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M. G. D. J. meek

ANNALS
OF THE
SOUTH AFRICAN MUSEUM

VOLUME XIV, PART II.

- Supplement, part*
- 1.—*A Monograph of the Formicidae of South Africa* (~~Ponerinae, Dorylinae~~). By GEORGE ARNOLD, D.Sc., A.R.C.S., F.E.S., Curator of the Rhodesia Museum, Bulawayo, pp. 159-270. (Plates II-IV.)



ISSUED MAY 20th, 1916.

PRINTED FOR THE
TRUSTEES OF THE SOUTH AFRICAN MUSEUM
BY ADLARD AND SON AND WEST NEWMAN,
BARTHOLOMEW CLOSE, LONDON.

entirely hidden by the mesonotum. The latter is similar to that of the ♀, but less flattened and with the parapsidal sutures more distinct. The scutellum is narrower and more convex posteriorly, and raised higher above the level of the epinotum. The latter is very smooth and shining, the dorsum wider than long, and merging gradually into the declivity. Genital armature exerted. Wings as in the ♀.

The above description differs in some respects from that given by Santschi, which was drawn up from a single specimen in a damaged condition. There can be no doubt as to the correct identity of the numerous specimens of ♂♂ on which the above description is based, since they were taken in the same nest with the ♀ and ♀.

S. Rhodesia; fairly common. Kalahari. (Schultze.) Durban. (Marley.)

This is a timid and quick ant, living on trees and nesting under the bark. When disturbed, it emits from the anal glands a white sticky fluid, which hardens on exposure to the air.

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

TRIBE PROCERATIINI.*

GENUS DISCOTHYREA, Roger.

Berl. Ent. Zeitschr., vol. 7, p. 176, 1863. Emery, Ann. Soc. Ent. Belg., vol. 45, p. 51, 1901.

Characters.

♂. Antennae 9-jointed, the scape strongly incrassate apically, the flagellum clavate, the last joint nearly as long as the remaining joints taken together. Mandibles edentate. Clypeus fused with the frontal carinae and the cheeks, forming a semi-circular disc in front of the antennae and projecting over the mandibles. On this disc, the frontal carinae are fused together, to form a single lamella at the level of the antennal sockets, but more or less free behind that point. Eyes small or very small. Thoracic sutures absent. The declivity of the epinotum marginate and excavated. Petiole bell-shaped or thickly squamiform; 1st segment of abdomen not very large, separated from the 2nd by a feeble constriction. Abdomen anteflexed, the apical segments curved downwards and forwards under the 2nd segment as in *Proceratium*.

♀. Winged. Eyes and ocelli well developed. Pronotum exposed above only at the sides. Otherwise like the ♂.

* Page 33.

♂. Antennae 13-jointed. Clypeus, frontal carinae, mandibles, petiole, and abdomen more or less like those of the ♀. Mayrian furrows present. Subgenital plate rounded. Wings with one closed cubital cell; no discoidal cell.

Nymphs without cocoons in *D. oculata*, Emery.

Distribution. North America and the tropical regions of both hemispheres.

This genus can be distinguished from *Sysphincta* and *Probolomyrma*, and also from the new genus described further on, by the 9-jointed antennae.

D. HEWITTI, n. sp.

♀. 2.2 mm. Reddish ochreous, the occipital margin of the head, the thorax and petiole darker or more brownish red. Dull, microscopically coriaceous-punctate; 2nd abdominal segment slightly shining and fairly smooth. Clothed with a fairly dense but exceedingly fine and short pubescence. Head very convex in its posterior half, one-fifth longer than wide, wider behind than in front, the sides feebly convex, the posterior margin straight or slightly concave. Clypeus of the shape usual to the genus, being produced in front into a horizontal shelf, hiding the mandibles, the anterior margin convex. Frontal carinae fused into a single triangular plate, the front edge of which is perpendicular to the plane of the clypeus and feebly convex, the dorsal edge (when seen from the side) straight and horizontal, not extending beyond the anterior fifth of the head. Mandibles triangular, with a sharp tooth at the apex. Eyes large, convex, placed a little in front of the middle of the sides; ocelli small, placed at the angles of an equilateral triangle. Antennae 9-jointed, the scape strongly dilated apically, its apical width being nearly one-third of its length. First joint of flagellum as long as wide, 2nd—6th joints much wider than long, the apical joint ovoid, pointed, twice as long as wide, longer than the rest of the flagellum. Pronotum widely exposed above at the sides, very little in the middle, the anterior angles rounded, the sides parallel. Mesonotum moderately convex above, longer than wide, the scutellum convex behind. Dorsum of epinotum very short, almost parallel-sided, or only very slightly narrowed towards the apex, the apical margin or brow of the declivity blackish, nearly straight, the lateral corners rectangular but not dentate; the declivity vertical, submarginate. Petiole nodiform, transverse, twice as wide as long, feebly convex above, sharply truncate in front, the anterior face vertical; the ventral lamella produced in front into an oblong and

rectangular lobe, which is longer than deep. First segment of abdomen campaniform, as long as wide at the apical margin, where it is widest; 2nd segment a little longer than the 1st, the remaining segments entirely hidden under the 2nd and reflexed underneath it, so that the apex of the abdomen is directed forwards. Deälated.

Grahamstown (Hewitt), 2 specimens. Type in the Albany Museum, Grahamstown.

Very closely allied to *Traegaordhi*, but in the absence of the ♂ sex, it is not advisable to unite it with that species, from which it differs by the shorter plate of the frontal carinae and by the narrower petiole.

Amongst some ants recently sent to me for determination by the South African Museum, there was a specimen of a Proceratiine ant mounted on the same card with some *Monomorium* sp. — ?, and taken at Kimberley by Brother Power. For the reception of this peculiar insect, which combines in itself some of the characters of all the other genera of the tribe, it will be necessary to erect a new genus, as follows.

GENUS PSEUDOSYPHINCTA, g.n.

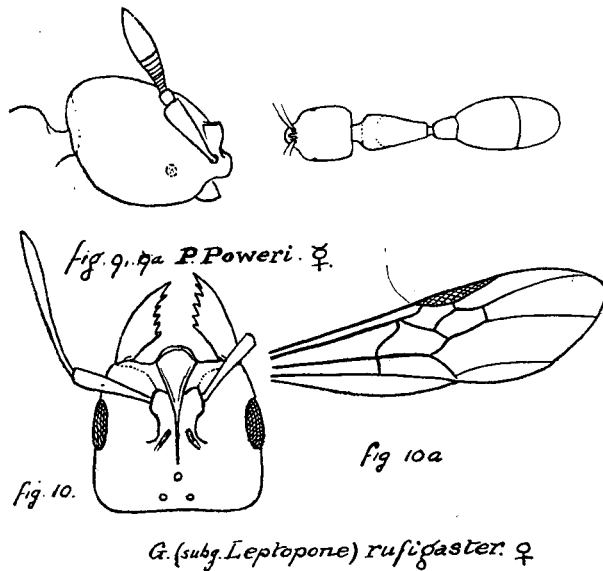
Characters.

♀. Antennae 12-jointed, the scape strongly incrassate apically, more than half as long as the flagellum; 1st joint of flagellum as long as wide, the apical joint very large, acuminate ovate, as long as the rest of the flagellum, all the other joints at least three times wider than long, 2nd and 3rd joints almost fused. Clypeus produced forwards into a horizontal lamella with a convex anterior margin, projecting over the mandibles, which are almost entirely hidden under it, as in *Discothyrea*. Eyes present, not very small. Mandibles triangular, the masticatory margin concave. Thorax narrowed posteriorly; seen from above it forms an elongate triangle, the truncate apex of which is at the brow of the declivity. It is not so elongate as in *Probolomyrmex*, being somewhat intermediate between that and *Sysphincta*. Promesonotal suture faintly indicated, the meso-epinotal absent. Petiole nodiform, articulating only over its lower half with the 1st abdominal segment. Abdomen as in *Discothyrea* and *Sysphincta*, the apical segments being hidden under the 2nd, and ante-flexed. Middle and hind tibiæ with one calcar.

Type of genus *P. Poweri*, described below.

P. POWERI, n. sp. (See Text-figures 9, 9a.)

♀, 2. 1 mm. Yellowish rusty red, the legs and antennae paler, more ochreous. Microscopically coriaceous, the 1st abdominal segment also faintly and transversely rugulose. Dull, the 2nd abdominal segment with a slight gloss. Head as long as wide, very convex above, hardly narrowed in front, the sides feebly convex, the posterior margin straight. The single lamella formed by the fused frontal carinae is short, not passing the anterior fifth of the head. Eyes flat, composed



FIGS. 9, 9a. FIGS. 10, 10a.

of several ill-defined facets (9?), and situated at the anterior third of the head. Scape extending to the middle of the head. Anterior margin of clypeus convex. Pronotum produced in front into a distinct neck, the anterior angles rounded; the pronotum has a short and steep face in front, which is rounded above at its junction with the surface of the dorsum. Thorax nearly twice as long as it is wide across the pronotal angles, where it is widest; the dorsal profile forms a very low curve, sloping towards the declivity. The latter nearly vertical, fairly sharply delimited from the dorsum, faintly submargined. Epinotal angles rounded. Petiole a little wider behind than in front, a little wider than long, the anterior angles rounded, the anterior face straight; the ventral lamella with a broad tooth near its base, pointing

downwards and slightly forwards. First abdominal segment about as long as wide, decidedly longer than the 2nd; the constriction between them moderate. Legs fairly long. Other characters as for genus.

Kimberley: (Power.) Type in my coll.

TRIBE PONERINI.*

GENUS GLYPHOPONE, Forel.

Rev. Zool. Afric., vol. 2, p. 308, 1913.

SUB-GENUS LEPTOPONE, s-g. n.

Characters.

♀. Mandibles triangular, with 6 strong teeth. Clypeus with the median area moderately raised, convex, and slightly produced in front (nothing like so much as in *Paltothyreus*), the lateral margins of the median area tumid, hardly carinate, the space between almost flat or only very shallowly concave, not deeply excavated as in *Glyphopone*, s. str. The clypeus is produced backwards between the frontal carinae, and is confluent with the frontal sulcus, which extends almost to the anterior ocellus. Antennae 12-jointed, the scape widening towards the apex, strongly compressed or flattened along its whole length. Abdomen elongate, as long as the head and thorax. Wings with 2 closed cubital cells, 2 discoidal and 1 submedian (in the type of the genus there are 3 cubital, 2 discoidal and 2 submedian, one of the latter very small). Tibiae and metatarsi of middle pair of legs, and the metatarsi of the hind pair of legs furnished with rows of spines. All the femora compressed laterally, the anterior femora strongly so. Middle and hind tibiae with two strong calcaria, the inner pectinate. Claws simple.

Type of sub-genus, *L. rufigaster*, described below.

♂. (SUB-GENUS LEPTOPONE) RUFIGASTER, sp. n. (See Text-figs. 10, 10a.)

♀. 14 mm. Head black, slightly castaneous on the clypeus; thorax black, petiole dark reddish brown, abdomen castaneous red. Legs, scapes, and mandibles castaneous, the margins of the latter blackish, flagellum dark brownish red, the apical joint paler. Smooth and very shining. Exceedingly sparsely and finely punctured, the piligerous

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punctures larger than the others; the extreme anterior margin of the mesonotum finely and rather closely punctured. Pilosity very sparse, consisting of stout, suberect, yellowish hairs, fairly long on the pronotum and abdomen, shorter elsewhere. A very scanty pubescence on the legs and antennae. Head, excluding the mandibles, as long as wide behind, wider behind than in front, posterior margin very shallowly concave, the angles rounded. Eyes large, not very convex, placed in the middle of the sides, ocelli present. An oblique and shallow groove or elongate fovea lies on the inner border of each frontal carinae, along the posterior half. First joint of flagellum as long as wide, 2nd—9th joints wider than long, 10th about as long as wide, the apical joint twice as long as wide, as long as the 9th and 10th together. Pronotum widely exposed above, convex transversely and lengthwise; mesonotum moderately convex, the parapsidal sutures feeble. Scutellum trapezoid, its posterior margin convex, sloping downwards posteriorly and hardly raised above the level of the metanotum; the latter rather long, quite one-quarter the length of the scutellum. Epinotum sloping from its base downwards, merging into the declivity by a deep curve, wider than long, shorter than the declivity, the latter convex transversely and vertical. Petiole twice as wide as long, wider above than below, the dorsal surface moderately convex transversely and lengthwise; the anterior face vertical, concave dorso-ventrally and convex transversely; posterior face very steep or almost vertical; ventral lamella produced into a large triangular tooth. Base of abdomen subtruncate, slanting a little forwards (as also the petiole). Abdomen elongate, cylindrical, parallel-sided, two and four-fifths longer than wide, the constriction between the 1st and 2nd segments feeble. Wings dirty yellowish, nervures dark brown, stigma black. Other characters as for the sub-genus.

Victoria Falls. Type in my collection.

I retain this species under the genus *Glyphopone*, since it appears to me that its points of resemblance with that genus (metatarsal and tibial spines, the polished integument, and structure of the node) are of greater value than the points of difference.

SUB-FAMILY MYRMICINAE, Mayr.

Ver. Zool. Bot. Ges. Wien, vol. 5, p. 299, 1855.

Characters.

Petiole 2-jointed in all the sexes; very rarely (*Melissotarsus*) the 2nd joint is nearly as wide as the 1st abdominal segment. Pupae not enclosed in cocoons.

♀. The frontal carinae are nearly always separated, rarely close together, divergent or slightly convergent behind and rarely lobed anteriorly.

♀. Usually winged; not often ergatoid, generally larger than the ♀.

♂. Anal segment with cerci; armature usually partly exerted. In a few species ergatoid and apterous.

This sub-family is the largest of the five, comprising for South Africa alone nearly 300 species, races, and varieties. Its classification is attended with considerable difficulty, not only in the higher ranks, but also often within the limits of the genera. If in some genera, *e. g.* *Monomorium*, *Cremastogaster*, we make a visual examination of a series of forms which have been described as distinct, it may not be difficult to perceive the individuality of each form or of each of the links, sometimes very numerous, which connect up the extremes of one or more species. That which enables us to appreciate the distinctive character in such a case, is the sum total produced by a combination of characters, often very slight, in the colour, puncturation, gloss, and size of the insect. But although more or less readily perceptible to the eye, the specific distinction of each form is far less easily defined in words by the very reason of its composite nature. This statement applies more particularly to the construction of analytical keys having the succinct character which such aids to rapid determination should possess. It is therefore essential that the student should give careful attention to the remarks made on the general structural features in the introductory paragraph to each genus, since the characters used in the key are considered in direct relation to the general morphology exhibited by the genus or by the majority of its members.

A far greater range of variation in habits and structure is shown in this sub-family than in any of the others. The majority of the species are mainly carnivorous, but there are some genera which are graminivorous. Nearly all have a partiality for sugary substances, and many tend aphides for the sake of the honey-dew excreted by those insects. The tribe Attini of the New World is perhaps one of the most remarkable of all, since it comprises the "leaf-cutting" or "fungus-growing" ants, species which feed exclusively on fungi cultivated in their nests. It is also to be noted that a very large number of myrmecophilous insects are found in the nests of Myrmicine ants.

I have endeavoured to give with the descriptions of the species those facts concerning their habits which have so far been ascertained, but it must be admitted that such are painfully meagre, when not

altogether absent. There is, therefore, in this sub-family, as, indeed, is the case with the whole family, a large and magnificent field for patient work and observation, whereby a rich harvest may be reaped by naturalists in South Africa. The use of monographs should not be merely to aid the collector to identify the specimens in his cabinet, but more especially to enable the field-naturalist to study the living animal, and to assign his observations correctly to those species on which they are made, so that such data may be definitely recorded for reference and study by others.

The scheme of classification herewith adopted for the tribes is that which has recently been proposed by Prof. C. Emery, in a paper entitled "Intorno alla classificazione dei Myrmicinae" (Rendiconto d. Sess. R. Acad. d. Scienze d. Inst. Bologna, January, 1914), and the following key has been adapted for the tribes found in South Africa, from the key published by him in those pages. Owing to the fact that this work is being published from time to time in parts, and to the lengthy study required by the tribe Pheidolini, I have not found it practicable to treat of the tribes in the order in which they appear in this key. This is, I believe, not a point of much importance, since in the present state of our knowledge it is not possible to make any definite assertions as to the phylogenetic relationship of one tribe to another.

Key to the Tribes of Myrmicinae found in South Africa.

SECTION I. PROMYRMICINAE, Emery.

Clypeus not prolonged backwards between the frontal carinae, its posterior margin rounded; inner calcaria of middle and hind tibiae pectiniform; ocelli almost always present in the ♀.

Antennae 12-jointed in the ♀ and ♀, 13-jointed in the ♂, anterior wings with two closed cubital cells *Pseudomyrmini*, Forel.

SECTION II. EUMYRMICINAE, Emery.

Clypeus almost always prolonged backwards between the frontal carinae; if not, then the calcaria of the middle and hind tibiae are simple or absent; in the ordinary ♀ the ocelli are not developed, in strongly dimorphic species they may be more or less visible in the ♀ major or ♀.

A. All the calcaria pectiniform (not South African).

Myrmicini, F. Smith, Emery emend.

AA. Calcaria of the middle and hind tibiae simple or absent.

B. Anterior wings with two closed cubital cells (except in some extra-South African genera); antennae 12-jointed in the ♀ and ♀, 13-jointed in the ♂ (except in a small number of Pheidole and extra-South African genera) *Pheidolini*, Emery.

- BB. Anterior wings with one closed cubital cell.
- C. Head not cordiform in the ♂ and ♀.
- D. Frontal carinae close together; thorax unarmed, without sutures or dorsal impressions in the ♂ *Melissotarsini*, Emery.
- DD. Frontal carinae more or less distant.
- E. Antennae 7-jointed, without a distinct club in the ♂ and ♀; 13-jointed in the ♂. Epinotum armed, abdomen cordiform in the ♂. *Myrmicarini*, Forel.
- EE. Antennae with more than 7 joints in the ♂ and ♀.
- F. Antennal fossa delimited on the inner side only by the frontal carinae; antennae generally 12- or 13-jointed in the ♂.
- G. Anterior wings with the radial cell largely incomplete; the cubital joins the radial, but does not go beyond it; the brachial unites with the medial; ♂ generally apterous *Cardiocondytini*, Emery.
- GG. Anterior wings with the radial cell variable; the cubital unites with the radial by a veinlet; the cubital more or less long (*Solenopsis* type); in some genera and groups (a large number of *Cremastogaster* and *Monomorium* and some smaller genera allied to them) the cubital vein shortens so much as to disappear (*Formica* type).
- H. The 2nd joint of the petiole articulates with the upper surface of the abdomen *Cremastogastrini*, Forel.
- HH. The 2nd joint of the petiole articulates with the basal apex of the abdomen.
- a. Characters negative, genera which cannot be placed within any of the others; radial cell generally closed. Mayrian furrows generally distinct in the ♂ *Myrmecini*, Ashmead.
- b. Thorax of the ♂ usually short; promesonotum large; epinotum with the dorsum very short or obsolete, the spines situated very low; in *Meranoplus* the mesonotum projects beyond the epinotum. Antennae 9 to 12-jointed in the ♂ and ♀, and usually more or less retractile into a scrobe. Mayrian furrows well defined in the ♂, which has the antennae 13-jointed *Meranoplini*, Emery.
- c. Antennae 11 to 12-jointed in the ♂ and ♀, more rarely 7 to 10, usually with a 2 or 3-jointed club; antennae in the ♂ 12 or 13-jointed, rarely 11; anterior wings with the radial cell always open. Mayrian furrows indistinct in the ♂ (except *Monomorium*) *Solenopsidini*, Forel.
- d. Antennae in the ♂ and ♀ 9 to 11-jointed, with a club usually of 2 joints; wings with radial cell always closed and with a large discoidal. Mayrian furrows absent *Pheidologetini*, Emery.
- GGG. Cubital vein of the anterior wing united with the radial, or is connected with it by a very short veinlet (*Formica* type).
- e. Antennae in the ♂ and ♀ 12-jointed, without a club; 1st joint of the petiole elongate, abdomen small and pyriform, thorax unarmed, without sutures or clear impressions on the dorsum. Antennae 13-jointed in the ♂, the scape very short; anterior wings with the radial cell closed. *Ocymyrmicini*, Emery.
- f. Antennae in the ♂ and ♀ 11 or 12-jointed, club of 2 or 3 joints; antennae in the ♂ of more than 10 joints; epinotum generally armed. *Leptothoracini*, Emery.

- g. Antennae in the ♂ and ♀ with 10 to 12 joints; clypeus with a transverse and high carina on the posterior margin, separating the clypeus from the antennal fossa; antennae in the ♂ 10-jointed, 4 joints having been fused into one long joint *Tetramoriini*, Emery.
- FF. Antennal fossa delimited on the inner side by a carina which passes below the eyes and does not correspond (at least in its posterior portion) to the frontal carina; antennae 11-jointed in all the sexes.

Cataulacini, Emery.

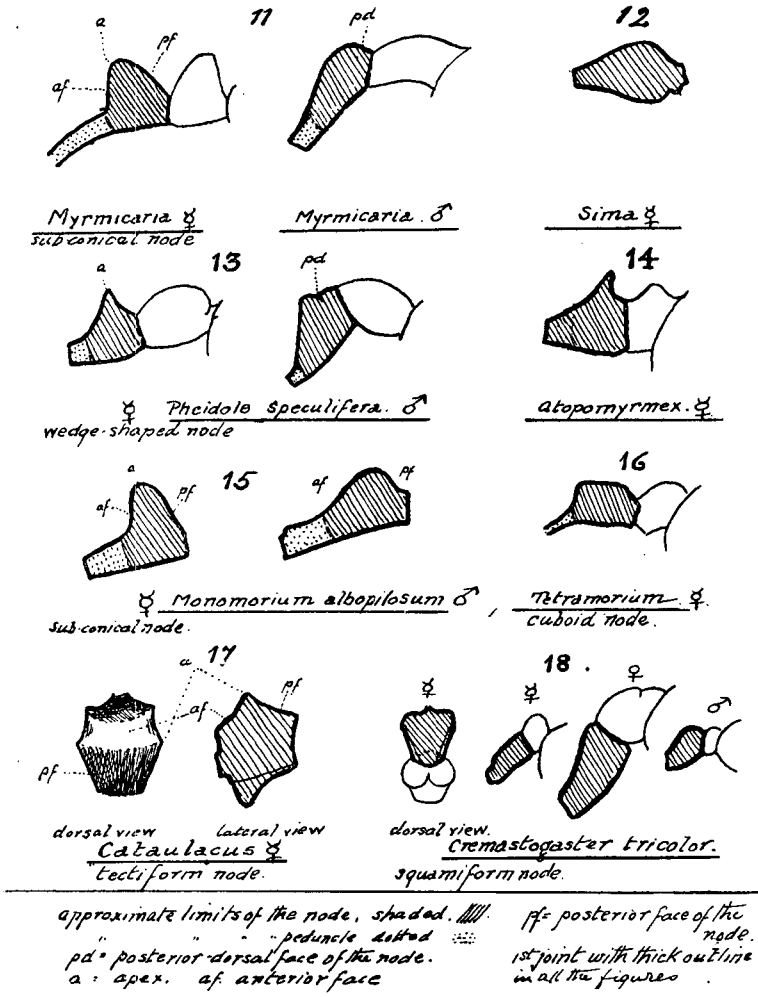
- CC ~~CC~~. Head cordiform, excavated behind and much narrowed in front; antennae in the ♂ and ♀ with from 4 to 12 joints, in the ♂ with 13 joints; radial cell open *Dacetini*, Forel.

In the following key, the order in which the genera are placed is no indication of their natural affinities, the latter being treated of under the headings of the tribes. The ♂♂ and ♀♀ being insufficiently known, no key for the identification of those sexes can be constructed which would be of any practical value. The reader should be reminded that, as in the case of the three preceding sub-families, the petiole is treated of as a distinct region, in the Myrmicinae composed of 2 joints, and that the abdominal segment which articulates with the 2nd joint of the petiole is referred to as the 1st abdominal segment. The 1st joint of the petiole usually consists of an anterior stalk or peduncle, articulating in front to the epinotum, and bearing behind a swollen portion, the node. The 2nd joint (2nd node) is rarely, if ever, pedunculate in front, but it may be more or less narrowed in its posterior half. The structure of the petiole is of considerable diagnostic value, and in order to avoid frequent repetition the following remarks on the shape of the organ should be carefully noted.

In the ♀, the relative proportions of the node and the peduncle of the 1st joint are very variable. The node may be so large as to render the peduncular portion almost obsolete, as in *Meranoplus*, *Sima*, and *Cataulacus*; or the node may be of such a shape that no definite line of demarcation can be drawn between a nodal and a peduncular region, *Leptothorax*, many species of *Pheidole*.

The shape of the node is very diverse. It is usually more or less wedge-shaped, or a combination of a wedge and a cone, or it may be more or less cuboid. When the faces of the wedge are approximated and the sides also compressed, it merges into a more or less squamiform node, as in *Tetramorium squaminode*. On the other hand, when the faces of the wedge are very oblique, we have a tectiform node, as in *Cataulacus*. Again, if the faces and sides of a wedge are rounded, a more or less conical shape is produced. Such a shape, with the apex very considerably rounded, is one of the commonest, and when much

rounded above and flattened, passes into the hemispherical. When the apex of the node is directed more forwards than upwards, the



Figs. 11-18.

posterior face acquires a more or less dorsal position (= posterior-dorsal face); this is frequently the case in the ♀ and ♂, even when the apex is directed upwards in the ♀ (*Monomorium*, *Pheidole*, and others). In the ♂, the node is commonly less distinct than in the ♀ or ♀ (see Figs. 11 and 13). In measurements of the node, the length

is taken along its ventral surface, where it is longest; however it is difficult at times to decide where the node ends and where the peduncle begins. In these cases, the relative proportions of the two parts can only be considered approximate.

In *Cremastogaster*, there is no node in the strict sense of the term, since the first joint of the petiole has the form of a very oblique squame, the two faces of which are placed more or less dorsal and ventral respectively, united to the epinotum by a very short and narrow articular portion.

In *Myrmicaria* ♂, the node, which is more or less subconic, is very sharply defined; it serves as a very good example to illustrate the distinction between the two portions of the 1st joint. In *Tetramorium* and some other genera, the node is often cuboid and furnished with a more or less distinct peduncle.

The 2nd joint is usually thicker in front than behind. It is also generally narrower behind, but is never so much so as to form a distinct peduncle attaching it to the abdomen. It varies less in shape than the 1st joint. The ventral lamella of the 1st joint is not often produced into a spine or tooth, as is so frequently the case in the *Ponerinae*.

The above remarks serve to show that the shape of the nodes cannot often be described accurately in one word, and such expressions as cuboid, conical, wedge-shaped, etc., must be understood as being only approximate definitions.

Key to the Genera of the Myrmicinae, ♂ ♀.

- (2). 1. Clypeus not prolonged backwards between the frontal carinae, which are placed more or less close together. Antennae 12-jointed.
Sima, Roger.
- (1). 2. Clypeus prolonged backwards between the frontal carinae, which are more or less widely separated.
- (4). 3. Petiole attached to the dorsal surface of the abdomen.
Cremastogaster, Lund.
- (3). 4. Petiole attached to the basal apex of the abdomen, below the dorsal surface.
- (10). 5. Head strongly cordiform, narrow in front, deeply emarginate behind, the posterior angles strongly rounded.
- (9). 6. Antennae 6-jointed.
- (8). 7. Antennal scrobe present; head without spines; a spongy mass covers the petiole, at least in part; hairs spatulate. *Strumigenys*, Smith.
- (7). 8. Antennal scrobe absent; head spined posteriorly; petiole without a spongy covering; hairs simple. *Microdacton*, Santschi.
- (6). 9. Antennae 4-jointed. *Epitritus*, Emery.
- (5). 10. Head not strongly cordiform, nor deeply emarginate behind.

- (35). 11. Antennae with 11 joints or less.
- (20). 12. Antennal scrobes present.
- (14). 13. The antennal scrobe lies below and external to the eye; posterior angles of the head more or less prolonged and denticulate. Epinotum armed. Antennae 11-jointed *Cataulacus*, Smith.
- (13). 14. The antennal scrobe lies above the eye; posterior angles of the head not prolonged and denticulate.
- (18). 15. Pro- and mesonotum more or less distinct, not forming a single piece which overhangs the epinotum.
- (17). 16. Antennae 11-jointed
- (16 b). 16 a. Hairs simple *Xiphomyrmex*, Forel.
- (16 a). 16 b. Hairs spatulate *Dicroaspis*, Emery.
- (16). 17. Antennae 10-jointed Sub-genus *Decamorium*, Forel.
- (15). 18. Pro- and mesonotum more or less fused into a single disc, the posterior margin of which overhangs the epinotum. Antennae 9-jointed.
Meranoplus, Smith.
- (12). 20. Antennal scrobes absent.
- (22). 21. First joint of all the tarsi, or at least of the anterior or the posterior tarsi greatly enlarged, as wide as the tibiae. Thorax without trace of sutures. Antennae 6-jointed *Melissotarsus*, Emery.
- (21). 22. First joint of the tarsi simple, not enlarged; antennae with more than 6 joints.
- (24). 23. Antennae 7-jointed *Myrmicaria*, Saunders.
- (23). 24. Antennae with more than 7 joints.
- (30). 25. Antennae 11-jointed.
- (29). 26. Epinotum unarmed or at the most feebly bituberculate. ♀ ♀ usually monomorphic.
- (28). 27. Clypeus bicarinate, or with carinae at least faintly indicated.
Monomorium, Mayr (part).
- (27). 28. Clypeus without carinae *Diplomorium*, Mayr.
- (26). 29. Epinotum bidentate; ♀ ♀ strongly dimorphic, the ♂ ♂ with very large elongated heads *Aneleus*, Emery.
- (25). 30. Antennae with less than 11 joints.
- (32). 31. Antennae 9-jointed (♂ 13-jointed, ♀ 10-jointed). ♀ ♀ very small, ♂ and ♀ enormously larger than the ♀ *Carebara*, Westwood.
- (31). 32. Antennae 10-jointed.
- (34). 33. Dimorphism of the ♀ ♀ but slightly marked, or if not, the head of the ♀ major is subquadrate or broader than long.
Solenopsis, Westwood.
- (33). 34. Dimorphism of the ♀ ♀ strongly marked; head of the ♀ major (♂) elongate *Aeromyrma*, Forel.
- (11). 35. Antennae 12-jointed.
- (37). 36. At least some of the hairs on the body spatulate.
Calyptomyrmea, Emery.
- (36). 37. Hairs on the body not spatulate but simple, or trifold (most species of *Triglyphothrix*), or slightly clavate (*Leptothorax*).
- (33). 38. First node of petiole bidentate or bispinose above.
Atopomyrmea, André.
- (38). 39. First node of petiole simple.

- (41). 40. Middle and hind tibiae without calcaria; no clavate hairs present.
Cardiocondyla, Emery.
- (40). 41. Middle and hind tibiae with calcaria; if not, then the erect hairs on the body are more or less clavate.
- (47). 42. Posterior border of the clypeus raised in the form of a trenchant ridge bordering the antennal fossa (rather feeble in *Rhoptromyrmex*).
- (44). 43. Epinotum unarmed; no antennal scrobe. First joint of petiole usually laterally compressed . . . *Rhoptromyrmex*, Mayr.
- (43). 44. Epinotum armed; antennal scrobes usually present.
- (46). 45. Erect hairs simple . . . *Tetramorium*, Mayr.
- (45). 46. Erect hairs usually trifid. Nodes of petiole usually strongly transverse . . . Sub-genus *Triglyphothrix*, Forel.
- (42). 47. Posterior border of the clypeus not raised in the form of a ridge.
- (49). 48. Flagellum without a distinct club; ♀ ♀ polymorphic.
Messor, Forel.
- (48). 49. Flagellum with a more or less distinct club.
- (51). 50. Clypeus usually bicarinate; ♀ ♀ rarely polymorphic.
Monomorium, Mayr (part).
- (50). 51. Clypeus not bicarinate, occasionally with a median carina.
- (53). 52. ♀ ♀ strongly dimorphic, consisting of ♀ ♀ with very large heads, and an ordinary ♀ caste; more rarely polymorphic (sub-genus *Allophoidole*) . . . *Pheidole*, Westwood.
- (52). 53. ♀ ♀ monomorphic.
- (55). 54. The peduncle of the 1st joint of the petiole very long; thoracic sutures almost or entirely obliterated . . . *Ocymyrmex*, Emery.
- (54). 55. The peduncle of the first joint of the petiole not very long.
- (57). 56. Epinotum unarmed; erect hairs not clavate; no antennal scrobes.
Tetramyrma, Forel.
- (56). 57. Epinotum usually armed; erect hairs clavate; a shallow indication of the antennal scrobes sometimes present. Middle and hind tibiae without calcaria . . . *Leptothorax*, Mayr.

The above key applies only to the species so far known from South Africa. In many species of *Pheidole* the club of the antennae is by no means sharply defined, hardly more than in the genus *Messor*, but in the latter genus the largest workers are connected with the smallest by a gradual series of intermediate forms, and the head, although perhaps much larger, does not differ materially in shape from that of the smallest workers. In *Pheidole*, on the other hand, the workers are dimorphic (with the exception of the sub-genus *Allophoidole*, in which there are intermediate grades between the ♀ and the ♀), the ♀ being sharply differentiated from the ♀, and having a differently shaped head.

In some species of *Leptothorax*, the posterior margin of the clypeus is slightly raised in a ridge posteriorly, but the clavate hairs and the absence of calcaria to the middle and hind tibiae will serve to distinguish them from the members of the tribe Tetramoriini.

The frontal carinae in *Melissotarsus* are placed close together as in the genus *Sima*, but the absence of thoracic sutures, the structure of the metatarsus, and the 6-jointed antennae easily serve to distinguish them from the latter genus.

SECTION I. PROMYRMICINAE, Emery.

TRIBE PSEUDOMYRMINI, Forel.

GENUS SIMA, Roger.

Berlin. Ent. Zeitschr., vol. 7, p. 178, 1864.

Characters.

♀. Head more or less rectangular, somewhat truncate in profile anteriorly, the clypeus and mandibles being placed vertically below the anterior face of the head; antennae 12-jointed, slightly thickened towards the apex; eyes usually very large. Thoracic sutures distinct; the metanotum, usually not recognisable in the majority of ♀ ants, is more or less distinct in this genus. Epinotum high, unarmed. Abdomen more or less cylindrical and elongate. Sting exerted. ♀♀ dimorphic in *S. ambigua*, race *rhodesiana*, but the dimorphism is confined to the structure of the head.

♀ & ♂. Very similar to the ♀, except for the usual sexual differences in the structure of the thorax. ♂, antennae 13-jointed.

The members of this genus are almost all tree-ants, nesting in hollow twigs or thorns, or in hollow reeds. Our two commonest species, *ambigua-rhodesiana* and *natalensis-bulawayana*, are very partial to the *Acacia horrida*. They are very quick ants, and have a habit of sliding, on the approach of danger, to the opposite side of the leaf or branch, or of dropping to the ground. The sting is powerful, and readily used.

*Key to the Species of Sima, ♀♀.**

- (2). 1. Large and stout species. Frontal carinae wider apart than in the other species of the genus; 3 ocelli well developed.
(Sub-genus *Pachysima*, Emery), *aethiops*, Smith.
- (1). 2. Smaller and more slender species; frontal carinae closer together.
- (6). 3. Pronotum with distinct anterior angles, sharply margined. 2 or 3 distinct ocelli (sub-genus *Sima*, s. str.)
- (5). 4. Colour yellow or brownish yellow; 6-8 mm. long *natalensis*, Smith.

* I am indebted to Prof. Emery for valuable advice in the construction of this key.

- (4). 5. Colour blackish; 4.5 mm. long *Andrei*, Mayr.
 (3). 6. Pronotum with anterior angles rounded; ocelli rudimentary or absent.
 Small species (sub-genus *Tetraoponera*, Smith.)
 (14). 7. Colour black or brown, or, if yellow, head and thorax smooth and
 shining (var. *durbanensis*, Forel, *S. clypeata*).
 (9). 8. Clypeus angular in the middle *Penzigi*, Mayr.
 (8). 9. Clypeus quadri- or quinque-dentate, or bicarinate and bidentate.
 (11). 10. Clypeus with two longitudinal carinae ending in minute teeth at the
 anterior margin. *Liengmei*, Forel.
 (10). 11. Clypeus without longitudinal carinae.
 (13). 12. Clypeus quadri-dentate *clypeata*, Emery.
 (12). 13. Clypeus quinque-dentata, the median tooth small, much smaller than
 the inner pair of teeth. *clypeata*, race *Braunsi*, Forel.
 (7). 14. Yellow or reddish yellow species; head and thorax not smooth and
 shining.
 (20). 15. Pronotum margined, at least laterally.
 (17). 16. Clypeus emarginate in the middle *bifoveolata*, Mayr.
 (16). 17. Clypeus not emarginate.
 (19). 18. Anterior margin of clypeus produced in the middle into a rectangular
 lobe *ambigua*, Emery.
 (18). 19. Anterior margin of clypeus not lobed, feebly tridentate in the ♀
 minor, distinctly so in the ♂ major.
 *ambigua*, var. *rhodesiana*, Forel.
 (15). 20. Pronotum not margined. Clypeus with five teeth on the anterior
 margin, the two outermost teeth the smallest. Eyes occupying nearly
 one-third of the sides of the head; 4.5 mm. long *Emeryi*, Forel.

S. (Sub-Genus *PACHYSIMA*, Emery) *AETHIOPS*, Smith.

Trans. Ent. Soc. London, p. 71, 1877. (Sub-Genus) Ann. Soc. Ent.
 Belg., vol. 56, p. 97, 1912. Santschi, Rev. Zool. Africaine, vol. i,
 p. 207, ♂, 1911.

♀. 9-9.6 mm. Black; tibiae, tarsi and antennae castaneous brown.
 A very fine and adpressed pubescence on the whole body, denser on
 the flagellum and abdomen than elsewhere. Clypeus and apex of
 abdomen with a few long, yellowish, exerted hairs. Shining, espe-
 cially the head; the thorax duller than the abdomen. Head and
 thorax closely and finely punctured. The punctures are scantier on
 the vertex of the head than on the cheeks; the punctures on the
 pronotum are larger but shallower than elsewhere. Nodes and abdo-
 men shallowly but closely punctured; the punctures are smaller on
 the 2nd node than on the 1st, and very fine on the abdomen. Legs
 shining and shallowly punctured.

Head as wide as long, a little narrower in front than behind. Eyes
 large, placed a little behind the middle of the head. Three distinct,
 but small and flat ocelli. Clypeus with the lateral angles rounded and

prominent; the anterior margin is shallowly concave in the middle and narrowly inflected, the median area is aciculate and coarsely punctured. The mandibles are broad, with 4 strong teeth, and coarsely striate. The frontal carinae are much further apart than in species of the other sub-genera, and slightly convex externally. The scape is short, not extending beyond the level of the middle of the eyes, the 3rd-10th joints of the flagellum wider than long. A shining, median, impressed line extends from the posterior margin of the clypeus to about the middle of the vertex.

Pronotum wider than long, the sides distinctly convex, the shoulders obtuse but prominent. Mesonotum more closely and deeply punctured than the pronotum, as long as wide, the anterior border semi-circular. Epinotum convex lengthwise, nearly as long as the pro- and mesonotum together, quite one-third longer than wide; the dorsum merges into the oblique declivity by a gradual curve. The 1st joint of the petiole has a very short peduncle; the node is convex above transversely and longitudinally, wider than long, considerably narrowed behind; the ventral lamella at the extreme base is produced into a short, sharp spine, pointing downwards, and just behind it lies another, but rounded, projection. The 2nd node is widest in the middle, about one-third wider than the 1st, convex above. Seen from above, the lateral margins are very convex. The ventral surface is produced anteriorly into a fairly sharp prominence. The sides of both nodes slope steeply inwards.

♀. 15.5 mm. Colour as in the ♂. Head, thorax, and nodes shining, abdomen nitidulous. Pubescence greyish-black and very fine, dense on the abdomen and 2nd node, much sparser elsewhere. A few long, yellowish, pilose hairs on the clypeus, nodes, and abdomen. Puncturation in the main like that of the ♂, but stronger and much more abundant on the nodes and abdomen, and scantier on the thorax. Head a little longer than wide, very little narrower in front than behind, almost parallel-sided, about as long as the pro- and mesonotum taken together. Pronotum widely exposed above, not much lower than the mesonotum, narrower in front than behind, convex transversely, the shoulders rounded and not angular as in the ♂. Scutellum as long as wide, feebly convex transversely and longitudinally, not quite half as long as the mesonotum. Dorsum of epinotum one and a half times wider than long, slightly longer than the declivity. The latter almost vertical, with the brow strongly rounded. Nodes similar to those of the ♂, but the ventral lamellæ of both nodes are produced into much larger and deeper teeth. Otherwise like the ♂ (described from a deilated West African specimen).

“♂. 13.5 mm. Black. The anterior tarsi and base of the genital armature testaceous. Subopaque. Sculpture and pilosity as in the ♀. Head a little wider than long. Posterior margin of the head straight, the posterior corners rectangular and rounded. The oval and very oblique eyes occupy the median two fourths of the sides of the head. Frontal area strongly impressed. Clypeus without a carina. Mandibles with 5 or 6 unequal teeth. First joint of the flagellum longer than wide; the 2nd joint a little less long than the scape. The declivity of the epinotum slightly convex in all directions, a little longer than the dorsum. Wings brownish black, the nervures darker, the stigma black. First joint of the petiole channelled in its anterior half, feebly convex behind. Second node as long as wide. Genital armature exerted, the distal portion of the blackish stipes strongly excised inwards, and ending in a lanciform point, turned inwards and backwards.”

South Africa. (G. A. coll.)

S. (Sub-genus *SIMA*, s. str.) *NATALENSIS*, Smith.

Cat. Hymen. Brit. Mus., vol. 6, p. 160, ♀ 1858.

♀. 7 mm. Dark ochreous yellow, somewhat darker and reddish on the head, the flagellum darker towards the apex, the masticatory margins of the mandibles blackish. Dull, very finely and closely punctured all over, the puncturation of the head a little stronger. Pubescence very short, microscopic, a few long hairs on the clypeus, scapes, and apical segment of the abdomen.

Head longer than wide, the sides feebly convex, the posterior angles moderately rounded. The median area of the clypeus is slightly produced forwards, and obtusely tridentate. The frontal carinae raised in front, divergent posteriorly. Mandibles longitudinally striate, quadridentate. The scape does not extend back quite as far as the middle of the eyes; the 1st joint of the flagellum is half as long again as the 2nd. The eyes occupy more than one-third of the sides of the head, and are situated at about the middle. The two posterior ocelli are present. The whole thorax is marginate at the sides and in front, the margin blackish; the sides and the dorsal surface of the thorax meet in a right angle. The pronotum is widest in front, and two-thirds wider than it is long; the promeso- and mesometanotal sutures distinct. The mesonotum is two and a half times wider than long, and but half as long as the pronotum. The metanotum is feebly defined at the sides posteriorly. The epinotum is nearly one-third longer than the rest of the thorax, and nearly twice as long as wide,

and widest at its posterior third. The dorsum of the epinotum is not clearly delimited from the declivity, into which it merges by an even curve. The 1st joint of the petiole is not pedunculate; it is very convex above lengthwise, the dorsal surface, half as long again as wide, is margined laterally and sharply delimited from the sides. The 2nd joint of the petiole is widest behind, about as long as wide, and one-third wider than the 1st joint. The abdomen is elongate, the sides almost straight, the 1st segment a little longer than wide.

♀. 9.2 mm. Similar to the ♂, excepting the usual sexual differences. The teeth of the clypeus are a little larger. The mesonotum is wider than long, and one-quarter longer than the pronotum; the scutellum transversely oval, half as long as the mesonotum. The dorsal portion of the epinotum is about as long as the mesonotum, a little wider than long, and widest at the base; the declivity is less oblique than in the ♂. The puncturation of the epinotum is stronger than in the ♂. Deälated.

Durban. (Marley.) South Africa generally. (G. A. coll.)

NATALENSIS, race *OBSCURATA*, Emery.

Ann. Soc. Ent. France, vol. 63, p. 22, ♂, 1895.

♂. 6.7 mm. This differs from the type in its slightly smaller size and darker colour, which is ferruginous brown, with the front of the head, the abdomen, antennae, and legs yellowish brown. The puncturation is slightly stronger, and the 1st joint of the petiole is more convex longitudinally.

♀. 8.2 mm. (hitherto undescribed). Colouring similar to that of the ♂. It differs from the ♀ of the type by the stronger puncturation, especially of the thorax. The mesonotum is also narrower, and as long as wide. The dorsum of the epinotum is distinctly shorter and more convex. The 1st joint of the petiole is thinner at the base, and is shorter and more convex lengthwise than in the type. There are a few long pilose hairs on the back of the head and on the thorax. Deälated, otherwise like the ♂.

♂. 8 mm. Head, thorax, and petiole piceous brown, the sides of the scutellum and metanotum, the base and apex of the 1st joint of the petiole, the anterior half of the head below, including the frontal carinae, the mandibles, scapes, and 1st joint of the flagellum dirty yellow; flagellum brown, legs yellowish brown, first three segments of abdomen dirty yellow, but brownish at the margins, the remaining segments dark brown. Wings hyaline, nervures yellow, stigma brownish yellow. The pubescence is much longer than in the

♀, especially on the petiole and abdomen; there are also a few long, erect, and blackish hairs on the thorax. The rugulosity of the surface is much stronger than in the ♂; the posterior half of the head is strongly and rather closely punctured. The mesonotum is sparsely but coarsely punctured. The head is slightly shining on the vertex, the rest of the body dull. Head longer than wide, sides rather convex, posterior margin nearly straight, wider behind the eyes than in front. The eyes occupy about two-thirds of the sides of the head, and are placed a little in front of the middle. Ocelli large, on a slightly raised area. Mandibles shining, feebly and sparsely punctured, armed with 5 teeth. Clypeus feebly convex transversely, with an obtuse median tubercle. Scape of antenna two and one-third times as long as the 1st joint of the flagellum, not reaching back to the posterior third of the eyes. First joint of flagellum very short, about as long as wide, all the remaining joints very much longer than wide; the antenna reaches back as far as the base of the 2nd joint of the petiole. Pronotum exposed above, short, convex transversely. Mesonotum a little longer than wide, with the scutellum a little longer than the head. The epinotum is somewhat flattened, the dorsum and declivity not distinctly delimited; it is widest at the base, and about as long as wide. First joint of petiole with a short peduncle, the node twice as long as wide; 2nd joint conical, widest behind, not quite half as wide again as the 1st joint. The petiole is not margined.

Algoa Bay. (Brauns.)

Race *OBSCURATA*, var. *CAFFRA*, Santschi.

Göteborgs K. Vetans. och Vitterh. Handl., xv, 2, p. 15, ♂, ♀, ♂, 1914.

It is necessary to sink this form to the rank of a variety of *obscurata*, from which it differs only in the following characters:

♂. 6 mm. The colour is lighter, especially on the thorax and front of the head. The posterior half of the head is dark brown, contrasting sharply with the ochreous anterior half. The pronotum is wider; the epinotum is much less strongly punctured, and the node of the 1st joint of the petiole a little narrower and less convex.

♀. The eyes are a little longer. The pronotum is also a little longer and more sharply margined, and anterior angles less rounded. As in the ♂, the colour is generally paler than in the type of the race, but the promesonotal suture has a dark blackish spot in the middle, and the parapsidal sutures are also heavily margined with

darker colour. The 1st node of the petiole is distinctly narrower than in the type.

♂. 7.8 mm. The author's description of this sex agrees entirely with that of the race.

Zululand. (Trägärdh.)

Race *CUITENSIS*, Forel, var. *BULAWAYANA*, Forel.

(Race) Bull. Soc. Vaud., vol. 47, p. 317, 1911. (Var.) Ann. Soc. Ent. Belg., vol. 57, p. 112, ♀, 1913.

"Smaller than the type of the race, less dull, simply sub-opaque. The node is also a little narrower, and the head a little shorter; otherwise like the type of *cuitensis*."

♀. 7.5 mm. This differs from the type of the species in its slightly smaller size, in having the sides of the head more parallel, the epinotum a little more oblique posteriorly, and the 1st joint of the petiole a little narrower.

♀. 8.5 mm. This is smaller than the type of the species. The head is more parallel-sided, the epinotum narrower posteriorly, the denticulations of the clypeus smaller, and the colour a little redder; otherwise like the type.

Bulawayo, Plumtree, Bembesi, Victoria Falls. S. Rhodesia. Nesting in the hollow twigs of trees. (S.A.M., R.M., G.A. colls.)

I have not seen examples of the race *cuitensis*, and am therefore obliged to compare this variety with reference to the type of the species.

S. (Sub-genus *SIMA*, s. str.) *ANDREI*, Mayr.

Ann. K.K.N.H. Mus. Wien, vol. 10, p. 144, ♀, 1895.

"♀. 4.6 mm. Black, partly piceous, mandibles, scapes and 1st joint of flagellum, tibiae, tarsi and apex of femora reddish yellow; sometimes the tibiae are brownish red-yellow, and the flagellum, except the 1st joint, yellowish brown. Pilosity almost absent, the decumbent pubescence very fine, short and dense, visible on the head and thorax only under a strong magnification. Dull; head and dorsum of thorax closely and finely punctured, the sides of the pronotum slightly shining and finely rugulose, the sides of the meso- and metathorax, the petiole and abdomen rugulose-punctate, although not easily recognisable on the last, on account of the dense pubescence. The mandibles coarsely longitudinally striate, and with a few punctures, the very oblique masticatory margin quadridentate. The head is, as in *Mocquerysi*, André, rectangular, longer than wide, parallel-sided.

The short clypeus is arcuately emarginate in the middle of the anterior margin, but is not crenelate. The frontal carinae are as in *Mocquerysi*, closely approximated, separated only by the frontal sulcus which reaches back to the neighbourhood of the ocelli, and are divergent behind, and longer than in *Mocquerysi*. The scape does not extend back as far as the anterior third of the eye; the 2nd joint of the flagellum is as long as wide, the rest, excepting the last joint, wider than long. Only two ocelli present. The rather large eyes are situated behind the middle of the sides, and occupy about half the length of the same. The head is but slightly emarginate behind. The thorax is not much narrower behind than it is between the anterior angles of the pronotum; the latter is reversed trapeze-shaped, feebly convex above, a little shorter than wide, the side margins with a sharp, narrow, raised border, the anterior angles rounded and prominent. The mesonotum is short, semi-circular, twice as wide as long. The metanotum is separated from the mesonotum by a narrow sulcus, very short and almost linear in the middle, longer at the sides; the metanotum is not distinctly defined from the epinotum. The epinotum is sharply marginate laterally, the dorsum flat, the brow of the declivity rounded. The 1st joint of the petiole is triangular, the sides sharply margined, hardly pedunculate, widening posteriorly, seen from above flat transversely, but very convex in profile. The 2nd joint is much wider, but shorter than the 1st, nearly twice as wide as long. The abdomen is elongate-ovate. The legs are fairly short."

Delagoa Bay. (Brauns.)

S. (Sub-genus TETRAPONERA, Smith) PENZIGI, Mayr.

(Tetraponera) Ann. Mag. N. H. (2), ix, p. 44, 1852. Formicidae
Schwed. Kilimandjaro Exped., 8, p. —, ♀, ♀, ♂, 1907.

"♀. 3.1-4.7 mm. Black, mandibles, articulations of the legs, tarsi, and often also the tibiae brownish yellowish-red, the antennae usually reddish yellow with brownish club. Pilosity almost absent, the adpressed pubescence very sparse. The whole body shining, finely rugulose and with some scanty punctures, bearing fine hairs; the front of the head, and to a certain extent the cheeks, longitudinally striate, the mandibles coarsely rugoso-striate. The mandibles, particularly in the larger specimens, depressed and flattened in the apical half, the teeth obtuse. Head wider than the thorax, distinctly longer than wide. The middle portion of the clypeus in the larger ♀♀ more or less angularly produced (strongly so in the ♀). The scape does not reach back to the posterior margin of the eyes; the 2nd-6th

joints of the flagellum very short, each about twice as wide as long. The eyes occupy about one-third of the sides of the head, ocelli wanting. The pronotum is margined laterally only at the hind corners; the mesonotum is transverse and oval, shorter than the pronotum; the metanotum is shorter than the mesonotum, about twice as wide as long; the epinotum is but little shorter than the pronotum, the feebly convex dorsum is longer than the declivity and wider at the base than at the apex; the brow of the declivity rounded. The first joint of the petiole is shortly but distinctly pedunculated, the node rounded, a little wider than long, very little narrower than the 2nd joint, the ventral lamella compressed. The 2nd joint is transverse and oval, or pyriform, smaller in front than behind."

"♀. 6 mm. Colour, pubescence and puncturation as in the ♂, the punctures on the cheeks larger than on the frons. The middle part of the clypeus projects very distinctly forwards in a bluntly angular lobe. The rest of the head as in the ♂. The wings feebly tinged with yellowish brown."

"♂. 4.6 mm. Black, flagellum brownish yellow, mandibles and tarsi darker. The pilosity occurs almost only on the ventral surface of the abdomen. The antennae are thickly clothed with very short erect hairs; the abdomen moderately pubescent. The mandibles have moderately long pilose hairs, inserted in coarse punctures; the masticatory margin with several teeth, the anterior ones acute. The head and mesonotum are very finely rugulose and shining, the latter with some strong piligerous punctures. Scutellum and metanotum smooth, the nodes of the petiole almost so, the abdomen finely rugulose. The middle part of the clypeus is strongly arched, ending in front in a blunt point. The scape of the 12-jointed antenna is quite twice as long as wide, the 2nd to the penultimate inclusive, sub-equal, and each about two and a half times longer than wide, the last joint a little longer. The 1st node of the petiole with a short peduncle and distinctly longer than wide, below with a flattened projection. The 2nd joint is but little wider than long, but much wider than the 1st. The wings somewhat paler than in the ♀."

Lehututu, Kalahari. (Schultze.)

S. (Sub-genus *TETRAPONA*) *LIENGMEL*, Forel.

Mitth. Schweiz. Ent. Ges., vol. 9, p. 88, ♀, ♂, 1894.

"♀. 3.4-3.7 mm. Mandibles with 4 to 5 teeth, the external margins almost straight, shining, feebly punctured and striate. Head elongate and rectangular, one and a half times as long as wide, somewhat

wider and more convex behind. Eyes in the middle of the sides of the head. Clypeus with two very small median carinae placed close together, each ending in front in a blunt tooth. Scape very short, half as long as the distance between the antennal sockets and the occipital margin. Flagellum thick, the joints excepting the first and last, wider than long. Pronotum rounded, as wide as long, flattened above. The metanotum is nearly as long and as wide as the mesonotum, the latter wider than long. The epinotum is fairly convex, the dorsum as long as the declivity, the brow of the latter rounded. The epinotum is as high as the mesonotum. The thoracic segments are separated by deep sulci, but are not constricted. First joint of petiole with a short peduncle, both joints short, thick, wide, and roundly pyriform; the 1st, excluding the peduncle, hardly longer than wide behind, the 2nd much wider than long. Abdomen elongate-ovate, fairly pointed posteriorly. Antennae and legs short and thick. Very shining, very finely and shallowly reticulate; head almost quite smooth. Pilosity nearly entirely absent, only a few thin hairs round the mouth and apex of abdomen. Pubescence very sparse. Brownish black, legs and flagellum brown, mandibles and anterior margin of the head brownish red. Scape, base of the flagellum, the ends of the tarsi, and articulations of the legs yellowish.

♂. 4.7 mm. Wings clear. Clypeus produced triangularly in the middle in front. Head oval, longer than wide. Petiole as in the ♀. Antennae blackish brown, margins of the mandibles reddish; legs brown, tarsi yellowish. All the rest of the body black, shining. Much wider and with a wider petiole than *clypeata*, and with quite a differently shaped clypeus. The very strongly developed metanotum gives this species a very distinctive appearance."

Delagoa Bay. (Liengme.)

S. (Sub-genus TETRAPONERA) CLYPEATA, Emery. (Plate V, figs. 50, 50a.)

Bull. Soc. Ent. Ital., vol. 18, p. 361, ♀, 1886.

♀. 3.6-4 mm. Black, mandibles ferruginous, legs brownish black, tarsi and articulations reddish brown, antennae reddish yellow, darkening to brown towards the base and the apex. Very smooth and shining. Head, thorax, and abdomen microscopically rugulose, with a few fine punctures; the anterior half of the head rather closely but very finely and shallowly punctured. Pubescence exceedingly sparse and microscopical, except on the antennae, where it is dense and longer. Clypeus and last three abdominal segments with a few long, erect, pilose

hairs. Head widest between the eyes, nearly one-third longer than wide, the posterior angles very rounded. Eyes placed in the middle of the sides of the head, occupying a little more than one quarter of the latter; a trace of the anterior ocellus present. Median portion of clypeus raised and produced; the anterior margin of the protruded area is quadridentate (see fig. 50, Plate V); the inner pair of teeth are larger and further apart from each other than they are from the outer teeth. (In the two specimens at my disposal there is a slight asymmetry produced by the sub-division of either the right or the left inner tooth.) The scape extends backwards to the posterior margin of the eyes; the 1st joint of the flagellum is longer than wide, and is as long as the 2nd-4th joints taken together; the latter and also the 5th and 6th are wider than long, the remaining joints longer than wide. Frontal carinae short, slightly divergent behind. Mandibles tridentate, feebly striato-punctate, the external and internal margins subparallel. The dorsum of the thorax is not margined. Pronotum widest anteriorly, flattened above, as long as wide; mesonotum sub-circular, nearly as long as the pronotum; pro-mesonotal suture feeble, meso-metanotal fairly well defined. The metanotum is much narrower than the mesonotum and is separated from the epinotum by a deep and wide groove, slightly clathrate laterally. The epinotum is widest at the base, twice as long as wide, as long as the pronotum, the lateral dorsal margins and the brow of the short and oblique declivity, strongly rounded. The peduncle of the 1st joint of the petiole is about half as long as the node, the latter is nearly twice as long as wide. The 2nd joint is bell-shaped, widest posteriorly, and two-thirds wider than the 1st joint. Seen in profile, both joints are very convex above. Abdomen elongate-ovate, 1st segment longer than wide. The femora are swollen in the middle.

♀. 5.5 mm. Differing from the ♂ in the following characters. The head is more parallel-sided; the inner pair of teeth on the anterior margin of the clypeus are much larger, and the outer pair relatively smaller. The pronotum has the anterior angles less rounded, the sides more parallel; it is distinctly wider than long. The mesonotum is widest in the middle, in front of the tegulae, and one-third wider than long. The scutellum wider than long, two-thirds as long as the mesonotum. The epinotum is wider at the base than it is long, seen from above, reversed trapezoid, not elongately triangular as in the ♂. Three small ocelli are present. Other characters as in the ♂. (Deälated.)

(S.A.M. coll.)

Race **BRAUNSI**, Forel. (Plate V, fig. 49.)(as species), *Ann. Soc. Ent. Belg.* vol. 57, p. 112, ♂, ♀, 1913.

♂. 4-4.4 mm. This form differs from the type in its larger size, the slightly stronger puncturation, and the shape of the produced median portion of the clypeus. This is like that of *clypeata*, but in the majority of specimens has in addition a median unpaired tooth, somewhat smaller than the inner pair of teeth on each side of it. This median tooth in some examples is very small, or quite obsolete, in which case the clypeus exactly resembles that of *clypeata*. The peduncle of the first joint of the petiole is perhaps a trifle longer than in the type species.

♀. 7 mm. The median tooth is very small or entirely absent. The mandibles are more strongly striate and punctate than in the type species, and the head is also more shining. Otherwise similar. Deälated.

Willowmore, Cape Prov. (Dr. Brauns.) (S.A.M., R.M., G.A. colls.)

Race **BRAUNSI**, var. **DURBANENSIS**, Forel.*Bull. Soc. Vaud. Sc. Nat.*, vol. 50, p. 218, 1914.

Entirely dark ochreous yellow. Head, thorax, and abdomen smooth and shining. Epinotum more convex lengthwise than in the race. A little smaller and more slender, 3.8-4 mm. Otherwise similar to the race.

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

Race **BRAUNSI**, var. **EQUIDENTATA**, n. v. (Plate V, fig. 48.)

♂. 3.5-4 mm. This differs from the race in its smaller size and in having the median tooth as large as the inner pair of teeth, the outer pair of teeth much smaller, and the clypeus produced further forwards. Capetown, nesting in the tunnels made by a species of *Allodape*.

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

S. (Sub-genus **TETRAPONERA**) **BIFOVEOLATA**, Mayr.*Ann. K.K.N.H. Mus.*, Wien, vol. 10, p. 146, ♂, 1895.

“♂. 3.8-4.2 mm. Reddish yellow, eyes black, masticatory margin of the mandibles and apex of abdomen brown. The pilosity is sparse, even on the scapes and the tibiae; the body, excepting the thorax, has an abundant pubescence, which is somewhat oblique on the head,

especially on the cheeks and on the legs. Moderately shining; head, thorax and petiole very finely rugulose or reticulate; the head is also scantily punctured, the abdomen finely so, the punctures piligerous. The mandibles are longitudinally striate, with scattered punctures, the masticatory margin furnished with four or five teeth, and merging in a curve with the internal margin. The elongate and quadrangular head is wider than the thorax, about one and a half times as long as wide, almost parallel-sided, slightly narrower in front than behind. The short clypeus has an unarmed, and widely but shallowly emarginate anterior border. The frontal carinae are placed close together, diverging slightly posteriorly. Frontal area wanting. The frontal sulcus is clearly marked only between the anterior third of the carinae. The scape reaches back to the anterior third of the eye, the 2nd-10th joints of the flagellum wider than long. Ocelli absent. The rather large oval eyes occupy about one-third of the sides of the head, and are situated distinctly behind the middle of the latter. In front of, and above the posterior margin of the head there are two circular foveae, more or less distinctly margined and rugosely granulate; the diameter of each of these pits is about one-fifth or one-sixth of the posterior margin of the head; the latter is arcuately emarginate. The thorax is distinctly wider in front than behind, only the sides of the pronotum are marginate, and the dorsum is not very convex. The pronotum, seen from above, is somewhat longer than wide, wider in front than behind, the rectangular anterior corners rounded. The pro-mesonotal suture is distinct. The mesonotum is hardly longer than it is wide in front, and very little narrower behind than in front. A metanotum is not indicated, its stigmata lie just in front of the shallow constriction between the meso- and epinotum. The dorsum of the latter is longer than wide, and merges into the equally long and transversely convex declivity. The first joint of the petiole has a very short peduncle, its node is of an elongate pyriform shape, not marginate laterally; seen in profile, the node is steeper in front than behind; the 2nd joint of the petiole is shorter and about twice as wide as the first, wider than long, and wider in front than behind. Abdomen oblong, moderately pointed apically, the 1st segment longer than wide."

Delagoa Bay and Zanzibar. (Brauns.)

S. (Sub-genus *TETRAPONERA*) *AMBIGUA*, Emery.

Ann. Soc. Ent. France, vol. 63, p. 23, ♀, ♀, 1895. Forel, Schultze, Reise Süd Afrika, vol. 4, p. 5, ♂, 1910.

" ♀, ♀. Testaceous, flagellum pubescent, punctate, dull, eyes in the middle of the sides of the head, pronotum marginate, the rest of

the thorax and the petiole not marginate. 1st node of petiole narrow, 2nd sub-globose. ♂ 4.5 mm., ♀ 5.5 mm.

“Hamman’s Kraal and Makapan, Bechuanaland. (Simon.)”

“♂. 4.5–5.5 mm. Head a little longer than wide, narrow in front, posterior margin straight. Eyes large. 1st node pedunculate in front, twice as long as wide. 2nd node much longer than wide. Thorax wider than the head. Shining, scantily and finely punctured. Erect pilose hairs absent, the decumbent pubescence very fine and scanty. Wings as in *penzigi*. Brown; antennae, clypeus, legs and narrow bands on the abdomen pale yellow.”

RACE RHODESIANA, Forel.

Ann. Soc. Ent. Belg., vol. 57, p. 112, ♀, 1913. Arnold, Proc. Rhod.

Sc. Assn., vol. 13, pt. 3, p. 31. ♀ maj. 1914.

“This race differs from the type species by the almost total absence of the anterior lobe of the clypeus, which, in the type, is very distinct, rectangular and produced. The three segments of the thorax are also more flattened and margined, and less convex. The curve between the dorsum and the declivity of the epinotum is more abrupt and angular than in the type.”

♀. 5 mm. Reddish yellow. Pubescence scanty on the head, thorax and legs, more abundant on the abdomen. A few pale, erect hairs on the head, pronotum, petiole and apical portion of the abdomen. Head, dorsum of thorax and 1st node of petiole very finely reticulate, sides of thorax very finely reticulate-striate. Dull, abdomen nitidulous. Head about one-third longer than wide, wider than the thorax, the sides convex, posterior margin straight. Frontal carinae rather wide in front, raised more above the antennal sockets than in *natalensis*. Median portion of clypeus raised and projecting slightly forwards, its anterior margin bearing three minute prominences, hardly toothed. Mandibles quadridentate, shining and striate. The scape extends back to the anterior third of the eye. The latter very large, almost half as long as the sides of the head, placed rather obliquely, and nearer the posterior than the anterior margin. The two posterior ocelli faintly indicated. Pronotum very slightly wider in front than behind, as long as wide, and distinctly marginate at the sides. Pro-mesonotal suture deep; mesonotum as long as wide, two-thirds as long as the pronotum. Dorsum of epinotum as long as the pronotum, about one-quarter longer than the declivity, which is very steep, almost vertical. First joint of petiole hardly pedunculate, twice as long as wide; the sides of the node are vertical, but the dorsal surface is not marginate;

2nd joint of petiole sub-globose, twice as wide as the 1st. Legs relatively longer than in *natalensis*.

♂ major. 5·8–6 mm. This differs from the ♀ minor not only in its larger size, but also by the structure and sculpture of the head. The anterior angles of the head are much more prominent. The clypeus has the anterior margin produced into three distinct short teeth, which are only indicated by slight prominences in the ♀ minor. The frontal carinae are also wider anteriorly and longer. The mandibles are strongly striated. The posterior half of the vertex is deeply and transversely striated, the region in front of the eyes and below them reticulate-striate, the frontal carinae longitudinally and rather finely striate. The posterior ocelli of the ♀ minor are just distinguishable, whereas in this form they are barely represented by three shallow and minute indentations. Otherwise like the ♀ minor.

♀. 6·8–7 mm. (hitherto undescribed). Head more parallel-sided than in the ♀, one-third longer than wide. The median portion of the clypeus is produced further forwards and its anterior margin is distinctly tridentate. The frontal carinae extend back almost to the level of the anterior margin of the eyes. Three ocelli present. The pronotum is narrower in front than behind, more convex above transversely than in the ♀. The mesonotum is wider than long; on each side of the middle line behind the pro-mesonotal suture there is a short longitudinal impression, about one-third the length of the segment. The head is distinctly rugose, obliquely so in front of the eyes, and transversely and more strongly rugose behind them, but the rugosities are not so coarse as in the ♀ major. Mesonotum very finely rugulose and shining. Otherwise like the ♀.

Plumtree and Bembesi, S. Rhodesia, nesting in thin dead twigs of *Acacia*. (S.A.M., R.M., G.A. colls.)

S. (Sub-genus TETRAPONERA), EMERYI Forel. (= CAPENSIS, Emery, nec. Smith, Forel emend.)

Emery, Ann. Soc. Ent. France, vol. 63, p. 23, ♀, 1895. Forel, Bull. Soc. Vaud. Sc. Nat., vol. 47, p. 367, 1911.

“ This species is very shining, and the thorax and petiole are not at all margined. The petiole is even narrower than in *ambigua*. The metanotum has a strong transverse impression behind the suture. The eyes are situated at about the middle of the sides of the head, a little nearer the anterior than the posterior border; they are also smaller, being less than one-third the length of the head; in *natalensis*

and *ambigua* they are more than one-third the length of the head. 4-4.5 mm. Pretoria."

TRIBE MELISSOTARSINI, Emery.

GENUS MELISSOTARSUS, Emery.

Ann. Muss. Civ. Gen., vol. 9, p. 16, 1877.

Characters.

♀. Antennae 6-jointed, the club 2-jointed; frontal carinae closely approximated. Thorax without a trace of sutures. First joint of petiole elongate and triangular, 2nd joint short, transverse, fused behind with the abdomen. Legs thick and short, 1st joint of the anterior or of all the tarsi greatly enlarged, and as wide or nearly as wide as the tibia. Mandibles bluntly tridentate or with the teeth more or less produced and acuminate, especially the apical.*

♀. Similar to the ♀, the teeth on the mandibles acute. Tarsi as in the ♀. Pronotum but slightly exposed dorsally. Wings with 1 closed cubital and 1 closed radial cell; stigma absent.

♂. Antennae 12-jointed, filiform, scape three times as long as the 1st joint of the flagellum. Mandibles small, not well developed. Petiole as in the ♀ and ♀. Tarsi simple. Genital armature exerted. Wings as in the ♀.

M. BECCARII, Emery. (Plate V, figs. 51, 51*a* and *b*.)

Loc. cit., p. 17, ♀, ♂.

♂. 2.2 mm. Head and thorax reddish ochreous, the front of the head darker, the mandibles ferruginous; legs, antennae and abdomen pale dirty yellow. A very fine and scanty pubescence on the legs and antennae, but absent on the body. Pilosity pale, long and very sparse on the head and abdomen, shorter and even scantier on the thorax. Head microscopically and longitudinally strigose, also finely and sparsely punctured. Dorsum of thorax with very even and distinct longitudinal striae which become feeble towards the brow of the declivity; the declivous anterior and posterior faces of the thorax smooth. Petiole and abdomen microscopically reticulate and shining, legs smooth and shining, head and thorax dull. Head sub-quadrate,

* After seeing a long series of *M. Beccarii*, it appears to me that Emery's division of the neuter caste into ♀ and ♂ cannot be maintained. There is a complete gradation between forms with narrow heads and acute mandibles, and those with broader heads and blunt mandibles.

parallel-sided and with the posterior margin shallowly concave in the forms with blunt mandibles, or slightly narrower in front than behind, in those with acute teeth on the mandibles; the latter also have the posterior margin of the head more deeply concave. Forms intermediate in respect to the mandibular structure and the shape of the head also occur. Head much wider than the thorax, very convex transversely. Mandibles tridentate, the masticatory margin straight and with very small blunt teeth, or, more or less oblique, and with the teeth stronger and acute. The internal margin of the mandibles is more or less swollen. Clypeus short, slightly raised in the middle, the anterior margin feebly concave at each side. Frontal carinae short, close together and parallel. Antennae 6-jointed, the scape short, only just reaching the internal margins of the eyes when extended sideways; flagellum very little longer than the scape, the 1st joint as long as the 2nd and 3rd together and a little longer than wide, 2nd joint as long as wide at its apex, 3rd joint a little shorter than the 2nd, wider than long, 4th joint twice as wide as long, 5th joint narrowing to the apex, half as long again as wide, and quite twice as long as the 4th. Eyes small, oval, situated far forwards, composed of about 15 facets, and separated from the base of the mandibles by a distance less than their own long diameter. Thorax rectangular, the corners rounded, nearly parallel-sided, or only very slightly wider in front than behind, convex longitudinally and transversely, the declivity vertical, the brow strongly rounded.

First joint of the petiole triangular, longer than wide, widest behind. Second joint transverse, two and a quarter times wider than long, its posterior face coalesced on the whole surface with the abdomen. Abdomen ovate, all the segments wider than long.

Legs short, the femora swollen, the 1st tarsal joint (metatarsus) of the front pair of legs sub-ovate, wider than the tibia, the other tarsal joints very short. The metatarsus of the middle pair of legs cylindrical, as thick as and two-thirds as long as the tibia. Metatarsus of hind pair of legs slightly compressed, a little wider than the tibia, and like the middle metatarsi, furnished with a series of minute teeth round the outer half of the apex.

♀. 4 mm. Mandibles with masticatory margin oblique and acutely dentate. Eyes large, the facets clearly defined; three ocelli present and well developed. Head narrower in front than behind, posterior angles more pronounced than in the ♂, and posterior margin much more deeply emarginate. Pronotum not greatly exposed, not as high as the mesonotum and three times wider than long. Mesonotum convex above, but as long as wide, the sides smooth, the central area

and also the scutellum longitudinally striate. Scutellum half as long as the mesonotum. Dorsum of epinotum very short, four times wider than long, the brow rounded, the declivity vertical. Second joint of petiole narrower than in the ♀, hardly more than twice as wide as long. Legs as in the ♀.

Antennae, mandibles, petiole and legs dark yellow, the rest of the body brown, a little paler on the mesonotum. Wings with one closed cubital and closed radial cell, recurrent nervures wanting. Nervures brownish yellow, stigma almost obsolete. Otherwise like the ♀.

♂. 3.7 mm. Ochreous yellow, legs and antennae pale yellow, vertex of head slightly brown. Head wider than long. Eyes large, placed in the anterior half of the head, and covering quite half of the sides. Ocelli large. Mandibles very small. Clypeus very short, the median portion raised and projecting slightly forwards. Antennae filiform, scape a little longer than the eye, two and a quarter times as long as the first joint of the flagellum, 2nd joint of flagellum nearly twice as long as the 1st, all the joints longer than wide. The pronotum is vertical, not visible from above; mesonotum strongly convex above, faintly and longitudinally striate. Epinotum and petiole as in the ♀. Tarsal joints simple, not as wide as the tibiae. Genital armature exerted. Wings as in the ♀. Pubescence a little longer and more abundant than in that sex.

Durban, nesting under bark, in moderately populous colonies. (Marley, Cooper.) (S.A.M., R.M., G.A. colls.)

TRIBE MYRMECININI, Ashmead.

GENUS *ATOPOMYRMEX*, E. André.

Rev. d'Ent., vol. 8, p. 226, 1889.

Characters.

♀. Size variable, all forms occurring from ♀ maj. to ♀ min. Antennae 12-jointed, with a 3-jointed club. Clypeus large, sub-triangular; mandibles short, thick and obtusely dentate. Frontal carinae widely divergent posteriorly, the outer margin projecting so as to form an indistinct scrobe in the largest ♀♀. Eyes not large. Pronotum flat above, produced anteriorly into a distinct neck, from which and from the sides the dorsum is rather shortly delimited. The pronotum is widest in front, narrowed and constricted behind. Pro-mesonotal suture not distinctly defined dorsally. Mesonotum strongly bi-tuberculate above and separated from the epinotum by a

wide and deep depression. Dorsum of epinotum also tuberculate near the base. Epinotal spines large, long, and divergent. 1st node of petiole bispinose above; 2nd node wider than long, the anterior angles rounded but strongly dilated. Middle and hind legs without calcaria, all the femora swollen in the middle; last tarsal joint very large, as long as the 2nd, 3rd, and 4th taken together, and bearing strong claws.

♀. Antennae 12-jointed. Eyes not large, 3 well-developed ocelli. Frontal carinae long, and forming a more distinct scrobe than in the ♂ max. Pronotum very short in the middle; meso- and epinotum of the usual form, and without tubercles or spines; dorsum of epinotum very short, the declivity vertical. 1st node of petiole with the spines of the ♀ represented only by two broad tubercles. Anterior wing with 1 cubital, and 1 marginal, and a closed radial cell.

♂. Mandibles very short, thick, dentate. Posterior margin of head raised to form a collar. Clypeus carinate; frontal carinae widely divergent. Eyes small. Scape short. Thorax and nodes without spines or tubercles. Wings as in the ♀.

A. MOCQUERYSI, André, var. CURVISPINA, Forel.

Rev. d'Ent., vol. 8, p. 227, ♀, 1889. Variety, Deutsch. Ent. Zeitsch., p. 311, 1911.

♂. 4.2-8 mm. The largest ♀ ♀ differ from the media and minima only by the longer frontal carinae, which are expanded outwards so as to form, above the eyes, an ill-defined scrobe. Head dark red, thorax piceous or piceous red, petiole, abdomen and legs black, antennae reddish brown, margins of the mandibles, clypeus and frontal carinae brown. Abdomen, legs, and antennae with a very sparse, microscopical pubescence, a little longer on the antennae; the rest of the body glabrous. Legs shining, disc of pronotum and abdomen very slightly shining, rest of the body dull, except the mesonotal tubercles in the ♀ maxima. Head finely reticulate, with rather irregular and longitudinal rugosities superimposed, which are strongest in front and on the vertex, and become feebler between the eyes and the posterior angles. Neck, sides of thorax, epinotum, sides and posterior dorsal faces of the nodes reticulate. Dorsum of pro- and mesonotum longitudinally and somewhat irregularly rugose, the rugosities diminishing in front of the mesonotal tubercles, which are more or less smooth and shining. Abdomen very finely and evenly reticulate. Head very convex above and high, from apex of closed mandibles to the middle of the occipital margin as long as wide,

distinctly wider behind than in front, the sides converging in front, the posterior angles very round. Mandibles thick, triangular, finely striated, sharply and closely punctured, obtusely dentate, the apical tooth more acute in the smaller ♀♀. Scape short, not reaching to the posterior border of the head; the three apical joints form a slight club, nearly as long as the rest of the flagellum, the 1st joint of the flagellum nearly as long as the following three taken together, 2nd-7th joints wider than long. Clypeus with two strong carinae continued down from the frontal carinae, the anterior margin shallowly sinuate. Frontal carinae flat, widely divergent posteriorly, continued backwards as a fine ridge, which ends well behind the eyes in the ♀ max., but in the ♀♀ media and minima not extending back beyond the front of the eyes. The latter small, and situated behind the middle of the sides. Pronotum with the anterior portion depressed, forming a distinct neck, the posterior portion flat, and with distinct but rounded anterior angles; it is (excluding the neck) widest in front, and twice as wide as it is long in the middle. The thorax is constricted between the pro- and mesonotum, but the suture is not clearly defined above. Mesonotum much narrower than the pronotum; its anterior two-thirds is level with the pronotum, and bears on each side a strong rounded tubercle, behind which the surface slopes steeply down to the meso-epinotal suture. The mesonotum is widest across the tubercles. From the suture the epinotum rises upwards for a short distance, and then slopes gradually downwards towards declivity, which is moderately oblique. Close to the base, the dorsum of the epinotum bears a pair of lateral tubercles, smaller and flatter than those of the mesonotum. The epinotal spines are slightly curved, and directed upwards, backwards and slightly outwards, and are as long as the space between them at their base. The declivity is margined laterally by ridges, which merge above into the base of the spines, and below terminate in two small laminate teeth. 1st joint of petiole as long as wide, widest in the middle, the dorsum flat or shallowly concave, and bearing on each side, just above the steep anterior face, an upward and outwardly directed spine. Second node wider than long, convex above and in front, the posterior margin depressed, the anterior angles dilated, narrower behind than in front. Seen from the side, the spines of the first node hardly project above the level of the dorsum of the 2nd node. Abdomen round, slightly flattened above; 1st segment a little longer than wide, truncate at the base, with distinct lateral angles, and forming four-fifths of the abdomen above.

♀. 13 mm. Head dark red, ocellar triangle blackish, thorax and

abdomen black. Thorax shining. Pronotum obliquely rugoso-striate, scutellum and mesonotum longitudinally striate in the middle, obliquely so outside the parapsidal sutures. Metanotum and the narrow dorsum of the epinotum finely rugulose, the declivity very finely reticulate. Sides of meso-, meta-, and epinotum reticulate, the angles of the epinotum coarsely rugose. 2nd joint of petiole above, shining, sparsely but strongly punctured. Pronotum very little exposed in the middle dorsally. Mesonotum longer than wide, promesonotal suture ellipsoidal. Scutellum sloping and rounded behind. Dorsum of epinotum very short in the middle, the declivity almost vertical; the epinotum is devoid of spines, which are replaced by very blunt angles on each side. 1st joint of petiole with the anterior face more vertical than in the ♂, each side with a strong angle in the middle, and above and inwards there is a pair of rather flat tubercles. Second joint with the anterior angles more dilated than in the ♂. Abdomen oblong, 1st segment one-quarter longer than the 2nd, all the segments wider than long. Wings brownish yellow, with the cubital and radial cells somewhat darker, nervures brown. Otherwise like the ♂ max.

This genus appears to combine in the head and thorax some of the characters of the genera *Cremastogaster* and *Tetramorium*, and the habits of the species described above are decidedly similar to those of the *Cremastogastrii*. It is a slow ant, living in trees, and mainly carnivorous in its diet. The nest is usually situated in a hollow stem, some distance above the ground. Like the *Cremastogastrii*, these ants, when disturbed, exude a whitish and rather sticky secretion from the anal glands. It has not been found by me except in districts containing large trees.

Sipapoma, Malindi, and Victoria Falls, Rhodesia. Zululand. (Traegaordh.) (S.A.M., R.M., G.A. colls.)

Var. AUSTRALIS, Santschi.

Goeteborgs K. Vetensk. o. Vitterh. Handl., xv, 2, p. 16, ♂, 1914.

“Differs from the type by the slightly stronger sculpturation of the head. The mesonotum is wider. The epinotal spines are a little shorter, less raised. The spines of the 1st node of the petiole also shorter and thicker; the 2nd node longer. The colour in the ♂ minor paler than in the type.” Zululand. (Traegaordh.)

TRIBE OCYMYRMICINI, Emery.

GENUS OCYMYRMEX, Emery.

Bull. Soc. Ent. Ital., vol. 18, p. 363, 1886.

Characters.

♀. Head sub-quadrate. Clypeus convex, the anterior margin rendered more or less bidentate by a median excision. Frontal area narrow, distinct. Antennae 12-jointed, nearly filiform, scape long, at least half as long as the flagellum. Mandibles, clypeus and head below the mouth furnished with long curved hairs (ammochaetae). Thoracic sutures absent; thorax unarmed, depressed in the middle. First joint of petiole pedunculate, the peduncle very thin and longer than the node; 2nd joint more or less barrel-shaped. Abdomen small, more or less pyriform, legs very long and slender. ♀ unknown.

♂. Antennae filiform, 13-jointed, the scape very short, not more than twice the length of one ocellus; 1st joint of flagellum very short, half the length of the scape, the remaining joints all at least three times longer than wide. Eyes and ocelli large, the latter on a raised area. Mesonotum very wide and gibbous, overhanging the pronotum. Scutellum gibbous. Mayrian furrows and parapsidal sutures absent. Wings with one closed cubital cell, the discoidal cell absent, the radial short.

The ants of this genus live in hot, arid and sandy localities. The nest, usually made in loose sandy soil, is surmounted by a crateriform mass of earthen or sandy pellets derived from the excavation of the underground galleries. The entrance is always central, at the bottom of the crater. Like other areniphilous ants, the species of this genus possess long curved hairs or "ammochaetae," fringing the mandibles, clypeus, and the ventral surface of the head behind the mouth. The hairs, forming a sort of basket around the mandibles, facilitate the removal of grains of sand in the excavation of their nests. These ants are also endowed with the most marvellous celerity, far excelling in this respect all other ants with which I am acquainted, so much so that they appear almost to fly over the surface of the ground. Their motion is just as erratic as it is swift; they seem incapable of pursuing a straight path for more than a couple of inches, and watching one of these insects for but a short time, a casual observer might be led to suppose that the unfortunate animal, having lost its way, had been seized with hysterical dementia. The

males are exceedingly common at lights during the greater part of the year. I have frequently dug up the nests of the variety *Arnoldi*, without ever having found a ♀ of any sort, nor have ♀♀ of any species been described up to now. I believe that the genus will eventually be found to have only ergatoid queens, or that the egg-laying function (with the production of ♂♂ and ♀♀) is possessed by the whole ♀ caste.

Key to the ♀♀ of *Ocymyrmex*.

(NOTE.—In using this key, the term “node of the 1st joint” should be understood to refer to the swollen part of the joint only; it does not include the narrow and short portion which lies between the node proper and the base of the 2nd joint.)

- (2). 1. Outline of 1st abdominal segment, seen from above, evenly convex from the base, not sub-pedunculate. (Plate V, fig. 53.)
barbiger, Emery.
- (1). 2. Outline of 1st abdominal segment, seen from above, shallowly concave just beyond the base, more or less sub-pedunculate. (Plate V, fig. 52a.)
- (8). 3. Less than 8.5 mm. long.
- (5). 4. Node of 1st joint of petiole wider than long. *Weitzaeckeri*, Emery.
- (4). 5. Node of 1st joint of petiole longer than wide, or as long as wide.
- (7). 6. Stoutier insect, 2nd joint of petiole hardly longer than the node of the 1st joint; median excision of the clypeus shallow, hardly bidentate; abdomen red, moderately shining var. *Foreli*, Arnold.
- (6). 7. Insect more slender, 2nd joint of petiole one-third to one-half longer than the node of the 1st joint; median excision of clypeus deeper, making the margin distinctly bidentate; abdomen piceous, shining.
var. *Arnoldi*, Forel.
- (3). 8. 10-11 mm. long *Picardi*, Forel.

The races *hirsutus* and *Wroughtoni*, and the var. *micans* of *Weitzaeckeri* are not known to me in nature, and have therefore been omitted from the above key. The different forms of *Weitzaeckeri* are clearly exceedingly closely allied, and ought not to be considered as ranking higher than varieties. The striation of the head varies in strength and direction, even in specimens from the same nest, so that very little reliance can be placed on that feature in the separation of the species and varieties.

O. WEITZAECKERI, Emery. (Plate V, fig. 54.)

Ann. Mus. Civ. Genoa, vol. 32, p. 116, ♀, 1892.

♀. 6.5-7 mm. Castaneous red, tibiae and tarsi paler, femora and abdomen piceous. In some specimens the colouring is darker, the

head and thorax being dark reddish brown, and the abdomen black. Pubescent hairs on the flagellum and tarsi, the rest of the body clothed somewhat irregularly and sparsely with long, semi-erect, pale hairs, which are oblique and rather more abundant on the legs. The inner margins of the mandibles with a row of long curved hairs, curving upwards over the clypeus. The ventral surface of the head behind the mentum, with a row of long hairs curving forwards under the mouth.

Head as wide as long, measured from apex of clypeus to the occipital margin. Clypeus moderately convex transversely, and projecting a little over the mandibles; the anterior margin semi-circularly excised in the middle, the excision bounded by a slight tooth on each side. Mandibles elongate, nitidulous, strongly striate longitudinally, armed with 5 large teeth. Eyes strongly convex, placed somewhat dorsally at about the middle of the sides. Frontal carinae large, raised in front, divergent behind; the frontal area triangular and well defined. Scape long, extending back a little beyond the occipital margin, flagellum slightly thickened towards the apex, all the joints longer than wide, the 1st joint as long as the 2nd and 3rd together. The clypeus is evenly and longitudinally striate, the rest of the head strongly striate, the direction of the striae rather variable. Usually the median portion of the vertex is longitudinally striate from the frontal carinae back towards the occiput, and on each side of the median area the striae become more and more oblique posteriorly, curving back to the eyes. The thoracic sutures are only slightly indicated at the sides, quite obsolete above. The anterior portion of the thorax is convex in front and at the sides, the median portion depressed, the posterior or epinotal region straight or slightly convex. The prothorax is concentrically striate, the meso- and epinotum transversely striate above, obliquely and longitudinally striate at the sides. The striae on the meso- and epinotum are larger and deeper than those on the head and prothorax. The dorsum of the epinotum is half as long again as the declivity. The peduncle of the first joint of the petiole is quite half the length of the joint; the node is distinctly wider than long, very convex above. The peduncle and node are transversely striate, the node feebly so. The 2nd joint of the petiole is as long as wide, more or less campaniform, not so convex above as the 1st node. Abdomen narrow, twice as long as wide, the 1st segment with a slight neck-like constriction at the base, and four and a half times longer than the remaining segments taken together. There are a few very faint transverse striae near the basal half of the 1st segment. Legs very long and slender.

♂. 5-5.6 mm. Piceous, antennae, mandibles and legs ochreous. Head dull, reticulately rugose, except the central area between the antennal sockets and the median ocellus, which is smooth and shining. Rest of body faintly rugulose and very shining. Pilosity similar to that of the ♀, but shorter, and more abundant on the abdomen. Legs and antennae with a pale and long pubescence, more abundant on the latter. Head wider than long; eyes large, placed anteriorly and occupying more than half the sides of the head. Anterior margin of clypeus straight. Frontal carinae obsolete. Scape very short, very little longer than the long diameter of the median ocellus; 1st joint of the flagellum a little wider than long, the remaining joints all much longer than wide. Pronotum not visible from above; mesonotum gibbous, and very convex anteriorly, wider than long. Scutellum rounded behind and gibbous. Petiole not unlike that of the ♀, but the peduncle of the 1st joint is much shorter and wider, the node is also broader and flatter, and longer than wide. The posterior femora are laterally compressed, and strongly sinuate along their basal half. Wings hyaline, nervures pale yellowish.

Orange Free State, Basutoland, and Cape Province. (S.A.M., G.A. colls.)

Var. *ARNOLDI*, Forel. (Plate V, figs. 52, 52a, 55.)

Ann. Soc. Ent. Belg., vol. 57, p. 138, ♀, ♂, 1913.

Race *abdominalis*, Santschi, Goteborgs K. Vetens. o. Vitterh. Handl., xv, 2, p. 16, 1914.

♀. Like the var. *Foreli*, this differs from the type species in having the node of the 1st joint of the petiole longer than wide. The colour of the head is lighter, the dorsal profile of the thorax less concave in the middle. The ♂ is like that of the type.

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

Race *abdominalis*, Santschi. I have seen examples of this form, which have the basal portion of the 1st abdominal segment slightly longer, making the abdomen appear narrower. This character does not appear to me to be sufficient to separate them from var. *Arnoldi*.

Var. *FORELI*, n. v.

♀. 7.8 mm. This differs from the preceding and the type by its bright red colour, the stronger striation of the thorax, and by the sculpture of the 1st joint of the petiole, which is deeply and transversely striate on the whole of the node and the peduncle. The median excision on the anterior margin of the clypeus is also less deep. The

abdomen is wider, the 1st segment being only a trifle longer than wide, and only twice as long as the 2nd segment, whereas in the type species and in var. *Arnoldi*, it is at least one-quarter longer than wide, and three times longer than the 2nd segment. The basal neck-like portion of the 1st segment is also shorter.

This variety has a very strong cockroachy odour, similar to *Pachycondyla soror*. Redbank, S. Rhod., Victoria Falls.

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

The examples from the Victoria Falls are even larger, 8-8.3 mm., and have the excision of the clypeus almost as deep as in var. *Arnoldi*, but these differences are hardly sufficient to justify their separation as a variety distinct from *Foreli*.

Race *HIRSUTUS*, Forel.

Schultze Reise Süd Afrika, vol. 4, p. 12, ♀, 1910.

“♀. 5.5-7 mm. Reddish brown, with brighter brownish yellow abdomen. The whitish, stumpy, pilose hairs are more abundant and longer than in the type species; the hairs are also thicker. Head less wide in front. First joint of petiole with much longer peduncle, somewhat like *Robechii*, Emery, and *laticeps*, Forel, and with smaller nodes. The head is also arcuately and transversely striate behind (in the type species somewhat divergent and longitudinally striate), and not so wide.”

Severelela and Kooa, Kalahari. (Schultze.)

Race *WROUGHTONI*, Forel.

Loc. cit.

“Differs from the type by its darker brown colour, but more especially by the narrower head which is hardly widened in front, and has the sides more convex. The 1st joint of the petiole has also a longer peduncle, and the yellowish hairs are also longer, although not so blunt as in *hirsutus*. The head is narrower than in *hirsutus*. The ♂ is 4.5 mm. long. Its head is short behind the eyes, wider than long, the hind margin broad and convex. Wings glassy. Mesonotum strongly gibbous in front. First joint of petiole with long peduncle.”

Natal. (Wroughton.)

Var. *MICANS*, Forel.

Loc. cit., p. 12.

“♀. 5.5 mm. Head and thorax nitidulous, more closely and finely striate than in the type species. The node of the 1st joint of

the petiole is higher and more distinctly delimited. Otherwise similar, but smaller. The colour is, however, much brighter, yellowish red, and the pilosity is finer and sparser.

“Okahandja, German S. W. Africa. (Peters.)”

O. BARBIGER, Emery. (Plate V, fig. 53.)

Boll. Soc. Ent. Ital., vol. 18, p. 364, ♀, ♂, 1886.

♀. 6.5 mm. Very similar to *Weitzaeckeri*, but the thorax is darker and the abdomen is quite black. The striation of the head at the sides in front is a little stronger, but the direction of the striation is very variable. The clypeus is excised like that of *Weitzaeckeri*. The petiole resembles that of var. *Foreli*, but is not quite so strongly striate. The main distinction lies in the shape of the abdomen, which is rounder and with the 1st segment not sub-pedunculate at the base, but convex in its entire outline, when seen from above.

♂. 5 mm. Differs from *Weitzaeckeri* in the shape of the head, which is narrower, not wider than long, but even a little longer than wide. The eyes are much smaller; they are not placed so far forwards, and occupy less than half the sides of the head. The ocelli are also smaller and less raised. The clypeus is very convex in the middle, almost tuberculate. The mesonotum is narrow, finely and longitudinally striate, and separated from the scutellum by a much deeper impression than in *Weitzaeckeri*. The petiole and abdomen are much more sparsely pilose, and the hairs are shorter and thinner. The posterior femora are laterally compressed, but not sinuate along the basal half. The whole insect is much more shining than *Weitzaeckeri*.

Capetown, Orange River, Mahalapye, Bechuanaland. (S.A.M., R.M., G.A. colls.)

O. PICARDI, Forel.

Mitth. Schweiz. Ent. Ges., vol. 10, p. 306, ♀, 1895.

“♀. 10–11 mm. Mandibles closely and coarsely striate, quinque-dentate, almost parallel-sided (hardly wider at the masticatory margin than at the base). Clypeus somewhat produced and narrowly and semi-circularly excised in the middle, so as to leave a tooth-like angle on each side of the excision. Head at least as wide as long, wider in front. Eyes situated behind the middle. The scape extends back slightly beyond the occipital margin. Declivity of epinotum steeper than in *Robecchii*, more like that of *Weitzaeckeri*. First joint of petiole with a long peduncle as in the other species, but the node is more

distinct, even more than in *barbiger*; 2nd joint hardly longer than wide, more nodiform than in *barbiger*. First abdominal segment strongly pedunculate as in *Robecchii* and *nitidulus*. Head and thorax almost dull, closely striate and finely reticulate between the striae. Pronotum concentrically striate, the median striae longitudinal. The rest of the thorax above transversely striate, the side longitudinally so. The peduncle of the 1st joint of petiole coarsely, the node finely striate. Second joint of petiole finely reticulate, slightly shining. Abdomen and legs very shallowly reticulate and very shining. Head, thorax, petiole, antennae and legs with fairly short, oblique, thick and blunt brownish black hairs, moderately abundant. Abdomen almost glabrous above. On the legs and antennae the hairs are more abundant, shorter and oblique. The ammochaetae are blackish brown. Head very dark red, the rest of the body black.

“Cubango-Cuito, Mossamedes. (Baum.) Severelela and Kooa, Kalahari. (Schultze.)”

TRIBE CARDIOCONDYLINI, Emery.

GENUS CARDIOCONDYLA, Emery.

Ann. Acad. Nat. Napoli, vol. 2, p. 20, 1869.

Characters.

♀. Antennae 12-jointed, with a 3-jointed club. Frontal area depressed. Pro-mesonotal suture obsolete or nearly so, meso-epinotal suture well defined. Epinotum armed with two short spines or teeth. First joint of the petiole with a long peduncle, the node narrow, 2nd joint broad.

♀. Head as in the ♀, with 3 small ocelli, somewhat sunk below the surface. Pronotum well exposed, not hidden under the mesonotum. Wings long, the nervures only faintly indicated, radial cell open.

♂. Normal and winged, or ergatomorph and wingless. Antennae 13-jointed, or 10 to 11-jointed in the ergatomorphs. So far, winged ♂♂ are known only in *C. Emeryi*, and as an abnormality in *C. Batesi*, which usually has ergatomorph males. For other characters of the winged ♂, see species below.

C. EMERYI, Forel. (Plate V, figs. 57, 57a.)

Mitth. München Ent. Ver., vol. 1, p. 5, ♀, 1881. André, Ann. Soc. Ent. France (6), p. 69, ♂, 1881.

♀. 1.8-2.1 mm. Head, thorax, petiole, legs and antennae ochreous*, abdomen brown. Sometimes the head, the club of the antennae and

the 2nd node are darker, reddish yellow or slightly brownish. Head, thorax and 1st joint of petiole finely and evenly reticulate, 2nd joint of petiole very shallowly punctate, abdomen smooth and shining. Whole body and legs microscopically pubescent. Head one-third longer than wide, sides feebly convex, posterior corners rounded, posterior margin straight. Clypeus produced, projecting over the hind portion of the mandibles. The median area of the clypeus is elongate triangular, raised and produced rather far back between the frontal carinae; the lateral portions are laminate and bent upwards. The frontal area is small but clearly defined. The frontal carinae short, divergent behind. Mandibles quadridentate, the apical and post-apical teeth large and acute. The scape does not extend back as far as the hind margin of the head; the 1st joint of the flagellum is two and a half times as long as wide, and as long as the five succeeding joints taken together, the apical joint is four times as long as the penultimate, and nearly as long as the rest of the flagellum less the 1st joint; 2nd-9th joints wider than long. Eyes rather prominent, situated well in front of the middle of the sides. Thorax widest in front, not so wide as the head. Pro-mesonotum hardly longer than wide, meso-epinotal suture distinct. The thorax is distinctly constricted between the meso- and epinotum. The latter is rather convex lengthwise at the base, and slopes rapidly at the apex to the brow of the concave declivity. Epinotal teeth small, triangular. The 1st joint of the petiole has a short, broad peduncle, the node is narrow, convex above, at the sides and in front, the anterior face almost vertical. The 2nd joint of the petiole is oblong transversely, one-third wider than long, and twice as wide as the 1st, convex above and at the sides. Abdomen oval, the 1st segment distinctly longer than wide, and four times as long as the remaining segments taken together. Legs moderately long, femora not swollen; middle and hind tibiae without calcaria.

♀ (hitherto undescribed?). 2.5 mm. Head, thorax and petiole brown, abdomen black, legs, antennae and mandibles yellow, the club of the flagellum infuscate. Head very similar to that of the ♂, but a trifle wider. Eyes rather small, very little larger than in the ♂. Ocelli small, inconspicuous and sunk a little below the surface. Pronotum widely exposed at the anterior lateral angles, which are rounded; the median portion of the pronotum is occluded by the mesonotum, which extends far forwards in the middle. The mesonotum is convex in front, very feebly convex or nearly flat transversely in its posterior half. The scutellum is rather flat, very slightly raised above the level of the metanotum. Dorsum of epinotum wider than long, widest at

the base, sloping downwards posteriorly; the epinotal teeth are longer than in the ♀, the space between them shallowly excavated. Petiole as in the ♀. Abdomen similar to that of the ♀, but larger. Wings hyaline, the nervures hardly distinguishable. Puncturation as in the ♀. The pubescence of the abdomen is longer and more abundant than in the ♀.

“♂. 2 mm. Head a little longer than wide; wider in front than behind; mandibles large, armed with 4 or 5 teeth, the apical one being the largest. Clypeus similar to that of the ♀, it is large, fairly convex, rounded in front, raised above the base of the mandibles; frontal area deep, forming an obtuse angle with the clypeus; frontal carinae short, frontal sulcus absent; eyes large, situated in front of the middle of the sides of the head. Antennae 13-jointed, all the joints longer than wide; scape about as long as the first 8 joints of the flagellum. First joint of the flagellum a little wider but as long as the 2nd, the latter longer than the 3rd, the remaining joints lengthen and widen gradually towards the apex, without forming a well-defined club; the apical joint is longer than the two preceding joints taken together. Thorax but slightly elongated, at least as high as wide in front; pronotum visible from above, the lateral angles pronounced but rounded. Mesonotum a little longer than wide, without Mayrian furrows; dorsum of epinotum oblique, longer than wide, wider in front than behind, the declivity half as long as the dorsum, nearly vertical and slightly concave transversely; epinotal teeth strong, acute, divergent towards their apices and directed upwards. Petiole similar to that of the ♀. Abdomen oval; genital armature small, not exposed. Wings with only one cubital cell, the radial and discoidal cells wanting. Reddish testaceous, with the upper surface of the head and of the petiole, the flagellum, and some spots on the thorax more or less blackish, abdomen brownish black. Head and thorax dull, finely punctured, at the bottom of each puncture is a piligerous point. Petiole nearly smooth and moderately shining; abdomen smooth and very shining. Pilosity absent, pubescence fine and not dense. Wings nearly hyaline.”

S. Rhodesia, generally distributed; Durban. (C. B. Cooper.) This very small species is usually found nesting in grassy soil; the entrance to the nest is a very minute hole, not surrounded by any earth or other substances. The species is tropicopolitan.

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

TRIBE SOLENOPSISIDINI, Forel.

SUB-TRIBE MONOMORIINI, Emery.

The tribe includes the following South African genera: *Monomorium*, *Diplomorium* and *Solenopsis*.

GENUS MONOMORIUM, Mayr.

Verh. Zool. Bot. Ges. Wien, vol. v, p. 452, 1855.

Characters.

♂. Head more or less rectangular; mandibles narrow, with 3 or 4 acute teeth; clypeus with the anterior margin more or less raised and projecting over the base of the closed mandibles; the triangular or quadrangular median area is raised above the level of the short lateral portions, and has usually two obtuse carinae, convergent behind between the bases of the antennae (see Plate V, fig. 58c); sometimes the carinae end in front in very short blunt teeth; frontal area distinct. Frontal carinae short. Antennae 11- or 12-jointed, with a distinct club formed of the three apical joints. Thorax widest in front; promesonotal suture obsolete, meso-epinotal suture deep and well defined. Epinotum without teeth. First joint of petiole shortly pedunculate in front. Abdomen distinctly, but not widely truncate at the base (see Plate V, fig. 58a).

♀. Thorax elongate, pronotum very little exposed above; mesonotum longer than wide; dorsum of scutellum level or nearly so with that of the mesonotum. Epinotum without teeth; the declivity and the posterior portion of the dorsum more or less excavated and concave, so that the lateral margins appear raised or tumid. Petiole similar to that of the ♂. Abdomen elongate, rounded apically. Wings with one cubital cell, the radial cell open.

♂. Head broad and flat; eyes large, ocelli not large. Mandibles well developed and dentate. Clypeus broad. Antennae filiform, 13-jointed. Thorax similar to that of the ♀. Petiole, especially the peduncle of the 1st joint, wider than in the ♀, the node not so high. Abdomen as in the ♀, but with the basal angles rounded.

This very large genus occurs in both hemispheres, chiefly in the tropical zone, and includes several cosmopolitan species, some of which are frequently found in hot-houses in temperate countries.

Most of our South African species nest in the ground, sometimes forming very populous nests containing many hundreds of the ♀ caste. The ♀ ♀ of at least all the South African species which I have seen have a very distinctive, although minute character by which they may be recognised. The base of the ventral plate of the 1st abdominal segment forms a pronounced angle with the sides, so that the base of the abdomen has a distinctly truncated appearance. Moreover, in many species the abdomen has a more or less glaucous sheen, giving a steely reflection. These characters can be best observed under a lens. The truncate appearance of the base of the abdomen is certainly noticeable in some other genera, but rarely to such a marked extent as in *Monomorium*. The specific characters, which when taken together separate our numerous species from one another, are fairly distinctive, but are often not sufficiently palpable when considered singly, so that it is no easy task to frame analytical keys for all the species. I have endeavoured to draw up a key to include all those species which I have seen, and also a few others which are known to me only from descriptions, but which yet appear to possess characters sufficiently distinctive to be utilised in a table.

In many species of the genus, *e. g.*, *albopilosum*, *bicolor*, etc., the sculpture consists in part of a very fine and even raised reticulation, but under a low magnification only, this has a granulate appearance, owing to the manner in which the light is reflected from the smooth areas enclosed within the reticulations. Such a form of sculpture is described in the following pages as *granulate*, since its real character is appreciable only with rather high magnification.

Key to the ♀ ♀ of Monomorium.

- (4). 1. Antennae Z-jointed (sub-genus *Mitara*, ~~Forel~~ ^{Emery}).
 (3). 2. Yellowish species; sides of head distinctly, and of 2nd node of petiole, slightly convex (*nictilis*, Forel) race *atomus*, Forel.
 (2). 3. Brownish species; sides of head and of 2nd node of petiole straight. (*exiguum*, Forel), var. *bulawayensis*, Forel.
 (1). 4. Antennae 12-jointed.
 (28). 5. Head and thorax dull, or only very slightly shining.
 (7). 6. Head strongly striate and quadrate *Emeryi*, Mayr.
 (6). 7. Head not strongly striated.
 (17). 8. Head closely and fairly strongly *granulate* (see remark in introductory paragraph above).
 (12). 9. Dorsum of epinotum distinctly excavated.
 (11). 10. Dorsum of epinotum deeply excavated. Entirely black, 4.2 mm. long; posterior angles of the head prominent, feebly rounded. *afrum*, André.

- (10). 11. Dorsum of epinotum not very deeply excavated. Yellowish brown, 2.4 mm. long; posterior angles of the head considerably rounded.
(*Salamonis L.*), race *subopacum*, Smith.
- (9). 12. Dorsum of epinotum not excavated, but flat or convex.
- (16). 13. Black or brownish species.
- (15). 14. 3.5 mm. long. Entirely black; 1st node, seen from above, conical, longer than wide, the peduncle half as long as the node.
(*albopilosum*, Emery), var. *Thales*, Forel.
- (14). 15. 3 mm. long. Dark brown, head paler brown; 1st node less conical, more wedge-shaped, not longer than wide, the peduncle very short.
(*Salamonis L.*), race *Junodi*, Forel.
- (13). 16. Head and thorax bright yellowish red; abdomen brownish.
(*bicolor*, Emery), var. *nitidiventris*, Emery.
- (8). 17. Head very finely sculptured, more or less minutely longitudinally striato-punctate, or reticulate.
- (21). 18. Colour pale.
- (20). 19. Head and thorax brownish yellow. Scape not reaching the hind margin of the head by the length of the eye.
(*Salamonis L.*), var. *diserta*, Forel.
- (19). 20. Head and thorax bright yellow. Scape reaching the hind margin of the head *Pharaonis L.*
- (18). 21. Colour dark.
- (23). 22. A median ocellus fairly well defined; larger species, 3.3-3.8 mm.
(*Salamonis L.*), race *australis*, Emery.
- (22). 23. No trace of ocelli.
- (25). 24. Thorax strongly constricted at the meso-epinotal suture, 2.2 mm.
(*setuliferum*, Forel), var. *notula*, Forel.
- (24). 25. Thorax not strongly constricted at the meso-epinotal suture.
- (27). 26. Abdomen with a bluish, sub-metallic reflection. 1st node conical. 2.8-3.4 mm. long (*Salamonis L.*), var. *opacior*, Forel.
- (26). 27. Abdomen without any bluish reflection. 1st node more wedge-shaped, 3 mm. long.
(*Salamonis L.*, race *delagoensis*, Forel), var. *grahamstownensis*, Forel.
- (5). 28. Head and thorax, and usually also the abdomen, smooth and shining.
- (36). 29. Entirely black, or dark brown species.
- (31). 30. Very small species, less than 2 mm. *minutum*, Mayr.
- (30). 31. Larger species, 2.7 mm. and more.
- (33). 32. Large stout species, 3.7-4 mm. Sides of head very convex.
Tchelichof, Forel.
- (32). 33. More slender species, sides of head not very convex.
- (35). 34. 3 mm. long.
(*Salamonis L.*, race *herero*, Forel), var. *willowmorensis*, Forel.
- (34). 35. 2.6 mm. long. (*Salamonis L.*, race *Herero*), var. *belli*, Forel.
- (29). 36. Yellow, reddish yellow, or yellowish brown species, at least in part.
- (38). 37. Polymorphic species, the ♂♂ varying from 1.8 to 4 mm.
(*amblyops*, Emery), race *bulawayense*, Forel.
- (37). 38. Monomorphic species.
- (40). 39. Second node twice as wide as long.
(*Oscaris*, Forel, race *springvalense*, Forel), var. *paterna*, Forel.

- (39). 40. Second node about as long as wide.
 (44). 41. Second node sub-globose; seen in profile, highest at or near the middle.
 (43). 42. Eyes separated from the base of the mandibles by a distance equal to twice the length of the eye. First node feebly convex below 2 mm. long *Leimbachi*, Forel.
 (42). 43. Eyes separated from the base of the mandibles by a distance not greater than the length of the eye. First node strongly convex below 1.4 mm. long (*Braunsi*, Mayr), var. *shilohensis*, Forel.
 (41). 44. Second node not sub-globose, wider in front than behind; seen in profile, highest in front.
 (46). 45. First node distinctly higher than long. 1.6-1.9 mm. long. *Arnoldi*, Forel.
 (45). 46. First node longer than, or as long as high.
 (48). 47. First node not higher than the 2nd. 1.6-1.8 mm. long. (*Oscaris*, Forel), var. *nuptialis*, Forel.
 (47). 48. First node higher than the 2nd.
 (50). 49. Node of 1st joint of petiole very little longer than the peduncle; seen in profile, the dorsum and declivity of epinotum are fairly clearly delimited, the declivity sub-vertical *Schultzei*, Forel.
 (49). 50. Node of 1st joint almost twice as long as its peduncle; seen in profile, the dorsum of the epinotum merges very gradually into the declivity, which is very oblique (*Oscaris*, Forel), race *springvalense*, Forel.

M. AFRUM, André. (Platè V, figs. 58, 58a, 58b, 58c.)

Ann. Mus. Civ., Genoa, vol. 21, p. 540, ♂, 1884.

♂. 4.2 mm. Black, mandibles castaneous, flagellum and tarsi brownish red. Pubescence short and very scanty. Anterior margin of clypeus, petiole and margins of abdominal segments with a few long yellowish hairs. Head, thorax and petiole densely and finely reticulate, but appearing granulate when seen under a low magnification. Abdomen microscopically rugulose or reticulate. The whole body dull. Mandibles shining, striate and coarsely punctured, and armed with 4 sharp teeth. Side of clypeus longitudinally striate. Legs slightly shining.

Head a little longer than wide, as wide in front as behind, sides moderately convex, posterior angles slightly rounded but prominent, the occipital margin almost straight. Eyes flat, situated a little in front of the middle of the sides. Clypeus raised in the middle, obtusely carinate on each side of the raised area, the carinae ending anteriorly in blunt points, and converging posteriorly between the frontal carinae. Frontal carinae short, sub-parallel. Scape long, extending back just beyond the occipital margin; 1st joint of flagellum as long as the 2nd and 3rd together, 4th joint as long as wide, all the

others longer than wide, the club four-fifths as long as the rest of the flagellum. Pro-mesonotum one-third longer than wide. The thorax is compressed laterally and narrowest at the meso-epinotal suture. The dorsum of the epinotum widens towards the brow of the declivity, and is excavated, so that the sides of the excavation form two obtuse longitudinal ridges, diverging backwards; the declivity is short and almost vertical. The 1st joint of the petiole has a short peduncle, shorter than the node, which is wedge-shaped, wider than long and rounded above; the front face of the node is rounded from side to side and vertical, the posterior face is slightly concave in the middle and slopes forwards. The 2nd joint of the petiole is sub-globose, widest in front, and only slightly wider than the 1st. First segment of abdomen a little longer than wide, longer than the remaining segments taken together.

Bulawayo. This species forms very populous nests in the soil, generally in exposed and sunny situations.

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

M. ALBOPILOSUM, Emery.

Ann. Soc. Ent. France, vol. 63, p. 24, ♀, 1895.

“♀. 3-3.5 mm. Elongate, piceous brown, mandibles and articulations ferruginous, pilosity long, fine and white, head and thorax very closely punctured, dull, petiole very finely punctured, nitidulous, abdomen shining, with a bluish sheen, punctured at the extreme base; head elongate, clypeus emarginate, antennae slender. The scape extending back beyond the occipital margin; meso-epinotal suture of thorax moderately impressed, nodes of petiole subequal, legs shining and pilose.”

Bloemfontein, Kimberley, Makapan, Leribe. (Weitzaecker.)
Umfulosi, Zululand. (Tragaeordh.)

VAR. *THALES*, Forel. (Plate V, fig. 61.)

Ann. Soc. Ent. Belg., vol. 57, p. 136, ♀, 1913.

♀. 3.5 mm. Black, tarsi, articulations of the legs, and flagellum brownish, mandibles and sides of clypeus ferruginous. Sparingly clothed with thin, white, semi-erect hairs. Head, thorax, and posterior faces of the nodes very finely and closely reticulate-punctate. Clypeus finely and longitudinally striate. Anterior faces of the nodes of the petiole very finely punctured, abdomen smooth, slightly shining, with a bluish sheen. Head a little more than one-quarter longer than wide, sides feebly convex, posterior angles very rounded,

occipital margin straight. Median area of clypeus raised, obtusely bicarinate, the front margin of the median area feebly concave. Frontal carinae short and parallel. A shining and smooth line on the vertex extends back from the end of the clypeus to about the level of the eyes. The latter not large, situated just in front of the middle of the sides. Mandibles longitudinally striate, elongate, armed with 4 teeth, the apical and sub-apical acute. Scape of antenna long, extending beyond the occipital margin, 1st joint of flagellum two and a half times as long as the second, the club, composed of the three apical joints, is as long as the rest of the flagellum. The pro-mesonotum is widest at the anterior fourth; the thorax is rather strongly constricted at the meso-epinotal suture, which is deep. Epinotum longer than wide, widest at the middle, two-thirds the length of the pro-mesonotum, the declivity oblique and about half as long as the dorsum, the brow of the declivity considerably rounded. First joint of petiole with the peduncle half as long as the node, the latter longer and higher than wide, higher than the 2nd joint. The latter is about as long as wide, sub-quadrate, the anterior margin rounded. First segment of abdomen longer than wide, and twice as long as the remaining segments taken together. Legs long and slender.

♀ (hitherto undescribed). 7 mm. Black; mandibles, antennae and legs dark reddish brown, the tarsi paler. Dull, except the basal two-thirds of the second and following abdominal segments, which are smooth, shining and alutaceous. Clypeus longitudinally striate, the rest of the head strongly, and more or less longitudinally rugose, the rugae with a few transverse anastomoses, and also partly radiating outwards from the median ocellus. Mandibles strongly striate. Mesonotum and scutellum longitudinally and somewhat obliquely striate, the striae on the mesonotum thickening posteriorly, the space between the striae closely reticulate-punctate. Epinotum coarsely and irregularly rugose at the sides, transversely on the declivity, the space between the rugae closely punctured. Second node, and posterior face of the 1st node transversely rugose, more coarsely on the latter. First segment of abdomen, and marginal third of the remaining segments distinctly and regularly striate, longitudinally so over the basal half and the sides of the 1st segment, arcuately and transversely over the apical portion of all the segments. Legs and antennae with a short, sparse pubescence. Head, mesonotum, petiole, and abdomen with pale pilose hairs, which are longest on the clypeus, petiole, and margins of the abdominal segments. Head more quadrate than in the ♂; eyes occupying about one-fifth of the sides, and placed in the middle, the ocelli not large. Pronotum not exposed above. Thorax

narrow, nearly two and a quarter times as long as wide across the tegulae. Mesonotum one-third longer than wide, convex, and narrowed in front, flattened above. Epinotum deeply excavated, the excavation starting from the extreme base, and extending over the brow of the declivity, the margins raised and enclosing a Λ -shaped concavity. First node of petiole more squamiform than in the ♀, slanting forwards and with the posterior face more dorsal in position than in the ♀. Abdomen elongate ovate, all the segments wider than long. Deilated.

♂ (hitherto undescribed): 7 mm. Black; all the joints of the tarsi, except the apical, pale flavous, tibiae brownish yellow, articulations of the legs flavous. Pilosity very long and fairly abundant except on the legs and basal halves of the abdominal segments. Legs and antennae with a short and oblique pubescence. Dull, except the basal two-thirds of the 2nd and the following abdominal segments, which are shining and alutaceous as in the ♀. Sculpture of the head as in the ♀ but less regular. Mesonotum and scutellum closely reticulate-punctate, with a few irregular and feeble rugae superimposed, not longitudinally striate as in the ♀. The dorsum of the epinotum is on a much lower level than the scutellum (not much lower in the ♀), and is sparsely and transversely rugose over the basal half, not excavated, sloping downwards from its base to apex, and merging into the vertical declivity by a gentle curve; the lateral angles or tubercles fairly distinct. The nodes of the petiole wider and shorter than in the ♀. The 1st node is deeply emarginate in the middle of the dorsal edge, so as to appear almost bituberculate; the 2nd node is one-third wider than the 1st, two-thirds wider than long, convex at the sides, fairly flat above, narrowed posteriorly, and with an obtuse tubercle on each side above. Wings hyaline, the nervures very faint.

Springvale, Bulawayo, and Matopo Hills, S. Rhodesia; Pretoria. (Lounsbury.) The entrance to the nest is surrounded by a large and low mound of earth. The species is exceedingly pugnacious and stings freely. Some of the nests in the Matopo Hills were very populous, containing probably not less than 1000 workers.

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

M. BICOLOR, Emery, var. *NITIDIVENTRIS*, Emery.

(Type), *Ann. Mus. Civ. Genoa*, vol. 9, p. 368, ♀, 1877. (Var.), *Ann. Soc. Ent. France*, p. 256, ♀, 1893. Mayr, *Ann. K.K.N.H. Mus. Wien*, vol. 16, p. 7, ♀, 1901 (type?). Karawiew, *Rev. Russ. Ent.*, vol. 2, p. 5, ♀, ♂, 1911.

♂. 3.6 mm. Head, antennae, legs, thorax and petiole bright orange red, abdomen brownish, with more or less of the median portion of the 1st segment yellowish red, apices of the tarsi and the mandibular teeth brownish. Head, thorax and posterior faces of the nodes finely granulate, posterior portion of the clypeus and frontal carinae finely and longitudinally striate, the sides of the thorax more strongly granulate than the dorsum. Abdomen smooth and shining. There is a very fine and short pubescence on the head; the petiole and abdomen have a few long and sub-erect hairs. Head, excluding the mandibles, a little longer than wide, the sides feebly convex. Frontal carinae short and parallel. Eyes situated at about the middle of the sides of the head. Mandibles finely and longitudinally striate, with 4 distinct teeth. Scape long, extending back well beyond the occipital margin, 1st joint of flagellum one-third longer than the 2nd. Thorax narrower than the head; pronotum convex in front and at the sides, a little wider than long, pro-mesonotal suture faintly indicated; mesonotum as long as the pronotum, longer than wide, meso-epinotal suture deep; dorsum of epinotum flat, quite as long as the mesonotum and merging gradually into the declivity. The 1st joint of the petiole has a short peduncle, much shorter than the node; the latter is obtusely conical, and about as long and as wide as the 2nd node. Seen in profile, the 1st node is half as high again as the 2nd. Legs long and slender.

♀. 6.3 mm. Dark yellowish red (burnt sienna), with almost a fiery golden reflection in some lights. Pronotum, mesopleura, sides of the mesonotum, a median spot behind the pro-mesonotal suture, the basal half of the 2nd and following abdominal segments brownish, femora and scape more or less brownish. There is a very sparse and pale pubescence on the whole body, with a few long, pilose hairs on the clypeus, petiole and abdomen. Head and thorax very finely and longitudinally rugoso-striate, the head also somewhat reticulate-punctate; the declivity of the epinotum and the posterior dorsal portions of the nodes transversely and more strongly rugose. Abdomen very finely and longitudinally striate, the basal halves of the 2nd and following segments microscopically coriaceous, and slightly shining. Head sub-quadrate; the eyes convex, situated a little behind the middle of the sides. The dorsum of the epinotum merges gradually into the declivity. The epinotum is shallowly concave transversely from base to apex. The 1st node of the petiole is strongly compressed from front to back, so as to form a fairly sharp and convex dorsal edge; the anterior face of the node is almost vertical, the peduncle very short. The 2nd node is slightly wider than the 1st, and sub-

quadrate, not so high as the 1st. The basal margin of the 1st abdominal segment feebly concave.

The ♀ described by Mayr differs from the above only by its larger size (7.3 mm.), and its ♂♂ appear to me, judging by the description only, to be more closely related to the variety than to the type of the species; they do not differ appreciably from the form described above.

This species nests in loose sandy soil, usually over granite formation (rarely on the schist), and is a very agile insect.

S. Rhodesia, fairly common; Bothaville, Orange Free State. (Brauns.) (S.A.M., R.M., G.A. colls.)

M. TCHELICHOFFI, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 244, ♀, 1914.

♀. 3.7-4 mm. Piceous; mandibles, tarsi, articulations of the legs and antennae brownish. Head, disc of pro-mesonotum and abdomen smooth and shining, the rest of the thorax and nodes nitidulous, finely reticulate. Cheeks in front of the eyes, and the frontal carinae finely striate. Mandibles shallowly and longitudinally striate, quadridentate. The clypeus projects considerably forwards, so that the closed mandibles are not quite visible from above. The anterior margin of the median portion of the clypeus feebly emarginate. A very inconspicuous pubescence on the legs and antennae, but almost wanting on the body; pilosity almost entirely absent. Head, excluding the mandibles, slightly longer than wide, the sides very convex, the posterior margin feebly concave in the middle, as wide in front as behind, moderately convex above. The eyes are placed in the middle of the sides of the head. The scape extends beyond the occipital margin by about as much as its own apical width; the 1st joint of the flagellum not longer than the 2nd and 3rd together. Thorax widest in front, barely more than half as wide as the head, fairly strongly constricted at the meso-epinotal suture. Seen from the side, the pro-mesonotum has a convex profile, raised above the level of the epinotum. The dorsum of the latter is half as long again as wide, and slopes downwards towards the declivity, forming a distinct angle at the junction; it is also excavated, the excavation triangular and extending to the base. The declivity is also concave, and is fairly distinctly margined on each side. The anterior face of the 1st node is almost vertical, the posterior-dorsal face convex. The node is sub-ovate, seen from above, and its dorsal edge is rounded, with a slight indentation in the middle; the peduncle a trifle shorter than the node. The 2nd

joint is one-third wider than long, narrowed behind, convex in front, and a little wider in front than the 1st. The abdomen is truncate at the base, and more globose than in the majority of the species of this genus.

Willowmore, Cape Prov. This species forms very populous colonies in rocky ground, and is also a bold insect which uses its sting very readily.

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

M. EMERYI, Mayr. (Plate V, fig. 62.)

Ann. K.K.N.H. Mus. Wien, vol. 10, p. 132, ♀, 1895.

♀. 2.6-3 mm. Yellowish brown, the antennae, mandibles and legs brownish yellow. The pubescence is composed of long, pale and oblique hairs, rather abundant on the head, scantier on the thorax and abdomen. Legs and antennae with a close and short pubescence. The pilosity on the abdomen, petiole and thorax long, and more abundant on the abdomen than elsewhere. Head and thorax dull, nodes and abdomen shining. Head finely and longitudinally striate, obliquely striate between the frontal carinae and the anterior lateral angles, fairly closely punctured between the striae, the punctures piligerous. Thorax longitudinally striate; the pronotum in front, and the epinotum transversely striate, the sides of the meso- and epithorax reticulate-punctate. Abdomen polished; nodes of petiole shallowly punctured.

Head as wide as long, or nearly so, the sides convex, the posterior margin feebly concave, a little wider in front than behind. The eyes are rather small and situated at the middle of the sides. The scape of the antenna barely reaches the posterior margin. The head is noticeably wide, quite two-thirds wider than the thorax. The clypeal carinae are fairly distinct. The mandibles coarsely striate and obtusely quadridentate. The pro-mesonotum is very convex transversely in front, its dorsal profile is also very convex; it is quite twice as wide across the rounded shoulders as it is at the meso-epinotal suture. The dorsum of the epinotum is almost horizontal in profile, half as long, and not more than half as wide as the pro-thorax; the declivity is rather oblique, but forms a very distinct angle at its junction with the dorsum, on each side of which lies a blunt and elongate tubercle, the space between the tubercles feebly concave transversely. The 1st node of the petiole, seen from above, is elongate, almost one and a half times as long as wide, the anterior face vertical and only half as long as the posterior face; the node is rounded above, obtusely

wedge-shaped, as long as its peduncle. The 2nd node is almost campaniform, wider behind than in front, wider than the 1st node and slightly longer than wide.

♀. 8.3 mm. (hitherto undescribed). Reddish yellow-brown, femora, tibiae, and antennae paler, tarsi brownish yellow. Head dull, the rest of the body shining. Clothed with a moderately abundant, long and yellow pilosity, longer and more abundant on the abdomen than on the head and thorax, much more abundant but shorter on the legs and antennae. Head very closely and strongly punctured, the punctures deep, also partly striate between the punctures. The clypeus shining, sparsely and strongly punctured. The front of the head round the antennal sockets finely and longitudinally striate. Mandibles sharply longitudinally striate, quadridentate. Dorsum of thorax largely but scantily punctured at the sides, leaving a median longitudinal area which is impunctate. Nodes sparsely punctured on their posterior halves, also somewhat rugulose. Abdomen very sparsely and finely punctured. Head as long as wide, subquadrate, the posterior angles strongly rounded, the posterior margin straight. Pronotum hardly exposed above. Mesonotum very convex transversely in front, moderately so longitudinally, a little wider than long, and twice as long as the scutellum, which is almost semicircular and not raised much above the level of the epinotum. The dorsum of the epinotum oblique, with a trace of tubercles at the angles, twice as wide at the base as it is long, and not quite as long as the sub-vertical declivity. The junction of the two faces of the epinotum rounded, slightly concave transversely. Nodes as in the ♂. Wings long, pale brownish yellow, the nervures dark yellow.

♂. 3.3 mm. (hitherto undescribed). Head dark brown, the rest of the body pale brownish yellow, legs and antennae pale yellow. Head very finely and longitudinally striate, sub-opaque; the rest of the body very smooth and shining, except the anterior angles of the first node, which are feebly striate. A few very fine punctures scattered on the thorax. Pilosity and pubescence as in the ♀, but shorter and less abundant. Head much wider in front than behind, almost twice as wide. Eyes very large, occupying a little more than the anterior half of the sides, and almost touching the base of the mandibles in front. The latter finely striate, minutely tridentate, the inner and outer margins parallel. Clypeus with the median area raised in the form of a tubercle, subtruncate above. Ocelli very large, raised, the posterior pair twice as far apart from each other as they are from the anterior ocellus. Antennae setaceous; scape very short, barely longer than wide, and not so long as one ocellus. First joint

of flagellum globose (as in *Solenopsis*), as long as the scape, the remaining joints longer than wide, increasing in length successively towards the apex, the apical joint flattened. Mesonotum very gibbous in front, the anterior margin strongly convex transversely and two and a third times longer than the scutellum. The latter is one and a half times wider than long, the posterior margin semi-circular. The mesonotum and scutellum are raised much above the level of the epinotum. The latter is nearly two and a half times wider at the base than it is long; the posterior angles are slightly raised, not distinctly tuberculate. The declivity of the epinotum is vertical, shorter than the dorsum. Nodes as in the ♀, but flatter; the posterior dorsal face of the 1st node is a little wider than long. Wings as in the ♀ but paler.

Redbank, and Nyamandhloru, S. Rhodesia. This species is easily distinguished from our other species by the very wide head, the very convex pro-mesonotum, the narrow 1st node and the campaniform 2nd node.

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

M. MODESTUM, Santschi.

Göteborgs Kungl. Vetens. och Vitterh. Handl., xv, 2, p. 17, ♀, 1914.

“♀. 1.6–1.7 mm. Yellow, smooth and shining. A very short, fine and erect pilosity is abundant over the whole body, including the legs and antennae. Head rectangular, hardly wider behind than in front, the occipital margin straight, the sides feebly convex. Posterior angles of the head rounded. Eyes composed of a single facet, placed slightly in front of the middle of the sides. Clypeus short and abrupt, the two carinae of which are close together and subparallel. Mandibles with masticatory margins oblique, quadridenticulate. The scape extends back as far as the posterior margin of the head; 2nd to 8th joints of the flagellum very short, much wider than long, 9th and 10th joints subequal, the 10th joint only slightly thicker, the last joint very thick and almost as long as the four preceding joints taken together. Pro-mesonotal suture obsolete, meso-epinotal suture moderately deep. Pro-mesonotum slightly convex. Dorsum of the epinotum flat, submargined, forming a distinct angle with the declivity, which is also flat and margined, and two-thirds as long as the dorsum. First joint of petiole with a long peduncle, the node higher than the 2nd, and with its posterior face shorter than the anterior, which is much more oblique; distinctly longer than wide, a little narrower than the 2nd node, which is wider than long.

Related to *termitobium*, Forel, by its atrophied eyes."
Stamford Hill, Natal. (Traegaordh.)

M. ZULU, Santschi.

Loc. cit., p. 18, ♀.

“♀. 1.5 mm. Yellow, legs pale. A few erect hairs around the mouth and the apex of the abdomen, the rest of the body covered with a short adpressed pubescence. Shining, epinotum and petiole sub-opaque. Smooth, with a piligerous puncturation somewhat effaced. Epinotum and sides of thorax very finely reticulate-punctate. Head rectangular, one-sixth longer than wide, the sides moderately convex, the posterior margin straight. The eyes occupy nearly all the second anterior fourth of the sides of the head. Clypeus feebly excised in the middle of its anterior margin, unarmed, the carinae reduced. Frontal carinae sub-parallel. Mandibles with four teeth, the last very small. Antennae 12-jointed; the scape does not extend back quite as far as the hind margin of the head; 2nd-8th joints of the flagellum sub-equal, wider than long, the 9th shorter and hardly wider than the 1st, the 10th more than one-third longer and wider than the 9th, the last joint very thick and nearly as long as the four preceding joints taken together. Pro-mesonotal suture effaced on the dorsum, more distinct laterally. Meso-epinotal impression pronounced, but less so than in *rhopalocerum*. Profile of the pro-mesonotum fairly convex, that of the epinotal dorsum less so, the junction of the dorsum and the declivity forming a rounded but fairly distinct angle. The declivity is feebly margined, and a little longer than half the dorsum, the latter distinctly longer than half the pro-mesonotum. Peduncle of the 1st joint of the petiole half as long as the node, with a tooth below, at its anterior extremity. Node triangular, rounded at the apex and below, higher than long, hardly narrower than the 2nd node. The latter is rounded and one-quarter higher and wider than the 1st.

“This species belongs to the *rhopalocerum*, Em., group. In *Arnoldi*, Forel, *Braunsi*, Mayr, and *speluncarum*, Santschi, the erect pilosity is more abundant, and the epinotum is smooth. In *Schultzei* and *angustinode*, Forel, the colour is different; in *altinode*, Santschi, the petiole is higher, and in *termitobium* and *modestum* the eyes are rudimentary.”

Junction of the Umfulosi, Zululand. (Traegaordh.)

M. RHOPALOCERUM, Emery.

Ann. Soc. Ent. France, vol. 63, p. 25, ♀, 1895.

“♀ 1.7 mm. Flavous testaceous; abdomen fuscous, very shining;

piligerous punctures very sparse, otherwise impunctate. Head moderately elongate, truncate posteriorly. Clypeus obtusely bidentate. Mandibles quadridentate; last joint of antenna very large, nearly as long as the four preceding together. Thorax fairly elongate, the meso-epinotal suture deeply impressed, the pro-mesonotal suture obsolete, the epinotum very obtusely angulated; the 1st joint of the petiole with a very short peduncle, the node high but narrow, and longer than wide; the 2nd node subglobose, much smaller and a little narrower than the 1st.

“Capetown. (Simon.)”

“Facies of a *Solenopsis*, very smooth and shining, with a few piligerous punctures. . . . The carinae on the clypeus are moderately prominent. The eyes are fairly small, and separated from the base of the mandibles by one and a half times their own diameter. The scapes do not extend back to the occipital margin. . . . The thorax is elongate, compressed at the meso-epinotal suture, which is deeply impressed and striated. . . . The joints of the petiole are very unequal. The first, seen in profile, appears pedunculated along two-fifths of its length, the node cuneiform; seen from above, the node appears distinctly longer than wide, rounded in front. The 2nd joint is globose, much smaller and a little narrower than the 1st.”

M. HAVILANDI, Forel.

Ann. Soc. Ent. Belg., vol. 54, p. 443, ♂, ♀, 1910.

“♂. 2.5 mm. Mandibles strongly striated, tridentate. Clypeus entire, strongly concave between its two carinae; these are separate in front, but nearly contiguous between the frontal carinae, and are continued round the sides to the anterior margin. Head nearly quadrate, a little longer than wide, and a little wider in front than behind; the sides feebly convex, widely concave behind. The eyes are fairly large, slightly elongate, placed between the middle and the anterior third. The scape does not extend back quite as far as the hind margin of the head; 3rd-8th joints of the flagellum wider than long, the club not very thick, the penultimate joint only a little larger than the preceding. Pro-mesonotum convex, without a distinct suture, the constriction a little feebler than in *gracillimum*. Epinotum convex, the dorsum merging by a barely perceptible curve into the declivity; the dorsum not at all depressed, fairly narrow, a little convex transversely, as long as the declivity. First node cuneiform, rounded, convex below as in *minutum*, with a short peduncle in front shorter than the node, and bearing below an obtuse tooth. Second node small, lower and not

wider than the 1st, a little wider than long. Cheeks, frontal carinae, and antennal pits striate. The rest of the head smooth, with a strong, scattered, and abundant puncturation. Thorax and petiole densely and not very finely reticulate-punctate and dull, except the dorsum, which is reticulate and sub-opaque; the middle of the pro-mesonotum smooth. Abdomen and legs smooth. An erect, short and yellowish pilosity fairly abundant over the whole body, especially the abdomen. The legs and scapes have only a decumbent pubescence, which also occurs on the body, particularly the head. Black; mandibles reddish; antennae and legs rusty brown.

♀. 5.5 mm. Head almost exactly square; joints of the flagellum a little more elongated than in the ♂. Thorax narrower than the head. Dorsum of epinotum margined, flat transversely, convex longitudinally from end to end. Petiole as in the ♂, but without the convexity or distinct tooth below. Abdomen elongate. Otherwise like the ♂ (including the mandibles). Head finely striate on nearly the whole of the anterior portion, the large punctures stronger and more abundant than in the ♂. Epinotum and nodes of petiole densely reticulate-punctate and dull; dorsum of epinotum densely and transversely striate. The abdomen and rest of thorax smooth, sides of mesonotum with a few large punctures. Pilosity and colour as in the ♂, but the mandibles are reddish yellow, and the margins of the abdominal segments brownish. Deilated."

Natal. (Haviland.)

M. MINUTUM, Mayr.

Verh. Zool. Bot. Ges. Wien, vol. 5, p. 453, ♂, 1855.

“♂. 1.5-1.7 mm. Piceous, very shining, smooth; the mandibles, the antennae, excepting the club, the articulations of the legs and the tarsi yellowish. The whole body sparsely covered with erect, thick hairs. The mandibles are smooth, shining, and armed with four strong teeth. The clypeus, like the rest of the head, is smooth and very shining. The scape of the 12-jointed antenna does not quite reach back to the posterior margin of the head; the 1st joint of the flagellum is fairly long, not greatly thickened, the following joints are very small and short, the last three joints form the club, the 8th, 9th and 10th joints progressively larger, the terminal joint considerably longer than the 9th and 10th together. The thorax is smooth and very shining, the meso-epinotal suture alone is rather coarsely and longitudinally striate. The nodes of the petiole and the abdomen are smooth and very shining.”

The type species does not appear to have been recorded from South Africa, but is represented by the following forms.

Race *BOERORUM*, Forel.

Ann. Soc. Ent. Belg., vol. 54, p. 442, ♀, 1910.

♂. 1.4–1.7 mm. Pale brown to dark brown, the mandibles, antennae and tarsi lighter. Very smooth and shining, with a very sparse and pale pilosity. This race differs from the type in the following particulars. The head is longer and narrower than in the type, rectangular, with the sides almost straight (convex in the type). The eyes are placed within the anterior third of the head. The nodes are a little thicker, and the 1st node is but slightly convex below. The thoracic impression is stronger and wider. The epinotum is a little more convex, and the carinae on the clypeus are less distinct and further apart in front.

♀. 3.2 mm. Black, legs and antennae brown, tarsi and articulations of the legs brownish, mandibles rusty brown. Head, mesonotum, and scutellum very sparsely and finely punctured; the rest of the body impunctate. Abdomen and sides of the nodes sparsely covered with a thin, long and pale pilosity. Head longer than wide; the ocelli small. Thorax narrow, much narrower than the head. Pronotum almost vertical in front, very slightly exposed in the middle, but more at the shoulders. Mesonotum one-third longer than wide; scutellum much longer than wide, and a little longer than half the mesonotum. Dorsum of epinotum very short, merging gradually into the declivity, which is very steep, transversely concave, feebly and transversely striate. Petiole as in the ♂. Abdomen elongate, the basal angles of the 1st segment pronounced, 1st segment as long as wide, the remaining segments wider than long. Deölated.

Orange Free State. (Wroughton.) Capetown. (Phillip.) (S.A.M., R.M., G.A. colls.)

Race *HOTTENTOTA*, Emery.

Ann. Soc. Ent. France, vol. 63, p. 26, ♀, 1895.

This form is unknown to me, and I am therefore obliged to reproduce the author's description, which is unfortunately based on a comparison with a Madagascan species.

"Closely allied to *imerinense*, Forel, from which it differs by the more angular epinotum, due to the more marked lateral ridges, and above all by the stronger petiole, the 1st joint of which has a longer peduncle; the nodes more robust, the 2nd wider behind than in front,

and consequently strongly narrowed behind. The proportions of the head and thorax, the sculpture and the hairs much as in *imerinense*. Capetown."

M. MEDINAE Forel, race, FRIDAE Forel.

Ann. Soc. Ent. Belg., vol. 49, p. 183, ♀, 1905.

"♀. 3 mm. Apart from its larger size, this form differs from the type by the more convex sides of the head, by the higher declivity of the epinotum; the latter is excavated above and behind to form a longitudinal channel which is much more distinct than in *hesperium* Em. The first node of the petiole is larger and higher than in the type of *Medinae*, and more cuneiform. Its summit is almost linear (or acutely angular). The legs are more slender. Very shining, except the epinotum which is opaque and reticulate-punctate. Mesonotum reticulate, slightly subopaque. Dark brown, the tarsi and antennae paler, as in *Medinae*. Willowmore, Cape Prov. (Brauns); host of *Braunsiella* Wasm."

M. SALAMONIS, Linn.

Syst. Nat. Ed. 10, p. 580, 1758.

This ant is found on the south shores of the Mediterranean, India, and Ceylon, and is represented in the Ethiopian Region by many subspecies and varieties, which show a considerable range of variation, in size, colour, and sculpture.

For purposes of comparison, I reproduce the description of the type form given in André's "Hyménoptères d'Europe."

"♀. 2.5-3.5 mm. Head, thorax, and petiole brownish red, more or less dark, very slightly shining or dull. The longitudinal sulcus (excavation) of the clypeus superficial. Head slightly, abdomen fairly, shining. Thorax deeply impressed between the meso- and the epinotum. More or less castaneous brown, with the head blackish, the abdomen brownish black.

"♀. 6-7 mm. Dorsal profile of the thorax straight, from its front margin to a little beyond the scutellum, without an angular break between the latter and the mesonotum. Pilosity short and not very close, but plainly visible; pubescence scanty. Entirely blackish brown, except the mandibles, the antennae, the tarsi, the thorax and the petiole, which are entirely or partly somewhat reddish brown. Head, thorax and petiole fairly strongly striate or rugose and dull. Abdomen very finely coriaceous, moderately shining.

"♂. 5 mm. External paramera of the genital armature very large,

laminate, prolonged backwards and curved downwards at their extremity. Petiole of the usual shape, its two joints not narrowed above to form transverse ridges, the 1st being cylindrical in front, thickened behind. The 2nd nodiform, rounded above, about as long as wide, and hardly wider than the 1st node. Black, tips of the mandibles and the antennae reddish yellow, tarsi and genital armature blackish brown. Pubescence almost absent; pilosity sparse, except at the apex and below the abdomen, where it is longer and more abundant. Head, including the clypeus and frontal area, thorax and petiole densely punctate-rugose, dull; abdomen very finely rugulose, fairly shining. Wings nearly hyaline or barely tinged with yellow; nervures and stigma pale yellow."

Var. *OPACIOR*, Forel.

Ann. Soc. Ent. Belg., vol. 57, p. 136, ♂, 1913.

♂. 2.8-3.4 mm. Yellowish brown; disc of pro-mesonotum and legs paler; abdomen black, with a submetallic gloss. Abdomen with a few thick, pale hairs. Dull. Head very finely and longitudinally reticulate-striate. Thorax closely and finely granulate (reticulate-punctate). Head nearly quadrate, a little longer than wide, and a little wider in front than behind. Scape short, not reaching the posterior margin of the head. Pronotum almost as wide as the head posteriorly. Pro-mesonotal suture faintly indicated, but more clearly than in *Junodi*. Dorsum of epinotum half as long as the pro-mesonotum; the declivity sub-vertical, the brow rounded. The epinotum is barely excavated, and the profile of its dorsum is only moderately convex, or almost flat. First node of petiole wedge-shaped; convex transversely in front, behind and above; one-quarter higher than the 2nd node. The latter is as wide as the 1st; widest in front.

♀ (hitherto undescribed). 4.6 mm. Black; mandibles, antennae, and legs yellowish brown. Head and abdomen with a scanty, short and decumbent pubescence; the nodes and abdomen with also a few pale, pilose hairs. Head, pro- and mesonotum and scutellum longitudinally reticulate-striate. Nodes of petiole and sides of epinotum reticulate-punctate; the epinotum above transversely striate. Abdomen very finely and rather obliquely striate. The pronotum is slightly exposed in the middle, much more at the shoulders. The epinotum is widest in front across the level of the stigmatic orifices, which are somewhat angularly prominent. The dorsum of the epinotum is flat at the extreme base, beyond which it is shallowly excavated, the excavation being continued over the declivity and forming moderately distinct lateral bosses or margins on each side. First node of petiole

as wide as it is long below; more compressed from front to back than in the ♀; the anterior face very feebly convex transversely, and also vertical; the posterior-dorsal face very oblique; the dorsal edge very convex transversely. The 2nd node as in the ♀.

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

Var. *DISERTA*, Forel.

Deutsch. Ent. Zeit. Beiheft, p. 216, ♀, 1913.

♀. 1.9 mm. Reddish yellow, the head a little darker, the apical half of the abdomen brown. Head and nodes with a slight gloss, abdomen polished and shining, thorax dull. Head microscopically reticulate-striate, thorax and nodes very finely reticulate. Abdomen very sparsely pilose and punctured. Head, excluding the mandibles, one-fifth longer than wide, the sides and the hind margin nearly straight. The scape just reaches the posterior margin. The eyes are situated just in front of the middle of the sides. The thorax is but moderately constricted at the meso-epinotal suture. The profile of the thorax is convex in front, horizontal above; the dorsum of the epinotum and of the pro-mesonotum are in the same plane, and slope backwards towards the declivity. The dorsum of the epinotum is about half as long as the pro-mesonotum, and very little longer than wide; the declivity is sub-vertical and forms a distinct angle with the dorsum. The anterior face of the 1st node is very short, and the peduncle is a little shorter than the node; the 2nd node is as wide as long.

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

Race *JUNODI*, Forel.

Ann. Soc. Ent., Belg., vol. 54, p. 441, ♀, 1910.

♀. 3-3.4 mm. Dark brown, the legs, mandibles and basal half of the flagellum paler. Head, legs and antennae with a short decumbent pubescence, very short and scanty on the head. Clypeus, nodes and abdomen with a sparse, long and pale pilosity. Head, thorax and posterior faces of the nodes closely and finely granulate; abdomen smooth, with a faint submetallic, bluish gloss. Head, excluding the mandibles, as wide as long, the posterior angles rounded, the hind margin almost straight, the sides feebly convex. Eyes flat, situated at about the middle of the sides of the head. Median area of clypeus longitudinally striate, the carinae well defined. Mandibles quadridentate and moderately strongly and longitudinally striate. The scape extends slightly beyond the hind margin of the head. Prothorax in

front not much narrower than the head, the thoracic constriction at the meso-epinotal suture feeble, the suture shallow. Dorsum of epinotum three-fifths as long as the pro-mesonotum, twice as long as the declivity, the latter sub-vertical. The epinotum is barely excavated above. Peduncle of the 1st joint of the petiole shorter than the node; the latter is cuneiform, higher than the 2nd node, and measured along its base, longer than wide. Second node slightly narrowed behind, a little wider than the 1st. This species greatly resembles *albopilosum*, var. *thales*, but may be distinguished from it by the thinner 1st node and the shorter peduncle.

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

Race HERERO, Forel.

Schultze Reise, Südafrika, vol. 4, p. 16, ♂, ♀, 1910.

“♂. 2.6–2.8 mm. Head much longer than in the race *australe*, Em., quite one-quarter longer than wide in front, wider in front than behind, rather flatter below. Brownish black, antennae, legs and mandibles light brown or reddish brown. Resembling the var. *subnitida*, Em., in appearance, but the thoracic indentation less deep, the head smaller and flatter below, the 1st node thicker. The epinotum is also less arched, and lies lower.

♀. 4.6 mm. Head quadrangular, wider than the thorax. Mesonotum feebly convex. The scape reaches back as far as the posterior margin of the head. Head, thorax and petiole dull, closely reticulate-punctate; head also longitudinally striate. Abdomen shining, finely reticulate. Body clothed with short, fine hairs. Black; antennae, mandibles and legs reddish brown.”

Possession Island, German S.W. Africa. (Schultze.)

Race HERERO, var. WILLOWMORENSIS, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 245, ♂, ♀, 1914.

♂. 3 mm. Dark brown, pro-mesonotal disc lighter. Abdomen almost black. Nodes, legs, mandibles and the flagellum excepting the club, yellowish brown. Head, disc of pro-mesonotum, and abdomen shining, the rest of the body dull. Cheeks in front of the eyes finely and longitudinally striate, the rest of the head almost smooth, but with a few small and shallow piligerous punctures. Thorax closely and finely reticulate. Abdomen very sparsely pilose. Head, excluding the mandibles, one-sixth longer than wide, the sides convex, the posterior margin very feebly concave. The eyes are placed in front of the middle of the head. The scape extends back as far as

the occipital margin. The thorax is considerably constricted at the meso-epinotal suture, which is fairly deep. The pro-mesonotum is very convex transversely in front. The dorsum of the epinotum is barely half as long as the pro-mesonotum and slopes downwards towards the declivity, with which it forms a rounded but distinct angle. The declivity is nearly vertical and half as long as the dorsum. The epinotum widens at the brow of the declivity, where the margins are rendered somewhat tumid by the median excavation. Nodes similar to those of *Junodi*.

Willowmore, Cape Prov. (Arnold.) (S.A.M., R.M., G.A. colls.)

Race HERERO, var. BELLI, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 245, ♀, 1914.

♀. 2.8 mm. Exceedingly similar to var. *willowmorensis*, which it resembles in colour and sculpture. It is smaller than that variety, and the pro-mesonotum is narrower, and less convex at the sides behind the shoulders. The meso-epinotal suture is not so deep, and the thorax is less constricted at that point. The epinotum is also narrower across the brow of the declivity. The peduncle of the 1st joint of the petiole is also a little longer, the node more pointed above and narrower. The dorsum of the epinotum is flatter.

Willowmore, Cape Prov. (Arnold.) (S.A.M., R.M., G.A. colls.)

Race DAMARENSE, Forel.

Schultze Reise Südafrika, vol. 4, p. 17, ♀, 1910.

“♀. 1.9-2 mm. This bears a close resemblance to *M. setuliferum*, Forel, from which it differs by the much longer head (one-quarter longer than wide), and by the nodes. The 1st is higher and also wedge-shaped (but rounded above), the 2nd is much smaller and lower. The thorax is like that of *Salamonis*, whereas in *setuliferum* both the pro-mesonotum and the epinotum form equal longitudinal convexities. In *damarense*, only the pronotum anteriorly is abruptly convex, the dorsum of the thorax is but slightly convex, only feebly indented, and the angle between the two planes of the epinotum is fairly sharp, though rounded; the declivity is much shorter than the dorsum. The scape hardly extends beyond the occipital margin. The eyes are rather flatter and are placed more posteriorly than in *setuliferum*. Closely reticulate-punctate and dull (not so closely as in *setuliferum* and not rugose). Abdomen in greater part shining and smooth. Pubescent, with scanty and erect hairs on the abdomen.

Brownish; scape, legs, clypeus and mandibles yellowish brown. First half of the flagellum yellowish red."

Gawieb, Damaraland. (Schultze.)

Race *TERMITARIUM*, Forel.

Loc. cit., p. 17, ♂, ♀.

"♂. 2.3-2.5 mm. Reddish yellow, abdomen light brown. In sculpture and gloss it is intermediate between *salamonis*, i. sp., and the var. *subnitidum*, Em.; it is less shining and more sharply reticulate than the latter. Head elongate as in *herero*, the indentation of the thorax feeble, as in *damarense*; nodes as in *salamonis*, i. sp., but a little smaller and the 2nd node somewhat shorter. Pilosity as in the type species.

♀. 5.5 mm. Head rectangular, not wider or hardly wider behind than in front, the sides almost straight, a little wider than the thorax. Brown; mandibles, legs and antennae brownish red. Head and thorax dull, abdomen shining. Wings hyaline."

Kooa, Kalahari. (Schultze.) Nesting in part of a termites' mound.

Race *SUBOPACUM*, Smith.

Cat. Hymen. B.M., vol. 6, p. 127, ♂, ♀, 1858.

♂. 2.4 mm. Yellowish brown, the thorax a little paler; antennae and legs, except the tarsi, brownish yellow, tarsi dirty ochreous. Entirely dull. Head, thorax and nodes very finely reticulate, the abdomen microscopically so; the space between the frontal carinae faintly and longitudinally striate. Sparsely and very finely pubescent on the head, more densely on the legs and antennae. The abdomen with a few long, semi-erect hairs. Head a little wider in front than behind, the sides moderately convex, the posterior angles rounded. Clypeal carinae feeble, the space between them shining. Mandibles longitudinally striate, slightly shining, tridentate. The scape extends just beyond the occipital margin. Thorax narrower than the head, narrowed at the meso-epinotal suture, which is not deep. Dorsum of epinotum flat in profile, one-quarter longer than wide, three-fifths as long as the pro-mesonotum; the brow of the declivity, seen from the side, is fairly angular but rounded; the dorsum is shallowly and triangularly excavated. First node of petiole, seen in profile, wedge-shaped but strongly rounded above, and as long as the 2nd node; the latter almost quadrate, slightly wider in front than behind, and hardly wider than the 1st.

"♀. 5 mm. Opaque fusco-ferruginous; abdomen black, with the

base reddish, the articulations of the legs and the tarsi pale rufo-testaceous; the thorax in the middle in front, and the scutellum, of a brighter red; the epinotum with a deep excavation; abdomen oblong-ovate, thinly sprinkled with short pale glittering hairs."

This species makes rather small colonies, usually in sandy soil. Not common in Rhodesia. Bulawayo. (R.M., G.A. colls.)

Race *SUBOPACUM*, var. *ANCEPS*, Emery.

Ann. Soc. Ent. France, vol. 63, p. 24, ♂, ♀, 1895.

"Small forms with the head slightly shining behind, and the abdomen also shining; colour of the race.

Hamman's Kraal. (Simon.)"

Race *AUSTRALE*, Emery.

Bull. Soc. Ent. Ital., vol. 18, p. 363, ♂, ♀, 1886.

♂. 3.3-3.8 mm. Head, epinotum, and nodes reddish brown; pro-mesonotum paler, more yellowish brown. Mandibles yellowish red, abdomen piceous, legs and antennae brownish red, the tarsi paler, except the last joint, which is dark brown. Head and thorax dull, abdomen moderately shining. Head, thorax and petiole very finely reticulate, abdomen alutaceous. A very sparse and fine pilosity on the nodes and abdomen. Head barely longer than wide, slightly narrowed behind, the sides feebly convex, the posterior angles rounded, the posterior margin shallowly concave. The scape extends back as far as the posterior margin. The median area of the clypeus finely and longitudinally striate, the clypeal carinae obtuse. Mandibles longitudinally striate, quadridentate. Eyes placed at the middle of the sides of the head. Thorax narrower than the posterior margin of the head; pro-mesonotum, including the neck, almost twice as long as the epinotum, the latter one and a half times longer than wide, shallowly excavated, the excavation extending over the brow of the declivity, which is therefore concave transversely at that point. The profile of the epinotum above is convex, not flat, as in *subopacum*; the declivity is short and oblique. The peduncle of the 1st joint of the petiole is more than half as long as the node. The latter is one-quarter higher than wide, a little wider than long, convex in front and behind. The 2nd node is widest across its anterior third, barely wider than the 1st, and as long as wide.

♀. 5.7 mm. Colour and pilosity as in the ♂, but the abdomen is darker, with the apical margins pale brownish yellow, and the head is dark reddish brown. Dull; head finely and longitudinally striate;

mesonotum finely striate in front, alutaceous behind. Epinotum transversely striate. Abdomen alutaceous, with a slight silky sheen. Nodes of petiole posteriorly, transversely and minutely striate. Clypeus and frontal carinae longitudinally striate. Head quadrate, only very little longer than wide. Pronotum exposed only at the shoulders, which are rounded. Mesonotum one-third longer than wide; scutellum a little more than one-third the length of the mesonotum. Epinotum more deeply excavated than in the ♀, so that the margins at the junction of the declivity and dorsum form a distinct and elongate boss on each side. Nodes as in the ♀, but the 1st is more compressed from back to front, and its front face is more vertical and flatter than in the ♀. Wings pale smoky yellow; nervures pale brownish yellow.

Willowmore, Cape Prov. (Dr. Brauns.) (S.A.M., R.M., G.A. colls.)

Race *DELAGOENSIS*, Forel.

Mitt. Schw. Ent. Ges., vol. 9, p. 87, ♀, 1894. Ann. Soc. Ent. Belg., vol. 54, p. 441, ♀, ♂, 1910.

♀. 3 mm. Dark reddish brown, the pro-mesonotum a little redder; mandibles, antennae and legs dark brownish yellow. Head slightly shining, microscopically reticulate-punctate, between the frontal carinae finely and longitudinally striate. Thorax and posterior faces of the nodes dull, closely reticulate-punctate, the sculpture stronger on the nodes than on the thorax. Abdomen smooth and shining. Head, excluding the mandibles, very little longer than wide; the posterior angles rounded, as wide behind as in front; the posterior margin almost straight or very feebly concave. The scape not extending back to the posterior margin by a distance equal to the length of the eye. Median area of clypeus with very indistinct carinae, the space between very shallowly excavated. Thorax decidedly narrowed at the meso-epinotal suture; dorsum of epinotum not quite half as long as the pro-mesonotum, a little longer than wide; the declivity is short, and forms a rounded but fairly distinct angle with the dorsum. Second node of petiole a little wider than long, hardly wider than the 1st, narrowed posteriorly. A very scanty pilosity on the nodes and abdomen.

“♀. 6 mm. Head a little wider than the thorax. Entirely dull; colour as in the ♀.”

“♂. 4.7 mm. Entirely black. Wings hyaline. Mesonotum altogether dull. The erect pilosity more abundant than in the type of the species. Flagellum brown; tibiae and tarsi pale yellow.”

Delagoa Bay. (Liengme.) Natal. (Haviland.) (G.A. coll., two ♂ presented by Dr. Forel.)

RACE DELAGOENSE, var. GRAHAMSTOWNENSIS, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 245, ♂, 1914.

This differs from the race only in the following trifling details: The colour is lighter, especially the pro-mesonotum; the legs and antennae are more yellowish; the nodes are slightly less dull than in the type of the race; and the sculpture of the thorax and nodes a shade less strong.

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

M. SETULIFERUM, Forel.

Schultze Reise Südafrika, vol. 4, p. 16, ♀, 1910.

“♀. 1.8-2.3 mm. Very similar to the Indian species *wroughtoni*, Forel, but with the head much wider and without the metallic sheen on the abdomen which is seen in that species. Mandibles slightly shining, longitudinally striate, with three strong teeth and posteriorly a very small tooth. Clypeus with two very distinct carinae, which coalesce behind. Head rectangular, hardly longer than wide, feebly concave behind, the sides feebly convex. Eyes convex, fairly large, placed almost within the anterior third of the head. The scape just reaches back to the hind margin of the head. The 3rd-8th joints of the flagellum distinctly wider than long, the 2nd joint as wide as long. Thorax as in *salamonis* and *wroughtoni*, but the transition between the two planes of the epinotum more broadly rounded (the two planes indistinctly separated). The two nodes equally high (in *salamonis* the 1st is higher); the 1st much wider than in *wroughtoni*, as wide as the 2nd, much wider than its peduncle in front, thicker above than in *wroughtoni*. Abdomen in front somewhat concavely truncate. Head, thorax and petiole dull; abdomen slightly glossy in front at the base, shining above and behind, very finely coriaceous and reticulate-rugose; legs smooth and shining. The head is exceedingly finely and closely longitudinally striate, reticulate-punctate between the striae, the abdomen anteriorly similarly sculptured, but more feebly. On the head and thorax are some very short, scanty, fine whitish and stiff hairs, not easily observable; similar but longer hairs occur on the petiole and abdomen. In addition there is a fine and short adpressed pubescence, fairly sparse; scape and legs pubescent only. Brown;

antennae, legs, mandibles and disc of pronotum and mesonotum reddish to brownish yellow. The club of the antenna dark brown."

Khakhea, Kalahari. (Schultze.) Nest in sand.

Var. NOTULA, Forel.

Ann. Soc. Ent. Belg., vol. 54, p. 441, ♀, ♂, 1910.

♀. 2.2 mm. Dark reddish brown, pro-mesonotum lighter, more rusty red, legs paler, especially the tarsi, mandibles yellowish rusty red. Eyes rather smaller and placed further back than in the type species. Head slightly narrower. Epinotum and mesopleura strongly reticulate-punctate. Second joint of flagellum a little longer than wide.

“♂. 3.5 mm. Head much wider than long; the posterior margin nearly straight, a little narrower than the thorax and, like it, dull. Abdomen fairly shining. Wings hyaline, nervures pale. Black; antennae brown; tarsi, tibiae, articulations and margins of the mandibles yellow. Hairs on head and thorax fairly abundant and erect. Tibiae and scapes with adpressed pubescence.”

Bulawayo; Springvale, S. Rhodesia. (S.A.M., R.M., G.A. colls.)

M. PHARAONIS, Linn.

Syst. Nat., Ed. 10, i, p. 580, 1758. Say (*Myrmica molesta*), Boston Journ. N.H., p. 626, ♀, 1838. Smith (*Myrmica domestica*), List. Brit. Anim. B.M., vi, p. 119, ♂, 1851. Smith (*Myrmica domestica*), Trans. Ent. Soc. London (2), iii, p. 130, ♀, ♀, ♂, 1855.

♀. 2.5-3 mm. Reddish yellow, the apical half of the abdomen and sometimes the sides of the whole of the 1st segment brownish. A few scattered pilose hairs on the thorax and abdomen. A microscopic pubescence on the legs and antennae. Head, thorax and nodes closely and minutely granulate, abdomen and legs smooth and shining. Head, thorax and nodes dull. Head ovate, excluding the mandibles, one-quarter longer than wide, the sides strongly, the posterior margin feebly convex. Eyes situated in front of the middle of the head. The scape almost reaches the posterior margin. Clypeal carinae fairly distinct. Mandibles faintly striate. Pro-mesonotum convex, rounded in front and at the sides, narrowed posteriorly. The thorax constricted at the meso-epinotal suture, which is deep. Dorsum of epinotum longer than wide, about three-fifths as long as the pro-mesonotum, the declivity almost vertical, shorter than the dorsum. The pro-mesonotum and epinotum, seen from the side, are distinctly convex.

The 1st node of the petiole cuneiform, rounded above, the peduncle nearly as long as the node; 2nd node wider in front than behind, wider than the 1st node, and slightly wider than long.

♀. 4.3 mm. Reddish yellow; scutellum, median portion of metanotum, declivity and sides of epinotum, and the mesopleura dark brown. The posterior face of the 1st node slightly brown. Colour of the abdomen similar to that of the ♂ but darker. Pilosity, pubescence and puncturation as in the ♂; a longitudinal median area on the anterior half of the mesonotum finely striate. Head, excluding the mandibles, as wide as long. The eyes moderately large, placed in the middle of the sides. Pronotum not exposed dorsally; mesonotum very slightly wider behind than in front, convex anteriorly, one-third wider than long. Dorsum of epinotum very short, the declivity strongly reticulate, its upper half excavated and concave, its lateral margins tumid. The upper half of the declivity is very steep, the lower half vertical. Nodes of petiole similar to those of the ♂, but the peduncle of the 1st joint is shorter, and the node is also shorter and more compressed from front to back, so that the dorsal edge is linear. The 2nd node is wider than in the ♂, quite two-thirds wider than long. The anterior angles of the abdomen more rounded than in the ♂.

“♂. 3 mm. Dark brown; mandibles, scapes, apical half of the flagellum, femora and tibiae yellowish brown; basal half of the flagellum, tarsi and apex of the abdomen pale yellow. Pilosity long, very sparse and light yellow. Head closely and finely punctured. Clypeus convex, obtusely rounded behind, not carinate, finely shagreened. Frontal sulcus extending as far as the anterior ocellus. Thorax punctate above and in front; on the metanotum and the sides of the thorax the punctures are so shallow that the sculpture appears merely shagreened. Petiole punctured. Abdomen almost smooth and very shining, the rest of the body with only a faint gloss.”

Durban. (H. Bell-Marley.) Capetown. (R. Lightfoot.) The original home of this cosmopolitan species is probably South America. It is frequently found in hothouses in temperate countries.

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

M. OSCARIS, Forel, var. *NUPTIALIS*, Forel.

Mitth. Schweiz. Ent. Ges., vol. ix, p. 86, 1894. (Var.) Deutsch. Ent. Zeit. Beiheft, p. 216, ♂, 1913.

♀. 1.6-1.8 mm. Dirty brownish yellow, the antennae and tarsi paler. The median dorsal area of the 1st abdominal segment is

brownish yellow, the rest of the abdomen brown. Very smooth and shining. Pilosity as in *springvalense*. Head nearly one-quarter longer than wide, the sides moderately convex. First joint of the flagellum as long as the 2nd, 3rd and 4th together; the club a little longer than the rest of the flagellum. The scape is shorter than in the type species, and the nodes of the petiole, particularly the 1st, higher and shorter.

Bembesi and Bulawayo. (S.A.M., R.M., G.A. colls.)

M. OSCARIS, race MUSICUM, Forel.

Ann. Soc. Ent. Belg., vol. 54, p. 442, ♂, ♀, 1910.

“♂. 1.5 mm. Head a little narrower than in the type, a little smaller relatively to the body. Club of the antenna much thicker. The 9th joint of the flagellum is much smaller than the 10th, the latter and the 11th considerably swollen (in the type species the 9th is almost as wide as the 10th and the last two joints are only slightly swollen). Otherwise like *Oscaris*, but of a dull brownish yellow, the thorax dirty yellow. The scape is short, much shorter than in *minutum* and *floricola*; the peduncle of the 1st node shorter than in *floricola*.”

“♀. 2.8 mm. Head as in the ♂, longer than wide; eyes large. Thorax high, narrower than the head. Nodes rounded, the 1st with a little tooth below. Dark brown; mandibles, antennae and tarsi dirty yellow.”

Natal. (Haviland.)

M. OSCARIS, race SPRINGVALENSE, Forel.

Ann. Soc. Ent. Belg., vol. 57, p. 163, ♂, ♀, 1913.

♂. 2 mm. Smooth and shining. Head reddish brown, legs pale brown, tarsi yellowish, abdomen and often also the nodes dark brown, the median area of the 1st abdominal segment above, more or less yellowish, thorax and mandibles dark ochreous, antennae brownish yellow except the club, which is brown. Head and thorax very sparsely and shallowly punctured, the punctures piligerous. Head with a sparse and fine decumbent pubescence, the rest of the body with a few long and pale pilose hairs. Head, including the closed mandibles, one-sixth longer than wide, the posterior angles rounded, the posterior margin shallowly concave, the sides nearly straight. Scape short, not reaching the posterior margin by the length of the eye. Club of antenna thick, distinctly longer than the rest of the flagellum, the apical joint as long as the six preceding joints taken together;

3rd-6th as wide as long. Clypeal carinae sharp, well defined. Mandibles sparsely and coarsely punctured, acutely tridentate. Eyes rather flat, placed in front of the middle of the head. Pro-mesonotum convex, widest in front and not much narrower than the head. Thorax strongly constricted at the meso-epinotal suture, which is deep and wide. The dorsum of the epinotum passes into the oblique declivity by a gradual curve. Seen from the side, the dorsum of the epinotum is convex lengthwise, that of the pro-mesonotum convex only in front. First joint of petiole with the peduncle short, about half as long as the node, which is sub-conical, longer than wide and higher than the 2nd node. The 2nd node is a little wider than the 1st, wider in front than behind, and as wide as long.

Springvale, Matopos, S. Rhodesia. (S.A.M., R.M., G.A. colls.)

RACE SPRINGVALENSE, var. PATERNA, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 248, ♂, 1914.

♂. 2.1 mm. Dark yellowish brown, the tarsi pale. A stouter insect than the type of the race. The club of the antenna is not longer than the rest of the flagellum, hardly as long; 3rd-8th joints distinctly wider than long. The nodes of the petiole are much wider than in the race, and the 1st node has the anterior face less convex, and is as wide as long; it is also less conical and more wedge-shaped. The 2nd node is transversely oblong, with rather pronounced anterior lateral angles, almost twice as wide as long.

Table Mountain, 1800 ft. Under stones in damp soil. (R.M., G.A. colls.)

M. SCHULTZEI, Forel.

Schultze Reise Südafrika, vol. 4, p. 18, ♂, ♀, 1910.

♂. 1.5-2.1 mm. Brownish yellow; the thorax a little paler; legs, antennae and the basal half of all the abdominal segments pale yellow. Smooth and shining, with scanty and very small piligerous punctures. Head about one-quarter longer than wide, the sides moderately convex, posterior angles rounded, posterior margin shallowly concave. The anterior margin of the clypeus feebly excised in the middle, the clypeal carinae sharp, with a longitudinal impression between them. Mandibles quadridentate, shining, sparsely and feebly punctured. Eyes large, placed a little in front of the middle of the head. The scape does not extend back as far as the posterior margin of the head. 3rd-7th joints of the flagellum as wide as, or a little wider than, long; the 1st joint as long as the three following taken together; the club as

long as the rest of the flagellum. Thorax moderately constricted. Dorsum of epinotum not quite half as long as the pro-mesonotum. The latter and the epinotum are feebly convex lengthwise, the whole thorax sloping steeply from front to back. The dorsum of the epinotum twice as long as the declivity, the one merging into the other by a gentle curve. First node of petiole wedge-shaped, rounded above, higher than the 2nd, about as wide as long and twice as long as its peduncle. Second node sub-quadrate; narrower behind than in front; hardly wider than the 1st.

“ ♀. 4.7 mm. Head quadrate; wider than the thorax. The scape extends back just as far as the posterior margin of the head. Mesonotum narrow; the dorsal profile straight. Epinotum almost cuboid, with two longitudinal swellings. Head, thorax and petiole very slightly shining, almost dull; partly reticulate-punctate; partly longitudinally striate, especially the front of the vertex. Black; mandibles, antennae and legs reddish (deälated). Otherwise like the ♂.”

German S. W. Africa. (Schultze.) Grahamstown. (J. Hewitt.) (S.A.M., R.M., G.A. colls.)

M. ARNOLDI, Forel. (Plate V, fig. 60.)

Ann. Soc. Ent. Belg., vol. 57, p. 137, ♀, 1913.

♀. 1.6–1.9 mm. Reddish or amber yellow, the sides of the thorax and the nodes a little darker. Very smooth and shining; almost impunctate. A few long and thin pilose hairs on the thorax, nodes and abdomen, the hairs oblique and flavous. Head one-fifth longer than wide, the sides feebly convex, the posterior angles strongly rounded, the posterior margin shallowly concave. Eyes placed a little in front of the middle of the sides of the head. The scape extends back almost to the posterior margin. The club is not thick; the 1st joint of the flagellum is nearly as long as the five following joints taken together; the 2nd joint is a little longer than wide; the 3rd–8th wider than long. The clypeal carinae are well defined; the anterior margin of the median area almost straight or very feebly concave. Mandibles smooth, punctured, quadridentate; the apical tooth acute, the innermost indistinct. Thorax rather strongly constricted at the mesoepinotal suture. Dorsal profile of both pro-mesonotum and epinotum convex. Epinotum a little more than two-thirds the length of the pro-mesonotum, its dorsum longer than the declivity, which is oblique. The 1st node of the petiole is more squamiform than usual for the genus, and is not much thicker at the base than it is above. It is about one and a half times as high as long, and one and a half times

wider than long; the posterior face convex, the anterior nearly vertical, convex transversely. The 2nd node is one and a quarter times higher than long, rounded above, as wide as, but not so high as the 1st, and a little wider than long.

Matopo Hills, S. Rhodesia. Running over the branches of a tree (species unidentified). This tree has a dark green bark, covered with a thin yellowish and parchment-like outer skin, which is also waxy. The colour of the ant matches that of this skin very closely, so that even when moving about it is difficult to detect. I have never taken this species except on this particular kind of tree, and it is not unlikely that the ant feeds on the waxy exudation. (S.A.M., R.M., G.A. colls.)

M. LEIMBACHI, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 246, ♀, 1914.

♀. 2 mm. Pale ochreous; the legs very pale; the apical half of the abdomen brownish yellow. Smooth and shining, impunctate, excepting a few feeble punctures on the vertex. Pubescence absent, except on the legs. Pilosity short and very scanty, more decumbent than in *Arnoldi*. Head very little longer than wide; the sides distinctly convex; the posterior margin straight. Eyes situated within the anterior third of the head. Median area of clypeus projecting somewhat forward; the carinae rather feeble, the space between them almost flat. Mandibles shining, sparsely and coarsely punctured, quadridentate. The scape does not extend back quite as far as the occipital margin. First joint of flagellum as long as the four succeeding joints taken together; 3rd-8th joints a little wider than long. Head almost twice as wide as the pro-mesonotum. Thorax similar to that of *Arnoldi*, but narrower, and with the meso-epinotal suture deeper. The epinotum is two-thirds as long as the pro-mesonotum. The dorsum of the epinotum not much longer than the declivity, as high as the mesonotum, and very convex. The node of the 1st joint of the petiole is conical and widely rounded above, its length below about one and a quarter times longer than its peduncle, one and two-thirds as long as wide, not much higher than the 2nd node, the anterior face subvertical, the posterior face very oblique. The 2nd node is globose, widest in the middle, barely wider than the 1st. Abdomen oval.

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

M. PACIS, Forel.

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 343, ♀, 1914.

“♀. 1.9 mm. Smaller and a little paler than *Leimbachi*, but not so pale as *Oscaris-exceusurae*. It is distinguished from both by the profile being subtruncate in front of the clypeus, which gives it a false appearance of a *Bondroitia*. In profile, the mandibles extend very little beyond the clypeus. The frontal carinæ behind form a strong curve with their anterior lobes, which are situated on the subtruncate portion. The eyes, placed within the anterior third of the head, are fairly large but almost unpigmented. The abdomen has some brown bands, not very distinct. The shape of the petiole and thorax, like the sculpture and other characters, is identical with that of *Leimbachi*, but the head is slightly narrower. The eyes are composed of about 15–20 facets.”

Capetown, ex S.A. Mus. coll.

M. BRAUNSI, Mayr.

Ann. K.K.N.H. Mus. Wien, vol. 16, p. 7, ♀, 1901.

“♀. 1.4–1.6 mm. Reddish yellow or yellow, the abdomen more or less brownish, the 1st segment above yellow, brownish at the sides and near the posterior margin. Masticatory margin of the mandibles reddish brown, the last four joints of the flagellum and also the hind margin of the head slightly brownish. Very sparsely pilose, with fairly long erect hairs. Very smooth and shining, sparsely punctured with piligerous punctures, the cheeks in front longitudinally striate, the frontal carinae somewhat striate, the meso-pleura below finely and shallowly reticulate. Mandibles quadridentate. The head very distinctly longer than wide. The clypeus has a rounded anterior margin; no median groove, teeth, or carinae; but the posterior lateral margins, between the antennal sockets, somewhat projecting. Antennae 12-jointed; the apex of the scape is nearer to the posterior angles of the head than to the eyes; the 2nd–8th joints of the flagellum very small, much wider than long. The 1st joint of the club as wide as long or a little wider, the second a little wider than long, the last joint nearly twice as long as the first and second together. The eyes are rather small, placed in front of the middle of the head. The thorax is constricted at the meso-epinotal suture; the dorsum of the epinotum passes arcuately into the declivity, which is but half as long. The 2nd joint of the petiole is somewhat wider than long, distinctly lower than the 1st joint, and not wider, or hardly wider, than the 1st.

This species stands close to *M. dispar*. In this species the head is

somewhat narrower. The 1st and 2nd joint of the antennal club not longer than wide (in *dispar* both are distinctly longer than wide, the first joint of the club decidedly smaller than the 2nd), the last joint of the club distinctly wider than in *dispar*, and nearly twice as long as the two joints preceding taken together, whereas in *dispar* it is certainly clearly, but very little longer than the two preceding."

Port Elizabeth. (Dr. Brauns.) In hollow stems.

Var. *SHILOHENSIS*, Forel.

Deutsch. Ent. Zeit. Beiheft, p. 217, ♀, 1913.

♂, 1.4 mm. Colour as in the type. The scape is shorter, and the thorax is less constricted at the meso-epinotal suture. The head is more quadrangular, the sides straighter. The dorsal profile of the thorax is almost straight. The 3rd-7th joints of the flagellum twice as wide as long, the 2nd and 8th joints one and a half times as wide as long. The ventral surface of the 1st node is strongly convex, the node is but slightly higher than the 2nd.

Shiloh, S. Rhodesia. In grassy soil. (G.A. coll.)

M. DESTRUCTOR, Jerdon, race *KALAHARIENSE*, Forel.

Madras Journ. Litt. and Sc., vol. 17, p. 105, ♀, 1851. Race,

Schultze Reise Südafrika, vol. 4, p. 18, ♀, 1910.

"♀. 1.7-3 mm. Differs from the subspecies *gracillimum*, Smith, by the shorter scape, which even in the smallest ♀ by no means reaches the posterior margin of the head, and by the very small, flat eyes, which comprise only 16-18 distinct facets (quite 40 in the larger and more convex eyes of the type species and the race *gracillimum*). The head is even more strongly and closely punctured than in *gracillimum*. Brownish yellow-red; abdomen brownish. Upper surface of the first two abdominal segments, antennae and legs yellowish. Polymorphic as in *gracillimum*. Larger than *dispar*, Em., in which the epinotum is smooth—in this species transversely rugose.

"Kooa-Sekgoma, Kalabari. (Schultze.) In a small subterranean sand-nest; also found on another occasion in the nest of *Hamitermes runconifer*, attacking *Ocymyrmex picardi*."

M. DISPAR, Emery.

Ann. Soc. Ent. France, vol. 63, p. 24, ♀, 1895.

"♀. Maxima, 3 mm. Testaceous; abdomen fuscous, very shining, and sparsely punctured. Head hardly longer than wide; the cheeks

as far as the eyes, and the front of the head, striated. There is a median sulcus, and the occipital region is transversely striate. Mandibles tridentate; antennae as in the ♀ minima; thorax moderately stout; the meso-epinotal suture impressed; the epinotum distinctly angulate; the meso- and metapleura punctate, dull; dorsum of the declivity transversely rugulose, nodes of the petiole transverse.

“♀. Minima, 1.5–1.7 mm. Pale, testaceous, pellucid; abdomen fuscous, very shining, very scantily punctured with piligerous punctures. Head moderately elongate; cheeks striated anteriorly. The first two joints of the antennal club subequal, the last joint a little longer than the two preceding together; mesopleura reticulate-punctate. Epinotum obtusely angulated between the dorsum and the declivity; nodes of petiole small and subequal.

“Makapan. (Simon.)”

M. AMBLYOPS, Emery, race BULAWAYENSE, Forel.

Bull. Soc. Ent. Ital. xxvi, 1894, p. 148. (Race) Bull. Soc. Vaud. Sc. Nat, vol. 50, p. 247, ♀, 1914.

1.8–4 mm. Strongly polymorphic, having the facies of a *Solenopsis*. The smaller ♀ ♀, 1.8–2.3 mm., differ from the larger ♀ ♀ in having the head longer and the sides less convex, but a complete transitional series can be found between one extreme and the other.

♀. Maxima, 4 mm. Ochreous, somewhat reddish, the abdomen darker, with the apical margins and the greater part of the sides of the segments fuscous. The nodes above and the masticatory margin of the mandibles slightly brownish. A short and rather sparse pubescence on the head and thorax, much longer and denser on the legs and antennae. Margin of clypeus, thorax, nodes, and abdomen with a long, pale, yellowish and sparse pilosity. Smooth and shining. Head strongly but sparsely punctured (as in *Solenopsis punctaticeps*); promesonotum more feebly and sparsely punctured. The mesopleura distinctly reticulate-punctate; the sides of the epinotum above shallowly and transversely striate, obliquely striate below. Abdomen very smooth and shining, each pilose hair is inserted in a small puncture. The head in front, on each side of a smooth area surrounding the antennal sockets, is obliquely and closely striate, the striated area extending back as far as, and a little below, the eyes. Head, excluding the mandibles, hardly longer than wide, the sides very convex, the posterior angles strongly rounded, the occipital margin shallowly concave. The eyes are rather small and placed well within the anterior half of the head. The median area of the clypeus is

feebly and longitudinally striate on each side, hardly carinate, the anterior margin straight. The frontal carinae are short and parallel; the scape of the antenna short, extending back hardly as far as the posterior third of the head; the club of the flagellum thin; the 1st joint of the flagellum not longer than the 2nd, 3rd and 4th taken together; 3rd-8th joints about as long as wide; all the joints of the club much longer than wide. Mandibles shining, coarsely striato-punctate, quadridentate. Thorax moderately constricted at the meso-epinotal suture, which is deeply impressed and large. The dorsal profile of the pro-mesonotum is very convex; that of the epinotum flat, sloping posteriorly. The dorsum of the epinotum is broad, almost as wide as long, and a little less than half as long as the pro-mesonotum. The declivity is almost vertical, the brow very shallowly impressed in the middle. The peduncle of the 1st joint of the petiole nearly as long as the node, the latter as wide as long, not higher than the 2nd. The 2nd node is a little wider than the 1st, wider than long, narrowed behind, subglobose.

♀. Minima, 1.8 mm. Similar to the ♀ maxima, except in the following characters: The colour is slightly paler; the head is longer, quite one-quarter longer than wide, the sides almost straight or very feebly convex; the anterior angles of the head not striate; the scape longer, extending well beyond the posterior third of the head; the 3rd-8th joints of the flagellum distinctly wider than long.

♀. (Hitherto undescribed.) 8 mm. Head and antennae reddish yellow, legs yellow, the rest of the body reddish brown. Smooth and shining. Pilosity as in the ♀, but there are some short pubescent hairs on the abdomen intermixed with the pilosity. Head subquadrate, coarsely punctured, and striate, the striae rather feeble on the vertex, and converging behind at the ocellar region. The eyes are large, placed just in front of the middle of the sides. The ocelli are set far back, the posterior margin of the head subtruncate behind the posterior ocelli. A median longitudinal sulcus extends from the posterior angle of the clypeus to the anterior ocellus. Pronotum hardly exposed above. Mesonotum convex and narrow in front, one third longer than wide. Dorsum of epinotum short, passing by a steep curve into the vertical declivity. First joint of petiole with the peduncle shorter than in the ♀; the 2nd node less rounded; the sides parallel and not convex; subquadrate. Abdomen oblong, as long as the thorax and nodes together. Wings slightly yellow, the nervures yellow, the stigma brownish yellow; 1 cubital cell.

♂. (Hitherto undescribed.) 4.1 mm. Black; antennae, mandibles and tarsi flavous; femora and tibiae brown. Smooth and

shining; head duller. Pilosity scanty, longer on the scutellum than on the mesonotum. Head shallowly and longitudinally striate, transversely so between the ocelli, subquadrate, the sides moderately convex, the posterior angles rounded. The eyes are very large and convex, occupying the whole of the anterior half of the head and touching the base of the mandibles; the latter short and narrow, feebly dentate. Clypeus convex, the median area raised into a prominent tubercle. The 13-jointed antennae are densely covered with a stiff, almost bristly, erect pubescence. They have a distinctive structure unlike that of any other ♂♂ of this genus which are known to me, excepting *M. Emeryi*, and resembling that of *Solenopsis*. The antennae are setaceous, thinning considerably towards the apex. The scape is very short, almost quadrate or only a very little longer than wide, not longer than the 1st joint, which is wider than the scape, and *globose*, as in *Solenopsis*. The 2nd joint is a little longer than the 1st or 3rd; the 2nd-4th joints cylindrical and twice as long as wide, their inner margins convex, the outer straight; the remaining joints are all much longer than wide, and flattened. Pronotum not exposed above; the mesonotum very convex in front, horizontal behind, as wide as long, widest across the tegulae. The scutellum convex, wider than long, sloping backwards. The dorsum of the epinotum twice as wide at the base as it is long, with a prominent boss on each side above the vertical declivity. First node of petiole flattened, the anterior face vertical, the posterior-dorsal face as long as wide, widest in front; seen from the side, the node is shorter than its peduncle. Second node wider than the 1st, convex above, transversely ovate. Legs slender, not long. Wings as in the ♀.

Hillside, Bulawayo. (A. M. Macgregor.) This species forms very populous colonies, and almost invariably the nest is placed under stones which also cover the nests of a small species of termite (species unidentified). The galleries of the two nests are not in free communication, and the termites are quickly attacked if the dividing walls are broken down.

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

M. (sub-genus *MITARA*, Forel) *EXIGUUM*, Forel, var. *BULAWAYENSE*, Forel.

Mitth. Schweiz. Ent. Ges., vol. 9, p. 84, 1894. (Var.) Deutsch. Ent. Zeit. Beiheft, p. 217, ♂, 1913.

♀. 1.5 mm. Brownish yellow, the apical half of the abdomen dark brown, legs, antennae, mandibles and anterior margin of head yellow.

Smooth and shining. Head and thorax very sparsely and finely punctured. Head about one-fifth longer than wide, the sides almost parallel. Antennae 11-jointed, the scape extending a little beyond the posterior fifth of the head; 3rd-7th joints of flagellum one and a half times wider than long; the 8th and 9th as wide as long. Clypeus distinctly bicarinate. The eyes small, set within the anterior half of the head. Mandibles shining, with a few large punctures, tridentate. The thorax is fairly strongly constricted at the meso-epinotal suture; the pro-mesonotum is twice as long as the epinotum. The dorsum of the latter one-third longer than the declivity, which is oblique and passes into the dorsum by a low curve. The dorsal profile of the pro-mesonotum is not very convex. The 1st node of the petiole cuneiform, about as wide as long, the apex rounded, the peduncle half as long as the node. The 2nd node is about as wide as long, or a little wider, wider in front than behind, reversed trapeziform.

Dr. Forel distinguishes this form from the type by the more convex sides of the head, the shorter nodes and the wider 2nd node, which is "much wider than long (as long as wide in the type)." The latter feature is not appreciable by measurement in the specimens which I have before me.

Bulawayo. (G.A. coll.)

M. (sub-genus MITARA) *ATOMUS*, Forel, race *MICTILIS*, Forel.

(Race) Zool. Jahrb. Syst., vol. 29, p. 252, ♂, ♀, 1910.

♂. 1.5 mm. Pale ochreous, the sides and apical margins of the abdominal segments slightly brownish. Smooth and shining. Head and thorax very sparsely and finely punctured. Head very sparsely pubescent, and with the rest of the body, also very sparsely pilose. Head, excluding the mandibles, nearly one-sixth longer than wide, the sides moderately convex. Mandibles rather long, shining, coarsely and sparsely punctured, with 3 or 4 teeth. The clypeus produced a little forwards; the median area bicarinate, slightly concave between the carinae, the anterior margin feebly sinuate. Eyes not very small, placed a little in front of the middle of the sides. Antennae 11-jointed, the scape extending back as far as the posterior fourth of the head, the club distinctly longer than the rest of the flagellum; 1st joint of flagellum as long as the four following joints taken together, 3rd-6th joints twice as wide as long. Thorax not strongly constricted at the meso-epinotal suture. The 1st node of the petiole is only a little higher than the 2nd, narrower and longer than that of *exiguum*, *bulawayense*, and longer than wide. The 2nd node subglobose, the

sides convex (not straight as in *exiguum*, *bulawayense*), a trifle wider than the 1st.

♀. 3.8 mm. Yellowish or reddish brown; legs, antennae and mandibles dark ochreous. Head somewhat quadrangular, one-quarter longer than wide. Thorax narrow, two and a half times as long as wide, almost parallel-sided or only slightly convex. Pronotum slightly exposed above. The brow of the declivity of the epinotum rounded, the dorsum short and about half as long as the vertical declivity. The 1st node of the petiole is wider and more flattened above than in the ♂. The 2nd node is more convex above and at the sides than in the ♂, and is two-thirds longer than wide. Otherwise like the ♂. (Dealted.)

Durban. (Arnold, Cooper.) (R.M., G.A. colls.)

SUB-TRIBE SOLENOPSISIDINI, Emery.

GENUS DIPLOMORIUM, Mayr.

Ann. K.K.N.H. Mus., Wien, vol. 16, p. 16, 1901.

Characters.

♂. Antennae 11-jointed; clypeus without carinae. Pro-mesonotal suture almost effaced; meso-epinotal suture deep. Epinotum unarmed, its dorsum slightly excavated as in some species of *Monomorium*. Middle and hind tibiae without calcaria.

♀. Considerably larger than the ♂. Antennae 11-jointed. Pronotum vertical, not exposed dorsally. Epinotum unarmed. Discoidal cell of anterior wing large, radial cell open.

♂. Unknown.

D. LONGIPENNE, Mayr.

Loc. cit., pp. 16-18, ♂, ♀.

“ ♂. 1.8-1.9 mm. Pale brown, the mandibles and tarsi brighter. A sparse and moderately long pilosity on the body; on the legs and antennae shorter, but more abundant. The upper surface of the head also has shorter and more abundant hairs, intermixed with the longer ones. Polished and shining; the mandibles partly longitudinally striate and with a few piligerous punctures; the sides of the mesothorax reticulate-punctate. Head rectangular, but little longer than wide, with rounded posterior angles and somewhat convex sides. Mandibles with a very oblique masticatory margin, armed with 3 larger teeth in front, and 3 or 4 smaller and less distinct teeth

behind. Clypeus moderately large, without carinae or teeth, convex transversely and lengthwise, the posterior third inserted between the frontal carinae, the anterior margin convex. The frontal carinae are very short, fairly narrow, not diverging much behind; they are farther apart and the posterior portion of the clypeus is wider than in *Solenopsis*. The scape of the 11-jointed antennae does not extend back as far as the hind margin of the head, the flagellum similar to that of *Solenopsis*, but the antepenultimate joint is relatively larger; the 2nd-7th joints of the flagellum small and wider than long, the 8th distinctly larger than the preceding, as long as wide, the 9th large, very little longer than wide, the last joint almost three times as long as the preceding; the structure of the flagellum being intermediate between that of *Monomorium* and of *Solenopsis*. The antennal fossa small. The frontal area small and triangular. The frontal sulcus is very short. The moderately large and feebly convex eyes lie in front of the middle of the head. No ocelli. The posterior margin of the head is straight, but is strongly hollowed out at the occipital foramen. The thorax is like that of *Solenopsis*, the pro-mesonotal suture hardly defined; the meso-epinotal suture deep. The dorsum of the epinotum merges by a gentle curve into the declivity. A transversely concave and shallow longitudinal impression begins at the base of the epinotum, widens and passes over into the declivity. The legs of medium length. The petiole is shaped as in *Solenopsis*, the 1st joint distinctly pedunculate, the ventral lamella simple, the node transverse; the 2nd joint is wider than the 1st, much narrower in front than behind, somewhat bell-shaped. Abdomen ovate, transversely truncate at the base.

♀. 9.5-10 mm. Very shining and pale brown. The pilosity is fairly abundant, particularly on the legs. The adpressed pubescence is absent from the head and thorax, scanty on the abdomen, the ventral surface of the 2nd node of the petiole is densely pilose, the hairs short and exerted. Mandibles coarsely striated, sparsely and strongly punctured. The clypeus is transversely rugose at the sides, smooth in the middle; the cheeks and inner borders of the eyes longitudinally striate, the frons and vertex sparsely punctured with deep and large punctures, the mesonotum and scutellum polished, with few punctures, the sides of the pronotum and the mesopleura polished; the concave sides of the scutellum, the metanotum, the sides of the metathorax and of the epinotum more or less striato-rugose, the latter also with fairly abundant punctures bearing short and erect hairs. The anterior upper surface of the finely rugulose and punctured 1st node bears similar hairs, the 2nd node is polished on the upper surface, with a

few pilose punctures, striato-punctate in front and pubescent. The abdomen is polished and sparsely punctured. The anterior wings are slightly greyish yellow, nervures and stigma brownish yellow. Head with the closed mandibles triangular and rounded, narrower than the thorax across the tegulae; without the mandibles, a little wider than long. Clypeus triangular, strongly convex transversely, without carinae, the anterior margin feebly sinuate on each side, so that the median portion projects in an obtuse angle; the posterior portion of the clypeus between the frontal carinae separated off from the front portion by a transverse impression. A small frontal area present, with a frontal sulcus extending from it to the anterior ocellus. . . . The scape extends back as far as the posterior ocelli; the flagellum with a distinct 3-jointed club, the 1st joint of the flagellum two and three-quarter times longer than wide, the 4 following joints as long as wide, the 6th a trifle longer than wide, the 1st and 2nd joints of the club distinctly longer than wide, the last joint almost as long as the three preceding taken together. The fairly large and convex eyes lie in front of the middle of the head. The posterior margin of the head straight. The thorax is widest in the middle; the pronotum vertical, the mesonotum in front and at the sides strongly convex, in the middle feebly so; the dorsum of the epinotum sloping, the declivity vertical and with a rounded brow. The 1st joint of the petiole has a little tooth below, the 2nd is even more campaniform than in the ♀, it is about twice as wide as long and twice as wide as the 1st node, rounded at the sides, widest just in front of the hind margin. The abdomen is a little more than twice as wide as the 2nd node, and not quite twice as long as it is wide."

Port Elizabeth. (Dr. Brauns.) Under stones in the ground.

GENUS SOLENOPSIS, Westwood.

Ann. Mag. Nat. Hist., vi, p. 86, 1841.

Characters.

♂. Maxima. Antennae 10-jointed, with a well-defined and fairly thick two-jointed club. Mandibles thick, edentate or with two or three blunt teeth. Head quadrate. Clypeus with the median area raised and produced rather far back between the frontal carinae, channelled down the middle, the sides of the channel forming a carina on each side, which converge behind, and in front end in two acute teeth projecting beyond the margin of the clypeus. Frontal carinae short and broad, placed fairly far apart. Eyes small. Thorax

narrower than the head, wide and convex in front, considerably narrowed behind. Pro-mesonotal suture ill defined; the meso-epinotal suture deeply impressed. Epinotum unarmed, the limits of the two faces ill defined, the declivity slightly excavated. First joint of petiole shortly pedunculated, the 1st node usually wider than the 2nd.

♀. Minor and minima. Like the ♂ maxima, but the head is more elongate, the sides less convex, especially in the smallest ♀♀. The mandibular teeth more acute.

♀. Antennae 11-jointed. Eyes fairly large and convex; three ocelli. Pronotum hardly exposed above; mesonotum not very narrow, almost as wide across the tegulae as it is long. Dorsum of epinotum very short. First node cuneiform, not much wider than the 2nd. Anterior wings with 1 cubital and 1 discoidal cell; the radial cell open.

♂. Antennae 12-jointed; the scape very short; the 1st joint of the flagellum globose. Head reversed trapeziform, widest in front. Mandibles long and narrow, with 3 or 4 teeth. Median area of clypeus more or less quadrate and gibbous. Eyes large and convex; ocelli large, raised. Pronotum not exposed above. Mesonotum very gibbous. Mayrian furrows absent. Scutellum raised above the level of the epinotum far more than in the ♀. Epinotum as in the ♀. First node emarginate above; 2nd node with the dorsal surface flattened, not convex, as in the ♀.

This genus is found in both hemispheres. One species, *S. geminata*, so far not recorded from our region, is very widely distributed, occurring over the greater part of the circumtropical area. The European species, *S. fugax*, is frequently found in the nests of other ants (chiefly *Formica*); but our commonest species, *punctaticeps*, forms large and independent nests. It is almost hypogaecic in its habits, rarely coming to the surface except in dull weather.

S. PUNCTATICEPS, Mayr. (Plate VI, figs. 73, 78a, 78b.)

Reise d. Novara, Zool., p. 109, ♀, 1865. Forel, Ann. Soc. Ent. Belg., vol. 54, p. 431, form B, ♀, ♂, 1910.

♀. Maxima, 3.6 mm. Dirty ochreous, the apical half of all the abdominal segments more or less reddish brown yellow; head brown or brownish yellow. Head sparsely and strongly punctured; thorax sparsely and less strongly punctured; the median longitudinal area of the pro-mesonotum almost impunctate. Legs and abdomen very sparsely punctured, the punctures on the abdomen minute and

piligerous. Smooth and shining. The whole body, including the legs and antennae, clothed with a rather long, erect, pale yellowish pilosity, which is somewhat denser at the margins of the abdominal segments. Pubescence not apparent. Head subquadrate, very convex above, a little wider behind than in front, as long as wide, the sides convex, the posterior angles strongly rounded, the posterior margin almost straight. Median area of clypeus bicarinate, the space between the carinae excavated, the carinae ending in front in two acute teeth, the margin between the carinae concave. A smaller but acute tooth lies outside each of the larger teeth. Mandibles sparsely and coarsely punctured, with three blunt teeth. The scape of the antenna short, extending back a little beyond the posterior third of the head, widened gradually in its apical half; 1st joint of flagellum about as long as the four following joints taken together; 2nd and 3rd joints about as long as wide; 4th-7th slightly wider than long; the 8th and 9th, forming the club, thick and five-sixths as long as the rest of the flagellum. Eyes small, placed well in front of the middle of the sides of the head. Frontal carinae longitudinally striate, slightly divergent behind. A poorly defined frontal area lies behind the prolongation of the clypeus, and is continued into a short frontal sulcus, which ends at about the level of a line joining the eyes.

Pronotum produced neck-like in front. Pro-mesonotal suture very indistinct dorsally; sides of pro-mesonotum very convex. Thorax strongly constricted at the meso-epinotal suture, the dorsal profile sloping downwards from the front to the brow of the declivity. Dorsum of epinotum widening posteriorly, passing by a low curve into the vertical declivity, the margins of which are rather prominent. First joint of petiole with a short peduncle; the node thick, squamiform, as high as wide, wider above than below; the dorsal surface not linear, convex transversely; the anterior and posterior faces subvertical; the ventral lamella produced in front (under the peduncle) into a small, broad tooth. Second node, seen from above, subglobose; a little wider than long, and about one-fifth narrower than the 1st node. The abdomen ovate, the basal margin wide, the basal angles rounded, but fairly prominent.

♀. Minor and minima, 3-1.8 mm. Entirely pale ochreous; pilosity shorter and less abundant, the puncturation scantier; head a little more elongate, with the sides less convex. Otherwise like the ♀ maxima.

♀. 6.5 mm. Head and thorax black; nodes and abdomen dark brown; legs, antennae and mandibles brownish yellow. Pilosity as in the ♀ maxima. Head a little narrower in front than behind;

almost quadrate; longitudinally striate, and also sparsely and coarsely punctured. The striae are narrow and deep. Ocelli not large; rather wide apart. Clypeus as in the ♀. Thorax a little wider than the head; sparsely but strongly punctured laterally above; the median area almost impunctate. Pronotum not exposed above; the apical half of the dorsum of the epinotum shallowly excavated, the excavation widening towards the brow of the declivity, and margined on each side by a long, oblique, rounded ridge (hardly a carina). The vertical declivity is finely and transversely striate, as are also the sides of the epinotum. The 1st node of petiole without a distinct peduncle. Seen from in front, it is an elongate triangle with the base at the dorsal surface, the latter narrowly emarginate in the middle; the posterior face of the node is subvertical. The 2nd node is globose. The abdomen and nodes are sparsely and fairly strongly punctured. Wings hyaline, nervures brown.

♂. 5 mm. Black; flagellum ochreous; tarsi and tibiae brownish yellow. Pilosity as in the ♀. Head widest in front, trapezoidal, the angles considerably rounded. Eyes large, placed in the anterior half of the head; ocelli on a slightly raised area. Anterior margin of clypeus convex; the median area raised and bearing a squarish tubercle, not carinate or dentate. Mandibles short, narrow, tridentate, the hindmost tooth very small and obtuse. Antennae 12-jointed; the scape very short, when extended laterally, only just reaching the inner margin of the eye; the 1st joint of the flagellum swollen and globose; the remaining joints much longer than wide. Head densely and finely reticulate-striate. Thorax widest across the tegulae. Pronotum not exposed above. Mesonotum as wide as long, narrow and gibbous in front. The dorsum of the epinotum is wider than in the ♀, and merges more gradually into the declivity, and is barely excavated. The whole thorax very finely reticulate-striate; the disc of the scutellum smooth, shining, and sparsely punctured. The 1st node similar to that of the ♀; but the anterior face is more quadrate and less oblique, the dorsal edge shallowly and more widely emarginate, the corners slightly raised; the posterior-dorsal face very finely and concentrically striate. The 2nd node is one-third wider than the 1st; longer than wide; its sides are parallel along their posterior two-thirds, and converge sharply inwards at the anterior third, forming a distinct but wide angle on each side. Abdomen broad, the 1st segment occupying more than half its length. Legs slender. Wings as in the ♀.

Widely distributed throughout S. Africa. Sometimes forming very large colonies containing many hundreds of workers.

The above descriptions of the ♂ and ♀ have been drawn up from specimens taken with typical ♀ *punctaticeps*, by Mr. R. Wroughton at Estcourt, Natal. They agree with those described by Forel as form B of *punctaticeps*, so that the identity of the latter as the true ♂ ♂ and ♀ ♀ of the species is thereby definitely settled. The status of form A, originally described as var. *caffra*, remains undetermined. It was taken by Mr. Wroughton in a nest of *punctaticeps*, which also contained ♀ ♀ and ♂ ♂ of the form B.

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

Var. CAFFRA, Forel.

Mitth. Schweiz Ent. Ges., vol. 9, p. 99, ♀, ♀, 1894. Ann. Soc. Ent. Belg., vol. 54, p. 431, form A, ♀, 1910. Mayr (S. capensis), Verh. Zool. Bot. Ges. Wien, 16, p. 905, ♂, 1866 (?).

♀. This differs from the type only in the following characters: The head is more strongly and more closely punctured in all the ♀ ♀, and the teeth on the carinae are shorter. The head of the ♀ maj. is less rectangular, being distinctly narrower in front than behind.

“♀. (?) 3.5–4 mm. Yellowish brown, with the legs, antennae and mandibles yellow. Anterior wing 5.5 mm. long (6 mm. in *punctaticeps* type), tinged with brown; nervures pale. Head quadrate, a little wider than long. Clypeus with the carinae ending in two obtuse teeth, and without distinct lateral teeth. Thorax narrower than the head. Epinotum without a trace of tubercles. Abdomen small. Puncturation fairly coarse and abundant on the head, very fine and sparse on the mesonotum. Pilosity moderate.”

Dr. Forel suggests the possibility of this ♀ being a parasitic microgyne in the nests of the type. In that case it can hardly be the ♀ of the ♀, var. *caffra*, since the description of the latter given above has been made from specimens taken by myself on Table Mountain, and found in an independent and unmixed colony.

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

Var. CYCLOPS, Santschi.

Göteborgs K. Vetensk. o. Vitterh. Handl., xv, 2, p. 19, ♀, ♂, 1914.

♀. 1.6–4.5 mm. Head a little longer than wide, distinctly narrowed in front, slightly emarginate in the middle of the posterior margin. The median area of the clypeus projecting further forwards than in *punctaticeps* i. sp., the teeth more acute. Mandibles with four distinct anterior teeth and an obtuse posterior one, the teeth more acute than in *punctaticeps*. The 2nd, 3rd, and 8th joints of the

flagellum as long as wide (a trifle wider than long in *punctaticeps*). In the largest ♀♀ the median ocellus is present, but it is very small. The thorax is a little stouter and wider across the meso-epinotal suture. The 1st node of the petiole is a little thinner above. The pilosity is less regular and less abundant than in *punctaticeps*. In the smaller ♀♀ the head is less strongly punctured than in the type of the species.

“♂. 4-5 mm. Black, hardly brownish. Legs, mandibles and scapes yellowish brown; flagellum, excepting the 1st joint, pale yellow. Wings hyaline. Pilosity as in *punctaticeps*. Shining, head dull, finely rugose, striate above. The thorax is finely striate (in *punctaticeps* the thorax is more punctured). Clypeus truncate in front. Mandibles 3-dentate. Otherwise like the type of the species.”

Natal. (Traegaordh.) Durban. (Marley and Cooper.)

The specimens collected by Messrs. Marley and Cooper are undoubtedly to be referred to this form, on account of the shape of the head and the presence of the ocelli in the large ♀♀. Nevertheless, the other differences mentioned by Santschi as distinguishing this form from the type of the species appear to me to be relative to the greater size, and not sufficient to justify sub-specific rank. The ♂ of *punctaticeps* has the thorax distinctly striate, and does not differ in that particular from the variety.

Var. *DIVERSIPILOSA*, Mayr.

Ann. K.K.N.H. Mus. Wien, vol. 16, p. 15, ♀, 1901.

“♀. 2-3 mm. With more abundant and longer pilosity than in the type of the species, the hairs of medium length being intermixed with longer ones, especially on the tibiae. In the larger ♀♀ the 2nd-7th joints of the flagellum are not wider than long, as in the type of the species and the var. *caffra*, the 6th and 7th being even slightly longer than wide.”

Port Elizabeth. (Dr. Brauns.)

In view of the slight differences which may be found in the different nests of a species, it is exceedingly doubtful whether a variety should be considered valid, when founded on such slender distinctions as those enumerated in this case by Mayr.

S. *SEMILAEVIS*, Mayr.

Loc. cit., ♀.

“♀. 1.1-1.3 mm. Reddish yellow, the abdomen slightly browned. The upper surface of the head with fairly short hairs; the clypeus with

longer hairs; the dorsum of the thorax with hairs like those on the head, intermixed with a few longer ones. The abdomen has a moderately long pilosity, without pubescence; the legs and antennae with oblique hairs. Mandibles moderately shining, sparsely punctured, 5-dentate. The head smooth and shining, with piligerous punctures, which are as far apart as the length of the hairs. Cheeks finely longitudinally striate, the frontal carinae also with a few such striae. The head is distinctly longer than wide, hardly narrower in front than behind. The median area of the clypeus feebly concave transversely, margined at the sides by carinae which diverge in front and merge into the anterior margin without ending in teeth. The scape of the 10-jointed antenna does not extend back as far as the posterior margin of the head; the 2nd-7th joints of the flagellum wider than long; the 3rd-5th only half as long as wide; the 1st joint of the club but little longer than wide; the apical joint large, a little longer than the flagellum without the club. Eyes very small. Pro- and mesonotum smooth and shining, with sparse piligerous punctures; the epinotum and the sides of the mesonotum finely reticulate-punctate and more or less dull. The thorax is moderately constricted in front of the epinotum, the latter unarmed, the dorsum merging arcuately into the declivity, which is somewhat longer. The first node of the petiole is finely reticulate; the 2nd smooth and shining, transversely ovate and wider than the 1st. Abdomen smooth and shining, with very sparse piligerous punctures."

Port Elizabeth. (Dr. Brauns.)

TRIBE PHEIDOLOGETINI, Emery.

Three genera of this tribe are found in our region. The ♂♂ and ♀♀ are usually enormously larger than their ♂♂. A ♀ caste occurs in some genera; the ♀♀ of the genus *Aneleus*, Em., have very large and parallel-sided heads.

GENUS CAREBARA, Westwood.

Ann. Mag. Nat. Hist., vol. 6, p. 86, 1841.

Characters.

♂. Antennae 9-jointed, the club 2-jointed and very distinct. Eyes and ocelli entirely absent. Frontal carinae very short. Thorax unarmed; pro-mesonotal suture obsolete. First joint of the petiole with a short peduncle; both nodes transverse, subovate.

♀. Antennae 10-jointed, without a distinct club. Eyes and ocelli

large. Head triangular. Frontal carinae very short. Clypeus with a wide, convex, and raised median area. Thorax robust, much wider than the head, and very convex; pronotum not exposed above, lying entirely beneath the mesonotum; the latter with well-defined parapsidal sutures, Mayrian furrows absent. Scutellum high, much above the level of the metanotum. Epinotum unarmed. First node of petiole more or less cuneiform; 2nd node transverse, flattened above. Abdomen very large. All the tarsi densely clothed with stiff bristly hairs. Wings long; anterior wing very pointed, 1 cubital and 1 discoidal cell, the radial cell closed.

♂. Antennae 13-jointed, the scape short. Also much larger than the ♀, and not very much smaller than the ♀, which it resembles in general features. The nodes of the petiole are not so high as in the ♀, and the 1st node is thicker above.

C. VIDUA, Smith. (Plate VI, figs. 79, 80.)

Cat. Hymen. B.M., vol. 6, p. 179, ♀, ♂, 1858. Forel, Ann. Soc. Ent. Belg., vol. 45, p. 392, ♀, 1901. Santschi, Boll. Lab. Zool. Sc. Agri. Portici, vol. 8, p. 363, 1914.

♀. 1.6–2 mm. Pale ochreous yellow; inner margin and teeth of the mandibles brown. Smooth and shining. Head, pro-mesonotum and nodes with a sparse and rather coarse puncturation; epinotum and abdomen very shallowly and sparsely punctured. Pilosity short, scanty and yellowish, longest on the thorax, most abundant on the legs. Legs and antennae also with pubescent hairs. Head rectangular, hardly longer than wide, the sides feebly convex, the posterior angles rounded, the occipital margin shallowly concave; about as wide in front as behind, but occasionally some individuals from the same nest have the head a little narrower in front than behind. Mandibles smooth and shining, quadridentate; the two anterior teeth large and sharp, the two posterior smaller and less acute, and separated from the anterior pair by a short space; occasionally the hindmost tooth is obsolete. Clypeus produced, truncate in front, the median area raised and convex, the anterior margin straight. Eyes entirely wanting. Antennae 9-jointed; the scape short, hardly extending back as far as the posterior third of the head; 1st joint of the flagellum quite twice as long as wide, nearly as long as the five following joints taken together, the latter all very short and much wider than long. The last two joints of the flagellum form the club, the last joint being three times as long as the preceding. Thorax fairly flat above. Pro-mesonotal suture absent, meso-epinotal distinct.

The thorax is fairly strongly constricted laterally at the meso-epinotal suture. Pro-mesonotum about one-third longer than wide, the sides convex. Dorsum of the epinotum shorter than the oblique declivity, into which it merges by a gentle curve; sides of the declivity distinctly margined, the raised margins extending indistinctly almost to the base of the dorsum. First joint of petiole very shortly pedunculate, the node wider than long, ovate, convex above. Second node as wide, or nearly as wide, as the 1st, of similar shape, but a trifle longer. Abdomen ovate, all the segment wider than long.

♀. 24 mm. Length of anterior wing, 23.5 mm. Head, thorax and petiole black; abdomen varying from dark red to reddish brown. Mandibles and legs dark brown; tarsi and antennae reddish brown. Thorax shining, the rest of the body nitidulous. Head, thorax and nodes with a sparse, yellowish and adpressed pubescence (coarse and almost pilose); abdomen sparsely and finely pubescent. Clypeus with a few fairly long pilose hairs. Antennae densely pubescent. Tibiae and tarsi densely clothed with long and almost bristly hairs, which form dense tufts at the apical margins of the tibia and of the first four tarsal joints. Head closely and very coarsely punctured, each puncture with a piligerous prominence in its centre; the space between the punctures rugose. Mandibles longitudinally striate and strongly punctured between the striae. Mesonotum and petiole sparsely punctured, the punctures similar to those on the head, but smaller and shallower. Sides of thorax closely striate and more or less punctured. Epinotum dull, very closely and minutely punctured, the sides with a few strong striae; the dorsum with a few large and deep punctures; the declivity with its upper margin more or less rugoso-striate. Abdomen microscopically alutaceous, and also sparsely punctured, the punctures strong, but not so large or deep as those of the mesonotum. Head, including the mandibles, triangular, much wider behind than in front, the posterior angles widely rounded. Clypeus short, the median area raised, convex transversely, truncate or deeply impressed in front, and with a small tubercle behind the middle of the anterior margin. Frontal carinae short. Mandibles quadridentate; the teeth somewhat obtuse. Antennae 10-jointed, the scape extending back as far as the posterior ocelli; the 1st joint of the flagellum a little longer than wide, the 2nd-6th joints wider than long. Eyes fairly large, oblique and ovate. Ocelli not large. Thorax much wider and higher than the head. Only the shoulders of the pronotum are visible from above; mesonotum very high and convex in front, hiding the pronotum; parapsidal sutures distinct. The scutellum semicircular, somewhat pointed posteriorly, and sepa-

rated from the mesonotum by a deep and broad sulcus; metanotum prominent and very convex. Dorsum of epinotum very short in the middle, longer at the sides, the declivity vertical. with raised and sharply defined lateral margins, which are distinctly curved inwards. First node of the petiole, seen from the side, subtriangular, the anterior face slanting obliquely forwards; the dorsal edge is thickest at the sides, truncate behind. The 2nd node transverse, rectangular, almost twice as wide as long, the dorsal surface inclined forwards, convex transversely. Abdomen very large, somewhat flattened above, very little narrowed at the base or apex, the sides almost parallel, the apex widely rounded, as long as the thorax and petiole together, all the segments much wider than long, the first three a little more than twice as wide as long. Wings very long, the anterior subacute at the apex, brownish, the nervures dark brown.

♂. 17-18 mm. Length of anterior wing, 16 mm. Dull; head, thorax and 1st joint of petiole brownish black; the dorsal surface of the 2nd node more or less dark yellow; mandibles, antennae, legs and abdomen dark ochreous. Head, mesonotum and scutellum fairly strongly and very closely punctured; the dorsum of the epinotum transversely and also somewhat obliquely striate; the declivity finely reticulate-punctate and also transversely striate. Petiole finely and closely punctured. Abdomen finely coriaceous. Femora and tibiae finely and closely punctured, slightly shining. Head, mandibles, thorax and petiole densely clothed with a short, suberect, yellowish brown pilosity, the hairs slightly curved. The abdomen has a fine but very dense decumbent pubescence, intermixed with some longer pilose hairs. Legs and antennae with a very fine and dense pubescence, the pilosity on the legs less abundant and less coarse than in the ♀, not forming dense tufts at the apices of the joints. Head subtriangular, the width between the eyes two and a half times as long as the distance from the anterior margin of the eye to the posterior border of the head. Clypeus produced in the middle, very prominent and convex, rounded in front, with a transverse impression behind. Mandibles convex lengthwise, quadridentate, the apical tooth very large and acute. Antennae 13-jointed; the scape short, one quarter longer than wide; the 1st joint of the filiform flagellum very small, hardly more than one-quarter the length of the scape; all the remaining joints much longer than wide, the 3rd-11th joints widest in the middle. Eyes very convex, occupying more than half the sides of the head; ocelli slightly raised. Thorax similar to that of the ♀, but not so massive; the mesonotum less gibbous anteriorly; the brow of the epinotum rounded. The 1st node is flatter than in the ♀, the posterior-

dorsal face less raised and more rounded ; the 2nd node is almost half as wide again as the 1st, flatter than in the ♀, its posterior-dorsal margin strongly convex. Abdomen subovate, narrowing towards the apex. Wings as in the ♀.

S. Rhodesia ; Natal ; common over the greater part of the Ethiopian region. (S.A.M., R.M., G.A. colls.)

The ♂♂ and ♀♀ of this species are occasionally very plentiful after rains, but the minute ♂♂ are rarely seen. The first specimens of the latter were found, together with the ♀, by Haviland in Natal, in the nest of a termite. Some specimens in my collection were taken by Mr. Zealley at Hartley, S. Rhodesia, and were issuing from holes in the ground with the winged sexes, far removed from any termite mound. Others were taken by myself under similar conditions at the Victoria Falls. Since on the latter occasion different ♀♀, with the coloration of the abdomen varying from red to dark brown, were emerging from the same hole, it would seem that the distinction of the race *abdominalis*, Santschi (Bull. Soc. Ent. France, p. 285, 1912), based only on the colour of the abdomen, can no longer be maintained.

It is probable that the dense tufts of hairs on the tarsi of the ♀ serve an important purpose—that of enabling some of the minute ♂♂ to attach themselves to the body of the ♀ when the latter is about to leave the parental nest. Several specimens of the ♀ have been taken by me with one or more ♂♂ biting on to the tarsal fimbriae. I am inclined to suspect that the young queen cannot start a new nest without the help of one or more of the ♂♂ from the old nest, on account of the size of her mouth-parts, which would probably be too large and clumsy to tend the tiny larvae of her first brood, and that it is therefore essential that she should have with her some ♂♂ which are able to feed the larvae by conveying to them the nourishment taken from the mouth of the queen.

Race JUNODI, Forel.

Ann. Soc. Ent. Belg., vol. 48, p. 154, ♀, 1904. Rev. Zool. Afric., vol. 2, p. 336, ♂, 1913.

“♂. 1.7–1.9 mm. Differs from *vidua* s. str. by having the esopinotal suture distinctly constricted and by the mandibles, which have three distinct teeth in front and a small, obtuse, and indistinct tooth behind. The size is also somewhat greater. Otherwise identical with *vidua*.”

“♀. 23 mm. Very similar to *vidua* type, but the thorax and abdomen narrower and more elongated in proportion. The head is

more triangular, wider behind and narrower in front. Frontal sulcus much deeper. The clypeus, which is more strongly and abruptly truncate in front, has its upper surface strongly truncate and widely emarginate, which is not the case in *vidua*. The frontal carinae short, wide, and forming a marked lateral ridge, which is much more divergent than in the type, where it is hardly apparent. The dorsum of the epinotum is almost obsolete in the middle. The posterior metatarsi very little shorter than the tibiae (much shorter in the type). Puncturation stronger, the punctures closer together and larger than in *vidua*, especially on the thorax and abdomen. The mesonotum has some diffuse but distinct rugae between the punctures. Pilosity and pubescence a little less abundant than in the type. Dull rusty red, slightly brownish. Abdomen, petiole, metanotum, three longitudinal bands on the mesonotum and some vague spots on the sides of the thorax and epinotum, dark brown. Deälated."

Shiluvane. (H. Junod.)

C. ARNOLDI, Forel.

(*Oligomyrmex*) Ann. Soc. Ent. Belg., vol. 57, p. 123, ♀, 1913.

Santschi, Boll. Lab. Zool. Scu. Agric. Portici, vol. 8, p. 363, 1914.

♀. 1.7-1.9 mm. Pale ochreous yellow; the teeth of the mandibles brownish. Smooth and shining. Head and anterior half of the promesonotum finely and sparsely punctured, the punctures regularly spaced and distinct. Pubescence yellowish and long; not very dense on the head and thorax; more abundant and much longer on the abdomen. Mandibles with three distinct and acute teeth, and sometimes with a trace of a fourth tooth posteriorly. The dorsal profile of the thorax slopes in a continuous and slightly convex line, broken only at the meso-epinotal suture, from front to back. This, and the slightly longer pubescence and pilosity, are the only differences which I am able to see between this species and the ♀♀ of *vidua*, (from Hartley S. R.), described in the preceding pages. Since the latter were taken with the ♀♀ and ♂♂, which are typical *vidua*, Smith, I believe that there can be no doubt as to the correctness of the identification. In those specimens the dorsal profile of the thorax is inclined backwards as far as the meso-epinotal suture, beyond which it rises along the dorsum of the epinotum, the latter shorter than the declivity. On the other hand, the ♀♀ from the Victoria Falls, also taken with typical ♀♀ and ♂♂ of *vidua*, have the declivity as long as, or a little longer than, the dorsum, therein agreeing with Santschi's description of *vidua*. The dentition on which that author bases the

differences between *vidua*, *junodi*, *arnoldi*, and *silvestri* is too variable, even in examples taken from the same nest, to be considered reliable. I am therefore inclined to believe that *arnoldi* is only a variety of *vidua*; but in the absence of the ♀ ♀ and ♂ ♂ of the former, the question cannot be definitely decided.

Bulawayo. Found under the soil in small numbers on a single occasion. (S.A.M., R.M., G.A. colls.)

GENUS ANELEUS, Emery.

Term. Füzetek, vol. 23, 1900. (Pheidologeton, Mayr, pars.)

Characters.*

♂. Antennae 11-jointed. Head very large, elongate, longer than wide, more or less abruptly truncate behind. Mandibles triangular, with 5 or more distinct but blunt teeth. Eyes very small or absent.

♀. Antennae 11-jointed; the club distinct and composed of the last two joints. Eyes very small. Mandibles elongate triangular, with 5 or more acute teeth. Clypeus usually more or less distinctly bicarinate. Pro-mesonotal suture absent; meso-epinotal suture distinct. Epinotum bidentate or unarmed. Tibiae and femora more or less swollen in the apical half.

A. PERPUSILLUM, Emery.

(*Pheidologeton*) Ann. Soc. Ent. France, vol. 63, p. 26, ♂, ♀, 1895.

♂. 2-2.5 mm. Reddish yellow, head rufous, shining, very smooth, with sparse piligerous punctures; meso- and metapleura closely punctured and dull. Head elongate, sub-parallel, widely emarginate behind, and with a transverse crest or thin carina, interrupted in the middle, in front of the occipital margin. Cheeks and front of the head striate; frontal carinae short. Clypeus flat or nearly so; widely emarginate in front. Eyes very small. Mandibles sparsely punctured, shining, striate at the base outwardly, quinque-dentate. Antennae short, the scape hardly exceeding half the length of the head. Thorax with the meso-epinotal suture deeply impressed, the pro-mesonotal suture obsolete, pro-mesonotal disc convex, scutiform, obtusely marginate in front, narrow behind. Epinotum armed with an acute tooth on each side. First node of petiole small, squami-

* These characters are based on the species described below and *politus*, *diabolus* and *silvestrii* Santschi. I have not been able to see a copy of Emery's paper. *Pheidologeton hostilis*, Smith, is unknown to me, but owing to its 12-jointed antennae cannot belong to this genus.

form; the 2nd node larger, transversely ovate, subangulate on each side."

“♂. 1.5 mm. Reddish yellow. Head elongate, the sides moderately convex, the occipital margin concave and sharp. Pro-mesonotum marginate in front, the anterior angles acute. Epinotum armed with a triangular tooth on each side. Petiole narrow; 2nd node hardly wider than the 1st; the 1st abdominal segment truncate in front. Sculpture as in the ♀.”

Pretoria, Kimberley. (Simon.)

Race ARNOLDI, Forel. (Plate VI, figs. 81, 81a.)

Bull. Soc. Vaud. Sc. Nat., vol. 50, p. 242, ♀, 1914.

♂ (hitherto undescribed). 2.8–3.1 mm. Head parallel-sided, varying from one-seventh to one-fourth wider than long. Eyes entirely absent, or composed of four or five ill-defined facets. Mandibles not striate at the base. Otherwise exactly like the type.

♀. 1.1–1.4 mm. Epinotum, excepting the declivity, and sides of the mesonotum reticulate and somewhat dull, the rest of the body entirely smooth and shining. Erect pilosity very scanty, absent from the legs and antennae, which have a feeble pubescence, wanting elsewhere. Eyes composed of a single facet. First joint of flagellum a little more than twice as long as wide, about as long as the five succeeding joints taken together; 2nd–8th joints much wider than long; the club not quite twice as long as the rest of the flagellum. Mandibles quadridentate, smooth and shining, very sparsely and very feebly punctured. The anterior angles of the pro-mesonotum sharply defined, subdentate. Declivity of epinotum concave from above to below, smooth and shining; very distinctly margined at the sides, the margin continued up to the epinotal teeth, and slightly beyond them along the sides of the dorsum; the dorsum longer than the declivity, and one-third longer than wide.

“Median area of clypeus subtruncate in front, which is not the case in the type, . . . ; peduncle of the 1st joint of petiole short, shorter than in the type” (Forel).

Two out of the three ♂♂ which I have before me were taken on the same occasion. Both lack eyes. In one the head is one-fifth longer than wide; in the other one-quarter longer than wide. The remaining ♂ has the head a little less than one-seventh longer than wide; but the eyes are distinct, though small. The ♀♀ of the two series do not differ in the least, so that there is no reason to suppose that the ♂♂ do not all belong to the same species.

Bulawayo. Two ♀♀ and about three dozen ♂♂ were taken in a rotten beech-nut in the ground. On another occasion one ♀ and half a dozen ♂♂ were found in a decaying grain of maize. Also taken running under a stone. I have also received specimens from Durban (Marley and Cooper), which do not differ from this race except in the carinae on the clypeus being a little more distinct and a little closer together posteriorly.

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

GENUS AEROMYRMA, Forel.

Grandidier's Hist. Madagascar, 20, p. 198, 1891.

Characters

Strongly dimorphic.

♀. Antennae 10-jointed; club 2-jointed. Head much longer than wide; sometimes with a small tooth on each side above. Mandibles with about 6 teeth. Eyes small; composed of a single facet. Thoracic sutures distinct. Epinotum dentate or unarmed. Abdomen long, longer than the rest of the body.

♂. Head not much longer than wide. Abdomen of the usual shape; not longer than the rest of the body. Otherwise like the ♀. This genus contains three species, one of which is found in Madagascar.

A. AFRICANA, Forel.

Schultze's Reise Südafrika, vol. 4, p. 15, ♀, 1910.

"♀. 2.7-2.9 mm. Mandibles smooth and shining, with about 6 teeth. Clypeus very short, arched, without emargination, not truncate, with only a small impression in front in the middle, hardly produced backwards between the frontal carinae. Frontal area triangular; frontal carinae very short, hardly divergent, not far apart, without lobes. Head large, rectangular, quite one-quarter longer than wide, the sides hardly convex in front and behind, with a small tooth or horn at about the outer fourth of the width of the head, like that of *Oligomyrma corniger*, Forel, but somewhat smaller. The margin of the head behind, between the two teeth, is concave. The exceedingly small eye is composed of a single facet, and is placed within the anterior third of the head. The scape of the 10-jointed antenna hardly extends beyond the middle of the head. Last joint of flagellum quite three times as long as the preceding joint. The pronotum is strongly convex, and steep in front. . . . Thorax with both sutures distinct, but not in the least constricted, short and wide. Epinotum

without a trace of teeth, only excavated lengthwise, with two elongate and obtuse swellings. Both nodes rounded, wider than long, the 1st pedunculate, the 2nd nearly twice as wide as the 1st, which is narrow. Abdomen very long, longer than the rest of the body, with a honey-yellow translucency. Legs short. Head glossy, finely reticulate. The rest of the body smooth, shining and with piligerous punctures. Erect hairs very fine, pointed, short and scanty, absent from the legs. Pubescence oblique, somewhat woolly, more abundant than the pilosity and present all over, without, however, being at all dense. Dirty yellow; head yellowish red; abdomen pale translucent yellow; legs and antennae yellow."

Kooa-Sekgoma, Kalahari. (L. Schultze.)

A. TRAEGAORDHI, Santschi.

Göteborgs K. Vetensk. och Vitterh. Handl., xv, 2, p. 20, ♀, 1914.

"♀ minor. 1.5 mm. Yellow, slightly reddish. Mandibles, clypeus, antennae, tarsi and abdomen yellow. Smooth and shining. Epinotum, posterior half of mesonotum and the 1st node reticulate, punctate and nearly dull. The smooth areas with a fine and sparse piligerous puncturation. Pubescence fairly exerted and distributed all over the body and the limbs. A few rare erect pilose hairs. Head longer than wide, the sides moderately convex, the hind margin feebly concave. Eyes composed of a single facet, placed a little in front of the middle of the sides. Mandibles with five teeth. Pronotum marginate in front. Meso-epinotal suture deep. Dorsum of epinotum a little convex, wider than long, hardly marginate. The declivity longer, marginate. The junction of the two planes of the epinotum angular, with a very small tubercle, often indistinct, and not dentate as in *nosidambo*, Forel. First node short, thick at the summit, as high as the length of the joint, with a very small tooth below in front. Second joint globose, wider than the 1st."

Balgowan and Stamford Hill, Natal. (Traegaordh.)

TRIBE LEPTOTHORACINI, Emery.

GENUS LEPTOTHORAX, Mayr.

Verh. Zool. Bot. Ver. Wien, vol. 5, p. 431, 1855.

Characters.

♀. Antennae 11 or 12-jointed (12-jointed in our three species), with a distinct club formed of the three apical joints. Mandibles with four or five teeth. Clypeus fairly large. Epinotum armed with

a pair of teeth or spines. First joint of petiole with a short peduncle, the ventral lamella sometimes bearing a small tooth. Hairs usually clavate.

♀. Not much larger than the ♂. Wings with one cubital and one discoidal cell. Otherwise like the ♂, except for the usual sexual differences.

♂. Antennae 12 or 13-jointed. Mandibles narrow, the masticatory margin truncate. Clypeus arched, convex. Mayrian furrows present. Petiole and wings as in the ♀; abdomen narrower.

The species of this genus are rather timid and slow ants, forming small communities in hollow stems or under bark. Certain species of the genus in N. America and Europe house in their nests other parasitic ants which are closely allied generically to themselves (*Harpagoxenus*, etc.). These have ergatoid queens, whose progeny is reared by the workers of the host.

Key to the ♂ ♀ of Leptothorax.

- (4). 1. Shoulders of the pronotum sharply angulated; dorsal profile of thorax straight and horizontal, or nearly so.
 (3). 2. 1st node of petiole a little wider than long, convex above; 2nd node twice as wide as long. *latinodis*, Mayr.
 (2). 3. 1st node of petiole as wide as long, flat above; 2nd node of petiole one and a half times as wide as long. *angulatus*, Mayr.
 (1). 4. Shoulders of the pronotum not sharply angulated; thorax depressed in front of the epinotum, not straight in profile. *denticulatus*, Mayr.

L. ANGULATUS, Mayr. (Plate V, figs. 56, 56a.)

Verh. Zool. Bot. Ges. Wien, vol. 12, p. 739, ♂, 1862.

♀. 3.2 mm. Reddish ochreous, club of antennae and lateral dorsal margins of the thorax and petiole brownish. Head reticulate-rugose, coarsely so at the sides in front of the eyes, the space between the rugosities finely reticulate, and some of the rugae emphasised longitudinally. Upper surface of thorax and of both joints of the petiole strongly reticulate-rugose; sides of meso- and metathorax finely reticulate. Abdomen and legs microscopically rugulose, smooth and shining. Legs and antennae with a very short and fine pubescence, absent from the rest of the body, which has a sparse pilosity consisting of short, thick, erect and clavate hairs. Head, excluding the mandibles, a little longer than wide, a little wider behind than in front, the sides feebly convex, the posterior angles very sharp, the posterior margin straight. Clypeus raised in the middle and prolonged back between the frontal carinae, with a well-defined median carina and a finer lateral carina on each side. Frontal area indistinct. The frontal carinae are rather wide apart, divergent posteriorly.

Mandibles finely striate, armed with five teeth, the apical tooth acute. The scape extends back as far as the occipital margin; 1st joint of flagellum nearly as long as the 2nd-4th taken together; 2nd-8th joints wider than long. Eyes not large, situated a little in front of the middle of the sides. Thoracic sutures obsolete. Thorax widest anteriorly, the shoulders sharply defined, subangular. The epinotum is armed with a tooth on each side, which is directed upwards and slightly outwards, and is not longer than it is broad at the base; the declivity is almost vertical. The dorsum of the thorax is widened and subdentate at the lateral margins, above the posterior stigmatic orifices. The 1st joint of the petiole has a short peduncle; the node is as wide as long, moderately convex above, and, seen from above, more or less hexagonal in outline; the anterior face of the node slopes forwards; the ventral lamella at the base has a small downwardly directed spine. The 2nd joint of the petiole is subquadrangular, one and a half times wider than long, nearly one and a half times as wide as the 1st. Abdomen oval. All the femora swollen in the middle; middle and hind tibiae without calcaria.

Khâmi R. and Matopo Hills, S. Rhodesia.

I have met with this species only on the trunks of trees, previously mentioned as being the habitat of *Monomorium arnoldi*. (S.A.M., R.M., G.A. colls.)

L. LATINODIS, Mayr.

Ann. K.K.N.H. Mus. Wien, vol. 10, p. 130, ♀, 1895.

“♀. 3.2 mm. Reddish yellow, last joint of flagellum brownish, mandibles pale yellow with dark brown teeth. The clavate hairs are moderately sparse; the fine pubescence of the abdomen very sparse. Mandibles longitudinally striate, quadridentate. Head rectangular, longer than wide, with rounded corners, narrower in front than behind; longitudinally striate; the middle of the vertex less coarsely striate and somewhat coriaceous and feebly shining; the outer thirds of the head more reticulate-rugose, and round the eyes clearly punctulate. The disc of the clypeus is flattened (more so than in *angulatus*), and has a median carina and two lateral carinae, which separate it from the lateral portions of the clypeus; the median carina is not continued back on to the posterior portion of the clypeus, which lies at a different level to the rest of the clypeus. . . . The scape does not extend back as far as the posterior margin of the head; the 2nd-8th joints of the flagellum wider than long; and the joints which form the club, especially the last two, are only feebly constricted off from each

other. The eyes are placed a little in front of the middle of the sides. The thorax is moderately finely reticulate, finely reticulate-punctate in the interspaces, and shows no constrictions or sutures above. The pronotal angles are produced into distinct triangular teeth (in *angulatus* less pronounced and much smaller); the pronotum is wider than the rest of the thorax, but a little narrower than the head. . . . The epinotum has two short small spines, which are only a little longer than their basal width. The sculpture of the petiole similar to that of the thorax; the 1st joint shortly pedunculate, the node a little wider than long, and, seen in profile, moderately convex above lengthwise; the 2nd node is quite twice as wide as long (in *angulatus* hardly one and a half times as wide as long), and wider than the 1st. Abdomen shining and very finely rugulose. The legs and antennae without erect hairs. The femora are swollen, much the same as in *angulatus*. Like other species of the genus, the middle and hind tibiae are without calcaria."

Delagoa Bay. (Dr. Brauns.)

L. DENTICULATUS, Mayr.

Ann. K.K.N.H. Mus. Wien, vol. 16, p. 5, ♀, 1901.

"♀. 3-3.1 mm. Yellow or reddish yellow, the legs a little paler, the teeth of the mandibles brown. The upper surface of the body is clothed with short and very feebly clavate hairs; the fine, decumbent, and very short pubescence is very scanty, especially on the abdomen; the outer margins of the tibiae with decumbent hairs. Mandibles 5-dentate, longitudinally striate, and sparsely punctured. The head is fairly rectangular, a little longer than wide, with round corners, narrower in front than behind. It is rather coarsely and longitudinally rugose, partly coarsely reticulate, between the rugae finely reticulate-punctate; the vertex and occiput with fairly straight longitudinal striae. Clypeus rugose, distinctly produced in front, the anterior margin arcuate, fairly flat and tricarinate, the median carina becoming indistinct behind, the lateral carinae less pronounced than the median, and not reaching the anterior margin. The clypeus is wider posteriorly than in either *angulatus* or *latinodis*. The scape of the 12-jointed antenna does not extend back as far as the hind margin of the head; the 2nd-8th joints of the flagellum about twice as wide as long, the joints of the club fairly clearly separated, the first being about as wide as long. The sides of the head show faint traces of an antennal scrobe. The eyes lie a little in front of the middle of the sides. Thorax rather coarsely and longitudinally striate, partly longitudinally rugose, finely reticulate-punctate between the rugae, widest

anteriorly, rounded at the sides of the pronotum. The margin of the thorax between its sides and upper surface is bisinuate, shallowly so at the pro-mesonotal suture, more deeply at the meso-epinotal, the latter being distinctly impressed; the dorsum of the epinotum is feebly convex, a little longer than wide, with two blunt spines behind, which are about half as long as the dorsum, and directed backwards, outwards and upwards. The 1st joint of the petiole has a short peduncle, and is closely reticulate-punctate and also coarsely rugose; its node has a quadrangular dorsal surface, which is feebly convex transversely and lengthwise, and distinctly wider than long, the anterior corners strongly rounded. The dorsal surface is delimited from the anterior face by a nearly rectangular margin; the anterior face is vertical above, sloping forwards below; the posterior face of the node is very short and vertical, and merges gradually into the upper surface. On each side of the node, a little below the hind angles, there is a small pointed tooth with a hair or bristle at its apex, and there are one or two similar but smaller projections in front of these on the dorsal lateral margins of the node. The 2nd node of the petiole is about one and a half times as wide as long, somewhat wider than the 1st, and has traces of two small teeth or tubercles like those of the 1st node on each of its rounded sides. The abdomen is shining, very shallowly rugulose, and with some scattered piligerous punctures, almost smooth.

♀. 3.5 mm. Reddish yellow; mesonotum and scutellum brownish; the abdomen, excepting the front half of the 1st segment, light brown. Pubescence and sculpture as in the ♂. The mandibles more coarsely and more abundantly punctured; mesonotum and scutellum longitudinally rugoso-striate, finely reticulate-punctate between the striae; the declivity of the epinotum only reticulate-punctate. Head as in the ♂. The epinotal teeth triangular and blunt, which are not, or only slightly, longer than wide at the base. Petiole and abdomen as in the ♂. One dealated ♀. In hollow stems."

Port Elizabeth. (Dr. Brauns.)

TRIBE MYRMICARIINI, Forel.

GENUS MYRMICARIA, Saunders.

Trans. Ent. Soc. London, iii, p. 57, 1841.

Characters.

♀. Antennae 7-jointed, the scape cylindrical; all the joints of the flagellum, except the 1st, much longer than wide; no distinct club.

Clypeus broad, convex in the middle. Frontal area not clearly defined posteriorly. Frontal carinae wide apart, fairly short. Eyes prominent and convex. Pro-mesonotal suture feeble or obsolete; meso-epinotal suture deep; the thorax more or less constricted or excised laterally at the suture. Ventral anterior angles of the pronotum produced into distinct spines or teeth. Scutellar portion of mesonotum with an elongate tubercle or carina on each side. The epinotum armed with two long and acute spines; sometimes also with the base expanded or lobate on each side. First joint of petiole with a long peduncle, distinctly delimited from the node. Both nodes usually more or less conical, the 1st often compressed laterally at the summit. Abdomen subglobose; somewhat truncate at the base. Legs long and slender.

♀. Antennae 7-jointed. Ocelli small. Thorax very gibbous and convex in front. Pronotum very slightly exposed above at the sides only. The level of the dorsum of the mesonotum and scutellum much higher than that of the epinotum. Mesonotum and epinotum simple, without lateral carinae or lobes. The dorsum of the epinotum short, much shorter than the declivity; epinotal spines much shorter and broader than in the ♂. Petiole as in the ♂. Abdomen subovate, longer than wide, truncate at the base. Wings with 1 cubital and 1 discoidal cell; radial cell open.

♂. Antennae 13-jointed, filiform. The scape short, usually about as long as the 2nd joint of the flagellum; 1st joint very short, all the remaining joints much longer than wide. Head transverse. Eyes large. Ocelli fairly large, slightly raised. Frontal carinae moderately distinct and short. Clypeus convex. Mandibles small and edentate. Dorsum of epinotum bituberculate at the apex. Petiole very long, the 1st joint with the peduncle shorter and broader than in the ♀, both nodes flatter and elongate, not conical. Abdomen broad, cordate, hardly longer than wide, convex above, concave below. Legs long and slender. Wings as in the ♀.

Distribution: Ethiopian and Indo-Malayan regions.

Key to the ♂ ♀ of Myrmicaria.

- (8). 1. Larger species, 5 mm. or more; sculpture coarse, head striated all over.
- (3). 2. Head distinctly emarginate behind. *Baumi*, Forel.
- (2). 3. Head straight or convex behind.
- (7). 4. Tibiae and scapes longitudinally striate; larger species, 6.5 mm. or more.
- (6). 5. Sculpture strong; head reticulate (with transverse as well as longitudinal striae); 1st node as high as the 2nd, pointed above, conical.
eumenoides, Gerst.

- (5). 6. Sculpture less strong; head with only longitudinal striae; 1st node higher than the 2nd, not conical, slightly flattened above.
striata, Stitz.
- (4). 7. Tibiae and scapes smooth; smaller species, less than 6 mm.
nigra, Mayr.
- (1). 8. Smaller species, less than 5 mm.; sculpture feebler and much more sparse; head striated only on the cheeks.
- (10). 9. Dark black, pilosity also black; scape extending beyond the occipital margin by almost one-third of its length; mesonotum with high posterior lateral carinae.
nigerrima, Arnold.
- (9). 10. Brownish, pilosity yellowish; scape extending beyond the occipital margin by one-quarter to one-fifth of its length; mesonotum with feeble and low lateral carinae behind.
laevior, Forel.

M. EUMENOIDES, Gerstaecker. (Plate VII, figs. 87, 87a, 88, 89a, b.)
(Heptacondylus), Monatsb. Ak. Wiss. Berlin, p. 263, ♀, 1858.
(H. sulcatus), Mayr, Verh. Zool. Bot. Ges. Wien, vol. 12, p. 756,
♂, 1862.

♂. 6.5-7.7 mm. Head, thorax and petiole dark red, somewhat brownish red, the nodes a little darker. Abdomen, legs and antennae dark brown, the base of the abdomen a little paler. Shining, especially the dorsum of the epinotum; the basal fourth of the 1st abdominal segment very finely and closely punctured and subopaque. Head, pro-mesonotum and dorsum of epinotum with a few strong, more or less longitudinal rugae, connected by transverse anastomoses (almost reticulate round the eyes). Sides of thorax faintly and longitudinally striate; the spaces between all the striae or rugae smooth and shining. Nodes of petiole with a few feeble striae. The abdomen smooth and shining. Femora very shallowly and sparsely punctured. Scapes and tibiae longitudinally striate on the upper surface. Mandibles closely and longitudinally striate. Whole body, including legs and antennae, with a strong but rather sparse pilosity, consisting of stout, more or less erect, blackish hairs. The flagellum has in addition a sparse, decumbent pubescence, which is absent elsewhere.

Head subcircular, a little wider behind than in front, about as long as wide, the posterior margin straight, the angles rounded. Clypeus broad, the anterior margin convex. The median area has about 7 or 8 longitudinal raised lines (hardly carinae); the posterior margin, between the frontal carinae, broad; frontal area indistinctly defined. Frontal carinae parallel, widened and sublobate in front, extending back nearly to the level of the anterior margin of the eyes. The latter convex and prominent, placed behind the middle of the sides of the head. Mandibles with 5 teeth, the two anterior ones large and acute.

Scape of antenna fairly long, extending back well beyond the occipital margin; all the joints of the flagellum much longer than wide, the 2nd and apical joints longest. Pro-mesonotal suture faintly indicated. Pronotum with strong transverse and oblique rugae, those on the margins of the dorsum very distinct; the ventral anterior angles produced into strong teeth. The mesonotum is raised posteriorly, and has a very steep posterior face, the sides of which are sharply margined and slightly expanded, or ear-shaped. The dorsum of the epinotum is distinctly margined (the rugae which form the margins being continued along the outer sides of the spines), and is sublobate on each side at the base, narrowed towards the apex. The spines are acute, as long as the dorsum, slightly divergent apically, directed slightly upwards. The declivity of the epinotum is very steep; as long as, or a little longer than, the dorsum; distinctly margined laterally, the margins being continued along the lower sides of the spines. Peduncle of the 1st joint of the petiole flattened, one-quarter longer than the node; the latter more or less conical, as long as wide, somewhat compressed laterally at the summit, the anterior face vertical and feebly convex from above to below, the posterior face longer than the anterior, and sloping downwards. The 2nd node about one-quarter longer than wide; widest at its posterior third. Seen from above, the outline is subovate; seen from the side, the anterior face is convex, and slopes in a sharp curve forwards; the posterior face is shorter than the anterior, and vertical. The base of the abdomen straight, with prominent but rounded lateral angles. The 1st segment is about as wide as long, and much wider and longer than the remaining segments taken together, which are hardly visible from above.

♀. 14 mm. Pilosity and colour as in the ♂, but the colour is a little darker, the sides of the mesonotum behind, and the middle portion in front, dark brown. The hairs on the legs are more oblique than in the ♂. The sculpture is very similar to that of the ♂, but is stronger on the head, the region behind the eyes very coarsely reticulate, the space between the reticulations almost dull. Mesonotum and scutellum strongly and fairly closely longitudinally striate, the pronotum with a few longitudinal and feeble striae. The epinotum is very coarsely and longitudinally rugose on the dorsum, striate on the sides, the median area of the declivity smooth. A narrow median area on the anterior third of the mesonotum is without striae. A broad transverse band on the apical margins of all the abdominal segments subopaque and microscopically rugulose. The dorsum of the mesonotum and scutellum is raised high above the level of the head and epinotum. The mesonotum is very convex in front, lengthwise and

transversely, and as long as wide. The scutellum is nearly one and a half times wider than long, a little more than one-third the length of the mesonotum, and is a little higher than the latter. Dorsum of epinotum very short—much shorter than the declivity, which is vertical. The epinotal spines are shorter and broader than in the ♀, almost triangular, and very little longer than their basal width. A rounded, lobe-like expansion covers the stigmata on each side, and projects beyond the lateral profile of the thorax. Wings dark brown, the nervures and stigma piceous. Otherwise like the ♀.

♂. 13.5 mm. Black, flagellum and tarsi dark brown. Pilosity more abundant, but much finer than in the ♀, the hairs being thinner, especially on the abdomen, where they are also more oblique. Flagellum densely and very finely pubescent. Thorax and upper surface of the nodes with a whitish pubescence; sparse and oblique on the thorax; dense, erect, and longer on the dorsum of the epinotum and anterior face of the 1st node (more easily seen when looked at from the side). Head very coarsely rugoso-striate, transversely so on the posterior half, more or less longitudinally on the anterior half, the space between the rugae shining. Thorax coarsely and longitudinally rugoso-striate, the striae interrupted, stronger on the scutellum and posterior half of the mesonotum. Epinotum very coarsely reticulate-rugose, the declivity with some transverse striae. Thorax rather dull, declivity of epinotum smooth and shining. Nodes of petiole microscopically alutaceous, also longitudinally striate, the 1st node somewhat coarsely so, the 2nd node much more closely and finely striate, its median area smooth. Abdomen, except for a narrow median area on each segment, microscopically alutaceous and dull. Head longer than wide, the posterior margin concave. The eyes large, placed somewhat obliquely, occupying quite half the sides of the head. Ocelli fairly large, slightly raised. Clypeus less convex than in the ♀ or ♂. Mandibles oblong, edentate, obliquely truncate apically. Scape short, hardly longer than the distance between the two posterior ocelli; 1st joint of flagellum as wide as long, about one-third the length of the scape; 2nd joint as long as, or a little longer than, the scape; all the remaining joints at least twice as long as wide. Thorax similar to that of the ♀, but narrower, the mesonotum nearly one-quarter longer than wide. Dorsum of epinotum longer than in the ♀, at the base nearly three times wider than long, shorter than the declivity, bluntly angulate on each side at the apex; the declivity vertical. Petiole very long, as long as the abdomen, and nearly as long as the thorax; the peduncle of the 1st joint is as long as the node, the latter one-third longer than wide, and flattened. Second node oblong, rounded

behind, nearly parallel-sided, or only a trifle wider behind than in front; almost twice as long as high, highest behind. Abdomen cordate, moderately convex above, the ventral surface concave, all the segments much wider than long. Legs long and thin. Wings paler than in the ♀.

S. Rhodesia, widely distributed, but chiefly on granite soil; Durban; German S.W. Africa.

The colonies of this species are usually very large, often comprising 1000 or more ♀♀. The latter bite and sting fiercely, but the sting is rather blunt, and does not easily pierce the human skin. Although their gait is slow, they are nevertheless active insects, travelling over large areas in search of food, which seems to consist chiefly of other insects. They do not appear to be aphidicolous, nor to attend Membracid or Lepidopterous larvae for their secretions, yet they are known to harbour in their nests many myrmecophilous insects. A nest examined by me* contained the following species of beetles: *Allodina myrmecariae*, Brauns; *Ogmocerus raffrayanus*, Brauns; and *Batrissus myrmecariophilus*, Brauns. The Botanical Gardens in Durban are infested with this species, but the examination of a large number of nests revealed only one species of myrmecophile, *Allodina Kohli*, Wasm., which, however, was plentiful, as many as three dozen being taken in one nest. The nest has numerous entrances, and is surrounded by large heaps of excavated material, often covering an area of several square feet.

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

M. BAUMI, Forel.

Mitth. Schweiz. Ent. Ges., vol. 10, p. 307, ♀, 1895.

“♀. 7·7–9·5 mm. Dark red brown; abdomen dark brown; antennae and legs nearly black. Pilosity blackish brown. The pilose hairs on the tibiae are very oblique, partly adpressed. Sculpture as in *eumenoides*, but more densely reticulate-rugose. The clypeus has a median carina. More especially, the head is distinctly emarginate behind, and wider than in *eumenoides*, with the posterior corners somewhat angularly elongated downwards, and with less convex sides. The eyes are a little larger, more convex, and placed further forwards than in *eumenoides*. Mossamedes.”

Also between Severelela and Khakhea, and Kooa, Kalahari. (Schultze.)

* See ‘Proc. Rhod. Sc. Assn.’ vol. xiii, pt. 3, 1914, pp. 25–42.

M. LAEVIOR, Forel.

Ann. Soc. Ent. Belg., vol. 54, p. 445, ♀, 1910.

“♀. 3.9–4.2 mm. Mandibles striate, quadridentate. Head trapezoidal, narrowed in front, at least as wide behind as long, the posterior margin fairly strongly convex. Eyes placed in the posterior third of the head. Clypeus entire, tricarinate, otherwise hardly striate. The scape extends beyond the occipital margin by about one-fifth or one-quarter of its length. The last joint of the antenna is not much thicker than the two preceding. Dorsum of thorax equally convex from front to back; meso-epinotal suture narrow and not deep. The pronotum has lateral teeth below, pointed, and longer than wide; above, it is one and a half times wider than long, slightly narrowed behind and depressed, without lateral margins or ridges. Mesonotum transversely trapezoid, but with the lateral margins feebly raised behind, and ear-shaped; these form the only prominences on the dorsum of the thorax. Dorsum of the epinotum two and a half times longer than wide, continuing the convexity of the upper surface of the thorax, and margined by two even and parallel ridges, but nowhere raised. Spines horizontal, only slightly divergent, slightly longer than the space between them. Declivity of epinotum margined, shorter than the dorsum. First node a little wider than long, wider behind than in front, rounded above, nearly vertically truncate in front and behind, a little shorter than its peduncle. Second node hardly wider than the 1st; wider behind, where it is as wide as long.

“Shining. Cheeks longitudinally striate as far as the margins of the eyes, without reticulations. There are some feeble longitudinal striae on the sides of the frons, and some transverse striae on the pronotum; all the rest of the head and body smooth, without striae or reticulations even on the vertex, occiput, mesonotum, epinotum and nodes, which distinguishes this species from all the others (except *nigerrima*). Erect pilosity fairly fine, long, pointed, yellowish, sparse all over, slightly oblique on the limbs, on which the hairs rise from raised points. Pubescence almost nil. More or less reddish brown; legs brownish yellow.”

Natal. (Haviland.)

M. STRIATA, Stitz. (Plate VII, figs. 90a, b, c.)

Wissen. Ergeb. Z. Afr. Exped., 3, pp. 382–5, 1911.

♂. 6.5–8.2 mm. Reddish brown; the front of the head, the antennae, legs and peduncle of the 1st joint of the petiole lighter.

Very similar to *eumenoides*, and differing from it in the following characters. The pilosity is shorter and more oblique, somewhat scanty. More shining, especially the head, pro-mesonotum, 2nd node of the petiole, and the legs; the tibiae are shining (dull in *eumenoides*). The sculpture is feebler and less close. The head has only longitudinal striae, without any transverse anastomoses or reticulations. The pro-mesonotum has fewer and more continuous longitudinal striae, and is less strongly marginate at the sides and in front. There is no trace of the pro-mesonotal suture on the dorsum (faintly indicated by a depression in *eumenoides*). The pronotum below has far larger lateral teeth, these being plainly visible, and projecting well beyond the lateral outline, when viewed from above. The posterior lateral lobes or carinae of the mesonotum are lower and less divergent outwardly; the lateral margins of the dorsum of epinotum are straighter and less raised. The meso-epinotal suture is not so deep, and the base of the epinotum is narrower. The spines are thinner and relatively longer. The 1st node of the petiole is higher, higher than the 2nd (as high as the 2nd in *eumenoides*), and is somewhat truncate behind (in *eumenoides* the dorsal and posterior outlines form a continuous curve). The peduncle of the 1st joint is also a little shorter, being only as long as the node. The tibiae and scapes are less strongly striated.

♀. 15 mm. Entirely dark brown, almost piceous, except the anterior half of the head, which is reddish brown. It differs from *eumenoides*, to which it bears a close resemblance, in the following characters. The head is less narrowed in front, being almost as wide in front as behind; the posterior angles are less rounded, and the posterior margin is straight, not convex, as in *eumenoides*. The sculpture of the head is not quite so strong, and the space between the reticulations is shining. The sculpture of the mesonotum stronger, and composed of fewer striae. The dorsum of the epinotum, although short, is distinctly delimited from the declivity, and the space between the spines is widely arcuate, not acutely angular, as in *eumenoides* (see Pl. VII, figs. 89a, b; 90a, b). The lobe-like expansions covering the stigmata are also more angular and dilated than in *eumenoides*. The spines are shorter, and hardly divergent. The peduncle of the 1st joint of the petiole is wider posteriorly and shorter. The wings are much paler coloured, being ochreous, not brown as in the other species. The anterior face of the 1st node has a dense yellowish pubescence, fairly long, entirely absent in the ♀ of *eumenoides*.

♂. 13.5 mm. Black. This differs from the ♂ of *eumenoides* in having a much finer sculpture and finer, less dense, but longer pilosity. The pubescence of the thorax is also less noticeable. The dorsum of

the declivity is much longer and more oblique, quite as long as the declivity, or a little longer; the apical angles of the dorsum are also narrower and more dentiform. Otherwise similar.

Bembesi, Plumtree, and Bulawayo, S. Rhodesia. The nest is smaller and less populous than that of *eumenoïdes*. (S.A.M., R.M., G.A. colls.)

M. NIGRA, Mayr. (Plate VII, fig. 91.)

Verh. Zool. Bot. Ges. Wien, vol. 12, p. 755, ♂, 1862.

♂. 5.5 mm. Brownish black; antennae and legs a little lighter. Pilosity long, yellowish, fairly abundant, erect on the head and thorax, slightly oblique on the abdomen and petiole. Shining. Very strongly, but not densely, longitudinally striate on the head, the striae more or less interrupted in the occipital region. Pronotum also strongly striate transversely; mesonotum with about 8 longitudinal striae; epinotum with 3 or 4 transverse striae on the raised basal half of the dorsum, and about 5 or 6 longitudinal ones on the posterior half, which do not reach quite as far as the brow of the declivity. Sides of thorax more or less obliquely striate, the striae finer than on the dorsum. Tibiae and scapes smooth, not striate as in *eumenoïdes* and *striata*. The clypeus has one long median stria or carinula, and two or three shorter lateral striae. Mandibles strongly and longitudinally striate, quadridentate. The scape extends beyond the occipital margin by nearly one-third of its length. Head as long as wide, very little narrower in front than behind, the posterior margin shallowly concave. Eyes convex, fairly prominent, placed just behind the middle of the sides. Pronotum three times wider than long, the teeth below prominent, triangular, about as long as their basal width. Promesonotal suture obsolete, meso-epinotal not deep, much shallower than in *eumenoïdes*. Mesonotum only slightly raised behind, hardly expanded laterally, not auriculate-carinate as in *eumenoïdes*. Dorsum of epinotum horizontal, only feebly lobed at the base, almost twice as long as the nearly vertical declivity, twice as long as it is wide at the base. The spines are almost horizontal, slightly divergent, acute, as long as the declivity. Peduncle of 1st joint of petiole thick, hardly as long as the node; the latter a little longer than wide, flattened above, not conical, the anterior face much shorter than the dorsal surface, and compressed laterally, so as to form a sharp vertical edge; the posterior face very oblique, about half as long as the dorsal. Second node a little higher than the 1st, subconical, the apex behind the middle, the anterior face oblique and twice as long as the vertical

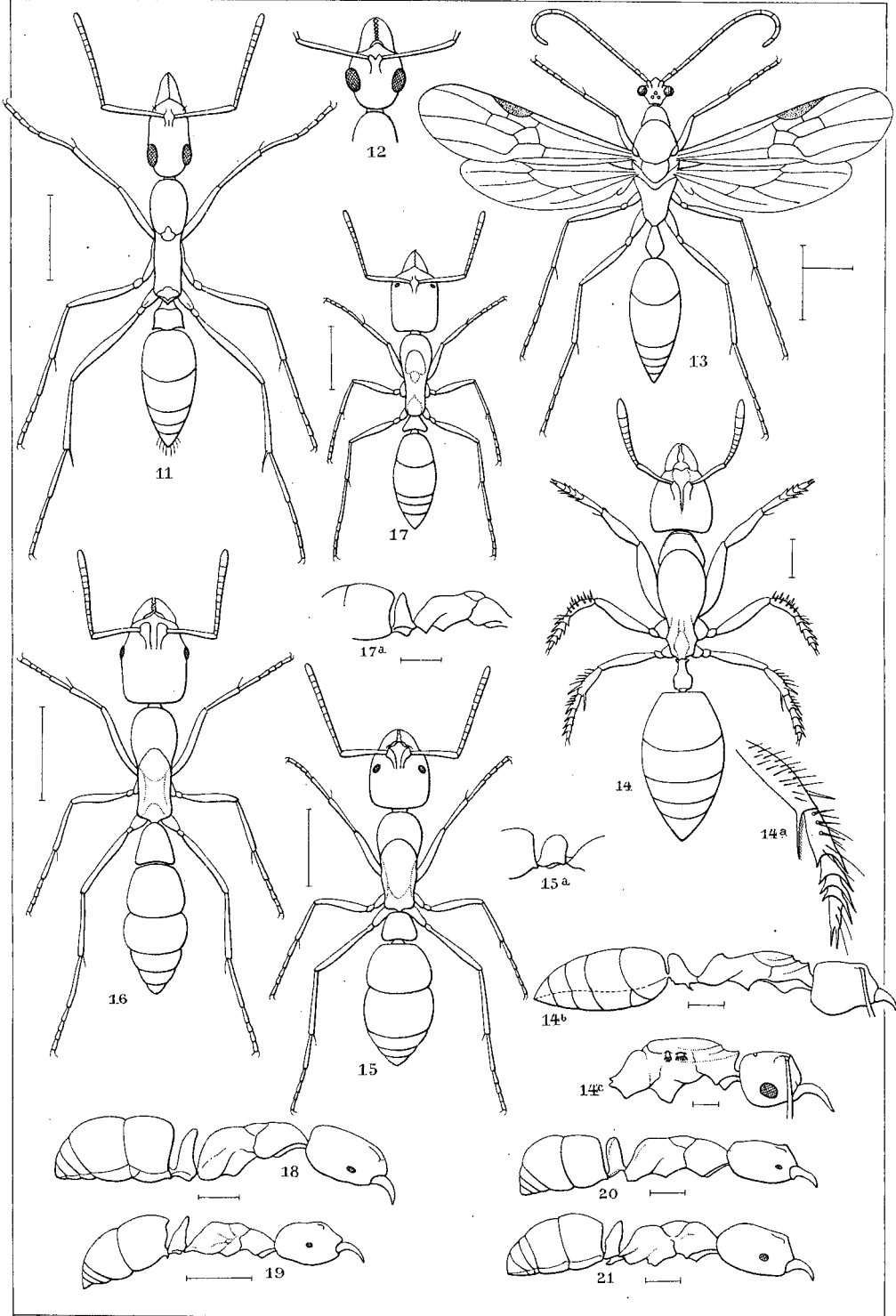
posterior face, barely wider than the 1st node. Base of abdomen hardly truncate, the lateral angles considerably rounded.

♂ (hitherto undescribed). 6.6 mm. Dark brown, the anterior half of the head, the antennae, mandibles and legs paler, more reddish brown. Pilosity finer and more abundant than in the ♀. Flagellum with short, erect, pilose hairs, and also finely pubescent. The rest of the body without pubescence. Shining. Head longitudinally striatogulose, more strongly on the cheeks than elsewhere. Mesonotum and scutellum feebly and longitudinally rugose, strongest on the posterior half of the mesonotum. Epinotum strongly and transversely striate. A few feeble striae on the 1st node, the sides of the thorax finely and longitudinally striate; the rest of the body smooth. Head distinctly wider than long. Eyes very large, occupying two-thirds of the sides of the head. Mandibles edentate, oblong, slightly acuminate at the apex, not touching when closed. Scapes rather long, reaching the occipital margin of the head, one and two-thirds longer than the 2nd joint of the flagellum. Dorsum of epinotum widely expanded above the stigmatic orifices, nearly three-quarters as long as wide at the base, moderately convex transversely and lengthwise, oblique, twice as long as the declivity. Brow of declivity rounded, not bituberculate or bidentate. First joint of petiole nearly twice as long as the 2nd, the node not distinctly delimited. Both nodes considerably flattened, the 2nd a little wider than the 1st. Wings pale ochreous, the nervures and stigma dark ochreous.

Montagu Pass, Cape Prov. (Brauns.) . . . Cape Prov. (ex S.A.M. coll., ♀ and ♂). (S.A.M., R.M., G.A. colls.)

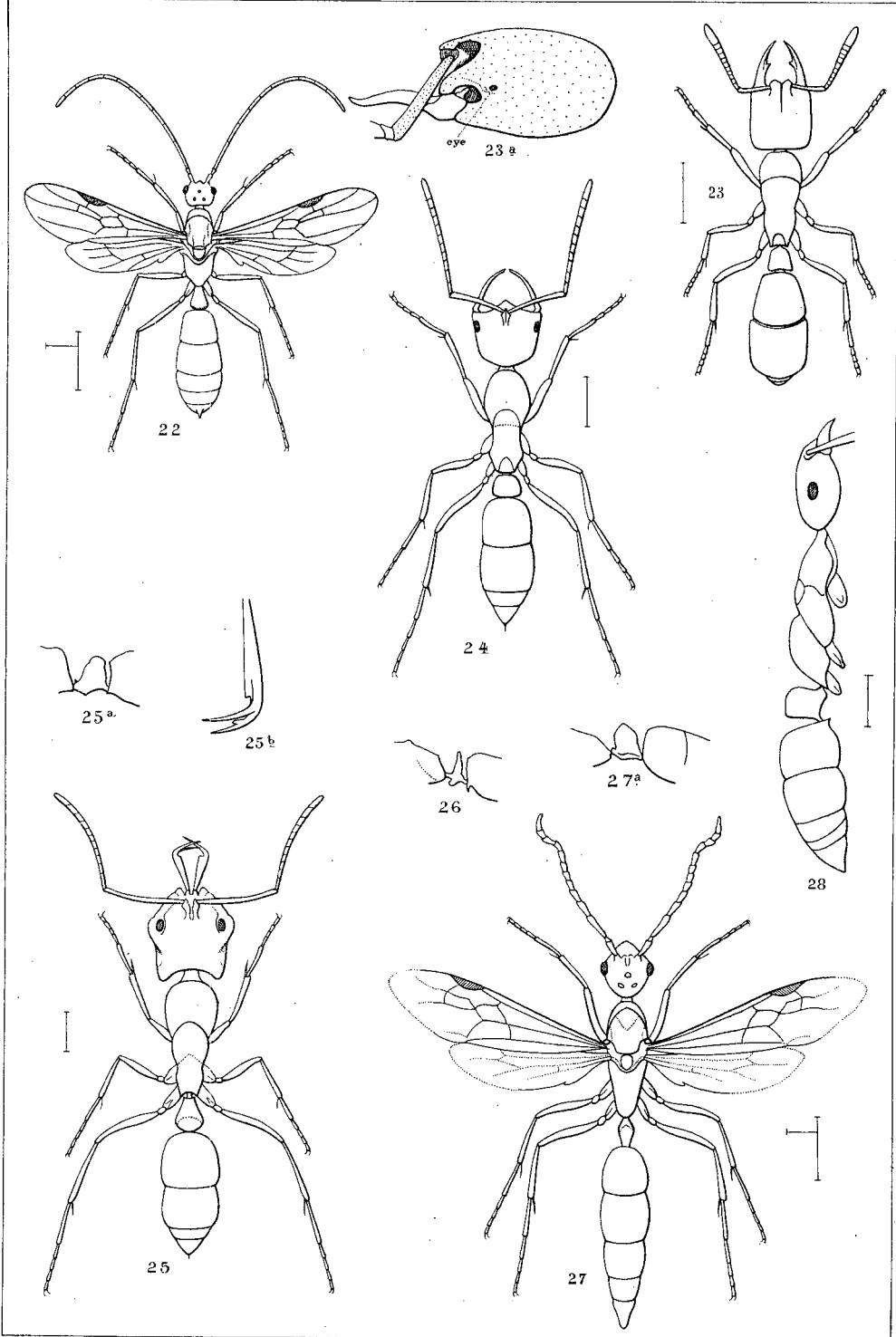
M. NIGERRIMA, n. sp. (Plate VII, fig. 92.)

♀. 4.8 mm. Allied to *laevior*, Forel. Entirely black, except the mandibles, which are slightly brownish black. Pilosity long and black, sparse, erect; slightly oblique on the legs and abdomen. Smooth and shining. Mandibles striate and quadridentate. Scapes striate. The clypeus has three feeble longitudinal striae, which do not reach the convex anterior margin. Cheeks feebly and longitudinally striate in front of the eyes. A median stria extends over the whole of the vertex, head otherwise smooth. Pronotum finely but distinctly margined. It has a median longitudinal stria, which is continued over the mesonotum. The latter has in addition one or two lateral striae. The rest of the body smooth, without striae or punctures. Head rather quadrate, hardly narrower in front than behind, as wide as long, the posterior margin convex. Eyes very convex and prominent, placed a little behind the middle of the sides.



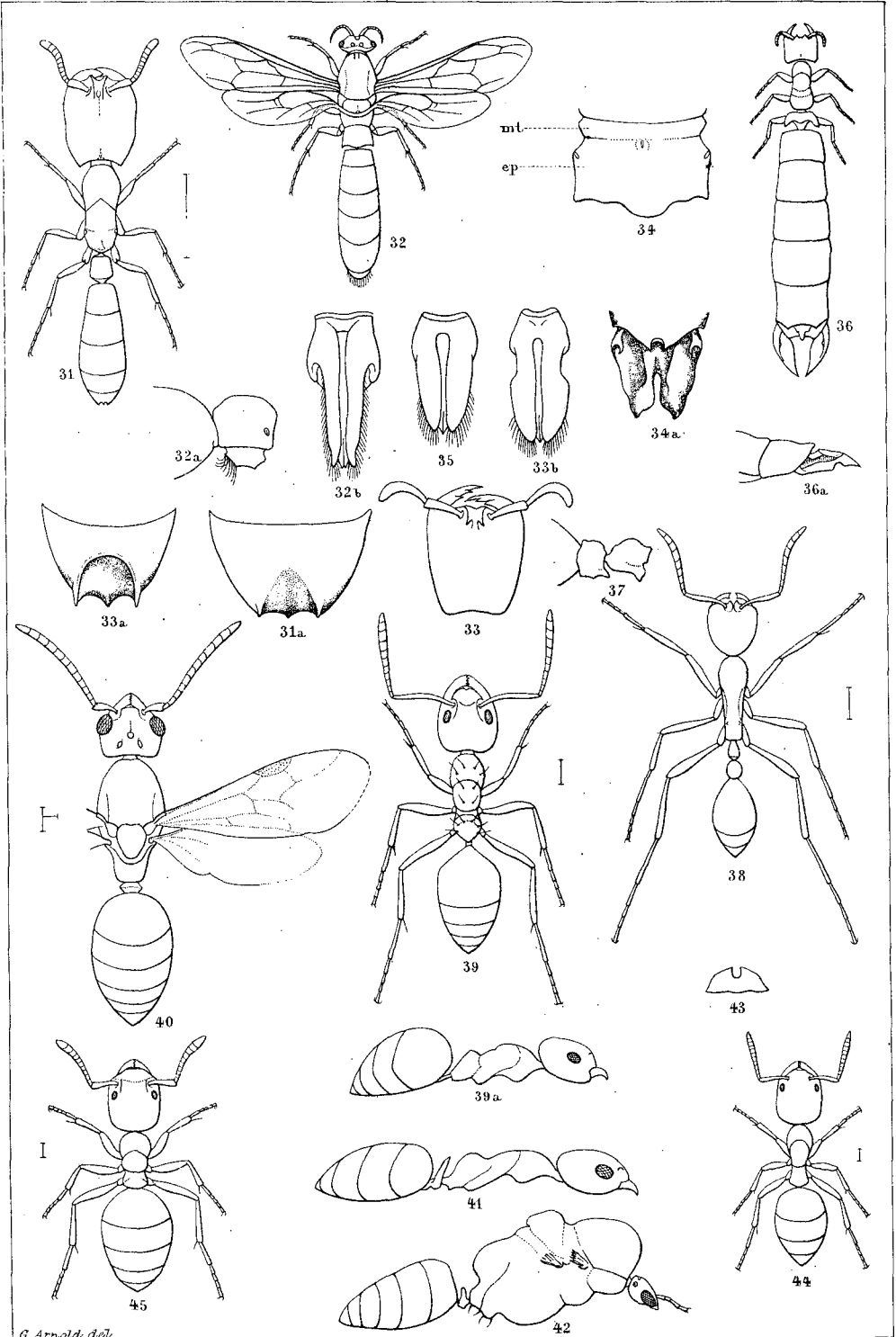
11 *Ophthalmopone Berthoudi* Forel. ♀ × 4.
 12 " *hottentota* Emery. ♀ × 4.
 13 " *Berthoudi* Forel. ♂ × 4.
 14 *Centromyrmex Constanciae* Arnold. ♀ × 9.
 14^a " " ♀ tibia & tarsus hind leg.
 14^b " " ♀ profile.
 14^c " " ♀ profile.
 15 *Pachycondyla laevis* Arnold. ♀ × 4.

15^a *Pachycondyla laevis* Arnold. ♀ node × 4.
 16 " *granosa* Roger. ♀ × 4.
 17 *Euponera caffraria* Smith. ♀ × 4.
 17^a " " ♀ × 5 profile.
 18 " *Wroughtoni* Forel. ♀ × 9.
 19 " *Peringueyi* Emery. ♀ × 4½.
 20 " *fossigera* Mayr. ♀ × 9.
 21 " *sennaarensis* Mayr. ♀ × 9.



22 *Euponera cafraria* Smith. ♂ × 4.
 23 *Plectroctena subterranea* Arnold. ♀ × 6.
 23^a " " head in profile × 16.
 24 *Leptogenys maxillosa* Smith. ♀ × 6.
 25 *Anochetus Levailantei* Emery. ♀ × 9.
 25^a " " node × 9.

25^b *Anochetus Levailantei* mandible × 20.
 26 " *punctaticeps* Mayr ♀ node × 12.
 27 *Leptogenys Arnoldi* Forel ♂ × 6.
 27^a " " node × 9.
 28 " " ♀ × 9.



G. Arnold del.

31 *Dorylus fulvus*, race *badius*, Gerst. ♀ × 4. 31a. × 20.
 32 " " ♂ n.s. 32 a.b. × 3.
 33 " *helvolus*, L. ♀ min. × 9. 32 a. × 20. 32 b. ♂ × 3.
 34 " " ♀ × 6. 34 a. × 3.
 35 " *affinis*, Shuck. ♂ × 3.
 36. 36 a. (*Rhognus*) *fimbriatus*, Shuck. ♀ n.s.
 37 *Aenictus rotundatus*, Mayr. ♀ × 16.

38 *Aenictus Eugeniae*, Emery. ♀ × 9.
 39. 39 a. *Technomyrmex Arnoldinus*, Forel. ♀ × 16.
 40 " *albipes Smithi* race *Foreli* Emery. ♂ × 16.
 41 *Iridomyrmex humilis* Mayr. ♀ × 16. 42. ♂ × 10.
 43 *Tapinoma Voeltzkowi*, Forel. race *rhodesiae*. ♀ × 10.
 44 " *Arnoldi*, Forel. ♀ × 16.
 45 *Semonius Schultzei*, Forel. ♀ × 16.