THE SPHEGIDAE OF SOUTH AFRICA

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PART XIV

APPENDIX III

With Plate and 49 Text-figures

IN the following pages this monograph will be completed by correcting errors and omissions and by the description of several new species which have come to my notice since the other parts of the work were published.

Key to the genera (Part I, *Ann. Trans. Mus.* IX, part II, 1922).

This should be revised as follows.

After paragraph (1) 4, insert

(4 d) 4 a. Venation greatly reduced, the radial and cubital cells obsolete. Pronotum large, fully as long as the mesonotum.

(4 c) 4 b. No discoidal cell present; sixth tergite in the ♀ without a pygidial area. **Miscophoides** Brauns.

(4 b) 4 c. One discoidal cell present; sixth tergite in the ♀ with a pygidial area. **Saliostethoides** Arnold

(4 a) 4 d. At least one cubital cell present.

Paragraph (14) 17. After "simple" add "**Thyreopus** Lep."

In the two following paragraphs add "species-group" before the words **Encopognathus** and **Dasyproctus**. For the other species-groups of *Thyreopus* the reader should refer to the key given on page 339 in Part VII (vol. XI, part IV, 1926).

Paragraph (26) 25. Delete "**Gastrosericus** Spinola" and continue as follows:

(25 b) 25 a. Posterior ocelli elongated. **Gastrosericus** Spinola

(25 a) 25 b. All the ocelli round and convex. **Paranysson** Guérin, subgen. **Mesopalarus** Brauns

Paragraph (29) 32. Before "Abdomen" insert "(32 b) 32 a" and continue as follows:

(32 a) 32 b. Abdomen not petiolate. **Spilomena** Shuckard

Paragraph (71) 74 should read "Abdomen rarely coarsely punctured."

Paragraph (96) 97. Delete "or.....stalked."

Paragraph (101) 100. Alter "**Gorytes** Latr." to "**Arpactus** Jurine."

LARRA Group.

Genus GASTROSERICUS Spin.

G. Braunsi Arn. var. *unicolor* n.v.

♀. 8 mm. long. This differs from the type of the species in having the first five tergites black, with their depressed apical margins rufo-testaceous. The legs are ferruginous, the posterior tibiae pale yellow on the upper margin. The joints of the flagellum are somewhat thicker, and the middle third of the anterior margin of the clypeus is convex, not angular as in the type of the species. The tooth on the temples is smaller and placed farther forwards. The tubercle on the anterior coxae is also less developed.

Sawmills, S. R. 1 ♀. Type in the Rhodesia Museum.

G. pratensis n.sp. (fig. 1).

♀. 8 mm. long. Black. Mandibles pale yellow at the base, the apical third ferruginous. Apical margins of the first three tergites widely, of the fourth and fifth narrowly, fusco-ferruginous. Scapes ferruginous below. Fore and middle legs, excepting the coxae, trochanters and upper side of the femora, ferruginous; hind femora and tibiae brownish black, the tibiae pale yellow on the outside, the hind tarsi ferruginous. Wings hyaline, faintly tinged with fuscous, the apical portion beyond the cells more distinctly fuscous, the veins dark brown. Tegulae testaceous. First two sternites dull, the other sternites shining, with a few large and scattered punctures. Pubescence on the tergites of a brownish grey colour. The mesonotum somewhat more strongly punctured than in *G. Braunsi*, otherwise like that species in pubescence and sculpture. Eyes moderately convergent above; the interocular distance on the vertex is equal to the length of the first five joints of the flagellum. The temples are without a tooth. Clypeus short, with a very low triangular swelling in the middle, the anterior margin feebly convex and with a slight angle on each side, nearer to the sides than the middle. Second joint of the flagellum twice as long as the first and as long as the third. Pygidial area elongate triangular, fairly shining, strongly and closely punctured, twice as long as wide at the base. Anterior coxae without a tubercle. Venation like that of *Braunsi*.

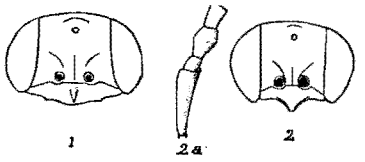


Fig. 1. *Gastrosericus pratensis*, ♀.
Fig. 2. *Gastrosericus Turneri*, ♂; *a*, ♂, basal joints of the antenna.

Bulawayo, December, 1 ♀ (G. Arnold). Type in the Rhodesia Museum.

G. Turneri Arn. (figs. 2, 2*a*).

♂ (hitherto undescribed). 6·3 mm. long. Pubescence of the face and clypeus silvery. Vertex much more finely punctured than in the ♀. Sternites covered with a dense greyish pubescence which obscures the sculpture. Otherwise like the ♀ in colour, sculpture and pubescence. Median area of the clypeus produced, forming a subacute angle. The interocular distance on the vertex is equal to the length of the first eight joints of the flagellum. The second joint of the flagellum is angularly dilated all round beyond the middle, twice as long as the first and a little longer than the third; the apical joint is half as long again as the penultimate. Anterior coxae with a very small, setigerous tubercle on the posterior inner angle. Seventh tergite triangular, dull, finely punctured, the extreme apex rounded and of a dull yellow colour. Otherwise like the ♀.

Bulawayo, November, 1 ♂. Type in the Rhodesia Museum.

G. pulchellus n.sp. (figs. 3, 3*a*).

♀. 9 mm. long. Black. Mandibles pale straw-yellow, fusco-ferruginous at the apex. Tibiae and apical half or less of the femora pale yellow, the fore and middle tibiae with a reddish streak in front; tarsi reddish ochreous. Sixth tergite reddish brown at the apex, the lateral and apical margins of the other tergites widely pale yellowish brown. Wings hyaline, the veins pale brown. Clypeus and face with silvery pubescence, the rest of the body, excepting the sternites, covered with a dull brassy golden pubescence, scanty on the head and scutellum, dense on the epinotum, where it obscures the sculpture, fairly dense and somewhat paler or greyish golden on the tergites. Head and thorax dull, microscopically and very closely punctured, much more finely punctured than either *Turneri* or *pratensis*. Tergites 1–5 dull, transversely and microscopically rugulose, the pygidial area triangular, longer than wide at the base, slightly shining, sparsely and coarsely punctured, the apex narrowly truncate. Sternites 1 and 2 dull and pubescent, the rest shining, all microscopically rugulose. Median area of the clypeus triangularly produced, but not so much as in *Braunsi*, the apex widely rounded, subcarinate lengthwise in the middle and obtusely angular on each side. Eyes moderately convergent above, the interocular distance on the vertex being equal to the length of the first four joints of the flagellum plus half of the fifth, and to three-fifths of the interocular distance across the clypeus. Second joint of the flagellum half as long again as the first, and a little shorter than the third. Temples wide, more than half as wide as the eyes, armed below with two rounded teeth, of which the lower one is the larger. Anterior coxae like those of *Turneri* but with a somewhat smaller lateral process. Abdomen fairly deeply constricted between the first two segments. Spines on the legs yellowish white, the basal joint of the anterior tarsi with six spines on the outer margin. First abscissa of the radius longer than the third and four times longer than the second, the latter a little shorter than the space between the two recurrent veins on the cubitus.

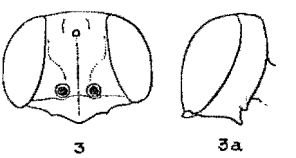


Fig. 3. *Gastrosericus pulchellus*, ♀, head; *a*, ♀, lateral view of the head.

Rhodesdale, S. R. 1 ♀ (R. H. R. Stevenson). Type in the Rhodesia Museum.

G. lanuginosus Arn.

♀ (hitherto undescribed). 10 mm. long. Tibiae and tarsi ferruginous, the apical margins of the tergites pale reddish brown, the colour obscured by the overlying pubescence. Face and clypeus with long silvery pubescence, much more abundant than in the ♂ and completely hiding the sculpture below; on the vertex the pubescence has a slightly yellowish tinge. Thorax with a dense, outstanding pilosity, whitish at the sides and below, bronzy golden above. Apical margins of the first four tergites with bronzy golden pubescence, the pygidial area densely covered with decumbent and pale yellow setae. The puncturation of the vertex and thorax is similar to that of the ♂ but larger. Median area of the clypeus produced into a rounded lobe, almost semicircular. The eyes are slightly more convergent above than in the ♂; the interocular distance on the vertex is nearly equal to the length of the first four joints of the flagellum. The second joint of the flagellum is as long as the third and nearly twice as long as the first. The pygidial area is elongate triangular, four-fifths longer than wide at the base, widely rounded at the apex.

Tarsal comb composed of long, thin and pale reddish spines, of which there are eight on the basal joint. Otherwise like the ♂.

Sawmills, S. R. December (R. H. R. Stevenson). Type in coll. Stevenson.

Genus PROSOPIGASTRA Costa

P. carinata Arn. (fig. 4).

♀ (hitherto undescribed). 6·3 mm. long. Tibiae darker on the outside, the mesonotum much more coarsely punctured than in the ♂, otherwise like that sex in colour and sculpture. The face and clypeus have only a scanty whitish pubescence, and the first tergite lacks the decumbent golden pubescence which is present in the ♂. Face and vertex shining, with a strong puncturation which is scanty on the sides of the face, more so on the median swelling, denser behind the ocelli; the space between the antennal sockets dull, closely and finely rugose. First sternite closely and finely punctured, the second sparsely so, the following sternites smooth and with a row of small punctures behind the apical margin. All the sternites are simple, without transverse carinae. Sixth tergite subtriangular, narrow, the apex broadly rounded. Mesopleurae unarmed. Head not unlike that of *P. Neavei* ♀ but the clypeus is more produced in the middle, the eyes are more convergent above and the median swelling is less prominent and merges more gradually into the rest of the face. Interocular distance on the vertex equal to the length of the first three joints of the flagellum plus nearly half of the fourth joint, and only three-fifths as great as the interocular distance across the base of the clypeus. Second joint of the flagellum two-thirds longer than the first and slightly shorter than the third. Tarsal comb composed of long, thin and blackish cilia.

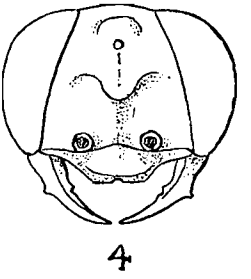


Fig. 4. *Prosopigastra carinata*, ♀.

Bulawayo. Type in the Rhodesia Museum.

Genus TACHYSPHEX Kohl.

T. egregius Arn.

♀ (hitherto undescribed). 8·5 mm. long. Apical margins of the first five tergites with bands of whitish pubescence. Pygidial area elongate triangular, shining, very sparsely and finely punctured, acute at the apex. Otherwise like the ♂ in colour, sculpture and pubescence. Interocular distance on the vertex equal to the length of the first three joints of the flagellum plus a third of the fourth joint. The median third of the clypeus is depressed behind the anterior margin, which is moderately convex. Second joint of the flagellum two-thirds longer than the first joint, the third joint one-fourth longer than the second. The comb of the anterior tarsi is composed of long blackish cilia. The second abdominal segment is moderately constricted at the base laterally, but less than in the ♂. The dorsum of the epinotum has the same sculpture as in the ♂.

Lady Grey, C. P. (R. I. Nel). Type in the Rhodesia Museum.

T. Braunsi Arn. var. *rufopictus* n.v.

♂. 8 mm. long. Eyes greenish yellow, first three tergites yellowish red. Wings pale flavo-hyaline. Median area of the clypeus triangularly produced as in the type of the species, but not so long or so acute at the apex. Antennae a little more slender. Otherwise like the type of the species.

Lady Grey, C. P. (R. I. Nel). Type in the Rhodesia Museum.

T. Barkeri Arn.

♀. A slight variety of this species from Sawmills, S. R., differs from the type of the species in being slightly smaller, 10 mm. long, and in lacking the superficial reticulate-rugosity on the dorsum of the epinotum. There is no yellowish tinge at the base of the wings, the venation of which is brown, not yellow as in the type of the species. The interocular distance on the vertex is also a little shorter, being somewhat less than the length of the second and third joints of the flagellum, but equal to that of the first and second.

Rhodesia Museum.

T. suavis n.sp.

♀. 13 mm. long. Allied to *T. Hippolyta* Arn., the colour, pubescence and asymmetry of the claws being as in that species. The puncturation of the face and vertex is relatively, in view of the greater size of this insect, much finer than in that species. Mesonotum shining, with a microscopic and very sparse puncturation, its anterior half with a few larger punctures. Scutellum, metanotum and mesopleurae very shining, with even more minute puncturation than the mesonotum. Dorsum of the epinotum dull, with sculpture similar to that of *Hippolyta* but stronger, and without a round smooth space at the apex; sides of the epinotum obliquely, the declivity transversely and strongly striate. Tergites 1–5 dull and microscopically punctured as in *Hippolyta*, the pygidial area moderately shining, shallowly and fairly closely punctate-rugulose; sternites 3–6 smooth and shining, the second dull and finely pubescent. Clypeus like that of *Hippolyta* in shape but much more coarsely punctured behind the depressed margin. Vertex wider than in *Hippolyta*, being equal to the length of the first two joints of the flagellum plus half of the third and nearly equal to half the interocular distance across the clypeus. The second joint of the flagellum is as long as the third and a little more than twice as long as the first. The vertex behind the ocellar area is smooth and lacks the Y-shaped furrow which is present in *Hippolyta*. Dorsum of the epinotum as long as the scutellum plus twice the length of the metanotum (shorter than the scutellum and metanotum united in *Hippolyta*). Fourth tarsal joint subtriangular, wider at the apex than long, the apical joint only two-thirds as long as the second.

Bulawayo, October, 1 ♀ (G. Arnold). Type in the Rhodesia Museum.

Distinguished from *Hippolyta* by the greater size, wider vertex, different sculpture of the mesothorax, longer epinotum and by the relatively shorter fifth tarsal joint.

T. ebeninus n.sp. (fig. 5).

♀. 9 mm. long. Black. Last three or four joints of the tarsi reddish brown. Tegulae pale ochreous. Wings hyaline, the veins brownish ochreous. Face and clypeus with greyish pubescence, the thorax with a short, scanty and grey pilosity. Tergites with a thin whitish pubescence, very sparse and not forming fasciae on the apical margins. The whole body, excepting the clypeus, shining.

Clypeus closely and finely punctured, the median area just behind the depressed anterior margin slightly shining and more coarsely punctured. Face and vertex finely punctured, the punctures separated by spaces about twice as great as their own diameter. Temples much more shallowly punctured than the vertex, almost impunctate. Mesonotum, mesopleurae, scutellum and metanotum a great deal more sparsely punctured than the vertex, the punctures of about the same size but shallower. Dorsum of the epinotum longitudinally striate, the striae arcuate outwards on each side of the middle third; the declivity and sides of the epinotum closely transversely striate. Tergites and sternites 1–5 very finely and fairly closely punctured, the pygidial area elongate triangular, longer than wide at the base, acute at the apex, sparsely punctured at the sides, the punctures shallow and larger than those on the mesonotum. Median area of the clypeus not very convex transversely, its lateral angles rounded. Interocular distance at the base of the eyes two and a half times greater than across the vertex; at the latter point it is equal to the length of the first two joints of the flagellum plus a third of the third joint. Face shallowly impressed lengthwise in the middle as far as the anterior ocellus. The vertex is not impressed behind the ocellar area. Flagellum thin; the second joint as long as the third and twice as long as the first. Tarsal comb composed of long ochreous spines, of which there are six on the basal joint; the spines on the middle and hind legs are yellowish white. Inner spur of the hind tibiae shorter than the basal joint of the tarsus.

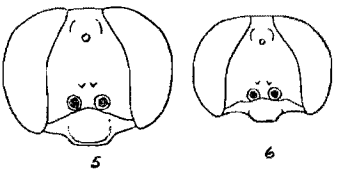


Fig. 5. *Tachysphex ebeninus*, ♀.
Fig. 6. *Tachysphex scabrosus*, ♂.

♂. 7·5–8·5 mm. long. All the tarsal joints, apices of the tibiae and the inside of the hind tibiae dark yellowish brown (raw umber). Face with pale golden pubescence. Eyes dirty brownish yellow. Otherwise like the ♀ in colour, sculpture and pubescence. Interocular distance at the base of the eyes twice as great as across the vertex, where it is equal to the length of the first two joints of the flagellum plus half of the third. Seventh tergite very widely rounded at the apex, almost semi-circularly. Otherwise like the ♀.

Redbank, S. R. 1 ♀, 1♂; Nyamandhlovu, S. R. 1 ♂ (R. H. R. Stevenson). Types in coll. Stevenson.

Allied to *crassipes*, but with a different sculpture on the epinotal dorsum, which resembles that of *vulneratus*; the striae are, however, finer and wider apart than in that species. In the specimen from Nyamandhlovu the tarsi are reddish, the tibiae fusco-ferruginous in front, a little paler behind. The dorsum of the epinotum is also distinctly punctured between the striae.

T. scabrosus n.sp. (fig. 6).

♂. 7–8 mm. long. Black. Tarsi and apices of the tibiae pale ferruginous. Mandibles ferruginous in the middle. Wings hyaline, the veins blackish. Tegulae straw-yellow. Pubescence of the face and clypeus golden. Thorax with a scanty whitish pilosity, the abdomen with a thin, decumbent and whitish pubescence, somewhat more abundant on the apical margins, where it forms inconspicuous fasciae. Clypeus and face dull, closely and finely punctured. Ocellar area and vertex shining, the former finely, the latter strongly and not closely punctured, with a median impressed line behind the ocelli. Mesothorax and metanotum slightly shining, very strongly and fairly closely punctured, the spaces between the punctures a little wider than the

latter. Dorsum of the epinotum very coarsely and rather closely reticulate-rugose, the declivity with similar sculpture but punctured between the rugae, the sides strongly, transversely striate. Tergites very closely punctured, the first rather strongly so; the apical margins of the first four broadly, triangularly impressed, moderately shining and more finely punctured than the basal portion of the segments. Sternites shining, the second finely and closely, the following sternites microscopically punctured, the second to fourth with a row of outstanding yellowish hairs in the middle of their apical margins. Median area of the clypeus narrow, its anterior margin feebly convex, the lateral angles obtuse. Interocular distance across the clypeus nearly three and a half times wider than across the vertex, where it is equal to the length of the first two joints of the flagellum. Second joint of the flagellum nearly half as long again as the first, and a little shorter than the third. Apex of the seventh tergite widely rounded. Dorsum of the epinotum long, fully as long as the mesonotum and longer than the scutellum and metanotum united. Spines of the legs black.

Shiloh, S. R. 3 ♂♂ (R. H. R. Stevenson). Type in coll. Stevenson.

A very distinct species characterised by the coarse puncturation of the mesonotum and by the very coarsely reticulate epinotal dorsum.

T. Oberon Arn. var. *mashona* n.v.

♀. 9·5 mm. long. Scapes and mandibles, excepting the apex, fusco-ferruginous. Legs, excepting the coxae and trochanters, bright red. Sixth tergite piceous. Wings more deeply coloured than in the type of the species, distinctly ochreous hyaline, the apical margin distinctly fuscous. Vertex more shining and more finely punctured. Anterior margin of the median area of the clypeus with seven or eight indistinct teeth. Otherwise like the type of the species.

Penkridge, Eastern Mashonaland, S. R. 2 ♀♀ (R. H. R. Stevenson). Type in coll. Stevenson.

Specimens of *Oberon* i.sp. taken in the same locality also have more deeply coloured wings than in the type of the species, but as in the latter the legs and scapes are black.

T. Braunsi Arn. var. *debilis* Arn.

The name *debilis* is pre-occupied, having been applied by Turner to an Australian species of *Tachysphex*. I therefore propose the new name *boer* for this variety of *Braunsi*.

Genus TACHYTES Panzer

It is remarkable that in treating of this genus no authors appear to have made use of the characters afforded by the ♂ genitalia. I omitted to do so myself in Part III of this work, largely on account of the paucity of material then available and of the wish to avoid damaging unique specimens. It is, however, not difficult to extract the genitalia without injuring the specimens, even with old material, provided that it has been sufficiently relaxed. The specimen should be held between the fingers of one hand, with the ventral surface upwards, and then with a fine pair of forceps the eighth ventral plate should be pushed back, i.e. towards the head; this opens the apex of the abdomen into which the forceps, slightly open, should be inserted nearly half way up the abdominal cavity. On closing the forceps and drawing them out with a downward motion the genitalia should come out fairly easily.

The differences in the shape of the genitalia of closely allied species, e.g. *opposita, melancholica* and *bulawayoensis*, are certainly rather subtle, but they are rendered more apparent if drawings are made with a camera lucida on the microscope. The differences are most pronounced in the apical process of the outer paramera, which is usually only feebly chitinised and lamelliform. Seen from above, this part is often linear or nearly so, but when seen from the side it has the shape of a narrow tongue, abruptly dilated at the base. As I have already pointed out in these pages, the venation of the wings in the majority of the genera is of no value in the separation of species, but in this genus if the shape of the genitalia is used for the separation of species it will be found that the colour of the pubescence is just as unreliable as the venation. To take only one example; *opposita* and *melancholica* are closely allied species in which the only important differences are structural, i.e. the length of the galea and the shape of the genitalia. Perfectly fresh specimens of *opposita* can be recognised with the naked eye, but in faded examples, which can generally be recognised as such by the frayed margins of the wings, the brassy golden pubescence has faded to a greyish tint like that of *melancholica*, and without a careful comparison of the genitalia and galea, they are not separable. On the other hand, there are species which in colour of the pubescence resemble each other as closely as one egg does another, e.g. *rhodesianus* and *midas*, but in the ♂ sex these species are easily distinguished by the great dissimilarity of the genitalia.

I have therefore added a plate illustrating the genitalia of such species as were available. The complete revision of the African species of the genus cannot be made until the numerous species described by Turner have been re-examined for the genitalia.

It should be noted that the number of spines on the basal joint of the anterior tarsi is by no means constant within a species, and also that in those species in which the eighth ventral plate is emarginate the depth and width of the emargination and the acuteness of the angles on each side are subject to an appreciable amount of variation.

Below some corrections in synonymy are given and a few new species are described.

In the keys to the species the following corrections should be made:

Paragraph (12) 11. **T. rhodesiana** Bisch. The ♀ usually has five spines on the basal joint of the anterior tarsi, not six.

Paragraph (47) 42. ♂♂. The word "half" in the second line is to be deleted.

Paragraph (42) 47. After "*neglecta*" add, "and *opposita*."

T. lichtenburgensis Arn.

This should be considered as only a variety of *nigro-annulata* Bisch. from which it differs by the slightly greater size, stronger puncturation of the mesonotum and the more strongly striated epinotal dorsum. The genitalia are exactly like those of *nigro-annulata* (Plate VII, fig. 1).

T. melancholica Arn. (Plate VII, fig. 11).

In fresh specimens the pubescence of the face and clypeus is pale golden. This species is closely allied to *opposita* Turner, from which it differs by the shorter and more rounded galea and by the narrower outer paramera of the genitalia.

T. midas n.sp. (Plate VII, fig. 12).

♂. 15–18 mm. long. Colour, pilosity and pubescence exactly like that of *rhodesiana* Bisch. The sculpture is also for the greater part the same as in that species, but the rugulose puncturation of the epinotal dorsum is somewhat deeper and coarser. The interocular distance on the vertex is very nearly equal to the length of the first two joints of the flagellum, and the second joint is no longer than the third (in *rhodesiana* the interocular distance on the vertex is equal to the length of the second joint only, and not of the first two joints as stated in my description in Part II of this work, and the second joint is one-quarter longer than the third). As in *rhodesiana* the galea is distinctly shorter than the scape.

The genitalia are very different from those of *rhodesiana*, as may be seen by comparing figs. 12 and 13, Plate VII. The apical process of the outer paramera is broad, roundly dilated at the base; at about the middle of the paramera there is a vertical lamella, which, seen from the side, has the appearance of a spine. This is absent in *rhodesiana*, in which the apical process is also differently shaped. Otherwise like the ♂ of *rhodesiana*.

♀. 19 mm. long. As in the other sex, the resemblance to *rhodesiana* is almost complete. The sculpture of the epinotum is stronger and the puncturation on the front of the mesonotum is different. In *rhodesiana* it consists of a very fine and very close puncturation all over, but in this species the anterior third of the mesonotum has a microscopic fundamental puncturation over which is scattered a fairly abundant and larger puncturation. First and second sternites very closely and finely punctured, the third to fifth shining and with a coarse and sparse puncturation just behind the apical margins, as in *rhodesiana*, but in this species the punctures are somewhat larger and more abundant. The second joint of the flagellum is very slightly longer than the third, whereas in *rhodesiana* it is a little more than one-third longer than the third joint. The basal joint of the fore tarsi has six ferruginous spines on the outer margin.

Bulawayo and Essexvale, S. R. 9 ♂♂, 2 ♀♀. Types in the Rhodesia Museum.

T. rhodesiana Bisch. (Plate VII, fig. 13).

♂. The width of the vertex was incorrectly stated in my original description, and the correction has been given in the description of *T. midas*. The size of this species in the ♂ varies within wide limits. The smallest specimen which I have seen measures barely more than 10 mm. long, and the largest 18 mm.

T. bulawayoensis Bisch. (Plate VII, fig. 10).

♂. 13 mm. long. The insect which I take to be the ♂ of this species resembles the ♀ in colour, sculpture and pubescence, except that the pubescence of the face is golden-silvery, and of the pygidial area golden. The interocular distance on the vertex is equal to the length of the second joint of the flagellum. Seventh tergite widely truncate at the apex; eighth sternite feebly emarginate, the apical angles rounded. Basal joint of the anterior tarsi with four spines. The subcosta is ochreous like the costa, not brown as in the ♀.

Bulawayo, February. Taken in the same situations as the ♀. Type in the Rhodesia Museum.

T. lepida n.sp. (Plate VII, fig. 17).

♀. 9 mm. long. Black. First two joints of the tarsi brown, the rest ferruginous. The whole body, excepting the sternites, covered with a dense, decumbent and bronzy golden pubescence. The fifth tergite with fulvous pubescence, the face and epinotum with a scanty whitish pilosity. The first

two sternites are closely and finely punctured, the second slightly shining, the remaining sternites shining and with a few large punctures near the apical margins. Clypeus shining in the middle in front, its anterior margin convex and without teeth. Face, vertex, mesonotum and scutellum closely and finely punctured, the dorsum of the epinotum finely and transversely rugulose. Interocular distance on the vertex equal to the length of the first two joints of the flagellum plus half of the third joint. The distance between the eyes across the clypeus is two and a half times as great as across the vertex. Second joint of the flagellum a little shorter than the third and about two-thirds longer than the first. Galea half as long as the scape, as long as wide at the base, widely rounded at the apex. Basal joint of the anterior tarsi with five yellowish spines. Wings hyaline, the veins ochreous.

♂. 9 mm. long. Black. Tibiae, tarsi and apices of the femora reddish ochreous, the middle tibiae and the hind ones on the outside sometimes black. Mandibles fusco-ferruginous. Fifth and sixth tergites with fulvous pubescence, elsewhere the pubescence is like that of the ♀ but less dense and slightly paler. Puncturation of the mesonotum coarser and less close than in the ♀. Interocular distance on the vertex equal to the length of the first two joints of the flagellum plus a quarter of the third. Seventh tergite trapezoidal, the apex wide and transverse. Eighth sternite angularly emarginate. Apical process of the outer paramera of the genitalia broad, barely dilated at the base. Basal joint of the anterior tarsi with three or four whitish spines.

Sawmills, S. R. December. Types in the Rhodesia Museum.

This species is deceptively like *nigro-annulata* Bisch. but the genitalia are different and the rugulose sculpture of the epinotum is weaker.

T. dilaticornis Turner (fig. 8).

In this species, and also in *T. Neavei* Turner, the dilatation of the antennal joints is variable. In some specimens the enlargement is only slight and is not very noticeable except on the third to fifth joints of the flagellum. The genitalia, which are figured here, are distinctive, and enable the species in the ♂ sex to be recognised with ease. The size varies within fairly wide limits, from 10–13·5 mm. in length.

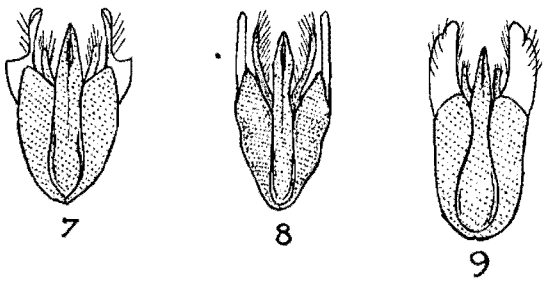


Fig. 7. *Tachytes versatilis*, genitalia. Fig. 8. *Tachytes dilaticornis*, genitalia. Fig. 9. *Tachytes pulchricornis*, genitalia.

T. pulchricornis Turner (fig. 9).

In perfectly fresh specimens of this species the pubescence of the thorax, legs and abdomen has no silvery tint, but is pale brassy yellow. The genitalia have the apical process of the outer paramera much broader than in most of the other species and almost as heavily chitinised as the basal part.

Additional localities are Bulawayo and Belas, P. E. A. (R. H. R. Stevenson).

T. versatilis Turner (fig. 7).

In fresh specimens of the ♂ the pubescent fasciae on the tergites are yellowish grey, and the first tergite has long fulvous pilosity like that of the thorax. In both sexes the pubescence of the thorax in the fresh condition is deep orange-golden and so dense as to hide the underlying sculpture. The genitalia of the ♂ resemble those of *bulawayoensis*.

Additional localities are Dondo, P. E. A. (R. H. R. Stevenson); Victoria Falls (G. Arnold).

T. Silverlocki Turner

The pygidial area in the ♀ is covered with pale golden setae, not brownish golden as stated in my previous description. This error was due to confusing *disputabilis* with this species. The two are very closely allied, and, apart from the colour of the pygidial setae, the smaller size of *Silverlocki* and the sculpture of the epinotum, there is very little to distinguish the two. In this species the epinotal dorsum is not quite dull, and is transversely rugulose, whereas in *disputabilis* it is dull and closely reticulate-rugulose.

Genus PARANYSSON Guérin

P. brevispinosus n.sp. (figs. 10, 10*a* and *b*).

♀. 12 mm. long. Allied to and closely resembling *P. quadridentatus*. Colour as in that species, the head and thorax black, abdomen and legs ferruginous, the sides of the tergites somewhat diffusely infuscated. Mandibles black, fusco-ferruginous in the middle. Sculpture of the head and thorax, excepting the epinotum, like that of *quadridentatus*. Dorsum of the epinotum narrower than in that species, with short and numerous longitudinal rugae on the basal and apical thirds, the middle reticulate-rugose; in *quadridentatus* the basal two-thirds are longitudinal rugose and the apical third is somewhat sparsely and irregularly reticulate. The lateral margins of the epinotal declivity have a wide triangular tooth at about the middle, much more distinct and larger than the slight angle which is present in *quadridentatus*. Abdomen more elongate or less cordiform than in *quadridentatus* and almost dull above, the puncturation distinctly closer than in *quadridentatus*, the fifth tergite shining, sparsely and coarsely punctured as in *quadridentatus*, the pygidial area triangular, sparsely and fairly strongly punctured, the apex subacute. Sternites shining, very sparsely and finely punctured. Pubescence like that of *quadridentatus*. Median area of the clypeus broadly and triangularly deflected in front, the anterior margin more deeply impressed than in *quadridentatus*, transverse and not convex as in that species, and with two stout teeth on each side. Second joint of the flagellum only twice as long as the first and barely longer than the third. Interocular distance on the vertex relatively greater than in *quadridentatus*, being equal to the length of the first four joints of the flagellum. The apical joint of the flagellum is not longer than the preceding one. The spine on the hind coxa is black, inserted at the apical angle, much shorter and less slender than in *quadridentatus*. The basal joint of the anterior tarsi has nine short spines on the outer margin. Otherwise like *quadridentatus* ♀.

Sawmills, S. R. Type in the Rhodesia Museum.

P. Oscari Turner, race *servus* n.r.

♂. 8 mm. long. This race differs from the type of the species as follows. Vertex behind the ocelli more sparsely punctured. Apical joint of the flagellum more narrowed towards the end, nearly twice as long as the penultimate joint. Mesonotum more shallowly punctured; dorsum of the epinotum longitudinally rugose, with very few transverse anastomoses, the apex not margined by strong rugae but merging gradually into the declivity. The basal bifurcate lobes of the outer paramera of the genitalia are differently shaped.

Paiata, Liberia, type (Dr J. Bequaert); Stanleyville, Belgian Congo, 3 ♂♂. The specimens from Stanleyville are a little larger, 9 mm.

P. congoensis n.sp. (figs. 11, 11*a* and *b*).

♀. 11·5 mm. long. Coxae and trochanters ferruginous, otherwise the colour and pubescence are the same as in *quadridentatus*, with which this species is closely allied. Puncturation of the head and thorax as close as in

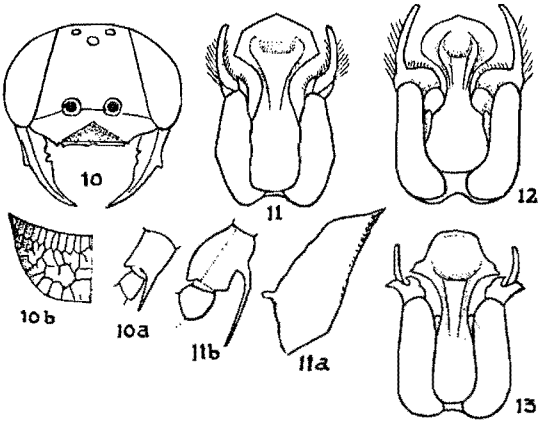


Fig. 10. *Paranysson brevispinosus*, ♀, head; *a*, ♀, hind coxa; *b*, ♀, half of epinotum.
Fig. 11. *Paranysson congoensis*, ♂, genitalia; *a*, ♀, epinotum, lateral view; *b*, ♀, hind coxa.
Fig. 12. *Paranysson quadridentatus*, ♂, genitalia.
Fig. 13. *Paranysson Oscari*, ♂, genitalia.

quadridentatus, but distinctly smaller. The sculpture of the epinotal dorsum is like that of *brevispinosus*, but the longitudinal rugae on the basal third are less numerous, and the apical third, except the depressed median area, is reticulate like the middle third of the segment. The first three tergites are dull, more finely and much more closely punctured than in *quadridentatus*, the spaces between the punctures being barely wider than the latter (on an average two or three times as wide in *quadridentatus*). The teeth on the anterior margin of the clypeus are only feebly developed. The vertex is narrower than in *quadridentatus*, the interocular distance across the clypeus being two-thirds greater than on the vertex, whereas in *quadridentatus* it is barely more than one-half greater. The second joint of the flagellum is about twice as long as the first and hardly one-sixth longer than the third; the apical joint is slightly longer than the penultimate. The lateral margins of the epinotal declivity have a blunt tooth, longer than wide at the base, a little below the middle. Basal joint of the anterior tarsi with nine short ferruginous

spines. Hind coxae with a long spine arising from the middle of the inner margin. Wings a little paler than in *quadridentatus*, otherwise like that species.

♂. 10 mm. long. Coxae and trochanters ferruginous, otherwise like the ♀ in colour. Pubescence of the face and clypeus greyish golden. Puncturation of the head, thorax and abdomen much finer than in *quadridentatus* ♂, the puncturation of the first four tergites very fine as in the ♀, the first six tergites dull, the seventh slightly shining, less coarsely punctured than in *quadridentatus*. The sculpture of the epinotal dorsum is like that of the ♀. Anterior margin of the clypeus convex, with a short and narrow rectangular projection in the middle and feebly bidentate on each side of the projection. Vertex distinctly narrower than in *quadridentatus* ♂, the interocular distance across the clypeus being two-thirds greater than across the vertex (one-half greater in *quadridentatus*). The width of the vertex between the eyes is equal to the length of the first four joints of the flagellum. The posterior ocelli are separated from the eyes by a distance equal to the diameter of the ocellus (twice as great in *quadridentatus*). The second joint of the flagellum is twice as long as the first and barely longer than the third; the apical joint is a trifle longer than the preceding. The genitalia are quite different from those of *quadridentatus* but resemble those of *Oscari*, although the basal portion of the apical process of the outer paramera is differently formed (see figs. 12 and 13).

Stanleyville, Belgian Congo, 1 ♀, 1♂ (Dr J. Bequaert). Types in the Congo Museum, Tervueren.

Genus LARRA Fab.

L. proditor Kohl, var. *rufa* n.v.

A form of this species from Lubutu, Belgian Congo, differs in having the whole abdomen ferruginous, and of a paler tint than in the type of the species. The wings also are not quite so deeply tinged with brown.

Type in the Congo Museum, Tervueren.

Genus NOTOGONIDEA Rohwer.

The species of the *sepulchralis* and *miscophoides* groups are very much alike to the naked eye, and even with a fairly high magnification the differences in external structural characters, especially in the ♂ sex, have to be searched for with care and patience. It is therefore fortunate that the structure of the genitalia is very diversified and specific, affording means whereby the ♂♂ of the several species can be easily recognised. I have therefore given figures here of the genitalia for these two groups. The inner paramera are usually lamelliform, plane, or spoon-shaped, and also sometimes twisted. In the normal position they are seen more or less on edge from above, and therefore appear very narrow, but seen from the side (fig. 27) they appear as broad plates projecting above the outer paramera. In my treatment of this genus in Part III too much weight was given to the venation, which the examination of a larger amount of material has now proved to be unreliable. Whereas the species can easily be separated in the ♂♂ by the genitalia, it is by no means so simple in the case of the ♀♀. In this sex the most valuable diagnostic characters are furnished by (1) the shape of the pronotal collar and of the pygidium, (2) the interocular distance on the vertex, (3) the claws, whether armed with teeth or not, (4) the colour of the wings, and (5) the sculpture. In the *sepulchralis* and *miscophoides* groups the sculpture on the epinotal dorsum is somewhat variable within the species.

N. sepulchralis Gerst.

On reading the fuller description of this species given in Peter's *Reise nach Mozambique*, it is clear that the synonymy given on p. 244, Part III, which I accepted from the arrangement in the British Museum's collection, is incorrect. Gerstaecker's species has the sixth tergite in the ♀ smooth and shining, and is very probably the same as the variety of *pompiliformis* which I described as *intermedia*.

The species described by me as *sepulchralis* is without doubt the *N. radialis* of Saussure, and the name on p. 244 should be corrected accordingly. *N. antaca* Sauss. is the ♀ of *radialis*, the latter name having priority.

N. Bequaerti n.sp.

♀. 11 mm. long. Allied to *pseudoliris* Turner but smaller and with much less slender antennae. Black. Tegulae and legs ferruginous, the scapes dark brown in front, the mandibles fusco-ferruginous. Fourth and fifth tergites dark brown at the apical margin. Wings flavo-hyaline, somewhat paler than in *pseudoliris*, the apical margin very faintly fuscous, the veins reddish ochreous. Clypeus, face, temples and thorax with a pale brassy pubescence, scanty on the thorax. First three tergites with a very fine brassy golden pubescence, much finer and shorter than in *pseudoliris* and confined chiefly to the apical halves of the segments. Pygidial area covered with pale yellow pubescence, the apical margin with five ferruginous spines. Sternites 1–3 dull, closely and microscopically punctured and covered with fine pubescence, the remaining sternites glabrous, shining, sparsely and coarsely punctured. The sculpture of the thorax is like that of *pseudoliris* but finer, especially on the epinotal dorsum. Anterior margin of the clypeus feebly convex, with a very small and shallow excision in the middle. Interocular distance on the vertex equal to the length of the second joint of the flagellum plus one-third of the third. The joints of the flagellum are considerably shorter than in *pseudoliris*, the second joint is hardly twice as long as the first and only a trifle longer than the third, and only two and a half times longer than wide at the apex (four times longer in *pseudoliris*). The dorsum of the epinotum is a little wider across the base than long in the middle. The pygidial area is triangular, closely and finely punctured and more widely truncate at the apex than in *pseudoliris*. As in that species the claws are unarmed.

Zambi, Belgian Congo, 1 ♀ (Dr J. Bequaert). Type in the Congo Museum, Tervueren.

N. nitens n.sp. (fig. 14).

♂. 8 mm. long. Black. Hind femora ferruginous, the tibiae, tarsi and apices of the fore and middle femora, fusco-ferruginous. Scapes in front and the middle of the mandibles also fusco-ferruginous. Wings fusco-hyaline, somewhat paler at the base, the veins and stigma black. Face and clypeus with silvery pubescence. Thorax and apical margins of the first three tergites with a scanty greyish pubescence, longer and more conspicuous on the epinotal declivity than elsewhere. Anterior margin of the clypeus smooth and shining, the rest of the clypeus and also the face dull, microscopically and closely punctured; vertex, scutellum and metanotum shining, finely and not closely punctured, the spaces between the punctures about three or four times wider than one of the punctures. Mesonotum and mesopleurae not quite dull, more closely and more coarsely punctured than the scutellum. Epinotum and metapleurae shining, the latter impunctate, the former strongly rugose,

the rugae transverse on the dorsum and declivity, oblique on the sides. Abdomen microscopically and closely punctured and dull. Anterior margin of the clypeus obtusely angular in the middle. Second joint of the flagellum twice as long as the first, and as long as the third. Interocular distance on the vertex equal to the length of the first two joints of the flagellum plus a third of the third joint. Pronotal collar linear above. Dorsum of the epinotum fairly long, about as long as wide at the base and as long as the mesonotum, the posterior angles rectangular. Posterior femora not angulated at the base.

Coquilhatville, Belgian Congo, June, 1 ♂, (Dr J. Bequaert). Type in the Congo Museum, Tervueren.

Superficially this species resembles *N. thysanomera*, race *usambarensis* Cam. but the genitalia are of an entirely different build.

N. egregia n.sp. (figs. 15, 15*a*).

♂. 9 mm. long. Black. Apical half of the flagellum dark brown. Wings faintly fusco-hyaline, the apical margin narrowly and more deeply fuscous, the veins brown. Clypeus and lower half of the face with silvery, the upper half of the face with pale golden, pubescence. Temples and thorax with a fine grey pubescence, the abdomen with an exceedingly fine, decumbent and dark brown pubescence, the first three tergites with apical fasciae of greyish pubescence, the sixth laterally and the whole of the seventh with longer yellowish grey pubescence. Fifth sternite arcuately emarginate over the greater part of the hind margin and bearing on each side a pencil of long brown hairs. Wings faintly fusco-hyaline, the apical margin more deeply fuscous, the veins dark brown. Whole body dull; head microscopically and closely punctured, mesonotum very finely and closely punctate-rugulose, the mesopleurae microscopically reticulate-punctate, the scutellum and metanotum closely and finely punctured. Dorsum of the epinotum transversely and closely striate, almost rugose. Anterior margin of the clypeus smooth, moderately convex, not excised in the middle. Interocular distance across the base of the clypeus about three-fourths greater than across the vertex, where it is equal to the length of the first two joints of the flagellum plus one-third of the third joint. The second joint of the flagellum is half as long again as the first and distinctly shorter than the third. Pronotal collar oblique, its dorsal face linear. Dorsum of the epinotum one-fifth longer than wide at the apex, four times longer than the scutellum. Seventh tergite trapezoidal, the apical margin wide and feebly concave. Eighth sternite arcuately emarginate. Posterior femora strongly angulated at the base, almost dentate.

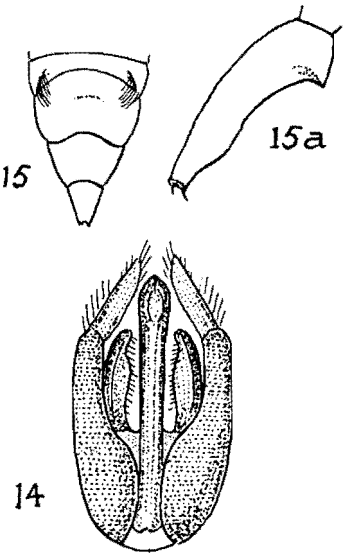


Fig. 14. *Notogonidea nitens*, ♂, genitalia.

Fig. 15. *Notogonidea egregia*, ♂, apical sternites; *a*, ♂, left femur from below.

Coquilhatville, Belgian Congo, 2 ♂♂ (Dr J. Bequaert). The type in the Congo Museum, the paratype in the Rhodesia Museum.

Easily recognised by the peculiar fimbriae on the fifth sternite, the strongly angulated posterior femora and by the structure of the genitalia (fig. 16).

N. thysanomera Kohl, race *usambarensis* Cam.

A variety of this race is to be recorded from Bulawayo, in which the ♀ has the last two abdominal segments and the scapes of a reddish colour.

N. pompiliformis F. race *intermedia* Arn. (fig. 19).

This varies in size rather considerably, the ♂♂ measuring from 6 to 9·5 mm. in length, and the ♀♀ from 9·5 to 12 mm.

Two ♀♀ in the R. M. coll. from S. Rhodesia differ from the typical form in having the pygidial area dull and the sides straight. Specimens of *N. simulatrix* in both sexes in a worn condition may be mistaken for this species, but

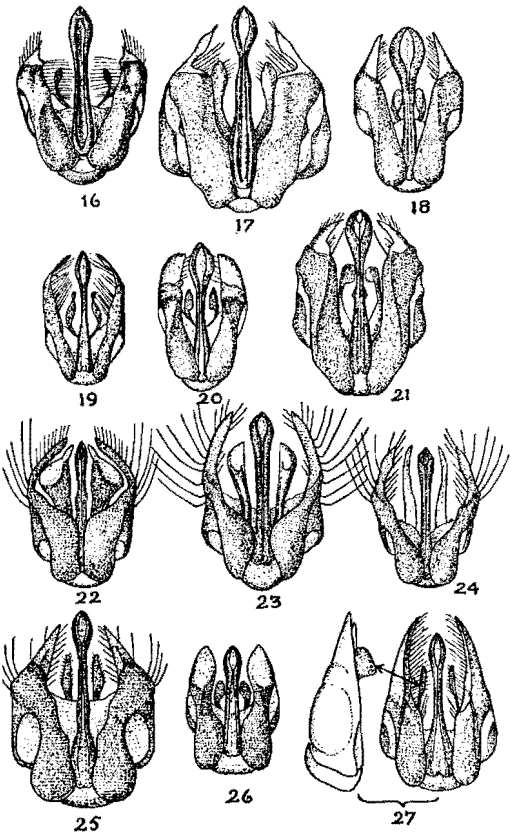


Fig. 16. *Notogonidea egregia*, ♂, genitalia.
Fig. 17. *Notogonidea radialis*.
Fig. 18. *Notogonidea felina*.
Fig. 19. *Notogonidea pompiliformis-intermedia*.
Fig. 20. *Notogonidea angustiventris*.
Fig. 21. *Notogonidea thysanomera*.
Fig. 22. *Notogonidea gracilicornis*.
Fig. 23. *Notogonidea minima*.
Fig. 24. *Notogonidea miscophoides*.
Fig. 25. *Notogonidea nigricans-palumbula*.
Fig. 26. *Notogonidea ciliata*.
Fig. 27. *Notogonidea simulatrix*, lateral and dorsal views.

simulatrix has the basal half of the wings tinged with ochreous, and the veins in that part are also ochreous, whereas in *pompiliformis-intermedia* there is no ochreous tint, and the veins are black.

N. miscophoides Arn. (fig. 24).

♂ (hitherto undescribed). 5·2–6·3 mm. long. Tarsi black or dark brown, the last two abdominal segments piceous, otherwise coloured like the ♀. Seventh tergite trapezoidal, the apical margin wide, fairly closely covered with large and shallow punctures. Eighth sternite widely rounded at the apex, nearly semi-circular. Interocular distance across the base of the clypeus fully two and a half times greater than across the vertex, where it is equal to the length of the first two joints of the flagellum. The second joint of the latter is as long as the third and not quite twice as long as the first (in the ♀ the interocular distance on the vertex is equal to the length of only the second joint). Outer paramera of the genitalia much narrowed towards the apex from beyond the middle, curved inwards, fringed with numerous hairs on the inner, and with six long hairs on the outer margin; the inner paramera thin, cultrate, translucent and flat. Otherwise like the ♀.

Hope Fountain and Khami, S. R. Type in the Rhodesia Museum.

N. minima Arn. (fig. 23).

The ♀ varies in size from 6·5–8·2 mm.

♂ (hitherto undescribed). 6–7 mm. long. Tarsi black, otherwise like the ♀ in colour, sculpture and pubescence. Median area of the clypeus subcarinate in the middle, its anterior margin straight and entire, not slightly excised as in the ♀. Second joint of the flagellum twice as long as the first and as long as the third. Interocular distance across the base of the clypeus nearly three times as great as across the vertex, where it is equal to the length of the first two joints of the flagellum. Genitalia not unlike those of *miscophoides*, but the outer paramera have about 14 hairs on the outer margin and the inner paramera are ampliated over the apical third and are somewhat hollowed out above. Otherwise like the ♀.

Bulawayo, June to July. Type in the Rhodesia Museum.

Dr Maidl has given the name *minima* to a species of *Notogonidea* from El Obeid (*Denkschr. Akad. Wiss. Wien*, vol. XCIX, p. 237, 1924). Since *minima* Arn. has priority, I propose for Dr Maidl's species the name *Maidli*, n.nov.

N. gracilicornis Arn. (fig. 22).

♂ (hitherto undescribed). 5 mm. long. Tarsi blackish brown. Apical margins of the second to sixth tergites dark brown. Pubescence like that of the ♀ but much scantier. Dorsum of the epinotum not quite dull, closely, transversely and finely rugulose and very shallowly reticulate between the rugae. Sternites moderately shining, very finely and shallowly punctured. Otherwise like the ♀ in colour and sculpture. Interocular distance across the clypeus barely more than twice as great as across the vertex, where it is equal to the length of the first two joints of the flagellum. Median area of the clypeus longitudinally carinate, the anterior margin transverse. Second joint of the flagellum as long as the third and half as long again as the first. Pronotal collar as in the ♀. Seventh tergite trapezoidal, the apical margin straight and wide, the eighth sternite subquadrate, wider than long, the apical margin convex. Outer paramera of the genitalia with the apical portion narrower than in either *miscophoides* or *minima*, and more incurved, the outer margin with

about 14 hairs; the inner paramera subtriangularly dilated and swollen apically, the extreme apex subulate.

Matopos and Bulawayo, May to June. Type in the Rhodesia Museum.

Not taken with the ♀, but I think this ♂ is co-specific with the type on account of the structure of the pronotum and the puncturation of the head and mesonotum.

Genus PALARUS Latr.

P. Handlirschii Brauns, race *occidentalis* n.r.

♀. 11 mm. long. Allied to the variety *nigrior* Arn. from which it differs chiefly in colour and puncturation.

Clypeus and the two supra-antennal spots, which are larger than in *nigrior*, white. The spots on the tegulae and the streaks on the fore and middle femora are also white, instead of yellow as in *nigrior*. Tergites 1–5 ivory white, the declivous base of the first, and the extreme base of the other tergites, black; the depressed apical margins of the segments brown. Middle and hind tibiae and tarsi reddish yellow. Mesonotum very convex, and like the scutellum, shining and sparsely punctured, much more sparsely than in *nigrior*; the mesonotum is also less pubescent than in that variety. Tergites more sparsely and slightly more finely punctured. The pygidial area as in *nigrior*. Face more prominent in the middle above the antennae. Otherwise like var. *nigrior* ♀.

♂. 12·3 mm. long. Colour of the head and thorax as in the ♀. The markings on the abdomen like those of *nigrior* ♂ and of the same colour, yellowish white, but the maculae on the first tergite are larger. As in the ♀, the mesonotum is much more convex than in *nigrior*, and like the scutellum it is shining and much more sparsely punctured than in *nigrior*. The seventh tergite is much less ampliated at the sides, so that it is longer than wide, whereas in *nigrior* it is wider than long. Mesopleurae much more finely punctured than in *nigrior* ♂. Otherwise like that variety.

Kaross, S.W. Africa, 1 ♀, 1 ♂. Types in the South African Museum.

MISCOPHUS Group.

Genus NITELA Latr.

N. parallela n.sp. (figs. 28, 28*a*).

♀. 3·2 mm. long. Black. The anterior tibiae and all the tarsi brown. Wings hyaline, the veins black. Clypeus and lower third of the face with a sparse silvery pubescence. Head dull, closely punctured (the punctures not distinct with a magnification of less than 30 diameters), the temples more shallowly punctured than the vertex. Pronotum dull, the dorsal face of the collar closely reticulate-rugose. Mesonotum and scutellum not quite dull, as finely and as closely punctured as the vertex, but more shallowly, with a few longitudinal rugae at the base. Mesopleurae moderately shining, punctured like the mesonotum, and with a clathrate groove extending from the episternal suture to the metapleurae, the latter smooth and shining. Dorsum and sides of the epinotum dull, longitudinally rugose and with numerous transverse anastomoses, the declivity reticulate-rugose and dull. Abdomen smooth and shining. Median area of the clypeus carinate lengthwise in the middle, the anterior

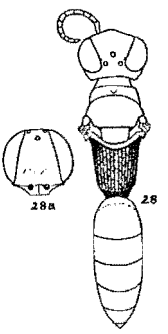


Fig. 28. *Nitela parallela*, ♀; *a*, ♀, head.

margin transverse. Eyes strongly divergent below, the interocular distance across the clypeus being twice as great as across the vertex, where it is equal to the length of the first three joints of the flagellum. Posterior ocelli separated from the eyes by less than their own diameter, five times as far from each other as from the eyes. First joint of the flagellum a little longer than the second and nearly as long as the third. Pronotal collar about four times wider than long in the middle, the shoulders rounded. Dorsum of the epinotum long, as long as the mesonotum and pronotum united, and distinctly longer than wide at the apex. The whole thorax is rather narrow. Abdomen narrow, for the greater part parallel-sided, the first segment the longest.

Umtali, S. R. May, 1 ♀ (R. H. R. Stevenson). Type in coll. Stevenson.

N. lubutuana n.sp. (fig. 29).

♀. 6 mm. long. Black. Legs pale ferruginous, the middle femora slightly fuscous basally, the hind femora blackish over the basal two-thirds. Mandibles ferruginous, blackish at the base, with a tooth on the inner margin some distance from the acute apex. Wings hyaline, faintly tinged with fuscous, the veins and stigma dark brown. Lower half of the face with a thin whitish pubescence, the rest of the head and the thorax with a greyish, scanty and microscopic pubescence. Anterior margin of the clypeus with eight brownish porrect bristles. Head dull, closely and microscopically punctured, only the anterior margin of the clypeus in the middle being smooth and shining. Pro-mesonotum and metanotum dull. The pronotum is closely rugulose and coriaceous, the dorsal face with two curved grooves on each side of the middle. Mesonotum and mesopleurae behind the episternal suture closely and finely punctured, the mesonotum with a few irregular transverse rugae at the sides in front; the mesopleurae rugose in front of the episternal suture, from which near the base a clathrate groove extends back as far as the middle of the segment. Above the groove is a deep pit. Scutellum flat, much more finely and less closely punctured than the mesonotum. Metanotum microscopically punctured. Epinotum widely reticulate-rugose, the rugae emphasised longitudinally on the dorsum and the sides, the spaces between smooth and shining on the dorsum, coriaceous on the sides, the declivity reticulate-rugose. Abdomen smooth and shining, with a puncturation which is barely visible under a magnification of 40 diameters. Antennal sockets separated from the anterior margin of the clypeus by a distance equal to half the length of the first joint of the flagellum. Median area of the clypeus with a strong carina which extends beyond it as far as the end of the concave portion of the face. Eyes moderately convergent above. Second joint of the flagellum as long as the first and distinctly shorter than the third. Interocular distance on the vertex equal to the length of the first three joints of the flagellum. Posterior ocelli three times as far from each other as from the eyes. Pronotal collar about four times wider than long, the anterior angles rounded. Dorsum of the epinotum a little longer than wide at the apex and nearly as long as the pro-mesonotum. Second sternite transversely impressed on each side at the base, the sixth sternite transversely compressed but not carinate lengthwise. Maxillary palpi ochreous and long, fully half as long as the antennae.

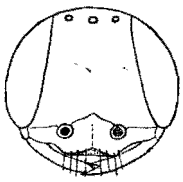


Fig. 29. *Nitela lubutuana*, ♀.

Lubutu, Belgian Congo, January, 3 ♀♀ (Dr J. Bequaert). Type in the Congo Museum, Tervueren, paratype in the Rhodesia Museum.

Allied to *capicola* Brauns of which only the ♂ is known. It is, however, too large to be the ♀ of that species, and, moreover, the sculpture of the mesonotum and scutellum is different.

Genus SOLIERELLA Spin.

S. scrobiculata Brauns.

♂ (hitherto undescribed). 3–3·3 mm. long. Basal joint of the tarsi varying from pale ochreous to brownish ochreous, the other joints pale brown. The hind tarsi are slightly thickened, especially the first two joints. Antennae 12-jointed as in the ♀. Seventh tergite widely rounded at the apex. Eyes slightly more divergent below than in the ♀; otherwise like that sex.

Bulawayo, May to June and December, numerous specimens of both sexes, nesting in sand (R. H. R. Stevenson). Type in the Rhodesia Museum.

S. rhodesiana Arn.

♂ (hitherto undescribed). 3 mm. long. Tibiae and tarsi, excepting the apical joint, pale lemon yellow, the apical joint brownish. Puncturation of the head and scutellum stronger, otherwise like the ♀ in sculpture, colour and pubescence. The clypeus is not produced in the middle as in the ♀, but the carina is sharper than in that sex, and there is a small sharp tooth at the middle of the anterior margin. Antennae 13-jointed, the apical joint very long, fully as long as the five preceding joints united. Seventh tergite triangular, narrowly rounded at the apex.

Bulawayo, September to October, found in the same situations as *scrobiculata*. Type in the Rhodesia Museum.

Genus MISCOPHUS Jur.

M. verecundus Arn.

♀ (hitherto undescribed). 5 mm. long. Second abdominal segment red, the tergite with a brownish patch on each side. Legs a little paler than in the ♂, otherwise like that sex in colour, sculpture and pubescence. Flagellum slender, all the joints except the first much longer than wide, the first joint twice as long as wide, the second joint twice as long as the first and a little longer than the third. Interocular distance on the vertex equal to a little more than the length of the first three joints of the flagellum. Median area of the clypeus distinctly gibbous, its anterior margin less convex than in the ♂. Apical tergite broadly conical, the apex narrowly rounded. Otherwise like the ♂.

Matopos, S. R. October (R. H. R. Stevenson). Type in the Rhodesia Museum.

In another ♀ from the same locality all the tergites are reddish brown.

M. bellulus Arn.

♂ (hitherto undescribed). 4·3–5 mm. long. Mandibles pale yellow, fusco-ferruginous at the base and apex. Anterior margin of the clypeus, scapes and the underside of the first three joints of the flagellum, dirty yellow. Legs entirely yellowish red. Last three abdominal segments pale ferruginous, the purplish patches on the first two tergites less distinctly defined than in the ♀, or sometimes extending over the whole of the second tergite. Otherwise like the ♀ in colour, sculpture and pubescence. Interocular distance on the vertex equal to the length of the first four joints of the flagellum. Posterior ocelli a little nearer to each other than to the eyes. As is usually the case in the genus, the joints of the flagellum are shorter and less slender than in the ♀; the second

joint is about half as long again as the first and a little longer than the third. The median area of the clypeus is produced farther forwards than in the ♀, and its anterior margin is truncate. Otherwise like the ♀.

Matopos and Shikore River, S. R. October (R. H. R. Stevenson). Type in the Rhodesia Museum.

M. modestus n.sp. (figs. 30, 30*a*).

♀. 6·3 mm. long. Black. Legs pale ferruginous, the femora diffusely fuscous above. Mandibles fusco-ferruginous, reddish yellow at the base. Anterior margin of the clypeus reddish brown in the middle. Scapes in front pale ferruginous. Wings hyaline, the apical portion beyond the cells faintly fuscous, the veins brown.

Face and clypeus with a short, decumbent and rather sparse, yellowish pubescence, the thorax with a similar but longer pubescence. The abdomen has a fine, greyish yellow and decumbent pubescence, fairly dense on the tergites where it obscures the sculpture, especially on the apical margins of the first three where it forms fasciae which are more distinct at the sides than in the middle. Median area of the clypeus sparsely punctured, its widely

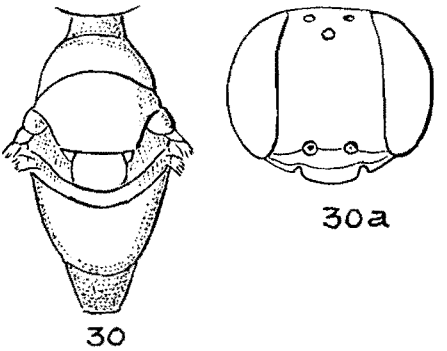


Fig. 30. *Miscophus modestus*, ♀, thorax; *a*, ♀, head.

depressed apical margin smooth and shining. Head dull, closely and finely punctured, or reticulate-punctate. Pronotum dull, closely and transversely striato-rugose, punctured between the rugae. Mesothorax closely reticulate-punctate, the punctures larger than those on the head, the mesopleurae with a few transverse rugae at the posterior margin. Dorsum of the epinotum reticulate-rugose, the rugae emphasised longitudinally and curved towards the sides, the spaces between the rugae somewhat shining; the sides of the epinotum more closely reticulate-rugose than the dorsum, the declivity transversely rugose in the middle. Abdomen dull, closely and very finely punctured; the second tergite has a slightly bluish black colour. Eyes moderately divergent below, the interocular distance across the base of the clypeus half as great again as across the vertex, where it is equal to the length of the first two joints of the flagellum plus half of the third. Clypeus excised on each side between the lateral and median sclerites, the anterior margin of the latter convex. Second joint of the flagellum as long as the third. Collar of the pronotum convex transversely, sloping fairly gradually towards the neck, three times wider than long in the middle and fully half as long as the mesonotum. Dorsum of the epinotum nearly flat, as long as the declivity and not longer than the

mesonotum, its junction with the declivity obtusely angular. Spines on the legs black. The stalk of the second cubital cell is about as long as that cell is high, and meets the radius a little before its middle.

Sanyati Valley, S. R. December, 1 ♀ (R. H. R. Stevenson). Type in coll. Stevenson.

M. ichneumonoides n.sp. (figs. 31, 31*a*).

♂. 5·3 mm. long. Black. The extreme apex of the epinotal declivity and the first two abdominal segments ferruginous, the third tergite and the third to seventh sternites fusco-ferruginous. Tarsi brown, anterior tibiae yellowish brown above. Mandibles brownish yellow, the apex fuscous. Wings hyaline, strongly iridescent, the veins dark brown. Face, clypeus and sides of the first three tergites with a microscopic and fairly sparse silvery pubescence. Just above the antennal sockets there is a line of yellowish white pubescence extending from eye to eye. Clypeus finely and transversely rugulose, the depressed apical margin smooth and shining. Lower third of the face transversely rugulose and dull, the middle third slightly shining, with a small pit in the middle and an ill-defined hollow on each side below it, the upper third of the

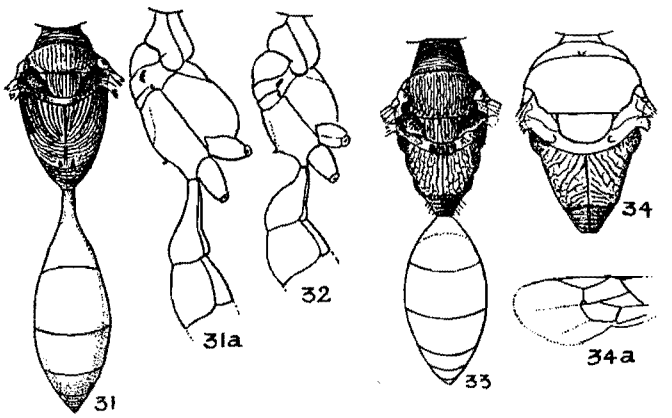


Fig. 31. *Miscophus ichneumonoides*, ♂; *a*, ♂, lateral view of thorax.
Fig. 32. *Miscophus Kohli*, ♂, lateral view of thorax.
Fig. 33. *Miscophus infernalis*, ♀.
Fig. 34. *Miscophus lugubris*, ♀; *a*, apex of front wing.

face shining, microscopically reticulate or alutaceous. Vertex shining, transversely striate, the striae continued down over the temples. Pronotum transversely, mesonotum and scutellum longitudinally costate, the spaces between the costae fairly wide. Mesopleurae and sides of the epinotum transversely and closely rugose. Dorsum of the epinotum with a median longitudinal carina, longitudinally rugose on each side of the same, the rugae converging inwards towards the apex, the declivity transversely costate. Halfway down the declivity there are two small, erect teeth, and an impressed line extends from them to the dorsum. The dorsum and declivity merge together in a low curve. Metanotum smooth and shining. The whole thorax is fairly shining. Abdomen shining, very finely and not closely punctured. Interocular distance on the vertex equal to a little more than the length of the first two joints of the flagellum. The eyes are only moderately divergent

below. Posterior ocelli a little farther from the eyes than from each other. Flagellum long and slender, all the joints, excepting the first and last, considerably longer than wide; the second joint is nearly three times longer than the first and two-fifths longer than the third. Pronotal collar long, the dorsal face very oblique, only a little shorter than wide at the base. Mesonotum very short, not much longer, measured tangentially, than the scutellum. First abdominal segment subpetiolate, three and a half times wider across the apical margin than at the base, longer than the second segment. The stalk of the second cubital cell meets the radius in the middle, the second recurrent vein meets the cubitus a little beyond the middle of the second cubital cell.

Sanyati Valley, S. R. November, 1 ♂ (R. H. R. Stevenson). Type in coll. Stevenson.

A very distinct species, distinguished from all our other species by the strong sculpture and subpetiolate abdomen. Allied to *Kohli* Brauns but the first abdominal segment is much longer and the shape of the epinotum quite different.

M. infernalis n.sp. (fig. 33).

♀. 5·3 mm. long. Black. Face and posterior margin of the pronotal collar with a few scattered silvery hairs. Metanotal disc, anterior angles of the epinotum and lateral margins of the declivity with similar, but longer and coarser, pubescence. Abdomen with a microscopic, sparse and greyish pubescence, a little more abundant on the apical margins of the first three tergites, but not forming distinct fasciae. Wings pale fuscous, their middle portion, or the greater part of the first cubital and both discoidal cells, clear hyaline; the veins dark brown. Head dull; the clypeus transversely rugulose, the lower third or more of the face strongly, transversely rugose, the rest of the face, the vertex and occiput closely reticulate-rugose, the temples striate lengthwise. Pronotum closely and transversely rugose above, feebly rugose and closely punctured at the sides. Mesonotum and scutellum longitudinally rugose, the former also reticulate at the sides posteriorly. Mesopleurae closely and transversely rugose, finely punctured between the rugae. Metapleurae less closely rugose than the mesopleurae. Dorsum of the epinotum widely reticulate-rugose, the rugae emphasised longitudinally, the lateral margins with two or three very strong rugae, the declivity slightly shining, and like the sides strongly and transversely rugose, the sides also punctured near the front. The whole thorax, excepting the declivity, nearly dull. Abdomen dull, the first two tergites very closely and very finely punctured, the remaining tergites microscopically and densely punctured, the sternites microscopically rugulose. Eyes moderately divergent below, the interocular distance across the base of the clypeus being only half as great again as across the vertex, where it is equal to the length of the first two joints of the flagellum plus half of the third. Posterior ocelli twice as far from each other as from the eyes. Second joint of the flagellum twice as long as the first and one-third longer than the third. Pronotal collar convex, merging with the neck by a short and gradual curve, the dorsal face about one-third as long as the mesonotum. Dorsum of the epinotum about as long as the scutellum and metanotum united, the lateral margins slightly raised. The stalk of the second cubital cell is only half as long as that cell is high and meets the radius a little before its middle. Tarsal spines long, thin and black.

♂. 4·5 mm. long. First six tergites equally punctured, the puncturation somewhat stronger than on the first two tergites of the ♀. Eyes less divergent below than in the ♀, the interocular distance across the clypeus being only

one-third greater than across the vertex, where it is equal to the length of the first three joints of the flagellum plus half of the fourth. Median area of the clypeus produced into a short, acute tooth. Second joint of the flagellum less than twice as long as the first, and about as long as the third. Otherwise like the ♀.

Bulawayo, August, 1 ♀, 1 ♂ (R. H. R. Stevenson). Types in coll. Stevenson.

M. lugubris n.sp. (fig. 34).

♀. 4·3 mm. long. Black. Wings hyaline, the apical portion beyond the cells slightly fuscous, the veins brown. Pubescence white and fairly coarse, very scanty on the clypeus and lower third of the face, a little more abundant on the temples and thorax, excepting the mesonotum, scutellum and epinotal dorsum. On the abdomen the pubescence is confined to the apical margins of the first four tergites. Head dull, finely, shallowly and closely punctured, the punctures separated by spaces about as wide as the punctures. Thorax dull; pronotum, mesonotum and scutellum as closely punctured as the head, but more strongly so, the metanotum more finely so. Mesopleurae coriaceous. Dorsum of the epinotum rugose, the rugae radiating outwards from the base, the sides and declivity coarsely and transversely rugose. Abdomen slightly shining, finely punctured, the punctures smaller and not so close together as those on the vertex. Eyes almost parallel, the interocular distance on the vertex being only slightly less than across the clypeus, and equal to the length of the first three joints of the flagellum. Posterior ocelli fully twice as far from each other as from the eyes. Flagellum not very slender, the second joint not quite twice as long as the first. Pronotal collar short, one-fourth as long as the mesonotum. Dorsum of the epinotum as long as the mesonotum. Abdomen ovate. Second cubital cell triangular, very small and almost obsolete, its stalk three times as long as the cell is high.

Nyamandhlovu, S. R. June, 1 ♀ (R. H. R. Stevenson). Type in coll. Stevenson.

Genus SALIOSTETHUS Brauns.

S. capicola Brauns (figs. 36, 36*a*).

This species has been collected also at Plat River, Waterberg district, Transvaal (C. J. Swierstra).

S. rhodesianus n.sp. (figs. 35, 35*a*).

♀. 4 mm. long. Closely allied to *capicola* Brauns, from which it differs as follows.

First tergite, the middle of the second and the whole of the sixth, ferruginous; the third to fifth and the second at the sides, black; the apical margins of the second to fifth, flavo-testaceous. The colour of the rest of the body and of the legs as in *capicola*. Pubescence and colour of the wings as in *capicola*. Face with a stronger sculpture than in that species, consisting of a very fine and close reticulate puncturation. Dorsal face of the pronotal collar, mesonotum and scutellum rather coarsely reticulate-punctate. Mesopleurae shining, sparsely and coarsely punctured. Dorsum of the epinotum rugulose and also microscopically punctured, without the triangular depression which is present in *capicola*, not transversely striolate in the middle; it has a median carina which does not reach the apical margin. Sides of the epinotum shallowly, finely and fairly closely punctured. Abdomen with sculpture similar to that of *capicola*, but somewhat stronger, the second tergite distinctly striolate lengthwise (magnification of not less than 35 diameters).

Eyes a little more convergent above, the interocular distance on the vertex equal to the length of the first three joints of the flagellum plus half of the fourth. The flagellum is thicker and shorter than in *capicola*, only the first three and the last joints being clearly longer than wide; the first joint is a little longer than the second, which is one-third shorter than the third. Pronotal collar shorter, its anterior face much less oblique than in *capicola*. The anterior tarsi differ considerably from those of *capicola*. The basal joint is produced at the apex outwardly and has six flattened spines, the first five inserted on the middle line underneath, the second joint has a very long spine at the apex and each joint is clearly narrower than the one behind it. In *capicola* the basal joint is not produced and has only four spines which are inserted on the outer margin. Venation like that of *capicola*.

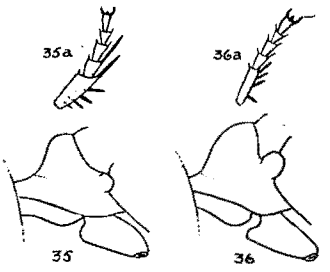


Fig. 35. *Saliostethus rhodesianus*, ♀; *a*, ♀, anterior tarsus.
Fig. 36. *Saliostethus capicola*, ♀; *a*, ♀, anterior tarsus.

♂. 3·5 mm. long. Head and thorax black, the mandibles pale yellow, the scapes and first two joints of the flagellum underneath creamy white. The pronotal tubercles and disc of the metanotum creamy white as in the ♀. Tibiae pale reddish below, straw-yellow above, the apices of the femora and the first two joints of the tarsi also of that colour. Fore and middle femora brown, suffused with pale yellow behind, the hind femora ferruginous. Face with widely spaced tufts of decumbent, silvery pubescence. Clypeus with a fairly dense silvery pubescence, its anterior margin bluntly angular in the middle. Pro-mesonotum more closely and less coarsely punctured than in the ♀. The apical portion of the fore wing is less deeply fuscous than in the ♀. First and second joints of the flagellum of about equal length, the third nearly half as long again as the second. Interocular distance on the vertex equal to the length of the first four joints of the flagellum. Seventh tergite widely rounded at the apex. Anterior tarsi normal, slender and long, without a comb. Otherwise like the ♀.

Nyamandhlovu, S. R. May, 1 ♀, 1 ♂ (R. H. R. Stevenson). Types in coll. Stevenson.

PEMPHREDON Group.

Genus PSENULUS Kohl.

P. luctuosus n.sp. (figs. 37, 37*a*).

♀. 9 mm. long. Black. Apical margin of the fourth tergite and the whole of the fifth and sixth abdominal segments, ferruginous. Scapes below, first four joints of the flagellum, anterior tibiae and tarsi and extreme base of the middle tibiae, fusco-ferruginous. Wings hyaline, very slightly smoky, the veins and stigma black. Face, clypeus and the thorax with a scanty white pubescence, but on the mesosternum long and dense. Clypeus and face below the antennae nearly dull, very finely, sparsely and very shallowly punctured; the rest of the face, the vertex and the temples shining, the vertex and temples more sparsely punctured than the face. Pronotal collar shining, with a few large punctures. Mesonotum, scutellum and metanotum dull, with a few large and shallow punctures. Mesopleurae dull, impunctate. Dorsum of the epinotum very finely striolate on each side of a median and more or less T-shaped shining

groove, which is strongly clathrate; the sides of the epinotum are smooth and shining in front, like the declivity, and reticulate-rugose behind. Abdomen smooth and shining, with a few very fine punctures. Clypeus with two blunt teeth in front, as in *bidentatus*, but the clypeus is longer than in that species. The transverse carina below the antennal sockets is shorter than in *bidentatus* and is more acutely angular in the middle. In place of the median longitudinal carina which is present in *bidentatus*, there is a broad wedge which is expanded on top to form a lozenge-shaped and slightly concave area. The antennae are thicker than in *bidentatus*, the second joint of the flagellum is less than twice

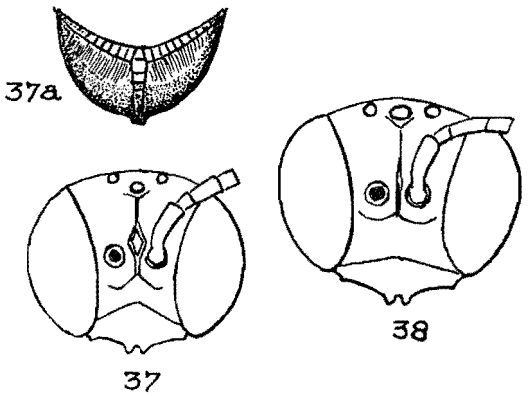


Fig. 37. *Psenulus luctuosus*, ♀, head; *a*, ♀, epinotum.
Fig. 38. *Psenulus bidentatus*, ♀, head.

as long as the first and only twice as long as wide (two and a half times in *bidentatus*). The proportions of the thoracic segments are like those of *bidentatus*, but the groove on the epinotum is narrower, especially the basal arm, and more strongly clathrate. Abdomen wider or less lanceolate than in *bidentatus*, the first tergite is wider at the apex than long, whereas in *bidentatus* it is one-fifth longer than wide, the second tergite is nearly twice as wide at the apex as long (only one-third wider in *bidentatus*).

Vumbu Mts, Umtali, S. R. February, 1 ♀ (G. Arnold). Type in the Rhodesia Museum.

Genus PASSALOECUS Shuck.

P. Braunsi Kohl, var. *ferrugineipes* n.v.

♀. This variety differs from the type of the species in having the upper side of the scape and the whole of the first two joints of the flagellum yellowish red; the rest of the flagellum is brown. Legs pale ferruginous, the fore and middle tibiae in front and the hind tibiae at the base yellowish white as in the type of the species.

Memeh Town, Liberia, August (Dr J. Bequaert). Type in the Congo Museum, Tervueren.

P. Bequaerti n.sp. (fig. 39).

♀. 5 mm. long. Black. Scapes below, first joint of the flagellum, apex of the mandibles, anterior tibiae, tarsi and base of the femora, pale reddish brown; the rest of the legs, including the whole of the middle and hind tibiae, dark brown. Wings hyaline, the costa, stigma and radius black, the rest of the veins

testaceous, the second cubital cell almost as wide on the radius as on the cubitus. Clypeus smooth and shining, almost glabrous, angularly produced in the middle in front. The facial concavity is much deeper than in *Braunsi*, finely striolate transversely in the middle, closely and finely rugose and reticulate at the sides. The vertex is dull, closely and finely punctate, transversely striate between the posterior ocelli and the eyes. Mesonotum dull, very closely punctured, almost reticulate-punctate; the basal third, between the clathrate longitudinal grooves, with about eight short rugae instead of being reticulate-rugose as in *Braunsi*. The epinotal dorsum is much more sharply and more coarsely reticulate than in *Braunsi*. Abdomen very shining, all the segments microscopically and sparsely punctured. Otherwise like *Braunsi*, from which it is distinguished chiefly by the shape of the clypeus, the different sculpture of the vertex, mesonotum and first tergite, and by the more slender and relatively longer flagellum.

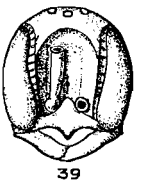


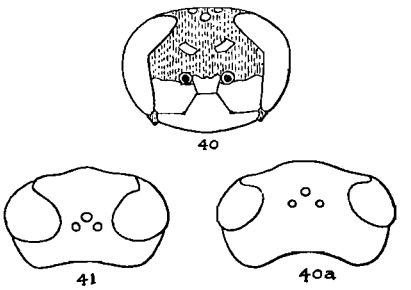
Fig. 39. *Passaloecus Bequaerti*, ♀.

Lubumbashi, Katanga, Belgian Congo, June, 1 ♀ (Dr J. Bequaert). Type in the Congo Museum, Tervueren.

PHILANTHUS Group.

P. gwaaiensis n.sp. (figs. 40, 40*a*).

♂. 9 mm. long. This species belongs to the *fuscipennis* species-group. Colour as in *fuscipennis* Guérin, but the face has only two yellow marks above the antennal sockets. The pronotal collar is entirely black and the tegulae have only a small yellow spot in front, and there is a very small yellow spot on the middle of the temples. Face and clypeus with a short, scanty and whitish pubescence. Clypeus and the creamy white lower part of the face shining, very shallowly, sparsely and finely punctured. Upper part of the face and the vertex as far as the posterior ocelli dull, closely reticulate-punctate. Behind the posterior ocelli the vertex and the temples are slightly shining, coarsely punctured, much more so than in *fuscipennis*, the punctures and the spaces between them of about equal width. Pronotum closely punctured, with a distinct although short collar, not linear above as in *fuscipennis*. The sculpture of the mesothorax and metanotum is as in that species, but somewhat closer. The sculpture of the epinotal dorsum is like that of *fuscipennis*, but the triangular area is margined at the sides by a shallow groove instead of a raised line. Tergites smooth and shining, the first five with a few shallow punctures at the sides, the sixth punctured all over. First and second sternites smooth and shining, the apical margin of the second and all the following sternites shallowly, closely and not very coarsely punctured. Sternites 3–7 dull. Median area of the clypeus wider than long, the anterior margin feebly convex and without teeth. Second joint of the flagellum half as long again as the third (twice as long in *fuscipennis*). Eyes nearer together above than in *fuscipennis*,



Figs. 40 and 40*a*. *Philanthus gwaaiensis*, ♂.
Fig. 41. *Philanthus fuscipennis*, ♂.

the interocular distance on the vertex being equal to the length of the first four joints of the flagellum (to the first six in *fuscipennis*). The vertex is also much shorter than in that species (fig. 41). Thorax less robust than in *fuscipennis*, the epinotal dorsum at the posterior margin somewhat less than twice as wide as long, whereas in the other species it is about two and a half times as wide as long.

Gwaai, S. R. January, 2 ♂♂ (G. Arnold). Type in the Rhodesia Museum.

THYREOPUS Group.

Genus THYREOPUS Lep.

T. libertinus n.sp. (figs. 42, 42*a*).

♂. 6·5 mm. long. Black. Scapes in front, pronotal collar above excepting the middle, disc of the metanotum, a streak on the front of the pronotal tubercles, a round spot on the mesopleurae below the tegulae, anterior tibiae, tarsi and lower half of the femora, apical three-fourths of the middle femora below and the apical two-thirds of the middle tibiae on the outside, lemon yellow. A small round spot on each side of the second tergite and transverse oblong spots on each side of the third to fifth tergites, pale yellow. Wings pale fusco-hyaline, darker apically, the veins black. Clypeus, sides of the face and the temples with silvery pubescence. Vertex, upper part of the temples and the mesonotum with a sparse, erect and brownish pubescence, the sides of the thorax with grey pubescence. Clypeus dull, closely and finely punctured. Face finely punctured at the sides, the concavity smooth and shining. Vertex shining, fairly strongly punctured in front, smooth and shining behind the anterior ocellus. Pronotum coriaceous and dull at the sides, smooth and shining above. Mesonotum and mesopleurae smooth and shining. Scutellum closely and fairly strongly striate lengthwise. Dorsum of the epinotum with a poorly defined median area which is sparsely and feebly punctured, and sparsely rugose at the base. The brow of the declivity is feebly reticulate-rugose, its base, like the sides of the epinotum, is smooth and shining. Abdomen impunctate, smooth and shining. Mandibles bidentate at the apex. Clypeus carinate lengthwise in the middle and angularly produced, the apex of the angle shallowly emarginate. Antennal sockets contiguous with each other and with the eyes. Labial palpi 4-, maxillary palpi 6-jointed. Scapes long. Antennae 13-jointed, not fringed with hairs below, the second to fifth joints of the flagellum very distinctly swollen below at the apex, the second joint twice as long as the first. Eyes strongly convergent below. Ocelli set in a low triangle, the posterior pair twice as far from each other as from the anterior ocellus and slightly farther from each other than from the eyes. Temples and vertex well developed, the distance from the occipital margin to the anterior ocellus being distinctly greater than from the latter to the brow of the facial concavity. The vertex has a narrow fovea on each side in front. Pronotal collar not linear, the dorsal face impressed and excised in the middle,

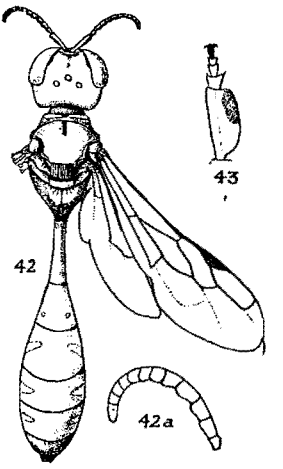


Fig. 42. *Thyreopus libertinus*, ♂; *a*, ♂, flagellum.
Fig. 43. *Rhopalum riparium-nemoralis*, ♂, anterior tarsus.

the shoulders subangular. Mesonotum with a deep median sulcus extending over the anterior third of its length. Mesopleurae with a narrow epicnemium in front, without a ridge in front of the middle coxae. Dorsum of the epinotum with a median longitudinal groove which is continued over to the bottom of the declivity. Abdomen petiolate, the first segment being nearly four times longer than wide at the apex and not much wider there than at the base; the remaining segments form a lanceolate complex. The second segment is two and a half times wider at the apex than at the base and is about as long as wide at the apex. Seventh tergite trapezoidal, the sides marginate over the apical half and forming a slight pygidial area. Legs simple, not dilated. The recurrent vein meets the cubital cell very distinctly beyond its middle. The basal lobe of the hind wing is not longer than the submedial cell.

Gbanga, Liberia, September, 1 ♂ (Dr J. Bequaert). Type in the Congo Museum, Tervueren.

In Kohl's key to the species-groups of *Thyreopus* (*Die Crabronen der Pal. Reg.* 1915), this species runs down to the species-group *Cuphopterus* Mor. Whether the eighth ventral plate has a transverse torus or not I am unable to say, as that segment is not visible in this specimen.

Species-group RHOPALUM Kirby.

T. (*Rhopalum*) *riparium* Arn. var. *nemoralis* Arn. (fig. 43).

♂ (hitherto undescribed). 5·5 mm. long. Dorsal face of the pronotal collar in the middle, prosternum, anterior margin of the mesopleurae, middle and hind legs excepting the apical joint of the tarsus and the anterior half of the outside of the basal joint, pale yellow. Hind femora dirty yellow above. Pronotal collar a little longer than in the ♀. Basal joint of the anterior tarsi patelliform, the second also somewhat widened. Head much narrower behind the eyes than in the ♀, the clypeus somewhat longer than in that sex. Otherwise like the ♀.

Moodie's Nek, S. R. (R. H. R. Stevenson). Type of ♂ in coll. Stevenson.

KAROSSIA gen. nov.

CHARACTERS. Face wide, not hollowed out, the eyes nearest together at about the middle of the face, thence fairly strongly divergent above and below. Clypeus short, very similar to that of *Oxybelus*, but without a median carina. The facets on the inner side of the eyes are enlarged, as in *Thyreopus*. A shallow **V**-shaped groove lies a little above the middle of the face, extending on each side to the margins of the eyes. Ocelli round and normal. Vertex with a distinct fovea on each side adjacent to the eyes. Mandibles deeply excised on the outer margin, the inner margin with two small teeth at about the middle, the apex subacute. Labial palpi 4-, maxillary palpi 6-jointed. Antennae (♀) 12-jointed. Pro- and mesothorax like that of *Oxybelus*, the mesopleurae with a broad and sharply marginate epicnemium in front. Scutellum and metanotum fairly flat, without lateral lamellae or squamae at the posterior margin. Dorsum of the epinotum very short, without a median process at the base, very coarsely sculptured. Abdomen ovate, not cordiform as in *Oxybelus*, the declivous face of the first tergite not deeply impressed in the middle, the apical margins of the tergites not much depressed, their lateral margins not forming a sharp edge with the ventral fold, and therefore like the tergites of *Oxybelus*. Sternites convex. Second sternite with a fovea on each side. A distinctly defined and triangular pygidial area is present. Apical joints of the tarsi not swollen; middle tibiae with two spurs. Middle

and hind femora strongly spinose, the anterior tarsi with a distinct comb, the anterior femora strongly flattened. Venation of the wings like that of *Oxybelus*, except that the cubital vein between the cubital and discoidal cells is not obliterated, so that those two cells are not confluent. The basal lobe of the hind wing is shorter than the submedial cell, as in *Oxybelus*. Sculpture fairly coarse. Genotype, *Karossia Hessei*.

This is an annectant genus, having some affinities with *Thyreopus s. lat.* such as the venation, the unarmed epinotum, simple scutellum and metanotum and the simple apical joints of the tarsi. Otherwise it is more closely allied to *Oxybelus*, and more especially to the subgenus *Anoxybelus* Kohl.

K. Hessei n.sp. (figs. 44, 44*a–c*).

♀. 8·5 mm. long. Head and thorax black. Mandibles ochreous, the apex ferruginous. Dorsal face of the pronotal collar, a large spot on the anterior upper angle of the mesopleurae, anterior two-thirds of the scutellum, the metanotum and tegulae, lemon yellow. Tergites chrome yellow, the base of

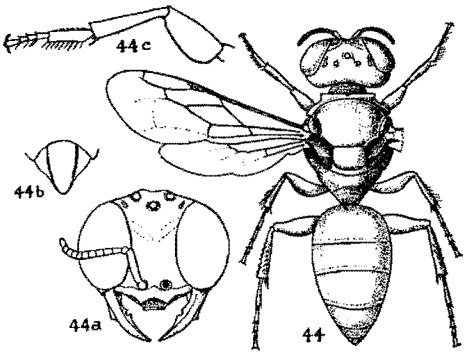


Fig. 44. *Karossia Hessei*, ♀; *a*, ♀, head; *b*, ♀, pygidium; *c*, ♀, fore leg.

the first and the apical margins of the first five and the whole of the sixth, reddish yellow. Sternites reddish yellow. Legs chrome yellow, the femora excepting the anterior edge, reddish yellow. Wings hyaline, faintly fuscous beyond the cells, the costa, subcosta and stigma dark ochreous, the other veins ferruginous. Face, clypeus and temples with a dense, dull silvery pubescence. On the thorax and abdomen there is a very short and sparse whitish pubescence. Clypeus dull, closely and finely punctured. Face, from the posterior margin of the clypeus to the shallow V-shaped groove, transversely striated, the rest of the face, the vertex and temples dull, closely punctured, the punctures largest on the vertex. Pronotum dull, rugulose, the dorsal face of the collar sparsely and not very finely punctured. Mesonotum, scutellum and mesopleurae strongly punctured, the punctures a little larger than those on the vertex, but not so close together, the spaces between the punctures slightly shining. Metanotum closely and finely punctured. Dorsum of the epinotum very coarsely reticulate-rugose, the declivity more finely so, the sides shining and transversely striate near the hind margin. Abdomen shining, the first three tergites coarsely and not closely punctured, the punctures larger than those of the mesonotum, the fourth and fifth more finely and more closely punctured; pygidial area coarsely and closely punctured, covered with short yellowish setae, elongate triangular, two-thirds longer than

wide at the base, the apex widely rounded. The slightly depressed apical margins of the second to fifth tergites are smooth. Second sternite closely and finely punctured and moderately shining, excepting the lateral ovate foveae, nearly smooth at the base. The third to sixth sternites have their basal two-thirds smooth and shining and sharply delimited from the apical third which is dull and closely punctured. Median area of the clypeus moderately convex, the apex triangularly depressed and shining. Eyes closest together at about the middle of the face, where the distance between them is about as long as the scape. The interocular distance on the vertex is greater than the length of the whole flagellum. The first joint of the latter is wider than long, the second and third are longer than wide, the fourth and fifth as long as wide, the sixth to tenth wider than long, the second nearly twice as long as the first. Temples well developed, at their widest about as wide as the eyes, seen from the side. Pronotal collar sharply angular at the shoulders, as in *Oxybelus*. Thorax robust, the mesonotum twice as long as the scutellum, which is wider than long; the dorsum of the epinotum is about twice as long as the metanotum. Anterior femora strongly compressed from above to below, widest in the middle, nearly three times longer than wide there. Basal joint of the anterior tarsi longer than the other joints united, with nine ferruginous spines on the outer margin. For the rest, see characters of the genus.

Kaross, S.W. Africa, February, 1 ♀ (Dr A. J. Hesse). Type in the South African Museum.

Genus BELOMICRUS A. Costa.

B. funestus n.sp. (figs. 45, 45*a*).

♀. 8 mm. long. Black. Tibiae pale yellow at the base, the anterior pair fusco-ferruginous, the tegulae reddish brown. Flagellum brown below. Wings hyaline, faintly tinged with fuscous apically. Clypeus and lower half of the face with silvery pubescence, the vertex with an erect, short and pale fulvous pubescence. Apical margins of the first four tergites with a sparse whitish pubescence, forming inconspicuous transverse fasciae. The whole body fairly shining, excepting the epinotum and epicnemium, sides of the clypeus and base of the face between the antennal sockets. Median area of the clypeus with a slightly concave and shining triangular area, the anterior margin beyond the area convex, the lateral angles acute; the lateral sclerites of the clypeus, like the base of the face between the antennal sockets, are closely and finely punctured. Mandibles excised on the outer margin. The face has two smooth and shining depressions for the accommodation of the scapes; the upper part of the face is closely and fairly strongly punctured, the vertex and temples much more strongly but less closely punctured. Pronotum finely and very closely punctured, the dorsal face of the collar less closely. Mesonotum and mesopleurae coarsely and irregularly punctured, the former with a longitudinal median impression which is more distinct in front than behind. Scutellum with a few large punctures at the sides and a more closely and finely punctured longitudinal impression in the middle, the lateral margins slightly reflected. Metanotal squamae concave, shining, finely and very sparsely punctured, longer than wide, their posterior margins widely rounded. Epinotal process gutter-shaped, longer than wide at the apex, wider there than at the base and

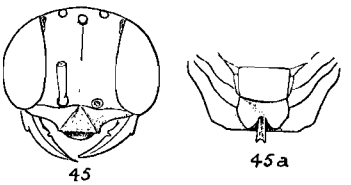


Fig. 45. *Belomicrus funestus*, ♀, head; *a*, ♀, posterior half of thorax.

arcuately emarginate. The median area underneath the process is shining and finely rugose lengthwise, the lateral areas of the dorsum and the declivity are closely reticulate-rugose, the sides of the epinotum are rugose and coriaceous. Metapleurae transversely striate. Tergites 1–5 fairly strongly but not closely punctured, the punctures on the first two about as large as those on the vertex, on the third to fifth somewhat smaller; the pygidial area is triangular, about as long as wide at the base, rounded at the apex, coarsely and closely punctured. The depressed margins of the first five tergites and their lateral ventral folds are closely and finely punctured. Sternites sparsely and finely punctured. Face narrowest below the middle, the interocular distance on the vertex greater than the length of the whole flagellum. Posterior ocelli twice as far from each other as from the eyes. Second joint of the flagellum a little longer than the third. Temples well developed, as wide at their middle as the eyes, when seen from the side. Collar of the pronotum like that of *B. Kohli* Brauns, the shoulders dentate.

♂. 6·5 mm. long. Apical third of the scapes underneath pale yellow. Anterior tibiae brownish yellow, the bases of all the tibiae more extensively yellow than in the ♀. Anterior and middle tarsi pale brown. Seventh tergite subquadrate, slightly wider at the base than at the apex, which is arcuately emarginate. Otherwise like the ♀.

Van Rhynsdorp, Cape Province, 1 ♀, 2 ♂♂ (Dr H. Brauns). Types in the Rhodesia Museum.

By the structure of the mandibles this species falls within the group of *Oxybelomorpha*.

Genus OXYBELUS Latr.

O. bicornutus n.sp. (figs. 48, 48*a*).

♀. 6·5 mm. long. Black. Mandibles ferruginous, black at the apex. Scapes dark brown, paler at the base and apex, flagellum ferruginous, the basal joints brownish above. Anterior tarsi and tibiae ferruginous, the latter with a pale yellow streak above at the base. Middle and hind femora and tibiae black, the latter with a short pale yellow streak at the base, the middle femora with a similar mark at the apex outwardly. Middle and hind tarsi pale ferruginous, the two basal joints fuscous. A small spot on each side of the scutellum, the inner margin of the otherwise hyaline metanotal squamae and transverse maculae on the first four tergites, pale lemon yellow. The abdominal maculae are like those of *lingula* in shape and size. Wings hyaline, the veins brown. Tegulae brownish, with a pale yellowish spot in front, the axillary sclerites black. Pubescence of the head and thorax silvery and similar to that of *lingula*. Puncturation of the head like that of *lingula*, the mesonotum more coarsely and less closely punctured than in that species, the spaces between the punctures more shining. The sculpture of the rest of the thorax is like that of *lingula*. The scutellum and metanotal squamae as in that species, but the foliaceous epinotal process is different. Its sides are more convex, the median carina is stronger and emits on each side five or six curved branches, much more distinct than those of *lingula*, which are oblique and more numerous. The sculpture of the abdomen and the shape of the pygidial area are like those of *lingula*. The median area of the clypeus bears at the base a subporrect plate which is slightly wider than long and bicornuate, owing to the deep arcuate emargination of its apex.

This last feature and the coarser puncturation of the mesonotum serve to distinguish this species from *lingula*, to which it is most nearly allied.

Mafa, S.W. Africa, February, 1 ♀ (Dr A. J. Hesse). Type in the South African Museum.

O. Hessei n.sp. (figs. 47, 47*a* and *b*).

♀. 6–6·7 mm. long. Black. The following parts are lemon yellow: the pronotal collar above and the tubercles, a large oblong spot on each side of the

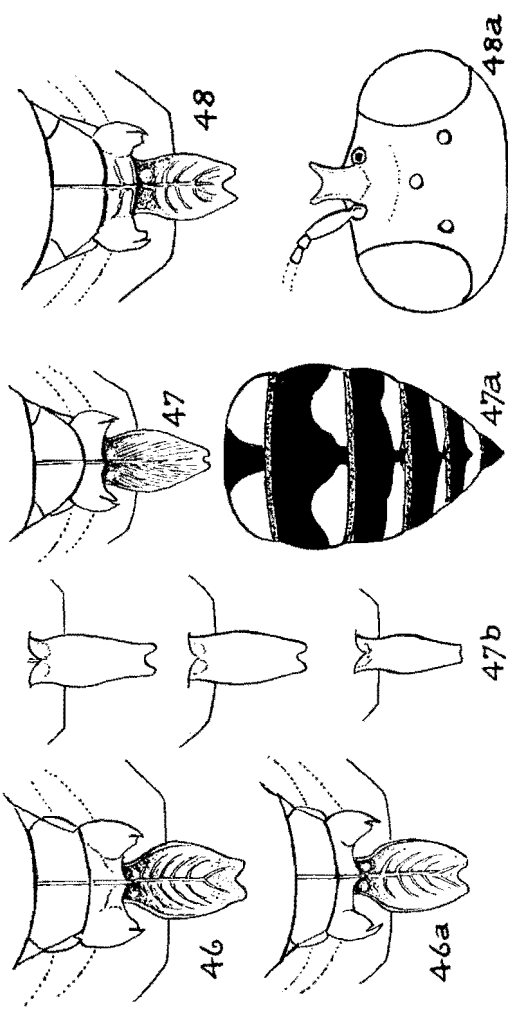


Fig. 46. *Oxybelus decipiens*, ♀, posterior half of thorax; *a*, ♂, posterior half of thorax.
Fig. 47. *Oxybelus Hessei*, ♀, posterior half of thorax; *a*, ♀, abdomen; *b*, ♂, epinotal process (3).
Fig. 48. *Oxybelus bicornutus*, ♀, posterior half of thorax; *a*, ♀, head.

scutellum, the posterior margin of the metanotum and the inner margin of its hyaline squamae, a semi-circular macula on each side of the first tergite and covering the greater part of the segment, a transverse streak, widened in the middle, on each side of the second tergite, transverse apical bands on the third and fourth tergites, entire or only very narrowly interrupted in the middle, and a broad band on the fifth, covering the greater part of the segment.

Pygidial area black, slightly ferruginous at the apex. Scapes dirty yellow in front, black behind; the flagellum pale ferruginous, somewhat darker at the base above. Mandibles, epinotal process and the legs in greater part, ferruginous. The anterior femora black below, with a lemon yellow mark at the apex, the middle femora also indistinctly yellow at the apex. The bases of all the tibiae have a small yellow spot above. Wings hyaline, the veins brown. Tegulae lemon yellow in front, testaceous red behind, the axillary sclerite blackish, margined with ochreous. Pubescence of the head and sides of the thorax silvery, of the mesonotum slightly golden. Abdomen with an inconspicuous whitish pubescence and a few long white hairs on the sternites. Pygidial area clothed with pale golden setae. Head and mesonotum finely punctured, the punctures on the mesonotum shallow and distinctly smaller than in any other species of the *lingula-lamellatus* group. Mesopleurae a little more coarsely punctured than the mesonotum, about as strongly as in *lamellatus*. The sides of the epinotum shining and with the usual oblique striation. Scutellum and metanotum carinate longitudinally in the middle, moderately shining, sparsely and coarsely punctured. Tergites fairly dull; the first strongly punctured, the punctures as large as those of the scutellum, the puncturation of the remaining tergites becomes progressively smaller and closer on each succeeding segment except the last. The puncturation is, however, not so coarse as in *lingula*. Pygidial area closely and strongly punctured. Sternites shining, the second fairly strongly but not closely punctured. Anterior margin of the clypeus transverse, the median area with a cariniform tubercle. Metanotal squamae bifid at the apex, both lobes acute, the outer one curved downwards. The epinotal process is carinate longitudinally in the middle, closely and finely, obliquely striate on each side, widest at about the basal third, narrowed towards the apex, three-fourths longer than its greatest width, more or less elliptical, the apex with a small median excision, the apical angles rounded. The process is as finely striate as in *lamellatus* or *lepturus*, but in the former the shape is more of a broad oval, and in the latter it is shorter than in this species. Pygidial area triangular, as long as wide at the base, the sides barely convex. Tarsal comb and calcaria ferruginous, the spines on the middle and hind tibiae whitish.

♂. 4·3–5·3 mm. long. Mandibles dirty yellow, brown at the apex. Flagellum brownish red, darker above at the base. Fore and middle tibiae pale yellow above, ferruginous below, the hind tibiae with the basal half yellow above. Fore and middle femora yellow on the apical half outwardly. Apical tergite dark brown or fusco-ferruginous. Otherwise coloured like the ♀; the colour of this sex is like that of *lamellatus* ♂, except that the flagellum and mandibles are darker. The bands on the tergites are narrower than in the ♀, and the sixth tergite is entirely black. The puncturation of the first two tergites is relatively coarser than in the ♀, and much more so and denser than in *lamellatus* ♂, which this insect resembles very closely. Epinotal process narrower than in the ♀ and relatively longer, being from two to two and a half times longer than wide; it is widest at about the middle, and the apical excision is deeper and wider than in the ♀.

Zesfontein, S.W. Africa, types; Kaross Otavi and Otjikondo, S.W. Africa 8 ♀♀ (Dr A. J. Hesse), and numerous ♂♂. Types in the South African Museum.

The nearest ally of this species is *lamellatus* Ol., from which it differs by the puncturation of the mesonotum and tergites and by the shape of the epinotal process. The second sternite in the ♀ is more coarsely and more closely punctured than in *lamellatus*.

O. decipiens n.sp. (figs. 46, 46*a*).

♀. 5 mm. long. Black, the last two abdominal segments pale brick-red. Mandibles pale yellow, reddish brown at the apex. Scapes black behind, straw-yellow in front; flagellum pale reddish ochreous below, brownish ochreous above. The following parts are pale yellow, almost yellowish white: the shoulders of the pronotal collar and the pronotal tubercles, a small round spot at the anterior angles of the scutellum, the inner margin of the hyaline metanotal squamae, an elliptical transverse macula on each side of the first tergite and narrow pre-apical bands, widely interrupted in the middle, on the second to fourth tergites. Apical third or more of the fore and middle femora and all the tibiae pale yellow, the hind tibiae with a black spot on the outside in the middle and on the apical half below. Tarsi pale ochreous. Tegulae hyaline, with a white spot in front, the axillary sclerite black and margined with pale yellow. Wings hyaline, the veins brown. Epinotal process pale brown, darker at the base and down the middle. Pubescence of the face and clypeus silvery; the thorax and abdomen with a very sparse greyish pubescence. Upper third of the face not very closely punctured, the rest of the head closely so, the clypeus very finely, the vertex and occiput fairly strongly. Mesonotum and mesopleurae moderately shining, strongly punctured, the punctures larger than those on the vertex and as wide as the spaces between them. Scutellum less closely and more coarsely punctured than the mesonotum. Sides of the epinotum transversely rugulose, with very small punctures between the rugae. Dorsum of the epinotum dull, reticulate-rugose. Metanotum rugose in the middle; the metanotal squamae are fairly convex on the outer margin, bifid at the apex, the inner lobe blunt, the outer acute and bent downwards. The posterior margin of the scutellum is less convex than in *flavicornis* Arn. which this species resembles very closely, especially in the ♂ sex. Epinotal process foliaceous, the sides convex, widest at the middle, half as long again as wide there, the apex with a shallow arcuate excision. It is carinate lengthwise in the middle and obliquely rugose on each side. The first two tergites are very coarsely punctured, as in *flavicornis*, but the punctures are relatively shallower. The basal two-thirds of the third and fourth tergites are fairly strongly punctured, the punctures on the third larger than those on the fourth and slightly smaller than those on the mesonotum; the apical third of these two segments is smooth and microscopically reticulate. Fifth tergite as strongly punctured as the fourth. Pygidial area with coarse and elongate punctures, covered with short reddish yellow setae; it is a little longer than wide at the base and the sides are distinctly convex. Sternites shining, the second sparsely and coarsely punctured, the third to fifth with a few large punctures at the base. Anterior margin of the median area of the clypeus depressed, with two small teeth on each side; the median carina is raised at the base to form a compressed tubercle. Spines on the legs whitish, the calcaria pale ochreous, the basal joint of the fore tarsi with five spines on the outer margin.

♂. 3·5–5 mm. long. First five tergites with pre-apical bands of pale yellow, widely interrupted in the middle, that on the first wider than the rest. Sixth tergite immaculate, the apical tergite and sternite ferruginous. The posterior tibiae usually lack the black spot which is present in the ♀. Scutellum immaculate, base of the flagellum darker than in the ♀, otherwise like that sex in colour. Puncturation of the first two tergites a little coarser than in the ♀, otherwise the sculpture and pubescence is like that of the ♀. Anterior margin of the clypeus with one tooth on each side of the median area, the median carina lower at the base than in the ♀. Epinotal process less narrowed towards

the apex than in the ♀. Pygidial area quadrate, slightly longer than wide, the apical margin shallowly and arcuately excised. Otherwise like the ♀.

Zesfontein (types) and Koabendus, S.W. Africa, February (Dr A. J. Hesse), 5 ♀♀ and numerous ♂♂. Types in the South African Museum.

The ♂ of this species is very much like that of *flavicornis*, but as a rule is larger, and may be distinguished from that species by the epinotal process which is distinctly foliaceous, whereas in *flavicornis* it is intermediate between the gutter-shaped and foliaceous types. In addition the posterior margin of the scutellum is less convex in this species.

BEMBEX Group.

Genus STIZUS Latr.

S. ctenopus n.sp. (figs. 49, 49*a*)

♀. 10·5 mm. long. Black. Labrum, mandibles, pronotal collar above, tegulae, lateral margins of the mesonotum and the legs excepting the coxae, ferruginous. Anterior two-thirds of the clypeus, scapes, first seven joints of the flagellum and the pronotal tubercles, reddish ochreous. Large maculae on the sides of the first three tergites (those of the third connected by a narrow apical band), and the whole of the fourth and fifth excepting the ferruginous apical margins, pale yellow. Sixth tergite ferruginous. Sternites 1–5 black, the sixth fusco-ferruginous. Wings fuscous, with a violaceous lustre. Head and thorax with a short, scanty and yellowish grey pubescence. Labrum, clypeus, face and vertex dull, microscopically and very closely punctured, with a few larger punctures in addition on the upper part of the face and on the vertex. Temples and pronotum slightly shining, very finely punctured. The rest of the thorax, excepting the sides of the epinotum in front below, is dull and closely reticulate-punctate, most coarsely so on the scutellum and mesopleurae, fairly finely on the front of the mesonotum and on the metapleurae. The median triangular area of the epinotal dorsum is feebly defined by a thin raised line on each side. Tergites 1–5 with a close, fine, shallow and round puncturation, the sixth with stronger and oblique puncturation. Sternites shining, the first tricarinate, strongly punctured at the apical margin, the second and third fairly closely and shallowly punctured, the other sternites sparsely and finely.

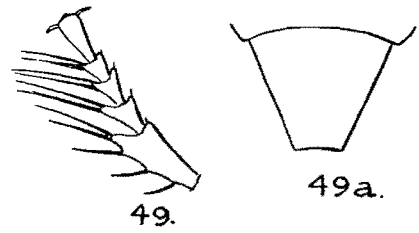


Fig. 49. *Stizus ctenopus*, ♀, anterior tarsus; *a*, ♀, pygidium.

Eyes convergent below, the interocular distance on the vertex somewhat less than one-third greater than across the base of the clypeus, and equal to the length of the first three joints of the flagellum plus half of the fourth. Face feebly carinate below between the antennal sockets. The distance between the posterior ocelli is half as great again as their distance from the eyes. Flagellum slender and moderately clavate, the second joint twice as long as the third and nearly five times longer than wide at the apex; the apical joint truncate. Sixth tergite widely truncate at the apex, trapezoidal. Legs, especially the middle and hind pairs, unusually long and slender. Anterior tarsi with a strongly developed comb of ferruginous and slightly flattened spines; the first two joints are strongly, the third and fourth feebly, asym-

metrical. The first joint has three spines on the outer margin and two long ones at the apex, the second to fourth have each two long spines at the apex.

Mpudsi River, Umtali district, S. R. March, 1 ♀ (R. H. R. Stevenson). Type in coll. Stevenson.

This species belongs to the *tridentatus* group.

The number of forms described in this work is 768, comprising 682 species and 86 races and varieties. Of these, 231 are new species, 19 new subspecies and 41 new varieties.

It will be observed that in describing new species where both sexes are present, I have stated where the types are deposited. This is contrary to the usage of the majority of entomologists, who designate a specimen of one sex as the *type* and of the other sex as the *allotype*. I am unable to agree with this method for the following reasons.

In the case of insects, excepting permanently parthenogenetic forms, if indeed such exist, the species *in nature* is composed of the male and the female, and in the case of social insects, not only of those two, but also of the various castes of workers. I shall make my views clearer by reference to the discussion on the subject of the "type" in Rothschild and Jordan's Revision of the Sphingidae, *Novitates Zoologicae*, IX, Supplement, pp. xv–xxvi. With the conclusions of those authors I am in agreement in general, but it seems to me that on one point there is a flaw in the argument.

On page xviii we read, "Families, subfamilies and all the other classificatory units down to the individual varieties require exposition by definition. The definitions bring into order the chaotic mass of individuals which forms the subject of classificatory research. However, instead of operating with the definitions, the systematist employs, for the sake of brevity, names for them, thus simplifying reference. EVERY NAME IS A TERM FOR A DEFINITION."

On page xxiv we read, "Some authors, accepting the word 'type' in the ordinary sense implying that the specimens called types are typical individuals, very properly reply that these types are often aberrant specimens, and very seldom the most typical for the group of individuals to which they belong. This confusion of the verbal and technical meaning of the word 'type' misleads those authors to insist further that, there being no 'types' in nature, one individual being no more a pre-eminent representative of the species (or variety) than another, the word 'type' as a nomenclatorial term has no standing. It is obvious that those authors fall into a deplorable error of confounding the NAMES, which are the product of scientists, with the OBJECTS named, which are the product of nature. Certainly THERE ARE NO TYPES in the nomenclatorial sense in nature, BUT THERE ARE ALSO NO NAMES. The type is as such not at all the type of the SPECIES, but is the type of the arbitrary NAME given to the first specimen or specimens, and applied by common consent to all the specimens which belong to the species, of which the type-specimen is only a member, like any other individual."

It is clearly emphasised that "every name is a term for a definition." But what does the systematist define? It is clearly his object to define what he conceives to be a species as it occurs in nature, to which species he also attaches a name; this name is not merely an arbitrary something connected with some particular specimen, but is a term for a definition. The question which we have to answer is this, Is the definition of a species, which consists of two sexes, complete when only one sex has been described? To my mind, obviously it is not. The definition of one sex will often fail to apply to the other,

not only in structural characters, but also in size and colour and other superficial characters. To take an extreme case, we need only instance the Thynnidae, where the females are apterous and so different in structure and colour from their winged males that originally they were classified under separate genera. The description of a female Thynnid will certainly not apply to its male, and to make the definition of *named* species complete, both sexes must be described and made to share in the exemplification of the name. It is necessary to include both sexes in the concept of the "type of the species," for a definition based only on one sex defines only half of a species as it is known to nature. It follows from this principle that the two specimens of different sex which constitute the types of a species may occasionally be housed in different collections, this is certainly regrettable but sometimes cannot be avoided.

In bringing this work to a close I wish to express my great appreciation and thanks to the Editor of these Annals, Mr C. J. Swierstra, Director of the Transvaal Museum, for the liberal way in which he has allowed me to furnish text-figures and plates to illustrate it. The drawings have all been made with the aid of a Zeiss drawing-apparatus and have been provided in all cases where they appeared necessary, thereby making the monograph of greater value to the student.

G. ARNOLD

BULAWAYO,
23rd August 1928.

P.S. The revision of the proofs of the foregoing pages affords me the opportunity to record with deep regret the death, early in 1929, of my friend Dr H. Brauns and to point out that on that account this work cannot yet be considered as concluded. Dr Brauns unfortunately was not spared to complete his monograph of the genus *Cerceris*, which he intended to do by the publication of a further part which would have included a key to all the Ethiopian species and descriptions of the species known from Tropical Africa and omitted from his work in Part 4, Vol. XI of these Annals.

It is my intention to rectify these omissions by the publication at the earliest opportunity of another and final part, which will also include the descriptions of numerous new species in the collection of the British Museum.

G. ARNOLD

8th October 1929

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