

Reprinted from
 OCCASIONAL PAPERS OF THE NATIONAL MUSEUM
 OF SOUTHERN RHODESIA. No. 11.
 Vol. 2 (THE RHODESIAN MUSEUM)

PRINTED IN GREAT BRITAIN

July 17, 1944.

NEW SPECIES OF AFRICAN HYMENOPTERA
 No. 5*

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Family METHOCIDAE

Methoca Braunsi André, var. **cataractae** Arn. (Figs. 1, 1a)

1901, André, *Z. Syst. Hym. Dipt.* 1, 281.

1934, Arnold, *Occ. Papers Rhod. Mus.* III, 33 (Figs. 3, 3a).

At the time when this variety was described it was not possible to compare it with the type of the species, since it, and also the type of *minima* André, could not be found. Mr van Son of the Transvaal Museum kindly made another search in the Braunsian collection and the types were eventually discovered mixed up with the Mutillidae.

A comparison of *cataractae* with *Braunsi* shows that the former is a distinct species, differing from *Braunsi* in several characters, as follows:

Legs and basal joints of the flagellum and the mandibles dark ferruginous (yellowish red in *Braunsi*). Face, vertex and occiput dull, with a close longitudinal rugulosity connected by fine transverse anastomoses, and behind the ocellar area, sparsely sprinkled with very shallow pit-like punctures. Temples dull, longitudinally rugulose and sparsely, shallowly punctured. In *Braunsi* the whole of the head, excepting the anterior half of the clypeus, is shining; the face, vertex and occiput are sharply and longitudinally rugulose and punctured with large and comparatively deep pits, more sparsely on the face than on the top of the head, where the interspaces are only twice as wide as the punctures; the temples are sparsely and strongly punctured and without rugulosity. The dorsum of the thorax in *cataractae* is duller than in *Braunsi*, owing to the presence of fine transverse anastomoses between the rugae on the pro-mesonotum and metanotum, and to a superficial reticulation between the rugae on the epinotum. In addition, the puncturation is much sparser, smaller and shallower in *cataractae*. The rugosity on the epinotum is transverse, whereas in *Braunsi* it is obliquely longitudinal.

The puncturation of tergites 3-5 is much stronger in *Braunsi*. Drawings of the head and thorax of *Braunsi* are given herewith, and a

* The first three papers under this title were published in the *Occasional Papers of the Rhodesian Museum*, nos. 2, 3, 5 (1933, 1934 and 1936), and the fourth in *Ann. Trans. Mus.* XX (1940).

comparison between them and figs. 3, 3a in the original description of *cataractae* shows that the pronotum is more convex lengthwise and transversely in *cataractae* than in *Braunsi*, and that the metanotum is clearly half as long again as the mesonotum in the latter species, but only a little longer in *cataractae*. The epinotum in *Braunsi* is widest behind the middle of its length, and at the middle in the other species. The interocular width on the vertex is greater in *cataractae* than in *Braunsi*, in which it is equal to the length of the second and third joints of the flagellum plus two-thirds of the fourth joint.

The type was collected at the Victoria Falls, but the species has evidently a wide distribution, since another specimen was taken by myself at Umhlanga, Natal.

In the Braunsian collection there is a single specimen of an undescribed species to which Dr Braun had given in MS. the name *Andréi*, which is herewith adopted.

Methoca Andréi n.sp. (Figs. 2, 2a and 2b)

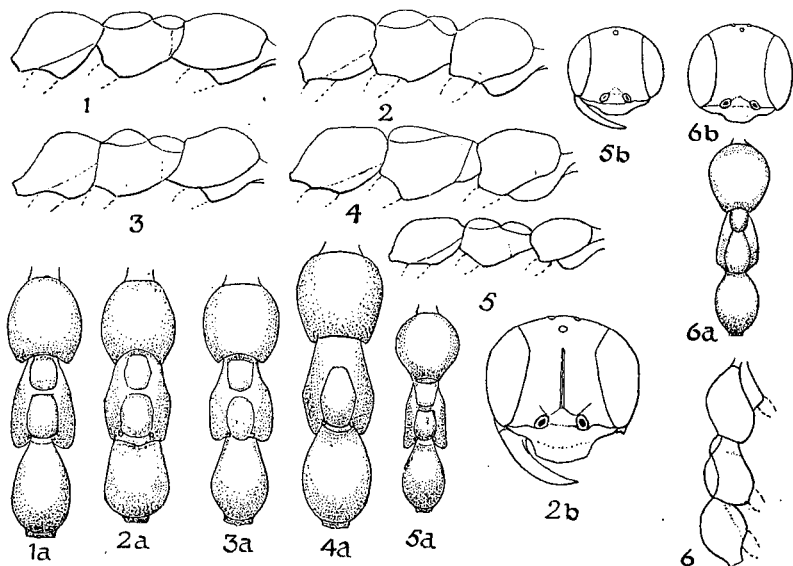
♀ 5.2 mm. long. Mandibles ochreous at the base, pale ferruginous over the apical two-thirds. Antennae reddish brown, the scape and first six joints of the flagellum reddish yellow below. Head and abdomen black, the thorax and legs castaneous red, the sides of the thorax, the upper side of the femora and the apical two-thirds of the tibiae a little darker or fusco-ferruginous.

The whole body, including the legs, has a sparse, long and white pilosity. Eyes sparsely pubescent. Head dull, the face, vertex and temples with a fairly large and sparse puncturation, the interspaces for the greater part four times wider than the punctures. Pronotum, scutate area of the mesonotum, metanotum and dorsum of the epinotum with a puncturation shallower and a little more sparse than that of the vertex. Posterior lateral angles of the pronotum and the sides of the thorax closely striato-rugose, the rugae slanting cephalad from above to below. First five tergites with an irregular and very sparse puncturation, slightly smaller than that of the vertex. Face narrower than in the other African species, the least distance between the eyes being equal to three-fourths of the distance between the anterior ocellus and the hind margin of the clypeus. Cheeks obsolete, the base of the mandibles reaching the eyes. Interocular distance on the vertex, at the level of the anterior ocellus, equal to the length of the first three joints of the flagellum. Ocelli arranged in an equilateral triangle, the posterior pair one and a half times farther from the eyes than from each other. Second joint of the flagellum very little shorter than the third, about three times longer than wide at the apex. Pronotum as long as wide in the middle, strongly convex lengthwise and transversely. Scutate area of the mesonotum convex, raised, a little wider in front than behind and as long as wide in front. Metanotum very convex, one-third longer than the scutate area of the mesonotum and one-third longer than wide. Epinotum widest at the brow of the declivity and about one-sixth longer than wide at that point. First tergite twice as wide behind as long, not petiolate, its base fairly wide. Second tergite half as long again as the

first. Calcaria pale yellowish. Hind tibiae with eight small whitish spines on the upper margin.

Willowmore, Cape Province. January. 1 ♀. Type in the Transvaal Museum. A note in Dr Brauns's handwriting, attached to the specimen, says that it is parasitic on *Cicindela modesta*. This is an erroneous identification of the prey, since *modesta* is a European species.

The types of *Methoca concinna* Per. and *M. mosotwana* Per., in the South African Museum, have been lent to me for examination by Dr A. J. Hesse, whereby I am now able to provide further notes and drawings for those two species.



Figs. 1, 1a. *Methoca Braunsi* ♀, thorax, ×10. Figs. 2, 2a. *M. Andrei* ♀, thorax, ×ca 13; 2b, head, ×18. Figs. 3, 3a. *M. concinna* ♀, thorax, ×10. Figs. 4; 4a. *M. mosotwana* ♀, thorax, ×10. Figs. 5, 5a. *M. fulgida* ♀, thorax, ×18; 5b, head, ×18. Figs. 6, 6a. *M. johannis* ♀, thorax, ×18; 6b, head, ×18.

Methoca concinna Pér. (Figs. 3, 3a)

1909, *Ann. S. Afr. Mus.* v, 408, ♀.

This species differs from all the other Ethiopian species by the pale reddish colour of the thorax, the shining integument and the very sparse puncturation on the dorsum of the thorax.

The puncturation of the face and vertex is not close as stated in the original description, the interspaces being from two to four times wider than the punctures. The posterior corners of the pronotum have a few rugae, the sides of the mesonotum outside the scutate area are reticulate-rugose and the meso- and metapleura and sides of the epinotum are closely, obliquely striate. The tergites 1-5 are very sparsely and finely punctate. Checks a trifle longer than the first joint of the flagellum. Interocular distance on the vertex, at the level of the anterior ocellus,

equal to the length of the first four joints of the flagellum. The second joint of the flagellum is a little more than twice as long as wide at the apex, and very little shorter than the third joint. Pronotum as long as wide in the middle, only moderately convex lengthwise. Scutate area of the mesonotum a little longer than wide; metanotum half as long again as the scutate area of the mesonotum and half as long again as wide. Epinotum one-quarter longer than wide, widest a little behind the middle, the declivity fairly steep and as long as the dorsum. First tergite with a very short petiole, nearly as long as wide at the apex, the second tergite as long as the first and four-fifths wider behind than long.

***Methoca mosotuana* Pér. (Figs. 4, 4a)**

1914, *Ann. S. Afr. Mus.* x, 355, ♂.

In the original description the sex is given by a printer's error as ♂, but, as is obvious from the text, the type is a ♀.

Cheeks obsolete. Face with a short median longitudinal carina, extending over the lower third of the face and not reaching the hind margin of the clypeus. Interocular distance on the vertex, at the level of the anterior ocellus, equal to the length of the first three joints of the flagellum. Posterior ocelli three times as far from the eyes as from each other. Second joint of the flagellum two and a half times longer than wide at the apex and very little shorter than the third joint. Pronotum as long as wide in the middle; mesonotum without a scutate area, as long as the metanotum, the latter narrower in front than behind and one-fourth longer than its greatest width. Epinotum ovate, two-fifths longer than wide, the dorsum fairly flat in the middle and a little longer than the declivity. First tergite not petiolate, nearly one-third wider behind than long. The third to fifth tergites are fairly strongly punctured except at the sides, the interspaces from two to three times as wide as the punctures. Hind tibiae with seven black spines on the upper margin.

A specimen from Mamathes, Basutoland (*C. Jacot-Guillarmod*), in the National Museum, Southern Rhodesia, differs from the type by its smaller size, 7.5 mm. long, and by the finer and sparser puncturation of the third to fifth tergites, the interspaces being from five to six times wider than the punctures.

***Methoca minima* André**

1901, *Z. Syst. Hym. Dipt.* I, 282, ♀.

The type of this species is defective, only the head and pronotum remaining. The median area of the clypeus is produced and like that of *Andréi*. The face and vertex have a relatively large but sparse puncturation, the punctures being about half as wide as the anterior ocellus. Mandibles ferruginous, ochreous at the base. The median longitudinal carina of the face ends far below the anterior ocellus. Inner orbits equally divergent above and below. Interocular distance, at the level of the anterior ocellus, equal to a trifle more than the length of the first three joints of the flagellum. The second joint is nearly three times longer than wide at the apex and as long as the third, the sixth, seventh, eighth and tenth joints are clearly longer than wide, the ninth as long

as wide and the apical joint one and a half times longer than wide. Posterior ocelli one-fifth farther from the eyes than from each other. Pronotum very convex, about one-sixth wider than long. The vertex, from the hind margin of the eyes to the occiput, is as long as the first two joints of the flagellum. The temples in the middle are wider than the eyes.

***Methoca fulgida* n.sp. (Figs. 5, 5a and 5b)**

♀. 3.8 mm. long. Black. Coxae, trochanters, femora and tibiae pale yellowish brown, the base and apex of the femora and tibiae paler, or dull ochreous. Basal joint of the tarsi ochreous, the remaining joints pale brown.

Mandibles flavo-ferruginous, the undersides of the scapes and of the first four joints of the flagellum also of that colour, the rest of the antennae black. Apical half of the sixth abdominal segment testaceous. A very sparse, short, erect and white pubescence on the clypeus, vertex, thorax, abdomen, femora and tibiae. The whole body is polished and shining, and, excepting the mesonotum, is very sparsely and finely punctured, the pubescent hairs arising from the punctures. Mesonotum transversely, meso- and metapleura vertically striato-rugose, the scutate area of the mesonotum more finely rugose than the parts outside it. Sides of the epinotum obliquely and feebly rugulose over the anterior half.

Inner orbits divergent above and below, a little more below than above. Interocular distance on the vertex, at the level of the anterior ocellus, equal to the length of the first three joints of the flagellum plus one-third of the fourth joint. Face at its narrowest point nearly twice as wide as one eye. First joint of the flagellum one and a half times as long as wide, the second two and a half times as long as wide, nearly twice as long as the first and a little shorter than the third, the third to seventh longer than wide, the eighth, ninth and tenth about as long as wide, the apical joint twice as long as wide. The vertex, from the posterior margin of the eyes to the occiput, shorter than the length of the first two joints of the flagellum, equal to the length of the second joint. Temples in the middle narrower than the eyes. Pronotum very convex, ovate, and, excluding the neck, as long as wide in the middle. Scutate area of the mesonotum feebly convex, as long as wide in front. Metanotum convex, oval, about one and a half times longer than wide in the middle, the meta-epinotal suture deep. Epinotum slightly narrowed cephalad, one-third longer than wide, the declivity shorter than the dorsum and subvertical.

Sawmills, Southern Rhodesia. Type in the National Museum, Southern Rhodesia.

This species differs from *M. johannis* Arn. by the wide face, more slender joints of the flagellum and the distinctly striated mesonotum. From *minima* And. it differs by the narrower temples, colour of the thorax and the striation of the mesonotum.

***Methoca johannis* n.sp. (Figs. 6, 6a and 6b)**

♀. 4 mm. long. Black. Scapes and first six joints of the flagellum pale ochreous, the remaining joints brown. Legs pale yellowish brown. Apical segment of the abdomen pale brown. Pilosity whitish, much

longer than in *fulgida* Arn. Very much like that species, from which it differs as follows.

Inner orbits less divergent, the face narrower, at its narrowest point not quite one and a half times wider than one eye. Vertex behind the eyes a little longer. Flagellum much thicker, the second joint as long as the third and only one and a half times as long as the first, the seventh and eighth as wide as long, the ninth and tenth a trifle longer than wide, the apical joint three-fifths longer than wide at the base and much blunter at the apex than in *fulgida*. Mesonotum entirely smooth, without striae, the scutate area more convex lengthwise than in *fulgida*. Metanotum longer than in *fulgida*, nearly twice as long as the scutate area of the mesonotum. Epinotum a little shorter than in *fulgida*; otherwise like that species.

Port St John, Pondoland (*R. E. Turner*). Received from the British Museum per Mr Turner as *minima* And., from which it differs, *inter alia*, in colour, the joints of the flagellum, the finer puncturation of the face and the absence of a carinula on the face.

Family **FORMICIDAE**

Subfam. DORYLINAE

Dorylus fulvus Westw. race **rhodesiae** Forel

1913, *Ann. Soc. Ent. Belg.* LVII, 111.

This race should be sunk as a synonym of the race *badius* Gerst. The largest ♂♂ which Forel saw were only the medium-sized specimens. The colour is variable, and the differences which Forel believed were present in the length of the head and the degree of emargination of the occiput are not supported by careful measurement.

Subfam. MYRMICINAE

Tribe PHEIDOLINI

Pheidole capensis Mayr var. **Hewitti** n.var.

1862, *Verh. Zool. Bot. Ges. Wien*, XII, 746.

♂. 5 mm. long. Mandibles, clypeus and anterior part of the head as far as the eyes, yellowish ferruginous, the inner margins of the mandibles and the anterior margin of the clypeus blackish, the rest of the head dark brown. Thorax brown, the dorsum of the epinotum pale ferruginous, abdomen pale brown, antennae and legs yellowish brown. In addition to these colour differences, this caste differs from that of the type in the following characters:

Head only one-seventh longer than wide, widest in the middle; the occipital lobes narrower, the occipito-frontal sulcus shallower and without longitudinal striae on each side of it. Posterior lateral angles of the pronotum widely rounded, the pro-mesonotal suture indistinct.

♀. 2.5 mm. long. Dark brown, the abdomen slightly paler. Mandibles and tarsi brownish ochreous, the antennae and legs pale brown. The longitudinal and sparse rugulosity on the sides of the head ends a little

behind the eyes and does not reach the occipital margin as in the ♀ type of the species.

Cossack Post, Rosmead, Cape Province (J. Hewitt). Type in National Museum, Southern Rhodesia.

Tribe CREMATOGASTRINI

Crematogaster monticola Arn.

1920, *Ann. S. Afr. Mus.* XIV, 517.

This species was described from specimens in the Haviland collection, belonging to the Natal Museum, and preserved in alcohol since 1899. I have recently received fresh specimens from the same locality, collected by Mr L. Bevis. These are undoubtedly the same species, to judge by structural characters, but of quite a different colour. Like other specimens in the Haviland collection, it is evident that the long immersion in alcohol, probably impure, had leached out the colour in the original examples. The colour in the fresh specimens is black, with the mandibles and clypeus fusco-ferruginous, and the antennae very dark brown.

Near Giant's Castle, and Soni Pass, 9000 ft., Drakensberg Mts, Basutoland and Natal.

Crematogaster delagoense For. var. **acutidens** n.var. ✓✓
(Figs. 7, 7a and 7b)

1894, *C. inermis* Mayr, race, *Mitt. schweiz. ent. Ges.* IX, 99.

♀. 3. 3-4 mm. long. This variety differs from the type of the species as follows. Flagellum burnt sienna red, legs reddish brown. The longitudinal striation on the middle of the head extends from the frontal carinae farther back and is more distinct. The pro-mesonotal suture is deeper and the tubercle at the anterior angle of the mesonotum is much larger. Dorsum of the epinotum strongly and closely, transversely rugulose, the epinotal teeth longer and more acute than in the type of the species; the dorsum is also longer, the length measured from the base of the segment to the apex of the teeth being five-sevenths of the width between the apices of the teeth (five-ninths in the typical form).

Weenen, Natal (*H. P. Thomasset*). Type in the National Museum, Southern Rhodesia.

Tribe SOLENOPSIDINI

Genus **Monomorium** Mayr, s.lat.

This genus has been divided by Emery, Forel and others into eleven subgenera, some of which appear to me to be of doubtful value.

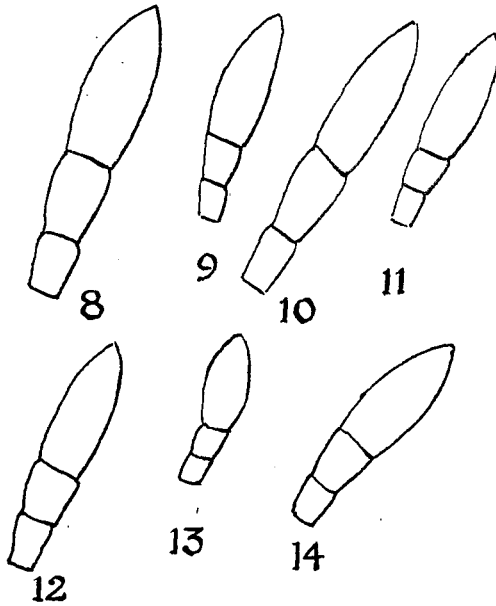
Emery, in his key to the subgenera (*Gen. Insect.* 1922, fasc. 174 B, p. 167), under segregates 4 and 6, differentiates the subgenera *Syllophopsis* Sant. and *Monomorium* Mayr. s.str. from the subgenera *Holcomyrmyx* Mayr, *Parholcomyrmyx* Em. and *Xeromyrmex* Em. as follows:

4. Club of the flagellum 3-jointed; the first being noticeably shorter and smaller than the second; the last joint as least as long as the two preceding joints united.

The first two joints of the club of about equal length.

I have examined several species of the first two subgenera mentioned above, and measurements of the club have been made with a micrometer eyepiece and an Abbé drawing apparatus, and as a result I am forced to the conclusion that these differences are in some cases imaginary, or alternatively, that Emery has placed some species in the wrong subgenera or that the subgenera cannot be defined with any exactitude. A few examples, with Figs. 8-14, will suffice to prove this statement.

Monomorium delagoense For. (subgen. *Xeromyrmex*) should have the first two joints of the club of approximately the same length and width, whereas the measured difference in length for the first and second joints



Club of the antenna, $\times 85$.

Fig. 8. *Monomorium delagoense*. Fig. 9. *M. rhopalocerum*. Fig. 10. *M. ocellatum*. Fig. 11. *M. Arnoldi*. Fig. 12. *M. Prossae*. Fig. 13. *M. minutum-boerorum*. Fig. 14. *M. firmum*.

of the club are as 15:22 and in width 13:15. That is to say that whereas they are much of the same width, the second joint is considerably or one-half longer than the first.

Monomorium rhopalocerum Em. (subgen. *Monomorium* s.str.) should have the first joint clearly shorter and narrower than the second, but the proportions in length are 15:19 and in width 12.5:16.6. The second joint is therefore only a little more than one-fourth longer, and about one-third wider than the first.

A more glaring contradiction is afforded by *M. salamonis*, race *ocellatum* Sant., placed by Santschi and Emery in the subgen. *Xeromyrmex*. Here, far from the first two joints of the club being approximately of the same length, the second is a little more than one-third longer than the

first and one-sixth wider. Other examples are the following, placed by Emery in the subgen. *Monomorium* s.str., in which the first joint should be clearly shorter and narrower than the second:

M. Arnoldi Forel. Second joint only one-twelfth longer than the first.

M. Prossae For. Second joint one-fourth wider, but only a trifle, one-thirty-fifth longer than the first.

M. minutum Mayr, race *boerorum* For. Second joint one-fifth wider and one-seventh longer than the first.

M. firmum Sant. Second joint about one-fourth wider and less than one-third longer than the first.

Furthermore, Santschi (1930, *Rev. Suisse Zool.* xxxvii, 70) remarks that the little group attached by Emery to *M. pharaonis* L. is exactly intermediate between the subgenera *Xeromyrmex* and *Monomorium*, having the club shaped as in the latter but with the dull sculpture of *Xeromyrmex*.

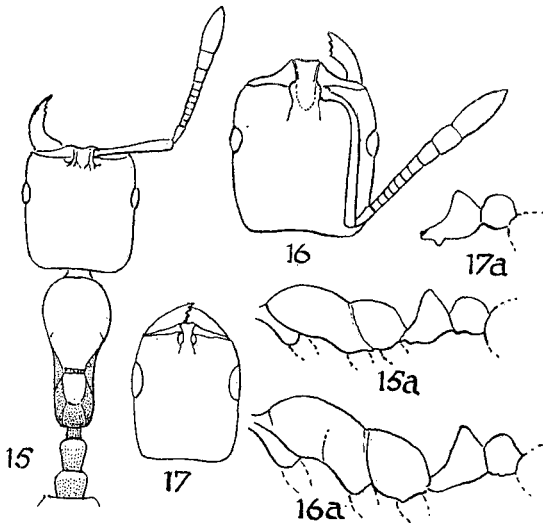


Fig. 15. *Monomorium xanthognathum* ♀, head and thorax, $\times 40$. Fig. 15a. *M. xanthognathum* ♀, thorax, $\times 40$. Fig. 16. *M. Bevisi* ♀, head, $\times 40$. Fig. 16a. *M. Bevisi* ♀, thorax, $\times 40$. Fig. 17. *M. mediocre* race *macrops* ♀, head, $\times 40$. Fig. 17a. *M. mediocre* race *macrops* ♀, petiole, $\times 40$.

Monomorium xanthognathum n.sp. (Figs. 15, 15a)

♀. 1. 7-1.9 mm. long. Pitch black, the mandibles and sides of the clypeus reddish ochreous. Legs blackish brown, the tarsi brown, the basal joint darker or almost black. The whole body, excepting the mesopleura, polished and shining. Mandibles sparsely striate, sides of the clypeus and the cheeks longitudinally striate. There are a few curved striae above the antennal sockets and in the space between them and the clypeus. Mesopleura reticulate, the posterior corners of the sides of the epinotum with a few striae, the rest of the body with a very fine and sparse puncturation from which arises the short, whitish pilosity.

Head almost quadrate, or only slightly narrowed behind and very little (one-tenth) longer than wide in front, the posterior angles rounded, the hind margin straight, the sides nearly straight; the head is seven-tenths wider than the pro-mesonotum. Eyes placed just in front of the middle of the sides. Mandibles quadridentate. Anterior margin of the median area of the clypeus feebly concave. The scapes extend back beyond the hind margin of the eyes by as much as the length of the eyes; first joint of the flagellum as long as the four succeeding joints united. The second joint of the club is very little longer than the first, but distinctly wider, the apical joint three-fourths longer than the first two joints of the club united. Thorax strongly constricted at the mesoepinotal suture; pro-mesonotum half as long again as the epinotum. The dorsum of the epinotum is feebly convex and longer than the declivity. First segment of the petiole bluntly conical, a little longer below than high; the second segment of the petiole one-third wider than the first, subglobose, slightly narrowed caudad and a little wider than long. Anterior corners of the abdomen obtusely angular.

Near Lion's Head, Cape Town, nesting in grassy ground. Type in the National Museum, Southern Rhodesia.

The shape of the club does not quite conform with Emery's diagnosis of the subgenus *Monomorium* s.str., as the first joint is not appreciably shorter than the second, but as the whole club is distinctly longer than the rest of the flagellum and the body is not dull, it should be placed in that subgenus.

***Monomorium Bevisi* n.sp. (Figs. 16, 16a)**

♀. 2. 3-2.5 mm. long. Raw umber brown, the head and abdomen a little darker, the femora, tibiae and petiole a little paler, the flagellum, mandibles and tarsi pale brownish ochreous. Antennae and legs with an oblique whitish pubescence, the body smooth and shining, with a very sparse yellowish white pilosity. Mandibles quadridentate, sparsely punctured, the head with a scanty and microscopic puncturation, otherwise almost impunctate.

Anterior margin of the median area of the clypeus feebly concave, the carinae margining the area distinct, the space between them a little concave. Frontal carinae short. The scapes extend back nearly as far as the occipital margin. Head, excluding the mandibles, nearly one-fourth longer than wide, the sides feebly convex, the hind margin almost straight. Eyes situated a little in front of the middle of the sides. First joint of the flagellum as long as the four following joints united, the first joint of the club one-eighth shorter than the second, the apical joint longer than the three preceding joints united. Head one-third wider than the pro-mesonotum, the latter half as long again as the epinotum, the pro-mesonotal suture obsolete. Dorsum of the epinotum flat and widened caudad, one and a half times longer than wide behind and longer than the declivity. First segment of the petiole with a short peduncle, the node cuneiform, rounded above, as high as long below; the second segment slightly wider than long, a little wider than the first, convex in front and moderately narrowed caudad.

Basutoland (*A. L. Bevis*). Type in National Museum, Southern Rhodesia.

Allied to *M. firmum* Sant. but of a different colour and with a much shorter peduncle to the first segment of the petiole. In *firmum*, the sides of the head, which is more strongly punctured, are much more convex and the node of the petiole is thicker lengthwise.

Monomorium mediocre Sant. race **macrops** n. subsp.

(Figs. 17, 17a)

1919, *Ann. Soc. Ent. Fr.* LXXXVIII, 376.

♀. 1.8–2 mm. long. Head reddish brown, thorax brownish ochreous, the pronotum a little darker, the abdomen dark brown. Legs and antennae brownish yellow, the tarsi paler.

This race differs from the type in colour as shown above, and also in the following structural characters.

Head longer and less convex-sided than in the type of the species, excluding the mandibles one-fifth longer than wide. Eyes much larger, occupying fully one-quarter of the sides. Nodes of the petiole distinctly reticulate above, the first segment of the petiole with a tooth on the underside in front; the post-petiole wider than long, distinctly wider than the first. In the specific form the post-petiole is only as wide as long.

Victoria West, Cape Prov. (*R. Smithers*). Type in the National Museum, Southern Rhodesia.

In Santschi's description of the type the scape is said to extend back as far as the occipital margin. This is incorrect, as is proved by his own text-figure. It falls short of the occipital margin by as much as the length of the eye. In the same figure, the profile of the epinotum is too convex.

Monomorium (subgen. **Xeromyrmex**) **distinctum** n.sp.

(Figs. 18, 18a–f)

♀. 2.5–3 mm. long. Pitch black. Mandibles, clypeus, excepting the median area, and the tarsi brownish yellow, the flagellum dark brown. A sparse yellowish grey pilosity on the body, excepting the epinotum, and on the legs. Meso-metapleura, epinotum and first segment of the petiole dull, the rest of the body shining. Mandibles tridentate, closely striate. Clypeus, frontal carinae and cheeks longitudinally striolate, the space between the antennal sockets and the cheeks transversely so. The rest of the head, excepting a narrow longitudinal strip in the middle, strongly but very sparsely punctured, the interspaces for the greater part from four to six times as wide as the punctures. Pronotum and lateral margins of the mesonotum in front closely, shallowly and more or less concentrically striolate. The posterior half of the mesonotum, the meso-metapleura and the epinotum strongly reticulate-punctate. The nodes of the petiole, excepting the dorsal surface, shallowly reticulate. Abdomen with a few minute punctures.

Median area of the clypeus with a feeble carina on each side, the space between them feebly concave, the anterior margin straight. Head very slightly longer than wide, a little wider in front than behind, the posterior

margin feebly concave. Eyes placed a little in front of the middle and occupying a quarter of the length of the sides, the latter feebly convex. Antennae 12-jointed, the first joint of the flagellum as long as the three following joints united, the second and eighth as long as wide, the third to seventh a little wider than long, the first joint of the three-jointed club as long as the second, the whole club a little longer than the rest of the flagellum. Pro-mesonotum convex, a little longer than wide across the pronotum, the pro-mesonotal suture distinct. Dorsum of the epinotum as long as the mesonotum, widest in the middle, feebly convex transversely, longer than the declivity. The peduncle of the first segment

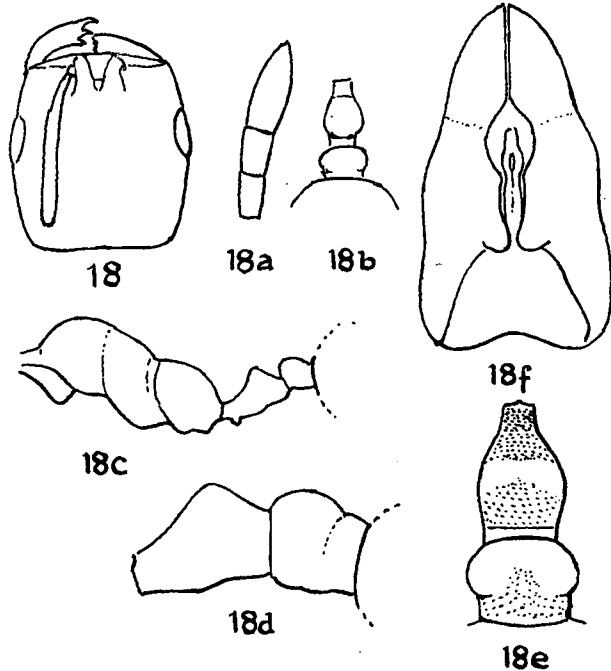


Fig. 18. *Monomorium distinctum* ♀, head. Fig. 18a. *M. distinctum* ♀, club of antenna. Fig. 18b. *M. distinctum* ♀, petiole. Fig. 18c. *M. distinctum* ♀, thorax. Figs. 18d, 18e. *M. distinctum* ♂, petiole. Fig. 18f. *M. distinctum* ♂, genitalia. All $\times 35$.

of the petiole is shorter than the node and has a blunt tooth below near the base, the node is broadly cuneiform, as high as long below, its dorsal edge narrowly rounded from back to front; the second segment is subglobose, wider in front than behind, two-fifths wider than the first and a little wider than long. Anterior corners of the abdomen rounded.

♂. 5.8 mm. long. Black. Tibiae and tarsi dull white, the apical joint of the tarsi fuscous. Wings hyaline. Pilosity yellow and sparse, distinctly long on the mandibles, head and thorax. Mandibles closely striate, the apex broadly rounded. Head dull, closely and finely longitudinally rugose, also reticulate between the ocelli. Pro-mesonotum dull,

shagreened and reticulate-rugulose, the parapsidal sutures and a Y-shaped median area in the anterior half, smooth and shining. Scutellum and sides of the thorax longitudinally rugulose, the scutellum slightly shining, the other parts dull. Epinotum dull, reticulate-rugulose, very finely so except at the bottom of the sides and on the declivity. Petiole reticulate, the second node slightly shining. Abdomen shining.

Scapes twice as long as wide, the first joint of the flagellum subcylindrical, a little longer than wide, all the remaining joints much longer than wide. Ocellar area raised, the posterior ocelli twice as far from each other as from the anterior ocellus and a little farther from each other than from the eyes. Mesonotum narrowed and strongly convex in front, as long as wide behind. Scutellum narrowly scutate and including the cuneoli as wide in front as long, the sides vertical. Dorsum of the epinotum moderately widened caudad, one and a half times longer than wide behind, feebly concave, its junction with the oblique sides and declivity widely rounded. First segment of the petiole one and a half times longer than high, the node shallowly impressed lengthwise and a little narrower than the second node, which is as wide in front as long and slightly wider in front than behind. Apical half of the stipites yellowish white, blade-shaped, the apex broadly rounded.

Weenen, Natal (*H. P. Thomasset*). Types in National Museum, Southern Rhodesia.

Not closely related to any other South African species; the sparse and coarse puncturation of the head is distinctive.

Monomorium Emeryi Mayr

1895, *Ann. naturh. (Mus.) Hofmus., Wien*, x, 132.

This species has been placed by Emery (*Gen. Insect. fasc. 174 B, 1922*) in the subgenus *Xeromyrmex*. According to the structure of the antennae in the ♂ and ♀ it should be transferred to the subgenus *Parholcomyrmex*.

Monomorium salamonis L.

1758, *Syst. Nat.* x, 580.

In Emery's work (*supra cit.*) this species was divided into thirteen subspecies, with several varieties. In a revision by Santschi (1927, *Bull. Ann. Soc. Ent. Belg.* LXVII, 240-5) some of these were raised to specific rank, a step which clarified the position to some extent but still left it in an unsatisfactory state. He correctly separated *subopacum* Smith from *salamonis* and raised it to specific rank, and in a later paper (1928, *Rev. Zool. Afr.* XVI, 192) in describing a var. *serenum*, did the same for *delagoense* For., originally described as a subspecies of *salamonis*, by citing it as a species, but without comment or explanation. His separation of *subopacum* is based on the wider first two joints of the antennal club in the ♀ and ♂, and also in the greater convexity of the epinotum in the ♀. I have no specimens of *salamonis* i.sp. at hand for comparison, and of the four South African forms assigned to that species by Forel and Santschi, viz. race *ocellatum* Sant. race *herero* For., var. *willowmorensis* For. and var. *belli* For., the ♀ is known only in *ocellatum*,

in which the profile of the epinotum bears no resemblance to the figure given by Santschi of the typical form. This point may, however, be set aside for the moment, since reasons will be given further on for treating *ocellatum* as a distinct species.

It was in the attempt to assign a new variety, *lacrymans*, described below, to either *delagoense* or *salamonis* that some characters in the ♂♂ were observed which I believe will serve to place at least the South African races and varieties in their proper place. These characters are indicated in the following key.

- (2) 1. Posterior corners of the head and the anterior corners of the pronotum each with an erect seta; first segment of the abdomen broad at the base, the length of the segment only twice as great as the basal width, five-sevenths wider at the hind margin than at the base, wider behind than long, or nearly so. **delagoense** Forel
- (1) 2. Posterior corners of the head and anterior corners of the pronotum without setae.
- (4) 3. First segment of the abdomen narrow at the base, the length three times as great as the basal width, nearly twice as wide at the hind margin as at the base and three-eighths longer than wide behind; head as dull as, and nearly as strongly reticulate as the thorax. **subopacum** Smith
- (3) 4. First segment of the abdomen somewhat trapezoidal, not or very rarely longer than wide behind; middle of the head and at least the pronotum slightly shining, the reticulate sculpture on those parts very superficial, the meshes much less raised than on the epinotum. (*salamonis* L.), race **herero** and vars. **belli** and **willowmorensis** For.

The setae in *delagoense* and its varieties are frequently broken off, but usually at least one remains whole. Another character which distinguishes *delagoense* is the less convex posterior face of the first node of the petiole.

According to the above key, the subspecies and varieties should be assigned to the three species as follows (the original position as described by their authors is stated in brackets):

M. delagoense For.
subsp. *junodi* For.
var. *grahamstownensis* For.

M. subopacum Smith.
var. *opacior* For. (*salamonis* L. var.).
var. *serenum* Sant. (*delagoense* For. subsp. *junodi* For. var.).
subsp. *nitidiventre* Em. (*bicolor* Em. subsp.).

M. salamonis L.
subsp. *herero* For. with vars. *belli* and *willowmorensis* For.

Monomorium ocellatum Santschi

1919, *salamonis*, race, *Ann. Soc. Ent. Fr.* LXXXVIII, 377.

Arnold, 1916, *salamonis*, race *australe* Forel (nec Emery) *Ann. S. Afr.*

Mus. XIV, 225.

Arnold, 1926, *salamonis* race *ocellatum* Arn. *Ann. S. Afr. Mus.* XXIII, 229.

This should be considered a distinct species, on account of the following characters.

♂. A median ocellus, or at least a little pit in place of it, is present.

♀. Seen in profile, the dorsum of the epinotum forms a subacute angle with the declivity.

Monomorium delagoense For. var. **lacrymans** n.var. (Fig. 19)

1894, *Mitt. Schweiz. Ent. Ges.* ix, 87.

The comparison of this variety with the typical form is based on specimens collected by Haviland and determined as *delagoense* by Forel. These are not dark brown like the type from Delagoa Bay, but reddish brown on the head and abdomen and almost ferruginous on the thorax, a condition due to the colour having been leached out by a long immersion in alcohol. The variety differs from these as follows.

♂. 3.7 mm. long. Larger than the type (3 mm.) long. The legs and antennae are reddish brown, but the body is almost black. Head one-sixth longer than wide (one-fifth in the type), with a sparse but quite distinct puncturation superimposed on the reticulate sculpture, except on the sides. Dorsum of the epinotum distinctly concave in its posterior half, less so in the anterior, but more so than in *delagoense* i.sp. Second segment of the petiole more narrowed caudad; basal angles of the abdomen less rounded.

Weenen, Natal (*H. P. Thomasset*). Type in the National Museum, Southern Rhodesia.

Monomorium delagoense var. **pretoriensis** n.var.

♀. 3.3 mm. long. Colour as in the var. *lacrymans*. It differs from it, and also from the typical form, in having the reticulate sculpture of the head as strong as that of the thorax and in the dull surface of that part, which in *lacrymans* is slightly glossy, as in the typical form. The greyish pilosity on the first abdominal segment, although sparse, is more abundant than in *lacrymans*.

Pretoria (*J. C. Faure*). Type in the National Museum, Southern Rhodesia.

Tribe PLAGIOLEPIDINI Forel

Acantholepis quadraticeps n.sp. (Figs. 20, 20a)

♂. 1.8-2.2 mm. long. Black. Mandibles, scapes and anterior tibiae yellowish brown, tarsi dull ochreous, the rest of the legs and the flagellum dark brown. Entirely dull, excepting the femora, tibiae and petiole. Head and thorax with a fine, white and oblique pubescence, not very abundant. Abdomen with a semi-erect, long and white pilosity. Mesometapleura and sides of the epinotum closely and obliquely striate, the mesonotum longitudinally striolate, the meta-epinotal suture clathrate, the rest of the thorax and the head with a scabrous or granulate sculpture which is barely resolvable with a magnification of even 75 diameters. Petiole smooth. Abdomen microscopically rugulose, not quite so dull as the thorax. Mandibles striate, punctured near the apical margin, with

four acute teeth. Clypeus very convex transversely, subcarinate lengthwise in the middle, the apical margin straight. Head quadrate, barely one-ninth wider behind than in front, very convex and a trifle longer than wide behind, the posterior angles rounded. The scapes extend beyond the hind margin of the head by a distance equal to their apical width; all the joints of the flagellum longer than wide, the apical joint as long as the two preceding joints united. Eyes flat and large, occupying nearly one-third of the sides, placed at about the middle. Pronotum moderately convex above and at the sides, nearly one and a half times wider than long. Mesonotum twice as wide as long, its hind margin obtusely angular caudad. Metanotum two and a half times wider than long, longer at the sides than in the middle, impressed in the middle and

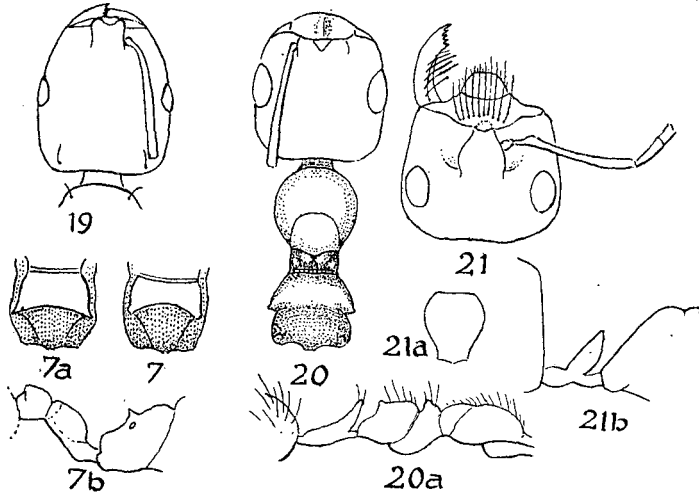


Fig. 7. *Crematogaster delagoense* ♀, epinotum, $\times 24$. Figs. 7a, 7b. *C. delagoense* var. *acutidens* ♀, epinotum and petiole, $\times 24$. Fig. 19. *Monomorium delagoense*, var. *lacrymans* ♀, head, $\times 24$. Figs. 20, 20a. *Acantholepis quadraticeps* ♀, head and thorax, $\times 40$. Fig. 21. *Camponotus simulans* ♂, head, $\times 14$. Figs. 21a, 21b. *C. simulans* ♂, scale of petiole, from behind and from the side, $\times 14$.

therefore somewhat tuberculate at the sides. Meta-epinotal suture deep. Dorsum of the epinotum widened caudad, one and a half times wider behind than in front, convex lengthwise, the posterior angles not distinctly dentate but raised into blunt conical tubercles. The declivity of the epinotum is as long as the dorsum, feebly concave, its stigmata at the base prominent. Petiole a little longer than the scale is high, the latter ovoid, feebly convex in front, flat behind, the dorsal edge slightly emarginate. Abdomen oval.

♂. 2.2 mm. long. Head black, thorax and abdomen brown, legs and antennae pale brown. Wings hyaline, tinged with fuscous, the veins yellowish brown. Smooth and shining, the mesonotum with a fine and sparse puncturation. Mandibles dull, striolate and quadridentate. Clypeus gibbous. Head, including the eyes, a little wider than long

(excluding the mandibles), the middle fourth of its length slightly concave. Eyes large, occupying nearly half of the sides. Ocellar area raised, the posterior ocelli twice as far from each other as from the anterior ocellus. The scapes extend beyond the hind margin of the head by one-third of their length. First joint of the flagellum nearly as long as the second and third united, all the joints longer than wide. Mesonotum flattened, nearly one-fourth wider than long; scutellum strongly convex. Epinotum fully twice as wide at the base as long. Scale of the petiole trapezoidal, widest above, the dorsal edge straight. Wings long, extending beyond the apex of the abdomen by fully half their length.

Matopo Hills, Southern Rhodesia. Nesting in the ground under decayed leaves. Types in the National Museum, Southern Rhodesia.

Not closely related to any of the other Ethiopian species; clearly characterized by the peculiar microscopic sculpture of the head and thorax, the rather square head and the long white pilosity of the abdomen.

Tribe CAMPONOTINI Forel

Camponotus (subgen. **Myrmopsamma**) **simulans** Forel
(Figs. 21, 21a and 21b)

1910, Schultze, *Reise Süd-Afr.* IV, 27, ♀.

This species was based on two workers minor found between the jaws of a *Camponotus mystaceus* Em. var. *exsanguis* For. It was suggested by Forel that it might be a parasitic species, but that idea cannot be sustained since I have found it in nests entirely devoid of any other species.

The workers minor taken in these nests agree with Forel's description in every particular except in the size and position of the eyes and the width of the head in front, of which he says: 'Eyes every large, somewhat behind the middle of the sides and occupying almost half of the same (clearly longer than their distance from the anterior margin of the head and *three* times longer than their distance from the posterior margin).' In view of this very definite statement, and in the absence of an opportunity to check it by an examination of the type, it would have been expedient to consider these Rhodesian specimens a distinct variety, but for the fact that the figure of the head, in the plate illustrating the paper, contradicts Forel's statements and shows that the size and position of the eyes and the length of the head is as follows.

The eyes occupy only three-sevenths of the sides of the head and are separated from the anterior margin, i.e. at the base of the mandibles, by a distance equal to their own length, and from the occipital margin by a distance equal to two-thirds of their length. Head, excluding the mandibles, a little longer than wide, not wider in front than behind.

♂. 7 mm. long. Honey yellow, the mandibles, clypeus and apical half of the abdomen, slightly reddish yellow. Legs pale ochreous. Eyes black. Mandibles striato-punctate, with five blackish teeth. Mesometapleura and the epinotum very finely rugulose and moderately shining, the rest of the body very shining, sparsely and very finely punctured. Labrum exposed, large and trapezoidal. Clypeus with a row of ammochaetae near the base as in the ♀, its anterior margin straight. Head a

trifle wider behind than in front, as long as wide in front. Eyes placed a little behind the middle, occupying one-third of the sides. Dorsum of the epinotum widened caudad, one and a half times longer than wide behind, half as long as the oblique and flat declivity. Scale of the petiole thin, feebly convex in front and behind, widest above, the sides feebly convex, the dorsal edge acute and straight. Otherwise like the ♀ minor.

♀ media. 5-6 mm. long. Like the ♂, but the dorsum of the epinotum is longer, about two-thirds the length of the declivity.

Lupane, Southern Rhodesia. Two ♂, six workers media and twelve workers minor were taken from three small nests. These nests were in a loose and pale yellow sand, more or less matching the colour of the insects, so that, but for their black eyes, it was difficult to distinguish them from their surroundings. The entrance to the nests was a small hole, without a crater or any excavated material around it.

Family SPHECIDAE

Subfam. TRYPOXYLONINAE

Trypoxylon chirindensis Arn. race **nodosum** n.subsp. (Figs. 22, 22a)

1936, *Occ. Pap. Rhod. Mus.* no. 5, p. 35.

♀. 12-14.5 mm. long. As in the type of the species the first segment of the abdomen is two and a third times longer than the second, but the proportions of the two segments are different. The first is from five and a half to six times longer than the apical width, and the second is nearly twice as long as the apical width. Although there is a moderate range of variation in the length of the petiole in several species of this genus, the differences here are too great and too constant, in a series of twenty-five specimens, to be due to individual variation only. Another difference lies in the more abrupt posterior dilatation of the petiole, forming a distinct node. Otherwise like the type of the species.

Vumba Mts, Southern Rhodesia. Type in the National Museum, Southern Rhodesia. Many specimens taken collecting mud from the banks of a small brook.

Trypoxylon abditum Arn. (Figs. 23, 23a)

1924, *Ann. Trans. Mus.* XI, 24, ♂.

♀. 11.5-12 mm. long. (hitherto undescribed). Colour and punctuation as in the ♂, excepting the epinotum, which, as in the majority of the species of the genus, is more finely and less closely sculptured than in the other sex. The sculpture of the epinotum is very much like that of *T. Stroudi* Grib. ♀, to which species this one is related, but it is finer. It consists of transverse rugae, curving caudad and extending across the median area to the outer margins of the lateral areas; the interspaces between the rugae are superficially and closely striolate (smooth in

Stroudi ♀), and the declivous posterior part of the epinotum is more narrowed caudad than in that species. The petiole is slightly narrower across the node, the length of the segment being five times greater than the width of the node (four and a half times in *Stroudi* ♀). Posterior ocelli separated from the eyes by two-thirds of the diameter of the ocellus (by very nearly the diameter of the ocellus in *Stroudi*). Punctuation of the mesonotum and of the scutellum deeper than in *Stroudi*; otherwise like that species.

Matopo Hills, Southern Rhodesia.

***Pison rufitarse* n.sp.**

♀. 9.8 mm. long. Black. Tarsi, apical and basal fifths of all the tibiae, the extreme apex of the fore and middle femora and the hind femora, excepting a black streak on the upper side not reaching the base and apex, ferruginous. Wings hyaline, the apical margin slightly smoky. Clypeus

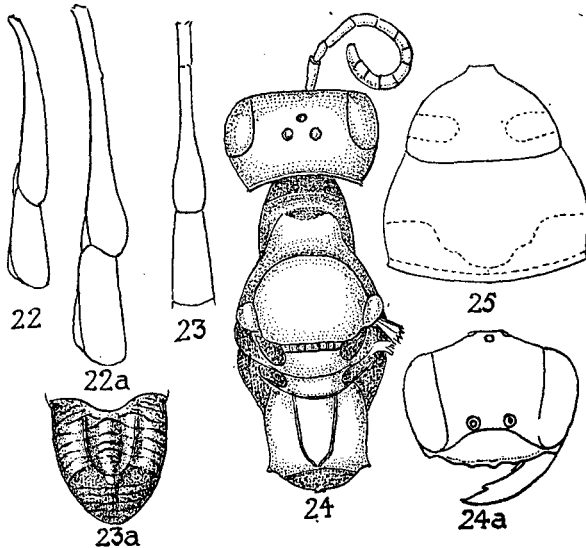


Fig. 22. *Trypoxylon chirindensis* ♀, first two segments of abdomen, $\times ca$ 10. Fig. 22a. *T. chirindensis* race *nodosum* ♀, first two segments of abdomen, $\times ca$ 10. Fig. 23. *T. abditum* ♀, first two segments of abdomen, $\times ca$ 10. Fig. 23a. *T. abditum* ♀, epinotum, $\times ca$ 14. Fig. 24. *Alysson Guillarmodi* ♀, head and thorax, $\times ca$ 14. Fig. 24a. *A. Guillarmodi* ♀, head, $\times ca$ 14. Fig. 25. *Gorytes lepidus* ♀, first two segments of abdomen, $\times ca$ 14.

and face below the ocular sinus with a short and not dense silvery pubescence. Thorax with a very short, sparse and greyish pubescence. Apical margins of the first three tergites with fasciae of greyish pubescence, the rest of the abdomen with a microscopic pubescence of the same colour.

Clypeus twice as wide as long, moderately convex, the anterior margin

convex, its apical fourth slightly produced, smooth and shining, the rest of the clypeus dull, closely and finely punctured, subcarinate in the middle at the base. Face and vertex dull, with a fundamental reticulation which is barely visible with a magnification of less than 30 diameters; on this is superimposed a fine puncturation, the interspaces about three times wider than the punctures in the middle of the face, somewhat smaller at the sides and above. Temples shining, finely and closely punctured. Pro-mesonotum, scutellum and metanotum feebly shining, with a fundamental reticulation like that of the face, and with puncturation superimposed. The punctures on the pronotum are a little smaller than on the face and closer together, on the mesonotum and scutellum as large as on the face but wider apart, and on the metanotum much finer and closer. Mesopleura shining, more strongly punctured than the mesonotum, the interspaces two to three times as wide as the punctures. Metapleura smooth and shining. Dorsum of the epinotum shining, carinate lengthwise in the middle, strongly and obliquely rugose on each side, the rugae attenuated caudad, the sides of the epinotum dull, closely, finely and transversely rugose, the declivity shining and more coarsely rugose than the sides.

Tergites 1-4 moderately shining, with a fine and very shallow puncturation, the fifth and sixth tergites dull and more closely punctured. Sternites shining, with a sparse puncturation somewhat smaller and shallower than that of the mesonotum, the apical sternite, except at the base, dull, coriaceous and closely punctured. Interocular distance on the vertex equal to the length of the first three joints of the flagellum. The second joint of the latter is twice as long as wide and barely longer than the third. Posterior ocelli a little nearer to the eyes than to each other, their distance from the eyes clearly less than their own diameter. Pronotum five times wider in the middle than long, the shoulders rounded, tumid in the middle, transversely impressed in front of the hind margin. Dorsum of the epinotum twice as wide at the base as long, moderately narrowed caudad. Fore wing with three cubital cells, the second small and petiolate, the petiole twice as long as the cell is high; second recurrent vein interstitial with the proximal angle of the third cubital cell. Stigma and veins blackish.

Selukwe; Southern Rhodesia. October (*R. H. R. Stevenson*); type in coll. Stevenson, paratype in the National Museum, Southern Rhodesia. Larger than any other African species and related to *P. carinatum* Turn. but with a sparser puncturation and with red tarsi.

Subfam. NYSSONINAE Hndl.

Tribe ALYSSONINI Börn.

Alysson Guillarmodi n.sp. (Figs. 24, 24a)

♀. 7 mm. long. Black. Basal half of the mandibles, a broad triangular mark on the anterior half of the clypeus, the undersides of the scapes and a broad streak on each side of the face, wider above than below, pale

yellow. First abdominal segment, the second excepting the apical fourth, and the extreme base of the third tergite, red. Wings hyaline, the veins black, the radial cell and a cloud which covers the second cubital cell, the adjacent parts of the first and third cubital cells and the distal upper corner of the second discoidal cell, pale fuscous. A very fine, decumbent, sparse and whitish pubescence on the whole body; clypeus, mandibles, thorax, excepting the epinotum, and apical margins of the abdominal segments with a long, erect and white pilosity; the underside of the femora with a row of long white hairs. Fairly shining, the first two tergites distinctly shining.

Head closely and finely punctured, the puncturation of the pronotum and mesonotum as close as that of the head but a little larger, the neck and sides of the pronotum rugulose-punctate, the mesopleura with a few fine rugae near the hind margin, the epicnemium; scutellum and metanotum more finely punctured than the head. Dorsum of the epinotum reticulate-rugose, the rugae oblique, and strongest at the base of the median scutate area, the latter one-third longer than wide at the base; the sides of the epinotum obliquely rugulose and finely punctured. First tergite finely and very sparsely punctured, the first sternite longitudinally rugulose, the second to fifth tergites and sternites finely and closely punctured, the sixth tergite closely punctured, the punctures with decumbent brownish spines, the sixth sternite smooth and shining. Clypeus two and a half times wider than long, the apical margin tridentate. Mandibles with a small tooth behind the acute apex. Inner orbits moderately convergent below. Interocular distance on the vertex equal to the length of the first three joints of the flagellum plus half of the fourth. Posterior ocelli half as far again from the eyes as from each other. Second joint of the flagellum a little longer than the third and nearly three times longer than wide at the apex. Pronotum long, only one-fifth wider at the level of the pro-mesonotal suture than long, the neck broad and long and half as long as the raised posterior part; the latter a little narrowed in front and twice as wide behind as long. Mesonotum one-sixth wider than long and hardly one-fifth longer than the pronotum. Mesopleura protuberant, as usual in the genus, plainly visible from above. The suture between the mesonotum and the scutellum deep and clathrate. Dorsum of the epinotum subquadrate, a little wider than long, the lateral margins feebly convex, the posterior corners bearing a triangular tooth.

Second cubital cell petiolate, the petiole two-thirds as long as the second abscissa of the radius. The first recurrent vein interstitial with the first transverse cubital vein, the second entering the second cubital cell at one-fifth of its length from the second transverse cubital vein.

Mamathes, Basutoland. 1 ♀. April (*C. Jacot-Guillarmod*). Type in the National Museum, Southern Rhodesia.

The discovery of this species in the mountains of Basutoland is of great interest, since it is the first of its genus recorded from the Ethiopian Region, but I have recently described, in a work as yet unpublished, two from Eastern Madagascar. Other species of the genus may be expected to occur in the mountainous parts of Eastern Africa. The genus is represented in Europe, North America and India.

Tribe GORYTINI A. Costa

Gorytes lepidus n.sp. (Fig. 25)

♀. 6.8 mm. long. Black. The following parts whitish yellow: a round spot in the posterior angles of the clypeus, the sides of the face, more widely below than above, the dorsal edge of the pronotum excepting the middle third, the pronotal tubercles, posterior half of the scutellum, transverse, oval and pre-apical maculae on each side of the first tergite, an apical band on the second tergite narrow in the middle and abruptly dilated laterad, and the fifth tergite. Mandibles ferruginous, blackish at the base and apex. Anterior tibiae and tarsi pale ferruginous; the tibiae with a fuscous streak on the outside. Wings hyaline, the veins black. Pubescence on the clypeus white, not very dense, on the rest of the body there is a microscopic pruinose pubescence. Head and thorax nitidulous, the first two tergites shining, the rest of the abdomen dull. On the head and thorax, excepting the epinotum, there is a primary puncturation which is barely visible with a magnification of less than 75 diameters. Superimposed on this there is on the face, vertex and pro-mesothorax a stronger puncturation which is fairly sparse, somewhat larger on the thorax than on the head, the interspaces being from four to five times as large as the punctures, except on the scutellum where the punctures are smaller and wider apart. The largest punctures are on the mesopleura. Metapleura and anterior third of the sides of the epinotum smooth. Median area of the epinotum longitudinally rugose and also slightly reticulate caudad, longitudinally grooved in the middle; the lateral areas of the dorsum strongly and obliquely rugose, the posterior part of the sides and the declivity strongly reticulate-rugose.

First tergite finely and very sparsely punctured, the second tergite with a primary puncturation larger than that of the thorax and a secondary one about as large as that of the head. Second and sixth sternites shining and with large scattered punctures, the third to fifth tergites and sternites closely and finely punctured, the pygidial area strongly punctured, triangular and narrowly rounded at the apex. Clypeus nearly four times wider than long, its apical third inflected, smooth and shining, the anterior margin straight. Inner orbits subparallel. Interocular distance on the vertex equal to the length of first three joints of the flagellum plus two-thirds of the fourth joint. Posterior ocelli twice as far from each other as from the eyes. Flagellum short and stout, the second joint nearly three times as long as wide at the apex and as long as the third. Temples as wide as the eyes. Mesonotum five-ninths wider than long. Scutellum flat. Dorsum of the epinotum very slightly narrowed caudad, twice as wide at the base as at the hind margin. First and second abscissae of the radius of equal length, the third twice as long as the second.

Mamathes, Basutoland. 1 ♀. February (*C. Jacot-Guillarmod*). Type in the National Museum, Southern Rhodesia.

This species differs from all the other Ethiopian species by its colour, and is related to *G. rufithorax* Brauns.

Subfam. BEMBICINAE

Bembix Stevensoni Arn.

1929 December, *Ann. Trans. Mus.* XIII, 331, ♂.

As the specific name is preoccupied by *Stevensoni* Parker (June 1929) a new name is required, for which *triangulifera* is proposed. This is in reference to a character which was overlooked in my original description. The metatarsus of the middle pair of legs has a triangular dentiform expansion on the underside a little behind the apex. A correction of a *lapsus calami* in the original description may also be made here; the word 'tergite' in lines 18 and 19 should of course read 'sternite'.

♀. 13 mm. long (hitherto undescribed). The extent of the pale markings is as in the ♂, but the colour is everywhere lemon-yellow. Sixth tergite yellow, excepting at the base and sides, coarsely and sparsely punctured. Interocular distance on the vertex equal to the length of the first four joints of the flagellum plus half of the fifth. Second joint of the flagellum three and a half times longer than wide at the apex and nearly two-thirds longer than the third joint. Metatarsi of the middle pair of legs simple, without the expansion present in the ♂. Otherwise like the ♂.

Umgusa Valley, Southern Rhodesia. National Museum, Southern Rhodesia.

Subfam. LARRINAE

In a work on the Sphecidae of eastern Madagascar which I have recently completed and which is now awaiting publication, the synonymy of some African species of the subfamily has been established. Since in the present circumstances the publication of that work may be delayed for an indefinite period, I take this opportunity of bringing forward these corrections herewith:

Larra proditor Kohl (1891) = race of *L. betsilea* Sauss. (1887).

Motes (*Notogonia*) *transvaalensis* Cam. (1910) *griseola* Arn. (1923) = race of *N. antaca* Sauss. (1892).

Motes felina Arn. (1923) = race of *N. alaris* Sauss. (1892).

Motes nigricans Wlk, race *palumbula* Kohl (1894) = *N. reticulata* Sauss. (1892).

Furthermore, in the work referred to above I have given reasons for reducing *Motes* Kohl (= *Notogonia* A. Costa, *Notogonidea* Rohwer, *Leptolarra* Cam.) to the rank of a subgenus of *Liris* F. from which it differs only in having the mandibles excised on the lower margin.

Larra erythropyga Turn. (Fig. 26)

1916, *Ann. Mag. Nat. Hist.* XVII, 251, ♀.

♂. 12-17 mm. long (hitherto undescribed). Spines on the legs yellowish red, otherwise entirely black. Wings flavo-hyaline, the veins flavo-ferruginous. As usual in the genus, in this sex the integument is dull and much more strongly sculptured and more pubescent than in the ♀.

Head and thorax with a dense, erect, short and whitish pubescence, the abdomen with a decumbent brownish grey pubescence and with apical fasciae of longer white pubescence on the first five segments. Head and thorax closely punctured, the face, anterior part of the vertex and the dorsum of the epinotum reticulate-punctate. The punctures are largest on the vertex behind the transverse post-ocellar impression, where the interspaces are about twice as wide as the punctures and somewhat shining, not much smaller but closer on the mesonotum and mesopleura and smallest on the clypeus, temples and pronotum.

The interspaces on the scutellum and metanotum are shining. Sides of the epinotum with a few fine and oblique rugae in front. Femora moderately shining, closely and finely punctured. Abdomen closely and finely punctured.

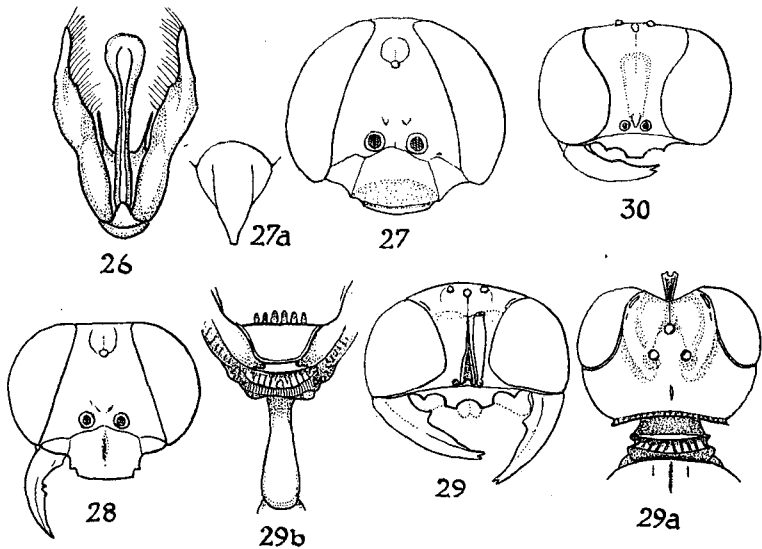


Fig. 26. *Larra erythrogyga* ♂, genitalia, $\times 14$. Figs. 27, 27a. *Tachysphex lacertosus* ♀, head and pygidium, $\times 8$. Fig. 28. *Tachytes gracilicornis* ♀, head, $\times 6$. Figs. 29, 29a. *Crabro canaliferus* ♀, head, $\times ca 14$. Fig. 29b. *C. canaliferus* ♀, epinotum and petiole, $\times ca 14$. Fig. 30. *C. cruentatus* ♀, head, $\times ca 14$.

Clypeus three and a half times wider than long in the middle, the apical margin feebly convex. Inner orbits divergent below, the interocular distance at the base of the eyes being half as great again as on the vertex, where it is equal to the length of the first four joints of the flagellum. The second joint of the flagellum is nearly twice as long as wide at the apex and four-fifths longer than the third. The dorsum of the pronotum is shorter than in the ♀, and its anterior face is vertical. Dorsum of the epinotum a little wider at the apex than long and slightly wider there than at the base, the posterior corners rounded.

Mamathes, Basutoland. February (*C. Jacot-Guillarmod*). Numerous specimens of both sexes were taken and, according to the collector, it is

a common species in that locality. The type was taken near Lake Chilwa, Nyasaland.

***Larra impressifrons* Arn.**

1923, *Ann. Trans. Mus.* XI, 224, ♂.

♀. 16 mm. long (hitherto undescribed). Black. Clypeus and anterior pair of legs, excepting the coxae and trochanters, pale ferruginous. Antennae ferruginous, becoming gradually darker towards the apex, so that the last five joints are almost black. Wings pale brown, the veins black. Clypeus, vertex and temples with a fairly dense, short and whitish pubescence, the dorsum and sides of the thorax and the first four tergites with a very fine, sparse and greyish pubescence, the underside of the thorax with a dense yellowish grey pubescence. Clypeus, face, vertex and abdomen, excepting the base of the second sternite, shining, the rest of the body dull.

Clypeus finely and sparsely punctured, the anterior third with a few large and shallow punctures. Lateral tori on the face impunctate, the rest of the face and the vertex very finely and sparsely punctured, the temples closely punctured.

Pro-mesothorax closely, shallowly, and finely punctured, the interspaces on the mesonotum a little wider than the punctures, and on the mesopleura two to three times as wide; the puncturation on the mesopleura twice as large as on the mesonotum. Dorsum and declivity of the epinotum closely and transversely rugulose, the basal half of the dorsum also reticulate, the sides of the epinotum finely and shallowly punctured, the interspaces about five times as wide as the punctures. Second sternite with a feeble puncturation in its basal half, the pygidial area with a few small punctures, the rest of the abdomen almost impunctate.

Clypeus three times wider than long, the anterior margin convex. Interocular distance on the vertex equal to the length of the second joint of the flagellum plus one-third of the first joint; the inferior interocular distance three times greater than the superior. Second joint of the flagellum nearly three times longer than wide. Mesonotum narrowed cephalad, two-fifths wider across the middle than at the anterior margin, and one-sixth wider in the middle than long. Dorsum of the epinotum parallel-sided, as long as wide. Pygidial area one and a half times longer than wide at the base, the lateral margins depressed and feebly convex, the apex narrowly truncate.

Winkel Spruit, Natal. National Museum, Southern Rhodesia.

***Tachysphex lacertosus* n.sp. (Figs. 27, 27a)**

♀. 14 mm. long. Black. Basal half of the mandibles, the fore and middle tibiae on the inside, the fifth and sixth sternites and the sixth tergite and the last two joints of all the tarsi, dark ferruginous. Wings flavo-hyaline, the veins and pterostigma pale yellowish brown. Clypeus, face and dorsum of the pronotum with a dense and dull silvery pubescence. On the thorax and first four tergites the pubescence is microscopic and greyish, brownish grey on the fourth tergite; the first three tergites have broad apical fasciae of silvery pubescence.

Apical half of the median area of the clypeus shining, finely and sparsely punctured, the rest of the head and the thorax very finely reticulate-punctate and dull, except the declivity of the epinotum which is shining and strongly, transversely rugose. The puncturation of the dorsum of the epinotum is a little larger than on the rest of the thorax and the sides of that segment have a feeble and oblique rugosity on the posterior third. Sixth tergite shining, feebly punctured in the upper half of the sides, the pygidial area sparsely and sharply punctured, the sixth sternite slightly shining, shallowly and strongly punctured in its apical half; the rest of the abdomen dull and microscopically reticulate-punctate. Inferior interocular distance (across the base of the clypeus) nearly three times greater than the superior, the latter slightly less than the length of the first two joints of the flagellum. Median area of the clypeus two-thirds wider than long, the apical margin depressed and moderately convex. Flagellum slender, all the joints at least two and a half times longer than wide, the second joint as long as the third and very nearly three times longer than wide. Dorsum of the pronotum not linear, about as long as the first joint of the flagellum. Dorsum of the epinotum moderately narrowed caudad, three-fourths wider at the base than long, margined behind by a sharp carina which is interrupted in the middle. Pygidial area narrowly scutate, nearly twice as wide at the base as long. Spines on the legs ochreous, the tarsal comb long, the basal joint with seven spines; the joints of the hind tarsi fairly short, the tibia being as long as the first four tarsal joints united.

Khami, Southern Rhodesia. 1 ♀. March. National Museum, Southern Rhodesia.

Another specimen from the Insuza River Valley, Southern Rhodesia, represents a slight variety in which the abdomen is entirely black.

The species is not closely related to any of the other African species with similar colouring. It is distinguished from *T. Oberon* Arn. and *T. Barkeri* Arn. by its greater size, the slender antennae and the sculpture of the thorax. The wings are more yellowish than in those two species.

***Tachysphex Georgii* Arn. race *montivagus* n.subsp.**

1940, *Ann. Trans. Mus.* xx, 122, ♀.

♀. 8-10 mm. long. Differs from the type of the species as follows. Anterior tibiae ferruginous above, blackish below. Puncturation of the mesonotum finer and closer. Sides of the epinotum strongly and transversely striate over the whole of their width. Dorsum of the epinotum twice as wide at the base as long (one and a half times in the type of the species).

Mamathes, Basutoland. 3 ♀♀. March (*C. Jacot-Guillarmod*). Type in the National Museum, Southern Rhodesia.

In two of the three specimens, including the type, the first two abdominal segments are red and the rest black; in the remaining specimen the third segment is brownish black, as in *Georgii*, i.sp.

Tachytes gracilicornis n.sp. (Fig. 28)

♀. 13 mm. long. Black. Middle third of the mandibles and apices of the tarsal joints, fusco-ferruginous. Calcaria pale ferruginous, the spines on the legs ochreous. Tegulae pale testaceous, wings hyaline, the veins brownish yellow. Decumbent pubescence on the head pale silvery, on the thorax yellowish grey. First four tergites with apical fasciae of greyish pubescence. Pilosity long and yellowish white, fairly dense on the head and thorax; on the base of the abdomen white. Vertex finely and very sparsely punctured, the rest of the head and the thorax closely and finely punctured. Sternites finely and sparsely punctured, moderately shining. Pygidial area covered with coppery red setae.

Median area of the clypeus much more produced than in other Ethiopian species, being only one-sixth wider at the anterior margin than long. Vertex wide, the interocular distance there being equal to the length of the first two joints of the flagellum plus three-eighths of the third joint. Flagellum much more slender than in the females of the other Ethiopian species, all the joints excepting the first being at least nearly three times longer than wide; the second joint three and a half times longer than wide at the apex and about one-sixth longer than the third. Dorsum of the epinotum distinctly short, only two-thirds as long as the scutellum, and with a longitudinal median impression. Basal joint of the anterior tarsi with six spines. Galea two-thirds as long as the scape.

Amatongas Forest, Portuguese East Africa. 1 ♀ (*R. H. R. Stevenson*). Type in the National Museum, Southern Rhodesia.

This species differs from all other Ethiopian species with black legs and greyish white abdominal fasciae by the slender antennae and the long median area of the clypeus.

Subfam. PEMPHREDONINAE

Stigmus gueinzius Turner

1912, *Ann. Mag. Nat. Hist.* IX, 411, ♀.

♂. 4.6-4.8 mm. long (hitherto undescribed). Differs from the ♀ as follows. First two joints of the antennae ochreous, the remaining joints black. Face more finely sculptured than in the ♀♀, the vertex and occiput are smooth and more shining, and are without a trace of the microscopic striation which is present in the other sex. Mesonotum, between the lateral margins and the outer longitudinal furrows sometimes smooth and without the concentric striation which is seen in the ♀. The meshes of the reticulation on the epinotum are wider. Petiole smooth, thinner than in the ♀, nine times longer than wide in the middle (longitudinally striolate and seven times longer than wide in the ♀). Joints of the flagellum not dilated below, the second joint two-fifths longer than the first, very slightly shorter than the third and nearly six times longer than wide at the apex. Mandibles with a row of long, curved and white hairs on the outside. Median area of the clypeus not raised above the level of the lateral sclerites as in the ♀ but forming with them an un-

broken transverse curve, the apical margin transverse. Face narrower below than in the ♀, the interocular distance on the vertex, at the level of the anterior ocellus, nearly two-thirds greater than at the level of the antennal sockets, whereas in the ♀ it is only one-third greater.

Mbega, Vumba Mts, Southern Rhodesia. March. Several ♂♂ and one ♀, taken on leaves of a wild banana. The ♂ of this species is easily distinguished from that of *S. rugosifrons* Arn. by the more slender flagellum, the joints of which are not dilated below, and by the fimbriated mandibles and the much finer sculpture of the face. In *rugosifrons* ♂ the second joint of the flagellum is only five times longer than wide. The race *johannis*, which I had attached to *rugosifrons*, should be transferred to *gewinzius*, since it has the joints of the flagellum undilated.

Subfam. CRABRONINAE

Species-group *Tracheliodes* Mor.

Crabro canaliferus n.sp. (Figs. 29, 29a and 29b)

♀. 6.5 mm. long. Black. Mandibles ivory white, the inner upper margin ferruginous, the apex blackish. Scapes, first joint of the flagellum and the underside of the second and third joints, brownish yellow, the rest of the flagellum black. Tarsi yellowish white, darkening towards the apex, so that the last two or three joints are very pale brown. Anterior tibiae pale yellow. Anterior femora, middle femora and tibiae pale brown, the basal sixth of the tibiae whitish. Hind femora and tibiae blackish brown, the basal fifth of the tibiae yellowish white. Calcaria white. Lateral margins of the pygidial area ferruginous. Wings hyaline, the veins and pterostigma brown, the tegulae brownish yellow. Clypeus, face, anterior angles of the mesonotum, sides and anterior face of the pronotum, epinotum and underside of the thorax with silvery pubescence, dense on the face and clypeus.

Facial groove dull, the rest of the head smooth and shining, and with a few very small punctures. Anterior margin of the pronotum trenchant, arcuate caudad, the dorsal face shining, deeply grooved transversely, the groove with ten strong longitudinal costae, the anterior angles of the pronotum and also the ends of the hind margin of the groove acute, or subdentate. Mesonotum and scutellum shining, the former finely and very sparsely punctured, with a median longitudinal carina extending over the anterior third and with a short impressed line on each side of it. At the hind margin the mesonotum has a deep and clathrate groove.

Episternum nitidulous, finely and transversely rugulose. Metanotum longitudinally striato-rugose, the meso- and metapleura transversely striato-rugose. Dorsum of the epinotum with a low triangular basal area traversed by about ten oblique costae; beyond it and as far as the brow of the declivity the dorsum is closely and longitudinally striate and at the sides reticulate-rugose. Declivity of the epinotum transversely and closely striate, grooved down the middle and sharply marginate at the sides. Abdomen moderately shining, the fifth tergite very sparsely and finely punctured, the pygidial area V-shaped and shallowly concave. Mandibles bidentate at the apex and with a large triangular tooth on the

inner margin a little behind the middle. Head distinctly wider than the thorax. Median area of the clypeus arcuately emarginate and with a broadly truncate tooth on each side; the lateral sclerites have an acute tooth on the anterior margin equidistant from the base of the mandibles and the median area. Facial concavity carinate lengthwise; the carina continued below into a subporrect, elongate triangular and concave projection, three times longer than wide at its apex, which is arcuately emarginate. From the brow of the concavity an impressed line extends to the anterior ocellus. Lateral foveae on the vertex long and deep; behind them a shallow concavity extends back a little distance behind the posterior ocelli. Behind the ocellar area there is a median elongate depression. Ocelli placed in an equilateral triangle. Temples as wide as the eyes, with a smooth groove in front margining the eyes, a clathrate groove at the hind margin and a blunt tooth on the inferior margin a little distance from the base of the mandibles. First joint of the flagellum as long as the third, the second one-third longer than the first. Dorsum of the pronotum shorter in the middle than at the sides, six and a half times wider in front than long in the middle. Mesonotum three-quarters wider than long. Dorsum of the epinotum half as long as the scutellum. Abdomen clavate, the first segment two and a half times longer than wide at the hind margin. Anterior femora without a tooth, posterior femora with four indistinct teeth on the outer margin. Venation as in *C. perarmatus* Arn.

Bulawayo. October. 1 ♀ (*R. H. R. Stevenson*). Type in coll. Stevenson.

This species is distinguished from the other two African species by its greater size, from *perarmatus* by the different shape of the clypeus, the unarmed anterior femora and longer first tergite, and from *senex* Arn. by the very different clypeus.

Species-group *Rhopalum* Kirby

Crabro cruentatus n.sp. (Fig. 30)

♀. 8.2 mm. long. Head and thorax black. Mandibles with a ferruginous spot just behind the apex. Fore and middle tibiae and tarsi pale yellow, the tibiae slightly rufous on the underside. Fore and middle femora black, their extreme apices yellowish, their trochanters reddish brown. Posterior femora and tibiae pale ferruginous, slightly fuscous at the extreme base; the posterior tarsi blackish. Abdomen ferruginous, the upper side of the petiole and the first four tergites clouded with dark brown at the base and in front of the hind margin. Pronotal tubercles and tegulae yellowish white. Wings hyaline, the apex of the fore wing faintly fuscous, the veins and pterostigma black.

Clypeus, face, temples, pronotum, mesothorax excepting the mesonotum and scutellum, the metanotum and epinotum, excepting the median area, covered with silvery pubescence. Abdomen with a short greyish and inconspicuous pubescence. The very shallow and ill-defined facial concavity and the median area of the epinotal dorsum shining and impunctate, the rest of the head and the thorax very finely and closely punctured and slightly shining, the interspaces as large as the punctures,

the punctures barely visible under a magnification of less than 20 diameters. Pygidial area dull, microscopically punctured, the rest of the abdomen nitidulous, very shallowly and finely punctured, the punctures smaller than those of the thorax.

Median area of the clypeus produced in the middle into a short and narrow rectangular lobe and subdentate at the corners. The least distance between the eyes, a little above the antennal sockets, is only half as great as the interocular distance on the vertex, where it is equal to the length of the first five joints of the flagellum. Posterior ocelli a little farther from each other than from the anterior ocellus, slightly nearer to each other than to the eyes. Mandibles bidentate at the apex. Vertex without foveae. First joint of the flagellum twice as long as wide, as long as the third joint and nearly half as long again as the second. Temples as wide as the eyes. Pronotal collar shorter in the middle than at the sides, with a wide median impression and with rounded shoulders. Mesonotum one-third wider than long. First abdominal segment clavate, nearly five times longer than wide across the swollen posterior portion and five-ninths longer than the second segment. Pygidial area a little longer than wide at the base, the sides marginate, the surface between them flat, the apex narrowly truncate. Anterior trochanters with three very small teeth on the underside. The truncating vein of the radial cell oblique, the first cubital vein meets the radius at the end of its proximal third, the recurrent vein meets the cubitus before its middle. Hind tibiae fairly strongly clavate.

Vumba Mts, Southern Rhodesia. 1 ♀. November. Type in the National Museum, Southern Rhodesia. Differs from the other Ethiopian species, *ornatipes* Turn. *stramineipes* Arn. and *ichneumoniformis* Arn. by the larger size, differently shaped clypeus and the reddish abdomen.

C. riparium Arn. described as belonging to the *Rhopalum* species-group should be transferred to the *Crossocerus* species-group, since the maxillary and labial palpi are 6- and 4-jointed respectively, and the first tergite is not petiolate and clavate.

Species-group *Dasyproctus* Lep.

Crabro vumbuiensis Arn. (Figs. 31, 31a)

1940, *Ann. Trans. Mus.* xx, 135.

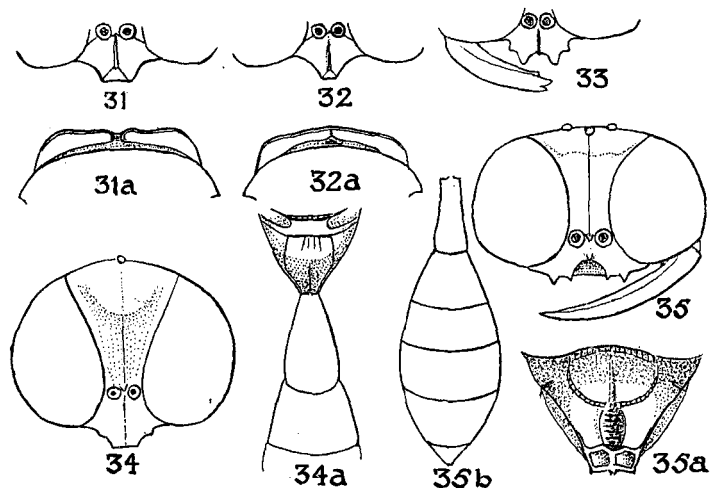
1932, *C. collaris* Arn. (nec Mats. 1929) *Occ. Pap. Rhod. Mus.* no. 1, p. 28, ♂.

♀. 9 mm. long (hitherto undescribed). Entirely black. As usual in the members of the *Dasyproctus* group, the sculpture is weaker in this sex than in the ♂, and differs as follows.

The strong and close puncturation on the vertex extends over little more than the anterior third of the distance between the brow of the face and the anterior ocellus; the puncturation of the mesonotum is shallower and more sparse, the longitudinal rugae on the scutellum cover only its posterior third, and the reticulations and costae on the epinotum are finer and lower. Median area of the clypeus wider than in the ♂. Flagellum short and stout, the second joint three-fourths longer than wide, as long as the third and very little longer than the first,

the sixth to tenth joints wider than long, the fifth not dilated below. The trenchant anterior margin of the pronotal collar is less distinctly sinuate, its sides more oblique than in the ♂. Petiole three and a third times longer than wide behind. Sides of the sixth tergite coarsely and closely punctured, the pygidial area narrowly cuneiform and excavated. Calcaria brown, as in the ♂.

Vumba Mts, Southern Rhodesia. February. National Museum, Southern Rhodesia.



Figs. 31, 31a. *Crabro vumbuiensis* ♀, clypeus and pronotum, $\times 14$. Figs. 32, 32a. *C. pullatus* ♀, clypeus and pronotum, $\times 14$. Fig. 33. *C. croceosignatus* ♀, clypeus, $\times 14$. Fig. 34. *C. minutulus* ♂, head, $\times 40$. Fig. 34a. *C. minutulus* ♂, epinotum and first two tergites, $\times 18$. Fig. 35. *C. repositus* ♀, head, $\times ca 22$. Fig. 35a. *C. repositus* ♀, epinotum, $\times ca 22$. Fig. 35b. *C. repositus* ♀, abdomen, $\times ca 12$.

Crabro pullatus n.sp. (Figs. 32, 32a)

♀. 9-9.3 mm. long. Black. A streak on the outside of the scapes pale yellow; apical joint of the anterior tarsi pale brown, calcaria ochreous. Wings hyaline, slightly fuscous, but not so much so as in *vumbuiensis*. Pubescence on the clypeus pale golden, facial concavity and temples with silvery pubescence. On the front of the vertex and on the thorax, legs and base of the petiole there is a sparse and white pilosity; below it, on the vertex, there is no short black pubescence such as is present in *vumbuiensis*. Clypeus strongly punctured, facial concavity finely so, its brow marginate and obtusely angular. The vertex, as far back as the level of the lateral foveae, is shallowly, finely and sparsely punctured. Dorsum of the pronotum and the mesopleura impunctate, the mesonotum and scutellum with a sparse and microscopic puncturation. The posterior part of the scutellum has traces of longitudinal rugae. Metanotum closely and longitudinally rugulose. Posterior epicnemium strongly punctured. Metapleura transversely rugose, the sides of the

epinotum closely and transversely striate. Dorsum of the epinotum with a wide triangular median area, bounded at the base and sides by clathrate grooves, the lateral ones shallow, the basal one deep and with about 10 costae. The rest of the dorsum and the declivity are closely and obliquely rugose and punctured between the rugae. The declivity is sharply marginate at the sides and deeply grooved in the middle. Basal third of the petiole shining and punctate-rugulose. Sixth tergite not quite dull, the sides coarsely punctured, the base and the pygidial area finely punctured.

Clypeus like that of *C. vumbuiensis* ♀, but narrower at the apex. Second joint of the flagellum twice as long as wide, one-third longer than the first and as long as the third, the sixth to tenth joints wider than long. Pronotal collar barely longer at the sides than in the middle, without a distinct median longitudinal impression, the anterior margin convex, not distinctly sinuate as in *vumbuiensis*. Petiole nearly five times longer than wide behind, the rest of the abdominal complex oval and twice as long as wide.

♂. 7-8 mm. long. Scapes entirely black, last three joints of all the tarsi brown. Pubescence on the face and clypeus silvery. Punctuation on the front of the vertex and on the mesonotum a little larger and the reticulations on the epinotum much thicker than in the ♀. Fifth joint of the flagellum dilated at the apex below, the second joint two and a half times longer than wide at the apex, slightly longer than the first, the latter as long as the third. Petiole four and a half times longer than wide behind. Otherwise like the ♀.

Vumba Mts, Southern Rhodesia. March. 4 ♀♀, 1 ♂. Types in the National Museum, Southern Rhodesia. Allied to *bipunctatus* Lep. and *vumbuiensis* Arn. From the latter it is clearly distinguished by the longer second joint of the flagellum, the differently shaped pronotum, the longer petiole and the ochreous calcaria. From *bipunctatus*, var. *lugubris* Arn. it is distinguished, *inter alia*, by the entirely black legs and abdomen.

***Crabro croceosignatus* Arn. (Fig. 33)**

1940, *Ann. Trans. Mus.* xx, 135, ♂.

♀. 6-8.2 mm. long (hitherto undescribed). Mandibles fusco-ferruginous, black at the base and apex. Tarsi yellowish brown, the middle femora without an apical yellow spot, the yellow spots on the scutellum very small. Calcaria of hind tibiae ochreous (in the ♂ the inner calcar is blackish). Third and fourth tergites with an oblique yellow streak on each side near the base, dilated outwardly and not extending inwards beyond the outer fourths of the segments. Otherwise like the ♂ in colour. Vertex impunctate; the punctuation on the mesonotum microscopic, the sculpture of the epinotum less coarse than in the ♂. Otherwise the sculpture is like that of the ♂.

Clypeus quadridentate, the middle pair of teeth blunt and larger than the outer pair. First joint of the flagellum as long as the third, the second two and a half times longer than wide and two-sevenths longer than the third. Pronotal collar a little shorter than in the ♂. Petiole

slightly more than two and a half times longer than wide behind. Pygidial area flat, parallel-sided except at the extreme base, the apex rounded; the sides of the sixth tergite smooth. Otherwise like the ♂.

Salisbury, 2 ♀♀, May; Khami, Southern Rhodesia, 1 ♀, October. Nesting in a decayed tree trunk. National Museum, Southern Rhodesia.

Some specimens from Selukwe, Southern Rhodesia (*leg. R. H. R. Stevenson*) represent a slight variety, var. *bicuspidatus*, var. nov. which differs from the typical form in having, in both sexes; the mandibles over the basal two-thirds and all the metatarsi, yellowish white, and in the ♀ in having the clypeus bidentate, the outer teeth being absent. The inner teeth are also more acute than in the typical form.

***Crabro angusticollis* Arn.**

1926, *Ann. Trans. Mus.* XI, 363, ♀.

♂. 9-11 mm. long (hitherto undescribed). Anterior femora with a broad streak of lemon yellow on the upper side extending over its apical half. Second to fifth tergites with lemon yellow clavate or triangular maculae on each side, those on the third to fifth sometimes obsolete. Otherwise coloured like the ♀, but the yellow on the legs brighter or lemon yellow. The median area of the clypeus is not like that of the ♀ but resembles that of *C. (Dasyproctus) Braunsi* Kohl ♀. The pronotal collar is not narrowed cephalad as in the ♀, and is a little longer at the sides than in the middle. The sculpture of the epinotum differs considerably from that of the ♀ and consists of a wide-meshed and high rugose reticulation. Flagellum simple, the fifth joint not dilated below; second joint three times longer than wide and four-fifths longer than the third joint. Head narrower than in the ♀, not wider than the thorax. Petiole four times longer than wide across the node, the abdominal complex behind the petiole distinctly narrow, being a little more than twice as long as wide. Otherwise like the ♀.

Selukwe, Southern Rhodesia (*R. H. R. Stevenson*). Numerous specimens of both sexes taken on a peach tree infested with Aphids.

Species-group ***Crossocerus*** Kohl s.l.

Crabro minutulus n.sp. (Figs. 34, 34a)

♂. 3.5 mm. long. Black. The underside of the scapes pale yellow. Anterior femora and tibiae dull ochreous, the first three joints of the fore and middle tarsi, the basal half of the hind metatarsi and the basal third of the hind tibiae white. Middle tibiae pale brown. Wings hyaline, the veins and pterostigma black. Fore and middle femora with a fringe of long white hairs on the underside. Clypeus and temples with a little silvery pubescence. Clypeus coriaceous and dull, the rest of the body moderately shining. Head and thorax, excepting the mesopleura and epinotum, with a very shallow, close and impressed reticulation, barely resolvable under a magnification of less than 70 diameters. The mesopleura with a very sparse and microscopic puncturation, the dorsum of the epinotum with four or five short and fine rugae at the base. Mandibles bidentate at the apex. Median area of the clypeus one-third wider than

long, convex transversely, the anterior margin straight. Facial concavity shallow, its upper margin broadly V-shaped. Antennae 13-jointed, the first joint of the flagellum ovate, the second as long as the first and a trifle longer than the third, the sixth to ninth as long as wide, the apical joint twice as long as wide. Interocular distance on the vertex four times greater than the inferior interocular distance measured at the level of the antennal sockets. Temples not quite so wide as the eyes. Vertex without lateral foveae, the ocelli arranged in an equilateral triangle. Pronotal collar impressed in the middle, the anterior margin convex and raised, the shoulders oblique. Scutellum separated from the mesonotum and the metanotum by clathrate grooves. Dorsum of the epinotum without a defined cordate median area, but with a raised line on each side which joins the raised lateral margins of the declivity; the latter has a median longitudinal groove. The truncating vein of the radial cell is perpendicular, the second abscissa of the radius is three times longer than the first and the second abscissa of the cubitus is half as long again as the first.

Vumba Mts, Southern Rhodesia. March. 1 ♂. On flowers of *Heteromorpha arborescens* Cham. & Schl. Type in National Museum, Southern Rhodesia. Allied to *Crabro bulawayoensis* Arn. from which it differs considerably in colour and sculpture.

***Crabro repositus* n.sp. (Figs. 35, 35a and 35b)**

♀. 6.5 mm. long. Clypeus and mandibles pale reddish brown, the antennae yellowish brown, the rest of the head black. Pronotal collar and tubercles and the tegulae dirty white, the rest of the thorax black. Abdomen pale reddish brown, the base and apex of the first five segments a little darker. Femora and hind tibiae, excepting the whitish basal third of the latter, pale yellowish brown; the fore and middle tibiae dull yellow, the tarsi whitish, becoming slightly fuscous apically. Trochanters and the middle and hind coxae yellowish white. Wings hyaline, the veins and pterostigma ochreous. Clypeus, temples and sides of the thorax with silvery pubescence, dense on the clypeus, sparse elsewhere. Clypeus dull, closely and finely punctured, facial concavity smooth and shining, the rest of the head and the thorax shining and with an impressed reticulation which is fairly distinct under a magnification of 50 diameters; superimposed on this is a very sparse and fine puncturation. Abdomen shining, microscopically transversely rugulose. Pygidial area broadly scutate, sparsely and coarsely punctured, as long as wide at the base, narrowly truncate at the apex. Mandibles long, edentate and acute at the apex. Apical half of the clypeus inflected, the upper margin of the inflected area arcuate, the anterior margin with two teeth on each side, the outer ones acute and larger than the inner. Interocular distance on the vertex, at the level of the posterior ocelli, equal to the length of the first seven joints of the flagellum and three times greater than the inferior interocular distance measured across the base of the clypeus. Vertex without lateral foveae; ocelli arranged in an equilateral triangle. First joint of the flagellum longer than wide and as long as the third, the second a little longer than the first, the second to sixth joints longer

than wide, the seventh to tenth as long as wide, the apical joint twice as long as wide. Temples at their widest a little wider than the eyes. Pronotal collar convex from front to back, as long in the middle as the second joint of the flagellum, the shoulders rounded. Dorsum of the epinotum with a more or less semicircular median area, margined by a shallow clathrate groove, feebly impressed lengthwise in the middle; the declivity has an oval impression, below which there are two large polygonal pits. Petiole widened caudad, about two and a half times longer than wide behind, the rest of the abdominal complex narrowly elliptical. Posterior tibiae strongly spinose on the outside. The truncating vein of the radial cell is oblique, the second abscissa of the radius is three times longer than the first and the first abscissa of the cubitus is one and a half times longer than the second.

Rhodesdale, Southern Rhodesia. November. 1 ♀ (*R. H. R. Stevenson*). Type in the National Museum, Southern Rhodesia. Allied to *C. brunni-ventris* Arn. from which it differs distinctly by the shape of the clypeus. This unique specimen has been in the collection for many years and was set aside in the hope that the capture of yet others might settle some doubts concerning the unusual colour of the clypeus and adjacent parts, which it was thought might have been due to contact with moisture in a cyanide killing-bottle. The colour of those parts may be natural, in view of the fact that the palpi are pale yellow, but as is well known, too long exposure to cyanide turns the yellow pigment of Hymenoptera into various shades of red.

I append below the descriptions of two new species and of the ♀ of *Crabro stramineipes* Arn. These were prepared for the Institut des Parcs Nationaux du Congo Belge as long ago as 1937 and had not been published up to the time of the invasion of Belgium in 1940. Their inclusion in this paper seems justified since it is highly improbable that the Institut will be able to issue, in present circumstances, any publications in the near future.

***Trypoxylon aeneipennis* n.sp. (Fig. 36)**

♀. 12.5 mm. long. Black. Mandibles fusco-ferruginous, the extreme base black. Wings pale brown, iridescent and with a pale bronzy lustre, the veins black. Clypeus and sides of the face below the ocular sinuses and the temples with yellowish grey pubescence, sparse on the temples. Face, vertex and thorax, excepting the anterior face of the pronotum, with erect and fairly long pilosity, black and dense on the head and thorax, sparse, short and greyish brown on the epinotum.

Tergites 1-5 with a little grey pubescence at the sides, each of the sternites 2-5 with two outstanding bristles near the apex. Clypeus, ocular sinuses and supra-antennal carina nearly dull and very shallowly punctured, the apical margin of the clypeus depressed and almost smooth. Face, as far as the anterior ocellus, dull, indistinctly and longitudinally rugose and shallowly punctured between the rugae. The vertex, from the anterior ocellus to the occiput, sparsely punctured and slightly shining. Occiput and temples shining, almost impunctate. Pro-meso-

notum, mesopleura, scutellum and metanotum closely punctured, the punctures smallest on the pronotum and metanotum, largest on the mesopleura. On the mesonotum, scutellum and metanotum, which are dull, the punctures for the greater part are as wide as the spaces between them, but on the mesopleura behind the episternal suture they are wider apart and the interspaces are shining. Metapleura impunctate and

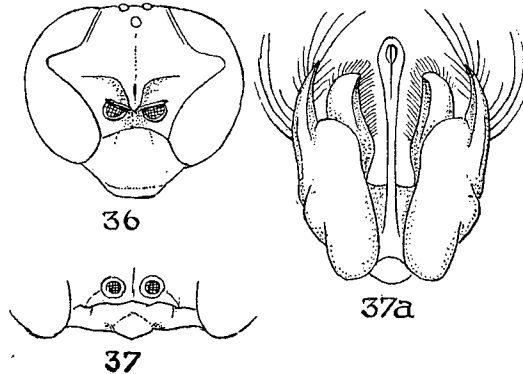


Fig. 36. *Trypoxylon aeneipennis* ♀, head, $\times 14$. Fig. 37. *Motes Alberti* ♂, clypeus, $\times 14$. Fig. 37a. *M. Alberti* ♂, genitalia, $\times 18$.

shining. Median area of the epinotum U-shaped, about as long as wide at the base, widely grooved down the middle, obliquely rugose at the base, transversely so at the apex, the rugae ending at the outer margin of the lateral furrows, the spaces between them somewhat shining. The rest of the dorsum and the declivity of the epinotum reticulate-rugose, the former margined at the sides with a longitudinal carina and with a few short carinae posteriorly; the declivity has several strong transverse carinae and is deeply grooved down the middle. Separated from the bottom of the groove by a smooth space there is a semi-circular horizontal lamella above the insertion of the first tergite. The sides of the epinotum are closely and obliquely striate.

Clypeus moderately swollen at the base, about three-fourths wider than long, the apical margin transverse in the middle. Face with a transverse carina below the supra-antennal carina; above the latter the face is somewhat tumid, without carinae but with a median impression reaching from the supra-antennal carina to the anterior ocellus. The emargination of the inner orbits is a little deeper than wide. Interocular distance on the vertex equal to the length of the first two joints of the flagellum plus one-third of the third joint. The second joint is three times longer than wide at the apex and two-sevenths longer than the third. Shoulders of the pronotum fairly prominent but rounded. Petiole a little more than twice as long as the second tergite, five times longer than wide behind and very little shorter than the hind tibia and metatarsus united.

The puncturation of the head and thorax is much closer than in any other Ethiopian species of the group in which the face is without large

carinae, and also stronger, except in *T. brevipenne* Sauss., which, however, is a much smaller insect. In the entirely fuscous wings this species also differs from all the other Ethiopian species.

Lake Megeza, Parc National Albert, Belgian Congo. 1 ♀ (*G. F. Witte*). Type in the Musée du Congo Belge.

Liris (subgen. **Motes**) **Alberti** n.sp. (Figs. 37, 37a)

♂. 7.5 mm. long. Black. Mandibles fusco-ferruginous. Wings pale brownish, the apical third darker, the veins blackish. Clypeus and face with a sparse silvery pubescence. The first three tergites with narrow and very inconspicuous apical bands of grey pubescence.

Median area of the clypeus a little raised, shining and very sparsely punctured, the apical margin obtusely angular, the lateral areas very minutely punctured. Face and vertex dull, finely and closely reticulate-punctate, the temples and occiput shining and microscopically punctured. The interocular distance across the clypeus is nearly three times as great as across the vertex, where it is equal to the length of the second joint of the flagellum plus half of the first. Pro-mesonotum and mesopleura dull, very closely and finely punctured, the sides of the epinotum almost dull, more finely punctured than the mesopleura and also with a few fine striae posteriorly. Mesonotum two-fifths wider than long. Dorsum of the epinotum one-fifth wider at the base than long, moderately narrowed behind, dull, with a median longitudinal carina which does not reach the hind margin, finely and transversely rugose and reticulate towards the lateral margins; the posterior margin and sides of the declivity with a few strong rugae. Eighth sternite slightly narrowed towards the apex, which is transversely truncate. Outer paramera of the genitalia not much longer than the inner, their apical portion curved inwards, gradually attenuate apically, the outer margin and apex with a few long, curved and black setae; the inner paramera are thick, triangular in cross-section and densely fringed below and at the apex with short yellow hairs. Second and third abscissae of the radius of about equal length.

♀. 8.5 mm. long. Tarsi dark brown, temples and sides of the epinotal declivity with a little silvery pubescence, otherwise like the ♂ in colour and pubescence. Median area of the clypeus flatter and less produced in front than in the ♂, its apical margin feebly convex and with a minute median excision. Interocular distance on the vertex nearly as long as the second joint of the flagellum. The second joint is twice as long as the first and nearly three times longer than wide at the apex. The sculpture of the face and thorax is like that of the ♂ but finer, especially on the scutellum and metanotum, which are slightly shining. Dorsum of the epinotum one and a half times wider at the base than long. Pygidial area triangular, rounded at the apex, glabrous at the base in the middle, elsewhere covered with adpressed yellowish grey setae, the apical margin with six ferruginous spines. Tarsal spines ferruginous. Otherwise like the ♂.

Rutschuru, Belgian Congo. 1 ♂, 1 ♀ (*G. F. Witte*). Types in the Musée du Congo Belge.

Crabro (species-group **Rhopalum**) **stramineipes** Arn.

1932, *Occ. Pap. Rhod. Mus.* no. 1, p. 21, ♂.

♀. 5.2 mm. long (hitherto undescribed). Black. Fore and middle tibiae and tarsi and the basal fourth of the hind femora, pale yellow, and paler than in the ♂, the underside of the tibiae slightly fuscous. Pronotal tubercles and scapes black, the abdomen entirely black.

Face and vertex not quite so shining as in the ♂, more clearly punctured, the punctures just visible under a magnification of 30 diameters. Clypeus like that of the ♂. The interocular distance, at the level of the antennal sockets, is equal to four-fifths of the length of the scape and to half the interocular distance on the vertex. The triangular plate between the antennal sockets is a little less prominent than in the ♂. The posterior femora are more swollen than in the ♂; they are thickest across the pre-apical fourth of their length, where the width is about equal to a fourth of the length. Otherwise like the ♂.

Kibati, 1900 m. Parc National Albert. (Musée du Congo Belge.) A ♂, taken in the same locality, does not differ in any way from the type, which was taken in the Chirinda Forest, Southern Rhodesia.