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PART I

THE SPHEGIDAE OF SOUTH AFRICA

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PART IV

With 30 figures

PIAGETIA Ritzema

*Ent. M. Mag.* ix, p. 129. 1872.

CHARACTERS. Eyes large, reaching the base of the mandibles. Ocelli small, the anterior one round and feebly convex, the posterior flat, elongate, very small and placed close together. Antennae long and slender. Face with feeble longitudinal tori; vertex evenly convex, the ocellar area not tumid. Mandibles excised on the lower margin, the inner margin with a large dentiform angle near the base, the apex acute.

Pronotum highest in the middle, moderately depressed below the level of the mesonotum, the neck sometimes long. Epicnemium absent. Episternal suture distinct. Epinotum about as long as wide at the base, the declivity steep but not vertical. Abdomen subpetiolate, the first segment being elongate, narrowed towards its base, longer than wide at the apical margin, the latter much narrower than the following segment. The rest of the abdomen subglobose. Pygidial area distinct in the ♀, more or less so in the ♂.

Front wing: stigma large; radial cell appendiculate, the accessory cell distinct; three cubital cells present, the second receiving both recurrent veins; the submedial cell longer than the brachial.

Hind wing: long, the basal lobe large and extending beyond the submedial cell, the latter ending before the origin of the cubitus. Legs slender, spinose; tarsi elongate, especially the first joint. Posterior femora in the ♂ with an excision near the base and a spine proceeding from one end of the excision. In the ♀ these structures may be absent, and they are also wanting in the ♂ of *P. Kohli* Brauns. Anterior tarsi in the ♀ with a feeble and sparsely toothed comb.

Hab. Palaearctic and Ethiopian regions.

The life history is unknown.

*P. Kohli* Brauns (fig. 54 *a, b, c*). *Ann. K.K.N.H. Mus. Wien*, XIII, p. 412, ♀. 1899.

*P. striata* Cameron. *Trans. S.A. Phil. Soc.* p. 214, ♀. 1905.

♀. 10 mm. long. Black, the mandibles except their apices, the anterior pair of legs, the scape and first three joints of the flagellum, clypeus, tegulae and margins of the pronotal tubercles, pale ferruginous. The middle and hind femora and tibiae dark reddish brown apically, black basally, the tarsi ferruginous. Pubescence on the whole body microscopic and pruinose, the base of the epinotum and its declivity with somewhat longer and silvery pubescence. The clypeus and all the coxae in front with silver pubescence. Dull, microscopically punctured, the dorsum of the epinotum finely reticulate-rugulose, with a very thin median longitudinal carina which does not reach the brow of the declivity; the latter and the sides very superficially, distantly and obliquely striated.

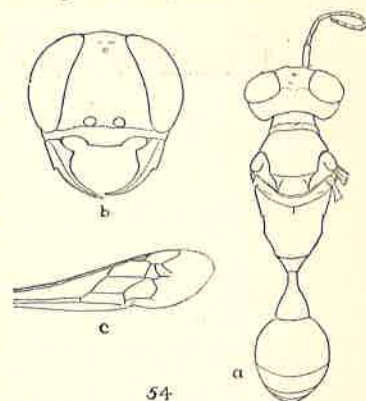


Fig. 54. *Piagetia Kohli*, *a*, body; *b*, head; *c*, front wing.

Mandibles long, acute at the apex. Median area of the clypeus narrow, slightly produced, the angles on each side acute, the anterior margin nearly straight and feebly excised in the middle; the disc is feebly carinate in the middle. Antennae long and thin, the scape slender and a little longer than the first two joints of the flagellum, and quite four times longer than its greatest width; the first joint of the flagellum nearly twice as long as wide, the second four times so, the remaining joints also longer than wide but diminishing in length towards the apical joint. Interocular distance on the vertex equal to the length of the second and third joints of the flagellum. Behind the ocelli there is a faint, bisinuate and transverse line. The eyes do not reach the occipital margin behind. Pronotum transversely rugulose, subelongate, the posterior portion exposed above, marginate in front and behind by transverse rugae, not much lower than the mesonotum. The latter is about one and a half times wider than long. Dorsum of epinotum as long as the mesonotum, a little longer than wide at the apex, narrowed gradually from base to apex, the declivity oblique, the brow rounded. First abdominal segment subpetiolate, a little longer than wide across the apical margin, where it is distinctly narrower than the following segment. Abdomen subglobose beyond the first segment. Pygidial area shining, marginate, with small but distinct punctures. Legs long and stout, the middle and hind tibiae with a few thin spines, the posterior tibiae carinate, the posterior metatarsi at least half as long as the tibiae, the anterior tibiae and metatarsi not spinose.

Wings hyaline, with a pale fuscous stain over the radial, second and third cubitals, and the upper part of the discoidal cells. First cubital cell about one-third longer on the cubitus than the other two combined; second and third abscissae of the radius taken together slightly shorter than the first; the recurrent veins enter the proximal half of the second cubital cell, the first recurrent being almost interstitial with the first transverse cubital vein.

♂. 9 mm. long. Interocular distance on the vertex not quite equal to the length of the first two joints of the flagellum. Seventh tergite ferruginous, trapezoidal, the apical margin feebly excised in the middle. Posterior femora not excised and spined near the base. Otherwise like the ♀.



Sunday River, Dunbrody and Durban; Victoria Falls, one male, running over the trunk of a tree, and deceptively like a small *Ampulex* in appearance and movements. (R.M. coll.)

*P. Wördeni* Ritzema. *Ent. M. Mag.* ix, p. 122, ♂. 1872.

♀. 6-7 mm. long. Head black, mandibles, scapes, clypeus and front pair of legs brownish ochreous, the flagellum dark brown, the first joint somewhat paler below; the pronotum, mesonotum, tegulae, upper part of the mesopleurae and the metapleurae, ferruginous. The scutellum and rest of the thorax, the abdomen and posterior femora, black; apical segment of the abdomen fusco-ferruginous. Middle and hind tibiae yellowish brown, darker outwardly, the middle and hind tarsi reddish ochreous. Wings hyaline, with a transverse fuscous cloud extending outwards from the neighbourhood of the second cubital and radial cells, but not reaching the apex of the wing.

Head, pro- and mesothorax and scutellum dull, microscopically and closely rugulose-punctulate, the sides of the pronotum feebly rugulose. Dorsum of epinotum irregularly rugose and dull, the sides shining, almost smooth, the sculpture of the declivity hidden by the decumbent silvery pubescence. Face, clypeus, mesosternum, coxae, the declivity and base of the epinotum covered with a sparse and very short silvery pubescence. Abdomen slightly shining, with a thin pruinose pubescence and faint traces of apical fasciae. Pygidial area triangular, marginate at the sides, shining, strongly punctured, as wide at the base as long, the apex narrowly rounded. Median area of the clypeus very slightly produced, carinate in the middle, its anterior margin nearly transverse, with a narrow excision in the middle. Scapes long, fully as long as the first two joints of the flagellum; the second joint of the flagellum is twice as long as the first, and a trifle longer than the third. Interocular distance on the vertex a little greater than the length of the second joint of the flagellum. Temples well developed, in their lower half about two-thirds the width of the eyes as seen from the side. Pronotum fairly long, the posterior portion sloping gradually downwards from the promesonotal suture. Dorsum of epinotum nearly as long as the mesonotum, half as wide again at the base as at the apex and as long as wide at the apex; the declivity oblique, half as long as the dorsum, marginate below at the sides. First segment of the abdomen pyriform, half as long again as wide at the apex, and at its widest less than half the width of the second segment in the middle. Anterior tarsi with thin cilia, of which there are five on the outer margin of the metatarsus. Posterior femora only shallowly impressed near the base, not excised.

Second and third abscissae of the radius subequal; the first recurrent vein enters the second cubital cell at its proximal fourth. The fuscous cloud on the wings is more extensive than in *P. Kohli*.

♂. 5.5-6 mm. long. Flagellum brownish ochreous. The red colour of the thorax is brighter than in the ♀, and also extends over the base of the sides of the epinotum. Apical margin and sides of the first abdominal segment testaceous. Otherwise like the ♀ in colour, sculpture and pubescence. Anterior margin of the median area of the clypeus produced on each side of the middle into a stout rounded tooth. Pygidial area trapezoidal, pubescent and delicately punctured, the apex wide and transverse. Posterior femora with a long and acute spine near the base. Otherwise like the ♀.

Cameroons, Gaboon, and Sherbro Island, W. Africa.

Easily distinguished from *Kohli* by the red colouring of the promesonotum, by the shining and almost unsculptured sides of the epinotum, and also in the ♂ by the spine on the femora and the shape of the clypeus.



## PALARUS Latreille

*Hist. Crust. et Insect.* III, p. 336. 1802.

CHARACTERS. Eyes large, reaching the base of the mandibles below, convergent above, often almost touching on the vertex. All the ocelli round and convex, or the anterior one round and the posterior pair flat and elongate. Mandibles acuminate, the lower margin with or without an excision, the inner margin with one or two small teeth near the middle. Pronotum thin, without a posterior collar. Epinotum short, the declivity steep, the dorsum often with a deep and wide concavity in the middle. Abdominal segments depressed on their apical margins. A well defined pygidial area present in both sexes. The second sternite often bears a prominent transverse crest.

Front wing: radial cell appendiculate; three cubital cells present, the middle one usually with a short stalk, rarely sessile, receiving both recurrent veins, the first recurrent almost interstitial with the first transverse cubital vein. The third cubital cell as wide on the radius as on the cubitus, or even a little wider, its inferior distal angle rounded.

Hind wing: the cubitus arises beyond the end of the submedial cell; the basal lobe shorter than the submedial cell.

Legs robust, strongly spinose, the anterior tibiae also spinose. Tarsal comb well developed in both sexes.

Hab. Eastern Hemisphere.

The species of this genus prey on other Hymenoptera, but chiefly on honey-bees. Sometimes they exact so considerable a toll on hives as to become a real pest.

The following key includes only those species which I have seen.

KEY TO THE SPECIES OF *PALARUS*, ♀♀

- (4) 1. First tergite abruptly truncate and declivous at the base, the declivity strongly concave, with a tooth on each side above.
- (3) 2. The paler markings on the thorax ferruginous. Pentheri Brauns
- (2) 3. " " " pale yellow. O'Neili Brauns
- (1) 4. First tergite not strongly declivous and concave at the base, without lateral teeth.
- (8) 5. Interocular distance on the vertex less than the length of the first joint of the flagellum.
- (7) 6. Femora and tibiae reddish; first tergite with lateral yellow maculae. Handlirschi Brauns
- (6) 7. Femora and tibiae black; first tergite entirely black. Handlirschi, var. nigrior Arnold
- (5) 8. Interocular distance greater than the length of the first joint of the flagellum.
- (10) 9. Interocular distance equal to half the length of the second joint of the flagellum. Turneri Brauns
- (9) 10. The vertex very wide, the interocular distance being equal to the length of the first three joints of the flagellum. latifrons Kohl

## KEY TO THE ♂♂

- (4) 1. First tergite declivous and abruptly truncate at the base, the declivity strongly concave.
- (3) 2. Fifth tergite with a recurved tooth on each side; pygidial area very narrow and lanceolate, acute at the apex. Pentheri Brauns
- (2) 3. Fifth tergite unarmed; pygidial area in the form of an oblong plate, slightly widened towards the apex, which is deeply excised. O'Neili Brauns

- (1) 4. First tergite not abruptly truncate at the base.  
 (8) 5. Pygidial area broadly rounded at the apex, the sides near the base produced into an auriculate lobe.  
 (7) 6. Femora and tibiae reddish; the first tergite with a pale yellow streak on each side. **Handlirschi** Brauns  
 (6) 7. First tergite entirely black; femora and tibiae black. **Handlirschi**, var. **nigrior** Arnold  
 (5) 8. Pygidial area acute at the apex, the sides near the base produced into a sharp tooth. **latifrons** Kohl

*P. latifrons* Kohl (fig. 55). *Verh. Zool. Bot. Ges. Wien*, xxxiii, p. 362, ♀. 1883.

Brauns, *Ann. K.K.N.H. Mus. Wien*, xiii, p. 407, ♂. 1899.

*P. curvilineatus* Cameron. *Trans. S.A. Phil. Soc.* p. 212, ♂. 1905.

*P. lineatifrons* Cameron. *Trans. S.A. Phil. Soc.* p. 213, ♀. 1905.

♀. 9-13.5 mm. long. Head and thorax black, with the following parts lemon yellow: the base of the mandibles, the clypeus (excepting the inner posterior angles of the lateral sclerites), the sides of the face up to the level of the anterior ocellus where the band of colour narrows and curves inwards and reaches the posterior ocelli on each side, a median clavate line extending upwards from the posterior margin of the clypeus to about the middle of the face and continued as a narrow line to the anterior ocellus, a streak on the

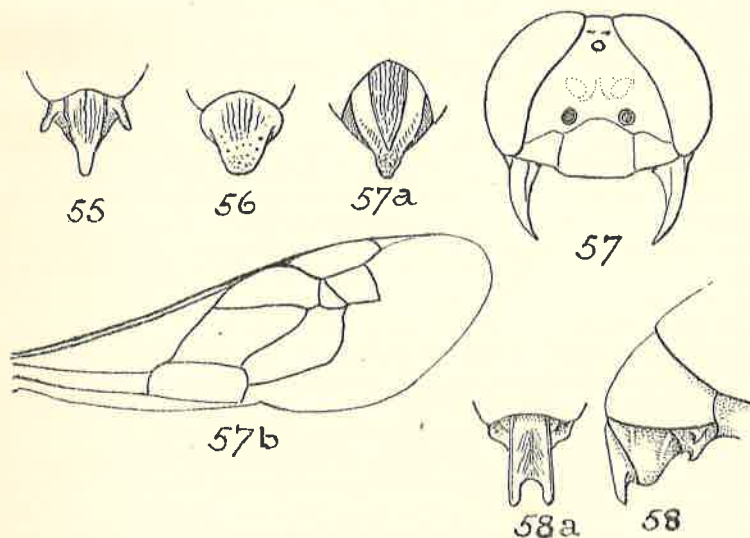


Fig. 55. *Palarus latifrons*, ♂, pygidium.

Fig. 56. *P. Handlirschi*, ♂, "

Fig. 57. *P. Turneri*, ♀, head; a, pygidium; b, front wing.

Fig. 58. *P. O'Neili*, ♂, apex of abdomen; a, pygidial area.

temples margining the outer orbits of the eyes and widening below, a Y-shaped mark on the posterior angles and a transverse streak on the collar of the pronotum, the tegulae, spots in front of and below them, the pronotal tubercles posteriorly, spots on the episternum above and below, and a streak in the middle, a longitudinal streak on the posterior edge of the sides of the epinotum and a transverse streak on the posterior margin of its dorsum, a very thin streak on the anterior margin of the scutellum and the whole of the metanotum. Abdomen dark yellow, with blackish or piceous transverse



bands on the basal and apical margins of the first five segments, the bands of variable extent, those on the third to fifth tergites often angulated in the middle, the angular extension sometimes reaching the basal band, the sixth segment entirely black. On the ventral surface the black is more extensive, the yellow markings being limited chiefly to the sides and apical margins. Legs yellow, the inner faces of the femora in greater part black, the posterior tibiae and metatarsi with a narrow longitudinal brown streak, the tarsi reddish brown. Head and thorax with moderately long and fine whitish pubescence. Abdomen with a few long outstanding and yellowish hairs on the apical margins of the ventral segments, the dorsal surface with very short and scanty pubescence, barely perceptible. Legs with yellowish pubescence. Median area of the clypeus, a space in front of the anterior ocellus, and the vertex, shining and sparsely punctured; the rest of the face dull, more finely and closely punctured. The back of the head shining, finely and fairly closely punctured. Thorax and epinotum moderately shining, except the pronotum, mesopleurae and lateral margins of the mesonotum which are dull and more finely punctured than the rest. The median area of the mesonotum is irregularly and strongly punctured, the scutellum with much larger punctures than the mesonotum, the metanotum with smaller punctures than the scutellum. Epinotum finely and closely punctured, the dorsum with a central, oblong and coriaceous fovea, impunctate round its margin. Abdomen shining, sparsely and strongly punctured, more closely so at the sides, the impressed apical margins impunctate, the basal half of the third to sixth sternites impunctate. Pygidial area dull, strongly rugoso-striate lengthwise above, punctured and fairly shining at the sides and below. Femora and tibiae fairly closely and finely punctured.

Anterior margin of the clypeus feebly convex, that of the median area almost transverse, the latter with a minute blunt tooth on each side. Median area of face tumid, with a yet more prominent median carinula. Outer margins of the mandibles excised near the middle, the inner margin with two small teeth near the base. Antennae thick and short, the first joint of the flagellum as long as wide, the second twice as long as the first and nearly one-fourth longer than the third. The interocular distance on the vertex is equal to about the length of the first three joints of the flagellum. All the ocelli round and convex, the anterior one larger than the other two. Mesonotum distinctly convex, about one-third wider across the tegulae than long, with a median longitudinal impressed line in front which hardly extends back as far as the middle. Scutellum wider than long. Dorsum of the epinotum short, hardly longer in the middle than the scutellum, convex transversely, oblique lengthwise, fully three times wider behind than long; the declivity vertical and longer than the dorsum. Abdomen conical; the first tergite roundly truncate at the base, the declivous face shallowly concave. Pygidial area one and a half times longer than wide, distinctly marginate at the sides, the apex rounded, rapidly narrowed beyond the basal third. Legs strongly spinose; the comb of the anterior tarsi composed of stout reddish yellow spines, of which there are six on the basal joint. Radial cell rounded apically, the second cubital cell with a very short stalk on the radius.

♂. 9-12 mm. long. The distribution of the pale colour on the head, thorax and legs is similar to that of the ♀, but the colour is paler on the thorax, creamy or pale yellowish white. The colour of the legs is also lighter than in the ♀, or lemon yellow, and extends over the whole of the tarsi. The lower anterior angle of the pronotum lacks the Y-shaped mark, and the posterior half of the mesopleurae and the whole of the epinotum are entirely black. Abdomen black, the first six tergites with curved transverse bands of



yellowish white, narrowly interrupted in the centre, widened towards the sides, where they almost touch the apical margins. The sculpture is similar to that of the ♀, but the face is more finely punctured, the median area of the clypeus almost impunctate, and the disc of the mesonotum more shining, with larger and fewer punctures than in the ♀.

The interocular distance on the vertex is about equal to the length of the first four joints of the flagellum; the second joint of the flagellum is not quite as long as the third and fourth taken together. The second sternite in the larger specimens is usually furnished with a transverse crest, not unlike that of *P. Pentheri*, but rising more obliquely from the base of the segment, and more abruptly truncate posteriorly. The degree of development of this crest varies with the size of the individual, and in the smallest it may be almost obsolete. The apical dorsal segment bears on each side a curved spine or tooth; the pygidial area is elongate triangular, longitudinally carinate over its basal two-thirds, marginate at the sides, rugoso-striate lengthwise except near the rounded apex, where it is smooth. Spines on the legs weaker than in the ♀, otherwise like that sex.

A fairly common species, often doing considerable harm to hives. They nest in loose sandy soil.

S. Rhodesia, Cape Province, Transvaal and Natal. (R.M. and T.M. colls.)

*P. Handlirschi* Brauns (fig. 56). *Ann. Mag. N.H.* ix, No. 54, p. 653, ♂, ♀. 1912.

♀. 10.5 mm. long. Black, clypeus, base of the mandibles and tegulae pale lemon yellow, the transverse bands on the abdominal segments creamy yellow. Abdomen blackish brown, the apical margins of the fourth and fifth dorsal segments diffusely flavo-testaceous, the sixth segment wholly, the first and second sternites in greater part, and the apical margins of the remaining sternites, ferruginous. Two small spots above the antennae and a spot on the episternum, yellow; legs ferruginous, the front and middle femora with a pale yellow streak on the outer side, the middle tibiae inwardly and a spot on the apex of the hind femora sometimes also yellow. Wings hyaline, the veins reddish ochreous. Antennae ferruginous, the first three joints black. The pale bands on the abdomen lie for the greater part within the basal half of the segments, those of the third to fifth narrowly interrupted in the middle. Face with silvery pubescence; temples, thorax and base of the first tergite with a white pilosity, quite long and dense on the epinotum. A few long outstanding hairs on the ventral segments of the abdomen, and shorter ones on the pygidium. Anterior coxae and femora with short and exserted pilosity. Clypeus and face dull, finely and fairly closely punctured. Thorax and epinotum moderately shining, finely and sparsely punctured, the mesopleurae less sparsely than the rest. Dorsum of the epinotum with a few short longitudinal striae at the base. Abdomen dull and very finely punctured above, shining below, the second sternite and apical margins of the other sternites sharply but not closely punctured. Pygidium finely punctured at the sides and below, the pygidial area elongate triangular, the apex subacuminate, with an inner triangular, marginate and striated area, between which and the raised outer margins lies a smooth and fairly shining space.

Anterior margin of clypeus convex. Mandibles acuminate, edentate, feebly excised on the outer margin. Eyes strongly convergent above, the interocular distance on the vertex being less than the length of the first joint of the flagellum. All the ocelli round and convex, the posterior pair smaller than the front one and almost touching the eyes. Antennae short, subclavate, the second joint of the flagellum about two and a third times longer than the first, and about one-third longer than the third.



Mesonotum broad, two-thirds wider across the tegulae than long in the middle, nearly twice as long as the scutellum. Dorsum of epinotum shorter than the scutellum, fully three times wider at the base than long, with a shallow depression in the middle and a deeper oblique one on each side. First tergite roundly truncate at the base, the vertical face concave. Anterior tibia with a row of five spines on the outer margin; tarsal comb composed of fairly long spines, of which there are five on the basal joint.

Radial cell narrowly rounded at the apex, without an accessory cell; second cubital cell almost sessile or with a very short stalk on the radius, the third almost rectangular. Recurrent veins interstitial, or with the first entering the first cubital cell very near to the first transverse cubital vein.

♂. 11-12 mm. long. Transverse bands on the abdomen narrow, reduced to lateral spots on the fifth tergite, the apical margins of the first six segments rufo-testaceous, that of the sixth widely so. The spots above the antennae larger than in the ♀, otherwise like that sex in colour, pilosity and sculpture. The abdomen, however, is more strongly punctured and the concavity in the middle of the dorsum of the epinotum is very delicately aciculate transversely. Apical segment of the abdomen without a distinct pygidial area, lobate at the sides above, narrowed towards the apex which is widely rounded, shining, superficially striate lengthwise in the middle basally, elsewhere sparsely punctured. Sixth tergite with a small longitudinal carina on each side. The second sternite with a transverse crest similar to that of *latifrons*. The anterior tibiae have a row of five spines as in the ♀.

Willowmore, C. P. November to January, nesting in the sand of dry riverbeds. Brauns records the prey as comprising solitary bees of the genera *Nomia* and *Halictus*, and a Scoliid, *Elis* sp. Type in coll. Brauns. (R.M. coll.)

var. *nigrior* n.v.

♀. This differs from the type of the species in the absence of the ferruginous colour. Femora and tibiae black, tarsi reddish brown. The anterior tibiae and femora have the pale streaks as in the type of the species. The abdomen is black, and the pale bands of lemon yellow are narrower and widely interrupted in the middle. The first tergite is entirely black. Antennae entirely black.

♂. Like the ♀ in colour, but the sixth and seventh abdominal segments, as well as the first, are wholly black; the crest on the second sternite is pale reddish yellow. Legs black, tarsi ferruginous; the front and middle tibiae have a longitudinal streak of lemon yellow on the inner half, the anterior femora a streak on the lower side, and all the femora with an apical spot of lemon yellow on the upper side. Otherwise like the ♂ of the type species.

Sawmills and Victoria Falls, S.R.

Type in R.M. coll. (R.M. and T.M. colls.)

*P. Turneri* Brauns (fig. 57, 57 a and b). *Ann. Mag. N.H.* ix, No. 54, p. 655, ♀. 1912.

♀. 10 mm. long. Black, with the following parts pale yellowish white or ivory: clypeus, base of the mandibles, a spot on the lower part of the face, two oblique spots above the antennae, the tegulae, the upper margin of the pronotum, a large spot on the mesopleurae, the scutellum posteriorly, the metanotum, bands on each side of the first three tergites and the whole of the fourth, fifth and sixth tergites. Legs and sternites ferruginous.

Clypeus smooth, shining and broadly rounded at the apex. Mandibles acuminate. The front with a fine smooth line not reaching the anterior ocellus. Interocular distance on the vertex equal to half the length of the second



joint of the flagellum. Antennae subclavate. Face dull, minutely punctured. Mesonotum shining, the margins densely and finely punctured, the disc sparsely and more coarsely punctured; scutellum shining, sparsely punctured; metanotum smooth and incised in the middle; dorsum of epinotum dull, finely aciculate, depressed in the middle. Tergites almost dull, finely and closely punctured. First tergite like that of *Handlirschi*. Pygidial area with a median elongate triangular area which is dull and longitudinally rugulose, on each side of this median area is a smooth space sparsely and diagonally striate towards the apex, the latter is narrowly rounded and roughened.

Radial cell triangular at the apex, without a distinct accessory cell. Second cubital cell sessile, triangular, the third cubital cell wider on the radius than on the cubitus.

The pilosity is sparser than in *Handlirschi*.

Willowmore, 1 ♀. January. Type in coll. Brauns.

*P. Pentheri* Brauns (fig. 59 a-g). *Ann. K.K.N.H. Mus. Wien*, XIII, p. 403, ♂. 1899.

♂. 14-17 mm. long. Black; pronotum, tegulae, anterior angles of the mesonotum, a spot on the upper part of the episternum, the scutellum or sometimes only its posterior margin, metanotum, apical segment of the abdomen, coxae and basal outer half of the middle and hind femora, ferruginous. The face, a streak on the temples, the anterior femora below, the apices of the middle and hind femora, all the tibiae and tarsi, and a large spot on each side of the first six tergites, yellow. The apical margins of the abdominal segments diffusely reddish brown. Antennae reddish ochreous, darker below, the scapes yellowish in front. Face with a short silvery pubescence. The thorax has a very short and inconspicuous whitish pubescence, and the sides of the pygidium have a very short yellowish tomentum, otherwise the body is almost glabrous.

Clypeus smooth and shining, finely and very sparsely punctured.

Face rugulose and dull at the sides, shining in the middle. Pronotum shining, finely and sparsely punctured. Mesonotum and scutellum shining, irregularly and fairly strongly punctured, the margins of the mesonotum more closely and finely punctured than the disc. Metanotum shining, sparsely punctured. Mesopleurae and sides of the epinotum shining, the former irregularly and strongly punctured, the latter more finely so. The epinotum has a dorsal area distinctly marginate behind, where it extends over the declivity and is continued into the median groove; on each side of the groove the declivity is smooth and shining. The dorsal area is irregularly rugose, or sometimes radially and obliquely so; the middle third is concave from side to side and has a small ovoid fovea at the apical margin; on each side of this middle third the sides of the dorsum fall steeply away and rise again just

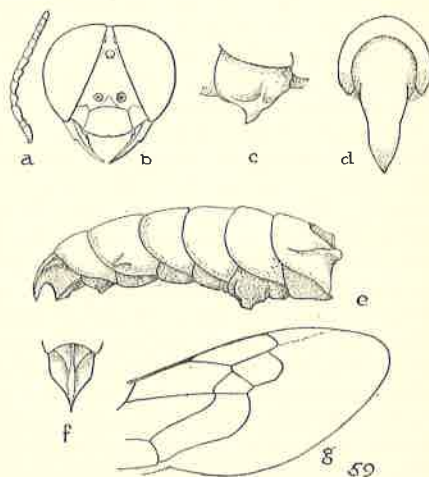


Fig. 59. *Palarus Pentheri*, a, antenna of ♂; b, head of ♂; c, second sternite of ♀; d, pygidial area of ♀; e, abdomen of ♂; f, pygidial area of ♂; g, apical half of front wing.



before the posterior margin, so that a tumid and elongate swelling lies on each side of the posterior lateral angles of the dorsum. Abdomen nitidulous, closely punctured, the punctures larger and more irregular on the base and sides than on the depressed apical margins. Ventral surface of the abdomen shining, very finely and sparsely punctured.

Mandibles excised on their outer margin, the inner margin with a tooth near the base. Anterior margin of clypeus convex, the three sclerites of the clypeus discrete, strongly convex from back to front, the median area with a minute tooth on each side of its anterior margin. The face between the clypeus and anterior ocellus is somewhat swollen, the swelling subcarinate in the middle below, the carina being continued above by a fine impressed line which does not reach the ocellus. Eyes strongly convergent towards the vertex, their least distance being less than the width of the anterior ocellus. The latter is round and convex, the posterior pair which almost touch the eyes are ovate and flattened. Antennae short, the scape subglobose, barely longer than wide apically, the first joint of the flagellum half as wide again as long, the second joint two and a half times longer than the first; the second to seventh joints excavated over the basal half below. Head much narrower than the thorax. Scutellum fairly convex, twice as wide as long. Dorsum of epinotum about as long as the scutellum, sloping posteriorly and laterally, shorter than the declivity.

Abdomen subconical, the basal segment widest. The first tergite abruptly truncate, the declivous face concave from side to side. The tergite is abruptly folded over on each side, the fold forming a sharp carina which towards the base is produced into a lamellar and rounded projection or tooth, situated at the upper corner of the basal excavation; the latter is shining and almost smooth. The second sternite has a transverse crest, higher and narrower in the middle than at the sides, and in the middle subvertically truncate in front and behind. The fifth tergite has a small rounded tooth on each side; the sixth sternite has a longitudinal tubercle on each side, and the seventh slight swellings at the sides. The apical segment has a peculiar shape, not easily described. At about its middle, a transverse section would be roughly triangular, the base of the triangle being ventral; the sides of the triangle (and segment) are concave from above to below, and the apex of the triangle is occupied by a longitudinal crest, which seen from behind is narrow and almost linear at the base, widened and lanceolate at about the middle, and thence narrowed and deflected towards the apex. Seen from the side, the segment is deeply excised below the apex of the crest so that the posterior half or third of the crest forms a strong downwardly curved spine. Over the basal third of the segment, the sides are separated from the median crest by an oblique face which is marginate outwardly (see fig. 59 e). The apical margins of the sixth and seventh sternites are deeply and arcuately emarginate, the eighth ventral plate is nearly flat, and convex at the apex.

Radial cell of forewing roundly truncate, with a long and distinct accessory cell. The stigma is small and narrow; second cubital cell with a short stalk on the radius, the third convex outwardly, the second and third together much shorter than the first. The wings are pale flavo-hyaline, the apical margin widely hyaline; veins yellowish brown. Legs with short strong spines, anterior tibiae spinose, comb of anterior tarsi composed of short spines of which there are seven on the basal joint.

♀. 16.5–18 mm. long. Colour and sculpture similar to that of the male, but the back of the head is ferruginous with the yellow streak on the temples less distinctly defined. Legs and mesosterna yellowish red, the second to fourth sternites with diffuse pre-apical bands of red which widen laterally.



The second joint of the flagellum is longer than in the ♂, being about two and a third times longer than the first. The interocular distance on the vertex is a little greater, being about equal to the width of the anterior ocellus. The pronotum has a very short and almost linear collar, which however thickens at the sides, forming rounded shoulders plainly visible from above. It is less depressed below the mesonotum and is less convex lengthwise than in the ♂. The depressions on the dorsum of the epinotum are shallower. The declivous face of the first tergite is less deeply concave, and lacks the lamellar lateral prominences which are present in the ♂; it has, however, a sharp triangular tooth on each side below the superior lateral angles; the sides of the tergite behind the concavity are not, as in the ♂, carinate at the point where the segment folds over, but are rounded. The transverse crest on the second sternite is lower than in the ♂ and has a trenchant edge which is festooned so as to form a row of low teeth. The apical halves of the third and fourth sternites are slightly tumid. The apical segment is coarsely and closely punctured at the sides, the pygidial area above is elongate triangular, fully two and a half times longer than wide at the base, sharply margined laterally, dull, finely and closely striolate longitudinally, the apex acute. Tarsal comb well developed, with seven spines on the basal joint.

Bechuanaland and Transvaal, ♂ and ♀, types in coll. Brauns; Victoria Falls, Sawmills and Matopos, S.R. (R.M. and T.M. colls.)

*P. O'Neili* Brauns (fig. 58, 58 a). *Ann. K.K.N.H. Mus. Wien*, XIII, p. 408, ♂, ♀. 1899.

♀. 12-14 mm. long. Colour variable, but in the brightest coloured examples it is as follows.

Antennae pale reddish, the first four basal joints more or less infusate above. Mandibles ferruginous in the middle, piceous at the apex. Their bases, the clypeus and face as far as the anterior ocellus, and a vertical stripe on the temples, pale lemon yellow. Collar of pronotum above, a spot on the anterior corners of the mesonotum, the pronotal tubercles posteriorly, the anterior margin of the tegulae, a triangular spot on the upper part of the mesothoracic episternum, the prominences or tubercles on each side of the epinotal dorsum, a faint spot in front of them, and the metanotum, lemon yellow. The scutellum and a quadrangular spot on the mesopleurae brownish yellow, the rest of the thorax black. Abdomen dark brown or piceous, with a lemon yellow spot, narrowed inwardly, on each side of the first five tergites, the apical margins of the segments widely rufescent; the pygidium ferruginous. Legs yellow, the inner faces of the femora more or less reddish brown. All these yellow marks on the body may be more or less reduced or darkened, so that in the darkest specimens the body is almost entirely black, except the pygidium and second abdominal segment. The face is clothed with short silvery pubescence, and the back of the head with a scanty testaceous pubescence, otherwise the insect is almost glabrous. Clypeus, face, temples and pronotum moderately shining, sparsely and shallowly punctured, the punctures fairly large. Mesonotum and scutellum shining, sparsely, irregularly and coarsely punctured, the mesonotum more closely and finely punctured on its anterior margin. Mesopleurae slightly shining, fairly closely and more finely punctured than the mesonotum. Epinotum sculptured as in *P. Pentheri* but the dorsum is also reticulate-rugose on each side of the median apical depression. The abdomen is relatively a little narrower at the base than in *Pentheri*, but otherwise it is similarly sculptured and shaped, except the pygidial area which is less gradually attenuated towards the apex, and the transverse crest on the second sternite, which is more deeply festooned

on its edge. Femora shining, shallowly and sparsely punctured. The interocular distance on the vertex is a trifle greater, but otherwise this species is like *Pentheri* ♀.

♂. 10-13 mm. long. Black, face coloured like that of *Pentheri* ♂, antennae black, becoming brownish above towards the apex. A streak behind the eyes, the posterior margin of the pronotum, the tegulae, a spot on the mesothoracic episterna, a spot on each side of the first two tergites, and the legs, lemon yellow. The femora black on the inner faces. The scutellum sometimes with a diffuse reddish spot on each side. The second sternite and pygidium ferruginous, the coxae reddish yellow. As in the ♀, some of these yellow markings may occasionally be obsolete. The puncturation of the thorax is more sparse than in the ♀, and much more so on the disc of the mesonotum and scutellum than in *Pentheri* ♂. The rugae on the dorsum of the epinotum are closer and less regular than in *Pentheri* ♂, but the puncturation of the abdomen is as in that species. The interocular distance on the vertex is equal to the length of the first joint of the flagellum. Apart from colour, the chief distinction between this species and *Pentheri* lies in the structure of the abdominal segments. The crest on the second sternite is relatively higher than in that species, and rises more abruptly from the base, the anterior face being almost vertical and the posterior face distinctly concave from the top to the base. The sixth sternite is furnished on each side with a short recurved tooth, the fifth tergite lacks the lateral tooth which is present in the other species. The pygidial area is very differently shaped, and consists of an oblong plate, slightly widened towards the apex which is deeply and narrowly excised. The plate is flat, sometimes finely carinate in the middle, obliquely and closely striolate outwards from the middle, and sharply marginate laterally. The venation is similar to that of *Pentheri*.

Sunday River, C.P.; Marico River, Transvaal. Types in coll. Brauns. (R.M. and T.M. colls.)

*P. Rothschildi* Magretti. *Bull. Mus. H.N.* Paris, 4, p. 189, ♂. 1908.

From the description it would appear that this North East African species is closely allied to *O'Neili*, but is smaller, 10 mm. long, with the paler markings of an ivory white and more extensive, the first four tergites having lateral maculae. Other differences are the following. The flagellum above is flavo-rufous; the propleurae have a pale spot, and the marginal swellings of the epinotal dorsum are also pale. The interocular distance is equal to the width of the flagellum, which is the same as in *O'Neili*. The sculpture is similar, but the mesopleurae are transversely striated in part, and the abdomen is sparsely punctured. The frons is triangularly produced above the anterior ocellus. Magretti does not mention the presence of spines on the sixth sternite, but on the other hand the apical ventral plate is said to bear a small tooth on each side.

Loc. Endessa (Abyssinia?), September.

PARANYSSON Guérin

*Iconog. règn. anim.* VII, p. 440. 1845.

*Helioryctes* Smith. *Cat. Hymen. B.M.* IV, p. 358. 1856.

CHARACTERS. The eyes reach the base of the mandibles; ocelli normal, round and convex. Mandibles excised on the outer margin, the inner margin with two teeth behind the middle, the apex acute. Face and vertex wide, clypeus wide, short and fairly flat. Pronotum with a collar, as high as the mesonotum. An ill-defined epicnemium present, the episternal suture dis-



tinct. Thorax short and stout, the mesopleurae swollen. Epinotum short, the dorsum oblique and having a marginate field, the declivity nearly vertical. Posterior coxae armed with a tubercle or spine, at least in the female; middle tibiae with only one spur. A pygidial area present in both sexes. Legs spinose, the anterior metatarsi of the ♀ with a comb of short spines.

Front wing: radial cell not appendiculate; three cubital cells present, the second petiolate; the recurrent veins enter the first and second cubital cells.

Hind wing: the cubitus arises beyond the submedial cell by a distance fully twice as great as the length of the transverse median vein.

Distribution. African, Indian and N. American regions.

Habits. These insects dig short and oblique tunnels in sandy soil. I have never found them with their prey, the nature of which is still unknown. *P. quadridentatus* Cam., has a most powerful odour of bugs.

#### KEY TO THE SPECIES OF *PARANYSSON*, ♀♀

- (2) 1. Hind coxae with a dentiform tubercle. *helioryctoides* Turner
- (1) 2.     "     "     "     an acute spine.
- (6) 3. The spine on the hind coxa originates near the middle of its inner margin.
- (5) 4. Apical joint of the flagellum no longer than the penultimate; dorsum of epinotum striate-reticulate. *melanopyrus* Smith
- (4) 5. Apical joint of flagellum longer than the penultimate; dorsum of epinotum longitudinally striate. *Oscari* Turner
- (3) 6. The spine on the hind coxa originates close to its apical angle.
- (8) 7. Dorsum of epinotum longitudinally striate; pronotum ferruginous. *abdominale* Guérin
- (7) 8. Dorsum of epinotum striate-reticulate; pronotum black. *quadridentatus* Cam.

*P. quadridentatus* Cameron (fig. 60, 60 a and b). *Ann. Trans. Mus.* II, p. 142, ♀. 1910.

♀. 12-15 mm. long. Head, thorax, coxae and trochanters black; legs and abdomen pale burnt-sienna red. Wings dark fusco-violaceous, the veins black. Clypeus, lower half of the face and the temples with short, dense and silvery pubescence; vertex and thorax, excepting the dorsum and declivity of the epinotum, with a short yellowish grey and sparse pubescence, somewhat longer and paler on the sides and sternal surface. Abdomen with a yellowish, very sparse and microscopic pubescence. Clypeus dull, very finely and closely punctured, the median area raised in the middle, its anterior margin depressed, with two blunt teeth on each side. Temples punctate rugulose and slightly shining. The rest of the head and thorax excepting the epinotum, dull and reticulate-punctate, the punctures largest on the scutellum and mesopleurae; the epicnemial area smooth, shining and sparsely punctured. Dorsum of epinotum striate reticulate, the striae often emphasised longitudinally, the spaces between the striae dull and finely punctured. Metapleurae and sides of epinotum strongly, widely and obliquely striate, the striae attenuate towards the bases of those parts; the declivity of the epinotum reticulate-

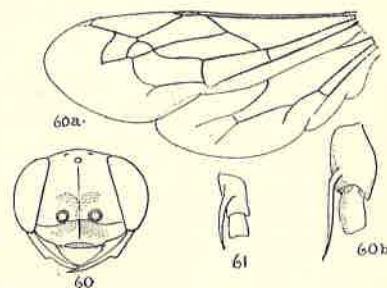


Fig. 60. *Paranysson quadridentatus*, ♀, head; a, wing; b, hind coxa and trochanter.

Fig. 61. *Paranysson Oscari*, ♀, hind coxa and trochanter.

rugose and shallowly punctured in between the rugae. Below its brow the declivity has a median triangular impression which is margined laterally by sharp raised lines; these lines are continued from the apex of the triangle as a single line to the bottom of the declivity. The superior lateral angles of the declivity are separated from the sides of the epinotum by a raised lamelliform margin, slightly angulated in the middle. The first four tergites are moderately shining, shallowly and fairly closely punctured, their apical margins narrowly depressed and impunctate; the fifth tergite shining, sparsely and coarsely punctured, the pygidial area triangular, wider at the base than long, nearly flat, the apex narrowly rounded, shining and smooth, with a few large punctures near the base, or sometimes shallowly punctured all over; sternites smooth, shining and very sparsely punctured except at the sides which are finely and closely punctured. Antennae short and stout, the second joint of the flagellum fully three times as long as the first, and half as long again as the third. Interocular distance on the vertex equal to the length of the first three joints of the flagellum. Temples well developed, as wide as the eyes when seen from the side. Pronotum short, with a distinct collar behind. Mesonotum nearly twice as wide across the tegulae as long in the middle. Dorsum of epinotum convex lengthwise and transversely, very short, about four times wider at the base than long in the middle. Legs strongly spinose, the posterior tibiae with three rows of spines, the anterior metatarsus with eight spines on the outer margin. Posterior coxae with a blackish acute spine arising near the apical angle of the inner margin. The length of this spine is variable, usually it is not longer than the coxa, but in some individuals it is a good deal longer.

♂. 8.5-11 mm. long. Abdomen nearly dull, more strongly and more closely punctured than in the ♀, punctured both above and below, the punctures increasing in size progressively towards the apex; the pygidium shining, sparsely and very coarsely punctured, triangular, widely rounded at the apex, much wider than long. The legs have shorter spines than in the ♀; the posterior coxae simple; the anterior metatarsi with six short spines. Otherwise like the ♀.

Victoria Falls and Sawmills, S.R. December to February. (R.M. and T.M. colls.)

*P. abdominale* Guérin. *Iconog. règn. anim.* p. 441. 1844.

♀. 15 mm. long. This species is closely related to *quadridentatus*, from which it differs as follows.

Clypeus without teeth on each side of the median area. Second joint of the flagellum nearly twice as long as the third. Posterior ocelli a little nearer to each other than they are to the eyes (further from each other in *quadridentatus*). Dorsum of epinotum longitudinally striated, with fewer transverse anastomoses, the superior lateral angles of the declivity without a dentiform lamella. Pronotum ferruginous, postscutellum and tegulae fusco-ferruginous. Second abscissa of the radius nearly as long as the third; the cubitus of the hind wing originates beyond the transverse median vein at a distance equal to two and a half times the length of that vein (three times in *quadridentatus*).

Senegal, W. Africa.

*P. melanopyrus* Smith. *Cat. Hymen. B.M.* iv, p. 359, ♀. 1856. Turner. *Ann. Mag. N.H.* xiv, No. 82, p. 341, ♀, ♂. 1914.

♀. 8-10 mm. long. Head and thorax black, mandibles in the middle, tegulae, legs and abdomen ferruginous; the coxae, trochanters and bases of the anterior femora black. Head and thorax closely and finely punctured. Dorsal area of epinotum nearly semi-circular, striate-reticulate. Abdomen



finely and closely punctured, the two apical segments very smooth and shining, with a few fine punctures. Clypeus with two very minute teeth on each side. Second joint of the flagellum very little longer than the third, the apical joint no longer than the penultimate. Posterior ocelli about half as far again from each other as from the eyes. Spur of hind coxa originating much further from the apex than in *abdominale*, not far from the middle of the inner margin. Cubitus of the hind wing originating at a distance from the transverse median vein equal to nearly two and a half times the length of that vein. There is a tubercle on each side of the epinotum.

The ♂ is like the ♀ but there is no spine on the hind coxa.

Hab. Gambia, Sierra Leone, Nigeria and Uganda.

This species is unknown to me in nature; the description given above is extracted from Smith's original description and from Turner's.

*P. helioryctoides* Turner. *Ann. Mag. N.H.* ix, p. 416, ♀. 1912. *Ibid.* xiv, p. 342. 1914.

♀. 7 mm. long. Colour and pubescence as in *quadridentatus*. Sculpture of the head and thorax as strong as in that species, but the abdomen is much more closely punctured. The dorsum of the epinotum is almost transverse posteriorly, and is coarsely reticulate-rugose; the declivity is transversely striate and has a wide Y-shaped, sharply marginate and nearly smooth area in the middle above. The lateral margins of the declivity produced in the middle into a small triangular spine; the sides of the epinotum strongly striate. Second joint of the flagellum equal to the third, the apical joint not longer than the penultimate. The posterior ocelli are nearly twice as far from each other as they are from the eyes. The collar of the pronotum is relatively shorter than in *quadridentatus*. The hind coxae have no spines, but there is a very small tubercle on the inner margin before the apex. The cubitus of the hind wing originates at a distance beyond the transverse median vein equal to twice the length of that vein. The wings are not quite so dark as in *quadridentatus*.

Pakasa, N. Rhodesia (Silverlock); Sawmills, S.R. (R.M. coll.)

*P. Oscari* Turner (fig. 61). *Ann. Mag. N.H.* xiv, No. 82, p. 341, ♀. 1914.

♀. 8-10 mm. long. Colour and pubescence as in *P. quadridentatus*, but the trochanters and coxal spines are ferruginous, the pronotal tubercles posteriorly and the tegulae fusco-ferruginous. The punctures on the mesonotum and scutellum are smaller and not so close together as in that species. The dorsum of the epinotum is longitudinally striate, minutely reticulate between the striae, the sides obliquely and the declivity transversely striate. The punctures on the dorsal surface of the abdomen a little finer than in *quadridentatus*.

Clypeus with two small teeth on each side of the median area, the anterior margin of which is deflexed and impressed transversely, the impression widest in the middle. Second joint of the flagellum half as long again as the first, and about one-third longer than the third joint, the apical joint a little longer than the penultimate. Posterior ocelli a little further from each other than from the eyes. Behind them a transverse groove, slightly interrupted in the middle, extends from eye to eye. Temples narrower than in *quadridentatus*. The epinotum has no lateral teeth, and its dorsum is relatively longer than in *quadridentatus*. The spine of the hind coxa originates near the middle of the inner margin, and in the single specimen before me is long, curved and stout, a little longer than the coxa. Cubitus of hind wing originates at a distance from the transverse median vein equal to two and a half times the



length of that vein. The interocular distance on the vertex is equal to the length of the first four joints of the flagellum. Anterior metatarsi with six spines. Otherwise like *quadridentatus* ♀.

♂. Second joint of flagellum nearly twice as long as the first, and about one-third longer than the third. Hind coxae without spines. Apical tergite trapezoidal, the apical margin wide and very shallowly concave. Otherwise like the ♀.

Pakasa, N. Rhodesia (Silverlock); Pinetown, Natal (Leigh), ♂ and ♀.

Subgenus *MESOPALARUS* Brauns

As genus. *Ann. K.K.N.H. Mus. Wien*, XIII, p. 416, ♀. 1899.

CHARACTERS. Ocelli normal, vertex very wide. Dorsum of epinotum without a marginate dorsal field. Abdomen ovoid. Pygidial area distinct, triangular and marginate laterally. Legs less strongly spinose than in *Paranysson*, the anterior tarsi with a feeble comb composed of long cilia. Head as wide as the thorax. Posterior coxae with a rounded lamellar projection on the posterior inner angles. Front wing: radial cell barely appendiculate, the accessory cell small and indistinct. Two cubital cells present, the first fully twice as long as the second. Recurrent veins enter the second cubital cell, the first being almost interstitial with the first transverse cubital. Otherwise like *Paranysson*.

*M. Mayri* Brauns (fig. 62, 62 a, b, c). *Loc. cit.* p. 420.

♀. 10 mm. Black, last abdominal segment dark red, mandibles piceous at the apex, reddish ochreous at the base, femora, tibiae and tarsi reddish ochreous. Clypeus and lower half of the face with dense silvery pubescence, the rest of the body with a very short and sparse greyish pubescence, a little more dense on the sides of the epinotum than elsewhere. Abdomen almost glabrous, the apical margins of the ventral segments with scanty outstanding yellowish hairs. Fairly shining, especially the sparsely punctured mesonotum and scutellum. Head strongly punctured, more closely so on the vertex and occiput than elsewhere. Pronotum dull, closely and finely punctured, the pronotal tubercles smooth and shining. Mesonotum and scutellum with large and widely spaced punctures, the former more closely punctured at the sides and in front than on the disc. Mesopleurae closely and coarsely punctured. Dorsum of epinotum with a shining and rounded subtriangular area, longitudinally striate at the base, smooth on its apical half, sharply delimited from the rest of the dorsum and from the sides and declivity by the striato-punctate sculpture of those parts. The apical part of the dorsum has a median elongate depression, not continued over the brow of the declivity. Dorsal surface of the abdomen strongly and fairly closely punctured, the punctures becoming

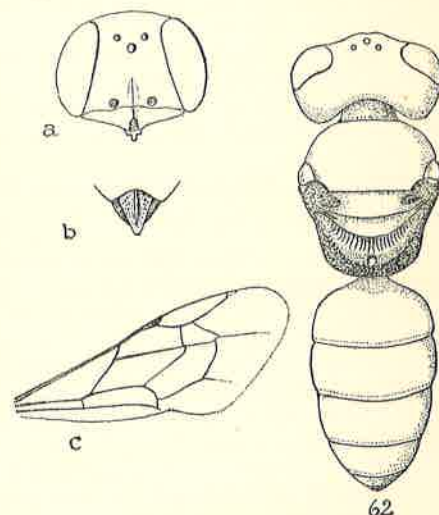


Fig. 62. *Mesopalarus Mayri*, a, head; b, pygidium; c, wing.



smaller and more widely spaced from the first to the fifth segment, the apical margins of the segments widely impressed, smooth and shining. The sixth dorsal segment or pygidial area is as coarsely punctured as the first, sharply marginate at the sides, triangular, subacute at the apex, with a distinct median carina which does not reach the apex. Ventral surface of the abdomen shining, the first sternite closely and finely punctured, the second more coarsely and sparsely punctured, the third to fifth coarsely punctured at the sides, the sixth impunctate except near the apex. Legs nitidulous, finely punctured.

Outer margin of the mandibles not excised, merely abruptly truncate beyond the basal third, the inner margin edentate. Anterior margin of the clypeus feebly convex, the middle slightly produced and ending in three small teeth, of which the middle one is longest. Posteriorly the clypeus is carinate in the middle, the carina being truncate in front and not reaching the anterior margin. Antennae inserted close to the clypeus, the face around their sockets fairly deeply excavated. Ocelli convex and round, set far forward. Vertex and occiput well developed, the temples as wide as the eyes when seen from the side. The eyes are convergent above, but the vertex is nevertheless very wide, the interocular distance being equal to the length of the first seven joints of the flagellum. Antennae short, all the joints of the flagellum except the last as wide as, or wider than long, the second one-fourth longer than the first. Pronotum short, the posterior dorsal portion linear above, sloping steeply downwards from the pro-mesonotal suture, and lower than the mesonotum. The sutures between the mesonotum, scutellum and metanotum deeply impressed. The metanotum fairly long, about half as long as the scutellum. Dorsum of epinotum short, four times wider across the base than long in the middle, rounded at its junction with the sides and declivity, the latter vertical and longer than the dorsum. The first abdominal segment vertically truncate and excavated at the base, the brow of the truncation rounded. Abdomen stout, two-thirds longer than wide, all the segments wider than long, the apical margins of the first four tergites fairly widely impressed. Legs feebly spinose, the middle and hind tibiae with two rows of short yellowish spines on their outer margins. The anterior tarsi with a feebly developed comb, the basal joint rather long and slender, about two-thirds as long as the tibia, with fine cilia on the outer margin. Wings fuscous brown, veins brown. Radial cell not distinctly appendiculate, two cubital cells present, of which the first is quite twice as long on the cubitus as the second; the basal vein originates some distance beyond the end of the submedial cell. Posterior coxae with a lamellar and rounded projection on the posterior inner angles.

Port Elizabeth, December, 1 ♀. Type in coll. Brauns.

Kohl in a footnote, *loc. cit. supra*, p. 420, expresses the opinion that *Mesopalarus* should be regarded as a subgenus of *Helioryctes* Smith (*Paranysson* Guérin) in which the stalked second cubital cell has disappeared. It is certainly nearer that genus than to *Palarus*. By an oversight this subgenus was omitted from the key of the genera and subgenera. Its place in the key should be immediately after paragraph (26) 25, *Gastrosericus*, p. 106. Traced to that position in the key, it is then easily separable from *Gastrosericus* by the form of the ocelli, which are normal, whereas in *Gastrosericus* the posterior ocelli are elongated as in *Tachysphex*.

#### MISCOPHUS Group (Kohl)

GENERAL CHARACTERS. Small species, blackish, or red and yellow or brown, occasionally with metallic colours. The wings are small and in some genera much reduced and incapable of true flight, and even in those in which the



wings are sufficiently large, the gait is a peculiar one, as the insects run and hop over the ground, every now and then breaking into a short flight just over the surface, in some ways reminiscent of small Pompilids.

Maxillary palpi six-jointed, labial palpi four-jointed.

The mandibles often have an excision on the outer margin. The ocelli are normal; inner margins of the eyes moderately convergent towards the vertex. Pronotum usually long, not depressed below the level of the mesonotum or only slightly so. The humeral angles of the pronotum do not extend back to the tegulae. Dorsum of the epinotum without a cordate area. No epicnemium present on the mesopleurae. A pygidial area not defined. Middle tibiae with only one spur. A tarsal comb sometimes present in the ♀.

The radial cell often appendiculate with the accessory cell more or less distinct; one, two or three cubital cells present, the second always petiolate on the radius; the second discoidal cell absent in some genera.

Kohl's arrangement of the group is given below; to it I have added the recently described genus *Mutillonitela* Bridwell. This genus published in June 1920 in the *Proc. Hawaiian Ent. Soc.* escaped my notice and was not included in the key to the genera owing to the fact that the "Zoological Record" for that year has not yet been published.

The genus *Plenoculus* is a North American one and is not represented in our fauna.

MISCOPHUS Group	{	NITELA Latr.	{	MISCOPHUS Jur.
		Subgroup. SOLIERELLA Spin.		SALIOSTETHUS Brauns
		PLENOCULUS Fox		MISCOPHOIDES Brauns
				MUTILLONITELA Bridwell
		Subgroup. MISCOPHUS Jur.		

NITELA Latreille

*Gen. Insect. et Crust.* iv, p. 77. 1809.

CHARACTERS. Median area of clypeus convex transversely, longitudinally carinate. Lower half of face excavated on each side above the antennal sockets, the excavation sometimes marginate. Mandibles not excised on their outer margin, either with two apical teeth or acuminate. Pedicel of the scape fairly long. Collar of the pronotum not much shorter than the neck, and only a little lower than the mesonotum. Episternal suture distinct. Dorsum of epinotum angularly delimited from the declivity, at least in the middle. Front wing with a large radial cell, and with a small and poorly defined accessory cell. Only the first cubital and first discoidal cells distinct, the second cubital and second discoidal sometimes faintly outlined by shadow veins. The first recurrent vein enters the first cubital cell. Lower distal angle of the second submedial cell open, owing to the vena postica ending before reaching the anal vein. The veins of the hind wing are becoming obsolete, so that only the costal and base of the submedial are distinct to any extent. Legs slender, almost without spines. Claws unarmed; pulvilli distinct.

Distribution. Ethiopian and Palaearctic regions.

The species of this genus are small and mostly black wasps which nest in holes in old wood or in hollow twigs and stems of plants, and provision their young with small Homoptera (aphids).



KEY TO THE SPECIES OF *NITELA*

- (2) 1. Abdomen rufo-ferruginous. *rufiventris* Turner
- (1) 2. Abdomen black.
- (4) 3. Pronotal collar and mesonotum coarsely and transversely rugose, rugulose between the rugae. *capicola* Brauns
- (3) 4. Pronotal collar and mesonotum finely sculptured.
- (6) 5. Legs reddish umber. Mesonotum dull, very finely and evenly reticulate-rugulose. *promontorii* Brauns
- (5) 6. Legs black.
- (8) 7. Female: head dull, longitudinally aciculate-rugulose, finely and shallowly punctured in between. Male: head slightly shining, finely and sharply punctured. The mesonotum in both sexes fairly dull and punctured, and in the ♀ with fine transverse striae. *Merceti* Brauns
- (7) 8. Head shining, microscopically and distantly punctured; mesonotum nitidulous, very finely and superficially rugulose. *transvaalensis* Brauns

*N. rufiventris* Turner. *Ann. Mag. N.H.* xvii, No. 102, p. 448, ♀. 1916.

"♀. Nigra; mandibulis, scapo, flagello articulis duobus basalibus, tegulis, abdomine pedibusque rufo-ferrugineis; alis hyalinis, iridescentibus, venis testaceis, stigmatibus radioque nigris." Long. 3.5 mm.

"♀. Clypeus not strongly convex, without a distinct carina. Eyes strongly divergent towards the clypeus, separated on the vertex by a distance equal to the length of the two basal joints of the flagellum. Head finely and closely punctured, the front thinly clothed with short pale golden pubescence; posterior ocelli almost touching the eyes. Pronotum nearly as long as the scutellum, not sunk below the mesonotum, the margins only very slightly raised, so that the usual transverse sulcus is not well defined. Mesonotum closely and finely punctured, with a row of larger punctures before the scutellum, which is almost smooth. Median segment coarsely longitudinally striated, rounded at the apical angles, the posterior slope more finely transversely striated. Abdomen smooth and shining. Legs unarmed.

Hab. Monkey Bay, Lake Nyasa, June (W. A. Lamborn).

The neurulation is as in typical *Nitela*, but the species is easily recognised by the colour."

*N. capicola* Brauns. *Verh. Zool. Bot. Ges. Wien*, lxi, p. 140, ♂. 1911.

♂. 3.7 mm. long. Black, tarsi blackish brown. Lower third of face covered with bright silvery pubescence, otherwise glabrous except for a microscopic pubescence here and there.

Face shining, microscopically aciculate, almost smooth. Cheeks microscopically rugulose; temples smooth. Vertex and occiput dull, microscopically rugulose and punctulate (a magnification of at least 30 diameters is required to see this). Collar of pronotum and the mesonotum transversely rugose, rugulose between the rugae. Scutellum almost smooth, but with a few superficial longitudinal rugae. Dorsum of epinotum reticulate rugose, the rugae emphasised longitudinally, the sides obliquely striate, the declivity transversely rugose and coriaceous in between. The mesopleurae reticulate rugose in front, obliquely rugose behind. The whole thorax almost dull, at the most with only a greasy lustre. Abdomen shining, almost smooth.

Anterior margin of the clypeus convex, the median area strongly carinate longitudinally in the middle; the lateral sclerites of the clypeus very narrow, so that the antennae appear to be inserted almost on the anterior margin of the clypeus. Mandibles acuminate. Lower half of face excavated, the upper

half distinctly convex lengthwise. Cheeks and temples well developed, the latter as broad as the eyes when seen from the side. Second joint of the flagellum shorter than the third and only a little longer than the first. Inter-ocular distance on the vertex equal to about the length of the first three joints of the flagellum. Pronotal collar four times wider than long in the middle, the anterior corners subrectangular. Mesonotum not quite twice as wide as long; scutellum with a median longitudinal raised line. Dorsum of epinotum as long as the mesonotum, its junction with the vertical declivity rectangular. Inner spur of hind tibia one-third the length of the basal joint of the hind tarsus, which is almost as long as the tibia. Wings hyaline, strongly iridescent, the veins brown.

Port Elizabeth, 2 ♂♂, October (H. Brauns). Type in coll. Brauns.

*N. promontorii* Brauns. *Loc. cit.* p. 141, ♂.

♂. The type of this species is defective, the head having been lost. The length of the thorax and abdomen is 3 mm. Legs pale reddish umber. Body black. Neck of pronotum coriaceous, the collar dull, rugose and somewhat reticulate, depressed behind the middle on each side, leaving a V-shaped raised portion in the middle. Mesonotum dull, very finely and evenly reticulate-rugulose, with a few short rugae before the posterior margin. The latter is separated from the scutellum by a deeply clathrate groove. Scutellum rugulose. Dorsum of epinotum strongly and longitudinally striate, the striae somewhat divergent posteriorly and connected by close and regular transverse anastomoses; the sides obliquely and finely striato-rugose, the declivity finely and transversely rugose. Mesopleurae nitidulous, exceedingly finely reticulate rugose in front of the episternal suture, reticulate rugulose behind it. Abdomen shining, microscopically rugulose. In the proportions of the thorax, this species resembles *N. transvaalensis*. Posterior femora swollen over the basal half. Inner spur of hind tibia about two-fifths the length of the metatarsus.

Uitenhage, C.P. 1 ♂. November. Type in coll. Brauns.

Brauns is in error in describing the sculpture of the mesonotum etc. as "punctured." A magnification of 30 diameters or more shows it clearly as a rugulose reticulation.

*N. Merceti* Brauns (fig. 63). *Loc. cit.* p. 142, ♀, ♂.

♀. 5-6 mm. long. Black, tarsi and tegulae piceous; apices of the mandibles dark castaneous. Lower half of the face with a short silvery pubescence; elsewhere the pubescence is very sparse and microscopic. Face fairly dull, closely, finely and very shallowly reticulate-punctate, with a superficial longitudinal aciculation superimposed. Vertex and occiput less dull, very shallowly and closely punctured. Temples and cheeks longitudinally aciculate. Pronotum transversely rugulose. Mesonotum and mesopleurae transversely rugulose and finely punctured. The mesopleurae with a deep pit in the middle. Sides of epinotum finely reticulate-punctate, with oblique longitudinal rugae superimposed, which become finer posteriorly. Dorsum of epinotum widely reticulate rugose, the rugae emphasised longitudinally, the spaces in between coriaceous, the declivity irregularly rugose and coriaceous. Abdomen above shining finely and sparsely punctured. Apical ventral segment longitudinally carinate. Mandibles bidentate at the apex. Anterior margin of the median area of the clypeus transverse. First joint of the flagellum



Fig. 63. *Nitela Merceti*, ♀.



a trifle shorter than the second, the third joint about one-fourth longer than the second. Interocular distance on the vertex about equal to the length of the first two joints of the flagellum. The posterior ocelli are separated from the eyes by a distance equal to half their own diameter. Collar of pronotum about four times wider than long in the middle, the anterior corners rounded, the anterior face vertical, the dorsal face impressed on each side of the middle. Dorsum of epinotum a little shorter than the mesonotum. Wings hyaline, the veins brown.

♂. 4 mm. long. The sculpture of the face, vertex and mesonotum sharper than in the ♀, with larger and deeper punctures, the transverse rugae on the mesonotum less prominent. Mandibles bidentate at the apex as in the ♀ (all the other South African species of the genus have the mandibles simple and acute at the apex). Otherwise like the ♀.

Willowmore, C.P. October to May. Type in coll. Brauns.

*N. transvaalensis* Brauns. *Loc. cit.* p. 141, ♀.

♀. 3.2 mm. long. Colour and pubescence as in *capicola*. Sculpture of the head as in that species, the interocular distance on the vertex a little less, being equal to the length of the second and third joints of the flagellum, plus half that of the first. The proportions of the thorax are much the same as in *capicola*, but the sculpture is different. Pronotal collar moderately shining, very shallowly rugulose, the anterior corners less acute than in *capicola*, and with a fairly deep and wide pre-basal impressed line, which is angulated in the middle. Mesonotum nitidulous, transversely and very superficially rugulose. Scutellum and metanotum microscopically shagreened and slightly shining. Dorsum of epinotum less coarsely sculptured than in *capicola*, having a few longitudinal rugae connected by a few transverse anastomoses, the spaces between very finely reticulate. Sides of epinotum microscopically reticulate, with a few oblique striae superimposed. Mesopleurae superficially reticulate rugulose, the metathoracic epimerum (just below the base of the hind wing) shining and nearly smooth. Abdomen smooth and shining, with a sparse and microscopic puncturation. Apical tergite triangular, the apex subacute. Anterior tarsi without a comb.

Lichtenberg, Transvaal. 1 ♀, December. Type in coll. Brauns.

Brauns has incorrectly stated the length of the insect as 4 mm.

#### SOLIERELLA Spinola

*Gay. Hist. fis. Chile, Zool.* 6, p. 349. 1851.

CHARACTERS. Mandibles not excised on the outer margin, or only very feebly so (not excised in our two species); the apex acute. Clypeus wide and short, the apical margin in the ♂ with one, two or three teeth. Antennae short. Pronotum with a distinct collar; the pronotal tubercles do not extend back as far as the tegulae (but very nearly in *S. rhodesiana*). Episternal suture distinct, an epicnemium absent. Dorsum of epinotum wider than long, with a distinct and marginate median area, the declivity vertical. Apical segment of the abdomen conical in the ♀, bluntly so in the ♂, no pygidial area present. In the ♂ there are seven visible ventral segments. Legs almost spineless, tarsi without a comb; claws unarmed, pulvilli well developed. Middle coxae not contiguous.

Front wing: pterostigma small but distinct; radial cell truncate, the accessory cell fairly distinct; three cubital cells present, the second stalked on the radius; two recurrent veins, the first received by the first cubital cell and the second by the second cubital, or both received by the latter cell;

the basal vein is either interstitial with the transverse submedial vein or arises a little beyond it.

Hind wing: the cubitus arises well beyond the end of the submedial cell. The basal lobe is elliptical and the basal sinus is deep; the anal lobe is much longer than the submedial cell.

Distribution. North and South America, Mediterranean and South African regions.

*S. scrobiculata* Brauns (fig. 64 a, b). *Nom. in litt.*

♀. 3.5-3.7 mm. long (the type has the abdomen curved under the thorax and cannot be accurately measured). Black, with a very fine whitish pubescence, nowhere abundant except on the lower half of the face where it is also longer and silvery. Clypeus raised in the middle. Lower half of face dull, microscopically punctured; a median carina extends from the apex of the clypeus to about the middle of the face, where it branches into two; above that point the face and vertex are coarsely reticulate, the reticulations prominent, the spaces between somewhat shining. Pronotum finely punctured, the anterior face vertical, the dorsal face of the collar wide and short, shorter in the middle than at the sides, its anterior border raised into a sharp

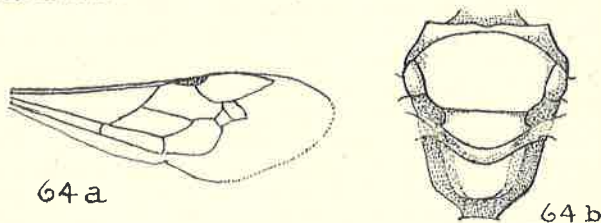


Fig. 64. *S. scrobiculata*, a, wing; b, thorax.

keel which ends on each side in a dentiform angle in front of the tegulae. Mesonotum and scutellum finely punctured, with a reticulate sculpture superimposed, like that of the head; the scutellum almost flat; metanotum rugose. Epinotum dull, with a distinctly defined and marginate trapezoidal median dorsal field which is coarsely rugoso-reticulate, the spaces between the rugae rugulose, the sides of the dorsum beyond the median area obliquely striato-rugose, the sides of the epinotum finely and obliquely striate, the declivity transversely rugose and reticulate. Mesopleurae reticulate like the mesonotum, their posterior margins defined by a deeply clathrate groove. Abdomen very closely and finely punctured, the punctures becoming finer towards the apex. Legs not spinose. Veins and stigma of wings brown.

Lichtenberg, Transvaal, January. Type in coll. Brauns.

*S. rhodesiana* n.sp. (fig. 65 a, b).

♀. 4 mm. long. Black, apical half of mandibles castaneous, tegulae and tarsi brownish ochreous, the basal joints of the latter paler. Coxae, trochanters, femora and inner sides of the tibiae dark brown, the tibiae outwardly and the pronotal tubercles pale yellow. Clypeus, lower half of face, temples, pronotal collar, a patch on each side of the scutellum, the sides and dorsum of epinotum very sparsely, covered with a short silvery pubescence. Abdomen, chiefly at the sides, with a very fine and sparse whitish pubescence, the apical margins of the segments narrowly testaceous. Wings hyaline, the veins yellowish brown, the stigma brown. Mandibles edentate, the apex acute. Clypeus carinate in the middle, the carina continued beyond it about



half way up the face; median area of clypeus subrectangularly produced, the anterior margin smooth and shining like the carina, the rest of the clypeus closely punctured and dull. Face and vertex shallowly, finely and fairly closely reticulate-punctate, at the sides also somewhat coriaceous. The temples very superficially rugulose and seen from the side about one-third as wide as the eyes. Pronotum finely rugulose and dull. Mesonotum and scutellum moderately shining, shallowly but distinctly punctured, most of the

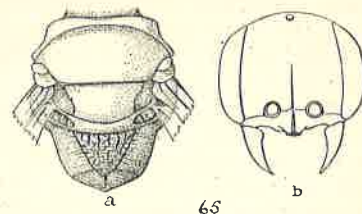


Fig. 65. *S. rhodesiana*, a, thorax; b, head.

punctures smaller than the spaces between them; mesopleurae and mesosterna dull and very finely coriaceous, the posterior angle of the epimerum smooth and shining. Dorsum of epinotum with a median trapezoidal field, sharply marginate, dull, finely rugose but with larger longitudinal rugae near the base, the rest of the dorsum of the epinotum and the declivity dull, closely and finely transversely rugose, the sides obliquely striolate and dull. Abdomen moderately shining, closely punctured, the punctures strongest on the first tergite and becoming progressively smaller and shallower towards the apex of the abdomen. First tergite subcarinate at the sides on the line where it folds over to the ventral surface; the apical segment feebly compressed laterally, subconical, the apex acute.

Scapes short, shorter than the first and second joints of the flagellum taken together; the second joint of the flagellum unusually short, only a trifle longer than the first and not longer than the third. Eyes only slightly convergent above, the interocular distance on the vertex being about equal to the length of the first five joints of the flagellum. Posterior ocelli nearer to the eyes than they are to each other. Head wider than the thorax, the latter robust. Pronotal collar distinct, a little lower than the mesonotum; the pronotal tubercles prominent, visible from above, and very close to the tegulae. Scutellum half as long as the mesonotum and as long as the dorsum of the epinotum, which is three times wider at the base than long in the middle. Abdomen ovate. Venation of the wings like that of *S. scrobiculata*, the stalk of the second cubital cell about as long as the second abscissa of the radius.

Bulawayo, April, 1 ♀. Type in R.M. coll.

The slight compression of the apical segment, the absence of an excision on the mandibles and the point of origin of the basal vein a little beyond the end of the submedial cell place this species in *Sylaon* Piccioli, which Kohl, with very good reason, has shown can be considered only a subgenus of *Solierella*.

#### MISCOPHUS Jurine

*Nouv. méth. class. Hymen.* p. 205. 1807.

CHARACTERS. The eyes reach the base of the mandibles below, and are slightly convergent above. Mandibles with an excision on the outer margin, the inner margin usually edentate, the apex acute. Palpi rather long. Collar of pronotum well developed, not depressed below the level of the mesonotum or only slightly so. Episternal suture distinct. Eight visible ventral plates in the ♂.

Front wing: pterostigma small; radial cell not appendiculate; second cubital cell stalked on the radius, but sometimes owing to the fusion of the second and third transverse cubital veins the second cubital cell is extinguished; the first recurrent vein enters the first cubital cell, and the second recurrent

enters the second cubital, or where that is absent, is interstitial with the single transverse cubital vein. Two discoidal cells present; the basal vein originates beyond the end of the first submedial cell.

Hind wing: the cubitus originates far beyond the end of the submedial cell; basal lobe fairly small.

The ♀ has a tarsal comb on the front legs; claws unarmed.

The species of this genus usually nest in sandy soil and provision their young with small spiders. Owing to their small size, their zig-zag movements and their habit of seeking their prey on ground covered with grass, dead leaves or low herbage, they are not easily seen. The Rhodesian species appear chiefly during the dry season.

#### KEY TO THE SPECIES OF *MISCOPHUS*

- (6) 1. Abdomen with at least the base reddish.
- (3) 2. Head and thorax with scale-like tufts of curved pale golden hairs.  
*Kriechbaumeri* Brauns
- (2) 3. Pubescence simple, not arranged in tufts.
- (5) 4. Pubescence greyish white; epinotum unarmed. *karrooensis* Brauns
- (4) 5. Pubescence more or less brassy; epinotum with two spiniform processes on the posterior margin of the dorsum. *Kohli* Brauns
- (1) 6. Abdomen not red at the base.
- (8) 7. The whole body metallic bluish green. *chrysis* Kohl
- (7) 8. Black, metallic lustre if present clearly visible only on the abdomen.
- (10) 9. First three tergites with a small swelling covered with a dense tuft of silvery pubescence, just behind the middle of the apical margin.  
*Stevensoni* Arnold
- (9) 10. Tergites simple.
- (18) 11. With some metallic lustre on the abdomen; pubescence of thorax not woolly.
- (17) 12. Pubescence of head and thorax whitish.
- (14) 13. Dorsum of epinotum finely reticulate-punctate and dull (a faint bronzy lustre on the head and mesonotum; bluish on the abdomen).  
*pseudonotogonia* Brauns
- (13) 14. Dorsum of epinotum not reticulate-punctate (no bronzy lustre on the head and thorax).
- (16) 15. Pronotum dull, closely and finely transversely rugose; dorsum of epinotum rugose, coarsely so in the middle, closely and finely at the sides, the rugae curving outwards from the middle.  
*cyanescens* Turner
- (15) 16. Pronotum shining, coarsely and transversely striato-rugose; dorsum of epinotum shining, widely and longitudinally striate, the striae curving inwards posteriorly.  
*coerulescens* Arnold
- (12) 17. Pubescence of head and thorax pale brassy golden; dorsum of epinotum obliquely striato-rugose and dull. *oraniensis* Brauns
- (11) 18. Metallic lustre usually entirely absent. Sculpture very coarse; pubescence of thorax woolly and silvery; collar of the pronotum much wider than long. *rhodesianus* Turner

*M. Kriechbaumeri* Brauns. *Ann. K.K.N.H. Mus. Wien*, XIII, p. 398, ♀, ♂. 1899.

♀. 6-8 mm. long. Black; first and second sternites, the first tergite excepting a blackish spot on each side, the basal half of the lateral margins of the second tergite, the apical segment and apical margin of the penultimate tergite, ferruginous; the second to fourth tergites bluish black, the third, fourth and fifth sternites fusco-ferruginous. Legs pale sienna red, the anterior femora with a fuscous streak above, the coxae black on their upper surfaces. The lateral sclerites of the clypeus and the antennae fusco-ferruginous, the



scapes paler below, the mandibles yellowish on the basal half, the apical half black. Face, mesopleurae, lateral margins of the mesonotum and the epinotum with widely separated tufts of curved pale golden hairs. Clypeus, pro- and mesonotum, scutellum and metanotum with darker golden and tomentose hairs, almost decumbent, short and not very dense, barely hiding the sculpture; the median dorsal area of the epinotum is glabrous. The base of the first abdominal segment and the apical margins of the remaining dorsal segments with narrow bands of pale golden pubescence, more or less interrupted in the middle. Apical margins of the second to fifth sternites with a few long and exserted black hairs. Wings pale fuscous, the area of the cubital and discoidal cells almost hyaline.

Dull. Head closely and finely reticulate-punctate. Pro- and mesonotum and mesopleurae rugulose coriaceous; epinotum closely reticulate-punctate, the dorsum with a fine median longitudinal carina almost reaching the apex, the declivity transversely striate, and with a median longitudinal sulcus. Abdomen closely and finely punctured. Clypeus narrowly excised on each side of the median area, which is produced into a short lobe, angular at the corners and feebly convex in front. Eyes slightly convergent above, the interocular distance on the vertex equal to the length of the first two joints of the flagellum plus half of the third. The face wide and flat; ocelli placed at the corners of an equilateral triangle, the posterior ocelli as near to each other as they are to the eyes. Second joint of flagellum a little longer than the third, two and three-quarter times longer than the first. Collar of pronotum not short, rounded at the corners, not much lower than the level of the mesonotum; the latter wider than the pronotum and wider than long in the middle, as long as the dorsum of the epinotum. The latter about as long as the vertical declivity. Spines on the legs black, the anterior tarsi with long and flattened spines, of which there are three on the first joint. The stalk of the second cubital cell meets the radial cell almost at its middle, and is nearly as long as the second cubital cell is high. The first recurrent vein is distant from the outer angle of the first cubital cell by a length equal to the base of the second cubital cell; the second recurrent meets the latter at its distal angle. Apical segment of the abdomen subconical.

♂. Antennae ferruginous, darker towards the apex. The apical segment of the abdomen rounded. Otherwise like the ♀.

Willowmore and Port Elizabeth, C.P. Type in coll. Brauns. (R.M. coll.)

*M. karrooensis* Brauns. *Nom. in litt.*

♂. 4 mm. long. Head, flagellum and thorax black. Mandibles except at the apex, middle of the clypeus in front, and the tegulae, flavo-ferruginous; first two segments of the abdomen, trochanters, femora, front and middle tibiae, ferruginous; the third and following abdominal segments fusco-ferruginous and faintly tinged with violaceous, the apical margins testaceous. Hind tibiae pale ferruginous inwardly, fuscous outwardly; tarsi pale fuscous; posterior coxae pale flavo-ferruginous below. Pubescence on the head and thorax whitish, scanty and exceedingly fine, a little more abundant and longer on the lower half of the face than elsewhere, absent from the epinotum except at the sides. Abdomen with a sparse and microscopic pubescence, and a few long black hairs on the apical margins of the third to seventh sternites.

Head and pronotum dull, microscopically reticulate-rugulose, somewhat transversely. Mesonotum and scutellum exceedingly finely reticulate-punctate, the metanotum and mesopleurae finely reticulate. Dorsum of epinotum closely and finely rugose transversely, the sides vertically rugulose and somewhat coriaceous, the declivity transversely rugose and shining, the rest



of the thorax fairly dull. Abdomen feebly shining, very shallowly and microscopically punctulate.

Median area of clypeus slightly produced, its anterior margin almost straight. Interocular distance on the vertex slightly less than the length of the first three joints of the flagellum. Collar of pronotum convex transversely and lengthwise, the shoulders widely rounded, about three and a half times wider than long in the middle. Mesonotum nearly twice as wide in front of the tegulae as long, like the scutellum it is convex from back to front. Dorsum of epinotum almost flat, not much narrowed posteriorly, as long as the mesonotum, with a fine median longitudinal line which does not reach the brow of the declivity; the latter is oblique.

Inner calcar of hind tibia half as long as the metatarsus. Wings hyaline, the apical portion from the stigma and second cubital cell outwards faintly fuscous, the veins brown.

Willowmore, March. Type in coll. Brauns.

*M. Kohli* Brauns. *Ann. K.K.N.H. Mus. Wien*, XIII, p. 397, ♀, ♂. 1899.

♀. 5.2 mm. long (5-8 mm. teste Brauns). Black; scape below, mandibles excepting their apices, median area of clypeus, legs and pronotal tubercles yellowish red. The upper half of the anterior coxae, the middle and hind coxae except at the apex and the upper surface of all the femora, black. Abdomen more or less red. The whole body clothed with short, pale brassy and decumbent pubescence, the legs with a greyish pubescence. Dull, face rugulose and coriaceous, the clypeus rugulose, the depressed margin of the median area smooth and shining. The shape of the clypeus is like that of *M. pseudonotogonia*. Pronotum at the sides longitudinally striolate, transversely so on the collar. Mesonotum, mesopleurae and scutellum longitudinally striolate and reticulate in between. Epinotum finely and transversely rugoso-striate, reticulate-punctate in between the striae, the dorsum with a sharp median raised line which reaches the apex. Abdomen very finely rugulose and coriaceous above, rugulose below, the second segment with a faint purplish tinge (at least in the type specimen).

Median area of the clypeus trapezoidal, the lateral angles rounded. Interocular distance on the vertex about equal to the length of the second and third joints of the flagellum. Posterior ocelli as far from the eyes as they are from each other. Collar of pronotum convex transversely and lengthwise, the anterior margin convex, twice as wide behind as long in the middle, a little lower than the mesonotum; the latter hardly longer than the collar of the pronotum, and not longer than the dorsum of the epinotum. The apical margin of the dorsum of the epinotum is produced on each side into a small, acute and triangular tooth. Abdomen subpetiolate, the first segment being distinctly narrowed towards the base and a trifle longer than wide at the apical margin. Legs feebly spinose. Second cubital cell almost semicircular, the transverse cubital veins being curved, the cell is twice as wide on the cubitus as its stalk is long.

♂. 5 mm. long. Abdomen with a pronounced purplish gloss. Pubescence much scantier than in the ♀. Sculpture stronger; vertex finely but quite distinctly transversely striate. Pronotum posteriorly strongly striate, shining between the striae. Mesonotum evenly, longitudinally and sharply striate, shining between the striae, the scutellum more closely striate. The epinotum is also more strongly striate than in the ♀, the striae further apart, the spaces between them shining; the epinotal teeth longer and more acute. Sides of thorax distinctly aeneous. Apical margins of the ventral segments fringed with a few short black hairs. Apical segment of abdomen rounded. De-



clivity of epinotum with a shallow forked impression above. Otherwise like the ♀.

Port Elizabeth, November to April. Narebis, S.W.A. Protectorate (S.A. Mus. coll.). Types in coll. Brauns.

*M. chrysis* Kohl. *Ann. K.K.N.H. Mus. Wien*, ix, p. 293, ♀. 1894.

"♀. 5.5 mm. Metallic bluish-green, the mandibles partially black. Wings almost hyaline. The interocular distance on the vertex is about half as long as the distance between the eyes across the clypeus. Face moderately convex, densely and coarsely punctured. Mesonotum microscopically rugulose. Mesopleurae rugose. Epinotum rugoso-striate, the dorsum a little wider than long,.... The eyes converge distinctly on the vertex, so much so that the posterior ocelli are so close to the eyes that the distance between them is barely equal to the diameter of one of the ocelli: the posterior ocelli are only slightly nearer to each other than they are to the anterior ocellus, forming an almost equilateral triangle. Measurements of the interocular distance in comparison with the antennae are not possible as the latter are missing,.... The anterior margin of the clypeus is straight in the middle, at the sides curved towards the lower margin of the eyes. Mesonotum microscopically rugulose,.... mesopleurae rugulose and rugose. The dorsum of the epinotum is somewhat wider than long, and shows transverse rugae which are directed outwardly from the raised median line and are in part curved,....

The second recurrent vein and the portion of the medial which bounds the second discoidal cell are almost obsolete."

Obok, East Africa.

*M. Stevensoni* n.sp. (fig. 66, 66 a).

♀. 4.5 mm. long. Black, mandibles reddish ochreous, black at the base. Tarsi dark brown, apices of the femora fusco-ferruginous. The whole body is covered with a very scanty, short, rather coarse and irregular pubescence of greyish silvery hairs, longest on the clypeus but not hiding the sculpture, almost absent from the mesonotum; it is densest on the sides and declivity of the epinotum and on the posterior margins of the first five tergites, where it forms transverse apical fasciae, interrupted in the middle. The first three tergites have just behind the middle of the apical margin a round swelling which is covered with a dense tuft of greyish silvery pubescence. This character alone suffices to distinguish this remarkably distinct species from all the others. The sculpture is also peculiar. The whole body is sharply, deeply and evenly punctured, with the spaces between the punctures very regularly aciculate or striate in a stellate manner, the striae radiating from the punctures (on the mesonotum and scutellum where the punctures are largest this is clearly visible with a magnification of about 30 diameters). The punctures are smallest and most dense on the temples, metanotum and abdomen. The whole body fairly dull, except the median area of the clypeus which is slightly shining.

Clypeus deeply excised between the median and lateral sclerites, the anterior margin of the median one sinuate. Inner orbits of the eyes subparallel, only feebly convergent above, the interocular distance on the vertex being equal to the length of the first three joints of the flagellum, plus one-third of the fourth joint. The space between the posterior ocelli and the eyes

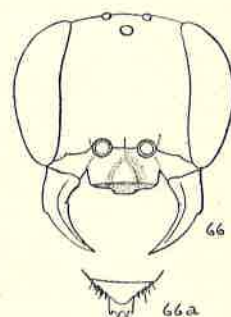


Fig. 66. *M. Stevensoni*, ♀, head; a, ♂, apex of abdomen.



is very wide, being equal to three times the diameter of the ocellus or to the space between the posterior ocelli. A short raised line, slightly oblique, lies close to the inner orbits at about the level of the anterior ocellus. Flagellum slender, all the joints longer than wide, the first joint half as long as the second, the latter about one-quarter longer than the third. Temples broad, wider than the eyes when seen from the side.

Pronotal collar convex transversely and from front to back, longest in the middle, about four and a half times wider behind than long. Mesonotum wide, two and a quarter times wider than long, and only one-third longer than the scutellum. Dorsum of epinotum as long as the scutellum, with a fine median longitudinal carinula which reaches the brow of the rather oblique declivity. Anterior tarsi with long black spines, slightly thickened apically, of which there are three on the basal joint. Wings pale fusco-hyaline, with a darker cloud beyond the cells. Veins dark brown. The stalk of the second cubital cell is as long as the base of that cell on the cubitus.

♂. 3.5 mm. long. Tibiae and tarsi brownish ochreous. Interocular distance on the vertex equal to a little more than the length of the first four joints of the flagellum. The joints of the latter shorter than in the ♀. Seventh tergite triangular, spinose at the sides, the apex rounded; eighth sternite trisinate at the apex, thereby quadridentate, the outer teeth shorter than the inner pair. Apical margins of the ventral segments testaceous. Otherwise like the ♀.

Sanyati River, S.R. July, 2 ♀♀ (Roy Stevenson); Victoria Falls, July, 1 ♂ (Arnold). Types in the Rhodesia Museum coll.

*M. pseudonotogonia* Brauns (fig. 67). *Ann. K.K.N.H. Mus. Wien*, XIII, p. 399, ♀, ♂. 1899.

♀. 4 mm. long. Black, head and mesonotum with a barely perceptible bronzy tint, the abdomen with a more distinct purplish lustre, mandibles dark reddish brown, tarsi piceous; wings fusco-hyaline, the veins black. Clypeus and lower third of the face, back of the head, thorax chiefly at the sides, apical margins of the first three tergites, clothed with a short and thin whitish pubescence. Dull. Head, pro- and mesonotum closely and very finely punctured, the mesopleurae finely coriaceous-punctate, the dorsum of the epinotum finely reticulate-punctate, the sides obliquely and finely striate, the declivity shining, strongly transversely striate. Abdomen slightly shining, microscopically punctured. Median area of clypeus slightly produced, its anterior margin feebly sinuate, its basal half with a low median carina, the anterior margins of the lateral sclerites convex. Head in front fairly wide, about half as wide again as high. The eyes slightly convergent above and below, the distance between them on the vertex a little greater than the length of the first two joints of the flagellum. The first joint of the latter is three-quarters longer than wide, about two-thirds as long as the second, which is not longer than the third. Ocelli in an equilateral triangle. Temples about half as wide as the eyes, when seen from the side. Collar of pronotum about one-third as long in the middle as the mesonotum, sloping gradually downwards to the neck, feebly tuberculate in the middle in front of the posterior margin. Dorsum of epinotum flat, subquadrate, wider than long, its junction with the sides and declivity moderately rounded, the declivity steep but not vertical. The



67.

Fig. 67. *M. pseudonotogonia*, ♀, thorax.



dorsum has a median longitudinal line which does not reach the apex, the declivity has a fovea in its upper half. Abdomen oblongo-ovate, the last dorsal segment subconical. No tarsal comb. Legs very feebly spinose. First recurrent vein received near the lower distal angle of the first cubital cell, the second interstitial with the third transverse cubital vein, the stalk of the second cubital cell meets the radius not far from its middle.

♂. 2.8 mm. long. Occiput distinctly swollen behind the eyes. Collar of pronotum more convex in front from side to side, tumid in the middle, hardly tuberculate. The dorsum of the epinotum has a few oblique striae on each side at the base. Head, when viewed from above, more convex from side to side in front than in the ♀. Otherwise like that sex.

Zwartkops, near Port Elizabeth. Types in coll. Brauns.

*M. cyanescens* Turner (fig. 68). *Ann. Mag. N.H.* xx, No. 118, p. 297, ♂. 1917.

♀. 6.5-7 mm. long. Black, mandibles ochreous, their apices ferruginous, tarsi dark brownish red. Abdomen with a faint bluish lustre on the first two or three tergites which is obscured in fresh specimens by the pubescence. The pubescence on the face is pale golden and decumbent, on the rest of the head and thorax it is brassy silvery, fairly dense and coarse on the head, finer and less dense on the thorax, not hiding the sculpture. Abdomen with a very fine, short and dull greyish yellow pubescence, and with longer and more silvery pubescence on the apical margins but not forming distinct fasciae. Legs feebly pubescent, the calcaria and spines black. Median area of clypeus produced into a short, piceous, smooth and shining lobe, the rest of the clypeus dull and transversely rugulose. The anterior margin is moderately excised between the median and lateral sclerites. The whole body dull.

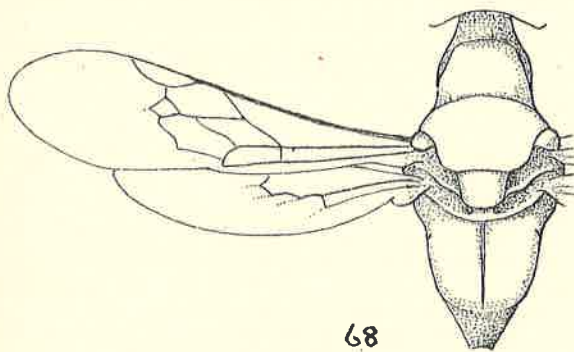


Fig. 68. *M. cyanescens*, ♀, thorax.

Head closely and transversely rugulose-punctate. Neck of pronotum transversely rugose, the collar transversely rugulose and punctate. Mesonotum, scutellum and disc of metanotum and mesopleurae closely reticulate-punctate. Dorsum of the epinotum with a strong median longitudinal carina which extends as far as the brow of the declivity, reticulate-punctate and with some oblique rugae on the basal half on each side of the median carina; the sides of the epinotum vertically rugoso-striate, the declivity transversely striate. Abdomen minutely and closely punctured; the last sternite and the apical margins of the second to fourth sternites with a few long black hairs.

Head much wider than the thorax. Eyes moderately convergent above, the interocular distance on the vertex being equal to the length of the first two joints of the flagellum; the scapes are as long as the second joint, the



latter two and a third times longer than the first and nearly a quarter longer than the third. Seen from the side the temples are about half as wide as the eyes. Pronotum long, the collar one-third longer than the neck and hardly shorter than the mesonotum; the latter is twice as wide as long in the middle. Scutellum subquadrate, not much wider than long. Dorsum of epinotum a little longer than the mesonotum, convex transversely, its junction with the sides and declivity rounded, the declivity only a little shorter than the dorsum. First tergite carinate on each side on the line where it folds over underneath; the second sternite with a transverse and shining depression at its basal third. The basal joint of all the tarsi long, about three-fifths of the length of the tibiae. Basal joint of anterior tarsi with two long spines on the outer margin. Wings faintly fusco-hyaline, the veins black; the stalk of the second cubital cell meets the radius a little before its middle.

♂. 4.5-5.3 mm. long. Dorsal surface of abdomen with a steely blue lustre, deepest on the first two tergites; tarsi fusco-ferruginous. Pubescence much less dense than in the ♀, especially on the abdomen. The sculpture of the thorax somewhat coarser than in the ♀. The interocular distance on the vertex is equal to the length of the first three joints of the flagellum plus half of the fourth. The second joint of the flagellum is not quite twice as long as the first, and not longer than the third. Eighth sternite wider than long, rounded at the apex, with a small tooth on each side at the base.

S. Rhodesia, commonest during the middle of the year, July to September, but also found on one or two occasions in November and February. Type of ♂ in British Mus. coll., of the ♀ in R.M. coll. (R.M. and T.M. colls.)

*M. coerulescens* n.sp.

♀. 5.3-6 mm. long. Colour like that of *cyanescens*, but the blue on the abdomen is more pronounced, and the tibiae are brown. Clypeus, lower third of face, temples, sides of pronotum, mesopleurae, posterior margin of the mesonotum, metanotum and lateral margins of the declivity of the epinotum clothed with a short, very scanty and whitish pubescence, in parts slightly golden. The posterior margins of the first three tergites with a trace of similar pubescence. Legs with a fairly dense greyish pubescence. Clypeus and lower half of the face transversely rugulose, almost rugose (much more strongly sculptured than in *cyanescens*), with a greasy lustre between the rugae, the upper part of the face and the vertex duller, sharply and closely reticulate-punctate. Temples superficially and closely reticulate-rugulose. Pronotum shining, strongly and transversely striato-rugose, the rugae becoming larger and wider apart towards the base. Mesonotum nitidulous, finely and obliquely rugulose, the rugae converging inwards posteriorly, the anterior third of the segment sharply and closely punctured between the rugae. Scutellum closely reticulate-punctate, the punctures deep, the reticulation emphasised longitudinally. Metanotum closely and finely punctured in the middle, the lateral depressions widely clathrate. Dorsum of epinotum strongly and longitudinally striato-rugose, the striae widely spaced and curved inwards posteriorly, with only a few transverse rugae, the spaces between fairly shining; sides of epinotum longitudinally, the declivity transversely striate, the striae wide apart, the spaces between shining. Mesopleurae dull, closely reticulate and coriaceous. Mesosterna shining, shallowly and closely punctured. Abdomen shining, evenly, finely but not very closely punctured.

Clypeus like that of *cyanescens*. Interocular distance on the vertex equal to a little more than the length of the first two joints of the flagellum. The second joint of the latter is equal to the third, and is two and a quarter times longer than the first. Collar of pronotum shaped like that of *cyanescens*,



two-thirds as long as the mesonotum, two and a third times wider at the base than long in the middle. The epinotum is less rounded transversely above and behind than in *cyanescens*. Apical segment of abdomen as in that species. Wings hyaline, the apical third dark fuscous on the front wing, pale fuscous on the hind wing.

♂. 5 mm. long. Anterior margin of median area of the clypeus obtusely angular in the middle, behind the margin there is a quadrangular tubercle or swelling. Interocular distance on the vertex equal to the length of the first three joints of the flagellum. Mesopleurae more coarsely sculptured than in the ♀, longitudinally rugose posteriorly. Mesosternum more deeply punctured than in the ♀. Seventh tergite and eighth sternite rounded at the apex. Otherwise like the ♀.

Khami Ruins, S.R. July, ♀ and ♂; Matopos, November, ♀; Forest Vale, S.R. August, ♀. Types in R.M. coll. (R.M. and T.M. colls.)

*M. oraniensis* Brauns. *Verh. Zool. Bot. Ges. Wien*, LVI, p. 58, ♀, ♂. 1906.

♀. 6 mm. long. Black, the middle dorsal segments of the abdomen with a barely perceptible bluish tinge. Middle of the mandibles, tegulae, anterior tibiae, middle and hind femora and tibiae, ferruginous. Anterior femora black, their extreme apices ferruginous, tarsi fusco-ferruginous, the basal joint paler; coxae and trochanters black. Head, pronotum and mesonotum covered with a sparse, outstanding and brassy pubescence, which on the face is grouped into tufts composed of three or four hairs each. The rest of the thorax and the first tergite with paler and less outstanding pubescence, nowhere dense enough to hide the sculpture. Second to fourth tergites with a very sparse and microscopic yellowish pubescence, barely visible except on the apical margins where it is longer. The sternites have a few black hairs on the apical margins. Face, vertex and temples dull, closely and finely punctate and coriaceous. Pro- and mesonotum closely, very finely and transversely rugose, the scutellum longitudinally so, the dorsum of the epinotum obliquely and finely striato-rugose, with a median longitudinal carinula lying in a slightly depressed and transversely striated area which is continued into the median sulcus of the declivity. The latter is transversely rugulose, the sides of the epinotum obliquely rugulose. Mesopleurae finely rugose above, punctured below. Abdomen almost dull, very finely and closely punctured above, very sparsely punctured and shining below. Apical segment rounded and ferruginous at the apex. Anterior tarsi with a comb composed of long stiff and black hairs, slightly incrassate apically. Face and clypeus flat, the median area of the latter smooth and shining in front, quadrangular, much wider than long, the lateral angles subacute. Interocular distance on the vertex about equal to the length of the first three joints of the flagellum (this is only approximate, as the antennae in the type are curled downwards and cannot be accurately measured). Inner orbits nearly parallel. Collar of pronotum rounded laterally, about six times wider than long. Mesonotum not quite twice as wide as long, as long as the dorsum of the epinotum.

Anterior wing fusco-hyaline, with a clearer transverse area across the first cubital and discoidal cells; veins brown; posterior wing hyaline, faintly tinged with fuscous.

Inner calcar of hind tibia shorter than the basal joint of the hind tarsus.

♂. 5 mm. long. Anterior femora fusco-ferruginous. Spines on the tarsi shorter than in the ♀. The pubescence is slightly scantier. The interocular distance on the vertex relatively wider, and the carinula on the dorsum of the epinotum more distinct. Otherwise like the ♀.

Hoepstad, O.F.S. Types in coll. Brauns.



*M. rhodesianus* Turner. *Ann. Mag. N.H.* xx, No. 118, p. 297, ♀, ♂. 1917.

♂. 4-5 mm. long. Black; the base of the mandibles, the tibiae, tarsi, posterior femora and the middle femora underneath or entirely except the apical third, reddish ochreous. Tegulae testaceous, wings hyaline with a fuscous cloud extending from about the stigma and second recurrent vein to the apex. Scape and first three joints of the flagellum ochreous underneath. Apical segment of the abdomen fusco-ferruginous.

Clypeus with a yellowish silvery, sparse, long and straight pubescence, the face up to the anterior ocellus with widely spaced tufts of similar but curved pubescence, appearing almost like isolated scales. Back of the head, vertex, thorax and base of the first tergite with a sparse and somewhat curly whitish pilosity, the rest of the abdomen with a very sparse white pubescence, a little denser and longer on the apical margins.

Face dull and coriaceous, the vertex reticulate-punctate, the temples shining, sparsely and shallowly punctured. Thorax dull, closely rugose, with punctures between the rugae, the rugosity transverse above, oblique on the sides; the dorsum and sides of the epinotum strongly reticulate-rugose, the declivity transversely rugose. The dorsum of the epinotum has a median carina which does not reach the brow of the declivity. Mesosternum shining, sparsely and strongly punctured. Abdomen dull, finely and closely punctured, the punctures wider apart and larger towards the base.

Inner orbits of the eyes almost parallel except on the vertex where they are feebly convergent. The interocular distance there is equal to the length of the first four joints of the flagellum. The distance between the posterior ocelli is distinctly less than their distance from the eyes. Temples well developed, nearly as wide as the eyes when seen from the side. Collar of pronotum short, about one-sixth as long as wide behind, and only a quarter of the length of the mesonotum. Dorsum of epinotum a little shorter than the mesonotum. Basal half of the first tergite subcarinate on each side along the line where it folds over underneath. The second sternite with a deep transverse groove near the base. Seventh sternite rounded.

First abscissa of radius a little shorter than the second, twice as long as the stalk of the second cubital cell. The latter is almost an equilateral triangle.

♀. 4-6 mm. long. Tarsal comb long and black, the spines distinctly spatulate. Otherwise like the ♂.

Bulawayo, June. Types in Brit. Mus. coll.

In one specimen of the ♂ sex there is a faint metallic bluish tint on the abdomen.

#### SALIOSTETHUS Brauns

*Ann. K.K.N.H. Mus. Wien*, XIII, p. 400. 1899.

CHARACTERS. Closely allied to *Miscophus*, from which it differs chiefly in the yet greater reduction in the size of the wings and in the venation. The mandibles are strongly excised on the outer margin but the inner margin is almost edentate. There is no episternal suture, and the anterior tarsi have no comb.

Front wing: pterostigma very small; radial cell small, angular at the apex; one cubital and one discoidal cell present, the transverse cubital vein bounding the cubital cell in the process of resorption; the single recurrent vein (first) enters the cubital cell at about its middle; the apical half of the wing veinless and strongly pubescent.

Hind wing: only the extreme proximal portion of the radial and cubital



veins are visible, the rest of those veins being obliterated; basal lobe very small.

Otherwise the characters of this genus are the same as in *Miscophus*.  
Distribution. South Africa.

*S. lentifrons* Brauns. *Loc. cit.* p. 401, ♀.

♀. 5-6.5 mm. long. Head black, eyes greenish grey, lower surface of the scapes, the clypeus and mandibles reddish yellow, the apices of the mandibles black, antennae reddish brown. Thorax at the sides and above ferruginous, the under side brown. First abdominal segment ferruginous, the remaining segments dark reddish brown above, dark ferruginous below, the apical margins narrowly testaceous, the extreme apex of the last segment ferruginous. Legs reddish brown, the tarsi somewhat paler.

Face almost glabrous, the cheeks, thorax and coxae with a thin whitish or silvery pubescence, a little longer and more abundant on the mesopleurae and lateral margins of the declivity. Abdomen with a sparse silvery pubescence on the sides of the apical margins of the tergites; the apical margins of the sternites with a sparse, exerted and brownish pilosity.

Face shining, very sparsely and finely punctured. Clypeus smooth and shining. The face is very feebly convex and long, the length from the vertex to the base of the clypeus being one-fourth greater than its width between the inner margins of the eyes. The latter are only slightly convergent towards the vertex. The interocular distance on the vertex is equal to the length of the first three joints of the flagellum, plus half of the fourth joint. Ocelli normal, the distance between the posterior ones twice as great as their distance from the eyes; between them and the eyes is a short and oblique impressed line. Vertex wide. Clypeus short and wide, its anterior margin on the whole moderately convex, but the middle half is feebly concave on each side. Mandibles acuminate, hardly dentate on the inner margin, deeply excised on the outer. Antennae inserted immediately behind the clypeus, the scapes as long as the second and third joints of the flagellum combined and not reaching up to the level of the middle of the face; the first and second joints of the flagellum subequal, the third joint one-third longer than the second and a little longer than the fourth.

Pronotum, mesonotum and scutellum nitidulous, sparingly and shallowly punctured, the punctures a little larger and deeper on the mesonotum. Pronotum (including the neck) nearly as long as wide behind, as long as the mesonotum and scutellum combined, gradually narrowed in front, the collar convex transversely and lengthwise, merging by a gentle slope into the neck. Promesonotal suture deep. Mesonotum short, twice as wide as long and twice as long as the scutellum; the latter twice as wide as long, feebly convex, its posterior margin yellow. The median portion of the metanotum is smooth and also yellow. Dorsum of epinotum dull, finely and transversely striate, with a feeble carina in the middle which does not reach the brow of the declivity. The latter fairly steep, as long as the dorsum, transversely striate, with a median longitudinal sulcus. Sides of epinotum finely and sparsely punctured. Mesopleurae somewhat swollen, finely punctured. Abdomen dull, finely punctured, oblongo-ovate. Wings short, not extending beyond the second abdominal segment, densely pubescent and brownish excepting a clear area which extends from the costa over the cubital cell to the inner margin. (For venation see characters of genus.) The tarsi of all the legs, and also the middle and hind tibiae, sparsely spinose, the spines brown.

Near Port Elizabeth, November to February. Type in coll. Brauns.



*S. capicola* Brauns (fig. 69, 69 a). *Nom. in litt.*

♀. 5 mm. long. Head black, eyes pale greyish green above, brownish below. Scapes, clypeus and mandibles reddish ochreous, their apices darker, the flagellum brown. Thorax and legs pale ferruginous, a streak on the middle of the metanotum creamy yellow. First, fifth and sixth abdominal segments ferruginous, the second, third and fourth blackish brown above, their apical margins reddish brown, the second more or less reddish brown in the middle at the base and behind the apical margin, the ventral surface of the abdomen reddish brown, the second and third segments slightly blackish each side of the middle. Face, thorax, abdominal segments at the sides and apical margins above with a silvery exerted pubescence, fairly sparse, longest on the sides of the epinotum.

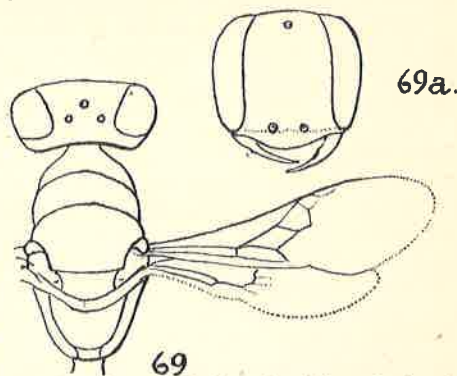


Fig. 69. *S. capicola*, ♀; a, head from in front.

Clypeus smooth, shining, translucent, very short and wide. Face dull, microscopically aciculate-punctate. Temples shining, very finely and sparsely punctured. Sides of pronotum and mesopleurae slightly shining, the latter sparsely punctured. Epinotum microscopically reticulate, the dorsum transversely striolate in the middle; the rest of the thorax microscopically punctate. Abdomen dull, very finely rugulose-punctate. Legs moderately shining, sparsely punctured. Anterior margin of clypeus arcuate. Antennae inserted just behind the clypeus. The scape fairly long, the first joint of the flagellum a little shorter than the second, all the joints longer than wide. Inner orbits of the eyes moderately convergent towards the vertex. The distance between the posterior ocelli three times as great as their distance from the eyes.

Collar of pronotum convex from front to back, moderately so transversely, three times wider than long, merging gradually into the oblique anterior face. Mesonotum short, fairly flat, two-thirds wider in front than long. Scutellum and postscutellum moderately convex transversely. Dorsum of epinotum widest at the base, not distinctly delimited from the sides, feebly impressed triangularly in the middle, the apex of the triangle directed posteriorly, with a fine median impressed line which is continued over into the subvertical declivity. Abdomen lanceolate-ovate. Apical segment conical. Anterior wing with a dense blackish pubescence, the apical half fuscous, a narrow area in the middle clearer and less pubescent, the veins yellow.

Capetown. Type in coll. Brauns.

#### MISCOPHOIDES Brauns

Kohl. *Ann. K.K.N.H. Mus. Wien*, xi, p. 449. 1896.

CHARACTERS. Like *Salioesthus* but with the venation even more reduced. The radial, cubital and discoidal cells are entirely wanting, and only the proximal part of the cubital vein is present.



*M. Handlirschi* Brauns (fig. 70, 70 a, b). *Loc. cit.* p. 449 (name only, undescribed).

♀. 4.3 mm. Head black, antennae, clypeus, basal two-thirds of the mandibles, femora and tibiae brown; pronotum, scutellum, mesopleurae and first abdominal segment reddish brown or castaneous, the rest of the thorax and upper surface of the abdomen very dark brown. Tegulae and pronotal tubercles flavous. Tarsi brownish ochreous, ventral surface of abdomen reddish brown. A sparse greyish brown and microscopic pubescence all over, except on the dorsum of the epinotum. The mesopleurae above and below, the sides of the epinotal declivity and the middle and hind coxae with a few silvery hairs. Head, pro- and mesothorax nitidulous, evenly, sparsely and shallowly punctured with very small punctures. Epinotum shining and almost smooth, the dorsum and declivity with a few superficial transverse striae. Abdomen and femora nitidulous, microscopically rugulose. Clypeus short, the anterior margin convex. Antennae inserted just behind the clypeus, short and stout, the scape about as long as first two joints of the flagellum plus half of the third; the first joint of the flagellum about two-thirds the length of the second. Face wide and high; temples narrower above than below, seen from the side they are as wide at their lower third as the eyes. The ocelli are placed high up, the posterior pair nearly twice as far from each other as from the anterior ocellus, separated from the eyes by a distance hardly greater than their own width. The eyes do not reach the occipital margin.

Pronotum (including the neck) as long as the mesonotum and scutellum taken together; the collar hardly lower than the mesonotum, convex transversely in front and above. It has a small subangular tubercle in the middle in front of the posterior margin and is depressed on each side of the tubercle. Dorsum of epinotum narrowed posteriorly, trapezoidal, triangularly and shallowly depressed in the middle, the depression continued as a median line down the oblique declivity; the latter longer than the dorsum, the sides subvertical, the lateral margins of the dorsum rounded. Abdomen oblong, the first segment as long as wide at the apex, all the other segments wider than long. Apical segment subconical. Intermediate coxae large and widely separated. Legs feebly spinose. Venation greatly reduced (see characters of genus); the veins, medial cell and distal area beyond the veins, fuscous. There is a trace of the stigma present.

♂. 3 mm. long. Piceous, base of the mandibles and tarsi brownish ochreous, legs brown. Wings paler than in the ♀. Eyes further from the occipital margin than in the ♀. Collar of pronotum less convex transversely

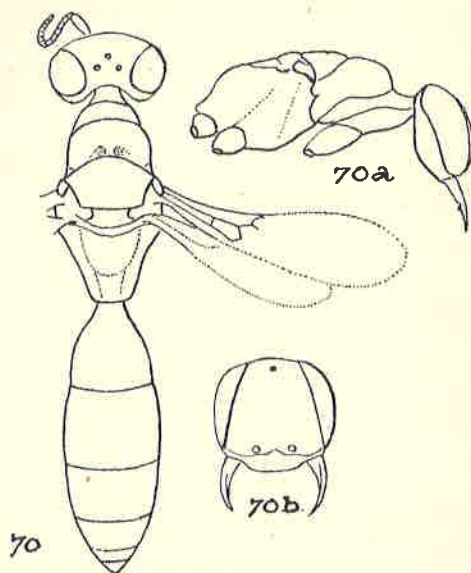


Fig. 70. *Miscophoides Handlirschi*, ♀; a, head and thorax from the side; b, head from in front.



above than in the ♀; the tubercle and depression on each side of same stronger. Seventh dorsal segment moderately rounded at the apex. Otherwise like the ♀. Port Elizabeth, November, ♂: January, ♀. Types in coll. Brauns.

#### MUTILLONITELA Bridwell

*Proc. Hawaiian Ent. Soc.* iv, No. 2, p. 396. 1919 (1920).

CHARACTERS. "Head transverse, oblong, the eyes elongate, convergent above, occupying the entire side of the head from the vertex to the base of the mandible. Mandibles edentate, strongly notched before the middle. Clypeus transverse, broadly expanded in front, entire along the whole margin, with about six strong flattened blunt parallel spines beneath the margin in the middle. Antennae inserted just above the clypeus, the sockets in a line with the anterior margin of the eyes, scape stout and excavated at the apex. Ocelli in an obtuse triangle, the hind ocelli in front of the summit of the eyes. A deep fovea between the ocelli and eye margin. Wings somewhat abbreviated with completely closed costal, median, submedian, one cubital, one discoidal, and brachial cell. Radial cell very short, variably open at apex or closed, barely extending beyond the apex of the short first cubital cell, nervulus inserted before the basal, nervellus far before the margin of the radiellus.

Hind and middle tibiae spinose, the anterior tibiae of female with a well developed tarsal comb.

Abdomen of female without a defined pygidial area.

Head and thorax clothed with two kinds of pubescence, peculiar erect setae and the ordinary fine pubescence. Wings strongly pubescent, subhyaline to beyond the venation, then strongly infuscate.

Related to *Saliostethus* and *Miscophoides* of Brauns but differs by the venation. Type: *Mutillonitela mimica* Bridwell."

The terminology employed by this author is unfamiliar to me; by "nervulus" is meant the submedial transverse vein which bounds the submedial cell distally, so that the basal vein arises beyond the end of the first submedial cell. If by "radiellus" the radial vein is meant, then the "nervellus" probably represents the upper end of the basal vein.

*M. mimica* Bridwell. *Loc. cit. supra.*

"♀. Length 5 mm.; wing 3 mm. more or less.

Black: legs, venter of abdomen and apical tergite dull ferruginous, the abdominal colour darker; posterior margin of scutellum, metanotum and outer half of wing base whitish; anterior calcar pale; middle calcar and hind calcaria black; mandibles yellowish ferruginous at base, piceous apically; antennae brownish; venation of wing yellowish.

Face, front, vertex, pronotum and mesonotum with stout erect yellowish setae, mingled on the head and thorax above with finer silvery pile; coarse silvery hairs on the mesopleura, propodeum (i.e. *epinotum*), epipleura of tergite one, sternite two on the sides and margins of tergites and sternites. Head, pronotum, mesonotum, scutellum, mesopleura and metanotum opaque and granular. Collar about twice as broad as long, rounded down to the declivity; propodeum without a well-defined basal area, the superior face with a feeble longitudinal raised line in a shallow ill-defined furrow, surface coarsely tessellate, with feeble radiating striolae basally and transverse ones apically, sides of propodeum obliquely striolate, posterior face narrow, with a shallow furrow and impressed line above; transversely strongly striolate throughout; middle and hind tibiae with stout white spines on the outer face as long as the width of the tibiae; front tarsi grooved beneath, the comb



strongly developed; hind and middle tarsi strongly spinose. Abdomen with the tergite not contracted at the sutures, very finely strongly punctate, the punctures separated by about two or three times their diameter.

Described from two females collected at the Mowbray Golf Links, Rappenberg, near Cape Town, Feb. 1915 (Bridwell). Type in the South African Museum, paratype in the author's collection."

Dr Péringuey informs me that the type appears to have been mislaid, as it cannot now be found in the collection.

*M. Lounsburyi* Bridwell. *Loc. cit.* p. 397.

"♀. Similar to *mimica*. Length 5 mm.; wing 3 mm.

Clypeus pale ferruginous; legs brownish piceous; scutellum and mesonotum black; tergites one to three rufescent; apical two-thirds of tergite six whitish yellow; sternites two to six dark; pubescence of head much feebler and sparser; the setae reduced to pointed hairs.

Pronotum longer, punctate, the surface between more transversely rugulose; mesonotum similar; scutellum with the punctures very distinct, well separated; mesopleura shining, the punctures irregularly disposed; propodeum similar to that of *mimica* but the surface more rugose; sides of propodeum shining, with strong well separated punctures, the posterior face like that of *mimica*. Abdomen shorter, more compact, first tergite broader, the punctures larger, stronger, and more separated."

One ♀, taken in same locality as *mimica*, February. Taken running along the bare sand and closely resembling small Mutillids which are also found there. Type in coll. Bridwell.

#### ASTATA Group

This is a small group comprising two genera, both of which are represented in the Ethiopian Region. It is related to the *Larra* group, but differs in having two spurs to the middle tibiae, in the pronotal tubercles extending back as far as the tegulae, and in the form of the hind wing in the two sexes, the basal lobe being very much larger in the male than in the female.

According to the researches of Morice and Durrant on the genera described by Jurine in the anonymously published *Nouvelle Méthode de classer les Hyménoptères et les Diptères* the name *Dimorpha* Jurine has precedence over *Astata* Latreille, but in my opinion Dr J. C. Bradley has given good reasons for regarding Latreille's name as valid (*Trans. Ent. Soc. London*, p. 50, 1919), and that name is accordingly retained for the group and genus in these pages.

#### ASTATA Latreille

*Préc. Car. Gén. Ins.* p. 114 and XIII. 1796.

CHARACTERS. Eyes reaching the base of the mandibles in the ♀, but ending some distance away from them in the ♂, moderately convergent above in the ♀, strongly so in the ♂ so that they are contiguous on the vertex. In the ♂ the eyes are very large, and the facets on the lower third of the eyes are much smaller than those on the upper two-thirds. Ocelli round and convex. Mandibles not excised on the outer margin, the inner margin with a tooth close to the apex, making the latter almost bidentate. Maxillary palpi six-, labial palpi four-jointed. Clypeus short. Antennae filiform, inserted close to the clypeus. Temples usually narrow. The vertex is not developed in the ♂ as the eyes touch the occipital margin, but it is present in the ♀.



Pronotum depressed below the level of the mesonotum, the posterior portion or collar without a dorsal face since it slopes directly downwards from the suture. The pronotal tubercles extend back as far as the tegulae. No epinemium; the episternal suture distinct. Dorsum of epinotum without a marginate median field. First tergite concave at the base, with a longitudinal impression in the middle. Abdomen subcordate or conical. A distinct pygidial area present in both sexes. Legs strongly spinose; middle tibiae with two spurs, anterior tarsi with spines, sometimes forming a regular comb in the ♀. Posterior tibiae with three or four rows of spines.

Front wing: pterostigma large; radial cell widely truncate and appendiculate, the accessory cell distinct; three cubital cells present, the first usually divided by a nearly obsolete vein which arises from the bullate angle of the first transverse cubital vein; two discoidal cells present and also two recurrent veins; the third cubital cell not extending beyond the truncation of the radial; the recurrent veins usually enter the second cubital cell, but sometimes the first recurrent enters the first cubital cell. The second submedial cell very short, the basal vein arising beyond the end of the first submedial cell.

Hind wing: basal lobe extremely large, and much larger in the ♂ than in the ♀ (compare figs. 72 a, ♀ and 73, ♂), its posterior margin strongly convex in the ♂, nearly straight in the ♀, the basal sinus close to the anal sinus. The cubital vein arises from the submedial cell distinctly before its apex.

The males are usually larger than the females.

The species of this genus nest in the ground, often in hard and gravelly soil, and provision their young with the larvae of Hemiptera, chiefly of Pentatomidae.

see new Key. p. 36. part 5.

#### KEY TO THE SPECIES OF *ASTATA*

- (2) 1. Black, abdomen piceous, the first tergite with a lozenge-shaped lemon-yellow mark on each side. *flavo-undata* Brauns
- (1) 2. Otherwise coloured.
- (6) 3. Last two or three abdominal segments reddish.
- (5) 4. ♂ mesonotum dull, <sup>except in the middle</sup> shallowly but fairly closely punctured; femora black. *rufitarsis* Smith
- (4) 5. ♀ mesonotum shining, coarsely and very sparsely punctured; femora ferruginous, with a diffuse black stain on the upper surface. *ruficaudata* Turner
- (3) 6. Apical segments of abdomen blackish.
- (8) 7. Wings flavo-hyaline. *flavipennis* Turner
- (7) 8. Wings hyaline or fusco-hyaline.
- (10) 9. ♂, 12-13 mm. long, sides of epinotum strongly and obliquely striated; ♀, dorsum of epinotum longitudinally and obliquely striato-rugose. *fuscistigma* Cameron
- (9) 10. ♂, 11 mm. long, sides of epinotum reticulate-striate; ♀, dorsum of epinotum widely and coarsely reticulate-rugose. *albopilosella* Cameron

*A. melanaria* Cam., being unknown to me in nature, has been omitted from the key. The distinction between the ♂♂ of *fuscistigma* and *albopilosella* may be incorrect, as the former is known to me only from Cameron's description.

*A. flavo-undata* Brauns (fig. 71). *Nom. in litt.*

♂. 6 mm. long. Black, abdomen piceous; a bilobed spot (similar to that of *A. stigma*) below the anterior ocellus, the tegulae, costa, pronotal tubercles and a transverse lozenge-shaped mark on each side of the first tergite, pale lemon-yellow.

Coxae, trochanters and femora black, the anterior and middle trochanters with the apical margin narrowly lemon-yellow, the tibiae and tarsi reddish ochreous, the apices of the femora ochreous. Eyes bice green, darker below.

Head and thorax with a thin greyish pilosity, longer and more abundant on the sides of the epinotum. Femora with more oblique and shorter pilosity; spines on the legs blackish.

Face dull, finely rugulose, the clypeus shining. Pronotum, mesonotum and scutellum shining, the first two sparsely punctured, the scutellum very finely and sparingly punctured. Postscutellum, dorsum and sides of the epinotum dull, finely and regularly reticulate-punctate, the declivity of the epinotum coarsely shagreened and shining, the mesopleurae shining, sparsely and very shallowly punctured. Abdomen shining, microscopically rugulose.

Clypeus produced in the middle in the form of a quadrate lobe which is twice as wide as long, feebly concave on its anterior margin, its lateral angles acute. Head in front as wide as long (excluding the projecting lobe of the clypeus). Eyes touching each other on the vertex. Anterior ocellus twice as large as the posterior ocelli. Face swollen in the middle below the anterior ocellus. Mesonotum nearly half as wide again as long, the scutellum nearly half as long as the mesonotum.

Wings: pterostigma and veins brown. First cubital cell more than twice as long as the second and third combined, the third widest on the cubitus, the second subtriangular, the first and second transverse cubital veins meeting on the radius. First recurrent vein interstitial with the first transverse cubital vein, the second recurrent entering the second cubital cell beyond its middle.

Algoa Bay (Brauns); type in coll. Brauns.

*A. ruficaudata* Turner (fig. 72, 72 a). *Ann. Mag. N.H.* XIX, No. 112, p. 318, ♀. 1917.

♀. 7.6 mm. long. Black, apical half of the fourth, the whole of the fifth and sixth abdominal segments dark ferruginous above, the fourth entirely ferruginous below, like the fifth and sixth. Mandibles ferruginous, their apices black. Tibiae and coxae piceous, the tarsi dark castaneous brown. Wings strongly tinged with ochreous, the veins and stigma yellowish brown.

Face and anterior half of mesonotum with an abundant pilosity, composed of thick, long and almost bristly black hairs, intermixed with thinner greyish hairs on the mesonotum. Back of the head and sides of the meta- and epinotum with greyish hairs. Femora and sides of the abdomen with long blackish hairs. Middle and hind tibiae and tarsi densely spinose, the spines black. Anterior tibiae spined only at the apex, the basal joint of the tarsus with four stout spines. Vertex, upper half of face and a narrow border parallel to the inner orbits shining, coarsely but sparsely punctured, the rest of the face dull, more closely and less deeply punctured. Thorax above, excluding the dorsum of the epinotum, and the abdomen very shining; the pronotum finely and scantily punctured, the mesonotum densely and fairly coarsely punctured just

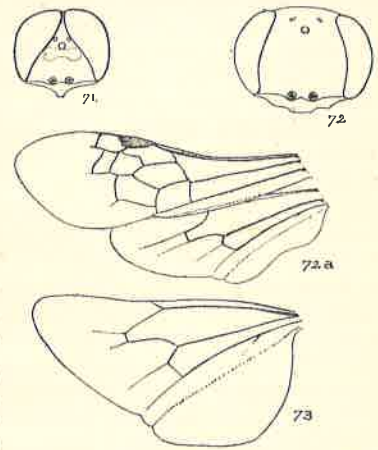


Fig. 71. *Astata flavo-undata*, head, ♂.

Fig. 72. *Astata ruficaudata*, head, ♀;

a, wing, ♀.

Fig. 73. *A. albopilosella*, ♂, hind wing.



behind the anterior margin, the rest of the segment almost impunctate excepting a few large punctures. The scutellum has a row of large punctures on its posterior margin. Mesopleurae shining, coarsely and fairly densely punctured. Dorsum of epinotum longitudinally striate, with finer transverse striae in between; the sides smooth over the anterior half, irregularly striate behind, the declivity reticulate. Abdomen microscopically rugulose, smooth and shining; pygidium dull, triangular, marginate at the sides. Femora and tibiae shining, the former sparsely and coarsely punctured. Face strongly convex. Lobe of clypeus narrow and short, its anterior margin straight. Antennae stout, the scapes and first two joints of the flagellum with short bristly hairs, all the joints longer than wide except the first joint of the flagellum which is barely longer than wide and hardly more than half as long as the second. The distance between the posterior ocelli is twice as great as their distance from the eyes. Pronotum long, not more than twice as wide behind as long in the middle, oblique, not much depressed below the mesonotum.

First and second transverse cubital veins not meeting on the radius, the distance between them equal to the length of the first abscissa of the radius. The second cubital cell receives both recurrent veins.

Zomba, Nyasaland; Capetown (Brauns); Bulawayo (Arnold).

*A. rufitarsis* Smith. *Cat. Hymen. B.M.* 19, p. 310, ♂. 1856.

♂. 9 mm. long. Black, tarsi and tibiae brownish red, the tibiae darker on the upper surface, fourth to seventh sternites piceous; sixth and seventh tergites ferruginous, apical margins of the other tergites widely fusco-testaceous; mandibles with a ferruginous band behind the apex. Femora, head and thorax, excepting the scutellum and dorsum of epinotum, with a long outstanding white pilosity, sparse on the mesopleurae. The first two tergites with a sparse and shorter pilosity chiefly at the sides, the sternites with long yellowish pilosity, chiefly on the apical margins. Third to sixth sternites depressed in the middle, the depression closely and shallowly punctured and densely pilose. Clypeus dull, rugulose-punctate, the median area not much produced, its anterior margin nearly straight. Face slightly shining, finely and sparsely punctured. Back of the head shining, very finely and sparsely punctured above, almost impunctate below. Pronotum dull and rugulose; mesonotum closely and shallowly punctured on its anterior half and in front of the posterior margin, the middle shining and sparsely punctured. Scutellum shining, with a few large punctures, the posterior margin dull and closely punctured. Metanotum coriaceous and dull. Dorsum of epinotum fairly finely and closely reticulate rugose, the rugae curved outwardly behind, the sides and declivity rugulose-punctate and dull. Mesopleurae shining, closely and shallowly punctured. First tergite and basal half of the second tergite dull, rugulose-punctate, the rest of the abdomen nitidulous, microscopically rugulose transversely, and with a few scattered punctures. Second joint of the flagellum three times as long as the first. Anterior wing pale fuscous from the base to the end of the cells, the apical margin and the whole of the hind wing clear hyaline, stigma and veins brown. Radial cell obliquely truncate, three times wider than high, the first abscissa a little longer than the second, the third and fourth subequal, each four times longer than the second; the third cubital cell hardly shorter on the cubitus than on the radius.

Capetown. (S.A. Mus. coll.)

*A. melanaria* Cameron. *Rec. Albany Mus.* 1, p. 257, ♂. 1905.

"Black, thickly covered with white hair; tegulae and base of fore tibiae yellowish white; fore wings to the end of the radial cellule, slightly, but dis-



tinctly fuscous, with a slight violaceous tinge, the apex and hind wings clear hyaline, the nervures and stigma black. Male. Length 9-10 mm.

Front and vertex closely punctured, the upper part furrowed down the centre. Clypeus closely, strongly punctured, obliquely sloped at base and apex, the centre being raised; the apical part becomes gradually narrowed to a point. Mesonotum closely punctured, the apex more sparsely in the middle; sides and apex of scutellum somewhat closely punctured. Metanotum (*i.e.* epinotum) closely reticulated, except in the centre; the apical slope much more closely and regularly reticulated. Pro- and mesopleurae closely punctured; the latter more strongly and not so closely as the former. Metapleurae (*i.e.* sides of epinotum) closely reticulated, the base not so closely as the apex. Abdomen obscurely punctured; pygidium shagreened, with three foveae along the sides; these become successively larger, the apical being also shallower. Hypopygium with a large oval depression in the centre. Radial cellule as long as the space bounded by the first and third transverse cubital nervures. Dunbrody (J. O'Neil)."

To judge from the description alone, this species appears to be very closely allied to *rufitarsis*, if indeed it is not identical with it.

*A. flavipennis* Turner. *Ann. Mag. N.H.* xx (8), No. 118, p. 296, ♂. 1917.

"♂. Niger; abdomine rufo-testaceo; segmento basali secundo basi late nigro-fasciato; alis flavo-hyalinis, venis ferrugineis. Long. 11 mm."

"♂. Clypeus and front closely punctured, covered with white pubescence. Anterior ocellus situated in a shallow depression, larger than the posterior pair which touch the eyes. Joints of the flagellum a little widened from the base to the apex, the second half as long again as the third. Eyes touching on the vertex. Mesonotum and mesopleurae very closely and not very finely punctured, the punctures more or less confluent; scutellum shining, more sparsely punctured. Median segment reticulate, with more or less indistinct longitudinal striae, the sides of the segment very closely punctured. Abdomen smooth and shining; the sternites finely and sparsely punctured, and sparsely clothed with pale testaceous hairs. Radial cell oblique at the apex, long; the fourth abscissa of the radius almost as long as the first and third combined; second cubital cell pointed on the radius, first abscissa of the radius more than half as long as the third and twice as long as the distance between the recurrent nervures on the cubitus. Magadi Junction, B. East Africa."

*A. albopilosella* Cameron (fig. 73). *Ann. Trans. Mus.* II, p. 130, ♂. 1910.

♀. 8-9 mm. long. Head, thorax, legs, extreme base of the first tergite, fourth to sixth and apical half or more of the third abdominal segments, black; first two and base of the third segments red; tarsi brownish black. Mandibles ferruginous in the middle. Wings hyaline, the apical portion beyond the cells faintly fuscous. Head, thorax and femora clothed with long, outstanding white hairs, which are absent from the vertex, posterior half of the mesonotum, scutellum and dorsum of the epinotum. First tergite with similar hairs on the declivous base, the remaining segments, except the last, with a preapical row of shorter white hairs. The vertex at the sides of and behind the posterior ocelli, temples, scutellum, middle of the mesonotum and all the sternites except the second, shining; the fourth and fifth tergites slightly shining, the rest of the body dull. Clypeus and lower half of the face transversely rugulose and sparsely punctured, the upper part of the face as far as the posterior margin of the eyes closely punctured, the sculpture somewhat effaced below the anterior ocellus, the vertex sparsely and more strongly punctured, the temples almost smooth, very distantly and finely punctured. Pronotum



punctate-rugulose, mesonotum closely punctured round its margins, its disc coarsely and sparsely punctured like the scutellum; the latter is somewhat more finely punctured near its posterior margin. Metanotum with transverse and elongated punctures. Dorsum of the epinotum widely reticulate-rugose, some of the rugae emphasised longitudinally, the sides and declivity closely and more finely reticulate-rugose. Mesopleurae reticulate-punctate, with some longitudinal striae superimposed posteriorly. Mesosterna irregularly and shallowly punctured. Dorsal surface of abdomen microscopically reticulate-punctate, the depressed apical margins of the segments less dull and rugulose, the third to fifth tergites with one or two rows of large shallow punctures behind the middle; pygidial area more strongly reticulate-punctate, the ventral surface of the abdomen smooth and shining. Head wider than long, and wider than the thorax. Median area of clypeus produced in front into a slightly upturned short lobe, the latter rectangular and with the anterior margin straight. Eyes moderately convergent above, the distance between them at their base being only half as great again as across the vertex, where the distance is equal to a little more than the length of the first three joints of the flagellum. The second joint of the latter is a little longer than the third, and three times longer than the first, the latter as wide as long. Occiput and temples well developed, the temples viewed from the side as wide as the eyes. Dorsum of epinotum as long in the middle as the scutellum and metanotum together. Anterior tarsi spinose but without a distinct comb. Pygidial area triangular, margined on each side with a dense fringe of spatulate hairs. Radial cell abruptly truncate, its costal margin fully twice as long as the truncating vein, the third abscissa twice as long as the second, the latter a little shorter than the first; the accessory cell with a fuscous cloud. The second cubital cell receives both recurrent veins; the third cubital cell as long on the cubitus as the fourth abscissa of the radius.

♂. 11 mm. long. Only the depressed apical margin of the third abdominal segment black, the first tergite with the black at its base more extensive, otherwise coloured like the ♀. Antennae longer and more slender, the flagellum, excepting the first joint, distinctly compressed transversely. The lobe of the clypeus is produced further forwards than in the ♀; the lower half of the face slopes deeply inwards, much more so than in the ♀. Anterior ocellus twice as large as the posterior. Eyes contiguous on the vertex. Mandibles shining, sparsely and finely punctured, separated from the base of the eyes by short cheeks, as in the ♀. Mesonotum more finely and more closely punctured. The scutellum has a distinct median longitudinal impressed line (very faint in the ♀). Dorsum of epinotum longitudinally striato-rugose, the rugae radiating obliquely outwards and connected by numerous transverse and regular rugae. Sides of epinotum closely reticulate-striate, punctured in between the striae. The declivous base of the first tergite much more deeply excavated than in the ♀. Seventh tergite triangular, the apex rounded; the eighth sternite semicircular. The venation like that of the ♀, but the abscissae of the radius rather variable. Otherwise like the ♀.

Pretoria (Janse); Bulawayo, December to June, nesting in hard gravelly paths. (R.M. and T.M. colls.)

*A. fuscistigma* Cameron. *Rec. Albany Mus.* 1, p. 258, ♂. 1905.

"♂. Black, the apical half of the first, second and third abdominal segments red; the head, thorax, base of abdomen, and to a less extent, the ventral surface, densely covered with long whitish hair; wings hyaline, the stigma testaceous, the nervures and costa black. Metanotum (*i.e.* epinotum) closely longitudinally striated, with some finer, very irregular transverse



striae; the apical slope almost smooth on the sides, the centre with some striae minutely broken up. Front and vertex closely, minutely punctured, the face and clypeus shining, almost smooth. A broad dark rufous band behind the apex of the mandibles. Mesonotum closely and distinctly punctured, less closely and more shining in the middle near the apex. Basal (apical? G.A.) half of scutellum and its centre impunctate, the sides of the apex punctured; the centre of the apical half with a fine longitudinal furrow. Propleurae very closely punctured; opaque, thickly covered with long white hair; mesopleurae more shining, less pilose and much more strongly and less closely punctured; the longitudinal furrow in its centre clearly defined, deep. Metapleurae (*i.e.* sides of epinotum) closely, irregularly, strongly obliquely striated. Abdomen smooth; the epipygium at the apex transverse, the hypopygium rounded. Radial cellule as long as the space bounded by the first and third transverse cubital nervures. Male. Length 12-13 mm. February."

♀. 11 mm. long. First three abdominal segments red, the extreme base of the first and apical margin of the third blackish. Otherwise coloured like the ♂. Face and clypeus closely but not very minutely punctured, dull, a triangular space below the anterior ocellus shining and more coarsely punctured; vertex and occiput shining, with a few large punctures, the temples smooth and shining. Mesonotum and scutellum shining, with large, irregular and fairly widely spaced punctures, the anterior margin of the mesonotum more closely punctured. Pronotum transversely rugulose; declivity of epinotum reticulate-rugose. Second joint of the flagellum four times as long as the first, a quarter longer than the third. Interocular distance on the vertex equal to the length of the first three joints of the flagellum. Second sternite sparsely and coarsely punctured on its basal half. Pygidial area triangular, as long as wide at the base, the apex subacute. Otherwise like the ♂.

Dunbrody and Willowmore, C.P. (R.M. coll.)

#### DIPLOPLECTRON Fox

*Trans. Amer. Ent. Soc. Philad.* xx, p. 38. 1893.

CHARACTERS. Eyes convergent above, not contiguous on the vertex in the ♂ or ♀, sometimes reaching the base of the mandible in the ♀, separated therefrom by a short cheek in the ♂. Mandibles not excised on the outer margin, at the most only feebly emarginate, bidentate at the apex. Ocelli normal. Antennae inserted low down as in *Astata*, the middle joints in-crassate. Pronotum with a distinct collar, not, or only slightly depressed below the level of the mesonotum; pronotal tubercles nearly reach the tegulae. Episternal suture distinct, no epicnemium present. Dorsum of epinotum long, without a marginate field. A triangular and indistinctly defined pygidial area present in the ♀; a tarsal comb present in the ♀. Seven ventral plates visible in the ♂.

Front wing: radial cell very short, widely and abruptly truncate, only a little longer on the radius than high, the accessory cell long (not distinctly defined in our two species); third cubital cell short, shorter than high. The two recurrent veins either enter the first and second cubital cells respectively, or the first is interstitial with the first transverse cubital vein and the second recurrent enters the second cubital cell at about its middle.

Hind wing: basal lobe large, as in *Astata*. Otherwise like *Astata*.

Distribution. Nearctic and Ethiopian regions: represented by *D. Foxii* Ashmead in the former, and in the Ethiopian region by the two species described below.



*D. Kriegeri* Brauns (fig. 74, 74 a, b). *Ann. K.K.N.H. Mus. Wien*, XIII, p. 413, ♂, ♀. 1899.

♀. 8.5 mm. long. Head and thorax black, mandibles piceous, legs black, the tarsi fusco-ferruginous, the basal joints even darker. Abdomen ferruginous, the extreme base of the first and the last two segments dark brown, the apical margins of the first five segments flavo-testaceous. Wings pale fusco-hyaline, the apical portion beyond the cells distinctly darker, the stigma and veins dark brown. Mandibles with a few coarse hairs on the outer margin near the middle. Anterior margin of the clypeus with a fringe of bristly hairs. Temples and back of the head, and the thorax (chiefly at the sides) with a sparse, erect and whitish pilosity. Legs strongly spinose, the posterior femora with a row of long and thin hairs on the lower surface, the posterior tibiae with a less regular row of shorter hairs on their inner faces. Abdomen glabrous.

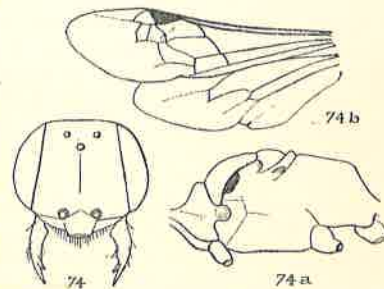


Fig. 74. *Diploplectron Kriegeri*, ♀, head; a, thorax; b, wings.

Clypeus slightly shining, the median area coarsely and shallowly punctured. Lower half of the face transversely, the upper half more or less longitudinally and closely aciculate. This sculpture gives the face a slight greasy lustre. Vertex dull, only microscopically sculptured, if at all; temples and cheeks smooth and shining. Pronotum finely, closely and transversely striate. Mesonotum and scutellum very evenly, closely and longitudinally striate, the striae somewhat convex outwardly on the mesonotum. Mesopleurae finely and longitudinally striato-punctate. Dorsum of epinotum finely and sharply reticulate-striate, the striae divergent on each side outwardly from the base over the basal portion, and more or less transverse over the apical third; the sides of the epinotum closely and longitudinally rugoso-striate, the declivity transversely so. The thorax is in greater part dull, but the mesonotum and scutellum have the same greasy lustre as the face. Mesosterna slightly shining, aciculate and shallowly punctured. Abdomen above dull and microscopically rugulose, the fifth tergite with a few large punctures posteriorly; the ventral surface shining. Median area of clypeus slightly produced, wider behind than in front, the anterior margin slightly upturned, straight and rectangular at the corners. The eyes do not reach the base of the mandibles. Ocellar area not tumid, the ocelli round and convex, the posterior pair slightly further apart from each other than they are from the anterior ocellus, nearer each other than they are to the eyes. Head wider than long. Eyes convergent above, the interocular distance on the vertex being equal to the length of the second and third joints of the flagellum, or to about two-thirds of the width of the face across the hind margin of the clypeus. Mandibles with a tooth behind the acute apex and a blunt angle near the base. Antennae inserted low down, the scape twice as long as wide, the first joint of the flagellum about as long as wide, all the other joints much longer than wide, the second joint two and a third times longer than the first. Temples well developed, as wide at the middle as the eyes when seen from the side.

Pronotum fairly long, two-thirds the length of the mesonotum, not quite half as long as wide at the base, the collar depressed below the level of the mesonotum, sloping obliquely downwards. Mesonotum wide, one and a half times wider than long, fairly convex lengthwise and transversely. Scutellum half as long as the mesonotum, wider than long, convex lengthwise. Meta-



notum raised in the middle. Dorsum of epinotum convex transversely, trapezoidal, nearly twice as wide across the base as at the apex, the apical margin straight, the declivity almost vertical. Abdomen oblongo-ovate, widest in the middle. Pygidial area flat, elongate triangular, the apex rounded, the sides not marginate. Anterior tarsi with a distinct comb composed of flattened and lanceolate blackish spines, of which there are four on the metatarsus. Spines on the middle and hind legs black, the calcaria of the hind tibiae less than half the length of the metatarsus.

Front wing: pterostigma large, radial cell roundly truncated, very little longer than high; second and third cubital cells taken together considerably shorter on the cubitus than the first cubital cell, the third transverse cubital vein convex outwardly, the first recurrent vein interstitial with the first transverse cubital vein. Hind wing: the cubitus arises before the end of the submedial cell.

♂. 7.5 mm. long. Fourth to sixth abdominal segments and apical margin of the third, black; the seventh black, with the apex ferruginous. Mandibles with a pencil of black hairs on the outer margin just behind the middle. Vertex more convex from back to front and transversely than in the ♀, with a few shallow punctures on each side. Interocular distance slightly greater than in the ♀. Anterior tarsi with only a few simple spines. Otherwise like the ♀.

Algoa Bay. November. Types in coll. Brauns.

*D. africanum* n.sp. (fig. 75, 75 a, b).

♀. 6.4 mm. long. Black, mandibles except at the apex, all the tibiae and tarsi reddish ochreous, the middle and hind ones a little darker than the anterior. Pronotal tubercles dark brown. Abdomen piceous below, the apical margins of the segments narrowly fusco-testaceous. Wings hyaline, stigma and veins pale brown. Lower half of face with a microscopic greyish pubescence. Anterior margin of the clypeus with a fringe of long, stiff and black hairs. Mandibles sparsely pilose. Mesosterna, coxae and femora with a very sparse, decumbent and yellowish pubescence. The posterior femora below with a row of long exerted hairs on the basal half; otherwise glabrous. Clypeus rugulose-punctate in the middle. Head and thorax, excepting the epinotum, microscopically rugulose and shining, with a few small and widely scattered punctures, the scutellum and mesopleurae impunctate. Epinotum dull, finely and evenly reticulate, almost reticulate-punctate on the dorsum, the sides with a few oblique and very superficial striae which extend over the lateral margins of the declivity. Abdomen shining, microscopically rugulose transversely. Mandibles bidentate at the apex. Median area of the clypeus obtusely angular in the middle, and on each side with a short tooth truncated at the apex. Temples well developed, as wide as the eyes when seen from the side. Interocular distance on the vertex equal to a little more than the length of the second and third joints of the flagellum. The second joint is twice as long as the first, and a little longer than the third; the scapes short. An impressed line extends up the face from the posterior margin of the clypeus but does not reach the anterior ocellus. Ocelli small, placed in an equilateral

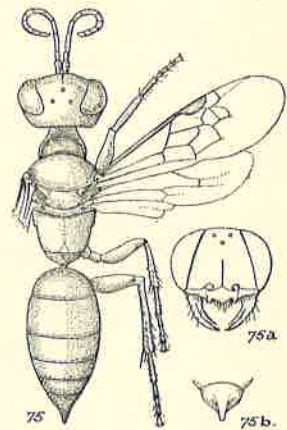


Fig. 75. *Diploplectron africanum*, ♀; a, head from in front; b, pygidium.



triangle. Pronotum as long as the mesonotum, its collar very convex transversely, descending in front to the neck in a rapid curve, two and a half times wider than long in the middle. Mesonotum fairly convex, twice as wide as long in the middle. Dorsum of epinotum as long as the mesonotum, not quite twice as wide at the base as long, with a finely impressed median line which is forked just in front of the apical margin; declivity subvertical, shorter than the dorsum. Pygidium subulate, the pygidial area elongate triangular, abruptly truncate at the apex, not distinctly marginate at the sides. Tibiae and tarsi spinose, the spines black, the anterior tibiae spined only at the apex, the tarsal comb somewhat indistinct and short, the basal joint with four spines. Pterostigma large, the radial cell rectangularly truncate, the truncating vein a little longer than the costal margin of the cell. Third transverse cubital vein convex outwardly, the third cubital cell twice as long on the cubitus as on the radius. The first recurrent vein enters the first cubital cell at a distance from the first transverse cubital vein equal to the third abscissa of the radius. Basal lobe of the hind wing long, as in *Astata*, the basal sinus close to the anal.

Sawmills, S.R. February, 1 ♀. Type in the R.M. coll.

#### PEMPHREDON Group, Kohl.

GENERAL CHARACTERS. Inner orbits of eyes not sinuate. Ocelli normal. Mandibles not excised on the outer margin. Maxillary palpi six-, labial palpi four-jointed. Pronotal collar small; pronotal tubercles usually reaching the tegulae. Mesopleurae often with an epicnemium. First sternite often forming a petiole to the abdomen. Pygidial area sometimes distinct. The apical ventral plate in the ♂ often produced into an upturned spine. Middle tibiae with only one spur.

This group has been divided by Kohl as follows:

PEMPHREDON Group	{	Subgroup 1.	{	PSEN Latr. s. str.*
		PSEN Kohl	{	PSENULUS Kohl (= PSEN Dahlb.)
	Subgroup 2.			
	PEMPHREDON Latr.*			
	{	Subgroup 3.	PASSALOECCUS Shuckard	
		Isolated genera, DIODONTUS Curtis		
		" " HARPACTOPHILUS Smith*		
	{	Subgroup 4.	{	
		STIGMUS Kohl	{	
			{	

The genera asterisked are not represented in our region. To a certain extent this group approaches nearer to the *Ampulex* group than to the others which have already been dealt with in these pages and it is taken in this order merely as a matter of convenience, since the *Pison* group, which shows a greater affinity to the Larrinae, should really follow the *Miscophus* and *Astata* groups.

#### PSENULUS Kohl

*Ann. K.K.N.H. Mus. Wien*, XI, p. 293. 1896. *Psen* Dahlbom. *Hymen.*  
*Eur.* I, p. 65. 1845.

CHARACTERS. Eyes reaching the base of the mandibles, their inner margins not sinuate, divergent above and below. Ocelli normal. Mandibles only feebly excised on the outer margin, if at all. Labrum emarginate. Clypeus wider than long, the apex of the anterior margin bearing two small teeth.



Antennae inserted far from the clypeus, at about the middle of the face. The latter is swollen in the middle below the antennal sockets, and has a transverse carina from which proceeds upwards a longitudinal carina which ends much below the anterior ocellus; sometimes two divergent carinae arise from the transverse one, enclosing between them a sunken space. Antennae subclavate in the ♀, moniliform in the ♂. Temples well developed. Pronotal collar very short, its anterior face vertical; the pronotal tubercles barely reach the tegulae. Episternal suture distinct, the mesopleurae with a fairly well defined epicnemium. Metanotum usually pubescent. Dorsum of epinotum rounded behind, very short, with a distinct marginate and more or less triangular median field, which is continued by a deep sulcus down the long declivity, the sulcus widened out below. Abdomen petiolate, the petiole being formed by the first sternite, so that the greater part of it is placed in front of the first tergite, the rest of the abdomen subovate. Apical segment in the ♂ ending in an upturned spine. Legs unarmed, excepting the calcaria and apical spines of the tarsal joints.

Stigma and radial cell large, the latter entire. Three cubital cells present, the recurrent veins received by the second and third cubital cells, rarely by the second alone. Basal lobe of hind wing small, subelliptical, much shorter than the submedial cell. The anal lobe long; the cubital vein always arising beyond the end of the submedial cell.

Distribution. Palaearctic and Ethiopian regions.

These small wasps nest in hollow twigs and straws and provision their young with Aphidae.

Kohl in his key and synopsis of the genera gives as one of the distinctions between this genus and *Psen*, the absence of spines on the tibiae. This, however, does not always hold good, since *Psenulus bidentatus* Cam., which is undoubtedly a *Psenulus* by the structure of the face and pygidium, has a few short spines on the posterior tibiae. Moreover, *Psenulus capensis* Brauns has the antennae long and shaped as in *Psen*, although in other characters it is a *Psenulus* (*sensu* Kohl). It would probably be more correct to consider *Psenulus* as only a subgenus of *Psen*.

*P. capensis* Brauns. *Ann. K.K.N.H. Mus. Wien*, XIII, p. 391, ♀, ♂. 1899.

♀. 8.9 mm. long. Black, all the joints of the flagellum underneath brownish ochreous. Anterior and middle tibiae and tarsi pale flavous, the tibiae with a black streak on the inner side, the tarsi somewhat darkened towards the apex. Basal half of the posterior tibiae and the calcaria flavous, the posterior tarsi dark brown. Tegulae testaceous.

Clypeus, temples and face below the antennal sockets with a fairly long silvery pubescence, somewhat sparse on the temples; the rest of the head, the thorax, legs and second to sixth abdominal segments with whitish pubescence, long and exserted on the thorax, oblique and short on the legs and abdomen. Shining. Head sparsely and finely punctured, the puncturation somewhat closer just above the antennal sockets. Sides and neck of pronotum strigose. Mesonotum strongly, irregularly and sparsely punctured, more finely and closely in front of the hind margin. Scutellum very finely and sparsely punctured. Dorsum of epinotum obliquely striate on each side, with a Y-shaped and clathrate median field, the leg of the Y extending to the end of the declivity. Mesopleurae shallowly punctured. Sides of epinotum dull and coriaceous. Abdomen impunctate. Eyes strongly divergent above, feebly so below. Clypeus with the median area apparently produced into a narrow lobe, but the pubescence in the type of the species obscures this part (I am inclined to think that Brauns has mistaken this part for the labrum).



Antennae clavate, inserted above the middle of the face. Between them lies a lamelliform plate (looking like a tooth when viewed from above), which ends in the middle of a feeble transverse torus lying below the antennal sockets. The transverse torus or carina is feebly dentate at each end and is continued upwards on each side towards the antennal sockets as a low short keel. The median lamelliform plate is continued as a low raised line to the anterior ocellus. Posterior ocelli nearly twice as far from each other as they are from the anterior ocellus. The vertex is depressed round the outer margins of the posterior ocelli. Temples wide, two-thirds as wide as the eyes when seen from the side, somewhat rapidly narrowed from their lower third downwards. Second joint of flagellum three and a half times longer than wide at the apex, nearly three times longer than the first\*, the latter as long as wide, the third to eighth longer than wide. Collar of pronotum very short in the middle, a little longer at the sides, the shoulders nearly rectangular. Mesonotum with an impressed longitudinal line in front on each side of the middle, not reaching the middle of the segment, and also with a shorter line on each side not far from the tegulae. A transverse clathrate groove lies on the anterior margin of the scutellum. Dorsum and declivity of epinotum not distinctly delimited, the dorsal outline forming a continuous curve. Petiole long, two-thirds longer than the first tergite, convex transversely above. First tergite strongly convex transversely and fairly so lengthwise. The rest of the abdomen oblongo-ovate. Wings hyaline, feebly fuscous, the veins black. First abscissa of the radius nearly as long as the second and third combined; the first recurrent vein enters the second cubital cell close to the first transverse cubital vein, and the second enters the third cubital cell at about its inner fifth.

♂. 8 mm. long. Antennae moniliform, as long as the thorax and petiole combined. More coarsely and closely punctured on the head and mesonotum than in the ♀. The dorsum of the epinotum outside the marginate area irregularly and coarsely reticulate-rugose. The apex of the epinotum (at the bottom of the declivity) concave, with a tooth on each side. Otherwise like the ♀.

Algoa Bay; Matopos, 1 ♂. Types in coll. Brauns.

*P. bidentatus* Cameron (fig. 76, 76 a). In Sjöstedt's *Kilimandjaro-Meru Exped.* p. 282, ♀. 1910.

*P. rubrocaudatus* Turner. *Ann. Mag. N.H.* ix, No. 52, p. 412, ♀. 1912.

*P. Bequaerti* Brauns. *Nom. in litt.*

Although I have not seen the types of Cameron or Turner, I have no hesitation in placing both species in synonymy. Although Cameron omits any reference to the petiole, yet for once he has described the greater part of the insect in sufficient detail for it to be identified with a considerable degree of certainty. I have seen the type of *P. Bequaerti* Brauns and have compared it with a specimen from Salisbury from which it differs only in slight details of colour. These two specimens, apart from colour, agree perfectly with the descriptions of *bidentatus* and *rubrocaudatus*. The two curved furrows on the face mentioned in Cameron's description are merely the suture between the face and the clypeus and the upper margin of the depression in which lie the antennal sockets.

\* In Brauns' description, and usually in those of Kohl, the first joint of the flagellum is termed the "pedicellus," and the second is treated as the first. In these pages I have adhered to the usage of English writers and treat all the joints following the scape as forming the flagellum.



♀. 9 mm. long. Black, the basal five joints of the antennae and the apical joint underneath, the mandibles except at the apex, the anterior and middle femora above, the apex of the first abdominal segment narrowly and the other segments entirely, rufo-ferruginous; the apices of the anterior and middle tibiae and tarsi testaceous. This is the colour of the type, but the colour is variable. Sometimes the scape and the seven basal joints of the flagellum and only the last two abdominal segments are ferruginous (*rubrocaudatus* Turner), or the antennae are only slightly pale on the basal joints and the abdomen has the second segment red, and the following segments fusco-ferruginous (*Bequaerti* Brauns); or all the segments following the black petiole are fusco-ferruginous with darker bases, and the anterior and middle tibiae are reddish ochreous (specimen from Salisbury). The tegulae are ochreous or ferruginous.

Head and thorax with a fairly long whitish or silvery pubescence, scanty on the upper face, vertex, occiput and mesonotum, and absent from the marginate field of the epinotum and from the metapleurae. Abdomen with a short and very fine yellowish pubescence on the tergites and apical margins of the sternites. Wings hyaline, finely pubescent, the veins blackish. Clypeus and face below the antennae dull, very finely punctured, moderately shining and less closely punctured above them. Vertex shining, finely and sparsely punctured. Temples dull, closely rugulose. The anterior face of the collar of the pronotum and its sides sparsely striated, the dorsal face almost smooth. Mesonotum and scutellum moderately shining, shallowly and not very closely punctured, the metanotum dull and punctulate. At about the outer third of the mesonotum there is a longitudinal line on each side in front, not reaching the middle of the segment, and a shorter line on each side not far from the tegulae. Mesopleurae shining, a little more strongly punctured than the mesonotum. Dorsum of epinotum moderately shining; the marginate median area has four oblique keels on each side, and is continued into the declivity by a vertical and marginate groove which has one or two transverse keels above and widens out below. The sides of the dorsum beyond the marginate area are finely and obliquely striate, the declivity finely rugoso-reticulate, the sides of the epinotum finely and obliquely striate. The episternal and meso-metapleural sutures clathrate. Abdomen shining, impunctate or nearly so.

Median area of clypeus with two small blunt teeth on the anterior margin. The median swelling of the face is bounded by a transverse carina below the antennae, not quite reaching the inner orbits of the eyes. From the middle of the transverse carina a higher median longitudinal carina (the "flattened spine" of Cameron) extends upwards to the level of the upper margin of the antennal sockets, and is continued thence as a fine raised line to the anterior ocellus. The distance between the eyes at their nearest point, at the level of the transverse carina, is equal to the length of the second and third joints of the flagellum. Antennae incrassate towards the apex, the first joint of the flagellum about half as long as the second, the latter half as long again as the third, the scape as long as the first and second taken together. Collar of

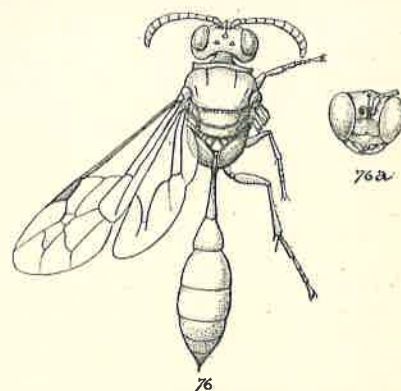


Fig. 76. *Psemulus bidentatus* Cam. ♀;  
a, head from in front.



pronotum sharply marginate in front, the lower anterior angles of the propleurae subdentate (hardly "a large triangular tooth" as described by Cameron). Scutellum wide and fairly flat, the metanotum about half as long as the scutellum. The junction of the dorsum of the epinotum with the declivity widely rounded. Petiole nearly twice as long as the first tergite (this is not evident in fig. 76 owing to the strong curvature of the petiole).

First recurrent vein interstitial with the first transverse cubital vein or entering the second cubital cell a little beyond that vein, the second recurrent entering the third cubital cell at about its first fifth. Posterior tibia with four short spines on the outer margin.

Kilimandjaro; Elizabethville (Bequaert); Natal; Salisbury, S.R.

*P. latiannulatus* Cameron. In Sjöstedt's *Kilimandjaro-Meru Exped.* p. 281, ♀. 1910.

"Black, the apex of the anterior four femora, their tibiae and tarsi, the basal half of the hinder tibiae and the spurs, pale yellow; the underside of the antennal scape yellow, the flagellum dark reddish brown, black above; wings hyaline, the nervures black; the second cubital cellule much narrowed in front through the oblique sloping of the first transverse cubital cellule; the second abscissa of the radius one-fourth of the length of the third; the first recurrent nervure is received close to the base of the cellule, not interstitial. Abdominal petiole as long as the following three segments united, its apex distinctly nodose. Metanotal (*i.e.* epinotal) area smooth; the rest of the metanotum coarsely, irregularly rugosely reticulated; the middle widely depressed; the depression on the apical slope with two or three curved keels; on either side of the apex is a stout, flattened projection, rounded above; Metapleurae (*i.e.* sides of epinotum) smooth at the base, the rest widely, irregularly reticulated. ♀. Length 8 mm. Kilimandjaro, Kibonoto. 1300-1900 metres.

Face and clypeus densely covered with silvery pubescence; the apex of the latter transverse. There is a longish stout keel between and below the antennae; from the outer side of each antenna a narrower keel runs down, the two uniting below, where they are rounded on the outer edge, the whole forming an area wider than long. Front and vertex shining, finely, closely punctured. Pro- and mesothorax sparsely, weakly punctured, the apex of mesopleurae smooth, as is also the base of the metapleurae; the rest of the latter coarsely closely reticulated."

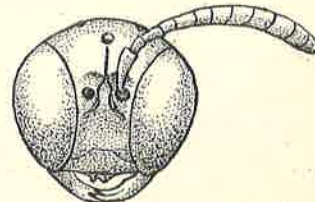
*P. Kohli* n.sp. (fig. 77).

♀. 7.5 mm. long. Allied to *capensis* and *latiannulatus* but differing from both in the structure of the face, and from *capensis* also in the sculpture. Black, tarsi pale straw-yellow, becoming darker towards the apices. The tibiae of the same colour but with the apical halves fuscous excepting a narrow line above. Apices of the scapes and first three joints of the flagellum brown, the rest black above; the scape and first six joints of the flagellum dirty ochreous below. Mandibles castaneous in the middle. Pubescence silvery white, very dense on the clypeus and on the face below the antennae, sparse on the vertex, sides of the thorax and middle of the metanotum, absent from the mesonotum, scutellum and dorsum and declivity of the epinotum. Pubescence on the abdomen whitish, very fine and scanty, but a little less so on the third and fourth tergites. Clypeus and face below the posterior ocelli dull, very finely punctured, vertex and occiput shining, more strongly and less closely punctured. Collar of pronotum smooth above, finely and transversely rugulose in front. Mesonotum, mesopleurae and scutellum nitidulous,



sparsely, irregularly and finely punctured; the mesonotum with a longitudinal, wide and shallow impression on each side of the middle, reaching from base to apex; the depression superficially and transversely striated. Dorsum of epinotum short, merging by a rapid curve into the declivity, closely, evenly and obliquely striate on each side, the marginate median area very short, clathrate, forming with the vertical groove a T-shaped impression; the vertical groove with two or three transverse keels above, not widened below. The sides of the epinotum finely shagreened. Abdomen smooth and shining. Median area of clypeus with two very short and obtuse teeth in front. The face is merely swollen in the middle, not distinctly transversely carinated, from the middle of the swelling a wide carina extends upwards between the antennal sockets. This carina is expanded at its free margin so that in cross-section it would be T-shaped. Beyond the level of the antennal sockets the carina is continued as a fine raised line as far as the anterior ocellus. The least distance between the eyes on the front is not quite equal to twice the length of the scape, and is much less than the distance of the median carina from the anterior margin of the clypeus. Temples well developed, at their widest about two-thirds the width of the eyes when seen from the side. Antennae incrassate apically, the second joint of the flagellum about half as long again as the first, very little longer than the third, the seventh to tenth joints wider than long. Collar of pronotum feebly marginate in front, the lateral angles not acute. Mesonotum not broad, only one-fifth wider than long. Scutellum with a deep and clathrate transverse groove in front. Petiole of abdomen, measured from above, not longer than the pronotum and mesonotum united; the first tergite nodose, the rest of the abdomen lanceolate-ovate. Venation of the wings like that of *bidentatus*. Posterior tibiae not spined on the outer margin.

Bulawayo, November. 1 ♀. Type in the R.M. coll.



77

Fig. 77. *Psemulus Kohli*, ♀, head from in front.

#### PASSALOEUCUS Shuckard

*Essay indig. Fossorial Hymen.* p. 188. 1837.

CHARACTERS. Mandibles obliquely truncate at the apex, sometimes with one or two small teeth at the apex. Eyes slightly convergent towards the clypeus, or subparallel. Ocelli normal. Antennae filiform, inserted close to the clypeus; the face deeply concave transversely, often armed with a spine between the antennae. Vertex, occiput and temples well developed. Collar of pronotum depressed below the level of the mesonotum, very short or linear in the middle, its anterior face vertical. The pronotal tubercles reach the tegulae. No epicnemium present. Episternal suture wide and usually clathrate; from it arise two horizontal and parallel grooves, also clathrate, which do not reach the metapleurae. Sometimes the upper or lower of these grooves may be absent. Dorsum of epinotum coarsely sculptured, without a marginate median area, the declivity subvertical. First abdominal segment narrowed at the base, subpetiolate. No pygidial area present. Seven ventral plates visible in the ♂, the eighth produced into a spine which projects beyond the seventh.

Fore wing: radial cell lanceolate. Two cubital cells present, the original second cell having been absorbed by the first owing to the obliteration of the first transverse cubital vein; the two recurrent veins received by the first and



second cubital cells respectively. The first submedial cell twice as long as the second, closing before the origin of the basal vein.

Hind wing: the cubital vein arises before the end of the submedial cell. Basal lobe fairly large. Intermediate coxae contiguous. Tibiae unarmed, excepting the apical spines and occasionally one or two spines on the posterior tibiae below their middle.

Distribution. Nearctic, Palaearctic and Ethiopian regions.

These small wasps nest in old wood, hollow stems and straws and provision their young with Aphidae. We have only one species in South Africa.

*P. Braunsi* Kohl (fig. 78, 79). *Verh. Zool. Bot. Ges. Wien*, LV, p. 361, ♂. 1905.  
*P. striatifrons* Cameron. *Ann. Trans. Mus.* 2, p. 151, ♂. 1910.

♀. 5-5.5 mm. long. Black, the thorax with a faint greenish tinge. Scapes in front, anterior and middle tibiae above, apices of the anterior femora, posterior tibiae at the base outwardly and the pronotal tubercles, pale yellowish white. Upper surface of the scapes brown. Tarsi, anterior and middle tibiae below more or less brownish red. Clypeus and lower half of the face at the sides clothed with a short, decumbent and silvery pubescence. Temples, lateral margins of the mesonotum, mesopleurae and abdomen with a sparse and inconspicuous whitish pubescence.

Concavity of the face finely and transversely striolate and also finely punctured. Above the brow of the concavity the striolae become gradually obsolete and from there to the posterior ocelli the surface is shallowly, finely and sparsely punctured; vertex slightly shining, temples dull, finely rugulose. Thorax, excepting the epinotum, finely, shallowly and fairly closely punctured.

Epinotum reticulate-rugose, finely so at the sides and on the declivity, coarsely on the dorsum, which has a narrow and elongate triangular space in the middle, very coarsely reticulate. Abdomen slightly shining, very delicately and sparsely punctured, except the first tergite which has shallow but larger punctures; the ventral surface smooth and shining.

Head, seen from in front, as long as wide. Apex of mandibles rounded. Eyes convergent towards the clypeus, nearer together there than on the vertex, towards which they slightly converge again. Upper half of the inner orbits margined by a sharp carina, the space between the carina and the eye transversely striate. The occipital margin of the head is similarly carinate. Face strongly concave transversely, furnished with a sharp, angulated and acute spine between the antennal sockets. Flagellum short, not extending back as far as the occiput, about two and a half times longer than the scape, all the joints except the second, tenth and eleventh wider than long. The least distance between the eyes near the clypeus is not much greater than the length of the scape plus the first joint of the flagellum. Ocelli large, the posterior pair as far from the eyes as they are from each other.

Temples widest at their middle, at that point nearly as wide as the eyes when seen from the side. Thorax elongate. Pronotal collar rectangular at the sides, linear above in the middle. Mesonotum as long as wide, nearly three times as long as the scutellum, impressed with a shallow and feebly clathrate longitudinal groove on each side of the middle; scutellum sub-

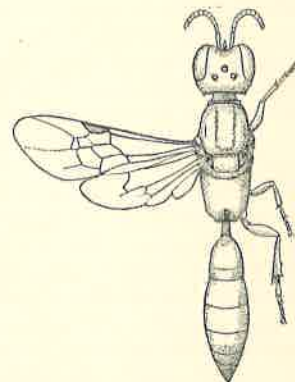


Fig. 78. *Passaloecus Braunsi* Kohl, ♀.



quadrate, with a transverse and clathrate groove in front. Dorsum of epinotum a little longer than the scutellum and metanotum united, the upper half of the declivity oblique and deeply sulcate in the middle, the lower half vertical. Abdomen lanceolate, with a short petiole formed by the first sternite. The petiole is less than half as long as the first tergite. Abdomen distinctly constricted between the first and second tergites.

Pterostigma large; first abscissa of the radius nearly four times as long as the second; the second recurrent vein enters the second cubital cell near its middle.

♂. Tarsi fusco-ferruginous; tibiae black, except the basal third which is pale yellowish white. Otherwise like the ♀.

Bulawayo, November to April. (R.M. and T.M. colls.)

I have seen the type of Cameron's *striatifrons*, which is synonymous with this species.

#### DIODONTUS Curtis

*Brit. Ent.* II, p. 496. 1834.

CHARACTERS. Head large, wider than the thorax. Face, vertex and temples wide. Mandibles bidentate at the apex. Clypeus wide and short, bisinuate and feebly tridentate in the ♀, excised in the middle in the ♂. Labrum exerted far forwards, deeply and angularly excised in the middle. Antennae inserted close to the clypeus and fairly far apart. Inner orbits of the eyes almost parallel. Pronotal collar short, angular at the anterior corners, the anterior face vertical; the pronotal tubercles prominent, extending back as far as the tegulae. An epicnemium present on the mesopleurae, the episternal suture present but often obscured by the coarse sculpture. Dorsum of epinotum much wider than long, coarsely sculptured, the declivity subvertical. Abdomen not petiolated. A pygidial area present in both sexes; seven ventral plates visible in the ♂. Middle coxae contiguous. Middle and hind tibiae spinose, the fore tibiae only with apical spines. A distinct tarsal comb absent.

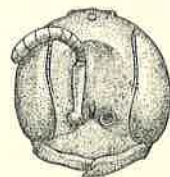
Wings. The venation is similar to that of *Passaloecus*, but the second cubital cell is longer on the cubitus than on the radius.

Distribution. Both hemispheres.

These insects nest in sand and loamy banks, and provision their young with Aphidae.

*D. atratulus* Taschb. (fig. 80, 80 a). *Zeitschr. f. d. ges. Naturw.* XLV, p. 388, ♀. 1875. Kohl. *Ann. K.K.N.H. Mus. Wien*, v, p. 57, ♀, ♂. 1890.

♀. 5.5 mm. long. Black, mandibles reddish ochreous, the base and apex piceous, pronotal tubercles and tegulae in front pale yellow, the fore tibiae in front and apices of the anterior femora dull ochreous, anterior tarsi fusco-ferruginous, the spines on the legs pale ferruginous, the calcaria pale ochreous. Pubescence whitish, fairly abundant on the lower half of the face, elsewhere very short and scanty. Anterior margin of the clypeus and the mandibles with a few long exerted hairs. Labrum and clypeus smooth and shining. The rest of the head nitidulous, microscopically and very superficially rugulose-reticulate, with a fine and



79.  
Fig. 79. *P. Braunsi*,  
head from in front.

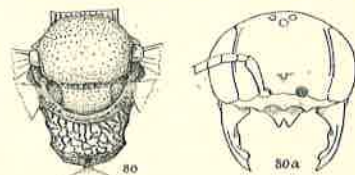


Fig. 80. *Diodontus atratulus*, ♀,  
thorax; a, head from in front.



not very close puncturation in addition; on the temples and behind the ocelli this puncturation is very sparse. Mesonotum and scutellum shining, sparsely, irregularly and not coarsely punctured. Pronotum shining, with a few large rugae on each side in front, the dorsal face of the collar very evenly striate. Mesopleurae and sides of the epinotum coarsely obliquely rugose, the metapleurae smooth and shining. Dorsum of epinotum shining, strongly reticulate-rugose, the rugae widely spaced, the declivity more closely and more finely rugose. Abdomen shining, finely and sparsely punctured, the punctures increasing in size towards the base; the pygidial area dull, microscopically reticulate-punctate. Labrum angularly and deeply excised, the apical angles acute. Clypeus shallowly bisinuate and bluntly tridentate in front. Interocular distance across the base of the clypeus equal to a little more than twice the length of the scape, the interocular distance on the vertex not much less. Upper half or more of the inner orbits margined by a carina, as in *Passaloecus Braunsi*, but the space between the eye and the carina is not clathrate as in that species. Temples very wide, wider than the eyes when seen from the side. The eyes are separated from the occipital margin by a distance equal to half the interocular distance on the vertex. Second, third and fourth joints of the flagellum subequal, the second half as long again as the first. Anterior angles of the pronotal collar dentiform, the pronotal tubercles prominent. Mesonotum one and a half times wider than long in the middle, about twice as long as the scutellum. The latter subquadrate, fairly flat, with a wide clathrate groove in front. Posterior lateral angles of the dorsum of the epinotum subdentate. The declivity has a deep fovea in the middle below the brow. Pygidial area triangular, the apex widely rounded. Wings iridescent and hyaline, faintly fusco-hyaline towards the apex, the veins dark brown. The first abscissa of the radius is twice as long as the second, the second cubital cell higher than long on the cubitus, trapezoidal. Middle and posterior tibiae with two rows of spines.

♂. 4 mm. long. Anterior tibiae above, middle and hind tibiae on their basal third, mandibles excepting their apices, tegulae and pronotal tubercles, pale lemon-yellow. Vertex and occiput relatively shorter than in the ♀. Median area of clypeus arcuately and narrowly excised in the middle in front. The tubercle between the antennae smaller than in the ♀. Legs with only a few and very fine short spines. The basal joint of the anterior tarsi distinctly curved. Sixth tergite with a couple of stiff yellow setae on each side near the apical margin. Pygidial area trapezoidal, sharply marginate laterally, coarsely and not very closely punctured, shining. Eighth sternite projecting beyond the seventh, shovel-shaped. Antennae longer than in the ♀, otherwise like that sex.

Sawmills, S.R. December and April, nesting in the loamy bank of the Umgusa River; Hartley, S.R. July (Stevenson): Bothaville, O.F.S. (Brauns). (R.M. and T.M. colls.)

*D. nitidus* n.sp.

♀. 5.5 mm. long. Closely allied to the preceding species, from which it differs as follows.

Labrum less produced, the excision wide and shallow. Head, excepting the depressed area around the antennal sockets, mesonotum and scutellum more shining and much more sparsely punctured than in *atratus*, the punctures much larger, the spaces between smooth and without the microscopic rugulose or aciculate sculpture which is present in the other species. The abdomen is also more sparsely and a little more coarsely punctured, the



pygidial area dull, microscopically shagreened, with a row of three or four large punctures on each side, the apex more narrowly rounded than in *atratus*. The clypeus is more deeply bisinuate, so that the middle ends in a distinct but rounded tooth. Otherwise like the ♀ of *atratus*.

♂. 4 mm. long. As in the ♀ the puncturation is much coarser than in *atratus*, especially on the abdomen, which is less elongate than in that species. Antennae brownish ochreous below, the middle and hind tibiae pale ochreous, with only a pale fuscous stain on the inner face. Sixth tergite with three yellow setae on each side at the middle, stouter than those of *atratus*. Otherwise like that species.

Willowmore, C.P. Types in coll. Brauns.

#### STIGMUS Panzer

*Faun. Ins. Germ.* VII, p. 86. 1805.

Jurine. *Nouv. méth. class. Hymén.* p. 138. 1807.

CHARACTERS. Eyes feebly divergent towards the vertex, or slightly convergent above and below; reaching the base of the mandibles. Head distinctly long behind the eyes, the vertex and temples well developed. Mandibles tridentate at the apex. Clypeus sometimes excised in the middle. Antennae filiform and slender. Pronotal collar fairly long, marginate in front, the anterior face vertical, depressed a little below the level of the mesonotum; pronotal tubercles prominent and reaching the tegulae. No epicnemium; the episternal suture distinct, and having a longitudinal groove proceeding from it behind. Dorsum of epinotum merging gradually into the declivity, often with a marginate median field. Abdomen petiolate, the petiole formed by the first sternite. Pygidial area sometimes present (not in our two species). Legs not spinose, no tarsal comb present. Intermediate coxae contiguous. Seven ventral plates visible in the ♂, the eighth produced into a spine projecting beyond the seventh.

Fore wing: pterostigma large, its costal margin distinctly convex. Radial cell lanceolate. Two cubital cells present, the first fully two and a half times larger than the second, which is subquadrate. The single recurrent vein enters the first cubital cell at about its middle. Only one discoidal cell present.

Hind wing: the cubital vein arises before, or at the end of the submedial cell. Basal lobe small.

Distribution. Both hemispheres.

These insects nest in hollow twigs and straws, and prey on Aphidae.

*S. gueinzii* Turner. *Ann. Mag. N.H.* IX, No. 52, p. 411, ♀. 1912.

"♀. Clypeus with a strong longitudinal carina, which is continued between the antennae and thence more finely almost to the anterior ocellus. Eyes converging a little towards the clypeus, the inner margin marked by a well-defined carina. Front concave, opaque, aciculate; vertex smooth and shining. Head much narrowed behind the eyes, the posterior ocelli very close together and as far from the posterior margin of the head as from the eyes. Antennae inserted low down on the sides of the clypeus, very near the eyes, more than twice as far from each other as from the eyes, the flagellum very slender at the base, a little thickened to the apex, three times as long as the scape, the whole antenna longer than the head and pronotum combined, the second joint of the flagellum a little longer than the third and more than half as long again as the first. Pronotum small, the anterior angles prominent, rather indistinctly longitudinally striated, about twice as broad as long. Mesonotum strongly arched, sparsely punctured, with two longitudinal furrows on each side,



the inner one reaching from the anterior margin to the middle, the outer one very short and not reaching the margin, the space between the inner furrows marked with two obscure longitudinal carinae. Scutellum with a transverse, longitudinally striated depression at the base (apex, ? G.A.), otherwise smooth and shining; post-scutellum very delicately and obscurely longitudinally striated. Median segment reticulate; a depressed longitudinally striated space at the base, very short and broadly rounded posteriorly, a small triangular, transversely striated space enclosed by low carina reaching from the apex of the depression more than halfway to the apex of the segment. Abdomen smooth and shining, the petiole as long as the thorax without the median segment. The recurrent nervure is received at the middle of the first cubital cell. Black; the mandibles and the posterior angles of the pronotum whitish; scape beneath, the five basal joints of the flagellum, tegulae and legs, except the coxae, testaceous brown, darkest on the femora. Wings hyaline, nervures dark testaceous. Length, 4-5 mm.

Hab. Durban, Natal."

*S. rugosifrons* n.sp. (fig. 81).

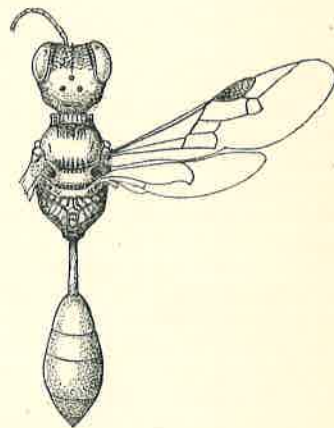
♀. 4.5 mm. long. Allied to *gueinzius* from which it differs as follows.

Mandibles ochreous, the tips brown. Antennae pale ochreous, the last five joints brownish above. Trochanters, tarsi, and anterior and middle tibiae outwardly, pale brownish ochreous. Pronotal tubercles ivory white, tegulae testaceous. Eyes margined all round by a sharp carina, the narrow space between the eyes and the carina shining, sharply and transversely striated; face shining, strongly and transversely rugose, in part reticulate rugose. The vertex, occiput and upper part of the temples transversely striolate, the lower part of the temples strongly reticulate-striate. Clypeus shining, not carinate, the median area slightly produced, its anterior margin shallowly excised in the middle. A strong carina extends from the posterior margin of the clypeus as far as the anterior ocellus. Scape nearly as long as the first three joints of the flagellum united; the first joint is longer than wide and fully as long as the second, which is no longer than the third.

Collar of pronotum three and a half times wider than long in the middle, longitudinally striated. The mesonotum has two curved carinae in front, not reaching the middle of the segment, the space between them transversely striolate; on either side of the median carinae are some curved, oblique and superficial striae, bounded externally by a shallowly impressed line. In front of the basal margin of the mesonotum there is a row of short longitudinal sulci which abut on the transverse and clathrate groove of the scutellum. The whole body fairly shining. Mesopleurae longitudinally rugose above and behind, the metapleurae almost smooth. Otherwise like *S. gueinzius*.

Bulawayo. November, 2 ♀♀. Type in R.M. coll.

This species was identified for me by Mr Turner as *gueinzius*, but it is clearly different from the description of that species by the sculpture of the head and mesonotum, by the colour of the mandibles, antennae and legs, and by the length of the first two joints of the flagellum.



81  
Fig. 81. *Stigmus rugosifrons*, ♀.



## SPILOMENA Shuckard

In Westwood's *Intro. and class. Ins.* II, p. 80. 1840.

CHARACTERS. Mandibles bidentate at the apex. Clypeus short, the median area produced backwards between the antennae. The latter inserted rather far apart, the scape long, the first joint of the flagellum longer than all the other joints except the last.

Pronotum short, the collar very short in the middle, its anterior face vertical. No epicnemium; the episternal suture distinct, but with no groove proceeding from it posteriorly. Dorsum of epinotum with a faintly marginate median field. Abdomen not petiolate. Apical segment in the ♀ strongly compressed transversely, and with a very narrow pygidial area. Seven ventral plates visible in the ♂, the eighth not projecting beyond the seventh.

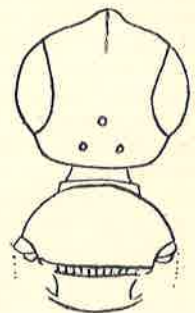
Wings. Venation very similar to that of *Stigmus*. The first cubital cell from one and a half to twice as large as the second. The single recurrent vein enters the first cubital cell near or at its distal angle. The second cubital cell rhomboidal or subquadrate. The cubital vein of the hind wing arises beyond the end of the submedial cell. The basal lobe is small, the basal sinus very deep. Legs long; middle coxae contiguous, the tibiae and tarsi unarmed excepting the apical spines. Otherwise like *Stigmus*.

Distribution. Palaearctic, Nearctic and Ethiopian regions.

The members of this genus and of *Ammoplanus* are the smallest of the Sphegidae, measuring from 2.5-4 mm. in length. They nest in hollow stems and in the pith of plants, and provision their young with Coccid larvae.

*S. Merceti* Brauns (fig. 82). *Nom. in litt.*

♀. 2.5 mm. long. This species cannot be described sufficiently, owing to the fact that the type and unique specimen has the wings folded and stuck with dirt to the epinotum and abdomen, which therefore cannot be clearly examined. Too much risk of damage would be incurred in cleaning so small an insect, and I have therefore been able to ascertain only the following characters. Black, mandibles, tegulae and legs fuscous ochreous, the scapes a little darker. Head smooth and shining, pro- and mesonotum shining, almost smooth or only microscopically punctured. Pronotal tubercles flavous behind. Epinotum dull, transversely striate; mesopleurae very sparsely and finely punctured. Abdomen smooth and shining (?). Median area of clypeus convex transversely, the anterior margin convex, hardly produced. Eyes slightly convergent towards the vertex. A feeble median carinula extends from the posterior margin of the clypeus to about the middle of the face. The least interocular distance, just below the level of the anterior ocellus, is equal to one and a third times the length of the scape. Mesonotum twice as wide as long. Scutellum with a transverse and clathrate groove in front.



82  
Fig. 82. *Spilomena Merceti*.

Willowmore, C.P. Type in coll. Brauns.

## AMMOPLANUS Giraud.

*Ann. Soc. Ent. France* (4), IX, p. 469. 1869.

CHARACTERS. Head wider than the thorax. Eyes above not reaching the vertex, below slightly convergent or sometimes divergent, and touching the base of the mandibles. Head distinctly flattened dorso-ventrally. Clypeus very



short, almost linear, so that the antennae appear to be inserted almost on the anterior margin of the head. Antennae short, not extending back much beyond the occipital margin. Mandibles bidentate at the apex, fairly long. Prothorax narrow, the collar somewhat depressed below the level of the mesonotum; the latter wide. Pronotal tubercles reaching the tegulae. The episternal suture distinct, no epicnemium present. Dorsum of epinotum without a marginate median field, the declivity vertical. Abdomen not petiolate. A pygidial area present in the ♀; seven ventral plates visible in the ♂, the eighth produced into a spine projecting beyond the seventh. Legs, apart from the apical spines, unarmed.

Fore wing: pterostigma very large, ovate; radial cell short, abruptly truncate, its costal margin much shorter than the truncating vein. Only one cubital cell present, very large, receiving the single (first) recurrent vein near its middle. Only one discoidal cell present.

Hind wing: radial vein very short, perpendicular to the costa or nearly so; the cubital vein originates far beyond the end of the submedial cell. The basal lobe narrow, the basal sinus deep. Both wings are strongly iridescent, and the venation of the hind wing is rather indistinct.

Distribution. Palaearctic, Nearctic and Ethiopian regions.

*mandibularis*, Cam.  
*A. capensis* Brauns (fig. 83, 83 a, b). *Nom. in litt.*

♀. 2 mm. long. Black, mandibles pale straw-yellow, the extreme apex reddish. Scapes pale brown, legs brown, the tarsi and anterior tibiae pale dull ochreous. Glabrous. Head and thorax, excepting the epinotum, shining and microscopically alutaceous, the vertex, occiput, mesonotum and mesopleurae with a few scattered and very minute punctures (barely visible with a magnification of thirty diameters). Dorsum of epinotum very finely rugulose-reticulate, with a well-defined median carinula almost reaching the brow of the declivity; the latter transversely striolate, the sides obliquely rugulose. Abdomen smooth and shining.

The eyes occupy not more than the lower two-thirds of the sides of the head. Scapes slightly amplified at the apex. First joint of the flagellum as long as the second and third united, the second distinctly shorter than the third, the first and last joints of equal length and longest. Posterior ocelli further apart from each other than from the anterior ocellus, the distance between the posterior pair equal to their distance from the occipital margin. Pronotal collar convex in front, the shoulders rounded, the dorsal face fairly flat. Dorsum of epinotum fairly flat, a little shorter than the mesonotum, longer than the vertical declivity, not much wider at the apex than long in the middle.

For the rest, see the characters of the genus.

Willowmore, December. Type in coll. Brauns.

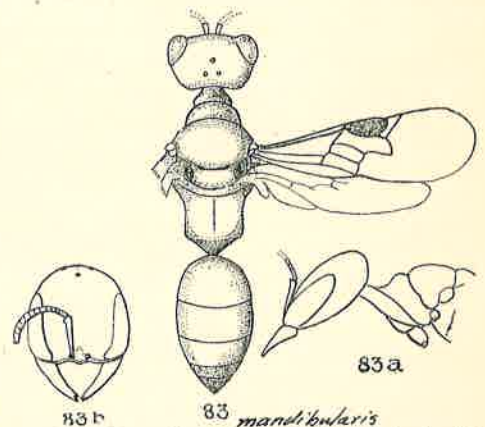


Fig. 83. *Ammoplanus capensis*, ♀; a, lateral view of head and thorax; b, head from in front.