

of the epinotum convex lengthwise, much longer than wide, sometimes with a feeble transverse impressed line in the middle (this line is not the meta-epinotal suture), merging gradually and arcuately into the declivity, which is shorter than the dorsum. Scale of petiole thick below, thin above, as high as the petiole is long, sharply cuneiform in profile, the dorsal edge trenchant and subacuminate, or sometimes narrowly truncate in the middle; the anterior face of the scale moderately convex, the posterior face almost flat. Tibiae compressed, quadrilateral in cross-section, with two rows of setae below. The posterior metatarsi with two dense rows of lanceolate hairs below, as in *C. crepusculi*, *C. belligerum*, etc.

♂ minor, 10.5-12 mm. The large specimens hardly constitute a distinct ♀ media class, differing from the smaller ones only in having the sides of the head slightly convex in front of the eyes as well as behind them. Colour as in the 2♂, but everywhere paler, except sometimes the abdomen, which may be as dark as in the 2♂. The head and thorax in the palest specimens are straw-yellow. The tibiae at the most only reddish brown. Clypeus and mandibles as in the 2♂, the basal sulcus on the mandibles shallower. Head a little longer than wide, widest in front, but very little wider there than behind, the sides in front of the eyes straight, convex behind them, the posterior margin feebly convex. The scapes extend beyond the hind margin by more than half their length. Eyes large, more convex than in the 2♂, placed well behind the middle of the sides. Thorax much more convex than in the 2♂, L. = $2\frac{3}{4}$ H. (in the 2♂, L. = $3\frac{1}{2}$ H.). Scale of petiole thicker and lower, not higher than it is wide below, seen from the side, equilaterally triangular. Legs as in the 2♂.

♀, (hitherto undescribed), 14 mm. Colour as in the 2♂, but a little paler; the head, thorax, petiole, tibiae, and antennae ochreous-ferruginous, the basal half of the abdomen ferruginous, the apical half reddish brown, the femora reddish ochreous. Head quadrate, as long as wide, as wide in front as behind, the sides parallel in front of the eyes, feebly convex behind them, the posterior margin straight or feebly concave. Eyes placed just behind the middle, occupying a little less than one-third of the sides. The scapes extend beyond the hind margin by a little less than half their length. Mesonotum very finely reticulate, moderately shining, finely, shallowly and sparsely punctured. The dorsum of the epinotum merges gradually into the vertical and longer declivity. Scale of petiole like that of the ♂ minor, but higher, higher than long. Abdomen ovate. Wings hyaline, nervures and stigma testaceous.

♂, 9-10 mm. Black, moderately shining, the abdomen more shining and more feebly sculptured than the rest. Microscopically rugulose. Head semicircular behind the eyes, quadrate in front of them. Eyes very convex, prominent, placed at the middle of the sides. The scapes extend beyond the hind margin by four-sevenths of their length. Mandibles long, almost parallel-sided, feebly denticulate. Clypeus furnished with a transverse row of long ammochaetae as in the ♀, but the hairs are fewer. Petiole nodiform, the anterior face very oblique or almost dorsal in position and twice as wide as long, semicircular when seen from above. Wings as in the ♀.

The colour of this species is somewhat variable, the darker specimens having the head more deeply emarginate than the others, but otherwise not distinguishable. In Emery's description, the colour is described as "testaceous, head rufescent, mandibles, antennae, tibiae, tarsi and the abdomen above fuscous." The specimens from Sawmills, Umgusa River, agree well with this description, those from the other localities are darker.

Sawmills, Umgusa River and Hillside, Bulawayo, S. Rhodesia; Willowmore, Cape Prov. (Brauns).

I have seen only two nests of this species; both were situated under large stones, and in front of the entrance to the nest there was a large, fan-shaped and levelled mass of excavated earth, ending in a short slope all round, not crateriform as in so many species of the *Myrmoturba* group.

(S.A.M., R.M., G.A. colls.; type of ♀ in my collection).

Var. KAMAE, Forel.

Schultze, Reise Südafrika, vol. 4, p. 27, ♀ minor, 1910.

"♀ minor, 10-11 mm. Nearly black, thorax partly brownish black. Mandibles and anterior margin of the head reddish. Antennae and legs brown. Coxae, bases and apices of the femora brownish yellow. Ammochaetae on the clypeus and mandibles very long and abundant. The transverse shelf on the posterior fourth of the clypeus almost angular (*i.e.* at its junction with the lower part). Scale higher and less thick than in the type of the species, with a pointed, compressed and trenchant edge above. Head somewhat more elongate, narrower in front than in the type of the species, not clearly wider there than behind. Thorax somewhat more strongly arched. The dorsum of the epinotum rises from the meso-epinotal suture backwards in a sharp curve and is continued thence as far as the

brow of the declivity as a long and almost straight line. Declivity not half as long as the dorsum."

I refer to this variety some specimens taken at Choaherib, S.W.A., although they are rather lighter in colour. In both the ♂ and ♀, the head and thorax are of a very dark brownish red, only the anterior margin of the head and the posterior corners being paler. Abdomen black, the apical margins of the segments narrowly testaceous. The ♂ differs not inconsiderably from the type of the species in the shape of the head.

♂, (hitherto undescribed), 15 mm. Sides of the head more convex than in the type of the species, not narrower, or only very slightly narrower in front than behind (from apex to apex of the occipital lobes). The occipital lobes sharply angular (less than a right angle), and, when seen from above, appearing to be produced backwards, owing to the much deeper emargination of the occipital margin, the depth of the emargination being equal to the length of the eye. The scale is a little thinner above than in the type of the species.

Rooibank, Walfish Bay, (Schultze); Choaherib, S.W.A. (R. W. E. Tucker).

(S.A.M., R.M., G.A. colls.; type of ♂ in my collection).

Var. *EXSANGUIS*, Forel.

Loc. cit., p. 28, ♂, ♀, ♂.

♂. 14-15 mm. Abdomen yellowish brown (raw umber), tarsi and antennae ferruginous, mandibles castaneous red, the rest of the body ochreous, fairly pale, sometimes slightly reddish ochreous. Ammochaetae also ochreous. Head wider than in the type of the species, one-seventh wider than long, less deeply emarginate behind, much less narrowed in front. Declivity of epinotum less oblique than in the type of the species, and longer. Otherwise like the type of the species.

♀ minor, 9.5-10.5 mm. Entirely ochreous, except the apical half of the abdomen which is fuscous ochreous, and the antennae and tarsi which are ferruginous. Head slightly narrower than in the type of the species.

“♀, 15.5-16.5 mm. Like the ♂, hardly more darkly coloured. Wings not quite hyaline, with a tinge of yellow, nervures brownish yellow, stigma brown. Head rectangular, with almost straight sides and fairly sharp, but by no means elongated, posterior angles. Ammochaetae stronger than in the ♀, especially on the mandibles. Thorax wider than the head. Scale, in profile, elongate cuneiform,

the dorsal edge trenchant. As in the ♂, often with traces of transverse brownish yellow bands on the abdominal segments.

♂, 9.8-10.7 mm. Black; ends of the tarsi and flagellum (excepting the brown 1st joint), yellowish red. Moustache as in the ♀ and ♂. Scale cuneiform, low, emarginate above. Wings as in the ♀. Mandibles long, narrow, the masticatory margin very oblique. Head somewhat wider than long, with a straight and wide posterior margin. The nest was in sand, with a crater, the entrance as wide as a finger; the nest labyrinth not far below the surface."

Prince of Wales Bay and Steinkopf, (Schultze); Choaherib and Ababis, S.W.A. (R. W. E. Tucker).

(S.A.M., G.A. colls.).

C. SIMULANS, Forel.

Loc. cit., p. 28, ♀.

"♀, 3.6-3.9 mm. Mandibles 5-dentate, shaped as in *mystaceus* Em., but with a feebly convex external margin; the teeth are also relatively smaller, they are shining, almost smooth or very finely shagreened. Clypeus formed exactly as in *mystaceus*, with the same transverse shelf at the upper fourth and the same ammochaetae. Head transversely rectangular, wider than long, a little wider in front than behind, the posterior margin straight. Frontal carinae short, divergent, further apart than in *mystaceus*. Eyes very large, somewhat behind the middle of the sides, and occupying almost half of the same (clearly longer than their distance from the anterior margin of the head and three times longer than their distance from the posterior margin). The scape extends beyond the hind margin by quite one-third of its length. Near its base and in front it has an obtusely angled or very wide dilatation, in the same position as in *C. cuneiscapus*, but wider and less produced. Thorax moderately and evenly convex. Dorsum of the epinotum hardly longer than the declivity (much longer in *mystaceus*). Scale not thick, not cuneiform, trenchant above, slightly inclined forwards. Tibiae entirely cylindrical, with three or four setae on the lower margin. The metatarsi also with numerous spines as in *mystaceus*. Very shining, exceedingly delicately reticulate, transversely so on the abdomen. There are a few distinct punctures on the head. With exactly the same golden reddish-brown moustache and hairs on the clypeus and mandibles as in *mystaceus*. On the rest of the body there are only a few yellowish pilose hairs. Tibiae and scapes only with a decumbent pubescence. On the body the pubes-

cence is very scattered. The cheeks without exerted hairs. Pale dirty yellow, the teeth on the mandibles reddish brown.

Two specimens of this singular species were found between the mandibles of *C. mystaceus*, var. *exsanguis*, from the nest in Prince of Wales Bay, (Schultze). In spite of the peculiar convergence in the characters of the moustache, colour etc. I cannot believe that these are dwarf examples. Such a view is negated not only on account of the enormous difference in size, compared with even the smallest ♂♂ of *exsanguis*, but also by the shape of the head, the unusually large eyes, and the dilatation at the base of the scapes (not a trace of the latter is seen in *mystaceus*). On the other hand, a relationship with *cuneiscapus* is unmistakable, on account of the scapes.

The presence of this species in the nest of *mystaceus*, even between its mandibles, makes me strongly suspect that one is dealing with a parasitic form showing mimetic characters, which may be closely related to *cuneiscapus*. If my supposition is correct, the resemblances to *mystaceus* are due to mimetic convergence, and, on the other hand, the resemblances to *cuneiscapus* to a phylogenetic relationship."

C. CUNEISCAPUS, Forel. (Plate IX, fig. 144).

Loc. cit., p. 29, ♀.

♀ media, (2 ♀), 7.5-8.2 mm. Slightly brownish or reddish ochreous, mandibles and tarsi reddish, abdomen yellowish brown. Very finely rugulose. Moderately shining, head and thorax duller than the abdomen or nearly subopaque. Thorax without pilosity, abdomen with a few short and yellowish hairs. Anterior margin of clypeus with a thin fringe of yellowish hairs, and also one or two above near its base, but without the moustache seen in the other species of the sub-genus. Mandibles 5-dentate, strongly striato-punctate, pilose, but without the row of long hairs on the basal margin and ventral surface as in the other species.

Head subrectangular, the corners rounded, slightly wider behind than in front, a little longer than wide, the posterior margin feebly concave, the sides feebly convex. Clypeus without a sloping shelf in its upper part, the anterior margin straight and feebly crenulate. The scape has an obtusely angular lobe on its anterior margin at the extreme base (see fig., Plate IX), and extends beyond the hind margin of the head by one-third of its length. Eyes placed behind the middle of the sides. Dorsum of epinotum very oblique, twice as long as the declivity, and merging gradually into the same. Scale

cuneiform, flat behind, feebly convex in front, the dorsal edge trenchant, not acuminate in the middle. Tibiæ cylindrical, with a few setæ below.

♂ minor, 5.5-7.8 mm. Entirely dull ochreous, mandibles, flagellum and tarsi more or less reddish brown. Head longer than in the larger ♂♂, or one-fourth longer than wide, the sides less convex, the posterior margin feebly convex. The scapes extend beyond the hind margin by half their length. Otherwise like the ♂ media.

♀, (hitherto undescribed), 10 mm. Dark reddish ochreous, the sides of the thorax more or less brownish, abdomen yellowish brown, darker than in the ♂ media. Head like that of the ♂ minor. Lobes at the base of the scapes less prominent, more obtuse at the apex. Dorsum of the epinotum twice as wide as the base is long, joining the vertical declivity in a short curve; the declivity not quite twice as long as the dorsum. Deälated. Otherwise like the ♂.

Steinkopf, Little Namaland, (Schultze); Namsem, S.W.A. (R. W. E. Tucker); Willowmore, Cape Prov. (Dr. H. Brauns).

In view of the total absence of the moustache on the clypeus, it is doubtful whether this species should be placed in this sub-genus. However, it has been assigned to this sub-genus by Dr. Forel, and, in the absence of the ♀ caste, it may as well be placed there as in any other sub-genus.

(S.A.M., R.M., G.A. colls.; type of ♀ in my collection).

SUB-GENUS DINOMYRMEX, Ashmead.

Canadian Entom., vol. 37, p. 384, 1905.

C. LONGIPES, Gerst. (Plate IX, figs. 142, 142a).

Monatsb. Akad. Wiss. Berlin, p. 262, ♂, 1858.

Archiv f. Naturgesch., vol. 37, p. 343, ♀, 1870.

Forel, Voeltzkow's Reise Ostafrika, p. 91, ♂, 1907.

“♀. These stand in about the same relationship to the small-headed ♂♂, as they do in the case of *C. maculatus*, As in *maculatus* the large-headed ♂♂ (i.e. ♀♀) have the head, as far as the base of the antennæ, much more darkly coloured than in the ♂, the body is almost coal-black, the legs are at least piceous, the coxæ and trochanters reddish brown. The head is not only considerably longer than in *maculatus*, but on account of the deep posterior emargination is strongly cordate; it is quite dull, closely and finely

shagreened and punctured. The clypeus is more narrowed above and more strongly carinate, and covered with numerous piligerous pits. The prothorax is narrow and pyriform, and, like the mesothorax, is much longer than wide. The structure of both these segments and also of the epinotum and scale differs but little from that of the ♂ minor."

♂ minor, 15.5-16 mm. Head 3.5-4 mm. long by 2-2.2 mm. wide, scape 5.5 mm. long, the posterior femur 6 mm. Varying from pale brown with the abdomen umber brown and the femora pale yellowish brown, to entirely dark brown or blackish brown and the coxae ochreous. The flagellum in all cases ferruginous. Sometimes the clypeus, anterior half of the thorax and the basal two-thirds of the femora are more or less ferruginous. Dull, the anterior third of the head with a slight gloss. Head very finely and closely reticulate-rugulose. Thorax, petiole and abdomen finely rugulose. Pubescence fine, yellowish, decumbent and very scanty, on the abdomen exceedingly fine. Anterior margin of the clypeus with a fringe of porrect, yellowish bristles; checks in front with a few short exserted hairs, abdomen with a basal and a marginal row of yellowish brown, coarse and oblique hairs on each segment; on the 1st segment the basal row is wanting. Tibiae strongly compressed or prismatic, with a very oblique row of setae below. Head from one-half to four-fifths longer than wide, parallel-sided in front of the eyes, trapezoidal behind them, the sides converging rapidly towards the articular border. Apart from the articular border, there is no hind margin. The anterior margin of the head is from two and a third to three times wider than the articular border. Mandibles triangular, 7-dentate, very finely striate and subopaque. Clypeus carinate, with a wide and very short lobe, the anterior margin of which is straight and crenulate. Flagellum and scapes very long; the tip of the flagellum extends back to the base of the 3rd abdominal segment, the scape reaches the meso-epinotal suture. Frontal carinae long and fairly close together. Thorax low, feebly convex lengthwise, narrow and long. Pronotum not very convex transversely, sloping obliquely forwards and somewhat flattened lengthwise. Mesonotum not much narrowed behind, one-third longer than wide. Metanotum obsolete. Dorsum of the epinotum rounded transversely, fairly wide, at least two and a half times longer than wide and much longer than the very short declivity which it joins in a low curve. Scale of petiole subconical, the dorsal edge not trenchant, hardly higher than long. Abdomen oblongo-ovate. Legs very long and slender.

“♂, 13 mm. Head elongate behind and trapezoidally narrowed, without forming a neck. Dull, epinotum and abdomen feebly shining. Mandibles dull. Scale barely emarginate, conical when seen from the side. Dark brownish black; anterior half of the head, epinotum, scale, abdomen, coxae, femora and flagellum reddish brown. Wings brownish.”

Mombi River, S. Rhodesia, (A. E. V. Zealley); Chirinda Forest, S. Rhodesia, (C. F. M. Swynnerton); Palm Grove, Victoria Falls.

A distinctly tropical species, living in moist, hot and shady places. It is not likely to be found south of the Limpopo except in parts of Natal and the region north of that territory, from which, however, it has not yet been recorded.

(R.M., G.A. colls.).

SUB-GENUS MYRMOSERICUS, Forel.

For characters see table of sub-genera.

♂. In general features this caste resembles that of *Myrmoturba*. The fundamental sculpture is, however, usually stronger, less superficial, consisting of a very fine and close punctate reticulation on the head and thorax, more reticulate and less rugulose than in the sub-genus *Myrmophyma*. Head and thorax dull, abdomen less shining as a rule than in *Myrmophyma*. There is always a fairly abundant, or very abundant pubescence on the abdomen, sometimes dense, silky and hiding the sculpture. On the head and thorax the pubescence is less plentiful than on the abdomen, but always much more abundant than in *Myrmoturba*. The clypeus is usually carinate and lobed; frontal carinae less divergent than in *Myrmoturba*. Mandibles with 6 or 7 teeth.

♀ minor. Like the ♂ in sculpture and pubescence. The head like that of the ♀ minor of the sub-genus *Myrmoturba*, but sometimes very elongate and more or less the shape of a parallelogram. A ♀ media caste is barely appreciable in our S. African species, except in *C. angusticeps* Emery.

♀. The head is shaped more or less like that of the ♀ minor, but the posterior margin is rarely convex as in that caste. Sculpture, pilosity and pubescence as in the ♂.

♂. In general like the ♂♂ of *Myrmoturba*, but the scapes are much longer, and the scale of the petiole is always deeply emarginate above. The abdomen has a long pilosity; the pubescence is scantier than in the ♀ and ♀, never silky or so dense as to hide the chitinous integument.

The species of this sub-genus usually form very large communities in the ground, or under stones and logs of timber, etc. Unlike most of the *Myrmoturba* group, which are mainly crepuscular, these ants move about in the hottest sunshine.

Key to the species of Myrmosericus, ♀♀ and ♂♂.

- (6) 1. Entirely black. Pubescence on the abdomen not abundant, in no way hiding the sculpture and colour of the integument.
- (5) 2. ♀ more than 10 mm. long. Posterior tibiae with a dense, black and oblique pilosity; ♂ minor, head not more than one and two-thirds as long as wide.
- (4) 3. ♀, 13.2-15 mm. Cheeks without outstanding hairs; petiole reticulate; ♂ minor, head one and two-thirds as long as wide *Petersi*, Emery.
- (3) 4. ♀, 11-12 mm. Cheeks with a few long and outstanding hairs; petiole finely sculptured, merely rugulose; ♂ minor, head barely one-third longer than wide *Eugeniae*, Forel.
- (2) 5. ♀, 9.5 mm. long; posterior tibiae not pilose; ♂ minor, head twice as long as wide *angusticeps*, Emery.
- (1) 6. Pubescence on the abdomen very dense, hiding the colour and sculpture; or if not, then the head is partly red.
- (12) 7. Pubescence on the 2nd and 3rd abdominal segments divergent on each side of the lateral (transverse) 3rd, the hairs inside the latter strongly undulate, more or less transverse and directed towards the middle line; the hairs outside the lateral 3rd directed obliquely outwards.
- (11) 8. Head, thorax and legs more or less bright brick-red or brownish red.
- (10) 9. ♀, Head triangular, distinctly narrower at the middle than at the posterior 6th; dorsum of epinotum concave longitudinally over its whole length; ♂ minor, epinotum as in the ♀, colour of thorax reddish brown.
Valdeziae, Forel.
- (9) 10. ♀, Head subquadrate, as wide in the middle as at the posterior 6th; dorsum of epinotum feebly concave and on the basal half only; ♂ minor, epinotum as in the ♀, colour of thorax bright red as in the ♀
rufoglaucus, race *vestitus*, Smith.
- (8) 11. Head dark brown, the rest of the body black or blackish brown (colour of pubescence not included) *vestitus*, var. *pectita*, Santschi.
- (7) 12. All the pubescence of the 2nd and 3rd abdominal segments convergent towards the middle line, no lateral line from which they diverge.
- (16) 13. Pubescence of the abdomen obliquely convergent, not undulated and not transverse in direction.
- (15) 14. Pubescence of abdomen greyish golden
rufoglaucus, race *flavomarginatus*, Mayr.
- (14) 15. Pubescence of abdomen bronzy golden
rufoglaucus, var. *contraria*, Santschi.
- (13) 16. Pubescence distinctly undulate, directed transversely in at least the basal inner half of the segments.

- (18) 17. ♂, Head yellowish brick-red; ♀, anterior half of the head more or less red; pubescence of the abdomen in ♂ and ♀ not dense, not entirely hiding the sculpture and colour of the integument
cinctellus, var. *ustithorax*, Forel.
- (17) 18. Head black or brown.
- (22) 19. Junction of the dorsum and declivity of the epinotum arcuate.
- (21) 20. Large species, ♂, 9-10 mm. long; the scapes extend beyond the hind margin of the head by one-sixth of their length
rufoglaucus, race *zulu*, Emery.
- (20) 21. Smaller species, ♂, 7 mm. long; pubescence of the abdomen brilliant golden
rufoglaucus, race *cosmicus*, Smith.
- (19) 22. Junction of the two faces of the epinotum obtusely angular
rufoglaucus, race *cinctellus*, Gerst.

C. PETERSI, Emery. (Plate IX, figs. 136-136d).

Ann. Soc. Ent. France, vol. 63, p. 50, ♀ minor, 1895.

♂, (hitherto undescribed?), 13.2-15 mm. Black, dull, the legs slightly shining. Head and thorax very closely, finely and sharply reticulate-punctate, the epinotum irregularly so or shagreened, the abdomen transversely and fairly strongly rugulose. Pubescence greyish white, decumbent, fairly long and abundant on the sides of the thorax, the coxae and abdomen, shorter and much less abundant elsewhere. Erect pilosity brownish, sparse on the vertex and thorax, a little more abundant on the apical margins of the abdominal segments. Legs, especially the tibiae and tarsi, with a very dense, black and almost decumbent pilosity, composed of thick bristly hairs. Cheeks not pilose. Tibiae strongly compressed, not setose below. Head, including the closed mandibles, subtriangular, the posterior angles rounded, the posterior margin moderately concave, the sides convex, a little longer than wide (excluding the mandibles). Clypeus carinate, lobed, the lobe rectangular at the corners and straight in front; the median area of the clypeus longer than wide. Mandibles 7-dentate, fairly dull, finely reticulate, striate on the anterior third, with numerous shallow punctures. Scapes strongly flattened, extending beyond the hind margin by as much as their apical width. Eyes rather small and nearly flat, placed at the middle of the sides. Frontal area triangular, distinct. Frontal carinae sinuate, a little longer than their greatest distance apart. Thorax fairly convex transversely, almost straight longitudinally from the pro-mesonotal suture to the brow of the declivity. All the thoracic sutures well defined. Mesonotum as long as wide in front. Metanotum distinct, twice as wide as long. Dorsum of epinotum fairly broad, merging by a rapid curve into the

subvertical declivity, the two faces of equal length. Scale of petiole subnodiform, the anterior face convex from above to below, or vertical below and oblique above, the oblique area almost dorsal in position, semicircular and twice as wide as long; the posterior face vertical and almost flat. The petiole from below to the apex of the node is as high as long. Thorax highest at the brow of the declivity; convexity of thorax, L. = 4 H.

♀ minor, 11.5-12.5 mm. Head two-thirds longer than wide, almost parallel-sided, the sides feebly convex only behind the eyes, the posterior margin almost straight, the posterior angles narrowly rounded. Eyes more convex than in the ♂, placed a little in front of the posterior third of the sides. The scapes extend beyond the hind margin by about two-fifths of their length. Clypeus not lobed, the anterior margin convex and only slightly produced. Thorax narrower than in the ♂, the declivity less oblique and joining the dorsum in a widely rounded angle. The apical half of the dorsum strongly compressed, cristate and almost linear lengthwise. Node of petiole a little longer. There is a pale ochreous spot on each side of the head just behind the anterior angles. Otherwise like the ♂.

♀, (hitherto undescribed), 16.5 mm. Head a little less than one-third longer than wide, widest behind the eyes, the posterior margin straight and one-third wider than the anterior, the sides fairly straight, the posterior angles nearly rectangular. Sculpture of the head stronger than in the ♂, also shallowly punctured, the punctures pubescent. Clypeus very feebly carinate, the anterior margin of the lobe slightly convex. Mandibles shining, punctured as in the ♂. The scapes extend beyond the hind margin by as much as the length of the 1st joint of the flagellum. Ocelli small. Eyes convex, placed a little behind the middle. Thorax finely and very closely reticulate-punctate, dull; the metanotum smooth and shining. Scale subcuneiform, the two faces equally convex, the dorsal edge straight, fairly trenchant, feebly emarginate in the middle. Abdomen longer than wide. Dealcated. Otherwise like the ♂.

♂, (hitherto undescribed), 10.2 mm. Black, dull. Head and thorax strongly reticulate-punctate, abdomen transversely reticulate-rugulose, much more coarsely so than in the ♀ or ♂. Head, sides and front of the mesonotum, legs and abdomen with a sparse but fairly long decumbent pubescence, wanting elsewhere. Pilosity long, absent from the mesonotum and scutellum, sparse on the head, fairly plentiful on the abdomen, very long and abundant on the sides of the epinotum and on the petiole. Head one-third longer than wide,

widest just behind the eyes, the sides in front of the eyes fairly straight and moderately convergent anteriorly; behind the eyes the head is semicircular. The posterior margin as wide as the anterior and feebly convex. Eyes not very large. The scapes extend beyond the hind margin by half their length, flattened as in the ♀. Masticatory margins of the mandibles convex, with an apical tooth only. Mesonotum vertical in front, with two median and impressed shining lines on the vertical face, the latter merges by a curve into the flat upper and posterior part. Scutellum gibbous, higher than the meso- and epinotum. The dorsum and declivity of the epinotum form a continuous curve, the declivity vertical and longer than the dorsum. Scale of petiole subconical in lateral profile, hardly longer at the base than high. Seen from above, the anterior face is oblique, concave transversely, the posterior face convex transversely, feebly so vertically, the dorsal edge widely emarginate. Wings strongly tinged with ochreous yellow, nervures brown, stigma brownish black.

Hillside, Bulawayo; Natal; Vrijburg and Pretoria, (Simon).

All the nests which I have seen have been situated under large stones, with a large heap of excavated soil surrounding the entrance in a semicircle, but not forming a distinct half-crater. A very pugnacious species.

(S.A.M., R.M., G.A. colls.; types of ♀ and ♂ in my collection).

Var. JANUS, Forel.

Sitzb. K. Bayer. Akad. Wiss., p. 288, 2, ♀, 1911.

"2, 12-12.5 mm. Head almost like that of *maculatus-sanctus*, very wide behind and emarginate, narrow in front, with very convex sides. Mandibles with 7 or 8 teeth, somewhat more shining in front than in the ♀ minor and partly striate. Clypeus sharply carinate, with a rectangular lobe. Scape flattened and widened apically as in the type species. Legs, sculpture and pilosity also similar. The decumbent pubescence decidedly less plentiful, not forming a greyish bloom. Colour also black, but the two yellow spots on the cheeks entirely absent. Mandibles brownish red, the base brown."

Bothaville, O.F.S. (Dr. Brauns).

The 2 of the type of the species also lacks the yellow spots on the cheeks. The differences between the two forms appear to me to be very slight.

C. EUGENIAE, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 16, p. 78, ♀, 1879.

♂, 11-12 mm. Very similar to *Petersi* but smaller, differing from it only as follows:—

Head relatively shorter and wider, more shallowly emarginate behind. Excepting a few yellowish hairs on the apical margins of the abdominal segments and on the anterior margin of the clypeus, the pilosity is entirely black, and much more abundant, especially on the clypeus, pronotum and mesonotum. The cheeks have a few exerted pilose hairs in front, in addition to the decumbent pubescence. Mandibles ferruginous. Metanotum much shorter. The scale of the petiole shorter, the anterior face less oblique in its upper half. The extreme apical margins of the abdominal segments flavous. The tibiae densely pilose as in *Petersi*. The sculpture is finer all over, and the petiole is merely rugulose or shagreened, not reticulate as in the other species.

♀ minor, 9 mm. Pilosity, pubescence and sculpture like that of the ♂. It differs from the ♀ minor of *Petersi* chiefly in the shape of the head, which is much shorter in proportion to its length, barely one-third longer than wide, semicircular behind the eyes, the sides in front of the latter feebly convex and moderately convergent anteriorly. Mandibles shorter, ferruginous.

♀, (hitherto undescribed), 16 mm. Very similar to the ♀ of *Petersi*, but with the head relatively shorter and wider behind, the thorax narrower, the whole body covered with an exceedingly fine and pruinose pubescence which is most abundant on the abdomen. Sculpture of head and thorax finer. Abdomen reticulate-rugulose, not merely rugulose as in *Petersi*. Wings subhyaline, tinged with yellow only near the nervures, which are yellowish brown, the stigma pale brown.

♂, (hitherto undescribed), 8.5 mm. Black; mandibles and clypeus reddish brown, flagellum and tarsi dark brown, scape brownish ochreous. Abdomen, petiole and epinotum slightly shining, the rest dull, (entirely in *Petersi*). Like *Petersi*, but the sides of the head behind the eyes are more convex, the posterior margin narrower, not as wide as the anterior. Declivity of epinotum oblique, not clearly delimited from the dorsum. The anterior face of the petiole more oblique, almost dorsal in position, nearly as long as wide, (wider than long in *Petersi*). Wings hyaline, nervures pale ochreous, stigma brownish yellow. Otherwise like the ♂ of *Petersi*.

S. Rhodesia, fairly common. Nesting in the same sort of places as *Petersi*.

(S.A.M., R.M., G.A. colls. ; types of ♀ and ♂ in my collection).

C. ANGUSTICEPS, Emery. (Plate IX, fig. 147).

Bull. Soc. Ent. Ital., p. 355, ♀ minor, 1886.

♂, (hitherto undescribed), 9.5 mm. Black, the vertex and occiput, and the disc of the pronotum with a faint reddish brown tint, flagellum, tarsi and apices of the femora reddish brown, scapes and mandibles piceous, the masticatory margin of the latter ferruginous. The fundamental sculpture reticulate-punctate like that of *Petersi*, but much finer and more superficial. The anterior half of the cheeks with a few large and shallow punctures. Pilosity greyish, very scanty, almost obsolete on the head and thorax. Pubescence greyish, less apparent than in *Petersi*. Head, excluding the mandibles, nearly one-fourth longer than wide, the sides fairly convex, the posterior margin shallowly concave, the posterior angles rounded, more narrowed in front than in *Petersi*. Mandibles 7-dentate, feebly shining, microscopically reticulate-punctate, and with a few large piligerous punctures. Clypeus strongly carinate, lobed, the anterior margin of the lobe straight and crenulate. Frontal carinae closer together than in *Petersi*, two-thirds longer than their greatest distance apart. Frontal area distinct. Eyes small, placed behind the middle. The scapes not flattened, just reaching beyond the occiput. Pronotum moderately convex transversely, very feebly so longitudinally, with rounded but fairly distinct shoulders. Mesonotum as long as wide. Metanotum distinct, three times wider than long. Epinotum with both faces more oblique than in *Petersi*. Scale a little higher than the petiole is long, the anterior face convex transversely, feebly so vertically, the posterior face concave, the dorsal edge obtuse. Tibiae cylindrical, armed with a few setae below, not densely pilose as in *Petersi* and *Eugeniae*. Very much like *Petersi*, but much smaller and with differently shaped head, scale and tibiae.

♀ minor, 7.5–8.5 mm. Pubescence somewhat more yellowish than in the ♂. Apical margins of the abdominal segments narrowly testaceous. Head very long and narrow, excluding the mandibles twice as long as wide. The sides in front of the eyes straight, slightly convergent anteriorly, behind the eyes moderately convex, the posterior margin almost straight. The scapes extend beyond the

hind margin by nearly half their length. Eyes fairly convex, placed at the posterior third. Clypeus subcarinate, the anterior margin of the lobe convex. Dorsum of epinotum narrower than in the ♀, twice as long as the oblique declivity. Scale of petiole thicker than in the ♀, the posterior face feebly convex, the upper half of the anterior face oblique and sloping backwards. Otherwise like the ♀.

♂ media, 9 mm. Intermediate in the shape of the head between the ♀ and the ♂ minor. The sides less convex, the posterior margin less emarginate, the posterior angles less rounded than in the ♀; widest a little behind the eyes and more than one-third longer than wide.

Tulbagh, Paarl, Cape Prov. (Dr. Peringuey).

(S.A.M. coll.; types of ♀ and ♂ media in that collection).

C. RUFOGLAUCUS, Jerdon.

Madras Journ. Litt. and Sc., vol. 17, 1851.

The type of the species is confined to India and Burma. It is represented in the Ethiopian region by numerous races and varieties. The classification of some of these forms seems to be rather confused, their status as sub-species or varieties being continually changed about by various authors. In my opinion, they are all closely allied, excepting race *vestitus*, and should perhaps be treated as varieties only of the race *cinctellus* Gerst.

RUFOGLAUCUS, race CINCTELLUS, Gerstaecker.

Monatsb. Akad. Wiss. Berlin, p. 262, ♀, ♂, 1858.

♀, 8-9 mm. Black; scapes, anterior margin of the head and tibiae dark reddish brown, femora piccous, flagellum, mandibles and tarsi ferruginous. Apical margins of abdominal segments yellowish white. Head and thorax dull, legs moderately shining. Head very closely and finely reticulate-punctate, with a few very shallow pubescent punctures on the anterior half of the cheeks. Thorax, petiole, and abdomen microscopically rugulose and coriaceous, the sculpture on the abdomen entirely hidden by the pubescence. The latter is decumbent, yellowish white and very sparse and short on the head, finer and more abundant on the antennae, longer and fairly abundant on the thorax, on the sides of which and on the coxae it is almost silvery white. Abdomen with a very dense, fairly long and decumbent pale golden pubescence, which to the naked eye presents a more or less chequered pattern, somewhat as in *Plagiolepis custodiens*. The

hairs are directed obliquely towards the middle longitudinal line of the segments, those on the inner basal half being almost transverse in direction. On the narrow middle longitudinal line the hairs are parallel to the line, so that in some positions it appears almost glabrous. Pilosity long, yellowish white, sparse on the head and thorax, moderately abundant on the abdomen. Anterior margin of the clypeus with yellow, porrect hairs. Head subtriangular, excluding the mandibles barely longer than wide, the sides fairly strongly convex, the posterior margin feebly so, gradually narrowed anteriorly. Mandibles moderately shining, very finely striolate and punctured, with 6 or 7 teeth. Clypeus strongly carinate, its lobe short and with a straight anterior margin. Frontal area triangular, indistinct behind. Scapes not flattened, extending just beyond the hind margin of the head. Eyes feebly convex, placed just behind the middle of the sides. Thorax fairly convex lengthwise, $L. = 3 H.$

Metanotum indistinctly defined. Dorsum of epinotum oblique, narrow above but not cristate, a little longer than the subvertical declivity, their junction rounded. Scale higher than the petiole is long, the anterior face moderately convex, the posterior almost flat, the dorsal edge obtuse, somewhat flattened in the middle. Tibiae strongly compressed, not setose below.

♂ media, 7 mm. Scape reddish brown, mandibles bright brownish red. Pubescence on the head longer and more abundant, on the abdomen less abundant than in the 2♂. Head oblongo-ovate, two-fifths longer than wide, slightly narrowed in front, the sides feebly convex in front of the eyes, more convex behind them, the posterior margin also convex. The scapes extend beyond the hind margin by two-fifths of their length. Lobe of clypeus shorter and wider than in the 2♂, arcuate in front. The declivity of the epinotum more oblique. Scale of petiole a little thicker. Otherwise like the 2♂.

♂ minor, 5.5-6.5 mm. Like the ♀ media, but with the head narrower, half as long again as wide, widest across the eyes or posterior third, the sides in front of the eyes straight and more convergent anteriorly. Dorsum of pronotum distinctly flattened lengthwise. Scale proportionally narrower and thicker.

♀, 13.3 mm. Colour, sculpture, pilosity etc. as in the 2♂, but the pubescence of the abdomen is of a darker golden colour. Mesonotum and scutellum very finely reticulate-punctate, the convex anterior portion of the mesonotum, the scutellum and the metanotum slightly shining; the scutellum has a few large and shallow punctures. Head like that of the ♀ media but trapezoidal, as long as wide behind, the

sides moderately convex, the posterior margin straight, the posterior angles less rounded. Thorax almost parallel-sided, the mesonotum a trifle longer than wide. Dorsum of epinotum convex lengthwise, oblique, twice as wide at the base as across the apex, shorter than the vertical declivity. Scale higher and thinner than in the ♀, the dorsal edge fairly trenchant. Deälated. Otherwise like the ♀.

♂, 6-6.5 mm. Piceous, the basal half of the scape, the anterior half of the head, the mandibles, tibiae and tarsi more or less reddish brown. Head, mesonotum and scutellum dull, very closely and finely reticulate-punctate. Epinotum and petiole moderately shining and superficially reticulate, abdomen finely reticulate-rugulose, dull, except the apical margins of the segments which are slightly shining. Pubescence greyish, much sparser and shorter everywhere than in the ♀, and not hiding the sculpture on the abdomen. Pilosity longer, thinner and more plentiful. Posterior two-thirds of the head, including the eyes, semicircular in outline, the anterior third parallel-sided or nearly so. Clypeus subcarinate, the anterior margin arcuate. Eyes very large and convex, occupying the middle third of the sides. Ocelli fairly large. The scape extends beyond the hind margin of the head by half its length. Mandibles with a blunt apical tooth, the rest of the masticatory margin convex. The two faces of the epinotum form in profile a continuous arc. Scale as high as long below, conical in profile, the anterior face feebly concave from side to side, the posterior face convex, the dorsal edge blunt and deeply emarginate. Wings hyaline, nervures pale ochreous, stigma pale yellowish brown.

A very common species over the greater part of S. Africa.
(S.A.M., R.M., G.A. colls.).

Race *CINCTELLUS*, var. *USTITHORAX*, Forel.

Zool. Jahrb., vol. 29, p. 271, ♂, 1910.

This variety differs from the race as follows :—

♀. Head pale yellowish brick-red, the anterior half paler than the posterior, the lateral pieces of the clypeus and the vertex more or less brownish red. Thorax brown, the disc of the mesonotum usually more or less brownish red, an ill-defined spot on each side of the pronotum pale brick-red. Mandibles, flagellum, apices of the femora, tibiae and tarsi ferruginous (burnt sienna).

The junction of the two faces of the epinotum is less angular than in the type of the race, and the scale is a little thinner above.

Pubescence on the abdomen more greyish, much shorter and much less abundant, not hiding the sculpture or colour of the integument and not presenting a chequered pattern. The dirty-white apical bands on the abdominal segments a little wider.

♀ *media* and *minor*. Very dark brown, almost piceous, usually only the anterior half of the head of a pale colour, or reddish ochreous. Dorsum of thorax less convex than in the ♀ of *cinctellus*. Abdomen as in the ♂. The pubescence on the head and thorax as abundant as in the type of the race.

♀, 11.5–12 mm. (hitherto undescribed). Anterior half, or sometimes the whole of the head excepting the vertex, brick-red or yellowish red. The thorax reddish brown, the pronotum and anterior margin of the mesonotum redder. Somewhat smaller than the type of the race, the head narrower and less convex-sided, one-fourth longer than wide behind. The pubescence of the abdomen almost as abundant as in the type of the race but of a pale golden colour, and the whitish apical margins wider. Wings tinged with yellow, the nervures reddish ochreous, stigma brownish yellow.

Springvale, Bulawayo and Victoria Falls, S. Rhodesia. Not common.

(S.A.M., R.M., G.A. colls. ; type of ♀ in my collection).

RUFOGLAUCUS, race ZULU, Emery.

Ann. Soc. Ent. France, vol. 63, p. 50, ♀, 1895.

♂, 9–10 mm. ♀ *media* or *minor*, 7 mm. Like *cinctellus* but larger. In the ♂ the scapes are longer, extending beyond the hind margin by a little more than one-sixth of their length. In the ♀ *minor* the scapes are also longer, extending back beyond the pro-mesonotal suture, (just touching it in *cinctellus*). In both the ♂ and ♀, the dorsal profile of the thorax is less convex than in *cinctellus*, the convexity of the epinotum in particular being lower, the junction of the two faces arcuate, the declivity much shorter than the dorsum (nearly as long in *cinctellus*).

Durban, (Marley, Cooper); Mountains of Natal, (Haviland).
(S.A.M., R.M., G.A. colls.).

RUFOGLAUCUS, race FLAVOMARGINATUS, Mayr.

Verh. Zool. Bot. Ges. Wien, vol. 28, p. 664, ♀, 1862.

This species is unknown to me. It has been recorded from Natal, by Santschi, as a variety of *cinctellus*. In a subsequent paper that

author raises it again to the rank of a race. I am unable to obtain access to the original description of Mayr, but from Emery's table of this group in the *Ann. Soc. Ent. France*, vol. 63, p. 48, the following characters can be extracted:—

The two faces of the epinotum form a distinct though considerably rounded angle, as in *cinctellus*. It differs from the latter in having the pubescence of the 2nd abdominal segment convergent towards the middle line, but not undulate, the hairs on the basal half of the segment not transverse in direction, merely oblique like the rest of the pubescence.

Certain specimens from Natal, named for me by Dr. Forel as of this race, do not agree with the above diagnosis, and should be referred to the race *zulu*.

Race *FLAVOMARGINATUS*, var. *CONTRARIA*, Santschi.

Ann. Soc. Ent. France, vol. 84, p. 509, 24, ♀, 1916.

“♀, 6.5–10.5 mm. Differs from *flavomarginatus* by having the pubescence on the abdomen denser and of a golden colour, whereas it is greyish in the race. The pubescence of the abdomen is also more undulated, almost as much as in *cinctellus*. The front of the head is much darker. Mandibles flagellum, tibiae and tarsi of a dark brownish red. Tibiae even more compressed than in *flavomarginatus* (not so very much in *cinctellus* and its varieties). Otherwise like *flavomarginatus*.”

The pubescence on the abdomen would be more correctly described as being of a bronzy-golden colour. The anterior margins of the head and the mesonotum have a more or less reddish tinge, and the cheeks are castaneous brown. The erect pilosity on the head and thorax of a darker yellow than in *cinctellus*. The sides of the head less convex than in that race.

Victoria Falls, S. Rhodesia.

(R.M., G.A. colls.).

RUFOGLAUCUS, race *COSMICUS*, Smith.

Cat. Hymen. B.M. VI, p. 34, 24, ♀, 1858.

Smith's description is valueless as it applies equally well to several forms of this species. Emery (*Ann. Soc. Ent. France*, vol. 63, p. 49) records this race from Pretoria, Hamman's Kraal, Hebron and

De Aar. According to his table it has the following characters:—The angle between the two faces of the epinotum effaced; pubescence as in the type of the species and *cinctellus*. Black; 4.5–7 mm. Pubescence on the abdomen brilliant golden.

RUFOGLAUCUS, race VESTITUS, Smith.

Cat. Hymen, B.M. VI, p. 32, ♀, 1858.

♂, 7.7–10 mm. Head, thorax, legs, antennae and mandibles varying from yellowish brick-red to dark brick-red, the vertex usually with a transverse and very indistinct brownish-red patch between the eyes. Abdomen dark brown, the colour hidden to a great extent by the pubescence. Pilosity much shorter and less abundant than in *cinctellus*. Legs dull, densely and finely pubescent. Pubescence on the abdomen of a pale greyish-golden colour and arranged differently from that of *cinctellus*, having the appearance of 6 longitudinal alternatingly dark and light bands. This is due to the pubescence of the 2nd and 3rd segments, and partly also of the other segments, being arranged so that the hairs converge from the middle of the right and left halves towards the middle longitudinal line, and in being strongly undulate or transverse in direction; whereas the hairs on the outside of the middle of the right and left halves of the segments are directed obliquely outwards and posteriorly. The head is nearly one-sixth longer than wide, much less narrowed in front or less triangular than in *cinctellus*, almost subquadrate, its greatest width being only two-thirds wider than the anterior margin, whereas the greatest width in *cinctellus* is twice as wide as the anterior margin; the sides are less convex than in *cinctellus*, and the posterior margin much more shallowly concave. It is a more slender insect than *cinctellus*, the thorax and abdomen clearly narrower. The convexity of the thorax is lower, especially over the posterior half. The dorsum of the epinotum, seen from the side, is slightly but distinctly concave over the basal half and is longer than the oblique declivity, which it joins in a low and continuous curve. In the concave base of the epinotum it resembles *C. valdeziae* Forel, and differs thereby from all the other forms of *rufoglaucus* in S. Africa. Tibiae compressed, with 3 or 4 short setae on the ventral margin.

♀ minor, 7 mm. Colour, pubescence and sculpture as in the ♂. Head, including the closed mandibles, ovate, the sides convex behind the eyes, rectilinear and convergent in front of them, the posterior margin feebly convex. Excluding the mandibles, the head is about

two-fifths longer than wide, the eyes feebly convex and placed at the posterior third. The scapes extend beyond the hind margin of the head by half their length. Otherwise like the ♂.

♀, 12 mm. Colour, sculpture and pubescence as in the ♂. Mesonotum in front and the scutellum fairly smooth and shining. Head only very little wider behind than in front, the posterior margin straight, the sides almost straight or only feebly convex, one-fifth longer than wide. Dorsum of epinotum longer than the declivity, the latter subvertical. Wings brownish ochreous. Otherwise like the ♂.

Partial to hot and sandy localities. Ababis, S.W.A. ♂, ♀, ♀. (R. W. E. Tucker); Natal, (Marley); Mafeking.

The examples from Ababis have a much darker red colour on the head and thorax than the others, and in the ♂ and ♀ have an elongate longitudinal streak of reddish ochreous on each side of the 2nd abdominal segment. However, the increasing intensity and extent of the red coloration is what one would expect in cremitic forms, and does not appear to me in this instance to merit separation as a variety.

(S.A.M., R.M., G.A. colls.).

RACE *VESTITUS*, var. *PECTITA*, Santschi.

Rev. Zool. Afric., vol. 1, p. 212, ♂, ♀, 1911.

♂, 8.5-9.5 mm. Head very dark reddish brown, tibiae, tarsi, antennae, mandibles and anterior margin of the clypeus more or less ferruginous, the apical third of the tibiae almost brown, the rest of the body blackish brown. Pubescence of the abdomen like that of the race. Dorsum of epinotum feebly concave near the base; abdomen ovate-lanceolate and more pointed at the apex than in the race. Otherwise like the type of the race.

♂ minor, 6.5 mm. Colour etc. as in the ♂, but the scapes reddish brown with the basal fourth reddish ochreous, the mandibles and anterior margin of the head also reddish ochreous, the posterior tibiae brown and ferruginous only near their bases. The pronotum is slightly flattened above, less convex than in the ♂ of the race.

♀, 10-11 mm. Black; mandibles ferruginous, flagellum and tarsi very dark brown. The junction of the two faces of the epinotum less arcuate, the scale of the petiole thinner, the dorsal edge less rounded, the abdomen narrower in proportion to its length and more pointed at the apex. Otherwise like the ♀ of the race.

Bulawayo, Bembesi, S. Rhodesia.

Rarely found nesting in sandy soil. The nest-entrance is surrounded by a circular, high and sharp-edged crater. The walls of the crater, both inside and out, are as steep as the angle of rest for the earthen particles will allow them to be. This form of crater is distinctive of this insect.

(S.A.M., R.M., G.A. colls.).

C. VALDEZIAE, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 16, p. 90, ♂, ♀, 1879.

This form is very closely related to race *vestitus*, and might even be regarded as an extreme form of the same. But, apart from one or two very constant structural differences, it also differs very greatly in habits, being not only exceedingly like *Plagiolepis custodiens* to the naked eye, but also closely mimicking that species in its mode of life and rapid movements. For these reasons it appears best to treat it as a distinct species.

♂, 7-8.7 mm. Colour not unlike that of *vestitus*, but the abdomen is blackish brown, the rest of the body more brownish red or sometimes more ochreous red than *vestitus*. The anterior third always paler or more ochreous red than the rest of the head. Pubescence of head and thorax silvery grey. Pubescence of the abdomen greyish white with a slight tinge of yellow, barely golden, longer but less dense than in *vestitus*, not hiding the integument. Pilosity distinctly longer than in that species and also more yellowish. Head, including the closed mandibles, triangular, the sides less convex and converging more rapidly in front than in *vestitus*. In the latter the head is as wide in the middle as it is at its posterior sixth, whereas in *valdeziae*, it is clearly narrower there than at the posterior sixth. The mandibles are more shining and slightly more coarsely punctured. The frontal carinae more divergent behind. The eyes larger, the whole head a little less dull than in *vestitus*. The chief difference between the two forms lies in the shape of the epinotum. In *valdeziae* the whole of the dorsum of the epinotum is concave lengthwise, more deeply than in *vestitus*, the declivity is less oblique and joins the dorsum in an obtuse angle. The mesonotum is more convex lengthwise. The scale of the petiole is subacuminate in the middle of the dorsal edge, not straight as in *vestitus*. Posterior tibiae much less compressed than in *vestitus*, almost cylindrical.

♀ minor, 5.3-6.5 mm. In the larger examples the colour is like that of the ♂, in the smaller the colour is much darker, the head,

thorax, legs and petiole being dark reddish brown, the pronotum more reddish than the rest of the thorax, the anterior three-fifths of the head ferruginous or sometimes ochreous red. It differs from the ♀ minor of *vestitus* in having the head much shorter or only a quarter longer than wide, widest just behind the eyes, which are much larger and more convex than in *vestitus*, placed at the posterior third. The head is also less narrowed in front, the anterior margin being at least three-fourths as wide as the greatest width (two-thirds or less in *vestitus*). Epinotum like that of the ♂. Otherwise like the ♂.

“♀. Two ♀, ex. coll. Saussure, from Mozambique, probably belong to this species, but they have lost the abdomen. Probable length 11 mm. Colour, pubescence, sculpture and pilosity as in the ♀. Head elongate, almost rectangular, slightly widened behind. Clypeus as in the ♀. Epinotum rounded. Scale rounded, thinner than in the ♀, slightly emarginate above in one of the specimens. Wings very slightly yellowish, the nervures distinct.”

Valdezia, Transvaal, (Junod); Hope Fountain and Essexvale, S. Rhodesia.

The nest is placed in bare patches of ground like that of *P. custodiens*, and, as is the case with that species, the excavated material is sprinkled in a thin layer over a large radius. This ant has the same jerky movements as *custodiens*, and, in addition to the similarity in the arrangement of the abdominal pubescence, the ♀ minor, like that of *custodiens*, is much more darkly coloured than its ♂. Altogether it is deceptively like *custodiens* in life, and without doubt is a mimic of that powerful species.

(S.A.M., R.M., G.A. colls.).

SUB-GENUS MYRMOSAGA, Forel.

For characters see table of sub-genera.

In this sub-genus we have only two species.

C. SCHOUTEDENI, Forel.

Rev. Zool. Afric., vol. 1, p. 281, ♀ minor, 1911.

Ann. Soc. Ent. Belg., vol. 57, p. 146, ♂, 1913.

♂, 6.5 mm. Black; antennae, tibiae and tarsi brown or reddish brown, the mandibles castaneous. Head subopaque, clypeus, mandibles, legs and thorax moderately shining, petiole and abdomen

very shining. Head and pronotum closely and finely reticulate-punctate, the rest of the thorax, the petiole and abdomen transversely rugulose. Cheeks and pronotum sparsely and very shallowly punctured, the punctures pubescent. Pubescence decumbent, greyish, very sparse and evenly distributed, somewhat longer and more abundant on the antennae and tibiae. Pilosity dirty white, fairly long, sparse everywhere, particularly on the thorax. Head strongly convex above, a little longer than wide, not much wider behind than in front, the sides feebly convex, the posterior margin shallowly concave, the posterior angles narrowly rounded. Mandibles strongly punctured, 7-dentate. Clypeus subcarinate, the anterior margin straight, hardly lobed. The frontal carinae as wide apart as long. Eyes nearly flat, their greater part lying behind the middle. Scapes short, not reaching the posterior margin of the head. Pronotum twice as wide as long, its dorsum very feebly convex, with much rounded but fairly distinct shoulders. Mesonotum somewhat rapidly narrowed posteriorly, nearly as long as wide in front. Metanotum very small. Seen from the side, the profile of the thorax is convex and rises from the front to the base of the mesonotum, thence descending more steeply to the brow of the declivity. Dorsum of epinotum almost straight, a trifle longer than the subvertical declivity which it joins in a distinct angle, slightly rounded at the extreme apex. The declivity is slightly concave vertically. Scale of petiole thick, higher than long, its anterior face convex, with a distinct dorsal face which is two and one-third times wider than long, the posterior face flat. Tibiae cylindrical, not setose below.

♂ minor, 3.8-4 mm. Black; basal half of the scapes, the flagellum, mandibles and tarsi reddish or brownish ochreous. Sculpture like that of the ♀ but finer, the head shining, the thorax as shining as the abdomen. Pilosity on the abdomen longer than in the ♀. Head not quite one-fourth longer than wide, slightly narrowed in front, the posterior margin and the sides behind the eyes semicircular, the sides in front of the eyes rectilinear and convergent anteriorly. Eyes moderately convex, occupying the third 4th of the sides. The scapes extend beyond the hind margin by one-third of their length. Clypeus sharply carinate, not lobed, the anterior margin nearly straight. The disc of the pronotum is almost flat, with the shoulders submarginate. Meso-epinotal suture very feeble, obsolete in the middle. The dorsum of the epinotum feebly concave longitudinally, twice as long as the subhorizontal declivity. Scale of petiole nodiform, the anterior and posterior faces vertical, the dorsal face large

and convex, very little wider than long, seen from above almost circular.

Redbank, S. Rhodesia; Willowmore, Cape Prov. (Brauns).

The specimens from Willowmore might perhaps be considered as a slight variety. The ♀ has the dorsum of the epinotum concave as in the ♂, the declivity is less oblique and the scale is thinner. In the ♂ minor the scale is less nodiform and thinner, the dorsal face merging into the posterior face in a curve, not truncate as in the examples from Redbank. The colour of the scapes is entirely black.

(R.M., G.A. colls.).

C. BEDOTI, Emery, var. KLUGII, Emery.

Rev. Zool. Suisse, vol. 1, p. 196, 1893.

(variety), Ann. Soc. Ent. France, vol. 63, p. 51, ♀, minor, 1895.

“Extremely close to the type of the species, from which it hardly merits separation as a geographical variety. The puncturation is the same, and the head is feebly shining in front. The clypeal carina is more distinct, . . . pilosity as in the other forms of *Bedoti*.”

Capetown, (Simon).

The type of the species is Malayan, (Borneo, Sula), and is described as follows:—

“♀ minor, 3.5–4.7 mm. Black; mandibles, trochanters, tibiae and tarsi in greater part, and sometimes the flagellum, ferruginous, the base of the scapes testaceous; shining, very delicately reticulate-punctate, with sparse pubescent and pilose punctures, the cheeks in front more deeply punctured and subopaque, abdomen transversely striolate; sparingly pubescent and with a long and scanty pilosity, the scapes and tibiae hardly pilose. Head ovate, the clypeal carina almost obsolete, mandibles 5-dentate, shining, punctate; frontal carinae divergent and sigmoid. Pronotum and mesonotum moderately convex, the meso-epinotal suture distinct, the epinotum compressed, its base slightly elevated and thence narrowly flattened above, seen from the side subrectangular, with a saddle-shaped impression, subgibbose behind; the scale fairly thick, truncate behind, its upper margin rounded. . . . The epinotum is compressed and presents a characteristic profile. After rising a little from the base of the mesonotum it descends in a gentle slope which represents the slightly depressed dorsum, and passes thence by an abrupt curve into the concave declivity. In the large specimens the profile of the dorsum of the epinotum is excavated in a saddle-shaped manner, which makes

the convexity behind it appear gibbous. The fairly thick scale has four whitish hairs; there are 5 or 6 on the epinotum, and some on the thorax and head. . . .”

SUB-GENUS MYRMAMBLYS, Forel.

For characters see table of sub-genera.

Key to the species, ♂ and ♀.

- (2) 1. Body entirely dull; 1st segment of abdomen closely reticulate-punctate
Berthoudi, Forel.
- (1) 2. At least the abdomen shining; no part of the abdomen reticulate-punctate.
- (6) 3. ♂, Head steeply and rather abruptly truncate in front; ♀ minor, head clearly narrower in front than behind; colour either yellowish brown or black.
- (5) 4. ♂, Head strongly reticulate-punctate, the truncate face very coarsely rugoso-reticulate; meso-epinotal suture not deep; ♀ minor, colour yellowish brown
ostiarius, Forel.
- (4) 5. ♂, Head evenly reticulate-punctate all over; meso-epinotal suture wide and very deep; ♀ minor, colour black
aequilas, Santschi.
- (3) 6. ♂, Head not clearly truncate, seen in profile it has a steep anterior face which forms a continuous curve with the frons and vertex; ♀ minor, head oval, hardly narrower in front than behind
Brookei, Forel.

C. BERTHOUDI, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 16, p. 108, ♂, 1879.

“♂ (= ♂), 7.5 mm. Head trapezoidal, the posterior margin straight, the sides convex. Mandibles short, thick, moderately pilose, 7-dentate, with numerous and deep, large punctures; very finely reticulate between the punctures. Clypeus narrow, feebly convex, almost rectangular and parallel-sided, not carinate, barely lobed. Its anterior margin is straight in the middle, and fairly deeply emarginate on each side. Clypeal pits deep. Frontal area very small but distinct. Frontal carinae long, longer than the clypeus, strongly curved. Thorax fairly short, evenly arched from front to back, widened in front, compressed behind. The pronotum has in front on each side a slight tubercle or obtuse angle, (like that of *C. fulvopilosus*, but much less distinct). Pro-mesonotal suture distinct, meso-epinotal suture entirely obsolete. The dorsal surface of the mesonotum is fairly wide and feebly convex. The epinotum is tectiform and has no basal face; its sides rise in a slope up to the summit which forms a distinct but obtuse longitudinal ridge. The declivity is triangular and

oblique. Scale rather narrow, thin, slightly convex in front, flat behind. Abdomen oval. Legs and antennae of medium length. Mandibles shining. Body entirely dull. Head and dorsum of the thorax very densely and deeply reticulate-punctate. Sides of the thorax very densely and deeply striate-reticulate or striate-punctate longitudinally. Scale transversely striate. First segment of the abdomen and the apical halves of the following segments very finely, closely and deeply reticulate-punctate. The base of the 2nd-5th segments very finely, closely and deeply striate transversely or obliquely. Legs punctate or reticulate-punctate. Scapes very finely reticulate. The scapes and legs have also a few deep and large punctures which are not present on the body. A few long, whitish, very thick and blunt hairs, (as in *C. fulvopilosus*), occur here and there over the whole body. The latter, including the legs and antennae, with a very fine and short, sparse and whitish pubescence. Tibiae and scapes without erect hairs. Black. Mandibles and flagellum castaneous brown. Basal half of the scapes yellowish rusty-red. Apical margins of the abdominal segments narrowly testaceous.

Valdezia, Transvaal, 1 specimen, (Berthoud)."

C. OSTIARIUS, Forel. (Plate IX, fig. 141).

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 258, 24, ♀, 1914.

♀, 8.5-9 mm. Head black or very dark brown, the anterior corners and anterior third of the clypeus sometimes brownish ochreous, thorax and abdomen brown, the latter darker than the thorax, legs and antennae brownish ochreous, mandibles brown, apical margins of the abdominal segments testaceous. Occiput slightly shining, the rest of the head dull. Anterior half of the head very coarsely rugoso-reticulate, the reticulations prominent, the spaces in between reticulate-punctate, the posterior half of the head strongly and deeply reticulate-punctate, the sculpture becoming feebler towards the occiput. Mandibles stout and very convex, finely reticulate, also closely, coarsely and deeply punctured, armed with 7 or 8 teeth. The mandibles are inserted at some distance from the sides. Thorax, legs and abdomen moderately shining, very finely rugulose. A very sparse, erect and yellowish pilosity over the whole body; a very fine pubescence on the legs and antennae, almost absent elsewhere. Head rectangular, a trifle longer than wide, the middle three-fifths of the sides straight, the rest of the sides slightly convex, hardly wider behind than in front, the posterior margin feebly convex. The

anterior portion of the head, from the anterior extremity of the frontal carinae forwards, subvertically truncate. Median area of the clypeus twice as long as wide, its anterior margin convex, surrounded by a deep groove; the lateral pieces of the clypeus triangular and very small. Frontal carinae widely divergent behind, the distance between them behind being one-third greater than their length, their posterior ends are nearer to the sides of the head than they are to each other. The scapes extend beyond the hind margin by about the length of the 1st and 2nd joints of the flagellum. Eyes large, flat, placed at the posterior third of the sides. Dorsum of thorax feebly convex longitudinally, a little more convex transversely. Pronotum one-third wider than long. Mesonotum as long as wide or a little longer, much narrower behind than in front. A trace of the metanotum present. Sides of the epinotum vertical, the dorsum as wide at the apex as at the base, twice as long as wide,* joining the vertical and slightly longer declivity by a very short curve. Scale thin, feebly convex in front, flat behind, the dorsal edge trenchant and feebly emarginate in the middle. Thorax highest at the apex of the dorsum of the epinotum. Tibiae cylindrical, not setose below.

♀ minor, 6-6.5 mm. Brown, the pronotum and anterior half of the head usually more yellowish brown. Very finely and superficially reticulate-rugulose on the head and thorax, the abdomen transversely rugulose. The whole body fairly shining. Pilosity exceedingly sparse, the pubescence like that of the ♂. Head of the normal form, not subtruncate in front. The form of the body more or less like that of the ♀ minor of the *Myrmoturba* group. Head oval, half as long again as wide, a little wider behind the eyes than in front of them, the eyes large, convex and placed behind the middle. Mandibles sparsely punctured, narrower and longer than in the ♂, the external margin only slightly convex. Frontal carinae much less divergent than in the ♂. Clypeus convex transversely, hardly carinate, of the usual shape of this caste. The scapes extend beyond the hind margin by half their length. Thorax strongly compressed posteriorly, its posterior half very convex lengthwise, highest at the base of the epinotum, L. = $2\frac{3}{4}$ H. The dorsum of the epinotum three-fifths longer than the subvertical declivity, their junction forming a narrowly rounded angle. Scale oval, the upper margin trenchant and entire. Otherwise like the ♂.

♀, 10.5 mm. (hitherto undescribed). Colour, sculpture, pilosity and

* In Forel's description the statement, "twice as wide as long," is evidently a slip of the pen.

pubescence as in the ♀. The anterior half of the mesonotum fairly abundantly but shallowly punctured. Head subvertically truncate as in the ♀, but a little longer than in the latter, the sides moderately but distinctly convex, more narrowed in front. Mandibles with 8 teeth, the posterior four small and obtuse. Mesonotum and scutellum moderately shining, dorsum of epinotum dull. The latter is trapezoidal, fairly convex transversely, less so longitudinally, two-thirds wider at the base than at the apex, twice as wide as long, the declivity vertical, rounded above, longer than the dorsum. Scale as in the ♀, higher than the petiole is long below. Wings hyaline, nervures and stigma pale yellowish brown.

♂, (hitherto undescribed), 6.2 mm. Black; legs and antennae dark brown. Head, thorax and petiole very finely reticulate-punctate, here and there only reticulate, moderately shining. Abdomen finely rugulose and shining. Pubescence and pilosity exceedingly scanty, except on the flagellum which is densely pubescent and punctulate, its 1st joint pyriform. Head one-sixth wider across the eyes than long, the sides behind the eyes together with the posterior margin forming a low convexity, the sides in front of the eyes strongly convergent anteriorly. Eyes large, very convex; the ocelli also large. Clypeus convex transversely, the anterior margin arcuate. Mandibles dull, the apex subacute, edentate. The scape extends beyond the hind margin by three-sevenths of its length. Mesonotum very convex or semi-circular from side to side in front. Scutellum gibbous. Metanotum large, the dorsum and declivity of the epinotum, seen in profile, form a quadrant. Petiole nodiform, subquadrate, with a small tooth on each side near the base. Wings fuscous, nervures and stigma brown.

Durban. Nesting in hollow stems, the several entrances to the nest guarded by the ♀♀ which close the apertures with the truncated faces of their heads. The only nest which I found was not a large one, containing merely two dozen or so ♀♀ and ♀♀.

(S.A.M., R.M., G.A. colls.; types of ♀ and ♂ in my collection).

C. *AEQUITAS*, Santschi.

Ann. Soc. Ent. France, vol. 88, p. 387, ♀, ♀, ♂, 1919.

♀, 5.8-6.4 mm. Black, antennae, (except the last two joints which are piceous), brown, tarsi dark brown, the anterior half or two-thirds of the head reddish or brownish ochreous, the clypeus and frons nearly always darker and ferruginous brown. Mandibles ferruginous. Head dull, closely and evenly reticulate-punctate all over, the sculpture

becoming a little weaker towards the occiput; on the frons and cheeks a sparse and shallow puncturation superimposed. Thorax fairly shining, finely reticulate-punctate on the pronotum, reticulate-rugulose on the meso- and epinotum, also sparsely and shallowly punctured; the sides of the meso- and epinotum sharply and finely reticulate-punctate and dull. Scale and abdomen transversely rugulose and shining. A very fine, whitish and decumbent pubescence on the body and legs, almost wanting on the head. A sparse, erect and fairly thin pilosity on the vertex, thorax and abdomen, the brow of the declivity and the upper edge of the scale with several white and bristly hairs, thicker and longer than the rest of the pilosity. Head very similar to that of *ostiarius*, but with the truncation in front less abrupt. The head is one-seventh longer than wide, rectangular, the sides and posterior margin straight. The median area of the clypeus is a little longer than wide, its sides straight and parallel, its anterior margin arcuate and slightly indented in the middle, the lateral pieces triangular, the clypeal pits between them and the median area deep. Frontal area triangular, indistinct. Frontal carinae widely divergent behind, but less so than in *ostiarius*, as near to each other as they are to the sides of the head. Eyes fairly flat, placed at the posterior third. The scapes do not reach the hind margin. Mandibles formed as in *ostiarius*, microscopically reticulate, sparsely and fairly coarsely punctured, with 6 or 7 teeth. Pronotum twice as wide as long, feebly convex transversely, the sides subvertical, the lateral margins, seen from above, straight over the posterior half. Mesonotum one and a half times wider than long, transversely subovate, the anterior margin slightly raised behind pro-mesonotal suture. Meso-epinotal suture very wide and deep, forming a V-shaped excision on the dorsal profile. Dorsum of epinotum, seen from above, oval, slightly longer than wide, convex lengthwise and transversely, sloping very slightly downwards to the vertical and equally long declivity, the brow of the latter narrowly rounded. Scale inclined forwards, seen from behind ovate, higher than the petiole is long, flat behind, feebly convex in front, the dorsal edge trenchant. Tibiae cylindrical, not setose below.

♂ minor, 3.1-3.8 mm. Black, basal two-thirds of the scapes reddish ochreous, the apical third, the flagellum, mandibles, tibiae and tarsi more or less reddish brown. Head and thorax subopaque, finely reticulate-punctate, the mesonotum and epinotum more rugulose and moderately shining. Pilosity and pubescence as in the 24. Head one-fourth longer than wide, the sides in front of the eyes

straight and moderately convergent, the outline behind the eyes convex. Eyes fairly convex, large, placed behind the middle. Anterior margin of the clypeus angular in the middle, the clypeus convex transversely but hardly carinate. Head of the usual form, not truncate. Mandibles narrow and shining, sparsely and sharply punctured, 6-dentate. The scapes extend beyond the hind margin by about one-third of their length. Pronotum more convex at the sides, mesonotum narrower than in the ♀, as long as wide. Mesoepinotal suture much shallower, but still fairly strong. Dorsum of epinotum convex in all directions, a little longer than the declivity; the latter oblique in its upper two-thirds and horizontal in the lower third. Scale of petiole nodiform, not higher than the petiole is long, with a convex upper face which is about twice as wide as long, anterior and posterior faces equally and feebly convex.

♀, 8 mm. Colour, sculpture, pubescence and shape of the head like that of the ♀. The pilose hairs on the epinotum and scale greyish, less coarse than in the ♀. Mesonotum and scutellum with a slight gloss, the former reticulate-punctate and with also a few large, shallow and piligerous punctures, the scutellum rugulose only. The mesonotum is parallel-sided, narrow, a little longer than wide. Metaepinotal suture wide and fairly deep. Dorsum of epinotum trapezoidal, twice as wide at the base as long, its junction with the declivity rounded. Declivity smooth, shining and vertical. Wings hyaline, nervures pale ochreous, stigma brownish yellow. Otherwise like the ♀.

♂, 3.8-4 mm. Black. The anterior third of the head nitidulous, the rest of the head and the mesonotum dull, the latter and the whole of the head finely reticulate-punctate, the scutellum, epinotum and petiole very superficially reticulate and shining. Abdomen transversely rugulose and shining. Pilosity greyish white, long, thin, fairly abundant on the clypeus, epinotum, petiole and abdomen. Shape of the head like that of *ostiarius* ♂, but the clypeus is more convex, subcarinate; 1st joint of the flagellum pyriform. Scutellum not gibbous, not higher than the mesonotum as in *ostiarius*. Petiole nodose, wider than long, the anterior face oblique and flat, the posterior face convex from above to below and forming thereby an indistinct dorsal face. Wings as in the ♀.

Unlike the majority of the sub-genus, this species does not nest in hollow twigs but in the ground. The entrance to the nest is a very small hole, not surrounded by excavated material. The hole is only large enough to admit one worker at a time, but I have been unable to ascertain whether the hole is closed by the ♀ in the usual way,

although on account of the colour of the truncated area of the head matching more or less the colour of the soil, it is very probable that it does do so.

Hillside, Bulawayo. 2♂♂, ♀♀ and several winged ♀♀ and ♂♂ in one nest.

(S.A.M., R.M., G.A. colls.).

C. BROOKEI, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 259, 2♂♂, ♀, 1914.

2♂♂, 6.8-7 mm. Head piceous, thorax and abdomen more or less dark brown or brownish black. Legs, flagellum and base of the scapes brownish ochreous. Mandibles dark ferruginous. Head delicately reticulate-rugulose, the anterior third more strongly sculptured, rather reticulate-punctate and fairly abundantly pilose, the hairs short, erect, blunt and yellowish. Thorax finely rugulose and feebly shining. Abdomen and scale transversely rugulose and shining. The pilosity and pubescence very short and sparse on the thorax and abdomen. Head subrectangular, one-fifth longer than wide, distinctly narrowed in front, the sides moderately convex, the posterior margin straight, the front of the head steep but not truncate. Median area of clypeus trapezoidal, about as long as wide, the anterior margin straight and not produced, feebly impressed transversely just behind the anterior margin. Mandibles dull, closely and finely striate, with a few large and deep punctures, fairly convex externally, 6-dentate. Frontal area lozenge-shaped, wider than long. Frontal carinae not wider apart than they are long. Scapes arcuate over the basal half, extending a little beyond the hind margin. Eyes feebly convex, placed nearly behind the middle of the sides. Thorax feebly convex lengthwise, metanotum short and indistinct, pro-mesonotal and meso-epinotal sutures moderately distinct. Thorax highest at the base of the epinotum. The dorsum of the latter a little shorter than the fairly steep declivity, the junction of the two faces obtusely angular. Scale thin, feebly convex transversely in front, flat behind. Tibiae cylindrical, not setose below.

♀ media, 6.8 mm. Reddish brown (burnt umber), the anterior third of the head paler, the abdomen brown, legs and antennae reddish ochreous. Seen from the side, the head is equally convex in front and behind. Sides of the head less convex than in the ♀ minor, the posterior margin straight or feebly concave. Otherwise like the ♀ minor.

♂ minor, 4.9-6 mm. Brown, the anterior half of the head and the pronotum paler. Legs and antennae ochreous, mandibles reddish brown. Very finely reticulate-rugulose, the abdomen transversely rugulose. Head and thorax feebly shining, the abdomen very shining. Pilosity and pubescence as in the ♂, but the pilosity on the head is longer and not obtuse, confined to the clypeus and vertex, a little less abundant than in the ♂. Head oval, two-fifths longer than wide, very little wider behind the eyes than in front of them. Eyes large and convex. Clypeus convex, carinate, the anterior margin moderately convex. Frontal carinae as wide apart behind as they are long. The scapes extend beyond the hind margin by two-fifths of their length. Sides of the epinotum and of the posterior half of the mesonotum vertical. Dorsum of epinotum two and a half times longer than wide, joining the shorter declivity in a wide arc. Scale of the petiole as in the ♂ but a little thinner.

♀, (hitherto undescribed), 8.4 mm. Dark brown, the anterior third of the head, the pronotum and scutellum more or less reddish ochreous-brown. Head very steep in front and sculptured like that of the ♂, with the same abundant and obtuse pilosity on the front part. Clypeus carinate. The head is longer and narrower than in the ♂, the sides more convex and more convergent anteriorly, the posterior margin convex. Thorax like that of *aequitas* Santschi. Scale of the petiole wider than in the ♂, the dorsal edge straight. Deälated.

Durban, (Marley, Cooper).

(S.A.M., R.M., G.A. colls. ; type of the ♀ in my collection).

SUB-GENUS COLOBOPSIS, Mayr.

For characters see table of sub-genera.

C. BIFOSSUS, Santschi.

Ann. Soc. Ent. France, vol. 85, p. 293, ♂, 1916.

“♂, 7 mm. Black, the anterior two-thirds of the head ochreous, brownish ochreous behind, as also the mandibles. Antennae, scrobes and tarsi brownish, posterior margins of the abdominal segments narrowly testaceous. Almost dull. Head and thorax densely and finely reticulate-punctate. The head is also covered with coarse rugae, generally reticulate, especially in front and at the sides where they form numerous irregular pits. These rugae are more or less serpiginous and elongated behind and in front. Declivity of the

epinotum and the abdomen finely striolate transversely, the abdomen duller than the thorax. Erect pilosity coarse, obtuse, white, disposed marginally on the epinotum, scale and abdominal segments, sparsely distributed elsewhere. Pubescence very short, decumbent, fairly scarce all over except on the antennae. Head cylindrical, obliquely truncate in front; seen in profile, it forms a trapeze of which the base is as long as the height; seen from above, it is square, with the angles slightly rounded. Eyes of medium size, placed at about the posterior third of the sides. Frontal carinae very divergent, the interval between them being double their distance from the eyes; they limit a scrobe which can accommodate the anterior half of the scape. The latter, fairly compressed, extends by almost one-fourth of its length beyond the hind margin of the head. Frontal area rounded posteriorly. Clypeus narrow, one and a half times longer than wide, flat or very feebly carinate, the anterior margin roundly lobate, the sides marginate. On each side of the clypeus there is a large semioval depression, limited outwardly and behind by the raised margin of the truncation, inwardly by the sides of the clypeus. Mandibles sculptured like the head, 6-dentate. Pronotum a good deal narrower than the head, with feeble shoulders, not marginate. Mesonotum as long as the pronotum, forming in profile together with the epinotum a nearly straight horizontal line, (barely convex). Metanotum distinct. Dorsum of the epinotum convex transversely, forming with the declivity a slightly obtuse angle, almost rectangular. The declivity, which is as long as the dorsum, is marginate, slightly concave below, its rounded upper margin subogival. Scale thin, four to five times as high as thick, the anterior face fairly convex, the posterior face almost flat, the margins trenchant, the summit arcuate. Abdomen higher at the base than the scale, as wide as the head, oval. Tibiae cylindrical, not setose below."

Calcedon, Cape Prov. (Dr. L. Peringuey), 1 ♀.

Type in the S.A.M. coll.

SUB-GENUS ORTHONOTOMYRMEX, Ashmead.

Canadian Entomologist, vol. 37, p. 384, 1905.

For characters see table of sub-genera.

With the exception of *Barbarossa* and *vividus*, all our species of this sub-genus have a very strong sculpture on the head and thorax, plainly visible under a low magnification, and consisting of a sharply

defined reticulate-puncturation. The abdomen is sometimes densely pubescent, in other cases the body is more or less sparsely pubescent and pilose, the pilose hairs on the epinotum and scale being in some species thick, bristly and whitish. In all our species except *Barbarossa*, the upper part of the epinotum is compressed and the dorsal face is more or less clearly marginate, meeting the more or less vertical sides rectangularly. Except in *Barbarossa*, the junction of the two faces of the epinotum is also rectangular, the declivity being sometimes excavated or concave from above to below, so that its brow appears to overhang the rest of its surface. In most cases the petiole has a scale, in a few it is nodiform. A distinct ♀ media caste does not seem to occur. The right of *Barbarossa* to a place in this sub-genus, as defined by its author, appears to me to be exceedingly doubtful. The epinotum is not marginate, nor do the sides and declivity meet the dorsal face in a rectangle. If the definition of the sub-genus may be widened so as to embrace this species, then it would be quite as legitimate to include *Dofleini* Forel, within its limits. But that species, although clearly related to *Mayri*, is nevertheless placed by Forel in the sub-genus *Myrmosphincta*. On the other hand, one might transfer *Barbarossa* to the latter sub-genus. I have adopted the former course, since *Barbarossa*, notwithstanding the structure of its epinotum, is clearly allied to *vividus*, and also because the sub-genus *Myrmosphincta* appears to me to be ill defined or too artificial, (e.g. *C. intrepidus* Kirby, which is placed by Forel in that sub-genus, has the thorax no more strongly excised, *échancré*, between the meso- and epinotum than have many species of the sub-genera *Myrmoturba* and *Myrmosericus*).

Key to the species of Orthonotomyrmex, ♂ and ♀.

- (12) 1. Dorsum of the epinotum quadrilateral and rectangular, or nearly so, meeting the sides and declivity more or less rectangularly; the upper half, at least, of the sides and of the declivity vertical.
- (3) 2. Node of petiole one-third wider than epinotum, very coarsely rugose and dentate at the sides *scabrinodis*, Arnold.
- (2) 3. Node of petiole not wider than epinotum, not so coarsely sculptured and not dentate at the sides.
- (11) 4. Dorsum of epinotum clearly marginate on each side, or with its face more or less excavated and the lateral margins prominent; at least the head and thorax strongly and deeply reticulate-punctate.
- (8) 5. Petiole with a node, more or less cuboid.
- (7) 6. Abdomen with a dense, silky, dull bronzy-golden pubescence; dorsum of epinotum almost a parallelogram, excavated lengthwise, hardly wider behind than in front *sericeus*, Fab.

- (6) 7. Abdomen with a thin, not dense and whitish pubescence; dorsum of epinotum a trapezoid, at least one and a half times wider behind than at the base, not excavated *Mayri*, Forel.
- (5) 8. Petiole with a scale.
- (10) 9. Larger species, 2½, 8.5 mm. Dorsum of epinotum only slightly depressed in the middle of its apical margin; the latter rounded, the declivity flat from above to below *epinotalis*, Santschi.
- (9) 10. Smaller species, 2½, 6.2 mm. Dorsum of epinotum concave from side to side, its apical margin deeply emarginate in the middle, the declivity concave from above to below, so that its brow overhangs the lower part
Braunsi, Mayr.
- (4) 11. Dorsum of epinotum less distinctly margined at the sides; sculpture of the head and thorax very finely reticulate-rugulose, shining
vividus, Smith, race *reginae*, Forel.
- (1) 12. The junction of the dorsum of the epinotum with the sides and declivity rounded, the upper half of the sides and declivity not vertical.
- (14) 13. Dorsum of epinotum subquadrate; petiole with a scale; body more or less shining, the sculpture feeble, the clypeus unarmed
Barbarossa, Emery, race *arminius*, var. *bicontracta*, Forel.
- (13) 14. Dorsum of epinotum subglobose; petiole with a node; body dull, sculpture very coarse; the anterior margin of the clypeus with 5 acute teeth *Dofleini*, Forel.

C. SERICEUS, Fab. (Plate IX, figs. 137, 137a).

Suppl. Ent. System, p. 279, ♀, 1798.

Mayr, Verh. Zool. Bot. Ges. Wien, vol. 16, p. 886, ♀, 1866.

Jerdon, (*F. cinerascens*), Madras Journ. Litt. Sc., vol. 17,
p. 123, ♂, 1851.

2½, 8-10 mm. Black, basal third of the scape and the flagellum dark brownish red. Head and thorax dull, very sharply and evenly reticulate-punctate, the reticulations sharply defined, the dorsum of the epinotum less strongly sculptured than the rest of the thorax, the petiole dull and more or less coarsely reticulate-rugose, the abdomen slightly shining, transversely rugulose or shagreened, the sculpture somewhat masked by the pubescence. Pilosity pale yellowish, long, thin and erect, fairly sparse on the head, a little more plentiful on the thorax, more so on the petiole and abdomen, but nevertheless fairly sparse everywhere. Legs slightly shining, the middle and hind pairs with a dense, black and almost decumbent pilosity. Pubescence short and very scanty on the head, excepting the clypeus, and on the pro-mesonotum, fairly long and of a pale

golden colour on the clypeus and epinotum, abundant, longer and of a dull bronzy-golden colour on the abdomen. The anterior margin of the clypeus with a row of yellowish porrect bristles. Head as wide as, or a little wider behind than long, the sides fairly straight behind and convex and convergent in front, the posterior margin straight, not much narrowed in front. Median area of clypeus subquadrate, subcarinate, the anterior margin shallowly emarginate in the middle. There is a large pit-like depression on each side of the head just behind the lateral pieces of the clypeus. Mandibles 6-dentate, the posterior tooth very small, fairly dull, sharply striato-punctate. Eyes fairly large, placed for the greater part behind the middle. Scapes sparsely and finely punctured, extending just beyond the hind margin. Vestiges of 3 ocelli present in most specimens. Pro- and mesonotum very convex transversely, the latter not much narrowed behind, a little wider than long; both thoracic sutures well defined. Dorsum of epinotum subhorizontal, convex lengthwise, concave transversely especially on the apical half, parallel-sided, twice as long as wide, the apical margin moderately concave, thereby making the apical angles rather prominent or subdentate. The declivity fairly flat transversely, deeply concave from above to below, its lower half smooth and very shining. Node of petiole cuboid, the anterior face inclined slightly forwards and convex on its upper half, the posterior face flat and subvertical, the dorsal face subrectangular and one-third wider than long. Abdomen large, nearly circular in outline. Tibiae cylindrical, with a few setae below.

♀ minor, 6-8.2 mm. Flagellum and basal half of the scapes paler than in the ♂. The epinotum and petiole more densely pubescent. The head is much more narrowed in front, subtrapezoidal, the posterior margin distinctly convex, the sides more convex than in the ♂, as long as wide (excluding the mandibles). The clypeus is more sharply carinate, and its anterior margin less concave. The scapes extend beyond the hind margin of the head by one-fourth of their length. The node of the petiole is more globose, seen from above subcircular. Otherwise like the ♂.

“♀, 11 mm. Similar to the ♂; head rounder, occiput transverse, thorax not compressed, the metathorax (i.e. epinotum) as in the ♀ of the typical *Camponotus*. Node thick but transverse, not globose; abdomen long and massive,” (ex Bingham, “Ants of India,” p. 376).

♂, 8.5 mm. Black, basal half of the scapes ferruginous, flagellum dark brown. Head and thorax dull, reticulate-punctate like the ♂. Meta- and epinotum, petiole and abdomen shining, very finely and

superficially reticulate-rugulose. Head, sides of the thorax, petiole and abdomen with a sparse, thin, erect and whitish yellow pilosity. Pubescence of the same colour, absent from the disc of the mesonotum, from the scutellum and epinotum, scanty on the head and sides of the thorax, more abundant and of a pale golden colour on the abdomen, but much less plentiful than in the ♂ or ♀. Head of the usual form of this sex, a trifle wider across the eyes than long. Ocelli large, glassy, citron-yellow. The scapes extend beyond the hind margin by about half their length. Declivity of the epinotum subvertical, twice as long as the dorsum, their junction forming a wide arc. Node of petiole with an oblique anterior face which is wider than long, slightly concave from side to side above and flat below; the posterior face flat below and convex lengthwise above, the dorsal face rounded and emarginate in the middle. Wings hyaline, nervures ochreous, stigma brown.

S. Rhodesia, not rare. The nest is generally placed in grassy situations, and the single entrance is surmounted by a tube, about 1-1½ inches high, made of interwoven pieces of grass and lined inside with a thin layer of pressed earth. The diameter of the tube is just large enough to permit the entry of one ant at a time. The purpose served by this tube is unknown to me; it may be made for the purpose of preventing certain kinds of predaceous insects from entering the nest. This species has a wide distribution, occurring over the greater part of the Ethiopian and Indian regions.

(S.A.M., R.M., G.A. colls.).

C. MAYRI, Forel. (Plate IX, fig. 138).

Bull. Soc. Vaud. Sc. Nat., vol. 16, p. 92, ♂, 1879.

♂, 9-10 mm. Black, basal third of the scapes ferruginous. Mandibles castaneous. Sculpture of the head and thorax, excepting the pronotum, like that of *sericeus* but less regular on the pronotum. The epinotum and petiole very coarsely and irregularly rugose. Abdomen finely, densely and deeply reticulate-punctate and dull. Clothed all over with a fine, decumbent, short and greyish pubescence, not hiding the sculpture. Pilosity greyish, longer and a little more abundant than in *sericeus*, especially on the pronotum, margin of the epinotal dorsum and on the petiole. Very similar to *sericeus*, from which it also differs as follows:—

The sides of the head are more convex, the posterior margin only

feebly convex. The median area of the clypeus is a good deal wider and its anterior margin is straight. The meso-epinotal suture is very deep, so that the dorsum of the epinotum has a short and subvertical basal face. The dorsum of the epinotum is flat and horizontal, trapezoidal, two-thirds wider at the apex than at the base, a trifle more than twice as long as wide at the base. The apical margin, seen from above, is almost straight or at the most only feebly indented in the middle, its lateral angles rounded and not dentate. Node of petiole subcuboid as in *sericeus*, but more or less trapezoidal when seen from above, the anterior margin and sides straight, the posterior margin widest and convex. Seen from the side, it is convex from front to back, not with a flattened and slanting dorsal face as in the other species. Otherwise like *sericeus*.

♂ minor, 8.3-9 mm. Like the ♀, but with the head more narrowed in front and the posterior margin fairly strongly convex.

Valdezia, Transvaal, (Berthoud); S. Rhodesia, common. Nesting in similar situations as *sericeus*, and having a tube of woven grass over the entrance as in that species.

(S.A.M., R.M., G.A. colls.).

RACE LEDIEUI, Forel.

Rev. Suisse Zool., vol. 24, p. 444, ♀, 1916.

“♀, 10 mm. Larger and above all more elongate than the type of the species. Head one-fifth longer than wide, the posterior margin strongly convex, not much wider behind the eyes than at the anterior sixth. Differs also from the type of the species by the scapes which are strongly dilated in the apical half, and by the fine yellowish pilosity, much more abundant on the body, oblique on the legs, (long and erect on the femora). The epinotum and node are also coarsely reticulate and of quite a different shape. The epinotum is not marginate; its dorsum is very convex and ends in a short, concave and smooth declivity, without forming an angle with the same. The node is as thick as it is high, convex above, very little wider than long, with its anterior and posterior faces subvertical, (slightly convex). This race differs from the race *sankisianus* Forel, chiefly in its sculpture, and also by the shape of the epinotum and the abundant pilosity. Otherwise like the type of the species, especially the fine, dull and reticulate-punctate sculpture.

Shiluvane, Transvaal, collected by M. Junod and received from the

Geneva Museum, a single specimen. "This race almost merits specific rank."

This race is unknown to me in nature, but, judging by the description, it is astonishingly similar to *C. Dofleini* of the same author.

C. DOFLEINI, Forcl. (Plate IX, fig. 146).

Sitzb. K. Bayer. Akad. Wiss., p. 291, ♀ minor, 1911.

♀ (or ♂ ?), 9-10.2 mm. Black; mandibles and tarsi dark reddish brown. Pubescence greyish white, decumbent, fairly long and sparse, a little more plentiful on the head and sides of the thorax than elsewhere. Pilosity greyish white, erect, slightly curly and abundant all over, oblique on the legs. Dull, only the base of the abdomen very slightly shining. Sculpture much coarser than in *Mayri*. Head and pro-mesonotum very coarsely but evenly reticulate-punctate, epinotum and node very coarsely reticulate-rugose, the bottom of the deep pits between the rugae fairly shining. Abdomen reticulate-rugulose, fairly finely so, but nevertheless more coarsely than in *Mayri*. Legs and scapes reticulate, slightly shining, shallowly punctured. Head subquadrate, about one-fifth longer than wide and about one fifth wider behind than in front, (much less narrowed in front than in *Mayri*), the sides feebly convex, the posterior margin straight or feebly convex, the posterior angles moderately rounded. Mandibles with 5 or 6 teeth, shining and strongly punctured. Clypeus subcarinate, its anterior margin convex and bearing in the middle five fairly sharp teeth which are as long as wide, the outermost teeth smaller than the inner three. Scapes widened apically and strongly flattened, extending beyond the hind margin of the head by about one-sixth of their length. Thorax more elongate than in *Mayri*. Pronotum only one-fourth wider than long in the middle; pro-mesonotal suture sharply defined. Mesonotum less narrowed behind than in *Mayri*, as long as wide in front. Meso-epinotal suture very deep and shining. Epinotum, seen from the side, almost hemispherical; seen from above, the dorsum is subquadrate, rounded at the corners, a little wider behind than in front, and about one-fourth to one-third longer than wide. The smooth declivity is concave from above to below and only half as long as the dorsum. Node of petiole subglobose, slightly wider behind than in front, as long as its greatest width, seen from above, subcircular or ovate, convex above, the anterior and posterior faces subvertical, the latter twice as high as the anterior. Behind the node there is a distinct peduncle at least

one-third as long as the node itself. The node, excluding the posterior peduncle, is as high as long and highest behind, (not longer than high as stated in Forel's description). Abdomen globose. Tibiae cylindrical, with a few fine setae below.

Bothaville, O.F.S., and Lichtenburg, Transvaal, (Dr. H. Brauns).

The description given above is based on specimens kindly presented to me by Dr. Brauns. Forel has omitted to mention the dentate anterior margin of the clypeus, which, together with the hemispherical and outstanding epinotum and the posterior peduncle of the petiole, clearly distinguishes this peculiar insect from all our other species.

(R.M., G.A. colls.).

C. BRAUNSI, Mayr. (Plate IX, fig. 139).

Ann. K.K.N.H. Mus. Wien, vol. 10, p. 151, ♂, 1895.

" " " " " 16, p. 28, ♀, 1901.

Santschi, Voy. d'Alluaud et Jeannel, p. 135, ♀, 1914.

♂, 5.5-6 mm. Black; tibiae, tarsi and mandibles dark reddish brown, the basal half or the whole of the scapes ferruginous. Scale nitidulous and transversely rugulose, the rest of the body closely, evenly and deeply reticulate-punctate all over * and dull, the punctures largest on the epinotum, much finer but still deep and sharp on the abdomen. The anterior half of the head has some large and shallow punctures superimposed. The abdomen has a microscopic, decumbent and exceedingly sparse pubescence, the apical margins of the segments have a few short, blunt, exserted and greyish hairs; the sides and brow of the declivity and the scale of the petiole (just behind the dorsal edge) with some long, coarse, pointed and white hairs like those of *niveosetosus*; otherwise glabrous.

Head subquadrate, a very little wider than long, the sides feebly convex, very little narrower in front than behind, the posterior margin straight, the posterior angles subrectangular and narrowly rounded. Clypeus a little wider than long, almost quadrate, flat transversely in front, feebly convex behind, the anterior margin straight. The scapes are arcuate over the basal half and extend very little beyond the hind margin of the head. Frontal carinae nearer together behind than they are to the outer margins of the head. Mandibles dull, shagreened, closely punctured, with 4 or 5 teeth. Eyes almost flat, placed behind the middle. Pro-mesonotum trape-

* A typical example of what German authors describe as "fingerhutartig punktiert," punctured like a thimble.

zoidal, very feebly convex above. The pronotum is twice as wide as long, its lateral margins acute, owing to the sides and dorsum meeting in a rectangle, the anterior angles or shoulders narrowly rounded. Pro-mesonotal suture distinct. Mesonotum subovate transversely, twice as wide in front as behind, nearly one-third wider than long. Meso-epinotal suture deep. Dorsum of epinotum subquadrate, a trifle longer than wide behind and a little wider there than at the base, its lateral margins slightly convex, concave transversely over its apical half, the apical margin deeply and arcuately emarginate in the middle; declivity concave from above to below, its brow overhanging the lower part, longer than the dorsum. Scale of petiole subcircular, wider than high, both faces equally convex, the dorsal edge fairly sharp, and feebly emarginate in the middle in the largest specimens. Abdomen almost circular in outline, very little longer than wide. Tibiae cylindrical, not setose below.

♂ minor, 4-4.5 mm. Like the 2♂, but with the head more narrowed in front, the posterior margin moderately convex. The shoulders of the pronotum more acute, rectangular. The dorsum of the epinotum very little longer.

“♀, 11.5 mm. The head is very similar to that of the 2♂. From each of the larger punctures arises a decumbent, whitish yellow, short and very shining pubescent hair; a similar pubescence also occurs on the back of the head, on the thorax and especially on the upper side of the abdomen. The anterior wings are 10.8 mm. long and of a yellowish brown colour.”

The ♀♀ from East Africa, described by Santschi, are smaller, 9.5-10 mm. long.

Plumtree, S. Rhodesia; crawling over the trunks of trees in the same slow and apparently aimless way as the species of *Cataulacus*, for which it might easily be mistaken at a first glance. Apparently a scarce insect, recorded from our region only from the locality cited above and from Delagoa Bay, (Dr. H. Brauns).

(R.M., G.A. colls.).

C. EPINOTALIS, Santschi.

Ann. Soc. Ent. France, vol. 84, p. 508, 2♂, ♀, 1916.

2♂, 8-8.5 mm. Black, the legs castaneous red, the tarsi, flagellum, mandibles and apical half of the scapes dark reddish brown, the basal half of the scapes dark red.

Very similar to *Braunsi* but larger, differing from it only as follows: The sculpture is everywhere a good deal finer, especially on the

dorsum of the epinotum which is very little more strongly sculptured than the rest of the thorax. The pilosity is whitish, longer and more abundant, especially on the abdomen. There are a few erect pilose hairs on the head and thorax (absent in *Braunsi*), and there are about three or four transverse rows of the same on each abdominal segment. At the base of the abdomen the hairs are as coarse as those on the epinotum and scale. The mandibles have 6 teeth. The scapes are a little longer and extend beyond the hind margin by as much as the length of the 1st joint of the flagellum. Dorsum of epinotum very slightly wider at the apex than at the base, almost square, the lateral margins tumid and not distinctly marginate, flat, feebly concave only near the apical margin which is feebly depressed in the middle; declivity subvertical, not concave but flat from above to below, its lower half shining, the brow rounded. Otherwise like *C. Braunsi*.

♂ minor, 6 mm. The head is less narrowed in front than in the ♀, subquadrate. The scapes extend beyond the hind margin by one-third of their length. The clypeus subcarinate. The pronotal shoulders much more distinct than in the ♀, or in the ♂ of *Braunsi*.

Victoria Falls. Nesting in hollow tree-trunks. A more agile insect than *Braunsi*.

(S.A.M., R.M., G.A. colls.).

C. SCABRINODIS, n. sp.

♂, 4.6-6 mm. Black; tibiae, tarsi and antennae ferruginous, the last two joints of the latter brownish, mandibles castaneous, the masticatory margins piceous. Pilosity greyish, fairly short; some of the hairs are thick and erect, these are more plentiful on the abdomen than elsewhere, but nevertheless are fairly sparse; the rest of the pilosity is decumbent and longer, and these are more abundant on the epinotum and petiole. A sparse and decumbent pubescence on the legs and antennae. Dull; head and pro-mesonotum strongly and regularly reticulate-punctate, the spaces between the reticulations wider than the latter, also more or less circular and pit-like and slightly shining. Abdomen, femora and tibiae very closely reticulate-punctate (like that of *C. Braunsi* Mayr); epinotum, excepting the declivity which is rugulose and shining, and dorsum of the node very coarsely reticulate-rugose, anterior and posterior faces of the node transversely reticulate rugulose. Head widest in the middle, one-third wider behind than in front, as wide as long, the sides and posterior margin moderately convex. Mandibles dull, strongly and sparsely

punctured, aciculate, 5-dentate. Clypeus moderately convex transversely, its anterior margin straight. The scapes extend back as far as the occipital margin. Frontal carinae sinuate. Eyes large and convex, placed behind the middle, as long as their distance from the

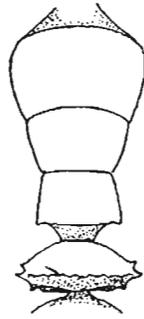


FIG. 59.

C. scabrinodis,
thorax and
petiole. $\times 16$.

hind margin of the head. Pronotum, excluding the neck, twice as wide as long in the middle, widest in front, moderately convex above, the shoulders rounded. Both thoracic sutures well defined. Mesonotum twice as wide in front as long, fairly flat above lengthwise. Dorsum of epinotum subquadrate, slightly wider behind than in front, one and a half times wider than long, the posterior margin straight or feebly convex; declivity longer than the dorsum, vertical in its upper half, concave below. Node of petiole one-third wider than the epinotum, twice as wide as long, seen from above, plano-convex in outline, the convex margin anterior, produced at the sides into several short teeth; seen from the side, the anterior face convex, the posterior face flat, higher than long and not so high as the level of the epinotal dorsum. Tibiae cylindrical, not setose.

The smaller $\text{\textit{f}}\text{\textit{f}}$ have slightly longer scapes and the dorsum of the epinotum more contracted at the base.

Sawmills, Umgusa River, S. Rhodesia.

The nest was situated in loose sandy soil and the entrance was surmounted by a tube of woven shreds of grass, hair and pieces of leaves, about $\frac{3}{4}$ inch high and $\frac{1}{4}$ inch in diameter.

Easily distinguished from the other species of the sub-genus by the sharper and wider reticulate puncturation and by the wide and spinose node.

(S.A.M., R.M., G.A. colls.; type in my collection).

C. VIVIDUS, Smith, race *REGINAE*, Forel.

Cat. Hymen. B.M. VI, p. 31, $\text{\textit{f}}$, 1858.

(syn. *C. Meinerti*, Forel, Ann. Soc. Ent. Belg., vol. 30, p. 191, 1886).

(race) Mitt. Schweiz. Ent. Ges., vol. 10, p. 307, $\text{\textit{f}}$, $\text{\textit{f}}$, 1901.

Rev. Zool. Afric., vol. 2, p. 346, 1913.

$\text{\textit{f}}$, 7-8.7 mm. Black, fairly shining all over. Head finely and superficially reticulate-rugulose at the sides and in front, chiefly

rugulose above and behind. Pro-mesonotum and abdomen finely and transversely rugulose. Dorsum of epinotum more strongly rugulose, almost undulate-striolate. The mandibles and anterior half of the head also sparsely and sharply punctured, the punctures small. Pro-mesonotum and abdomen with a few large and shallow piligerous punctures. Pilosity yellowish, long, erect and fairly coarse, scanty on the head, fairly abundant elsewhere, somewhat oblique and shorter on the apical half of the abdomen. Pubescence decumbent and very sparse, a little longer on the legs than elsewhere. Head subquadrate, as long as wide, slightly narrowed in front, but as wide at the anterior third as at the posterior margin, the sides feebly convex in the smaller 2♀, straight over the posterior two-thirds in the larger, the posterior margin widely and rather deeply emarginate. Mandibles shining, 6-dentate, robust and fairly convex externally. Median area of clypeus flat, subquadrate, a little longer than wide, with a very short anterior lobe the margin of which is straight. Frontal carinae sinuate, as wide apart in the middle as they are long. The scapes reach the hind margin. Eyes feebly convex, placed at the posterior third. Pronotum twice as wide as long, the sides strongly convex, feebly convex above. Mesonotum transversely oval or subcircular, a little wider than long. Pro-mesonotal suture well defined, the meso-epinotal suture deep. Dorsum of epinotum rectangular, a little wider than long in the smaller 2♀, two-thirds wider than long in the largest 2♀, sloping slightly downwards behind, obtusely margined at the basal half of the sides; declivity vertical, twice as long as the dorsum, its junction with the latter rectangular, feebly rounded at the apex of the angle (when seen in profile). Scale of petiole thin, oval, the dorsal edge trenchant, feebly convex in front, flat behind. Tibiae feebly compressed, with a few setae below near the apex.

♂ minor, 4.8-7 mm. Posterior margin of the head straight, the sides more convex than in the 2♀ and more narrowed in front. The scapes extend beyond the hind margin by about one-fifth of their length. The larger specimens (6-7 mm.) hardly form a distinct ♂ media caste; they have the posterior margin of the head feebly concave and the scapes a little shorter than in the smaller ♂♀. Otherwise like the 2♀.

♀, 12.2 mm. (hitherto undescribed). Colour and sculpture as in the 2♀. The pilosity on the abdomen is shorter, oblique and less abundant, limited to the apical margins of the segments. Head subquadrate, as long as wide behind, barely one-third wider behind than in front,

the sides straight, the posterior margin feebly concave in the middle, the posterior angles nearly rectangular. Mesonotum a little longer than wide, the scutellum not quite half the length of the mesonotum. Dorsum of epinotum hardly wider at the base than at the apex, two and two-thirds times wider than long; declivity one-third longer than the dorsum, vertical, its brow rounded. Scale as in the ♂. Wings hyaline, nervures and stigma ochreous. Otherwise like the ♂.

Nesting in hollow trunks and stems of trees, the communities exceedingly populous. The walls of the galleries in the nest are composed of a dark carton-like material, similar to that of the European *Lasius fuliginosus*, which species *reginae* also resembles in having the same sort of aromatic odour. A vicious species which emerges from its nest in hundreds on the slightest alarm, and bites fiercely.

Victoria Falls and Malindi, S. Rhodesia.

(S.A.M., R.M., G.A. colls. ; type of ♀ in my collection).

C. BARBAROSSA, Emery, race ARMINIUS, Forel.

(race) Ann. Soc. Ent. Belg., vol. 54, p. 457, ♂, ♀, 1910.

“♀, 5-9 mm.

♂. Clypeus wider and shorter than in the type of the species, grooved along its whole length by a median longitudinal groove, in place of the usual carina, (the type species has no groove). Head slightly shorter, the sides a little more convex. Meso-epinotal suture much stronger and deeper, exactly as in *Meinerti* (= *vividus* Smith). Dorsum of the epinotum a little more distinctly marginate than in the type of *Barbarossa*, but less than in *Meinerti*, one and a half times longer than wide, as in the type of the species. The angle of junction between the dorsum and declivity is more obtuse, less distinct than in the type. Sculpture of the front of the head as in the type, the large pit-like punctures more distinct and deeper, but the fundamental reticulate-punctate sculpture is less dull, more superficial, more or less subopaque on the whole head and on the thorax. The fulvous pilosity brilliant, as in the typical *Barbarossa*, but much less abundant, on the head as well as on the abdomen; the pubescence on the latter is much shorter and scantier. Otherwise like the type of the species.

♀ minor. Clypeus carinate. The differences between it and the type species less accentuated than in the ♂, excepting the pubescence. No large foveae on the head.

Delagoa, (Dr. Liengme). This form is somewhat transitional between *Barbarossa* and *Meinerti*."

RACE ARMINIUS, var. BICONTRACTA, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 256, ♀, 1914.

"♀, 6.5-8.4 mm. Much smaller and less dimorphic than the type of the race. It differs from it also by its deeply impressed pro-mesonotal suture, which in profile forms an emargination hardly less deep than that of the meso-epinotal. The head of the ♀ major is not so large, and is more narrowed in front than in *Arminius* s. str., with which it is otherwise identical."

The above description is not entirely correct, owing to the fact that the largest ♀♀ or ♂♂ were not sent to Dr. Forel for examination. A fuller description of all the forms is therefore added herewith.

♀, 10 mm. Black, the apical margins of the abdominal segments testaceous. Very similar to *vividus-reginae*, differing from it as follows:—Head more reticulate-rugulose; head and thorax almost dull, the abdomen only slightly shining. Pubescence and pilosity fulvous, the pilosity much more abundant, especially on the abdomen and anterior half of the head. The latter is very abundantly pilose, the hairs being erect and inserted in large pit-like punctures. The scapes barely reach the hind margin of the head. The median area of the clypeus is longer than wide, distinctly narrower in front than behind, not lobate in front, shallowly and longitudinally grooved in the middle, feebly depressed behind the straight anterior margin. Mandibles very finely reticulate and dull over the basal half, slightly shining over the anterior half, fairly strongly punctured. They are inserted at an appreciable distance from the corners of the anterior margin of the head, as in some species of *Myrmamblys*. The eyes are placed behind the middle of the sides. The head is one-sixth longer than wide, not much wider behind than in front, the sides straight over their middle three-fifths, the posterior margin shallowly concave. The sides and declivity of the epinotum not vertical but oblique, (nevertheless fairly steep), and, in consequence, the junction of those surfaces with the dorsal surface is not rectangular as in *reginae*, but rounded. The dorsum is convex transversely, feebly so longitudinally, longer than wide. The declivity is as long as the dorsum, their junction widely rounded. The scale is a little thicker, less convex at the sides than in *reginae*, the summit feebly emarginate. Tibiae much more compressed than in *reginae*.

♂ *media*, 7.5-8.5 mm. These are the forms erroneously described by Forel as the ♀ major or 2♂. They resemble the 2♂ in pilosity, pubescence and sculpture, but the large pit-like punctures and the pilosity arising from them on the front of the head are less plentiful. The head is not like that of the 2♂, but resembles that of the 2♂ of *reginae*, having, however, the posterior margin straight or very feebly convex. The median area of the clypeus is wider, quite as wide as long, and without the median groove. The scapes reach a little beyond the hind margin. The scale is like that of the 2♂. Mandibles longer, more feebly punctured, less opaque on the basal half.

♂ *minor*, 5.5-6.2 mm. Like the ♂ *media* in sculpture and pilosity, particularly of the head. The posterior margin of the head straight. The scapes extend beyond the hind margin by two-fifths of their length. Otherwise like the ♂ *media*.

Durban, climbing about on trees.

(S.A.M., R.M., G.A. colls.).

SUB-GENUS MYRMOSPHINCTA, Forel.

For characters see table of sub-genera.

C. SCALARIS, Forel. (Plate IX, fig. 145).

Mitt. Schweiz. Ent. Ges., vol. 10, p. 308, 2♂, ♀, ♀, 1901.

2♂, 7-8.2 mm. Black; legs, antennae, mandibles and anterior margin of the head dark red, the tarsi brownish red. Dull, the abdomen moderately shining. Very closely and finely reticulate-punctate, (the reticulations closer and the punctures much smaller and shallower than in *C. epinotalis* Santschi), the extreme posterior angles of the head rugulose and slightly shining. Abdomen very finely rugulose and partly reticulate-punctate. Legs delicately reticulate and feebly shining. Pilosity greyish yellow, very sparse on the head and thorax, a little more plentiful on the abdomen, the hairs on the epinotum and edge of the scale thicker and longer than elsewhere. A feeble and decumbent pubescence present only on the legs and antennae. Head, excluding the mandibles, subtrapezoidal, wider than long, a good deal wider behind than in front, the posterior margin straight, the posterior angles moderately rounded. Mandibles nitidulous, very finely reticulate or shagreened, abundantly and strongly punctured, 7-dentate. Median area of clypeus not carinate, very slightly convex transversely, a little wider than long, feebly

lobate in front, the anterior margin straight, the lateral pieces triangular, well defined and not small. Frontal carinae not very divergent. The scapes extend beyond the hind margin. Eyes placed at the posterior third. Pro-mesonotal suture distinct. The dorsum of the pronotum and the mesonotum form an even convexity in profile as far as the middle of the mesonotum, the posterior half of the latter is steeper and forms an oblique declivity. The meso-epinotal suture fairly deep. The dorsum of the epinotum lies much lower than the mesonotum, and is placed step-like below it (see fig. 145). It is very convex transversely, subhorizontal lengthwise, as long as the oblique declivity and joining the same in a low curve. The scale of the petiole is moderately convex in front, flat behind, the dorsal edge obtuse and slightly emarginate in the middle. Tibiae nearly cylindrical, not setose below.

♀ minor, 4.7-6 mm. Only the anterior corners and the extreme apical margin of the clypeus reddish. The posterior margin of the head slightly convex, the sides straighter than in the ♂. The declivity of the mesonotum less distinct, but the step-like shape of the thorax is even more pronounced than in the ♂ owing to the dorsum of the epinotum being more convex lengthwise and rising a little posteriorly. The dorsum is also narrower than in the ♂ and more convex transversely. Otherwise like the ♂.

"♀, 9 mm. Wings feebly tinged with yellow, with yellow nervures and brown stigma. Otherwise like the ♂."

Natal, 6,000 ft. (Haviland).

(R.M., G.A. colls., ex Natal Museum coll.).

SUB-GENUS MYRMOTREMA, Forel.

For characters see table of sub-genera.

The fundamental sculpture on the head and thorax of the ♂ and ♀ usually consists of a fine reticulate-puncturation, appearing under a low magnification more or less granulate. Some species, however, are finely rugulose like the *Myrmoturba* sub-genus. In all the ♂♂ the anterior part of the head has numerous pubescent, pit-like punctures superimposed, which are plainly visible under even a low magnification. *C. Barbarossa* of the preceding sub-genus also has the anterior part of the head pitted, but it is not likely to be mistaken for a species of *Myrmotrema*, since the pits are densely pilose (not pubescent), and because the epinotum is more or less cuboid. The

epinotum in this sub-genus resembles that of *Myrmoturba*, but the dorsum is wide and never ridge-like or cristate, the sides being more oblique. The declivity is usually clearly delimited from the dorsum, which is rarely the case in *Myrmoturba*. In both the ♂ and ♀, the pubescence is very characteristic, being long, generally decumbent and silky, and often golden or silvery. The head is nearly always triangular (including the closed mandibles), the sides usually convex. All our species are arboricolous, nesting in hollow trunks and stems. As most of the species are unknown to me in nature, I have been limited to citing the original descriptions, which are unfortunately not so much detailed diagnoses as lists of differences between one form and another.

The sub-genus has recently been reviewed by Dr. Santschi (Ann. Soc. Ent. France, vol. 84, pp. 266-278, 1915), and the following key to the species is largely based on the one which is presented in that paper.

Key to the species of Myrmotrema, ♂.

- (4) 1. Head and thorax brownish red; dorsum of the epinotum, at least in the ♂, broad, fairly horizontal lengthwise.
- (3) 2. Abdomen black and very shining
Robecchi, Emery, race *rhodesiana*, Forel.
- (2) 3. Abdomen brownish red, fairly dull
Robecchi, Emery, race *troglydytes*, Forel.
- (1) 4. Head and thorax (and abdomen) black; dorsum of epinotum narrower, oblique.
- (10) 5. Pit-like punctures on the head confluent, much larger than the intervals between them; the pubescence arising from them long, as abundant and as long as the pubescence on the abdomen.
- (9) 6. The pubescence on the cheeks not quite decumbent but oblique, as long or nearly as long as the apical width of the scape.
- (8) 7. Tibiae brownish black. Dorsum of epinotum slightly convex
auropubens, Forel.
- (7) 8. Tibiae reddish. Dorsum of epinotum straight. Mesonotum of the ♀ dull
auropubens, var. *Absalon*, Santschi.
- (6) 9. Pubescence shorter and decumbent
auropubens, var. *Jacob*, Santschi.
- (5) 10. Pit-like punctures on the head smaller than the intervals between them, not deep, the pubescence arising from them very short or even absent.
- (16) 11. Abdomen dull, densely punctured. Pubescence generally fairly long.
- (15) 12. A glabrous median longitudinal line on the abdomen of the ♂, sometimes indistinct in the ♀.
- (14) 13. ♂, The scape extends beyond the hind margin by not more than the length of the 1st joint of the flagellum; pubescence brassy-golden, greyish on the head in the ♀ minor *postoculatus*, Forel.

- (13) 14. Scapes longer. Pubescence very pale, golden or silvery
Grandidieri, Forel, race *mendax*, Emery.
- (12) 15. No glabrous line present on the abdomen in the 2♂. Dorsum of the epinotum triangular, much narrowed at the base; antennae and legs red *Grandidieri*, var. *Rollei*, Forel.
- (11) 16. Abdomen shining or subopaque, in greater part finely reticulate-coriaceous. Pubescence generally short and more sparsely distributed.
- (22) 17. The two faces of the epinotum meet in a distinct angle, the apex of which may sometimes be rounded; no glabrous median line on the abdomen.
- (19) 18. The erect pilosity on the abdomen as fine as the pubescence
Olivieri, Forel, var. *tenuipilis*, Em.
- (18) 19. The erect pilosity coarser than the pubescence.
- (21) 20. More robust. Edge of scale rounded; legs black; the pubescence slightly yellowish *Olivieri*, var. *delagoensis*, Forel.
- (20) 21. Slender; edge of scale more trenchant; legs brown; pubescence white
Olivieri, race *tauricollis*, Forel.
- (17) 22. The two faces of the epinotum meet in an arc, subangularly only in the largest 2♂ 2♂. A fairly distinct median glabrous line on the abdomen, which is very shining *Olivieri*, race *infelix*, Forel.

Dr. Santschi has transposed to *C. Olivieri* several of the races and varieties which were named for me by Dr. Forel as belonging to *C. foraminosus*, and has also made some other minor alterations in the classification. These will be made apparent in the synonymy under the title of each species.

C. ROBECCHII, Emery, race RHODESIANA, Forel.

(Plate IX, figs. 135, 135a).

Ann. Mus. Civ. Gen., vol. 32, p. 120, ♀, 1892.

(race, as var. of *trogodytes*, sp.) Ann. Soc. Ent. Belg., vol. 57, p. 145, 2♂, ♀, 1913.

Santschi, Ann. Soc. Ent. France, vol. 84, p. 271, 1915.

2♂, 7.2-9 mm. Head, thorax and legs dark brick-red (burnt sienna), tarsi and petiole brownish red, abdomen black. Head and thorax subopaque, the legs and petiole slightly, the abdomen very shining. Head and thorax finely reticulate-punctate, the larger superimposed punctures are seen under a high magnification to consist of three contiguous round pits. They are almost obsolete on the clypeus, and become shallower towards the back of the head. The epinotum is more reticulate-rugulose than reticulate-punctate. Scale feebly rugulose, the abdomen transversely and finely so. On the body the

pubescence is exceedingly fine, short and scanty, except on the lower part of the sides of the thorax and on the coxae where it is long, adjacent and silky. Legs with longer and more abundant pubescence than the dorsum of the thorax. Pilosity on the margins of the abdominal segments whitish, very short and thin, yellowish and much longer on the declivity and scale. Head as long as wide, nearly twice as wide at its widest point (posterior third) as at the anterior margin, the sides fairly convex, the posterior margin straight. Median area of clypeus oblong, a little longer than wide, the anterior margin straight. Frontal carinae as long as their greatest distance apart. The scapes extend beyond the hind margin by twice their apical width. Eyes placed at the posterior third. Mandibles shagreened, subopaque, strongly punctured, 6-dentate. Pronotum twice as wide as long, the shoulders subangular. Mesonotum one and a half times wider than long, transversely oval. Both sutures strong. Epinotum somewhat compressed, but with a distinct dorsal face which lies at a lower level than the mesonotum and is horizontal lengthwise, at least over its basal half. It joins the longer and subvertical declivity in a rapid curve, or (even in examples from the same nest) subrectangularly. The declivity is feebly concave from above to below. Scale subovate, widest below the middle, the edge fairly trenchant, the anterior face feebly convex, the posterior face flat. Abdomen globose, a little longer than wide. Tibiae cylindrical, not setose below.

♂ minor, 4.2-5.3 mm. Head one-seventh longer than wide, widest across the eyes, and not more than one-third wider there than at the anterior margin; the posterior margin moderately convex. Head without the large punctures present in the ♂. Clypeus wider than long, subcarinate, the anterior margin moderately convex. The scapes extend beyond the hind margin by about one-fourth of their length. In the smallest ♂♂ the disc of the pronotum is rather flattened. The epinotum is more distinctly compressed, so that the posterior half of the dorsum is sharply cristate and linear when seen from above. Otherwise like the ♂.

♀, 10 mm. (hitherto undescribed). Colour, sculpture, pilosity and pubescence as in the ♂, but the thorax is darker as a rule, more brownish red. The mesonotum and scutellum are also very shallowly and sparsely punctured in addition to the fundamental sculpture. Head subquadrate, not much narrower in front than behind, the posterior margin feebly convex, the sides less convex than in the ♂. Abdomen transversely reticulate-rugulose and feebly shining, (in

a specimen from the Victoria Falls, the abdomen is dull and finely reticulate-punctate). Wings tinged with yellowish brown, nervures brown, stigma piceous.

S. Rhodesia; fairly common wherever there is large timber. This species has a very offensive and powerful cockroach odour. The smaller ♀♀ are not uncommonly seen climbing the trunks of trees in company with *Cremastogaster castanea*, race *rufonigra* Em., to which they bear a strong resemblance to the naked eye.

(S.A.M., R.M., G.A. colls.; type of ♀ in my collection).

ROBECCHII, race TROGLODYTES, Forel.

(as species) Mitt. Schweiz. Ent. Ges., vol. 9, p. 68, ♂, 1894.

♂, 7-9 mm. Yellowish brick-red, the last three abdominal segments becoming gradually darker or reddish brown towards the apex, tibiae and anterior margin of the head dark reddish brown. The fundamental sculpture like that of race *rhodesiana* but distinctly stronger, the punctures and reticulations more sharply defined. On the other hand, the large pit-like punctures on the head are smaller and shallower. The pubescence is a little more abundant and longer on the abdomen, and the pilosity much longer and more plentiful. The meso-epinotal suture is much shallower than in *rhodesiana*, and the convexity of the dorsum of the thorax is continuous, the dorsum of the epinotum not lying at a lower level than the mesonotum. Abdomen very finely reticulate-punctate and dull, the basal fourth of the 2nd and following segments transversely rugulose and slightly shining. There is a median longitudinal line which is glabrous, but rather indistinct since the rest of the abdomen is not plentifully pubescent. Otherwise like *rhodesiana*.

♀ media and minor. These differ from their ♂ in the same way as they do in *rhodesiana*. The smallest ♀♀ have the pale colour extending further back on the abdomen, i.e. to the middle of the 3rd segment.

♀, 10.5 mm. (hitherto undescribed). Sculpture, pilosity and pubescence as in the ♂. Colour similar but darker all over, the posterior half of the thorax darker than the anterior, or reddish brown; abdomen very dark brownish red, or brown on the basal third and the rest blackish brown, the apex black. Sculpture of the abdomen stronger than in the ♂, the basal half of the 2nd and following segments slightly shining and transversely striolate, the 1st segment and apical halves of the other segments sharply reticulate-punctate and dull. Otherwise like the ♀ of *rhodesiana*.

♂, 7.5–8 mm. (hitherto undescribed). Head, pro-mesonotum and scutellum reddish ochreous; epinotum, petiole and 1st segment of the abdomen, the femora and flagellum dirty ochreous, the rest of the abdomen, the tibiae, tarsi and scapes more or less yellowish brown. Sides of epinotum, petiole and abdomen with a long, erect and pale brownish pilosity, fairly abundant, the rest of the body with only a hair here and there. Abdomen and legs with a sparse, decumbent pubescence. Head, pro-mesonotum and scutellum reticulate-punctate and dull, the rest of the body superficially rugulose and shining. Head rather long, clearly longer than wide across the eyes, the posterior two-thirds, seen from above, trapezoidal, the posterior margin narrow and straight, the sides in front of the eyes parallel. Scapes long, extending beyond the hind margin by two-thirds of their length. The dorsal profile of the epinotum forms a low and continuous convexity. The scale is wider above than below, the anterior and somewhat oblique face subquadrate and flat, the posterior face convex from side to side and vertically, the summit shallowly emarginate in the middle. Wings tinged with yellowish brown, nervures and stigma pale brown.

Nesting under the bark of a rotten tree, Stella Bush, Durban. The larvae and ♀♀ of *Cremastogaster tricolor*, var. *durbanensis* Forel, were found in the same spot without any distinct boundaries between the nests of the two species. The latter did not attack each other when the nests were disturbed.

(S.A.M., R.M., G.A. colls.; type of ♀ and ♂ in my collection).

C. AUROPUBENS, Forel.

(as race of *C. foraminosus*) Mitt. Schweiz. Ent. Ges., vol. 9,
p. 67, 2, ♀, 1894.

Santschi emend., *loc. cit.*, pp. 267 and 274–5.

“Like *Grandidieri*, but as much as 9 mm. long. The large pits on the head very close, becoming almost a reticulation on the cheeks. The whole body with a long, strong and bright golden pubescence, which, although it allows the sculpture to be seen through it, is nevertheless much longer and more abundant than in *Grandidieri*. Black; antennae, mandibles and anterior margin of the head dark red. The coarse pits on the head disappear at its posterior end. The middle of the nitidulous and very sparsely punctured abdomen has a glabrous longitudinal line which is impunctate.”

Delagoa Bay, (Dr. Liengme); Stamford Hill, Natal, (Traegaordh).

According to Santschi's key, *Grandidieri* s. str. is limited to Madagascar. It is, like *foraminosus*, distinct from *auropubens* by having fewer pits on the head, which are smaller than the intervals between them.

AUROPUBENS, var. ABSALON, Santschi.

Loc. cit., pp. 267 and 274, ♂, ♀.

"5.5-9.5 mm. Very close to the type from which it differs by the red or brownish red tibiae, (black or slightly brownish black in the type). The dorsum of the epinotum is straight, the angle which it forms with the declivity being less open than in *auropubens*, in which the dorsum of the epinotum is also a little convex. The pubescence of the cheeks is as long and as much exerted as in *auropubens*—that is, the hairs are as long as the width of the apex of the scape, and as long as those on the abdomen.

♀, 10 mm. Head trapezoidal, longer than wide, about one-fourth narrower in front, the sides and the posterior margin straight, the angles rounded. Mesonotum dull like the rest of the thorax. Scale high and thin, obtuse at the summit. Wings tinged with brownish yellow, nervures and stigma brown. The anterior wing 12 mm. long.

Natal, (Traegaardh). Hitherto confused with the type of the species, as was also the following variety."

AUROPUBENS, var. JACOB, Santschi.

Loc. cit., pp. 267 and 275, ♂, ♀.

"Differs from the type and from the variety *Absalon* by having the pubescence on the cheeks entirely decumbent, although they extend beyond the pits. It is also shorter, the hairs being shorter than the apical width of the scape. The pubescence on the abdomen is also shorter and less plentiful. The tibiae are reddish like the antennae and mandibles. The pits on the head are hardly less large than in the type, but much larger than in *Grandidieri*, Forel, and more confluent; the cheeks dull. Mozambique, Pungwe Valley, (Vasse); Bulawayo, Rhodesia, (Arnold).

C. auropubens has the pit-like puncturation so different from that of the other *Myrmotrema* that I believe it may be considered as a species distinct from *Grandidieri*, to which it is the nearest allied."

♂, 7.3-10 mm. ♀ media, 6.8 mm. ♀ minor, 5-5.5 mm.

In the 2♂, the antennae are yellowish red, in the ♀ somewhat brighter. The pilosity is white, fairly scanty on the pro-mesonotum, limited on the head to the frons and middle of the vertex, more abundant, longer and coarser on the epinotum, scale and abdomen. The hairs on the epinotum and scale thick and bristly. In the ♀ minor the pilosity on the abdomen is more plentiful than in the 2♂ and ♀ media.

♀, 10.3 mm. (hitherto undescribed). Scapes bright reddish ochreous as in the ♀ minor, mandibles bright ferruginous, otherwise like the 2♂ in colour, sculpture, pilosity and pubescence. The posterior margin of the head is straight (concave in the 2♂), the sides less convex than in the 2♂. The shoulders of the pronotum are subangular and clearly visible from above. Lower half of the declivity of the epinotum shining, the corners on each side with a dense and silvery pubescence. Wings tinged with brownish yellow, nervures and stigma brown.

This variety had been named for me by Dr. Forel as *C. foraminosus*, race *Grandidieri*. It is a common species, forming its nest most frequently in hollow stems of *Acacia horrida* and *Sclerocarya caffra*.

(S.A.M., R.M., G.A. colls. ; type of ♀ in my collection).

C. POSTOCULATUS, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 254, 2♂, ♀, 1914.

2♂, 9.6–11.6 mm. Black; flagelum dark brown, apical half of the mandibles sometimes ferruginous, last four tarsal joints reddish brown. Dull. Head reticulate-rugulose, distinctly and rather coarsely reticulate-punctate between the eyes and frontal carinae, the pit-like punctures on the cheeks much shallower and smaller than in *aurpubens* and its varieties or in *foraminosus* and *Olivieri*, here and there almost effaced. Thorax closely reticulate-punctate, the declivity, scale and legs only reticulate, but the latter also with a fine and sparse puncturation. Abdomen very finely and closely reticulate-punctate or granulate. From the pits on the head arise microscopic pubescent hairs, otherwise the head is almost without any pubescence. On the thorax the pubescence is pale golden, long, decumbent and fairly abundant. On the abdomen it is much longer, more plentiful and of a brassy-golden colour. Pilosity whitish, thick and pointed (not blunt at the ends as described by Forel). Head feebly trapezoidal, very little narrowed in front, as long as wide, the posterior margin straight, (feebly concave in the smaller examples), the sides straight in the middle and feebly convex in front

and behind, the posterior margin about half as wide again as the anterior. The scapes extend beyond the hind margin of the head by one-seventh of their length (by a little more in the smaller ♀, but not by as much as two-fifths as described by Forel). Median area of clypeus longer than wide, feebly carinate, the anterior margin straight. Mandibles dull, very finely reticulate, sparsely and finely punctured, 6-dentate. Pronotum with obtuse but fairly distinct shoulders. Mesonotum very convex transversely. Dorsum of epinotum narrow, almost cristate, much shorter than the declivity which it joins in a wide angle. The median glabrous area on the abdomen very distinct. All the femora strongly compressed, tibiae cylindrical, not setose below.

In all the specimens before me, (collected at the same time and place as the types of Forel), the eyes are separated from the posterior margin by a distance as great as their own length, not as one-third of their diameter as stated by Forel. Neither are the scapes "almost as slender at the apex as at the base."

♀ media, 8.2 mm. Head trapezoidal, longer than wide. Anterior half or more of the pronotum flat, thereby making the shoulders appear sharper and the lateral margins more clearly defined; it slopes more steeply downwards and forwards than in the ♀, but, like the latter, the dorsal profile of the meso-epinotum is almost horizontal and straight.

♀ minor, 6.2-7 mm. These differ from both the ♀ and ♀ media in having the front of the head as far as the eyes, and the cheeks below the eyes as far as the posterior angles, clothed with a whitish, oblique and very long pubescence (almost pilose). It should be noted that the degree of abundance of the pilosity in this sub-genus is not a character on which much reliance can be placed, since the hairs are very easily rubbed off, especially the bristly hairs.

Durban.

(S.A.M., R.M., G.A. colls.).

C. GRANDIDIERI, Forel.

C.R. Soc. Ent. Belg., p. 103, ♀, ♂, 1886.

The type of the species is confined to Madagascar. The description is included here in order to make the diagnoses of its African forms somewhat clearer.

"♀, 5-8.2 mm. This species, allied to *foraminosus* Forel, has the general facies of *C. novogranadensis* Mayr, but differs from it by the

triangular shape of the head and by its wider epinotum, which make it resemble the sub-genus *Colobopsis* a good deal less. . . . Head triangular, the sides rounded. Mandibles short, thick, pilose, with 6 or 7 teeth, with large deep punctures and very finely reticulate-striate between the punctures. Clypeus almost rectangular, nearly parallel-sided, not carinate, prolonged in front into a very short rectangular lobe, emarginate on each side of the lobe, the middle of the anterior margin entire. Thorax strongly arched, especially in front. Abdomen fairly large. Thorax, abdomen, frons, vertex, clypeus and antennal pits (also the cheeks in the ♀ minor) reticulate-punctate; the puncturation extremely dense, the bottom of the punctures microscopically granulate. Legs and antennae (also the cheeks in the ♂) very finely reticulate. Scale and declivity of the epinotum finely punctate-rugulose transversely. On the head there are some large piligerous punctures; these become, in the ♂, large round pits which are strongly reticulate-punctate at the bottom and have a decumbent hair inserted in the middle. These pits give a peculiar carious appearance to the sculpture. The whole body is covered with a coarse, silvery pubescence, fairly short, but longer on the abdomen, and not very dense, . . . the antennae and legs have a finer pubescence. Some white, erect, thick and obtuse hairs are dispersed over the body, especially on the margin of the scale and on the abdominal segments. Tibiae and scapes without erect hairs. Black, dull. Antennae (except the end of the flagellum), tibiae, tarsi, part of the femora and mandibles (except the teeth in the ♂) reddish. In the ♂ the anterior margin of the clypeus and cheeks also reddish.

GRANDIDIERI, race MENDAX, Emery.

Ann. Soc. Ent. France, vol. 63, p. 54, ♀ minor, 1895.

Santschi emend., *loc. cit.*, p. 274, ♀ media.

“♀ minor, 4.5 mm. In form and sculpture this imitates *Grandidieri* exactly. The shape of the thorax as in *Olivieri*. The head is more elongate than in *Grandidieri*; the scape extends beyond the occiput by one-third of its length. Colour black; mandibles and antennae rusty red. Hamman's Kraal, (Simon).”

The ♀ minor has no glabrous median line on the abdomen, but, according to Santschi, the line is fairly distinct in the ♀ media. This race is also found in Natal.

GRANDIDIERI, race RUSPOLII, Forel, var. ROLLEI, Forel.

(as race of *foraminosus*) Mitt. Schweiz. Ent. Ges., vol. 8, p. 349,
♂, ♀, 1892.

(variety) Zool. Jahrb. Syst., vol. 29, p. 270, ♂ major, 1910.

"♂, 6.4-6.8 mm. Scale higher and more convex transversely than in the typical *Ruspolii*. The blunt, bristly, white hairs more plentiful, especially on the abdomen. The latter with a sparse silvery pubescence, as in *Grandidieri*, and with a glabrous median longitudinal line. Pit-like punctures on the head as in the type, feeble or absent posteriorly. Thorax short, very wide in front, narrowed to a point behind. The dorsum of the epinotum is straight and much shorter than the declivity. Black, dull; antennae, legs and mandibles bright red; cheeks in front reddish. Otherwise just like *Ruspolii*." Zoutpansberg, Transvaal, (Rolle).

C. OLIVIERI, Forel.

Ann. Soc. Ent. Belg., vol. 30, p. 175, ♂, ♀, 1886.

The type of the species is West African, (Angola). It is represented in our region by four forms which, like the type, have the abdomen shining, feebly rugulose and very sparsely pubescent.

OLIVIERI, var. TENUIPILIS, Emery.

Ann. Soc. Ent. France, vol. 63, p. 54, 1895.

"Differs from the type of the species by the erect hairs on the abdomen being much finer, not thicker, or even a little thinner than the decumbent pubescence; the latter are, however, thicker and whiter than in *Olivieri*." Pretoria, (Simon).

OLIVIERI, var. DELAGOENSIS, Forel.

(as race of *foraminosus*) Mitt. Schweiz. Ent. Ges., vol. 9, p. 68,
♂, ♀, 1894.

"♂, 7.5-9 mm. Very similar to *Olivieri* but somewhat larger. The pit-like punctures on the head remain sharply defined and large right up to the posterior margin. Pronotum rounder and convex, hardly

pentagonal like that of *Grandidieri*, but longer and narrower. Dorsum of the epinotum nearly as long as the declivity and less sharply delimited from it. Scale somewhat thicker. Pubescence scantier. Otherwise just like *Olivieri*.

♂ minor. Excepting the large punctures, showing the same differences to *Olivieri* as the ♀.

Delagoa Bay, (Berthoud, Liengme).

OLIVIERI, race INFELIX, Forel.

(as var. of *foraminosus*, race *lemma*) Bull. Soc. Vaud. Sc. Nat.,
vol. 50, p. 254, ♀, 1914.

Santschi emend., *loc cit.*, p. 270.

♀, 8-9 mm. Black; basal third of the scapes ferruginous; tarsi, mandibles and flagellum brownish red. Sculpture of head and thorax as in *postoculatus*, but the pit-like punctures on the head are larger and deeper; the abdomen is microscopically rugulose transversely, shining, and also very shallowly and sparsely punctured.

On the cheeks the large punctures occur as far back as the posterior angles, and on the clypeus they are exceedingly shallow (not absent from those two areas as stated in Forel's description). The pubescence is whitish to pale golden, decumbent, exceedingly short and scanty on the body, a little more abundant on the scapes and legs. The pilosity is dirty white or yellowish white and not very plentiful, much less so than in *auropubens* and its varieties. The femora are fairly closely and shallowly punctured. The scapes extend beyond the hind margin by a distance equal to their apical width. Mandibles moderately shining, strongly punctured. The pronotum is feebly convex above, or almost flat, with rounded but distinct shoulders. The dorsum of the epinotum is twice as long as wide at the base, flat, moderately oblique lengthwise, feebly convex transversely, clearly delimited from the sides. It joins the almost vertical and longer declivity in a very short curve.

♂ minor, 5.5-7 mm. Pilosity and pubescence even scantier than in the ♀. The scapes in the smallest examples extend beyond the hind margin by two-fifths of their length. The epinotum is more compressed than in the ♀, so that the dorsal face is merely an obtuse ridge as narrow at the base as at the apex. It is relatively longer than in the ♀.

Durban and Zululand.

(S.A.M., R.M., G.A. colls.).

OLIVIERI, race TAURICOLLIS, Forel.

(as race of *foraminosus*) *loc. cit.*, p. 68.

Santschi emend., *loc. cit.*, p. 270.

"4.3-6 mm. Very near to *Ruspolii* but shorter. Thorax very strongly arched lengthwise, with unusually wide pronotum, which has even sharper anterior angles. Dorsum of the epinotum narrower, almost tectiform, fairly convex and merging arcuately into the declivity. Scale convex above. The pits on the slightly shining head of the ♂ fairly shallow. Abdomen shining, feebly rugulose, sparsely punctured. In the ♀ minor the whole body is shining and feebly rugulose. Clypeus somewhat produced in front. Head and thorax of the ♂ reticulate-punctate. Black; antennae and ends of the tarsi brownish red; mandibles and legs dark brown. Scale and epinotum with white, thick and blunt hairs, which are sparse elsewhere. Pubescence very fine, short and scanty. Delagoa Bay, (Liengme)."

SUB-GENUS MYRMEPOMIS, Forel.

For characters see table of sub-genera.

Only one species belonging to this sub-genus occurs in our region, but it is split up into three races and two varieties. These may easily be recognised by the nature of the very abundant, oblique or almost decumbent pilosity on the abdomen, which is composed of very thick and blunt hairs. In cross-section these hairs are cylindrical or oblong. They more or less hide the sculpture. The anterior corners of the pronotum are either sharply margined and angular or subangular, or produced into a short tooth. The tibiae are strongly prismatic, the upper, inner and outer faces of which are deeply canaliculate. In habits the *fulvopilosus* group is distinctly arenicolous, yet strangely enough, these ants lack the ammochaetae which are found in other arenicolous species, such as *C. mystaceus* and the myrmicine *Ocymyrmex*.

The ♀ and ♂ are both large. The former is quite as long as the ♂, but has a narrower head. The head of the ♂ in some forms is very large.

Key to the fulvopilosus group, ♂, ♀.

- (4) 1. Head and thorax black.
- (3) 2. Pilosity of abdomen fulvous; the ♂ has a more or less distinct, small glabrous spot in the middle of the 2nd (sometimes also the 3rd) abdominal segment *fulvopilosus*, De Geer.

- (2) 3. Pilosity on the abdomen ochreous or straw-yellow
var. *flavopilosus*, Emery.
- (1) 4. Head and thorax more or less dark reddish.
- (8) 5. Smaller species, 2½, 12-13 mm. long.
- (7) 6. Pilosity on the abdomen short, sparse, evenly distributed all over, not hiding the colour and sculpture of the integument
race *brevisetosus*, Forel.
- (6) 7. Pilosity on the abdomen long and abundant, but the base of the 1st, and some large median spots on the 1st, 2nd and 3rd segments glabrous
race *detritus*, Emery.
- (5) 8. Larger species, 2½, 15-17 mm. long.
- (10) 9. Pilosity of abdomen reddish ochreous (but not so dark as in the type of the species); 2nd and 3rd segments with a glabrous median spot; shoulders of pronotum angular var. *detritoides*, Forel.*
- (9) 10. Pilosity of abdomen straw-yellow, no glabrous spots; shoulders of pronotum dentate race *storeatus*, Forel.

C. FULVOPILOSUS, De Geer.

Mem. Hist. Insect. 7, p. 613, 1778.

2½, 15-16 mm. Black, dull, densely reticulate-punctate or granulate, more closely and finely so on the abdomen than elsewhere, the legs superficially reticulate, feebly shining and with shallow pubescent punctures. On the cheeks and frons there is a fine and sparse puncturation superimposed. Pubescence exceedingly short and fine, occurring only on the legs and antennae. Mesonotum, epinotum and petiole with a few thick, erect and pale yellowish hairs. Abdomen with a very dense and almost decumbent pilosity, composed of thick blunt hairs of a fulvous or foxy-red colour (paler at their bases), the 2nd and 3rd segments sometimes with an indistinct median patch devoid of hairs.

Head very large (4-4.3 mm. wide by 5-5.2 mm. long), including the closed mandibles more or less triangular, excluding them about as long as wide, twice as wide at its widest (just behind the eyes) as across the anterior margin, the sides convex, the posterior margin feebly concave, the posterior angles widely rounded. Mandibles dull, finely, shallowly and fairly closely punctured, armed with 6 or 7 teeth. Median area of clypeus subquadrate, very little wider in front than behind, feebly subcarinate, the anterior margin straight, hardly produced into a lobe. Frontal carinae not greatly divergent, longer

* *Detritoides* is sometimes black on the head and thorax, but it may be distinguished in that case from the type of *fulvopilosus* by the larger head of the 2½, and the paler or reddish ochreous colour of the abdominal pilosity.

than their greatest distance apart. The scapes strongly incrassate apically, extending beyond the hind margin by about one-fourth of their length. Eyes rather small, feebly convex, placed at the posterior third. Thorax not much narrowed posteriorly. Pronotum very little wider across the shoulders than behind, twice as wide as long, the sides clearly delimited from the rather flat dorsum, the anterior angles or shoulders submarginate and rectangular. Mesonotum convex, oval, as long as wide in front. Both thoracic sutures distinct, not deep. Dorsum of epinotum convex transversely, a little narrowed towards the apex, a little longer than the very oblique declivity, which it joins in a very wide angle (175°). Scale of petiole thick in its lower half, much thinner above, the anterior face very convex transversely, the posterior face flat and seen from behind ovate, the dorsal edge fairly trenchant. Tibiae strongly compressed or prismatic, the faces canaliculate, armed below with a few short setae.

♂ media, 12.5 mm. Head longer and more trapezoidal than in the 2♂, a little longer than wide, one and a half times wider at its widest than across the anterior margin, the sides convergent anteriorly but fairly straight, posterior margin almost straight. Eyes placed a little further back, more convex and relatively larger than in the 2♂. The scapes extend beyond the hind margin by nearly one-third of their length. The pronotum is nearly flat above, longer than in the 2♂ or nearly as long as wide, the anterior angles somewhat less acute. The dorsum of the epinotum more oblique, forming with the declivity an almost continuous and low curve. Scale a little lower and thicker. Abdomen usually without glabrous patches. Otherwise like the 2♂.

♂ minor, 10-11 mm. Head and antennae often of a slightly reddish black colour. Head similar to that of the ♂ media but longer and narrower, longer than wide, hardly one-fourth wider at its widest than across the anterior margin. The sides in front of the eyes straight and convergent anteriorly, fairly convex behind the eyes, the posterior margin straight. Eyes very convex and relatively much larger than in the 2♂. The scapes extend beyond the hind margin by a little more than two-fifths of their length. Pronotum as long as wide, the anterior angles as in the ♂ media. Abdomen narrower than in the 2♂. Otherwise like the 2♂ and ♂ media.

♀, 16.5-19 mm. Head like that of the ♂ minor, but a little less narrowed in front. Pronotum with rectangular shoulders, plainly visible from above. Dorsum of epinotum shorter than the subvertical declivity, merging into it by a rapid curve. Scale of petiole thicker than in the 2♂, the anterior face more convex from above to

below. Wings fuscous, nervures and stigma blackish brown. Otherwise like the ♀.

♂, 10-11.5 mm. Black. Head, mesonotum and scutellum closely and finely reticulate-punctate and dull; epinotum, scale and abdomen moderately shining and very superficially reticulate-rugulose. The pilosity consists of pale yellowish, long, thin and pointed hairs, quite different from the pilosity of the ♀ and ♂. It is not very abundant, but is more plentiful on the abdomen than elsewhere. Head as long as wide across the eyes, the sides in front of the latter straight, moderately convex behind them. Clypeus carinate. Mandibles large, edentate. The scapes extend beyond the hind margin by at least half their length. Frontal carinae strongly divergent behind. Declivity of epinotum subvertical, slightly convex from above to below, twice as long as the dorsum, their junction widely arcuate. Scale of petiole thick, low, about one and a half times wider than thick, both faces convex transversely, the upper edge obtuse and emarginate in the middle. Wings hyaline or very faintly tinged with yellow, nervures and stigma pale brown.

S.W. Africa, the Karroo and Grahamstown.

(S.A.M., R.M., G.A. colls.).

Var. FLAVOPILOSUS, Emery.

Ann. Soc. Ent. France, vol. 63, p. 54, 1895.

Like the type of the species, but with the pilosity on the abdomen of a pale straw-yellow; the glabrous median patches are rarely present, and when they occur are always smaller than in the type. It attains to a larger size, ♀, 15-17 mm. The scale is a little thicker in both the ♀ and ♂ than in the type of the species.

♂, 9.8 mm. Smaller than the type of the species. The dorsum of the epinotum is more oblique and the scale is less deeply emarginate above, and thicker or about as long as wide. Otherwise like the type.

S. Rhodesia. Almost confined to sandy and well-wooded regions, frequently nesting under stones and fallen trees. A most vicious and courageous insect, which, when the nest is disturbed, has a most uncommon and disconcerting way of rushing out in files direct towards the intruder, even if the latter is standing several feet away from the nest. The bite of the ♀ is quite capable of drawing blood. In walking, the abdomen is carried reflected over the thorax, giving the insect a peculiar and distinctive appearance.

Var. DETRITOIDES, Forel.

Schultze, *Reise Südafrika*, vol. 4, p. 25, 1910.

Like the type of the species, but with large glabrous patches on the 2nd and 3rd abdominal segments. The head is even larger than in the type, in the ♂ measuring 5.2 mm. wide by 5.9 mm. long (including the mandibles). Forel says that apart from the above characters it is exactly like the type species. I have a specimen which is undoubtedly to be referred to this variety which has the head and thorax very dark blood-red, and the abdominal pilosity paler than in the type, more reddish ochreous than fulvous.

Glatkop, Little Namaland, (Schultze); Clanwilliam, Cape Prov. (Malley).

(S.A.M., G.A. colls.).

Race DETRITUS, Emery.

Bull. Soc. Ent. Ital., vol. 18, p. 357, ♂, ♀, 1886.

Forel, *loc. cit.*, p. 26, 1910.

“♀. Very much like *fulvopilosus* but smaller, dark ferruginous, the abdomen black, head nitidulous, more finely reticulate, the sparse puncturation deeper, the scale thinner and more procumbent, pilosity of abdomen pale flavous, the base glabrous, the glabrous patches on the 1st, 2nd and 3rd segments much larger than in *fulvopilosus*. Length, 9.5–13 mm. Damaraland.”

The ♀ minor has the front of the pronotum from shoulder to shoulder sharply marginate.

♀ minor. Walfish Bay. (S.A.M., G.A. colls.).

Race STOREATUS, Forel. (Plate IX, fig. 140).

Loc. cit., p. 26, ♀ minor.

♂, (hitherto undescribed), 15–16 mm. Head, thorax and flagellum dark blood-red or brownish red, the anterior half of the head, the scapes, legs and mandibles very dark reddish brown. Abdomen black. The pilosity of the abdomen is slightly darker than in *flavopilosus*, ochreous and not at all reddish as in the type *fulvopilosus*. It is much more dense than in either of those forms and the glabrous patches are entirely absent. The head is very large, as in the var.

detritoides. The sparse superimposed puncturation more plentiful and deeper. The reticulate-punctate fundamental sculpture is stronger and extends over the scale as well. The anterior angles of the pronotum are produced into slightly flattened teeth, somewhat obtuse at their extreme apices, and about three-quarters as long as their basal width. The scale of the petiole is distinctly emarginate above. Otherwise like *fulvopilosus* and the var. *detritoides*.

♀ media, 12 mm.; ♀ minor, 11 mm. Like the ♂, but the colour of the head, thorax, legs and antennae brighter. As in the ♂, the sculpture is distinctly stronger than in the type of the species. The pronotal teeth in the ♀ media are less prominent, more obtuse, twice as wide at the base as long. The scale is much thicker than in the type, the anterior face strongly convex, the posterior face slightly so transversely, but almost flat vertically, subacuminate in the middle of the dorsal edge. In the ♀ minor the pronotal shoulders are merely angular and the scale is not subacuminate above.

♀, (hitherto undescribed), 16.5 mm. Colour, pilosity and sculpture as in the ♂. Pronotal shoulders merely angular as in the type of the species, which it otherwise resembles.

Willowmore, Cape Prov. (Brauns); Toverwater, Oliphants River, (Arnold).

(S.A.M., R.M., G.A. colls.; types of ♂ and ♀ in my collection).

Race BREVISETOSUS, Forel.

Loc. cit., p. 25, ♂, ♀, ♀.

♂, 10–13 mm. Colour as in *storeatus*, sculpture as in *fulvopilosus* type. The pilosity of the abdomen is pale ochreous, short and quite blunt, evenly distributed but sparse, and showing the colour and sculpture in between the hairs; the latter are distant from each other by as much as their own length. In addition, the abdomen has a fine, sparse and decumbent, yellowish pubescence. The shoulders of the pronotum are much more prominent than in the type of the species, but not so much so as in *storeatus*, merely subdentate. The dorsum of the epinotum is narrow and more cristate, also longer than in the type of the species, its junction with the declivity distinctly angular. The scale is higher and much thinner, the dorsal edge emarginate in the middle and sharply trenchant.

♀ minor, 7.5–9 mm. The head of a brighter red than in the ♂ and without the superimposed puncturation. The epinotum is more compressed, the dorsum being almost linear; it joins the declivity a

little less angularly than in the ♀. Scale more shallowly emarginate. Otherwise like the ♀.

“♀, 14 mm. Head red, all the rest black. Abdomen with the same sort of pilosity and pubescence as the ♀. Scale fairly thin.”

Natal, 3,000 ft. (Haviland); Capetown, ♀. (Wilms).
(G.A. coll., ex Haviland coll. in the Natal Museum).

GENUS POLYRACHIS, Shuckard ? (Smith).

Shuckard, Hist. Insects, 1840.

Smith, Journ. Proc. Linn. Soc., 11, p. 58, 1858.

Characters.

♀. Antennae 12-jointed, flagellum filiform, scapes long. Maxillary palpi 6-, labial palpi 4-jointed. Monomorphic. Frontal carinae always raised. Pronotum, and often epinotum armed with spines or teeth. (Mesonotum unarmed in all our species.) Lateral margins of the dorsum of the thorax sharply marginate in nearly all S. African species, the sides of the thorax vertical. Scale of the petiole nearly always armed with spines or teeth. Abdomen more or less globose, the 1st segment much larger than the rest, forming half or more of the abdomen.

♀. Antennae as in the ♀. Armature of the thorax much weaker than in the ♀, or obsolete. Wings with a closed radial and one cubital cell, the cubital vein usually reaching the outer margin, no discoidal cell.

♂. Antennae 13-jointed. Thorax and petiole unarmed, the epinotal stigmatic orifices sometimes very prominent laterally. Very much like the ♂♂ of *Camponotus*, in many cases indistinguishable from them. Distribution. Both hemispheres.

The species of *Polyrachis* nest either in trees or in the ground. The nest is frequently made of a silky woven material, intermixed in some cases with carton. With some species, the entrance to the nest is surmounted by a raised wall of woven grass or similar material, intermixed with what appears to be silk.

Key to the species of Polyrachis, ♀.

- (14) 1. Large species, not less than 8 mm. long; the pronotum with acute spines which are as long as, or nearly as long as, the portion of the pronotum behind them, or at least twice as long as their basal width.

- (9) 2. Whole body fairly dull.
- (4) 3. More than 12 mm. long; pubescence on the thorax very dense, pale golden or grey, hiding the sculpture *militaris*, Fab.
- (3) 4. Less than 12 mm. long; pubescence on the thorax less dense.
- (8) 5. Pubescence greyish.
- (7) 6. Pubescence long, hiding the sculpture of the head and thorax
schistacea, Gerst.
- (6) 7. Pubescence shorter, not hiding the sculpture
schistacea, race *rugulosa*, Mayr.
- (5) 8. Pubescence distinctly silvery *schistacea*, race *Schlüterii*, Forel.
- (2) 9. At least the abdomen very shining.
- (13) 10. Head and thorax subopaque.
- (12) 11. Eyes flat *schistacea*, race *gagates*, Smith.
- (11) 12. Eyes moderately convex *schistacea*, race *indefinita*, Forel.
- (10) 13. Head moderately shining, thorax and abdomen very shining
indefinita, var. *acheron*, Arnold.
- (1) 14. Smaller species, less than 8 mm. long; pronotum with teeth which are rarely more than one and a half times longer than their basal width, and always much shorter than the portion of the pronotum which lies behind them.
- (22) 15. Abdomen dull, without pilosity.
- (17) 16. The inner pair of spines on the petiole much shorter than the outer pair
viscosa, Smith.
- (16) 17. The inner pair of spines on the petiole longer than the outer pair.
- (19) 18. Abdomen and thorax very distinctly longitudinal striate; the inner pair of spines on the petiole thinner than, but only a little longer than, the outer pair *Arnoldi*, Forel.
- (18) 19. Abdomen reticulate.
- (21) 20. Thorax strongly and longitudinally rugoso-striate, not much wider in front than behind; meso-epinotal suture distinct; pronotal teeth a little longer than their basal width *spinicola*, Forel.
- (20) 21. Thorax finely reticulate-punctate, much wider in front than behind; meso-epinotal suture nearly obsolete; pronotal teeth shorter than their basal width *cubaensis*, Mayr, race *durbanensis*, Forel.
- (15) 22. Abdomen shining, with a fairly abundant and long pilosity
Revoili, André.

Cubaensis Mayr i. sp., and its race *gallicola* Forel, are not included in the key above, being unknown to me in nature. *P. Gamaii* Santschi is also excluded, only the ♀ being known.

P. SCHISTACEA, Gerstaecker.

Monatsb. Akad. Wiss. Berlin, p. 262, ♀, 1858.

♂, 7.5-9 mm. Black, dull. Clothed all over with a dense, decumbent and fine cinereous pubescence, which, on the head and thorax,

where it is most abundant, more or less masks the sculpture. Pilosity greyish yellow, more or less erect, fairly scanty on the thorax, more abundant on the head and abdomen. On the legs and scapes the pilose hairs are coarser, and the pubescence finer.

Head, thorax and petiole more or less longitudinally rugose, here and there reticulate-rugulose, the spaces between the rugae coriaceous. Abdomen closely and finely reticulate-punctate. Legs and scapes very finely reticulate-punctate or merely reticulate. Head, including the closed mandibles, oval, two-fifths longer than wide, hardly wider behind than in front, very convex above. Clypeus convex transversely, slightly depressed behind the anterior margin which is convex and entire. Frontal carinae raised, feebly sinuate, fairly closed together. Eyes very convex, (the degree of convexity is variable), placed at the posterior third of the sides. The scapes incrassate apically, extending beyond the hind margin by half their length and reaching the pro-mesonotal suture. Mandibles elongate triangular, strongly sulcate and punctate in between the sulci, 5-dentate. Pronotum narrowed anteriorly from about the anterior third and armed at that point on each side with a long and acute spine lamelliform in its basal half, divergent and directed forwards and slightly outwards, two and a half times longer than its basal width and as long, or nearly as long, as the portion of the pronotum behind it; the posterior two-thirds of the pronotum parallel-sided. The sides of the dorsum of the thorax, from the pronotal spines as far as the epinotal teeth, are sharply marginate, the margins projecting a little beyond the vertical sides, and over the base of the mesonotum reflected a little upwards. Both thoracic sutures sharply defined. Mesonotum a little wider in front than behind, twice as wide as long, the anterior margin feebly arcuate, the posterior margin straight. Dorsum of epinotum convex lengthwise and sloping downwards behind, one-fifth longer than wide, parallel-sided, ending on each side behind in a rounded and upturned triangular tooth. Declivity of epinotum concave from above to below, oblique, half as long as the dorsum. The dorsal profile of the thorax forms a fairly high and continuous convexity. Scale of petiole seen from the side more or less conical, seen from above, with an anterior and a posterior face, the anterior face trapezoidal, widest above and fairly flat transversely, the posterior face convex, the dorsal edge thick and rounded from front to back, ending on each side in a long and acute spine which is as long as or longer than the anterior face of the scale, curved, divergent and directed upwards. Just below and outside these inner spines there

is on each side a short triangular tooth, as long as wide. The distance between the apices of the inner spines is about twice the length of the spine. Abdomen globose. Legs long and stout.

Durban.

(S.A.M., R.M., G.A. colls.).

Var. *DIVINOIDES*, Forel.

Rev. Zool. Afric., vol. 2, p. 348, 1913.

A very slight variation in which the pronotum is as long as wide or nearly so, and as wide in front as behind (excluding the sloping neck-like portion in front of the spines). In the type species the pronotum is one-quarter wider than long. The arc of the occiput is more convex and the lateral spines of the scale shorter.

Transvaal.

Race *RUGULOSA*, Mayr. (Plate VIII, figs. 125, 125a).

Verh. Zool. Bot. Ges. Wien, vol. 12, p. 685, ♀, 1862.

♂, 10-11 mm. Very similar to the type of the species, but larger and more robust, the pubescence less abundant, hardly hiding the sculpture. The spaces between the rugae on the head and thorax are slightly shining. The head is wider, more convex at the sides, between one-sixth and one-seventh longer than wide; the clypeus feebly carinate. The lateral margins of the thorax are more deeply emarginate at the pro-mesonotal suture, owing to the sides of the pronotum converging more towards that point, and to the corners of the mesonotum projecting further outwards. The pronotal spines are wider at their base, and are very little more than twice as long as wide at the base. The dorsal profile of the thorax forms a higher convexity. The outer pair of spines on the petiole are a little larger and less triangular. Otherwise like the type of the species.

♀, (hitherto undescribed?), 12 mm. Head a trifle longer than in the ♂, and a little less convex-sided. Pronotal spines much shorter than in the ♂, plainly visible from above, a little longer than their basal width. Mesonotum wider than long, very convex in front. Scutellum very convex from front to back, transversely oval, half as long as the mesonotum and four-fifths wider than long. Dorsum of epinotum moderately oblique, feebly convex transversely, widest at

the base and two and a half times wider there than long, the posterior corners feebly dentate. The declivity is nearly as long as the dorsum. Scale of petiole narrower than in the ♀, the inner spines much less divergent and shorter, shorter than the interval between their bases (as long as the interval in the ♀). Wings deeply tinged with brown, nervures and stigma dark brown.

S. Rhodesia; fairly common. The nest is made in the ground, under stones. The entrance is surrounded by an irregular, cup-like wall about 1 to 1½ inches high, made of woven pieces of grass-blades and similar material. Like all the members of this genus, this ant is a timid insect. It climbs trees and shrubs, and tends Aphids, Coccids, etc.

(S.A.M., R.M., G.A. colls.; type (?) of ♀ in my collection).

Race GAGATES, Smith. (Plate IX, fig. 127).

Cat. Hymen. B.M. VI, p. 71, ♀, 1858.

Forel, Ann. Soc. Ent. Belg., vol. 30, p. 194, ♀, 1886.

“ ” ” ” ” ” ” 57, p. 357, 1913.

♂, 10–11 mm. Head and thorax subopaque, petiole and abdomen very shining. The sculpture on the head and thorax more evenly and a little more strongly striato-rugose than in the type of the species, not hidden by the pubescence which is exceedingly sparse and inconspicuous. Abdomen microscopically reticulate, without pubescence, pilose only on the apical margins. Eyes nearly flat, otherwise the head is like that of *rugulosa*. The sides of the pronotum behind the spines parallel over the greater part of their length, not gradually convergent behind as in *rugulosa*. The dorsum of the thorax is a good deal more convex, especially on the posterior half than in *rugulosa*, the dorsum of the epinotum sloping more steeply downwards; the epinotal teeth somewhat wider and curved more upwards. The inner spines of the scale less divergent than in the type of the species, which it otherwise resembles.

“♀, 10 mm. Thorax very gibbous in front. Pronotal spines half as long as in the ♀. The inner spines of the scale half as long as in the ♀, only twice as long as the outer spines, the latter as strong as in the ♀. The mesonotum is very shining, very feebly reticulate, like the abdomen. The scutellum and epinotum have a much coarser sculpture and are dull, as in the ♀. The scapes, and particularly the tibiae, with some erect pilose hairs. Deälated. Otherwise like the ♀.

Possibly the sparse pilosity on the scapes and tibiae constitutes a variety, and is not merely a ♀ character."

Durban, (C. B. Cooper); Shiluvane, Transvaal, (Berthoud).

Race INDEFINITA, Forel.

(as var. of *gagates*) Rev. Zool. Afric., vol. 2, p. 349, 1913.

"♂, 11 mm. This race differs from *P. nigriseta* Santschi by having the eyes about intermediate in structure between that species and *P. gagates*. They are not so strongly convex as in *nigriseta*, nor entirely flat as in *gagates*, but very feebly convex. Otherwise exactly like *gagates*."

Selukwe, S. Rhodesia, (A. E. V. Zealley).

(S.A.M., R.M., G.A. colls.).

INDEFINITA, var. ACHERON, n. v.

♂, 10-10.5 mm. Eyes distinctly convex, (about one-third of a sphere), the convexity twice as strong as in *indefinita*. Sculpture much more superficial than in either *gagates* or *indefinita*, the thorax, especially the pro-mesonotum, being almost as shining as the abdomen. The pronotal spines are more distinctly incurved at their apex than in *indefinita*. The lateral margins of the dorsum of the epinotum moderately convex outwardly. Abdomen distinctly more shining than in *gagates* or *indefinita*. Otherwise like the latter.

Hillside, Bulawayo. The nest under a large rock, the entrance surmounted by a wall of woven material, which also lined the first three or four inches of the gallery.

(S.A.M., R.M., G.A. colls.; type in my collection).

P. MILITARIS, Fab. (Plate IX, fig. 128).

Spec. Insect., 1, p. 493, ♀, 1781.

Mayr, Verh. Zool. Bot. Ges. Wien, vol. 16, p. 886, ♂, 1866.

Forel, Bull. Soc. Vaud. Sc. Nat., vol. 16, p. 119, 1879.

This species has not, to my knowledge, been recorded within our limits, but as it or some of its varieties occur in the adjacent regions, it is possible that they may be recorded later on from parts of Natal or the eastern part of S. Rhodesia, and a description is therefore desirable.

♂, 13 mm. A larger and more robust insect than *schistacea* or any of its varieties. Black. Head rather finely and more or less longitudinally reticulate-rugose, the sculpture a good deal stronger than in *schistacea*. Thorax longitudinally rugulose, petiole irregularly rugose and partly reticulate-rugose. Abdomen finely and densely reticulate-rugulose and feebly shining. Head and thorax dull. Pubescence yellowish grey, fairly long, more or less hiding the sculpture on the thorax, much shorter on the abdomen, scapes and legs, least abundant on the head. Pilosity yellowish, a little more plentiful than in *schistacea*, especially on the legs. Head one-sixth longer than wide, the sides feebly convex (less convex than in *schistacea*), as wide in front as behind. Clypeus not transversely impressed behind its anterior margin. Mandibles very finely striate and feebly punctured. Eyes convex, placed at the posterior third. The head is as wide as or wider than the distance between the base of the pronotal spines (narrower in *schistacea* and its races). The scapes extend beyond the hind margin by half their length. Pronotal spines about twice as long as their width across the base. The lateral margins of the dorsum of the thorax more deeply excised at the sutures than in *schistacea*, the anterior angles of the meso- and epinotum raised higher, so that the base of the dorsum of the epinotum is rendered slightly concave transversely. Pro-mesonotal suture strongly arcuate. Mesonotum one and three-fourths wider in front than long. Dorsum of epinotum about as long as wide, quadrate, its apical teeth fairly acute, directed upwards, and stronger than in *schistacea*. Anterior face of the scale almost dorsal in position, the petiole being inclined further backwards than in *schistacea*; the inner spines shorter than the anterior face is long, the outer spines about one-third as long as the inner, much longer than in *schistacea*, and separated from the inner pair by a greater distance, the distance being about equal to half the length of the inner spine.

(G.A. coll.).

SCHISTACEA race, SCHLÜTERI, Forel. (Plate IX, fig. 129).

Ann. Soc. Ent. Belg., vol. 30, p. 195, ♂, 1886.

(var. *indigena*, syn. with type), Bull. Soc. Vaud. Sc. Nat.,
vol. 50, p. 261, 1914.

♂, 8.5–9 mm. Black; head and thorax finely reticulate-rugulose, more or less longitudinal on the head, the sculpture much finer than

in *schistacea*. Abdomen delicately reticulate and dull. The sculpture, and to some extent the colour, is masked by the dense and decumbent pubescence, which has a silky and bright silvery appearance. Pilosity entirely wanting, even on the legs. Head quadrate rather than oval, more rectangular than in *schistacea*, about one-sixth longer than wide, the sides feebly convex or nearly straight, about as wide in front as behind, and with a feebly convex or nearly straight posterior margin which is plainly visible from above, (not so in *schistacea*, in which the margin is placed very low down). Clypeus not carinate, not depressed behind the anterior margin. The pronotal spines are much wider at the base than in *schistacea*, and their outer margins are continuous with the margins of the pronotum, not forming an angle with the latter as in *schistacea*. The dorsum of the thorax is more arched, especially behind, the posterior half of the dorsum of the epinotum being almost vertical. The dorsum of the epinotum is a little wider than long and slightly wider behind than in front; the posterior angles terminate in small obtuse tubercles, not teeth. The spines of the scale are a little shorter and less divergent, and the outer teeth a little longer than in *schistacea*. Otherwise like that species.

♀, (hitherto undescribed), 10 mm. Pronotal spines almost as long as in the ♂, twice as long as their basal width. Mesonotum one-fourth wider than long, scutellum half as long as the mesonotum, very little wider (excluding the paraptera) in front than behind. Dorsum of epinotum quadrate, two and a half times wider than long, barely wider in front than behind, its basal half horizontal, the apical half curving slightly downwards. The declivity vertical, a little shorter than the dorsum, moderately concave from above to below. The lateral teeth of the scale much stouter than in the ♂, the inner spines one-third shorter and less divergent than in the ♂. Wings brown, nervures and stigma blackish brown. Otherwise like the ♂. In hot and moist localities only.

Palm Grove, Victoria Falls; Stella Bush, Durban.

The specimens from Durban were separated by Forel as a distinct variety, differing from the type only by the slightly less robust stature and the less brilliant pubescence. The supposed difference in the nature of the pubescence is, however, unreal, being due to the specimens having been immersed in spirits of wine, which, to a very great extent, destroys the brilliancy. In life, the insect is brilliantly silvery.

(S.A.M., R.M., G.A. colls.; type of ♀ in my collection).

P. viscosa, Smith. (Plate IX, fig. 132).

Cat. Hymen. B.M. VI, p. 71, ♂, 1858.

♂, 6-7 mm. Black, dull. Head, thorax and petiole finely reticulate-rugose or rugulose, the rugae emphasised longitudinally, the spaces between them reticulate-punctate. Legs shallowly, the abdomen closely and deeply reticulate-punctate. Pubescence very short and inconspicuous, present only on the legs and antennae; a few pilose hairs on the anterior margin of the clypeus and the apex of the abdomen, otherwise glabrous. Head oval, one-fifth longer than wide, slightly narrowed in front. Clypeus moderately convex, not carinate, finely and longitudinally striate and also very shallowly punctured with elongate punctures, its anterior margin arcuate, slightly raised, narrowly and angularly excised in the middle. Mandibles strongly striate longitudinally, 5-dentate. Eyes large and flat, placed at the posterior third of the sides. The scapes extend beyond the hind margin by about one-third of their length, and are rather abruptly widened at their apex. Dorsum of thorax fairly convex from side to side and lengthwise, sharply marginate at the sides. The pronotal spines are about one and a half times longer than their basal width, and the sides of the pronotum behind are two and a half times longer than the spines. The pronotum, excluding the part in front of the spines, is one-fourth wider than long, hardly narrower at the suture than just behind the spines. Pro-mesonotal suture deep, nearly straight. Meso-epinotal suture almost obsolete. Mesonotum twice as wide as long in the middle. Dorsum of epinotum quadrangular, nearly twice as wide as long, the posterior corners bearing slightly curved and upwardly directed triangular teeth, which are as long as their basal width. Scale of petiole much wider above than below, one-third wider than long (i.e. thick), both faces very convex; the inner spines are hardly longer than their basal width and about half as long as the interval between their bases; the outer spines are directed upwards, outwards, and backwards and vary a little in length, but are at least twice as long as the inner pair, and are as far apart at their base from the inner ones as the latter are from each other. Base of abdomen concave, fitting the posterior convex face of the scale.

On sandy soil, climbing over grass and low shrubs.

Cawston Block, Umgusa River and Redbank, S. Rhodesia; Lonely Mine, S. Rhodesia, (Swale).

Quite distinct from all our other species by having the inner spines of the petiole shorter than the outer.

(S.A.M., R.M., G.A. colls.).

P. ARNOLDI, Forel. (Plate IX, fig. 126).

Bul. Soc. Vaud. Sc. Nat., vol. 50, p. 263, ♂, 1914.

♂, 7.5 mm. Black; a few pilose hairs on the anterior margin of the clypeus and at the apex of the abdomen, legs and scapes very sparsely pubescent, otherwise entirely glabrous. Dorsal surface of the body evenly, sharply and longitudinally striate or sulcate, the spaces between the striae moderately shining. Petiole and sides of thorax fairly coarsely and irregularly reticulate-rugose, the rugae more or less longitudinal on the upper half of the scale. Legs, clypeus and declivity of epinotum shining, feebly reticulate, the clypeus also sparsely and very shallowly punctured. Head subovate, widest across the eyes, hardly longer than wide, narrower in front than behind, the sides in front of the eyes fairly straight and convergent anteriorly, convex behind the eyes, the posterior margin very convex. Clypeus almost flat, the anterior margin arcuate and feebly emarginate in the middle. Mandibles subopaque, finely reticulate, sparsely punctured, 5-dentate. The scapes extend beyond the hind margin by about one-third of their length. Eyes large, moderately convex, placed a little behind the middle. Pronotum feebly narrowed behind, its lateral margins feebly convex, two-thirds wider than long in the middle (excluding the portion in front of the spines), the spines broad, flattened, acute, a little longer than their basal width, their outer margins not forming an angle at their junction with the lateral margins of the pronotum. Mesonotum half as wide again as long, the pro-mesonotal suture distinct, the meso-epinotal also, but shallower. Dorsum of epinotum convex transversely and lengthwise, its lateral margins nearly straight, slightly narrowed towards the apical margin which is distinctly marginate, and furnished at each side with a triangular, subvertical tooth which is a little longer than wide, and with a small and triangular and median tooth. Declivity as long as the dorsum, subvertical, moderately concave from above to below. Scale of petiole thick, as thick below as it is wide above between the two inner spines, both faces very convex, furnished above with 4 spines, the inner pair very little longer than the outer and slightly wider apart at their bases than they are from the outer spines.

Durban. The only nest found was made in a shallow concavity on the vertical trunk of a tree, the hollow being covered by a more or less circular lid, about $2\frac{1}{2}$ inches in diameter, made of a very closely woven silky web in which were embedded particles of bark and dirt. (S.A.M., R.M., G.A. colls.).

P. SPINICOLA, Forel. (Plate IX, fig. 130).

Mitt. Schweiz. Ent. Ges., vol. 9, p. 70, ♂, ♀, 1894.

♂, 5.8-6.5 mm. Black; femora, tibiae, apical joints of the tarsi and apex of flagellum more or less reddish, the other joints of the tarsi brown. Almost glabrous, subopaque. Head reticulate-rugose and here and there pitted, the pits not large. Thorax longitudinally rugoso-reticulate, reticulate-punctate between the rugae. Petiole irregularly rugose. Abdomen very densely and evenly reticulate-punctate. Sides of thorax fairly coarsely reticulate and rugose, the legs and scapes very delicately reticulate.

Head subovate, the sides very convex, the posterior margin not distinctly delimited from the sides, as long as it is wide across the eyes where it is widest, narrower in front of the eyes than behind them. Clypeus feebly carinate, its anterior margin arcuate. Mandibles fairly dull, microscopically aciculate, also sparsely punctured, 5-dentate.

Eyes very convex, hemispherical, projecting beyond the sides of the head, placed at the posterior third. The scapes extend beyond the hind margin by about one-third of their length. Pronotum twice as wide as long (excluding the neck), the lateral margins moderately convex; the pronotal spines are about as long as wide at their base. Both thoracic sutures distinct, the pro-mesonotal feebly arcuate; the mesonotum about one and a half times wider than long, its lateral margins not in the least reflected upwards. Dorsum of the epinotum a little wider than long, distinctly widened towards the apex, which is armed at each corner with a curved tooth, directed outwards, backwards and upwards, the interval between the teeth sharply marginate; the teeth are somewhat obtuse and fairly long, but not so long as the pronotal. Declivity of the epinotum shining, marginate at the sides, very concave from above to below. Scale biconvex, thick, the two inner spines a little thinner and longer than the outer, and curved more backwards. Abdomen concave at its base and inclined forwards.

"♀, 7.7 mm. Like the ♂. The apical margins of the dorsum of the very wide epinotum is undulate, convex in the middle, concave on each side, and ending in obtuse teeth. Pronotum with two strong short spines, produced in front and outwards, lamelliform. Wings faintly tinged with brown, with brown stigma and nervures. Otherwise like the ♂."

Durban, (Marley, Cooper, Arnold), on trees; Delagoa, in hollow thorns of *Acacia*, (Junod); Grahamstown, (Hewitt); Port Elizabeth, (Brauns).

(S.A.M., R.M., G.A. colls.).

P. CUBAENSIS, Mayr.

Verh. Zool. Bot. Ges. Wien, vol. 12, p. 687, ♀, 1862.

Jahrb. Hamburg Wiss. Anst., vol. 10, pp. 3 and 5, 1893.

"♂, 7 mm. Black, slightly shining, ends of the mandibles, the antennae and, to some extent, the legs brown-red. Pilosity wanting; the decumbent pubescence very fine and short, sparse on the head and thorax, more plentiful on the abdomen, tibiae and tarsi. Mandibles very finely rugulose, sparsely and coarsely punctate. Clypeus very finely coriaceous, sparsely punctured, fairly shining. The frons finely and longitudinally rugulose, the vertex punctate and rugulose. Thorax finely punctured, partly rugulose, with 4 teeth, the pronotum having on each side a triangular and acute tooth, directed outwards and somewhat forwards (lamelliform or like a ledge); the epinotum with a short and acute tooth on each side. The petiole with a thick, wide and rounded scale, the arcuate upper margin of which is armed with 4 equidistant teeth, of equal size, short, straight, directed upwards and somewhat backwards. The abdomen fairly superficially shagreened and reticulate."

Durban. Owing to an unfortunate error by which wrong labels were attached to the type of this species and *rugulosa*, Mayr was misled into believing that they were derived from the western hemisphere, hence the totally inappropriate name with which this species is burdened.

Race *GALLICOLA*, Forel.

Mitt. Schweiz. Ent. Ges., vol. 9, p. 71, ♂, ♀, 1894.

"♂. Like the type of the species, but the two inner spines of the petiole are twice as far apart as they are from the outer spines. The

scale is almost trenchant above, not at all transversely impressed, but like that of *schistacea* and even thinner, and with the outer spines almost as long as the inner. Head as wide as long, very wide behind. Eyes fairly flat, although not so flat as in *gagates*. Head and thorax sharply and longitudinally rugose; sides of the head in front reticulate; finely reticulate-punctate between the rugae. Femora and tibiae partly reddish to brownish yellow.

♀, 7.5-8 mm. The inner spines of the scale curved somewhat backwards, not much longer than the outer spines and not much further apart from each other than they are from the outer spines. Otherwise like the ♂.

Delagoa, (Dr. Liengme), in hollow stem galls. The walls of the gall partly covered with a web."

Race DURBANENSIS, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 262, ♂, ♀, 1914.

"In the race *gallicola* the head is wider and there are some distinct longitudinal rugae, and the thorax, especially the epinotum, is more convex than in this race. The ♀ is a little more slender than in *gallicola*, the sculpture finer and the body duller."

♂, 7-7.4 mm. Black, dull, glabrous, except for a very fine and inconspicuous pubescence on the legs and scapes, and a few pilose hairs on the clypeus and apex of abdomen. Head reticulate-punctate, with a few indistinct longitudinal rugae on its anterior half, the clypeus and space between the frontal carinae merely reticulate-punctate, more finely so than on the rest of the head. Thorax and petiole finely and closely reticulate-punctate, the thorax with a few feeble and indistinct longitudinal rugae superimposed. Abdomen densely reticulate-punctate. Head shaped like that of *spinicola*, the eyes convex and prominent, the clypeus carinate, its anterior margin convex and entire. Pronotum two and a third times wider than long (excluding the neck), armed with a short, wide tooth on each side, shorter than its basal width; the lateral margins of the pronotum convex. Mesonotum subovate transversely, one-third wider than long, the pro-mesonotal suture arcuate anteriorly, the meso-epinotal arcuate posteriorly. Dorsum of epinotum parallel-sided, a trifle longer than wide, armed with a very small tooth on each side of its apical margin; declivity nearly as long as the dorsum, concave. Anterior margin of the thorax nearly twice as wide as the apical

margin of the epinotum. The inner spines of the petiole are barely divergent, directed vertically upwards, about one-third longer than the outer spines and a little nearer to the latter than they are to each other. The outer spines twice as long as their basal width.

♀, 7.9 mm. Pronotum merely angular on each side, not dentate. Dorsum of epinotum also only angular at the posterior corners. The outer spines of the scale are a good deal thicker and more obtuse than the inner ones, and only a little shorter. Wings tinged with brown, nervures ochreous brown, stigma brown. Otherwise like the ♀.

Durban, (C. B. Cooper).

(S.A.M., R.M., G.A. colls.).

P. REVOILI, André. (Plate IX, fig. 131).

(syn. *P. natalensis*, Santschi).

Rev. d'Ent., vol. 6, p. 285, ♀, 1886.

Forel, Mitt. Schweiz. Ent. Ges., vol. 9, p. 71, ♀, 1894.

„ Rev. Suisse Zool., vol. 24, p. 452, ♀, ♂, 1916.

♂, 4.8-5.5 mm. Black. Head and thorax dull, abdomen fairly shining. Head sharply and longitudinally striato-rugose, thorax and petiole more or less longitudinally rugoso-reticulate. Pubescence greyish, long, decumbent, fairly abundant all over, particularly on the thorax. Pilosity greyish yellow, erect, long and abundant all over. Head longer than wide, subovate, wider behind than in front. Clypeus subcarinate, the anterior margin arcuate. Eyes placed at the posterior third, fairly convex and prominent. Pronotum with a tooth on each side which is broad at the base and thin in its apical half, as long as its basal width. Pronotum two and a half times wider than long, and quite twice as wide between the teeth as the apical margin of the epinotum. Both thoracic sutures feeble. Mesonotum two and a quarter times as wide as long. Dorsum of the epinotum trapezoidal, two-thirds wider in front than behind, sloping steeply downwards, armed on each side behind with a very small and vertical tooth. The inner spines of the scale vertical, curved slightly backwards, much longer than their basal width, about two-thirds as long as the interval between their bases; the outer spines very short, merely triangular teeth, placed close to the inner spines.

“♀, 6-7 mm. Wings brown. The epinotum is completely unarmed or sometimes furnished with a small and obtuse tooth. The

mesonotum is merely reticulate, or also with a few longitudinal striae.

♂, 4.5-5 mm. Wings hardly less brown than in the ♀. Mandibles 4-dentate. Head with a wide and convex posterior margin, nearly twice as wide as the anterior. Finely reticulate and subopaque, without coarse sculpture. Scale very thick and low, unarmed. Pilosity sparse all over, very short and oblique on the tibiae and scapes."

Durban.

(S.A.M., R.M., G.A. colls.).

P. GAMAH, Santschi.

Ann. Soc. Ent. France, vol. 85, p. 295, ♀, 1917.

"♀, 8.5 mm. Black. Mandibles, trochanters and tarsi brownish. Apical margins of abdominal segments narrowly reddish. Shining. Occiput, sides of the head and pronotum, mesopleura, epinotum and scale very finely reticulate-punctate. Erect pilosity fine, woolly, sparse on the head and thorax, more abundant on the abdomen. Pubescence golden and oblique, fairly scanty, quite distinct and exerted on the cheeks.

Head about one-sixth longer than wide, subtruncate in front. Occipital margin widely concave, the posterior angles distinct although rounded. The sides are a little convex, particularly behind the eyes. The latter are placed a little behind the middle of the sides, of which they occupy about a fourth. The distance between the frontal carinae is about equal to their distance from the eyes. Frontal area small, not very distinct, followed by a median sulcus which does not extend beyond the level of the ends of the frontal carinae. Ocelli small and fairly close together. Clypeus convex, not carinate, the anterior margin fairly arcuate. Mandibles punctured, striate, narrow, the inner and outer margins subparallel, the masticatory margin armed with a strong apical tooth and four small teeth behind it. Thorax elongate, a little narrower than the head, higher than wide. Lateral margins of pronotum rounded, the shoulders distinct but rounded. The mesonotum and scutellum form an oval disc, nearly twice as long as wide, separated by a semilunar groove which does not reach the outer margins. Metanotum very narrow, not much depressed. Dorsum of the epinotum as long as the declivity, not marginate, evenly convex transversely, feebly convex lengthwise, armed with two short, thick and upturned teeth. Declivity vertical

in its upper two-thirds which is marginate and transversely concave ; the lower third, on the contrary, is not marginate, and is convex transversely. Scale thick, a little higher than the length of its base. The anterior face vertical, feebly convex transversely. Posterior face convex and oblique in front, merging into the upper face which is concave between its angles. The latter prolonged into a spine which is directed backwards, upwards and outwards and is as long as the interval between its base and that of the other spine. The very angular (trenchant ?) outer margin of the scale has a slight triangular prominence below the spine. Abdomen oval, wider than the thorax, subtruncate in front with the margins rounded. Decaled."

Natal, (H. B. Marley).

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Names in italics are synonyms, or, in the case of generic names, genera to which the species have been wrongly assigned.

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