longitudinal carinae on the dorsum differs from that of the ♀. The median carina ends at about the middle, the second carinae extend farther caudad and the space between them and the median carina is smooth in the basal half and has three or four alternating widely spaced transverse carinulae in the apical half; the third and fourth carinae coalesce into one over the basal fourth. The apical teeth are blunt, and shorter than wide at the base. First and second tergites with a puncturation about as large as that of the anterior part of the mesonotum, the interspaces on the first for the greater part four times as wide as the punctures, less on the second, on which the puncturation increases in density caudad, third and fourth tergites reticulate-punctate. Second sternite with large and shallow punctures. Femora and tibiae finely punctured. Clypeal carina ending in a blunt tooth, the anterior margin on each side feebly excised. Frontal carinae parallel, extending back to and enclosing the anterior ocellus. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. The posterior ocelli are three times farther from the eyes than from each other. Second joint of the flagellum not quite four times longer than wide at the apex and two-fifths longer than the third joint. Head behind the eyes shorter and less narrowed caudad than in the ♀, the width just behind the eyes four times greater than the length, measured from a line joining the posterior margin of the eyes to the occipital margin.

Abercorn. 25 October, 1 ♀. September, 1 ♂.

Although the ♂ described above has the posterior part of the head, and the profile of the pronotum like that of *viridescens* ♀, I think it is more probable the ♂ of *Bredoi*, on account of the frontal carinae and the abundant pilosity. The species may be related to *toroensis* Turner, from which it differs, *inter alia*, by the presence of three cubital cells and the wider vertex.

#### Subfamily SPHECINAE

#### *Chlorion* (subgen. *Harpactopus*) *tyrannum* Smith

1856, *Cat. Hymen. B.M.* IV, 264.

This should be treated as a southern race of *C. aegyptum* Lep. (1845) the genitalia being exactly the same. The typical form with yellowish wings occurs from Abyssinia southwards as far as Mupulungu, Northern Rhodesia.

#### *Chlorion* (*Proterosphe*) *decipiens* Kohl.

1895, *Ann. naturh. (Mus.) Hofmus., Wien*, x, 65.

1928, Arnold, *Ann. Transv. Mus.* XII, 367.

In my description of the species the opinion was expressed that *decipiens* should be perhaps regarded as a race of *haemorrhoidalis* ♀ since there was no appreciable difference in the genitalia. This fact notwithstanding, that view I now consider erroneous. The antennae in the ♂ are more slender than in *haemorrhoidalis*, but an even more marked difference is found in the venation. In this species the first recurrent vein meets the second cubital cell at one-third of its length from the second transverse cubital vein, whereas in *haemorrhoidalis* it is interstitial with that vein or occasionally a little proximad of it. A very distinct race of this species is described below.

#### Race *meridionalis* n.subsp.

♀. 21–24 mm. long. Differs from the typical form as follows: Clypeus, scapes and first five joints of the flagellum, legs including the trochanters and the apical abdominal segment, ferruginous. Wings more fuscous than in *decipiens* i.sp., with a slaty blue lustre, the venation similar. Basal third of the mandibles fusco-ferruginous. Face and clypeus covered with a brownish golden adpressed pubescence. Otherwise the colour is as in the typical form. The outstanding pilosity on the face, clypeus and temples is reddish brown, shorter and finer. Dorsum of the epinotum more closely and more distinctly striate. Petiole a little shorter, or as long as the third joint of the hind tarsi. Otherwise like the type of the species.

Mupulungu, Northern Rhodesia. May. 5 ♀♀ (*H. J. Brédo*).

Two of the specimens are stylpized. This race bears a deceptive resemblance to *C. haemorrhoidalis* F. var. *mweruensis* described further on.

**Chlorion** (s.q. **Proterosphex**) **haemorrhoidalis** F.1781, *Spec. Insect.* 1, 443.

This species has several red-legged varieties which vary within narrow limits in the width of the least superior interocular distance (on the vertex), compared with that of the inferior (across about the middle of the clypeus), and in the absolute length of the second joint of the flagellum. It is therefore with reluctance that I bring forward two new varieties, since specimens collected from other localities may provide intergrading forms.

In the var. *kobrowi* Arn. the interocular distance across the clypeus is one-twentieth greater than on the vertex, where it is equal to the length of the second joint of the flagellum plus five-sixths of the third joint. The second joint is a little more than four and three-quarter times longer than wide at the apex.

In a variety from Mamathes, Basutoland, var. *basuto* n.var., which is like *Kobrowi* in colour, but with a thinner pilosity on the epinotum, the interocular distance across the clypeus is almost one-twelfth greater than across the vertex, where it is equal to the length of the second joint of the flagellum plus two-thirds of the third joint. The second joint is slightly less than five times longer than wide at the apex.

The other new variety, var. *mweruensis*, 21–25 mm. long, represented by numerous specimens from Mupulungu and various localities near Lake Mweru, resembles the var. *volubilis* Kohl. in having the clypeus in the ♀ all red, but the legs, excepting the basal half of the anterior, and basal third of the middle femora, are ferruginous, and the flagellum is entirely black. In this variety in the ♀, the inferior interocular distance is two-fifteenths greater than that on the vertex, where it is equal to the length of the second joint of the flagellum plus half of the third. The second joint of the flagellum is a trifle more than four times longer than wide at the apex. The pilosity on the declivity of the epinotum is grey, otherwise like the var. *volubilis*.

♂. 22–25 mm. long. Black, including the apical tergite. Mandibles excepting the apical teeth, the extreme anterior margin of the clypeus, apices of the hind femora, the hind tibiae and first three joints of the hind tarsi ferruginous, the middle tibiae and metatarsi, sometimes ferruginous or fusco-ferruginous.

Pubescence of the face and clypeus grey, the pilosity and pubescence on the epinotum denser than in the ♀ and brownish grey. Inferior interocular distance one-seventeenth greater than the superior, the latter equal to the length of the second joint of the flagellum plus six-sevenths of the third. The second joint is four times longer than wide at the apex. The wings are not quite so dark as in the ♀, and have a greenish blue lustre, whereas in the ♀ it is deep blue.

The types are from Kaputa, Lake Mweru district.



## Subfamily LARRINAE

**Tachysphex panzeri** v.d. Lind.1829, *Nouv. Mem. Acad. Sci. Brux.* v, 20.

From this European species, which has several races and varieties in South Africa, the varieties *rhodesianus* Bisch. *miniatus* Arn. should be separated as distinct species, and only those forms which have the clypeus more or less ochreous in the anterior half can be considered as belonging to *T. panzeri*.

In *T. rhodesianus* ♀ and ♂ the clypeus is entirely black, and the anterior half is somewhat flattened, forming in profile a rounded angle with the basal portion, although not so distinctly as in *T. consanguineus* Arn. with which it is more closely allied than with *T. panzeri rhodesianus* ♂. In the ♂, the eighth sternite is tridentate on the apical margin, and not bidentate as stated in my description (1923, *Ann. Transv. Mus.* ix, 170).

In *T. miniatus* ♀ the clypeus is also entirely black and is much more convex lengthwise than in any of the *panzeri* varieties. The ♂, which is described below, has fimbriae on the sternites, which indicates its relationship to the *T. schönlandi* Cam. group.

♂. 6.3–7.5 mm. long. Legs paler than in the ♀, the anterior and middle tibiae and tarsi and the hind tarsi flavo-ferruginous, the middle tibiae slightly infuscated on the upperside. First three abdominal segments paler than in the ♀, or brick red. Clypeus entirely black, as in the ♀, sparsely and finely punctured and shining over the anterior third, closely punctured and dull in the basal part, one-fifth wider than long. The fourth sternite at the base and apex and the fifth at the apex have transverse fimbriae, extending from side to side, composed of a single row of fine, curved and erect hairs. Seventh tergite trapezoidal, the apical margin straight and wide. Interocular distance on the vertex equal to the length of the first two joints of the flagellum plus one-fourth of the third. Second joint of the flagellum a little shorter than the third, and not quite three times longer than wide at the apex. Otherwise like the ♀.

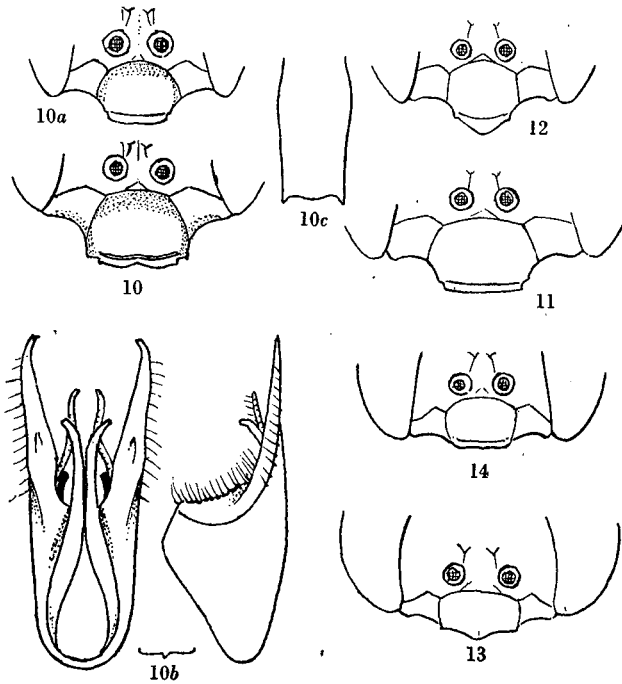
Sawmills, Southern Rhodesia. May.

**Tachysphex clypeatus** n.sp. (Figs. 10, 10a-c)

♂. 12 mm. long. Black. Mandibles, first two abdominal segments and the legs ferruginous, the upperside of the basal half of the anterior and middle femora, and the basal fourth of the hind femora, and the coxae and trochanters black. Anterior half of the median area of the clypeus, excepting the apical margin, fusco-ferruginous. Wings pale flavo-hyaline, paler towards the apex, the tegulae and veins flavo-ferruginous. Face with a brassy golden pubescence, the pleura and lateral margins of the mesonotum and dorsum of the epinotum with a very short, inconspicuous and yellowish grey pubescence, the first three tergites with narrow apical fasciae of grey pubescence.

Anterior half of the median area of the clypeus shining, sparsely and coarsely punctured, the rest of the clypeus, the face and temples dull,

reticulate-punctate, the vertex a little more strongly and more closely punctured. Mesonotum and scutellum shining, with punctures a little larger than those on the vertex, the interspaces about twice as wide as the punctures. Mesopleura and metapleura with a puncturation a little smaller than that of the mesonotum, and not so shining, the interspaces having a microscopic fundamental puncturation. Dorsum of the epinotum dull, finely reticulate-punctate, the sides dull and closely transversely striate, the declivity slightly shining, transversely and not closely rugose.



- Fig. 10. *Tachysphex clypeatus* ♀, clypeus, × 12.  
 Fig. 10a. *Tachysphex clypeatus* ♂, clypeus, × 12.  
 Fig. 10b. *Tachysphex clypeatus* ♂, genitalia, dorsal and lateral views, × 27.  
 Fig. 10c. *Tachysphex clypeatus* ♂, eighth ventral plate, × 12.  
 Fig. 11. *Tachysphex arenarius* ♂, clypeus, × 16.  
 Fig. 12. *Tachysphex unguiculatus* ♂, clypeus, × 16.  
 Fig. 13. *Tachysphex viarius* ♂, clypeus, × 16.  
 Fig. 14. *Tachysphex modestus* ♂, clypeus, × 16.

Abdomen dull, the first six tergites impunctate, the seventh finely and not closely punctured, the sternites with a close, fine and oblique puncturation.

Median area of the clypeus widest across the middle, narrowed towards the apex, protruding well beyond the lateral sclerites, one-fourth wider than long, the apical margin depressed and convex. Interocular distance across the base of the clypeus two and two-thirds wider than across the vertex, where it is equal to the length of the first two joints of the flagellum. The second joint of the flagellum as long as the third and

a little more than twice as long as wide at the apex. Dorsum of the epinotum five-eighths wider at the base than long, moderately narrowed caudad. Apical margin of the eighth sternite feebly bisinuate, the lateral angles dentiform. Apical third of the stipites very narrow, their inner and outer ventral margins fringed with long stiff hairs.

♀. 14 mm. long. Legs and first two abdominal segments of a darker red than in the ♂, burnt sienna red. Clypeus entirely black. First four tergites with apical fasciae of grey decumbent pubescence. Pygidium shining, sparsely and fairly strongly punctured. Mesonotum almost dull, the puncturation oblique and closer than in the ♂, otherwise like that sex in colour, sculpture and pubescence. Clypeus widest in front, one and a half times wider than long, the anterior two-thirds shining, coarsely punctured, and somewhat flattened, the apical margin with a shallow arcuate excision in the middle, rectangular at the corners, and with a deep transverse groove behind it. Interocular distance on the vertex equal to the length of the second joint of the flagellum plus half of the first. Pygidium one and a half times longer than wide at the base, narrowly V-shaped, the lateral margins feebly convex. Tarsal comb composed of long yellow cilia.

Abercorn, Northern Rhodesia. August. 1 ♂, 1 ♀ (*H. J. Brédo*).

Allied to *T. consanguineus* Arn. but in the ♀ less finely punctured on the mesonotum, the vertex relatively narrower, the second abdominal segment black; in the ♂ the mesonotum shining and much less closely punctured, and with the femora not almost entirely black.

#### ***Tachysphex arenarius* n.sp. (Fig. 11)**

♂. 8.5–10 mm. long. Closely allied to *T. unguiculatus* Arn. but larger, and with the same colour and for the greater part the same sculpture, but the fine, decumbent and grey pubescence on the thorax and abdomen is denser, obscuring to a slight extent the sculpture on the mesothorax, and the dorsum of the epinotum is finely and closely reticulate-punctate, without rugae at the base. In some specimens the tibiae are not reddish ochreous but pale brown.

It differs from *unguiculatus* ♂ (Fig. 12) as follows. Clypeus wider and less produced in front, two-ninths wider than long; inferior and superior interocular distances the same as in *unguiculatus*, but the distance on the vertex is equal to the length of the first two joints of the flagellum plus one-third of the third joint. Dorsum of the epinotum longer and more narrowed caudad, four-sevenths wider at the base than at the posterior margin; in *unguiculatus* it is fully twice as wide at the base as long, and only one-eighth wider at the base than at the posterior margin. Eighth sternite and genitalia like those of *T. clypeatus*.

Lupane, and Bembesi, Southern Rhodesia, on Kalahari Sand formation. The type from Bembesi.

#### ***Tachysphex viarius* n.sp. (Fig. 13)**

♂. 6.5–7.5 mm. long. Black. Eyes pale olive yellow. Apices of the femora, tibiae and the tarsi pale ferruginous. Wings hyaline, slightly

smoky, the veins reddish brown, the tegulae ochreous. Face and clypeus with golden pubescence. The pubescence on the temples and thorax grey, very short and inconspicuous, abdomen with a pale brownish, decumbent and microscopic pubescence, the first three tergites with indistinct, greyish apical pubescent fasciae. Clypeus and face dull; finely reticulate-punctate, ocellar area and vertex shining, finely punctured, the interspaces about twice as wide as the punctures, the temples shining closely and microscopically punctured. Mesothorax finely and closely punctured, the punctures of the mesonotum twice as large as those on the vertex, the interspaces for the greater part very little larger than the punctures and slightly shining, the puncturation of the scutellum and metanotum like that of the vertex, of the mesopleura like that of the mesonotum, but with the interspaces dull. Dorsum of the epinotum nearly dull, the basal third with longitudinal and thin rugae, which are continued over the apical two-thirds in a wide reticulum; sides of the epinotum finely and transversely striate, the declivity more coarsely so. Tergites dull, the seventh finely and closely punctured, the sternites slightly shining, closely, shallowly and finely punctured (32 diameters).

Median area of the clypeus one and a half times wider than long, the apical margin bluntly angular in the middle. Interocular distance across the base of the clypeus nearly three times greater than across the vertex, where it is equal to the length of the first two joints of the flagellum. The second joint is three-fourths longer than wide at the apex, and the third is nearly one-third longer than the second, dorsum of the epinotum very little narrower at the apex than at the base, four-fifths wider there than long. Seventh tergite trapezoidal, the apical margin convex, eighth sternite arcuately emarginate at the apex, the lateral angles dentiform.

Vumba Mts, Southern Rhodesia. March. 6 ♂♂. On a sandy path in forest. Allied to *modestus* Arn. (Fig. 14), but with much stronger and less close puncturation on the head and thorax, quite different sculpture of the epinotal dorsum, wider clypeus and face, and without the long pubescence on the sternites which is present in that species.

#### **Tachysphex punctiventris** Arn. (Fig. 15)

1924, *Ann. Transv. Mus.* II, 65.

♀. 10.5-11 mm. long (hitherto undescribed). Colour as in the ♂, the pubescence on the clypeus and face silvery golden, the long decumbent pubescence on the thorax yellowish white, paler than in the ♂, in which in fresh specimens it is yellow. The sternites shining, with only a microscopic and sparse puncturation and without the long pubescence present in the ♂. The puncturation of the mesonotum, at least in the middle, is not so close as in the ♂, the interspaces shining and about three to four times wider than the punctures. The dorsum of the epinotum is dull and finely coriaceous as in the ♂, but it is also longitudinally and not closely rugulose, the rugae not reaching the apical margin.

Clypeus one and a half times wider than long, the anterior third flattened, the apical margin feebly convex. Interocular distance across the base of the clypeus two and two-thirds greater than on the vertex,

where it is equal to the length of the first two joints of the flagellum. The second joint is twice as long as wide at the apex, the third one-fifth longer than the second. Dorsum of the epinotum one-fourth wider at the base than at the apex and two-thirds wider at the base than long. Pygidial area shining, sparsely punctured, twice as long as wide at the base and much narrowed towards the apex. Tarsal comb composed of long yellow cilia.

Abercorn, Northern Rhodesia. July and August. 1 ♂ and 2 ♀♀ (*H. J. Brédo*).

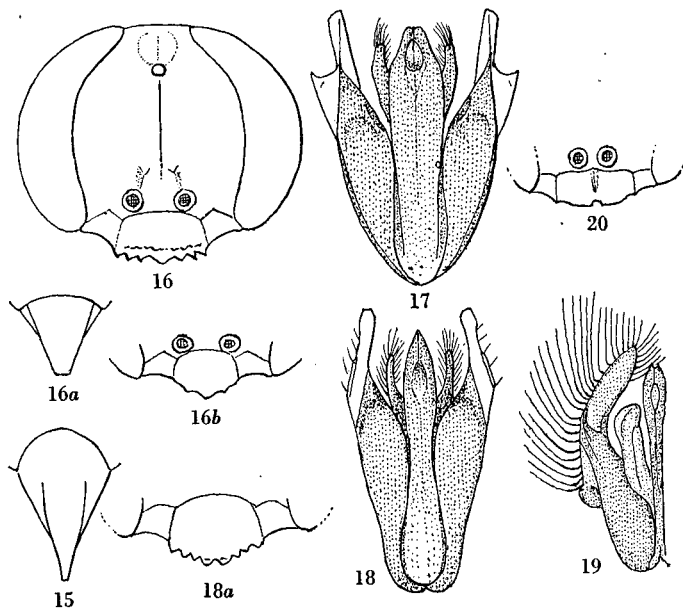


Fig. 15. *Tachysphex punctiventris* ♀, pygidium, × 14.

Fig. 16. *Tachysphex lanatus* ♀, head, × 14.

Fig. 16a. *Tachysphex lanatus* ♀, pygidium, × 14.

Fig. 16b. *Tachysphex lanatus* ♂, clypeus, × 14.

Fig. 17. *Tachytes longiventris* ♂, genitalia, × 28.

Fig. 18. *Tachytes bredoi* ♂, genitalia, × 22.

Fig. 19. *Liris (Motes) minima*, race *lacustris* ♂, right half of genitalia, × 40.

Fig. 20. *Liris dentipes* race *tanganyikae* ♀, clypeus, × 10.

### *Tachysphex lanatus* n.sp. (Figs. 16, 16a and 16b)

♀. 8.5 mm. long. Black. Calcaria and spines on the legs brownish ochreous. Wings hyaline, the veins and pterostigma blackish. Head and thorax with a white, erect, fine and long, and somewhat woolly pubescence, only on the temples is the pubescence of the usual stiff and decumbent kind. The first five tergites have a microscopic, decumbent grey pubescence, slightly denser on the apical margins. Face nearly dull, clypeus, vertex, temples and thorax shining, the abdomen nitidulous. Median area of the clypeus sparsely and coarsely punctured, two-thirds wider than long, the apical margin strongly septedentate. Face and ocellar area with a fine puncturation, the interspaces microscopically

rugulose and for the greater part three to four times wider than the punctures. Face wide, the width in the middle fully one-third greater than the length from the hind margin of the clypeus to the anterior ocellus. Interocular distance across the base of the clypeus only twice as wide as on the vertex, where it is equal to the length of the first two joints of the flagellum plus two-thirds of the third joint. Vertex with a few large punctures, the temples very finely and not closely punctured. Second joint of the flagellum three times longer than wide at the apex and a trifle shorter than the third joint. Mesonotum and scutellum closely punctured at the sides, sparsely in the middle, the punctures almost twice as large as those on the face, the interspaces in the middle of the mesonotum from three to four times wider than the punctures. Metanotum sparsely and finely punctured. Mesopleura rugulose-punctate in the upper part, the rest punctured like the mesonotum. Metapleura rugulose, almost dull. Dorsum of the epinotum strongly and not closely reticulate-rugose, the reticulations here and there disconnected, the sides and declivity of the epinotum strongly, transversely striate-rugose.

Abdomen with a microscopic puncturation, except the pygidial area which is shining and has some scattered large punctures. Mesonotum wide, one and a half times wider than long. Dorsum of the epinotum fairly flat, not much narrowed caudad, two and one-fourth times wider at the base than long. Pygidial area broadly V-shaped, the apex broadly truncate. Tarsal comb composed of long cilia. Claws long, as long as the apical tarsal joint.

♂. 7 mm. long. Colour, pubescence and sculpture like that of the ♀, but the basal third of the epinotal dorsum is distinctly and obliquely rugose, and the puncturation of the mesonotum is larger and closer, the interspaces on the disk barely twice as wide as the punctures. Median area of the clypeus three-fifths wider than long, the apical margin bluntly angular in the middle. Interocular distance across the base of the clypeus a little more than one and a half times greater than on the vertex, where it is equal to the length of the first three joints of the flagellum plus two-thirds of the fourth joint. The second joint of the flagellum is a little shorter than the third and only one-fifth longer than the first.

Dorsum of the epinotum twice as wide at the base as long. Seventh tergite widely rounded at the apex.

Abercorn, Northern Rhodesia. July. 4 ♀♀, 1 ♂ (*H. J. Brédo*).

Allied to *T. octodentatus* Arn. and *T. ambiguus* Arn., distinguished from both by the very different sculpture of the face, the pubescence and the shape of the clypeus.

#### ***Tachytes pallidiventris* n.sp.**

♀. 16 mm. long. Head and thorax black, the declivous face of the first tergite black, the rest of the abdomen flavo-ferruginous. Basal half of the mandibles, clypeus, scapes, legs including the trochanters and the underside of the middle and hind coxae, pale ferruginous, the apical margin of the clypeus darker or reddish brown. Flagellum reddish brown below, dark brown above. Wings pale flavo-hyaline, the veins

flavo-ferruginous. Head and thorax with a long, decumbent and yellowish grey tomentum, intermixed with a long pilosity of the same colour, the pubescence on the clypeus and face dense. Tergites one to five with a golden decumbent pubescence, arranged in a chequered pattern, as in *T. basilica* Guer., the pygidial area covered with golden pubescence.

Basal two-thirds of the clypeus fairly closely, the anterior third sparsely punctured and shining. The puncturation of the rest of the head and of the thorax, very finely and closely punctured (16 diameters) that of the epinotal dorsum a little larger than elsewhere. Sternites shining, with a few large and scattered punctures, the second and third sternites closely and finely punctured at the sides.

Median area of the clypeus one-third wider than long, the apical margin narrowly excised in the middle and with two stout teeth on each side at the corners. Interocular distance on the vertex equal to the length of the second joint of the flagellum.

Galea distinctly shorter than the scapes. Dorsum of the epinotum less than half as long as the mesonotum. First and third abscissae of the radius subequal, both shorter than the second. Basal joint of the anterior tarsi with six spines.

Mukupa, Mweru, Northern Rhodesia. September. 2 ♀♀ (*H. J. Brédo*).

Very much like *T. basilica* Guer., superficially, but differing from it by the short galea, the shorter epinotal dorsum and the second sternite, which is in greater part shining and sparsely punctured except at the sides.

#### ***Tachytes brunneo-marginata* n.sp.**

♀. 17 mm. long. Black. The apical margins of the first five abdominal segments narrowly reddish brown. Mandibles excepting the apex, tibiae and tarsi, apices of the fore and middle femora, more widely above than below, the apex and apical half of the hind femora, pale ferruginous. Wings pale-, flavo-hyaline, the veins and the tegulae flavo-ferruginous. Pubescence pale golden on the head and thorax, decumbent and long on the face and clypeus, temples and underside of the femora, sparse on the middle of the mesonotum, the scutellum and dorsum of the epinotum. The pilosity yellowish white, fairly dense on the clypeus, face and epinotum. Pubescence on the tergites yellowish grey, sparse except on the apical margins where it forms narrow transverse fasciae. Pygidial area with dark red setae. Clypeus dull, finely and closely punctured, the middle fourth of the apical margin slightly produced, the teeth at the lateral angles inconspicuous. The rest of the head and the thorax microscopically reticulate-punctate (25 diameters) the dorsum of the epinotum a little more coarsely so than the other parts. Second sternite dull and closely punctured, except the middle of the apical margin, the third to sixth sternite shining and with a few large punctures, the third somewhat closely and finely punctured at the sides. Interocular distance on the vertex equal to the length of the second joint of the flagellum. Flagellum fairly slender, the joints at least twice as long as wide, the second joint two and a half times longer than wide at the apex. Galea

one-fifth longer than the scape. Dorsum of the epinotum as long as the scutellum and metanotum united. Basal joint of anterior tarsi with six short spines on the outer margin. First three abscissae of the radius of about equal length.

Mupulungu, Northern Rhodesia. May and June. 5 ♀♀ (*H. J. Brédo*).

Allied to *T. separabilis* Turn. from which it differs by the wider vertex, shorter galea and the reddish brown apical margin of the abdominal segments. Also allied to *T. neglecta* Turn. but larger, with darker setae on the pygidial area, and narrower vertex.

### ***Tachytes longirostris* n.sp. (Fig. 17)**

♀. 14 mm. long. Black. The last four joints of the anterior tarsi and the last two of the middle and hind tarsi more or less pale brownish red. Wings hyaline, slightly yellowish, the veins ochreous, the tegulae testaceous. The calcaria brown, the spines on the legs pale ochreous.

Decumbent pubescence and the erect pilosity of the clypeus and face yellowish white, of the dorsum of the thorax pale golden, of the temples, sides of the thorax and of the tibiae and underside of the femora silvery. Pubescence on the abdomen greyish white, denser on the apical margins, where it forms transverse fasciae. Pygidial area with foxy red pubescence. The exerted long hairs on the apical margins of the sternites ferruginous.

Clypeus slightly shining in the middle, closely and finely punctured, less closely in the middle, where the interspaces are as large as the punctures. Vertex fairly strongly but sparsely punctured, the rest of the head, the thorax and the sternites dull, very closely and finely punctured.

Galea exceptionally long, a little more than five times longer than the scapes; the tongue is also long, as long as the galea. Clypeus one-third wider than long, the apical margin with a narrow arcuate excision in the middle. Interocular distance on the vertex equal to the length of the second joint of the flagellum plus half of the first. The second joint is as long as the third and two and a half times longer than wide at the apex. Dorsum of the epinotum short, only as long as the scutellum, the triangular depression at the middle of its hind margin very distinct, smooth and shining. Abdomen broad, the second segment three times wider than long. Basal joint of the anterior tarsi with five spines on the outer margin; inner calcar of hind tibiae longer than the basal joint of the tarsus. First abscissa of the radius nearly twice as long as the second, the latter a little shorter than the third.

♂. 12 mm. long. Tarsi pale ferruginous, the basal joint fuscous above. Pubescence paler than in the ♀, the fifth and sixth tergites with brownish pubescence, sternites one to four with the pubescence fairly dense on the apical margins, forming indistinct fasciae, pygidial area with pale golden pubescence. Puncturation a little stronger than in the ♀, otherwise like the ♀ in colour, sculpture and pubescence. Galea and tongue very long as in the ♀. Interocular distance on the vertex equal to the length of the second joint of the flagellum. The third to fifth joints moderately arcuate. Pygidial area wider at the base than long, the apical margin widely rounded. Otherwise like the ♀.



Nsama, Mweru, Northern Rhodesia. January. 2 ♀♀, 3 ♂♂ (*H. J. Brédo*).

Not closely allied to any other African species, and easily distinguished from all by the very long galea and tongue. The length of those parts is probably related to the length of the calyx of the flowers which are visited by these insects.

**Tachytes bredoi** n.sp. (Figs. 18, 18a)

♂. 12 mm. long. Black. Wings hyaline, the veins ochreous. Decumbent pubescence and pilosity ochreous yellow, here and there with a golden sheen, the pubescence very dense on the face, clypeus, sides of mesonotum and underside of the femora, hiding the sculpture, the pilosity long and abundant, especially on the epinotum, but not obscuring the sculpture. Base of the first tergite with a sparse yellowish pilosity, the first to fourth tergites with apical fasciae of silvery pubescence, the fifth and sixth tergites and sternites with dark brown pubescence, the second to fourth sternites with greyish apical fasciae and with a short yellowish pilosity. Pygidial area with silvery pubescence. Calcaria ferruginous, the spines on the legs whitish. Vertex very finely and sparsely punctured, clypeus and thorax closely punctured, the interspaces as large as the punctures, the latter shallow, small and oblique. Dorsum of the epinotum reticulate-punctate, the punctures somewhat larger than those of the rest of the thorax, the sides closely and very finely punctured (35 diameters). Sternites fairly dull, with a close, oblique and fine puncturation.

Clypeus very little wider in front than long, slightly produced in the middle, the anterior margin with eight teeth. Galea two-thirds as long as the scape. Second joint of the flagellum a trifle longer than the third and twice as long as wide at the apex. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. Dorsum of the epinotum not quite as long as the metanotum and scutellum united.

Eighth sternite shallowly emarginate at the apex. Basal joint of anterior tarsi with seven spines on the outer margin.

Buleya, Mweru, Northern Rhodesia. January. 3 ♂♂ (*H. J. Brédo*).

Allied to *inexorabilis* Turn., but in that species the clypeus is not produced into two teeth in the middle, the basal joint of the anterior tarsi has only six spines, the eighth sternite is more deeply emarginate at the apex, and the genitalia are different.

**Liris** (subgen. *Motes*) **xanthoptera** Arn.

1944, Arnold, *Sphec. Madag.* p. 121.

Race *nyasae* n.subsp.

♀. 14 mm. long. This differs from the type of the species in having the apical infuscation of the wings darker and more extensive. On the forewing it covers the second and third cubital cells, and the whole of the radial. The apical fasciae of the first three tergites are brighter, or silvery grey.

Mlanje, Nyasaland. December. 1 ♀.

**Liris** (subgen. **Motes**) **avellanipes** Sauss.

1891, *Bull. Soc. Ent. Suisse*, VIII, 261.

1892, *Hist. Madag.* xx, 508.

1944, Arnold, *Sphec. Madag.* p. 122.

Race **flavivena** n.subsp.

♀. 14 mm. long. Tarsi ferruginous, like the rest of the legs. Wings hyaline, the veins including the costa and subcosta, ochreous. Punctuation of the mesonotum a little stronger, the punctures almost discrete. Dorsum of the epinotum less narrowed caudad, only one-sixth wider at the base than at the apex, and not quite as long as wide behind. Otherwise like the type of the species. In the type of the species the wings are hyaline, faintly yellowish smoky, and the veins are brown.

Rhodesdale, Southern Rhodesia. November. 1 ♀.

The presence of this race and the preceding one on the mainland of Africa is of interest since it affords further support for the view that the Sphecidae of Madagascar are in the main derived from continental species.

**Liris** (subgen. **Motes**) **minima** Arn.

1929, *Ann. Transv. Mus.* XIII, 397, Fig. 23.

A form of this species from Mukupa, Lake Mweru district, Northern Rhodesia, differs from the type in having the scapes brown above and ferruginous below, and the femora brown, tibiae and tarsi pale ferruginous. These differences alone are merely varietal, but the genitalia differ sufficiently to justify subspecific rank, race *lacustris* n.subsp. (Fig. 19).

The external margin of the outer paramera is more pilose, having twenty-five long curved hairs instead of fifteen or sixteen, the narrow apical part of the paramera is wider, and the feebly chitinized inner paramera are thicker and of a different shape.

**Liris** (subgen. **Motes**) **dentipes** Turn.

1917, *Ann. Mag. Nat. Hist.* xx (8), nos. 118, 294.

Race **tanganyikae** n.subsp. (Fig. 20).

♀. 13 mm. long. First four joints of the tarsi, apices of the anterior tibiae, extreme base and the apex of the middle tibiae, apex of the hind femora, upper side of the hind tibiae and the mandibles, ferruginous. Scapes and tegulae black. Pubescence on the head and thorax grey, not golden as in the type, very short and inconspicuous on the thorax and abdomen, the latter without pubescent apical fasciae. Pygidial area closely and coarsely punctured; otherwise like the type of the species in colour, sculpture and pubescence.

Anterior margin of the clypeus with a narrow arcuate emargination in the middle. Dorsum of the epinotum very little wider at the apex than long, a little wider in the middle than long, the base about two-elevenths

wider than the apex. The claws with a blunt tooth in the middle, as in the type.

Malonge, Tanganyika. August. 1 ♀ (*H. J. Brédo*).

### *Nitela lubutuana* Arn.

1929, *Ann. Transv. Mus.* XIII, 399.

Race *nyasae* n. subsp.

♀. 5 mm. long. Femora and tibiae and the middle and hind trochanters entirely pale ferruginous. Wings clear hyaline, otherwise like the type of the species in colour and pubescence. The sculpture of the head is slightly stronger, and of the mesonotum weaker than in the type of the species. The median carina of the clypeus is less acute and extends almost to the apical margin, whereas in the typical form it ends in a tooth at the hind margin of the flattened and shining anterior third. Interocular distance on the vertex equal to the length of the first two joints of the flagellum plus half of the third. Second joint of the flagellum two-fifths longer than the first, otherwise like the type of the species.

♂. 4.2 mm. long. Palpi pale ochreous. Mandibles and underside of the scapes reddish ochreous. The sculpture of the head and thorax, excepting the epinotum, is stronger than in the ♀, being quite distinct with a magnification of 25 diameters. The face and vertex are reticulate-rugulose, the pronotum reticulate-rugose, and the mesonotum reticulate-punctate. The longitudinal rugae on the epinotum are a little farther apart than in the ♀. The median carina of the clypeus is feeble and extends to the apical margin. Inferior interocular distance about two and one-third times greater than the superior, the latter equal to the length of the first two joints of the flagellum. Posterior ocelli separated from the eyes by a space equal to about one-fourth of their own diameter. Dorsal face of the pronotum longer than in the ♀, only four times wider behind than long. Dorsum of the pronotum one-third wider at the base than at the apex, as long as wide at the apex, otherwise like the ♀.

Zomba, Nyasaland. November. 1 ♀, 2 ♂♂, running up and down the trunk of a *Eucalyptus* tree.

### Subfamily PEMPHREDONINAE

#### *Stigmus levifrons* n. sp. (Fig. 21)

♂. 3.8-4 mm. long. Black. Palpi and mandibles yellowish white, labrum, underside of the scapes and first four joints of the flagellum ochreous, the upperside of the scapes and of the flagellum brownish yellow, darkening to brown apically. Pronotal tubercles white, tegulae pale brown, with a whitish spot in front. Fore and middle trochanters, tibiae and tarsi and a spot at the base of the hind tibiae, pale ochreous, the rest of the legs dark brown. Wings hyaline, the veins and pterostigma brown. The whole body shining except the temples. Clypeus and lower half of the face transversely and microscopically rugulose, the upper part of the face and the vertex in front longitudinally acuducted (50 diameters), behind the ocellar area transversely so. The upper half of the

face and vertex in front with a few scattered punctures. A carina margins the eyes on the face and temples, the space between it and the eyes feebly and transversely clathrate. A weak median carina extends from the clypeus to the top of the face. Temples very finely, closely and longitudinally striolate. Dorsum of the pronotum in front, and the sides in the middle, obliquely rugose. Mesonotum closely and very finely striolate lengthwise, with about a dozen widely separated punctures, the posterior fourth longitudinally sulcate-rugose. Mesopleura with a fine longitudinal striation adjacent to the margins, metapleura smooth. Dorsum of the epinotum with a sharply marginate and depressed

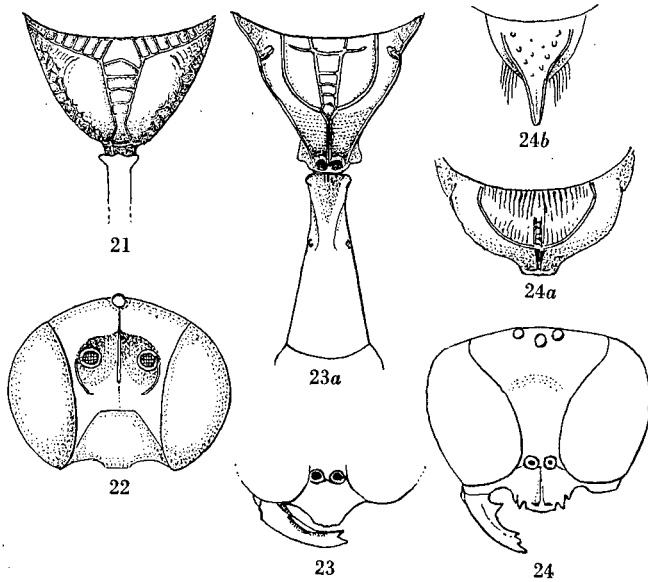


Fig. 21. *Stigmus levifrons* ♂, epinotum,  $\times 40$ .  
 Fig. 22. *Psemulus paucillus* ♀ head,  $\times c. 21$ .  
 Fig. 23. *Crabro tropicalis* ♂, clypeus,  $\times c. 14$ .  
 Fig. 23a. *Crabro tropicalis* ♂, epinotum and first tergite,  $\times c. 14$ .  
 Fig. 24. *Crabro abyssinicus* ♀, head,  $\times 10$ .  
 Fig. 24a. *Crabro abyssinicus* ♀, epinotum,  $\times c. 10$ .  
 Fig. 24b. *Crabro abyssinicus* ♀, pygidium,  $\times c. 14$ .

T-shaped area, the transverse arm at the base, narrowed laterad, and with about twelve longitudinal costae, the longitudinal median part with three or four transverse costae and narrowed caudad. The dorsum outside the T-shaped depression nearly smooth, with traces of striae, the sides and declivity coarsely and widely reticulate. Petiole quadrangular in cross-section, without sculpture, the sides flat, the dorsum surface moderately convex. Abdomen smooth and impunctate. Median area of the clypeus feebly convex transversely, barely protruding, about one and a half times wider in front than long, the anterior margin feebly convex. A median carina extends from the clypeus nearly to the anterior ocellus. Eyes slightly convergent below. First five joints of the flagellum

of about equal length and at least three times longer than wide. Interocular distance on the vertex equal to the length of the first five joints of the flagellum. Pronotal collar three times as wide in front as long in the middle, the anterior margin concave, raised, and produced into a tooth on each side. Petiole as long as the first two tergites plus nearly half of the third. Second abscissa of the radius nearly twice as long as the first, the third, four and a half times longer than the second.

Hot Springs, Mutambara, Southern Rhodesia. August. II ♂♂.  
Nesting in straws of thatch.

This species differs from *gueinzius* Turn. and *rugosifrons* Arn. by its smaller size, the absence of coarse sculpture on the face, the sculpture of the thorax and the shorter petiole.

***Psenulus pauxillus* n.sp. (Fig. 22)**

♀. 6.8 mm. long. Black. The whole of the scapes and the upperside of the flagellum black, the underside of the latter brownish yellow. Extreme apices of the fore and middle femora, the fore and middle tibiae and tarsi pale ochreous, the underside of the fore and middle tibiae with an elongate brown macula, the basal third of the hind tibiae yellowish white. Wings hyaline, strongly iridescent, the veins and pterostigma black.

Clypeus and face below the antennae microscopically and closely punctured and dull, the rest of the body shining. Clypeus, face, temples and underside of the anterior femora with long, oblique and silvery pubescence, the thorax with a short, white and sparse pilosity, the tergites with a whitish decumbent and fine pubescence. Face above the antennae finely and shallowly punctured, the interspaces three to four times wider than the punctures, the vertex and temples almost impunctate. Sides of the pronotum obliquely rugulose, the dorsum transversely striate.

Mesonotum sparsely punctured, the punctures about twice as large as those on the face, the disk almost impunctate. Scutellum with a puncturation as large as that of the face, chiefly at the sides. Metanotum striolate. Mesopleura with a sparse and very shallow puncturation, smaller than that of the mesonotum. Dorsum of the epinotum indistinctly and not closely rugulose longitudinally, the base with a marginate groove attenuated laterad, traversed on each side by six costae, continued in the middle in a longitudinal, deep and very narrow groove, below which is a round pit; the sides of the epinotum in the upper third and the bottom of the declivity with a wide-meshed raised reticulation, the lower two-thirds of the sides vertically striate, abdomen smooth.

Clypeus feebly convex, about twice as wide in front as long, with a narrow and short lobe on the anterior margin. Face with a lamelliform median carina between the antennal sockets, higher above than below, continued above as a raised line reaching the anterior ocellus. Between the eyes and antennal sockets a low carina extends downwards and inwards, and ends some distance from the middle below the median carina. Superior interocular distance, measured at the level of the anterior ocellus, equal to the length of the first four joints of the flagellum,

and one-third greater than the inferior, measured across the anterior margin of the clypeus. Flagellum moderately clavate, the second joint not quite four times longer than wide, four-fifths longer than the third, the second to seventh longer than wide. Posterior ocelli as far from the eyes as from each other. Temples two-thirds as wide as the eyes. Pronotal collar short, the anterior angles dentiform. Petiole, including the tergite, as long as the second and third tergites plus two-thirds of the fourth. Posterior tibiae without spines. First abscissa of the radius twice as long as the second, and half as long again as the third; the first recurrent vein interstitial with the first cubital vein.

♂. 6.8 mm. long. Basal half of the posterior tibiae yellowish white, otherwise the colour and the pubescence is like that of the ♀. The puncturation of the face is much denser and larger than in the ♀, the interspaces being hardly wider than the punctures. The puncturation of the mesonotum is coarser, the largest punctures being about one-third as wide as the anterior ocellus, the interspaces for the greater part hardly wider than the punctures; in addition there is an indistinct transverse rugosity except in the middle. Mesopleura more strongly punctured than in the ♀; scutellum finely punctured, metanotum transversely rugulose. The dorsum of the epinotum outside the T-shaped groove is obliquely and finely rugose, the rugae merging caudad into the raised reticulation of the declivity, which is even coarser than in the ♀. The anterior margin of the short lobe of the clypeus is concave, not straight as in the ♀. The lateral carinae of the face meet in the middle with the median carina. Flagellum moniliform, all the joints except the first longer than wide, the second longest and twice as long as wide. Petiole as long as the second, third and fourth tergites united. Spine of the apical ventral segment long and curved. Otherwise like the ♀.

Abercorn, Northern Rhodesia. August. 2 ♀♀. July. 1 ♂ (*H. J. Brédo*).

Allied to *latiannulatus* Cam. as far as one can tell from the inadequate description of that species, and differing by the smaller size, the sculpture of the epinotum, the length of the petiole, and the length of the radial abscissae.

#### Subfamily CRABRONINAE

#### **Crabro** (sp.gr. **Crossocerus**, subgroup **Cuphopteris**)

#### **tropicalis** n.sp. (Figs. 23, 23a)

♂. 9 mm. long. Black. Mandibles ferruginous, the apical teeth black. Median area of the clypeus, excepting the anterior margin, yellowish white. Scapes lemon yellow, with a brownish apical spot on the upper-side. Fore and middle tibiae, reddish brown, paler above than below, the anterior tarsi brown. The following parts are pale yellowish white: a spot in the middle of the anterior tibiae on the upper side, the posterior half of the underside of the anterior femora, the apical half of the underside of the anterior trochanters, the greater part of the middle and hind trochanters, and the first sternite. The following parts are pale lemon yellow: a transverse line, interrupted in the middle, on the scutellum, the disk of the metanotum, a longitudinal streak on the upper-

side of the middle femora, a shorter one on the apical third of the hind femora, an elongate macula, widest caudad on each side of the first tergite, a rounded triangular macula, its base laterad, on each side of the third tergite, and transverse bands, more or less trisinate cephalad, across the middle of the fifth and sixth tergites. Wings hyaline, the veins and pterostigma dark brown. Clypeus, face, temples, sides of the thorax and declivity of the epinotum with silvery pubescence. Mesonotum with a very short, inconspicuous and grey pubescence, the abdomen with a decumbent and yellowish grey pubescence.

Clypeus dull, finely and closely punctured. Face and vertex shining, with a fairly strong puncturation, the interspaces from two to three times as wide as the punctures; temples shallowly and less strongly punctured than the face. Thorax and abdomen shining. Dorsum of the pronotum finely punctured, the mesonotum and scutellum closely punctured, except in the posterior half of the middle of the mesonotum, where the punctures are largest and with interspaces twice as wide as the punctures, elsewhere the punctures are about twice as large as those on the vertex and as wide as the interspaces. Metanotum feebly punctured. Sides of the thorax and epinotum sparsely and very finely punctured. Dorsum of the epinotum with a large semicircular, marginate median area, which has two widely separated longitudinal costae in the middle, the enclosed space transversely costate, near the base with a costa on each side, reaching the lateral margin. The lateral areas of the epinotal dorsum are closely and obliquely rugulose, and somewhat dull. A deep median longitudinal groove on the declivity joins the median area above, and ends below a depression divided by a median costa into two halves.

Lateral margins of the epinotum bounded by a sharp carina. Abdomen without sculpture. Temples with a small triangular tooth at the bottom, just behind the mandibles, the latter with two apical teeth and a feeble dilatation in the middle of the upper margin. Median area of the clypeus somewhat produced, the anterior margin transverse. Antennae thirteen-jointed, the second joint of the flagellum about two and a half times longer than wide, twice as long as the first, not quite that much longer than the third, and on the underside with a very short fringe of exerted hairs. Interocular distance on the vertex equal to the length of the first six joints of the flagellum. Posterior ocelli twice as far from each other as from the anterior ocellus, the space between them and the eyes depressed.

Pronotal collar as long as the third joint of the flagellum, the anterior margin convex, the shoulders rounded. Mesopleura without a tooth in front of the coxae. Declivity of the epinotum two-thirds longer than the dorsum. First tergite twice as long as wide behind, with two keels at the base extending as far as the stigmata. Seventh sternite with a small tooth on each side of the base and a median triangular raised area which is concave in the middle. Anterior basitarsus strongly curved. Middle tibiae on the upper side with a curved, lamelliform carina extending over the middle third of its length; hind coxae subdentate on the underside.

Second abscissa of the radius three-eighths longer than the first, the truncating vein of the radial cell vertical.

Malonje, Tanganyika. August. 1 ♂ (*H. f. Brédo*).

Allied to *C. ruwenzoriensis* Arn. from which it differs by the colour, sculpture of the thorax, longer petiole, the mandibles which are feebly and not angularly dilated near the middle, the unfringed anterior femora, and the shape of the anterior trochanters.

**Crabro** (sp.gr. **Crabro** s.str.) **abyssinicus** n.sp.

(Figs. 24, 24*a* and 24*b*)

♀. 12 mm. long. Black. Scapes black above, yellow below, first four joints of the flagellum pale red, the rest black. The following parts are dark ferruginous: mandibles, pronotal collar, tegulae femora and tibiae excepting a black streak on the upperside basad, the hind pair of femora more than the others, and the pygidium. The second tergite with pre-apical lemon band, moderately dilated laterad, the fifth tergite with the apical margin very narrowly ochreous. Wings hyaline, tinged with ochreous, the veins and pterostigma blackish. Clypeus, face and temples with a sparse, pale golden pubescence, the rest of the head and the thorax with a sparse whitish pubescence, the abdomen with a decumbent yellowish grey pubescence, sparse but fairly long.

A narrow median area of the face smooth and shining, the sides of the face, clypeus and vertex as far as the hind margin of the ocellar area, but excepting the sides near the eyes, shallowly and closely punctured, almost reticulate-punctate; behind the ocelli the vertex is shining and with larger puncturation, the interspaces as wide as the punctures. Temples shining, with puncturation a little smaller and less close than that of the back of the vertex. Pronotal collar with a sparse and coarse puncturation; the sides of the pronotum closely and transversely rugoso-striate. Mesonotum and scutellum dull, with a close and fine, longitudinal rugosity, the rugae wavy and anastomosed; metanotum dull, finely and closely punctured. Mesopleura nitidulous, coarsely and transversely rugose, the epinemium shining and finely punctured; in front of the middle coxae the mesopleura have a thin and curved carina. Metapleura and sides and declivity of the epinotum dull, closely and transversely striate. Dorsum of the epinotum short, three times wider at the base than long, the median area well defined, shining, with a crenulate median groove over its posterior two-thirds and longitudinally rugose at the base, the rugae fading out in the middle, the narrow lateral areas outside the median one, obliquely rugose.

First tergite nitidulous, sparsely and finely punctured, the second to fifth dull and rugulose-punctulate, the pygidium shining, coarsely and sparsely punctured, the sternites shining and microscopically rugulose.

Mandibles tridentate at the apex and with a large tooth on the inner margin near the base. Median area of the clypeus produced, with two teeth on each side, the outer one very small, carinate lengthwise in the middle, the anterior margin transverse. Superior interocular distance four times greater than the inferior (at the level of the antennal sockets)



and equal to the length of the flagellum less the apical joint. Second joint of the flagellum twice as long as wide at the apex and very little longer than the first or third. Ocelli arranged in a low triangle, the posterior pair three times as far from each other as from the anterior ocellus, and farther from the eyes than from each other. Pronotal collar convex from front to back, highest in front, impressed in the middle, and rounded at the shoulders. Pygidial area marginate, concave, abruptly narrowed from the middle to the apex, one and a half times longer than wide at the base. Abdomen and posterior tibiae and metatarsi like those of *C. crippsi* Arn.

Adola, Southern Abyssinia. 7000 ft. November (*R. H. Carcasson*).

Closely allied to and strongly resembling *C. crippsi* Arn. from which it differs by the longer median area of the clypeus having teeth at the sides, the narrower head, the shorter second joint of the flagellum, the shape of the pygidium and the sculpture of the mesonotum, which in *crippsi* is evenly striate without anastomoses, and by the yellow bands on the abdomen.

#### SPECIES-GROUP DASYPROCTUS LEP.

##### *Crabro bredoi* n.sp.

♂. 9 mm. long. Black. The following parts pale chrome yellow: mandibles excepting the blackish apex, scapes, a transverse band, widely interrupted in the middle, on the anterior half of the pronotal collar, pronotal tubercles and a transverse and ovoid macula on each side of the second tergite.

Femora black, tibiae fusco-ferruginous, the fore and middle pair yellow above, the tarsi ferruginous. Wings hyaline, faintly fuscous. The pubescence on the clypeus, temples and sides of thorax silvery, on the vertex and mesonotum blackish. The epinotum with a sparse, erect and whitish pubescence. Facial concavity margined by an arcuate carina above, obliquely rugulose and dull, except the upper third in the middle which is smooth and shining. Vertex in front of the anterior ocellus with a large and sparse puncturation, the interspaces from four to five times as wide as the punctures. Metanotum, dorsum and declivity of the epinotum coarsely and widely reticulate-rugose, the sides of the epinotum transversely rugulose. The sides of the pronotum obliquely rugose, the posterior epicnemium closely and fairly strongly punctured, basal two-fifths of the petiole shining and with a few large punctures, sternites nitidulous and very finely punctured, the rest of the body with the usual matt surface. Median area of the clypeus subcarinate longitudinally, the carina ending in a smooth and shining triangular lobe, the apex dorsad, longer and narrower than in *D. bipunctatus* Lep. Second joint of the flagellum slightly longer than the first, the third one-fifth longer than the second, the fifth joint angularly dilated apically below, as in *D. bipunctatus*. Pronotal dorsum longer at the sides than in the middle, where it is as long as the third joint of the flagellum, the anterior margin feebly sinuate on each side.

Petiole very nearly four times longer than wide across the node. Basal

joints of the anterior tarsi short, barely more than twice as long as wide at the apex, somewhat dilated apically; basal joint of the middle tarsi also short, three and a half times longer than wide at the apex, flattened dorso-vertically. Anterior trochanters broadly triangular.

♀. 10 mm. long. Apical third and lower margin of the clypeus ferruginous, the rest pale chrome yellow. Fifth tergite with a transverse pale chrome yellow band, slightly contracted in the middle and not reaching the lateral margins. Tibiae and tarsi ferruginous, otherwise like the ♂ in colour. Pubescence on the clypeus golden, ventral surface of the temples shining, finely and closely punctured. Vertex with a feeble puncturation over a narrow area in front. The sculpture of the epinotal dorsum less coarse than in the ♂, the reticulations less raised, the basal transverse clathrate groove deeper and wider.

Sternites shining, with a few large punctures near the apical margins. Fifth tergite and pygidial area moderately shining. Lobe of the median area of the clypeus much shorter and less narrow than in the ♂, and like that of *bipunctatus* Lep. ♀. Petiole three and a third times longer than wide across the node. Basal joints of the fore and middle tarsi, normal, not short and flattened.

Abercorn, Northern Rhodesia. July and August. 2 ♂♂, 8 ♀♀.

This species belongs to the *bipunctatus* group as shown by the dilated fifth joint of the flagellum in the ♂. The only other species of the group with yellow mandibles are *augusticollis* and *croceosignatus*; var. *bicuspidatus* Arn. from both of which the ♂ may be distinguished by the tarsi and clypeus, and the ♀ from *augusticollis* by the width of the pronotal collar, and from *croceosignatus* by the size, and the colour of the tibiae. In one of the eight ♀♀, the scutellum has two small yellow maculae.

#### MADAGASCAN SPECIES

##### *Tachysphex villosus* n.sp. (Figs. 25, 25a)

♀. 11 mm. long. Black. Anterior tibiae and tarsi pale ferruginous, middle and hind tibiae and tarsi brownish red below, brown above. Wings hyaline, the veins and pterostigma black, the tegulae brownish yellow. Pubescence of the head and thorax white, that of the clypeus, face and thorax, excepting the underside, long, exerted and woolly, as in *T. lanatus*, obscuring the sculpture on the face and clypeus, on the temples and mesosternum and the underside of the anterior coxae straight and decumbent. Tergites with a microscopic decumbent and grey pubescence, the depressed apical margins of the first four with fasciae of silvery pubescence, widest in the middle. Clypeus deeply impressed transversely behind the anterior margin, which is arcuately excised in the middle and feebly bidentate at the sides; behind the transverse impression the clypeus is dull, closely and finely punctured. Face and vertex dull, sparsely punctured, the ocellar area closely and finely so. Temples with a fine puncturation, the interspaces two to three times wider than the punctures. Mesonotum dull with a fundamental reticulate sculpture (50 diameters) on which is superimposed a puncturation a little larger than that of the vertex, with interspaces about

twice as wide as the punctures. The scutellum, except at the sides, is slightly shining and more sparsely punctured than the mesonotum. Mesopleura and metapleura dull, very finely punctured, the mesosternum slightly shining, and a little more closely and more finely punctured than the mesonotum. Dorsum of the epinotum dull, rugose over the basal third, reticulate-rugose on the apical two-thirds, the sides and declivity of the epinotum dull, transversely and closely rugulose.

Pygidial area shining, very sparsely and not strongly punctured, the remaining tergites nearly dull, and with only a microscopical puncturation. Sternites shining and impunctate, the lateral margins of the second and third dull and closely, finely punctured, the sixth closely punctured at the apex. Median area of the clypeus one and a half times wider than

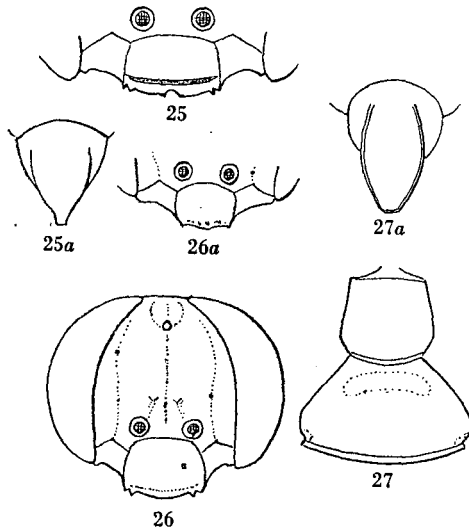


Fig. 25. *Tachysphex villosus* ♀, clypeus,  $\times c. 14$ .  
 Fig. 25a. *Tachysphex villosus* ♀, pygidium,  $\times c. 14$ .  
 Fig. 26. *Tachysphex perniger* ♀, head,  $\times c. 14$ .  
 Fig. 26a. *Tachysphex perniger* ♂, clypeus,  $\times c. 14$ .  
 Fig. 27. *Cerceris perfoveata* ♀, first and second tergites,  $\times 10$ .  
 Fig. 27a. *Cerceris perfoveata* ♀, pygidium,  $\times 14$ .

long. Interocular distance across the base of the clypeus fully three times greater than across the vertex, where it is equal to the length of the first two joints of the flagellum. The second joint is twice as long as wide at the apex and a little shorter than the third joint. Dorsum of the epinotum twice as wide at the base as long. Tarsal comb composed of long cilia; calcaria and spines on the legs pale ferruginous. Pygidial area V-shaped, a little longer than wide at the base, the sides feebly convex, the apex narrowly truncate.

Bekily, Madagascar, 2 ♀♀. December and January (*A. Seyrig*).

Allied to *T. lanatus* Arn. This species tunnels horizontally in vertical banks to make its nest; the prey consists of Acridiidae. Type in the Muséum National d'Histoire Naturelle, Paris.

**Tachyspex perniger** n.sp. (Figs. 26, 26a)

♀. 7.5 mm. long. Black. Wings hyaline, slightly smoky, the veins black. The lateral sclerites of the clypeus, the lower part of the face, temples and thorax with a very short, inconspicuous and grey pubescence, the median area of the clypeus with some long brown hairs. Abdomen almost glabrous, except for a few long hairs on the sternites, without apical pubescent fasciae. Median area of the clypeus shining, sparsely and coarsely punctured; the lateral areas of the clypeus and the face dull, finely and closely punctured, almost reticulate-punctate, the former also with a few large punctures; a triangular area on each side, extending to the level of the ocellar area and bounded mesad by a faint impression, more finely punctured than the middle of the face.

Vertex and temples shining, the former sparsely punctured, the latter finely and less closely than the face. Mesonotum shining, the punctures as large as those on the vertex, the interspaces not wider than the punctures, except over a small area on each side of the middle. Scutellum and metanotum shining, with a puncturation half as large as that of the mesonotum and less close. Mesopleura dull, the puncturation as large as that of the mesonotum, the interspaces about three times wider than the punctures and microscopically reticulate (50 diameters); the upper fourth, like the metapleura, more finely and closely punctured. Dorsum of the epinotum dull, finely longitudinally rugose, the rugae fading out caudad, the interspaces finely reticulate. Sides and declivity of the epinotum dull, closely and transversely rugulose. Abdomen shining, the pygidial area with a fine very sparse puncturation, the rest practically impunctate. Median area of the clypeus narrow, only one-sixth wider than long, the apical margin feebly convex, bidentate at the corners. Interocular distance across the base of the clypeus two and five-sevenths wider than on the vertex, where it is equal to the length of the first two joints of the flagellum. Second joint two and a fourth times longer than wide at the apex, the third joint about one-third longer than the second. Dorsum of the epinotum three-fifths wider at the base than at the apex, and twice as wide at the base as long. Pygidial area V-shaped, half as long again as wide. Tarsal comb dark brown.

♂. 5.5-6.5 mm. long. Clypeus, face and ocellar area dull, finely reticulate-punctate. Mesonotum, scutellum and metanotum more closely punctured than in the ♀, the interspaces on the mesonotum not wider than the punctures, about twice as wide on the scutellum. The whitish pubescence on the clypeus and face longer and denser than in the ♀, otherwise like that sex in colour, sculpture and pubescence.

Median area of the clypeus one and a half times wider than long, the apical margin feebly convex. Interocular distance across the base of the clypeus twice as great as across the vertex, where it is equal to the length of the first two joints of the flagellum plus half of the third. The second joint of the flagellum is short, barely twice as long as wide at the apex and a little shorter than the third. Seventh tergite trapezoidal, shallowly and feebly punctured; eighth sternite with the apical angles dentiform.

Antsirabe, Southern Madagascar. August (*A. Seyrig*). Numerous specimens of both sexes.

This species makes vertical tunnels in the ground and preys on immature and small specimens of Gryllids. Types in the Muséum National d'Histoire Naturelle, Paris.

***Cerceris perfoveata* n.sp.** (Figs. 27, 27a)

♀. 10.5-11 mm. long. Black. The apical abdominal segment ferruginous. The following parts are lemon yellow: mandibles excepting the apex, clypeus, face, scapes excepting the apex, anterior half of the tegulae, metanotum, a crescentic macula at the base of the second tergite, sometimes divided into two, an apical fascia much narrowed in the middle on the third tergite, a very narrow apical fascia on the fifth tergite, the tumid half of the third sternite, the anterior and middle tibiae, tarsi, apex and underside of the femora, the base of the upperside and the greater part of the underside of the hind femora, the apices of the middle and hind coxae, and the middle and hind trochanters. The yellow parts on the legs and on the sternite somewhat paler than the rest. Posterior tarsi brownish, the basal half of the first joint yellowish white. Flagellum dark brown above, reddish ochreous below. Wings pale fusco-hyaline. Clypeus and yellow areas of the face slightly shining, shallowly and not very strongly punctured, the interspaces about three times as wide as the punctures.

The rest of the face, the vertex and temples deeply reticulate-punctate, the punctures about one-fifth as wide as the anterior ocellus, the interspaces very narrow and forming longitudinal rugae. The rest of the body, excepting the smooth bases of the sternites and the pygidial area, has a sculpture which consists of a very coarse reticulate puncturation, the punctures or pits are a little larger on the epinotum than elsewhere, and are two-thirds as wide as the anterior ocellus; the interspaces are hardly more than one-fourth as wide as the pits. The triangular area of the epinotum is small, bounded on each side by a clathrate groove, the median part raised, sulcate-punctate lengthwise in the middle. Pygidial area barrel-shaped, wider at the base than at the apex, one and a half times longer than wide in the middle, vermiculate-rugose.

Clypeus shaped like that of *C. varicincta* Cam. to which species this one bears a superficial resemblance, but the concave depression of the anterior half is shallower; the median area is only a little longer than wide. Interocular distance on the vertex equal to the length of the first five joints of the flagellum. The second joint is twice as long as wide at the apex, the third one-fourth longer than the second. First tergite widest a little behind the middle, and as wide there as long. Second tergite one-third longer than the first, and nearly three times wider at the apex than at the base. Posterior tibiae with six spinose serrations. The fifth sternite lacks the teeth and protuberance which are present in *varicincta*.

Ivondro, Madagascar. January. 4 ♀♀ (*A. Seyrig*).

Type in the Muséum National d'Histoire Naturelle, Paris.