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AFRICAN FORMICIDAE (HYMENOPTERA) IN THE SOUTH AFRICAN MUSEUM. DESCRIPTION OF FOUR NEW SPECIES AND NOTES ON *TETRAMORIUM* MAYR.

By

[Aug. 1973]

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(With 40 figures)

[MS. accepted 11 October 1972]

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INTRODUCTION

In view of the fact that most of the descriptions of the various types of ants of South Africa are inadequate and the drawings which are available lack any detail of the sculpture and setae, I have decided to illustrate those available to me in museums in South Africa and Rhodesia, and I hope that this will help other myrmecologists who find it almost impossible at the moment to identify the various forms. As no types or paratypes are available of *Tetramorium solidum* Emery *signata* Em. and *T. jauresi* Forel, drawings were made from specimens determined by Arnold for the purpose of clarifying their position in the proposed key.

Among the Tetramoriini, those species that belong to the *solidum* group, which have the epinotal spines as long as wide at their bases, have always been

identified with great difficulty, especially those from the north-western Cape where marginal or transitional forms usually occur. For separation of the different species of these ants the body setae and sculpture of the head and abdomen seem to be very important and for this purpose I have enlarged a small area of the vertex of the head and the middle of the first abdominal segment of each form to illustrate the sculpture and position of the setae. As the abdomen of ants is usually very variable due to shrinkage or swelling, depending on the method of preservation prior to pinning, the length of the insect as a whole is therefore approximate; the length from the apex of the clypeus to the apex of the petiole (or postpetiole) is more accurate, but it should be remembered that with old and fixed specimens this length would vary slightly according to the position in which the ant was fixed to the card.

In the first paragraph of each description the lengths of the various segments and their indices, most of them according to Brown (1949), Taylor (1968) and Sze-Li Hsu (1970), are given as follows (I have also included the cephalothoracic index, that is, the length of the head expressed as a percentage of the length of the truncus or $HL \times 100/WL$):

- ED = Distance between compound eyes
- CL = Clypeal length
- FL = Frontal length
- HFL = Hind femur length
- HL = Head length (from the anterior margin of the clypeus to the posterior border; wherever a comparison is made in this paper, the mandibles are excluded unless otherwise stated)
- L = Length from apex of clypeus to apex of petiole (or postpetiole)
- LO = Length from hind margin of clypeus to middle ocellus.
- MFL = Middle femur length
- OD = Distance between hind ocelli
- PL = Petiolar length (the length of the node only, excluding the peduncles)
- PPL = Postpetiolar length (peduncles excluded)
- SL = Scape length (from its apex to the tip of its basal lobe)
- TL = Total length of insect including the mandibles
- WL = Length of truncus (similar to that of Weber's, marked by arrows in the drawing)
- CI = Cephalic index
- CLI = Cephalothoracic index
- FI = Frontal index
- PI = Petiolar index
- PPI = Postpetiolar index
- SI = Scape index
- TI = Thoracic index

DESCRIPTION

A. *Myrmicinae**Tetramorium solidum* Emery, 1886

(Figs 1-4, 27A, B)

♀ TL 3,68 mm; HL 1,04 mm; WL 1,00 mm; PL 0,28 mm; PPL 0,28 mm; HFL 0,92 mm; MFL 0,80 mm; ED 0,96 mm; SL 0,72 mm; CL 0,24 mm; FL 0,80 mm; L 2,84 mm; CI 107,7; CTI 104; CLI 341,6; FI 120; SI 64,3; TI 66; PI 128,6; PPI 164,3.

Arnold (1917) gives the colour as piceous, but the type specimen before me is rather dark burnt sienna to dark reddish brown; the antennae paler, the mandibles almost dark raw sienna. Fairly dull, the abdomen shining and very finely and superficially reticulate, the sculpture somewhat stronger on the base. Head longitudinally striate, the striae or rugae on the anterior part of the sides rather coarse, finely and superficially reticulate between the rugae. Clypeus with about 8 to 9 coarse longitudinal striae, continuous with those on the front and vertex. Mandibles striate and rather shining, the teeth black. Antennae microscopically and superficially reticulate—rugulose. Truncus very finely reticulate with some longitudinal striae or rugae superimposed dorsally, the sides obliquely striate; the nodes also finely reticulate and rugulose. Legs very superficially and finely reticulate and shining.

Pubescence short and decumbent more abundant on the legs and antennae. *Pilosity* sparse, consisting of a transverse row of curved setae on the anterior margin of the clypeus, a few long hairs on the frontal carinae, vertex and occipital corners of the head, the pro- and mesonotum, nodes and apical segments of the abdomen.

Head almost square, slightly wider than long, nearly two-fifths wider than the pronotum, the sides and hind margin almost straight. *Frontal area* indistinct, *eyes* small, with more than 60 facets, occupying about one-fifth of the length of the head, and situated in the middle of the sides.

Frontal carinae wide apart, extending to about the middle of the head. *Clypeus* almost flat above, the anterior face fairly high, its junction with the dorsum rounded, widely and deeply excised in the middle. Flagellum about three-tenths longer than the scape; the latter not reaching the hind margin by one-fifth of its length. The first joint of the flagellum as long as the second and third taken together; the 2nd to 5th slightly wider than long, the 6th about as long as wide, the rest longer than wide.

Truncus about four-ninths longer than wide over the pronotum and about three-fifths wider in front than behind over the bases of the spines, the thoracic sutures obsolete above, the meso-epinotal suture slightly indicated by a faint transverse ridge. In profile the dorsum forms a slight curve with the epinotum lower than the pronotum, the latter obtusely marginate in front. The *declivity*

of the epinotum almost vertical and transversely rugose, the dorsum nearly flat; the *spines* twice as long as wide at their bases and acute. *First node of petiole* a little more than one-fifth wider than long, seen from above the hind as well as the short front margin is almost straight, the node much narrower in front than behind, almost trapezoidal. In profile it is nearly quadrate, the front and hind faces vertical, the dorsum very slightly convex and about as high as wide behind; the subpetiolar process is present as a small acute tooth at the extreme base and pointing forward. *Second node* about as high as the first, seen from above two-fifths wider than long, the sides convex; in profile nearly one-fifth higher than long; the subpostpetiolar process developed as broad rounded lobes on each side. *Legs* moderately long. *Abdomen* truncate at base.

Type series: 2 ♂♂ (1 damaged). Locality and date unknown.

♀ (Figs 3, 4). TL \pm 5,6 mm; HL 1,18 mm; WL 1,70 mm; PL 0,34 mm; PPL 0,32 mm; HFL 1,12 mm; MFL 0,86 mm; ED 1,10 mm; OD 0,36 mm; LO 0,48 mm; SL 0,84 mm; CL 0,30 mm; FL 0,88 mm; L 3,76 mm; CI 110,2; CTI 69,4; CLI 346; FI 125; SI 64,6; TI 62,4; PI 147,1; PPI 212,5.

Burnt amber to castaneous red, mandibles, legs and antennae paler, light reddish brown, the swollen parts of the femora dark brown. Dull all over, the abdomen slightly shining. Head and dorsum of truncus longitudinally striate, finely reticulate between the striae, the scutellum of the mesonotum with somewhat finer striae. Epinotum finely reticulate-punctate and with some transverse rugae. Parapsidal furrows present, but not clearly visible from above (under low magnification). Sides of pro-, meso- and metathorax longitudinally striate, those on the latter oblique, the sides of the epinotum merely rugulose; the declivity reticulate-punctate and with some fine rugae superimposed. Both nodes finely reticulate-punctate, the first node with fine transverse rugae; the abdomen superficially and finely reticulate, the reticulation somewhat stronger on the basal portion. *Pubescence* and *pilosity* similar to those of the worker, the pubescent hairs longer on the whole body and also more abundant on the abdomen. Mesopleurae almost devoid of setae.

Head very slightly wider than long, almost square, the *eyes* occupy a little less than one-quarter of the length of the head. *Truncus* longer than the head, in profile the dorsum is almost straight, the spines long, about as long as wide at their bases, or slightly shorter than the length of the eyes. *First node of petiole* almost trapezoidal when seen from above, front margin straight with definite anterior corners, anterior and posterior faces vertical. In profile it is one-fifth higher than long, the dorsal face straight, the subpetiolar process present as a small acute tooth as in the worker. *Second node of petiole* about one-third higher than long; seen from above it is slightly more than twice as wide as long, the sides convex, not drawn out and flattened.

Material: 1 ♀ Santschi, 1916. Locality unknown. Specimen determined by G. Arnold.

Tetramorium solidum Emery subsp. *tuckeri* Arnold n. comb.

(Figs 5-7, 28A, B)

Tetramorium solidum Emery var. *tuckeri* Arnold, 1923 n. syn.

♀ (The head, truncus and first node of petiole intact, the second node and abdomen broken off.)

HL 1.40 mm; WL 1.44 mm; PL 0.38 mm; HFL 1.30 mm; MFL 1.10 mm; ED 1.16 mm; SL 0.94 mm; CL 0.34 mm; FL 1.06 mm; L (length from apex of clypeus to apex of petiolar node) 3.68 mm; CI 104.3; CTI 97.2; CLI 300; FI 109.4; SI 58.9; TI 59.7; PI 121.1.

Arnold gives the colour as black, but the type specimen in the collection is light castaneous to dark brick red, the antennae, mandibles and legs, except the middle portions of the femora which are of the same colour as the body, ferruginous. Almost dull, or with a very slight gloss, more shining than *solidum*, the sculpture similar to that of the latter, but stronger, the head more evenly striate, the declivity of the epinotum as coarsely and transversely striate (and reticulate).

The head is slightly wider than long, two-fifths wider than the truncus, the sides almost straight, the hind margin shallowly excised in the middle; the eyes large, occupying nearly two-sevenths of the length of the head. Frontal area indistinct, frontal sulcus obsolete, the frontal carinae wide apart, extending to about the middle of the head. Anterior face of clypeus less rounded than in *solidum*; the scapes not reaching the hind margin of the head by about one-quarter of their length.

Truncus about two-fifths longer than wide over the pronotum and about two-thirds wider in front than over the bases of the spines. The pronotum is margined in front, much more so than in *solidum* and the dorsum of the epinotum when seen in profile appears to be somewhat concave (slightly convex in the latter); the meso-epinotal suture is present as a wide notch and just behind this notch on the middle line is a small tooth-like prominence or tubercle. The pro-mesonotal suture which is absent in the type of the species and its other varieties, clearly demarcates the mesonotum. Sides of the epinotal dorsum almost parallel, the declivity vertical, the spines short, shorter than wide at the base and slightly longer than the episternal.

First node of petiole, seen from above, oval and slightly more than one-fifth wider than long, slightly wider behind than in front, both anterior and posterior margins convex, the latter somewhat angular in the middle; in profile it is quadrate as in *solidum*, the dorsum being almost straight, the hind face inclined backwards, forming an angle with the dorsum; subpetiolar process present as a minute rounded tooth or denticle.

Type: 1 ♀ Brehden, South West Africa, 20 December 1915 (R. W. E. Tucker).

In other specimens collected in Brehden, South West Africa (20 December 1915) (TL 5.0-5.2 mm; L 3.6 mm; PPI 200) the pro-mesonotal suture is almost

obsolete in the middle, but still indicated on each side of the pronotal disc. In this case the tooth-like tubercle behind the meso-epinotal suture is absent, so that the epinotal dorsum does not really appear concave; the spines (Figs 6B, C) are longer and resemble those of *solidum*; *first node of petiole* is more triangular, being slightly more than one-fifth wider than long (PI 122,2-123,5), the posterior margin is more rounded and not angular in the middle; in profile its anterior and posterior faces are almost vertical, the dorsal face slightly convex. *Second node of petiole* is nearly twice as wide and about three-eighths (excluding the subpostpetiolar process) higher than long, transversely rugose and finely reticulate between the rugae, the sides somewhat drawn out and flattened posteriorly; the subpostpetiolar process as broad rounded teeth.

The *abdomen* is superficially reticulate and shining, the reticulation stronger towards the base where it is also finely longitudinally rugulose (Fig. 28B).

Unfortunately Arnold did not state whether these specimens were collected from the same nests as the holotype; however, if more specimens become available from that area, I shall not be surprised if this subspecies is raised to specific rank.

In specimens from the north-western Cape (TL 5,16-5,8 mm; L 3,6-3,96 mm; PI 122,1-141,1; PPI 214,3-180) which are very similar to the specimens from South West Africa, the spines are almost of the same length (Fig. 6A), but the pro-mesonotal suture is very well indicated, making the mesonotum somewhat gibbous as in the type specimen. Although the abdomen in this case is also superficially reticulate, the reticulation is much closer and the striae on the base almost absent.

♀ (Figs 8, 9) TL 6,7 mm; HL 1,40 mm; WL 2,04 mm; PL 0,32 mm; PPL 0,32 mm; HFL 1,26 mm; MFL 1,0 mm; ED 1,20 mm; OD 0,34 mm; LO 0,54 mm; SL 0,90 mm; CL 0,36 mm; FL 1,04 mm; L 4,28 mm; CI 107,1; CTI 68,6; CLI 311,1; FI 115,4; SI 60; TI 58,8; PI 162,5; PPI 231,3.

Slightly larger than the female of *solidum*, with similar colour and sculpture, the striae forming a reticulation on the pronotum, the latter not so sharply margined laterally as in that species. Both nodes with transverse rugae which are much stronger than in *solidum*. Abdomen very finely and superficially reticulate or reticulate-coriaceous, the sculpture stronger on the basal third, where it is also finely longitudinally striolate. *Pubescence* and *pilosity* as in *solidum*.

Eyes somewhat bigger, occupying nearly two-sevenths of the length of the head; the hind ocelli closer together than in that species. *Truncus* with parapsidal furrows more clearly visible than in the latter, the suture between the scutellum and paraptera also clathrate; the suture between the meso-epimeron and mesosternite shallower but more clathrate.

The dorsum of the epinotum with oblique rugae, the declivity finely reticulate-punctate, dull and transversely striate. The *spines* short, about half as long as wide at their bases or about as long as the episternal. *First node of petiole* seen from above somewhat oval, the sides rounded, hind margin almost straight, front margin shallowly excised in the middle; it is about three-eighths

wider than long and also about as high as wide; in profile the dorsum is almost flat, the front and hind faces vertical; the subpetiolar process as in the worker. The *second node* is about twice as high and more than twice as wide as long, the sides less convex than in the workers from South West Africa and north-western Cape; and also drawn out and flattened posteriorly; the subpostpetiolar process more pointed than in *solidum*.

Type: 1 ♀ Brehden, South West Africa, 20 December 1915 (R. W. E. Tucker).

Tetramorium solidum Emery var. *signata* Emery, 1895

(Figs 37, 38)

♀ TL 4.40–4.8 mm; HL 1.16–1.25 mm; WL 1.16–1.28 mm; PL 0.32–0.36 mm; PPL 0.26–0.30 mm; HFL 1.04–1.18 mm; MFL 0.88–0.98 mm; ED 0.94–1.04 mm; SL 0.80–0.90 mm; CL 0.28–0.30 mm; FL 0.88–0.95 mm; L 3.0–3.40 mm; CI 100–101.7; CTI 97.7–100; CLI 320–335.7; FI 106.8–109.5; SI 67.9–71.4; TI 59.4–61.7; PI 111.1–112.5; PPI 160–164.3.

Brown to dark brown, the mandibles, antennae and legs paler, more yellowish brown, middle portions of the femora somewhat darker. Eyes, mandibular teeth and epinotal spines black. The inner margins of the frontal carinae, the front margin of the pronotum, front and hind margins of petiole and some of the rugae on the body also blackish. With a slight gloss, the abdomen fairly polished. Head longitudinally striate as in *tuckeri*, finely reticulate or reticulate-punctate between the striae. Median area of clypeus with about 8–9 striae, the middle one the strongest. Mandibles strongly longitudinally striate and shining. Pronotum reticulate-rugose, rest of truncus longitudinally rugose; finely reticulate-punctate between the rugae, the latter also longitudinally and somewhat obliquely arranged on the sides. First node reticulate-rugose, the reticulation not so clearly visible in some specimens, the second node merely rugose with some indistinct reticulation; both nodes finely reticulate-punctate between the rugae. Basal portion of the abdomen very finely reticulate, also finely and longitudinally rugulose and duller than the rest which is more superficially reticulate or reticulate-coriaceous. Legs and antennae microscopically reticulate, the scapes duller. *Pubescence and pilosity* as in *tuckeri*.

Head about as long as wide, about two-fifths wider than the pronotum, quadrate, the sides and hind margin almost straight. *Clypeus* with front margin slightly excised in the middle. Frontal carinae as in *tuckeri*, extending to about the middle of the head, the frontal area obsolete. *Eyes* occupy about one-quarter or slightly more of the length of the head, situated in the middle of the sides. The *scapes* falling short of the hind margin by about one-sixth of their length, they are about seven-tenths as long as the flagella; the 2nd to 6th joints nearly as long as wide, the rest longer than wide. *Truncus* about two-fifths longer than wide in front, the meso-epinotal suture clearly indicated on the dorsum as a transverse furrow, and on the sides as a clathrate impression. Pro-mesonotal

suture fairly clear dorso-laterally in one specimen, but obsolete in others. In profile the truncus and nodes are similar to those of *tuckeri*; the *spines* short, about as long as wide at the base, slightly longer than the episternal, the *epinotal declivity* almost vertical, transversely striate and finely reticulate-punctate between the striae. The *first node* triangular, with rounded apex, the sides and hind margin slightly convex; it is about one-eighth wider than long and about as high as wide. Seen from the side, the front and hind faces vertical, the dorsum slightly convex, the peduncle a little shorter than the node. The *second node* oval, about one-third wider and one-quarter higher than long; in profile the dorsal surface is rounded. Both the subpetiolar and subpostpetiolar processes as in *tuckeri*. *Legs* moderately long; *abdomen* truncate at base.

Material: 3 ♀♀ Willowmore, C.P., 1912 (H. Brauns). Specimens determined by G. Arnold.

Both these two forms are bigger than the type of the species, but may easily be recognized by the shorter spines and the first node which is rounded in front, whereas in *solidum* the node has a short, almost straight front margin; *tuckeri* on the other hand has a broad second node, almost twice as wide as long, while in *signata* the node is much narrower, being only one-third wider than long; in the latter form the pro-mesonotum is also reticulate or reticulate-rugose.

Tetramorium capense Mayr, 1865

(Figs 35, 36)

♀ TL 3,60 mm; HL 0,92 mm; WL 0,94 mm; PL 0,20 mm; PPL 0,20 mm; HFL 0,74 mm; MFL 0,64 mm; ED 0,76 mm; SL 0,66 mm; CL 0,20 mm; FL 0,72 mm; L 2,48 mm; CI 91,3; CTI 97,9; CLI 330; FI 105,6; SI 78,6; TI 57,4; PI 120; PPI 140.

Yellowish red, the mandibular teeth and eyes black, abdomen slightly more brownish; body with a faint gloss, the legs and antennae more shining, the abdomen very shining. Head longitudinally striate in the middle, rugoso-striate and also reticulate on the sides, finely reticulate between the striae and rugae. Clypeus with about 6 to 8 longitudinal striae, the median one the strongest. Mandibles longitudinally striate and moderately shining. Truncus and nodes finely reticulate, almost reticulate-punctate, with longitudinal rugae superimposed, some of the rugae connected by anastomoses, almost forming an indistinct reticulation. Sides of truncus also with longitudinal rugae, the lower rugae rather coarse, the fine reticulation on the meso- and epipleurae somewhat bigger than on the dorsum. Abdomen very superficially and finely reticulate, almost reticulate-coriaceous. Antennae and legs microscopically reticulate-rugulose, the sculpture somewhat stronger on the scapes. *Pubescence* almost as in *solidum*, the abdomen appears to be almost glabrous. *Pilosity* long erect, yellowish, more abundant on the head and abdomen than in the latter species; there are at least six setae on the petiole and four on the postpetiole.

Head one-eleventh longer than wide and about one-third wider than the

pronotum, the sides slightly convex, the hind margin straight; as wide in front as behind. *Frontal area* fairly well indicated as a triangular impression, the *frontal carinae* somewhat convergent in front, parallel behind and extending to about the posterior two-ninths of the head, hardly forming a demi-scribe. *Clypeus* fairly flat in the middle, the front margin slightly convex, with a very small wide emargination in the middle. *Eyes* small, with about thirty facets, occupying about one-eighth of the length of the head and situated in the middle of the sides. *Scapes* shorter than the head, not reaching the hind margin by about one-eighth of their length, the flagellum as long as the head, the 2nd-4th joints slightly wider than long, the 5th-8th about as long as wide and the rest longer than wide, the last joint the longest.

Truncus similar to that of *peringueyi*, about five-twelfths longer than wide and about seven-elevenths wider in front than over the bases of the spines, somewhat constricted between the meso- and epinotum, the sutures obsolete above. In profile the dorsum is moderately convex with the epinotum lower than the mesonotum as in the other species already described; the *spines* long and acute, about three-eighths longer than wide at the base and about as long as the interval between their bases. (In *solidum* the spines are narrower at their bases.) Otherwise as in *peringueyi*. *First node of petiole* one-third higher and about one-sixth wider than long, seen from above it appears cuneiform, almost trapezoidal, widest over the posterior third, the anterior margin straight. Seen in profile truncate in front, the anterior face nearly as long as the oblique hind face, the dorsal face almost straight and much shorter than in *solidum* and shorter than the peduncle (in the latter species it is longer than the peduncle); the subpetiolar process as a minute rounded tooth. The *second node* as long as the first, about one-fourth wider than long and about as high as wide, almost oval when seen from above; in profile the dorsum is much more convex than in *solidum*, the subpostpetiolar process without a lobe on each side. *Abdomen* not truncate at base but rounded. *Legs* moderately long.

Type: Locality and date unknown.

Very similar to *peringueyi* Arnold *dichroum* Santschi, but differs from it by the smaller eyes, the finer sculpture of the truncus and nodes, the lighter colour and by the pilosity which is less abundant, especially on the abdomen. It differs from all the species described in this paper by the truncate first node and by the abdomen which is rounded at the base. According to Arnold (1917, 1923) it may be separated from *popovici* by the dorsal face of the first node which is as wide as or wider than long. I have not seen *popovici* in life and cannot therefore comment on this point; it seems however if the latter could be a synonym of *capense*.

Tetramorium peringueyi Arnold, 1923

(Figs 19, 20, 31A, B)

♂ TL 4.60-4.80 mm; HL 1.20 mm; WL 1.24-1.26 mm; PL 0.34 mm; PPL 0.34-0.36 mm; HFL 1.12 mm; MFL 1.0 mm; ED 1.10 mm; SL 0.90 mm;

CL 0,26 mm; FL 0,94 mm; L, 3,40-3,32 mm; CI 106,7; CTI 96,8-95,2; CLI 384,6; FI 117; SI 70,3; TI 62,9-63,5; PI 129,4-135,3; PPI 158,8-155,6.

Pale to dark brick red, the middle portion of the head somewhat darker, the abdomen brown to mahogany with the basal portion paler. Mandibular teeth black. Head, truncus, petiole and basal third of the abdomen slightly shining, rest of abdomen and legs shining. Head coarsely and longitudinally striate, widely reticulate on the sides and at the back, the striae on the occiput divergent on each side. Mandibles coarsely longitudinally striate and shining. Middle portion of the clypeus with about 6 to 8 striae, the median one not particularly stronger than the others. Truncus rugoso-reticulate dorsally, the sides rugoso-striate; the epinotal declivity strongly and transversely striate and shining. Sides and dorsal surfaces of both nodes rugoso-reticulate, the floors of the reticulation and the spaces between the striae like those of the head and truncus very finely and superficially reticulate; the rugae on the posterior faces of both nodes somewhat transversely arranged. Abdomen very superficially reticulate and shining, the sculpture on the basal third stronger, the striolation longitudinally arranged. Tibiae and scapes finely and longitudinally striolate and fairly dull, rest of legs superficially sculptured and shining. *Pubescence* present only on the flagellum. *Pilosity* long, fairly abundant all over including the legs, erect and yellowish white in colour; some of the hairs on the head, especially those on the anterior border of the clypeus longer than the rest.

Head about one-sixteenth wider than long and about three-eighths wider than the pronotum, the sides parallel, the hind margin straight. *Frontal area* indistinct, the *frontal carinae* wide apart and divergent behind, extending to about the middle of the head, the clypeus widely and fairly deeply emarginate in front. The *eyes* occupy one-fifth of the length of the head, situated in middle of the sides. *Scapes* fall short of the hind margin by about one-sixth of their length; all the joints of the flagellum longer than wide, except the third which is slightly wider than long. *Truncus* about three-eighths longer than wide over the pronotum and more than twice as wide here than over the bases of the spines. *Thoracic sutures* obsolete above; on the sides the pro-mesonotal suture is fairly well indicated, the meso-epinotal suture is represented by a wide impression, the alitrunk being slightly constricted in this area. Pronotum submarginate in front, the neck also rugoso-reticulate, the rugae transversely arranged. In profile the dorsum of the alitrunk forms a wide curve, with the epinotum lower than the pro-mesonotum. The *spines* long, slightly more than twice as long as wide at the base and slightly longer than the interval between their bases, thin and acute, directed outwards and slightly upwards.

First node of the petiole trapezoidal, seen from above much wider behind than in front, about one-quarter wider than long, front and hind margins straight; in profile it is about as high as wide, the front and hind faces vertical, the dorsal face flat, the peduncle about as long as the node, the subpetiolar process very similar to that of *solidum*. The *second node* is oval, the sides rounded, about one-third wider and seen from the side about one-sixth higher than long, rounded,

the subpostpetiolar process as in *solidum*. Abdomen truncate at the base. Legs moderately long.

Type series: 2 ♀♀, Kimberley, 1916 (G. Arnold).

***Tetramorium peringueyi* Arnold ssp. *dichroum* Santschi n. comb.**

(Figs 21, 11, 32A, B)

Tetramorium solidum Emery var. *dichroum* Santschi, 1932 n. syn.

♀ TL 3,76–3,80 mm; HL 1,02–1,04 mm; WL 1,0–1,04 mm; PL 0,30 mm; PPL 0,24 mm; HFL 0,84 mm; MFL 0,76 mm; ED 0,90–0,92 mm; SL 0,68–0,70 mm; CL 0,22–0,24 mm; FL 0,80 mm; L 2,72–2,76 mm; CI 105,9; CTI 102–100; CLI 372,7–350; FI 112,5–115; SI 62,9–63,6; TI 66–63,5; PI 120; PPI 175.

Light burnt sienna (Santschi described it as red), the head, abdomen, femora and tibiae darker, dark burnt sienna; mandibular teeth black. Head longitudinally striate the striae finer than in *peringueyi*; on the sides and at the back with some wide reticulations; very finely reticulate-punctate between the striae. Middle area of clypeus with 6 to 8 striae, the median one stronger than the rest. Dorsum of the truncus longitudinally rugose, with some transverse anastomoses, especially on the epinotum and frontal portion immediately behind the neck; sides longitudinally rugose. Both nodes reticulate-rugose, almost as in *peringueyi*, the spaces between the striae, as in the case of the head and truncus, finely reticulate-punctate. Abdomen finely and superficially reticulate, the reticulation slightly more pronounced than in the latter species, fairly coarse on the basal third, where it is also longitudinally striolate. Body only slightly shining, somewhat duller than *peringueyi*; abdomen except its basal part more shining than the head and truncus. Antennae and legs microscopically reticulate-punctate and slightly shining. *Pilosity* and *pubescence* similar to that of the latter.

Head very slightly (about one-twenty-secondth) wider than longer and about two-fifths wider than the alitrunk, the sides parallel, the hind margin slightly concave in the middle. *Frontal area* indistinct, the *frontal carinae* wide apart, extending to about the middle of the head; *clypeus* widely and deeply emarginate in the middle; *scapes* slightly shorter than in *peringueyi*, falling short of the hind margin by about one-fifth of their length; the flagellum nearly two-ninths longer than the scape, the 3rd joint a little wider than long, the 2nd to 5th as wide as long, the rest longer than wide. *Eyes* situated in the middle of the sides, occupying about one-fifth of the length of the head. *Truncus* two-fifths longer than wide and nearly two-thirds wider in front than over the bases of the spines. The sutures obsolete above, only indicated on the sides, the meso-epinotal by a wide impression so that the truncus appears somewhat constricted in this area when seen from above. In profile the dorsum forms a wide curve with the *epinotum* lower than the pro-mesonotum, the vertical declivity transversely

striate; the *spines* nearly twice as long as wide at the base (or about as long as the interval between their bases).

First node trapezoidal, seen from above the margins straight (the sides slightly convex in *peringueyi*), only a little more than one-eighth wider behind than long and about as high as wide, the peduncle shorter than the node (nearly as long in *peringueyi*), seen from the side the front and hind faces vertical, the dorsal face very slightly convex; the subpetiolar process as in the latter species. The *second node* about three-sevenths wider than long, oval, the sides rounded, seen from the side about two-sevenths higher than long, the subpost-petiolar process as in *peringueyi*. *Abdomen* and *legs* as in the latter.

Type series: 3 ♀♀, Kimberley, 1924 (G. Arnold).

It is quite obvious that according to sculpture, setae and occurrence, this form is a subspecies of *peringueyi* and not a variety of *solidum*; in life it is very similar to the first although much smaller.

***Tetramorium aspinatum* n.sp.**

(Figs 10-13, 29A, B)

♀ TL 3.88-4.0 mm; HL 1.02-1.04 mm; WL 1.0-1.04 mm; PL 0.26-0.28 mm; PPL 0.24 mm; HFL 0.90-0.96 mm; MFL 0.74-0.78 mm; ED 0.86-0.90 mm; SL 0.76-0.78 mm; CL 0.24-0.26 mm; FL 0.76-0.78 mm; L2,92-2.94 mm; CI 100-103.9; CTI 98.1-104; CLI 323-333.3; FI 113.2-118.4; SI-71.7-74.5; TI 58.8-64; PI 121.4-123.1; PPI 116.7-183.3.

Dark brown or blackish brown, legs and peduncle of the first node paler in colour, antennae and mandibles reddish, mandibular teeth and eyes black. Head, truncus and nodes moderately shining, abdomen very shining. Head longitudinally striate as in *solidum*, the striae on the cheeks stronger than on the rest of the head, finely reticulate between the striae. Median area of clypeus with 6 to 9 striae, the middle one somewhat stronger than the rest. Mandibles striate and shining. Truncus finely reticulate or reticulate-punctate with fine longitudinal rugae superimposed, those on the lower parts of the meso- and epipleurae stronger. Both nodes and basal third of the abdomen also finely reticulate or alutaceous, the reticulation stronger on the sides of the nodes and on the peduncle, almost superficial on the abdominal base, very superficial on the rest of the abdomen; the nodes of some specimens however almost reticulate-rugulose. Legs and antennae microscopically reticulate and shining.

Pubescence consists of fairly long sparse, yellowish-white decumbent hairs, transversely arranged on the head and truncus, more abundant on the flagellum. *Pilose hairs* present as follows: a transverse row on the anterior margin of the clypeus, one hair in front on each frontal carina, two on the vertex, one on each occipital corner, some on the 2nd to last abdominal segments and on the ventral part of the body. (In *solidum* long setae occur also on the truncus and nodes.)

Head about as long as wide, or very slightly wider than long and about one-third to five-twelfths wider than the truncus, the sides parallel, the hind

margin straight, occipital angles rounded. *Frontal area* indistinct; *frontal carinae* wide apart, divergent behind, extending to the middle of the head. *Clypeus* with front margin only slightly excised in the middle, therefore appearing to be longer than that of *solidum*. *Eyes* situated in the middle of the sides occupying about one-quarter of the length of the head. *Scapes* falling short of the hind margin by about one-eighth of their length, the flagellum nearly one-quarter longer than the scape; 2nd to 3rd joints about as long as wide, the rest longer than wide, the first joint almost as long as the ninth. *Truncus* about two-fifths longer than wide, narrower behind than in front, narrowed in the region of the meso-epinotal suture, epinotal dorsum rounded from side to side, all the sutures dorsally absent except for a slight transverse depression between the meso- and epinotum. In profile the dorsum forms a wide curve, with the *epinotum* lower than the pro-mesonotum; the declivity reticulate, oblique and forming a rounded angle with the dorsum; *spines* absent or represented by a small tubercle on each side. The *first node* seen from above almost triangular, with the angles rounded, the front margin and sides almost forming a semicircle in some specimens, about one-fifth wider than long and about as high as wide; seen from the side the front and hind faces vertical; the peduncle almost as long as the node, the subpetiolar process present as a minute tooth in front. The *second node* oval, from three-eighths to almost twice as wide as long; seen from the side about one-seventh higher than long, the subpostpetiolar process somewhat more pointed than in *solidum*. *Legs* as in that species. *Abdomen* truncate at base.

Type series: 4 ♀♀, South African Museum. Port Nolloth, 20 April 1963 (J. J. Cillie).

3 ♀♀, Plant Protection Research Institute, Pretoria. Same locality and date.

♀ (Figs 12, 13) TL 6,6 mm; HL 1,32 mm; WL 2,0 mm; PL 0,38 mm; PPL 0,40 mm; HFL 1,32 mm; MFL 1,08 mm; ED 1,22 mm; OD 0,38 mm; LO 0,54 mm; SL 0,96 mm; CL 0,36 mm; FL 0,96 mm; L 4,40 mm; CI 110,8; CTI 65,0; CLI 294,4; FI 129,8; SI 66,7; TI 62,0; PI 142,1; PPI 195.

Blackish brown, abdomen and neck brown, antennae, mandibles, legs, except the middle portions of the femora which are blackish brown, reddish; mandibular teeth black. Whole body moderately shining. Head and truncus, except the epinotum longitudinally striate, the striae somewhat coarser on the sides; epinotum transversely striate, finely reticulate between the striae, the reticulation on the head as dense as on the truncus. Clypeus with the median stria somewhat stronger than the rest. Sutures between meso-epimeron and mesosternite, as well as that between the scutellum and paraptera clathrate; parapsidal furrows clearly visible from above. Both nodes finely reticulate-rugulose, with some fine transverse rugae superimposed, on the second node the rugae present mostly on its posterior half. Abdomen very finely reticulate-alutaceous, the reticulation stronger on the basal third, elsewhere superficial or even shagreened. Legs microscopically reticulate, the fore tibiae appearing duller. *Pubescence* fairly long, decumbent, similar to *solidum*, but slightly more

abundant on the abdomen. *Pilose hairs* as in that species. Meso-epimeron and mesosternite almost glabrous, only with some hairs round the edges.

Head about one-tenth wider than long and about one-seventh wider than the truncus, almost square, the sides and hind margin straight. *Frontal area* indistinct, anterior margin of *clypeus* only slightly excised in the middle. *Eyes* occupying about one-quarter of the length of the head; situated in the middle of the sides; *scapes* falling short of the hind margin by a fraction of their length; all the joints of the flagellum longer than wide, except the 3rd which is about as long as wide. *Truncus* about three-eighths longer than wide; in profile the scutellum is somewhat gibbous, its dorsum slightly higher than that of the mesonotum (the same height in *solidum*). *Epinotal teeth* almost obsolete, represented by two very small broad dents, shorter than the episternal teeth. *Epinotal declivity* vertical, finely reticulate and strongly and transversely striate. *First node of the petiole* rounded, almost three-ninths wider than long and about as high as wide; in profile, both faces somewhat oblique, the peduncle about as long as the node. The *second node* oval, about twice as wide as long and one-sixth wider than high, the subpetiolar and subpostpetiolar processes as in the worker. Otherwise like the female of *solidum*.

Type: 1 ♀, South African Museum. Port Nolloth, 20 April 1963 (J. J. Cillie).

This species is very similar to *solidum* in size and body shape but may easily be recognised by the absence of any spines. In life it responds in the same way as the latter and seems to be present only in sandy soil along the coastal areas in the west and probably also further inland.

Tetramorium rutilum n.sp.

(Figs. 14-18, 30A, B)

♀ TL 4.4-4.8 mm; HL 1.14-1.22 mm; WL 1.18-1.24 mm; PL 0.26-0.28 mm; PPL 0.26-0.28 mm; HFL 1.04-1.12 mm; MFL 0.88-0.90 mm; ED 1.00-1.04 mm; SL 0.80 mm; CL 0.26-0.28 mm; FL 0.86-0.94 mm; L 3.08-3.28 mm; CI 103.3-103.5; CTI 90.3-96.6; CLI 328.6-346.1; FI 113.6-115.3; SI 63.5-67.8; TI 61-62.7; PI 142.9-146.2; PPI 176.9-178.6.

Brick red, the clypeus, anterior margin of the cheeks, coxae especially the front coxae, mesosternum, epinotal sides, scapes, femora, tibiae and posterior third or so of abdomen piceous; eyes, inner margins of frontal carinae, mandibular teeth and spines pitch black. Moderately shining, abdomen slightly more polished than the rest of the body. (In some specimens from the same locality, the insects are very shining, the dorsal surfaces of the nodes are just as superficially sculptured as the abdomen, and the striae on the head very inconspicuous.) Head finely reticulate and also finely and longitudinally striate, the striae on the cheeks and clypeus stronger than on the rest of the head (which appears merely finely reticulate-striate.) Mandibles striate and shining.

Truncus and nodes of the petiole very finely and somewhat superficially reticulate, almost reticulate-rugulose, the reticulation stronger on the sides;

the meso- and epipleurae also finely and obliquely rugoso-striate as in *aspinatum*. Abdomen alutaceous. Legs and antennae microscopically rugulose, the legs moderately shining, the sculpture coarser on the scapes which are dull. *Pubescentia* short, scanty, decumbent and inconspicuous, more abundant on the antennae. *Erect pilosity* exactly as in *aspinatum*.

Head very slightly wider than long and about two-fifths wider than the thorax, quadrate, the sides and hind margin straight. *Frontal area* indistinct, *frontal carinae* wide apart, divergent behind, extending nearly to the middle of the head. Front margin of the *clypeus* with a narrow angular emargination in the middle; *eyes* placed in the middle of the sides and occupying about one-quarter of the length of the head. Flagellum one-fifth longer than the *scape*, the latter falling short of the hind margin of the head by about one-sixth of its length; 2nd to 8th joints of the flagellum as long as wide, the rest longer than wide. *Truncus* about three-eighths longer than wide, much wider in front than behind, all the sutures obsolete above, the meso-epinotal suture sometimes indicated by a faint transverse impression. In profile the truncus is similar to that of *aspinatum*, the demarcations between the mesonotum and mesosternum and between the meso- and episternum clathrate. The *declivity* of the epinotum sculptured as the thorax, with some fine transverse rugae superimposed. *Spines* present as short, broad triangular teeth, about as long as the episternal and about half as long as the interval between their bases. *First node*, seen from above, semicircular, the hind margin almost straight or slightly convex, the posterior angles rounded, about one-third wider than long; seen from the side almost as high as wide, anterior face oblique, posterior face vertical, the peduncle only very slightly longer than the node, the subpetiolar process absent or present as a very minute tubercle. *Second node* about four-ninths wider than long, oval, seen from the side, about three-tenths higher than long, the subpostpetiolar process present as a broad rounded tooth on each side, more pointed than in *aspinatum*. *Abdomen* truncate at base. *Legs* as in that species.

Type series: 3 ♀♀, South African Museum. Vanrhynsdorp, C.P., 19 April 1963 (J. J. Cillie).

4 ♀♀, Plant Protection Research Institute, Pretoria. Same locality and date.

In some of the smaller workers the head is nearly one-twelfth wider than long and somewhat longer than the truncus, the following measurements being representative: TL 4,32 mm; HL 1,06 mm; WL 1,00 mm; PL 0,26 mm; PPL 0,24 mm; HFL 0,98 mm; MFL 0,84 mm; ED 0,94 mm; SL 0,72 mm; CL 0,26 mm; FL 0,76 mm; L 2,88 mm; CI 107,5; CTI 106; CLI 338,5; FI 123,7; SI 63,2; TI 72,0; PI 130,8; PPI 175.

In some specimens collected near Bitterfontein, Cape Province (9 October 1959, A. J. Prins) the postpetiolar process forms a minute acute tooth at the extreme base of the petiolar peduncle; the colour being similar to that described above, but in the same species from Klawer, Cape Province (19 April 1963, J. J. Cillie) the colour is much paler, yellowish red, the basal part of the abdomen yellowish to ochreous; the truncus is about as long as the head or slightly

shorter (CTI 100-103,8), the spines of similar length but the head and truncus smaller in comparison to the Vanrhynsdorp specimens (HL 1,08-1,10 mm; WL 1,04-1,08 mm; CI 101,1-101,8; TI 61,8-63,5); both nodes of similar length but somewhat narrower (PL 0,26 mm; PPL 0,26 mm; PI 130,8-138,5; PPI 169,2); the postpetiolar process resembles that of the Bitterfontein forms. In one nest found near Vanrhynsdorp (24 August 1962, J. J. Cillie) the workers are much smaller (TL 3,68-3,80 mm; L 2,64-2,72 mm; HL 1,0-1,02 mm; WL 1,0-1,02 mm; PL 0,24-0,26 mm; PPL 0,20 mm; HFL 0,88-0,90 mm; MFL 0,76 mm; ED 0,86-0,88 mm; SL 0,70-0,72 mm; CL 0,24-0,26 mm; FL 0,76 mm; CI 103,9-104; CTI 100; CLI 315,4-333,3; FI 113,2-115,8; SI 67,3-67,9; TI 62-62,7; PI 130,8-133,3; PPI 200-210). The colour is paler, of a yellowish brown instead of red, the spines (Fig. 15) a little longer, the head as long as the truncus and the second node more than twice as wide as long, otherwise like the type of the species.

♀ (Figs 17,18) TL 6,0 mm; HL 1,22 mm; WL 1,76 mm; PL 0,28 mm; PPL 0,30 mm; HFL 1,16 mm; MFL 0,98 mm; ED 1,14 mm; OD 0,36 mm; LO 0,52 mm; SL 0,86 mm; CL 0,34 mm; FL 0,88 mm; L 3,84 mm; CI 109,8; CTI 69,3; CLI 305,9; FI 128,4; SI 64,2; TI 64,8; PI 171,4; PPI 233,3.

Brownish red, vertex of the head paler, posterior half of abdomen, clypeus, anterior margins of cheeks, middle portions of scapes, femora and tibiae as well as the meso- and episterna and ventral part of abdomen brownish black. Mandibular teeth, eyes, inner margins of the frontal carinae, a small area just in front of the pro-mesonotal suture, the metanotum, margins of the scutellum and paraptera, margins of the mesonotum above the wing roots and the tips of the spines pitch black. Head and truncus, except the scutellum and epinotum finely longitudinally striate, the striae on the cheeks and clypeus stronger; the scutellum transversely rugose, very finely reticulate between the striae, the epinotum and both nodes finely reticulate or reticulate-rugulose with some fine transverse rugae superimposed, especially on the posterior part of the first node. The sides of the truncus also finely reticulate and longitudinally rugoso-striate, the rugae indistinct in the region near the spines, the suture between the paraptera and scutellum as well as that between the meso-epimeron and mesosternum clathrate. Abdomen finely and superficially reticulate over the basal area, elsewhere aciculate. Body fairly shining, abdomen somewhat more polished, the sculpture of this insect weaker than in *aspinatum*. Antennae and legs microscopically reticulate-rugulose and shining, the scapes duller.

Pubescence yellowish, shorter and more inconspicuous than in the latter, sparser on the abdomen. *Pilosity* of head and abdomen the same as in that species, the truncus seems to be without any pilosity.

Head slightly more than one-tenth wider than long and one-seventh wider than the truncus. *Scapes* falling short of the hind margin by one-eleventh of their length; *eyes* occupying three-elevenths of the length of the head. *Epinotal declivity* nearly vertical, finely reticulate and also coarsely and transversely striate; the *spines* longer than in *aspinatum*, forming definite triangular teeth, as

long as the episternal. *First node* two-fifths wider than long and as high as wide, seen from above the sides and front margin almost forming a semi-circle, hind margin slightly convex; in profile it is much thinner than in *aspinatum*, the hind face vertical, the front face slightly oblique, the peduncle one-quarter longer than the node, the postpetiolar process obsolete. *Second node* slightly more than twice as wide and nearly two-fifths higher than long, otherwise like the female of *aspinatum*, except that it is somewhat smaller.

Type: 1 ♀, South African Museum. Same date and locality as ♂.

Quite distinct from the other forms in this group by its red colour and finely sculptured, almost smooth integument. The distribution seems to be the same as for *aspinatum*.

Tetramorium jauresi Forel, 1914

(Figs 39, 40)

♂ TL 4,28 mm; HL 0,96 mm; WL 1,24 mm; PL 0,28 mm; PPL 0,24 mm; HFL 0,74 mm; MFL 0,64 mm; ED 0,74 mm; SL 0,62 mm; CL 0,24 mm; FL 0,72 mm; L 2,88 mm; CI 93,8; CTI 77,4; CLI 283,3; FI 102,8; SI 68,9; TI 48,4; PI 100; PPI 141,7.

Light brown to brown, mandibles, flagellum, tarsi and basal half of second abdominal segment paler, more yellowish. Whole body with a slight gloss, the nodes somewhat duller, apical part of abdomen more shining. Head longitudinally striate in the middle, the median one the strongest, and continuing over the clypeus where it is much weaker developed, the cheeks reticulate-rugose, the sides above the eyes rugulose, the rugae just above the eyes stronger, finely reticulate or reticulate-punctate between the rugae and striae. Mandibles longitudinally and superficially striate, also superficially reticulate-punctate between the striae and shining. Truncus reticulate-rugulose with indistinct longitudinal rugae superimposed; anterior portion of pronotum, dorso-lateral areas of epinotum and probably also of the pro-mesonotum indistinctly rugoso-reticulate; some stronger longitudinal striae appear on the lower part of the epipleurae; a small oval area on the middle of the mesonotum dorsum very shining with the sculpture effaced, the reticulation very superficial. Epinotal declivity finely reticulate, also transversely striate and shining. Both nodes finely reticulate-punctate and indistinctly rugose, the first node also somewhat reticulate-rugose on the dorso-lateral and anterior sides, a small area over its middle has the sculpture effaced and appears very shining. Abdomen very finely reticulate-rugulose, especially the basal half; where it is dull. Rest of abdomen shining. *Pubescence* very scanty, more abundant on the legs and antennae, almost absent from the rest. *Pilosity* consisting of some long erect yellowish hairs on the clypeus, vertex and occiput of the head and the abdomen, similar to *capense*, but only two on the truncus and second node, the first node seems to be devoid of pilose hairs.

Head longer than wide (about one-fifteenth when measured over the eyes.

Arnold (1917) mentions one-fifth; this could be true if the mandibles are included) and one-third wider than the pronotum, quadrate, the sides almost parallel, the hind margin slightly concave. When viewed from above the mandibles extend further beyond the anterior margin of the clypeus than in *solidum* and its varieties, making the head appear even longer. *Frontal area* present as an indistinct triangular impression, traversed by the median stria. *Frontal carinae* almost parallel, extending nearly to the hind margin, but not forming scrobes. *Eyes* fairly convex, situated in the middle of the sides and occupying nearly one-fifth of the length of the head. *Scapes* not reaching the hind margin of the head; they are about three-fifths the length of the flagellum; 2nd-8th joints wider than long, the rest longer than wide.

Truncus about twice as long as wide and about two-thirds wider over the pronotum than over the bases of the spines, the shoulders less pronounced than in *solidum*, the pro-mesonotal suture faintly indicated as a very shallow impression; meso-epinotal suture indicated on the sides where the truncus is also somewhat constricted, the demarcation of the two segments on the dorsum indicated by short longitudinal rugae; the mesonotum appearing margined on each side. In profile the dorsum is less convex, almost flat, the *spines* short, as long as the episternal, directed upwards, slightly shorter than wide at the base and much shorter than the interval between their bases; the *declivity* of the epinotum almost vertical and shorter than the dorsum. The *first node* seen from above almost conical, the sides, hind and front margins convex, as long as wide, narrowed upwards towards the median line; when seen from the side, the front and hind faces almost vertical, about one-fifth higher than long, the peduncle shorter than the node, the subpetiolar process present as a rounded tooth pointing forward. *Second node* oval when viewed from above, about three-tenths wider than long and about as high as wide; from the side the dorsum is convex and the subpostpetiolar process almost as in *peringueyi*. *Abdomen* only narrowly truncate at the base. *Legs* fairly short, the femora more swollen than in *solidum*.

Material: 1 ♀, Park Ryne, Natal, 1914 (G. Arnold).

The locality is the same as that of the type.

Very different from the other species mentioned here by the longer head and the first node which is narrowed upwards. It has been collected only along the south coast of Natal.

KEY FOR THE IDENTIFICATION OF THE SPECIES

In view of the fact that some of the early myrmecologists have been in error concerning the length of the epinotal spines of these species, it is quite clear that the keys for identification of these groups of ants (Arnold 1923: 244-245, couplets 83-102) should be altered as follows:

- | | | |
|------|----|---|
| (96) | 83 | Epinotal spines or teeth distinctly longer than wide at the base (or about as long in <i>vexator</i> and <i>solidum signata</i>) |
| (91) | 84 | No demiscrobes present (or only a very slight trace of it, hardly described as demiscrobes) |

- (88) 85 Pronotum finely striate or rugoso-striate, not really reticulate, especially on the dorsum; hairs sparse
- (87) 86 Dorsal face of the first node distinctly longer than wide. Dark yellowish red *popovici* Forel
- (86) 87 Dorsal face of the first node as wide as or wider than long
- (87b) 87a Eyes small with about 30 facets; head longer than wide, first segment of abdomen with pilose hairs, rounded at the base, not truncate. First node truncate in front. Pale ochreous. *capense* Mayr and the var. *braunsi* Forel
- (87a) 87b Eyes larger, with about 60 or more facets. Head wider than long. First abdominal segment devoid of any pilose hairs, truncate at the base. First node not truncate in front. Dark reddish brown. *solidum* Emery
- (85) 88 Pronotum reticulate or rugoso-reticulate. Hairs abundant
- (90) 89 Nodes of petiole dull
- (89b) 89a Whole dorsum of pro-mesonotum reticulate, larger species 4.60-4.68 mm. Spines long, more than twice as long as wide at their bases (longer than the interval between their bases) *peringueyi* Arnold
- (89a) 89b Dorsum of pro-mesonotum longitudinally rugose or with some indistinct transverse anastomoses; small species 3.7-3.8 mm; spines shorter, less than twice as long as wide (shorter than the interval between their bases) ... *peringueyi* Arnold *dichroum* Santschi
- (89) 90 Nodes of petiole shining *grassi* Emery
- (84) 91 Demiscrobe present
- (93) 92 1st node cuneiform. *vexator* Arnold
- (92) 93 1st node not cuneiform, with a distinct dorsal as well as anterior and posterior faces
- (95) 94 Base of abdomen not sculptured. Head (excluding the mandibles) nearly one-sixth longer than wide. Clypeus with a median carina. *guineense* Fabricius
- (94) 95 Basal two-fifths of abdomen dull and longitudinally striate. Head (excluding mandibles) hardly longer than wide. Clypeus without a carina. *bacchus* Forel
- (83) 96 Epinotal spines or teeth not longer than wide at the base. (In *vexator* they are about as wide, or slightly longer, but in this species the first node is cuneiform, a definite demiscrobe is present and the pilosity is very sparse)
- (108) 97 Larger species not less than 3.5 mm long
- (103) 98 No trace of scrobes
- (101) 99 Epinotal teeth longer than the episternal
- (100b) 100a Second node about twice as wide as long; pro-mesonotal suture usually fairly distinct (in some specimens not so clearly indicated). Pro-mesonotum more or less without a distinct reticulation, merely rugose, also finely reticulate-punctate between the rugae. *solidum* Emery *tuckeri* Arnold
- (100a) 100b Second node only about one-third wider than long; pro-mesonotal suture usually obsolete (in some specimens indicated to a certain extent dorso-laterally). Pro-mesonotum with a more definite reticulation (also finely reticulate-punctate between the rugae) *solidum* Emery *signata* Emery
- (99) 101 Epinotal teeth not longer than the episternal or almost entirely absent (in *solidum* Emery *tuckeri* Arnold the spines are sometimes just as long as the episternal, but in this case the pro-mesonotal suture is clearly visible)
- (101b) 101a Epinotal teeth obsolete, or represented by a very small tubercle or a small ridge on each side. *aspinatum* n.sp.
- (101a) 101b Epinotal teeth present

- (102b) 102a Head as wide as or slightly wider than long; first node not narrowed upwards towards the median line, broad above and wider than long. Colour reddish *rutilum* n.sp.
- (102a) 102b Head longer than wide; first node narrowed upwards towards the median line, about as wide as long, colour brownish *jauresi* Forel
- (98) 103 A more or less distinct demiscrobe present. (The species in this category may be distinguished from *vexator* by either abundant pilosity on the abdomen or by the first node which has a definite dorsal surface)

B. Formicinae

Camponotus subgenus *Mayria* Forel

Camponotus namacolus n.sp.

(Figs 23, 24, 33A, B)

♀ TL 5,0-5,17 mm; HL 1,06-1,08 mm; WL 1,64-1,66 mm; PL 0,32 mm; HFL 0,74-0,80 mm; MFL 1,04 mm; ED 0,68-0,70 mm; SL 1,04-1,06 mm; CL 0,30-0,32 mm; FL 0,76 mm; L 3,20-3,24 mm; CI 87,2-90,7; CTI 64,6-65,1; CLI 237,5-240; FI 89,5-92,1; SI 108,4-110,6; TI 45,1-48,2; PI 87,5-93,8.

Pale brick red to brownish all over, except the eyes and abdomen which are black; the apical margins of the latter testaceous. In the darker specimens the coxae, apical half of the flagella, apical portions of the scapes and the cheeks somewhat darker in colour. Mandibular teeth blackish brown to brownish. Head and truncus fairly dull, the mandibles, clypeus and node a little more shining, legs and abdomen shining. Head, truncus and the node reticulate-rugulose, the fine rugae almost concentrically arranged on each side of the disc of the pronotum, semi-circularly on the mesonotum and transversely on the epinotum and petiole, obliquely so on the sides of the truncus. Mandibles finely longitudinally striolate and dull on the basal half, the sculpture effaced on the apical portion and more shining. Abdomen also finely reticulate-rugulose, the rugae transversely arranged, the sculpture stronger on the basal segment, becoming more superficial towards the apex. Legs and antennae microscopically rugulose, the scapes somewhat duller. *Pubescence* short, decumbent, yellowish, sparse, more abundant on the coxae and flagella, somewhat longer on the abdomen. *Pilosity* erect, long, yellowish, consisting of the following: a transverse row of about 8-9 on the anterior border, and 4 on the median area of the clypeus; 4 on the vertex; 2 on the occiput; 2 each on the pro- and mesonotum; 2 on the brow of the epinotum; 4 on the posterior side of the node, and two transverse rows on each abdominal segment, one in front of the apical margin and one of 4 setae in the middle; there are also some pilose hairs on the ventral side of the body.

Head nearly two-seventeenths to one-eleventh longer than wide and about one-fifth wider than the pronotum, the sides almost straight, the hind margin very convex, about as wide in front as behind, *frontal area* not very clearly

demarcated behind, *frontal sulcus* indicated by a thin, shining line. *Frontal carinae* sinuate, extending to the posterior two-fifths of the head, the distance between them behind being about equal to their length, the *eyes* occupying nearly three-tenths of the length of the head and situated behind the middle of the sides. *Clypeus* obtusely carinate on the posterior half, without lobe, the front margin convex. Mandibles triangular, projecting well in front of the head, with five sharp teeth, the apical one the largest, the basal and masticatory margins each with a row of long hairs. *Scapes* about as long as the head, extending beyond the hind margin by nearly three-eighths of their length; the flagellum almost two-fifths longer than the scape; all the joints longer than wide, the 2nd–10th about equal in length, the first joint as long as the apical and much longer than the rest.

Truncus about twice (or slightly more) as long as wide and nearly five-eighths wider over the pronotum than over the brow of the epinotum, the promesonotal suture distinct, the *meso-epinotal suture* fairly well indicated, continuing on the sides as an oblique impression behind the meso-thoracic stigmata. In profile the pro-mesonotum forms a wide curve up to the meso-epinotal suture, behind this point the *epinotal dorsum* is very concave and saddle-shaped, forming a small prominence behind this suture on the median line and a high rounded brow at the back, the declivity oblique and about three-fifths the length of the dorsum, fairly shining and finely and transversely striolate; seen from above the floor of the epinotal concavity is flat and narrower in front than in the middle, the sides almost parallel. *Petiole node* subglobose, very slightly longer than wide, seen in profile as high as wide, the dorsum slightly convex, the very short front and longer hind faces vertical, the ventral surface somewhat concave; its peduncle very short. *Abdomen* rounded at the base, the acidopore with a fringe of very short setae. *Legs* moderately long.

Type series: 2♂♂, South African Museum. Garies, Namaqualand, 5 October 1959 (A. J. Prins).

2 ♂♂, Plant Protection Research Institute, Pretoria. Same date and locality.

This species has also been collected near Bitterfontein, C.P., and near Hondeklip Bay, C.P., and I should not be surprised if it eventually is found to be distributed throughout Namaqualand and Great Namaland.

Camponotus sellidorsatus n.sp.

(Figs 25, 26, 34A, B)

♂ TL 5.0–5.4 mm; HL 0.96–1.02 mm; WL 1.30–1.32 mm; PL 0.24 mm; HFL 1.0–1.10 mm; MFL 0.82–0.90 mm; ED 0.66–0.72 mm; SL 0.88–0.94 mm; CL 0.28–0.30 mm; FL 0.68–0.72 mm; L 2.68–2.80 mm; CI 95.8–98.03; CTI 73.8–77.3; CLI 242.9–260; FI 97.1–100; SI 94–95.7; TI 53.8–56.1; PI 141.7.

Brownish black, the flagella, tarsi and mandibles more brownish, apical margins of abdominal segments and peduncle of the petiole paler or testaceous; basal margins of mandibles black, the teeth brownish red. Moderately shining, the legs and abdomen more shining than the rest, the hind part of the head duller; the mandibles very finely reticulate-striolate, the fine striae longitudinally arranged, and with large piliferous punctures, the anterior part of the mandibles fairly shining. Finely reticulate-rugulose all over, the fine rugae obliquely arranged on the sides of the truncus; transversely so on the epinotum and nodes; the antennae and legs microscopically reticulate-rugulose. *Pubescent* and *pilosity* as in *namacolus*, although there seem to be four setae on the occiput and on the brow of the epinotum.

Head very slightly longer than wide and about two-ninths to almost one-fourth wider than the truncus, the sides a little convex, narrower in front than in the middle, the hind margin as convex as in *namacolus*, the *frontal area* more clearly marked, the *frontal carinae* as in that species, the *frontal sulcus* somewhat more distinct. The *eyes* oval, occupying about three-tenths of the length of the head and situated behind the middle of the sides. The *clypeus* as in *namacolus*. The *scapes* slightly shorter than the head, extending beyond the hind margin by almost one-third to two-fifths of their length, their bases widened and as wide here as their apices; the flagellum two-fifths (or slightly more) longer than the scape, all the joints longer than wide, the 2nd the shortest, the 3rd-10th equal in length, the 1st longer than the rest and about as long as the apical joint.

The *truncus* nearly twice as long as wide (or slightly less) and also about five-eighths wider over the pronotum than over the brow of the epinotum, the *mesoepinotal suture* obsolete above but indicated on each side by a triangular impression. In profile the mesonotum appears somewhat gibbous, the epinotal concavity being shorter than in *namacolus* and therefore deeper but almost as flat; the brow of the epinotum and its declivity similar to those of the latter species. *Petiole node* about two-sevenths wider than long, seen from above the outline is oval, seen from the side as high as wide, the dorsal surface sloping forward, the short front and longer hind faces nearly vertical, the ventral surface almost straight, its peduncle short. *Abdomen* rounded at the base, the acidopore with a fringe of short setae as in the previous species. *Legs* moderately long, the hind legs shorter than in *namacolus*.

Type series: 1 ♂, South African Museum. Hondeklip Bay, Namaqualand, 8 January 1971 (A. J. Prins).

2 ♀♀, Plant Protection Research Institute, Pretoria. Same date and locality (in alcohol) (A. J. Prins).

The *Tetramorium*-like *namacolus* may easily be distinguished from *sellidosatus* by the reddish head and truncus; the latter very closely resembles a cock-tail ant when moving slowly over the ground; both seem to have the same distribution although they have not yet been found together. I have placed these two species in the subgenus *Mayria* until more material is available for further study.

SUMMARY

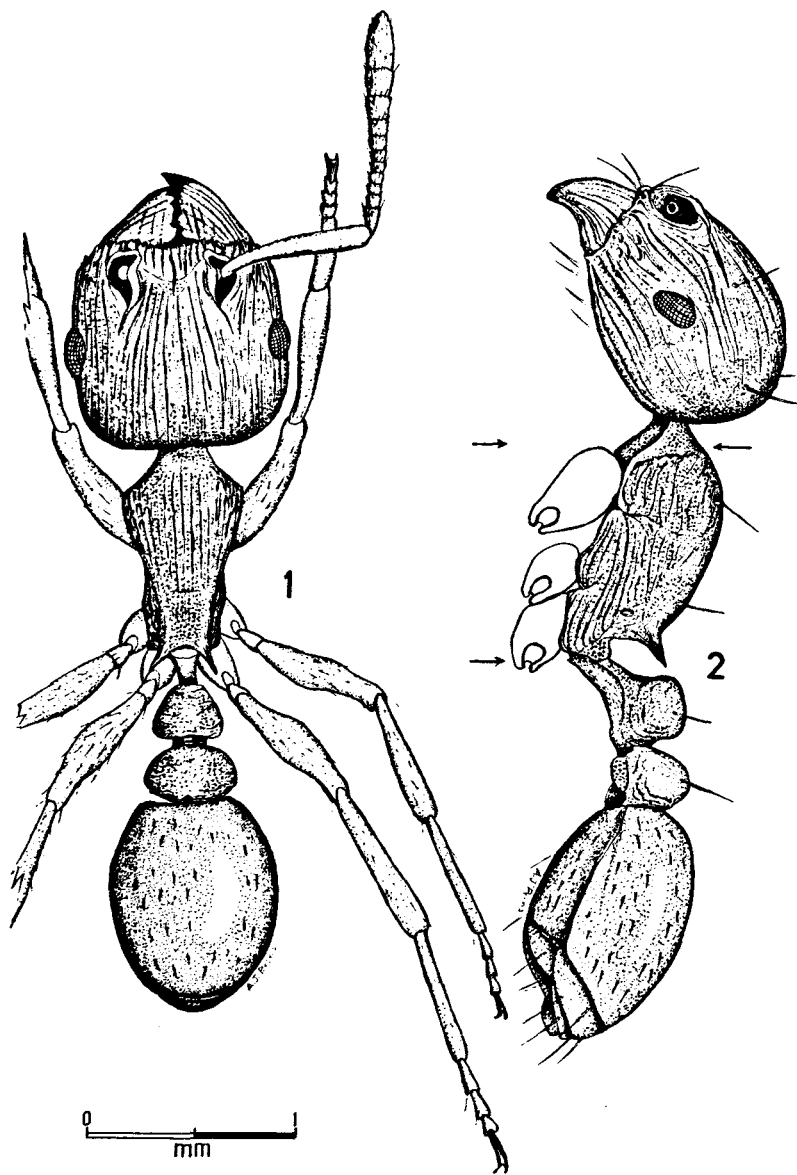
In this paper five types and 2 series of determined specimens have been redescribed, apart from the descriptions of four new species, together with the necessary illustrations and a proposed key for the identification of the ants belonging to the *solidum* group is added for the reader's convenience. *T. solidum* Emery var. *dichroum* Santschi is raised to a subspecies of *peringueyi* Arnold.

ACKNOWLEDGEMENTS

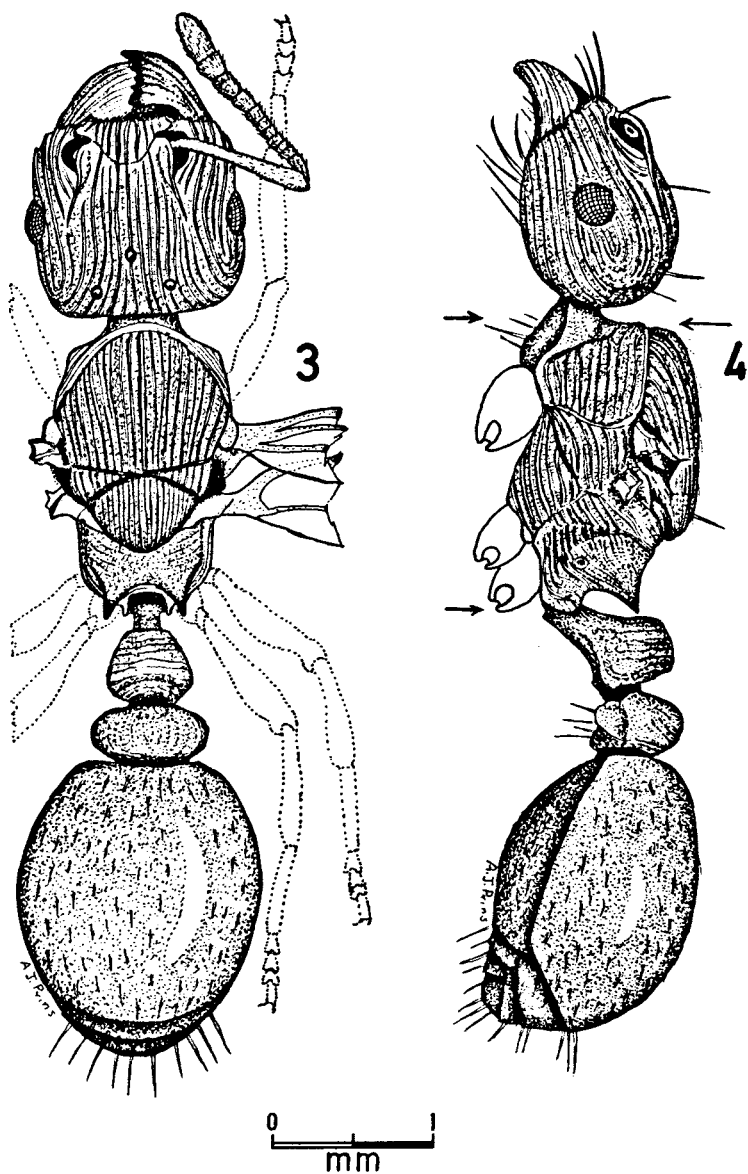
I am very grateful to Dr A. J. Hesse of this Museum for assisting me in the naming of the new species described here.

REFERENCES

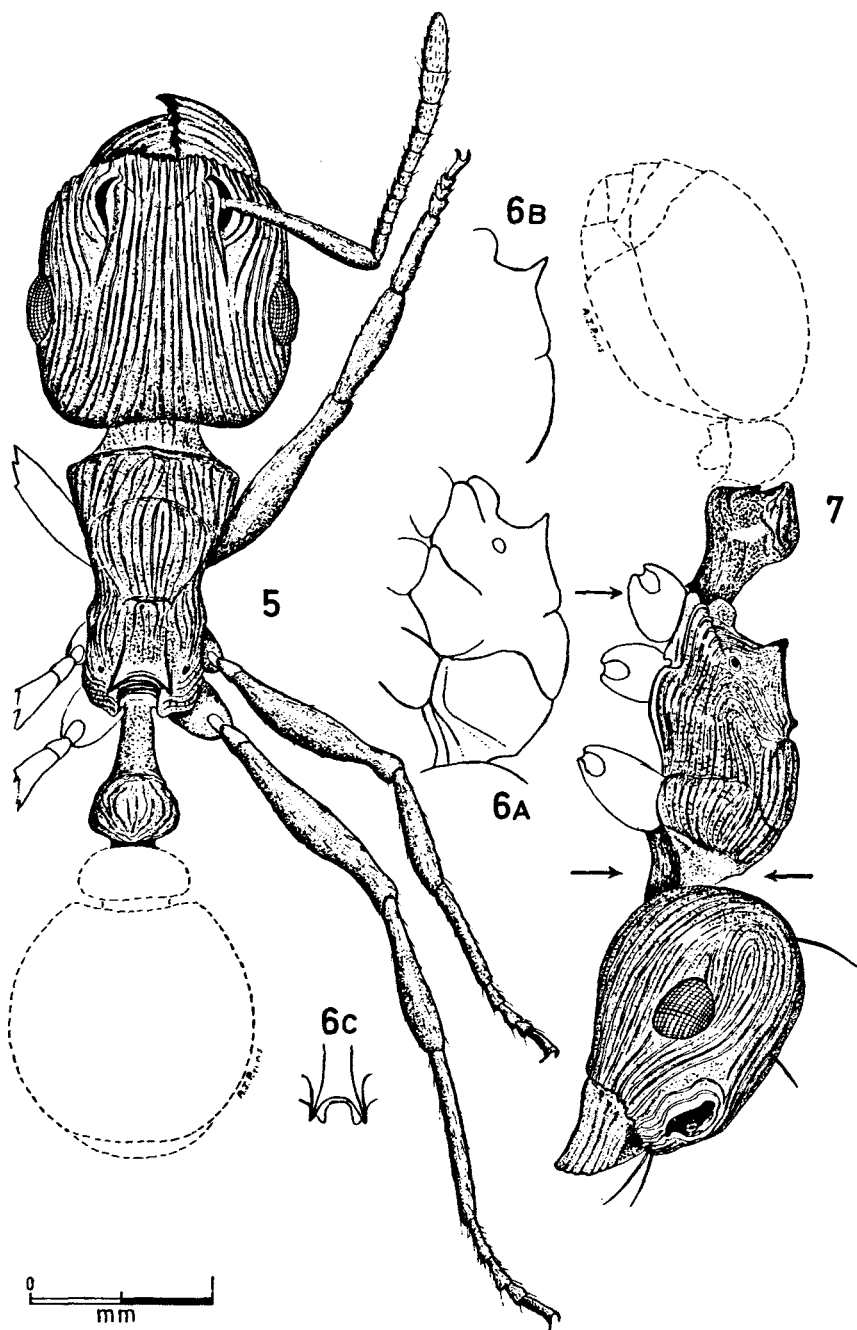
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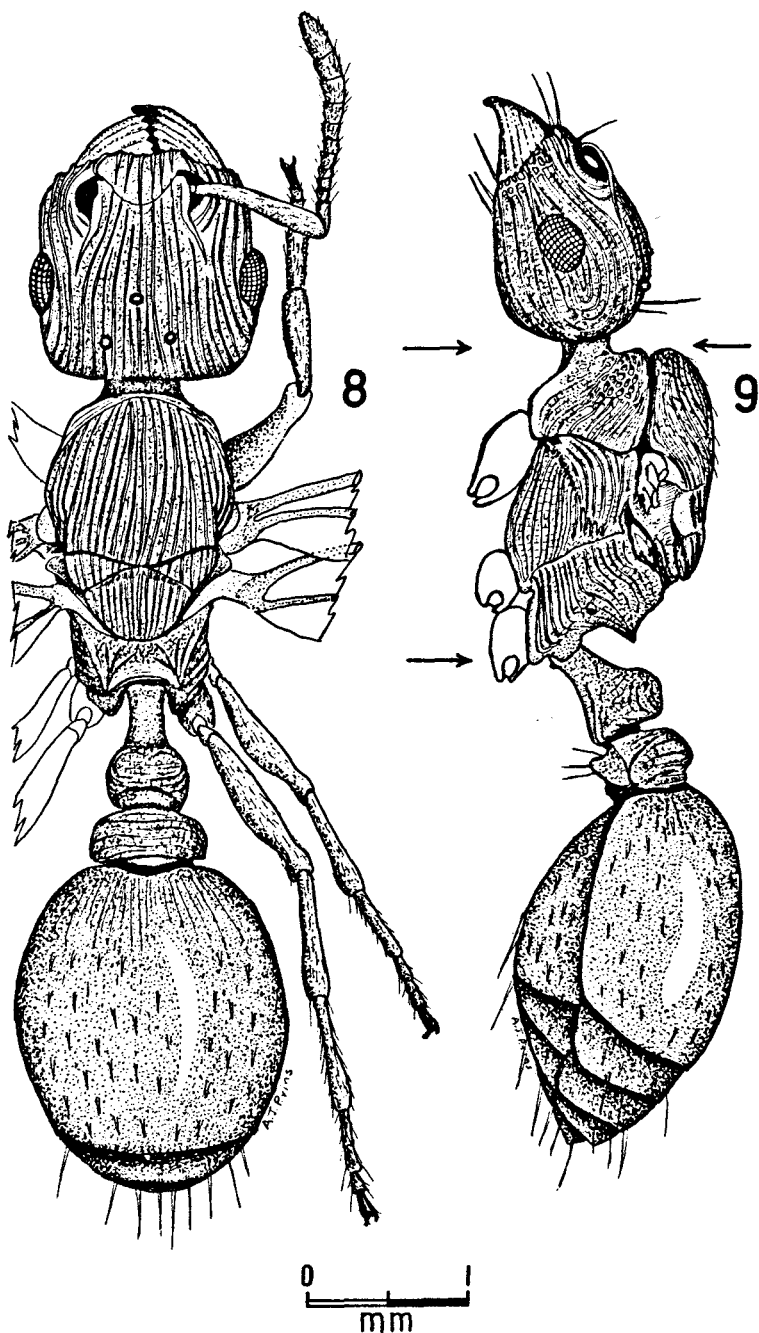
Figs 1-2. *Tetramorium solidum* Emery ♀.



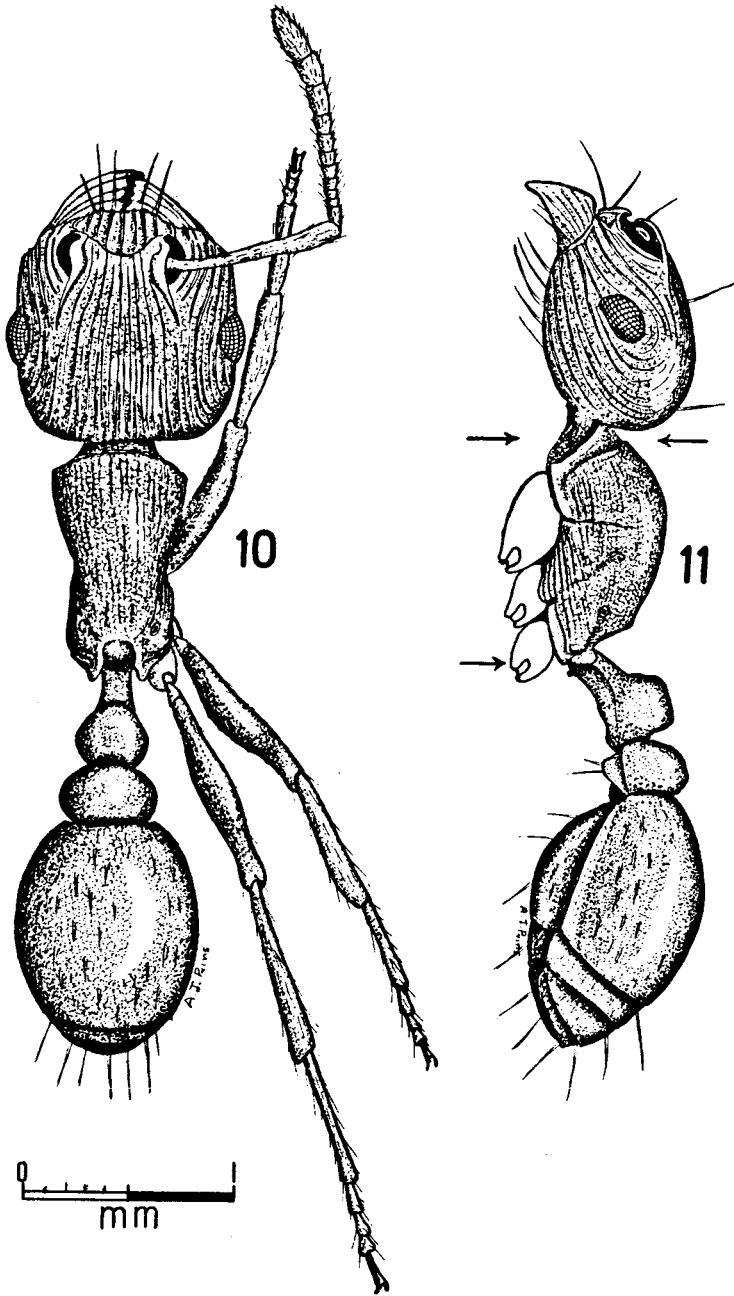
Figs 3-4. *Tetramorium solidum* Emery ♀.



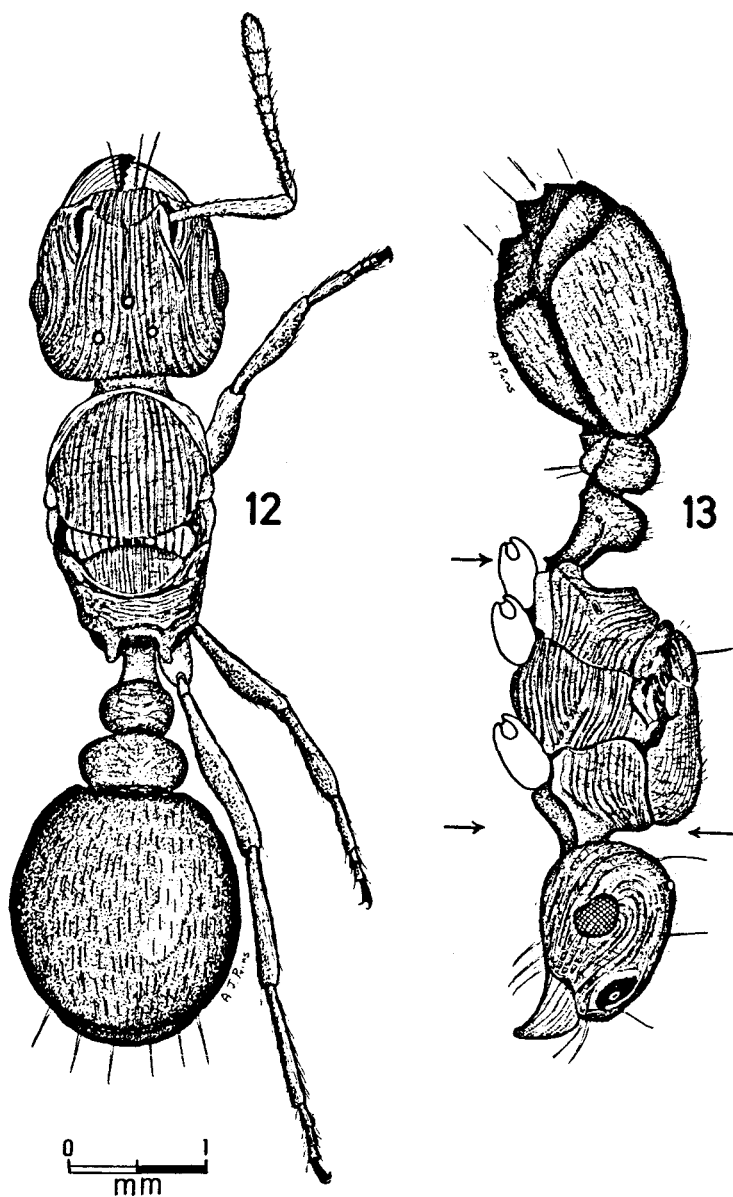
Figs 5-7. *Tetramorium solidum* Emery *tuckeri* Arnold ♀. 6A. Truncus of specimens from north-western Cape. 6B. Dorsal outline of truncus of specimens from South West Africa. 6C. Dorsal view of spines of specimens from South West Africa.



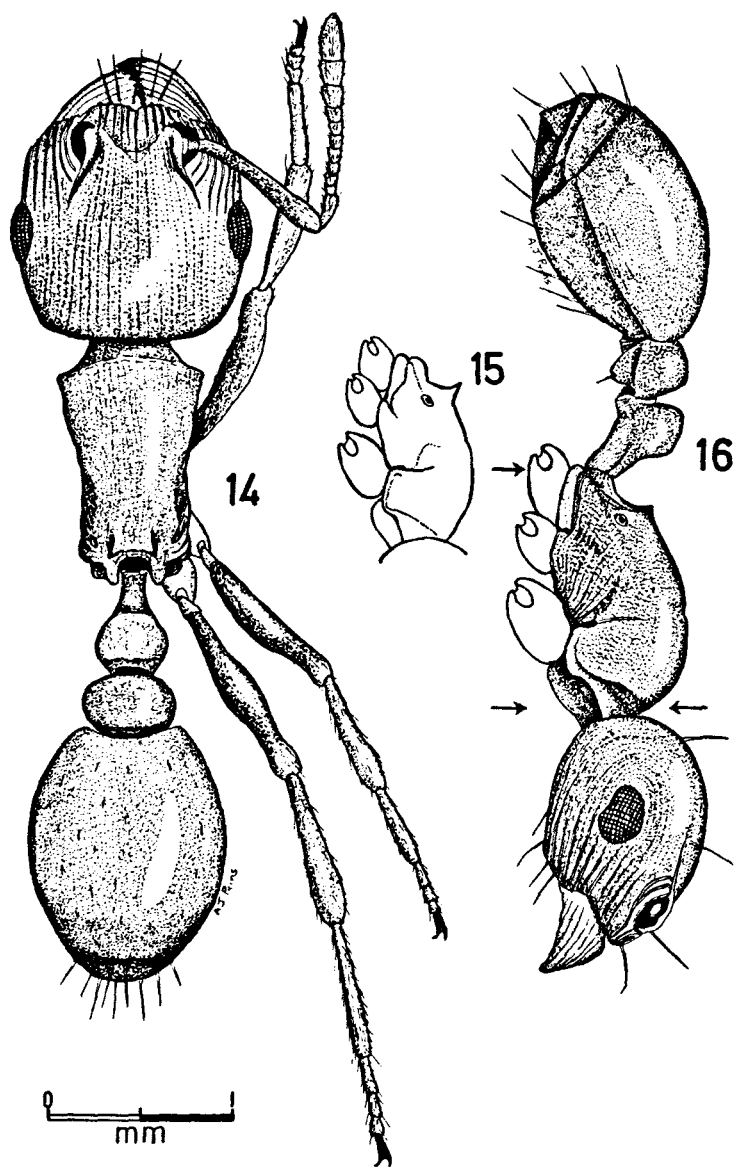
Figs 8-9. *Tetramorium solidum* Emery *tuckeri* Arnold ♀.



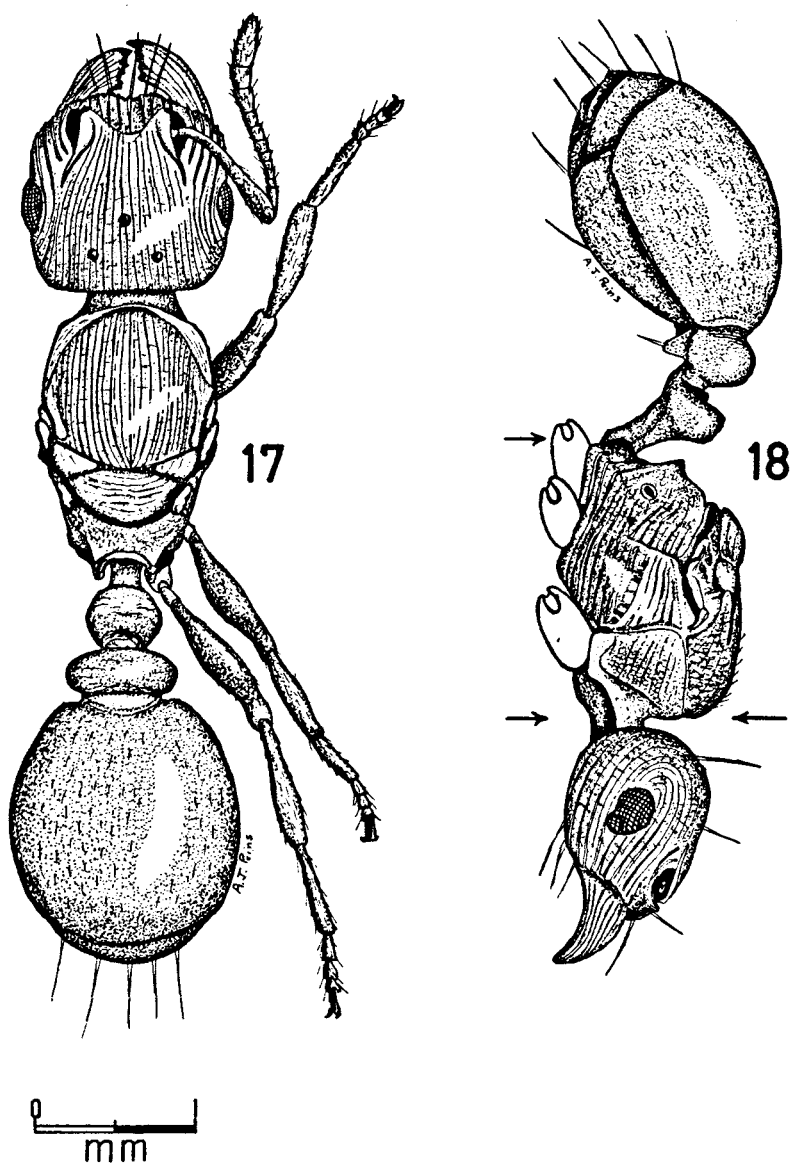
Figs 10-11. *Tetramorium aspinatum* n.sp. ♀.

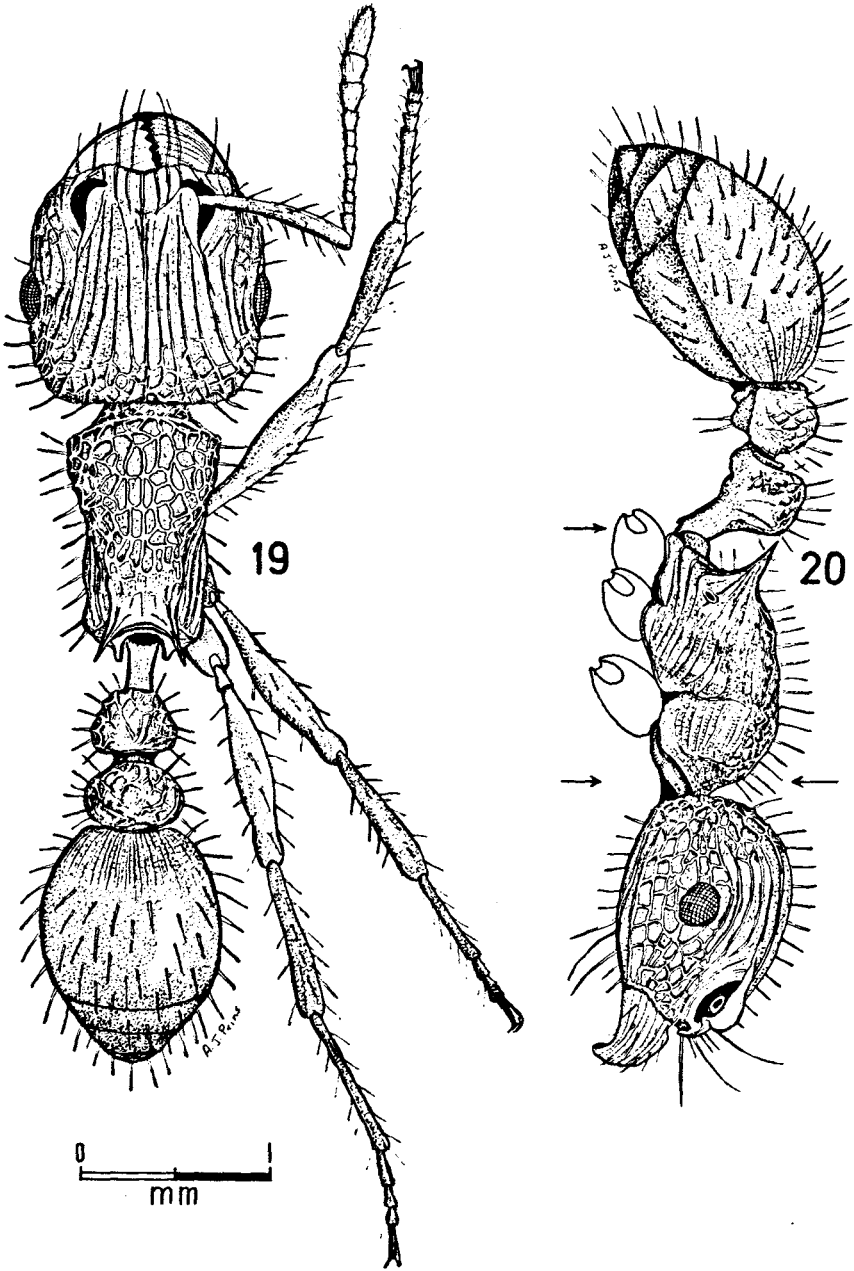


Figs 12-13. *Tetramorium aspinatum* n.sp. ♀.

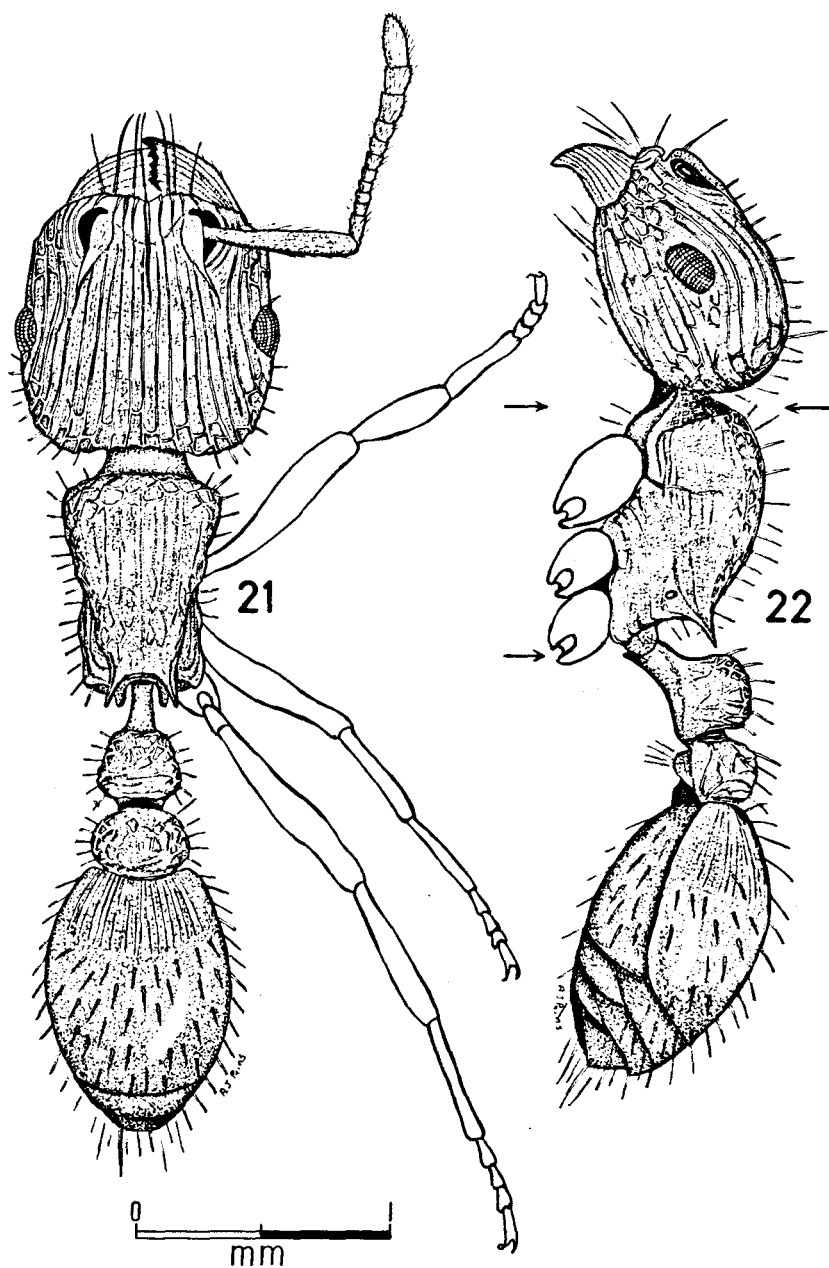


Figs 14-16. *Tetramorium rutilum* n.sp. ♀. 15. *Tetramorium rutilum*, smaller form, Vanrhynsdorp.

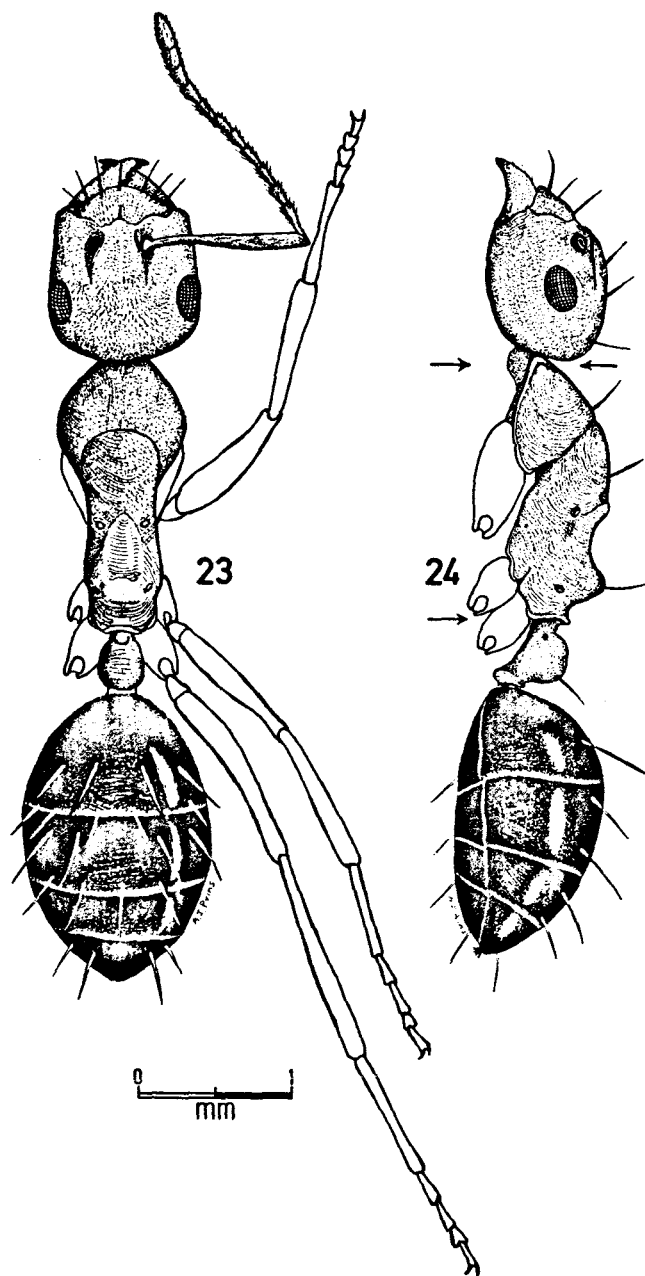
Figs 17-18. *Tetramorium rutilum* n.sp. ♀.



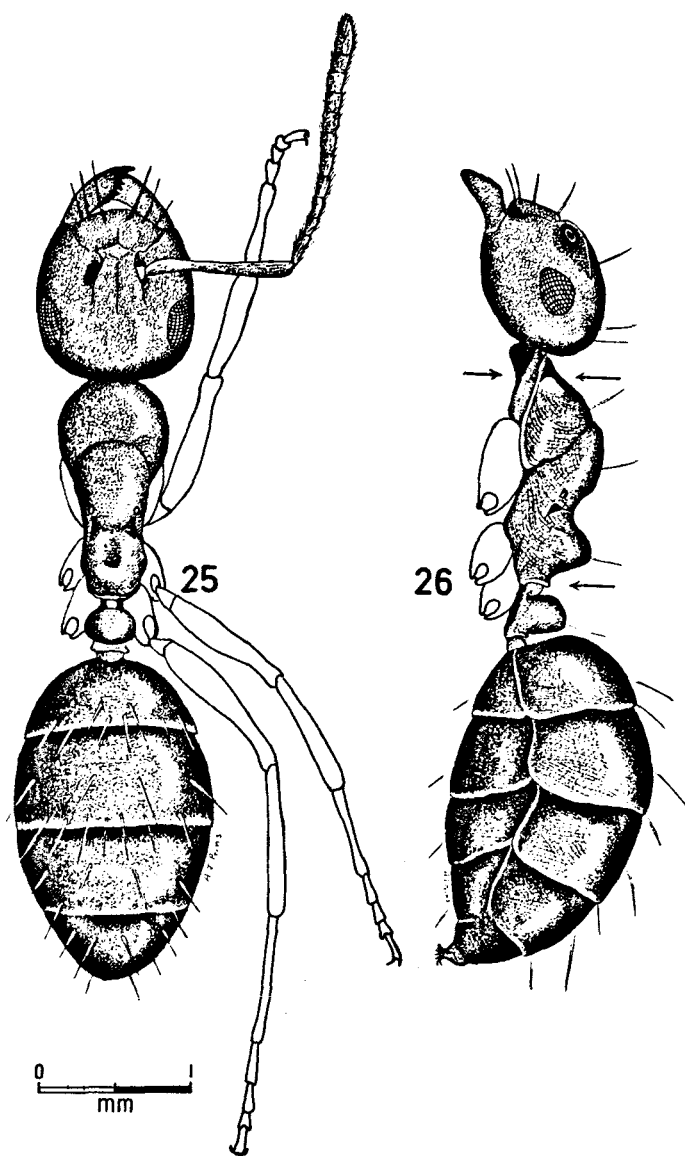
Figs 19-20. *Tetramorium peringueyi* Arnold ♀.



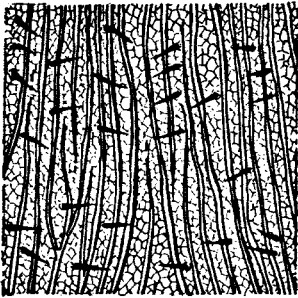
Figs 21-22. *Tetramorium peringueyi* Arnold *dichroum* Santschi ♀.



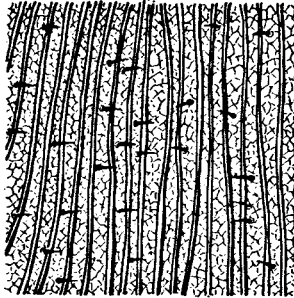
Figs 23-24. *Camponotus namaculus* n.sp. ♀.



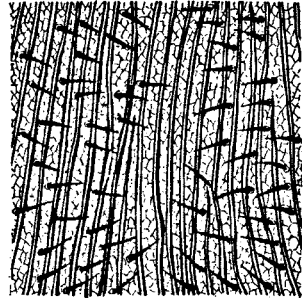
Figs 25-26. *Camponotus sellidorsatus* n.sp. ♀.



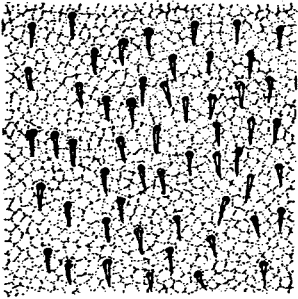
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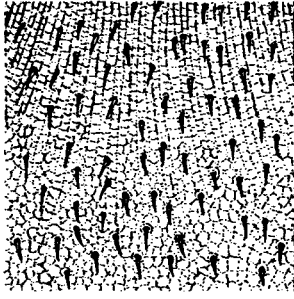
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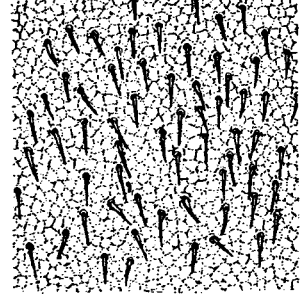
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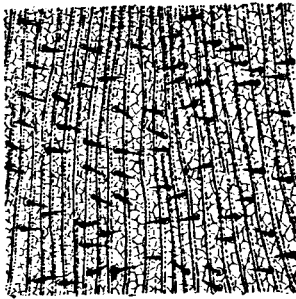
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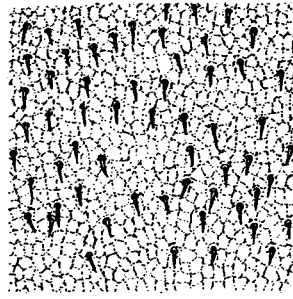
28B



29B

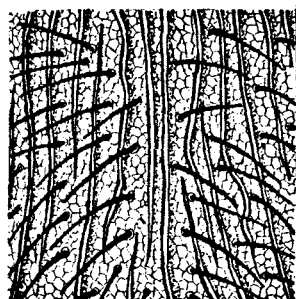


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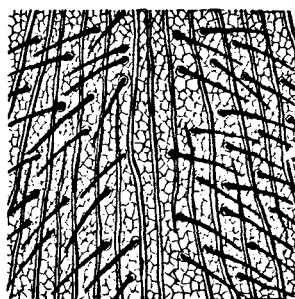


30B

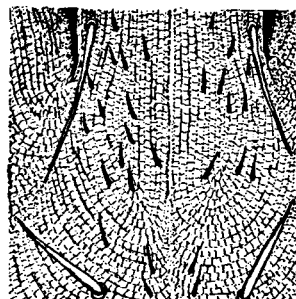
Figs 27-30. 0,5 mm² of (A) the vertex of the head and (B) the middle of the 1st abdominal segment to show the sculpture and the position of the setae. 27. *T. solidum* Emery; 28. *T. solidum* Emery *tuckeri* Arnold; 29. *T. aspinatum* n.sp.; 30. *T. rutilum* n.sp.



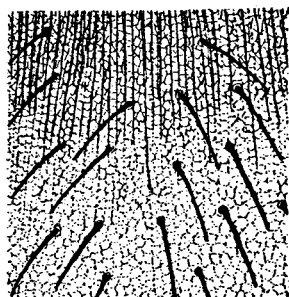
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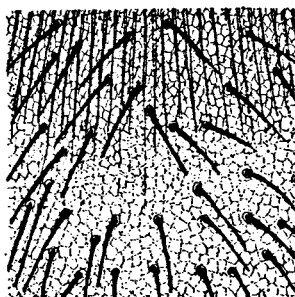
32A



33A



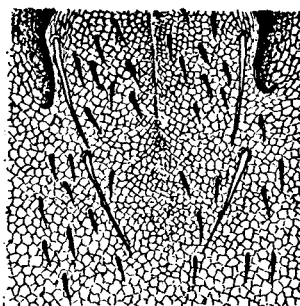
31B



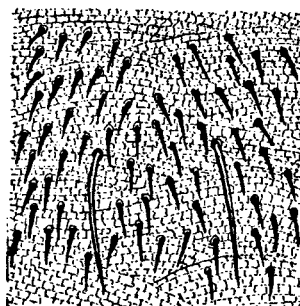
32B



33B

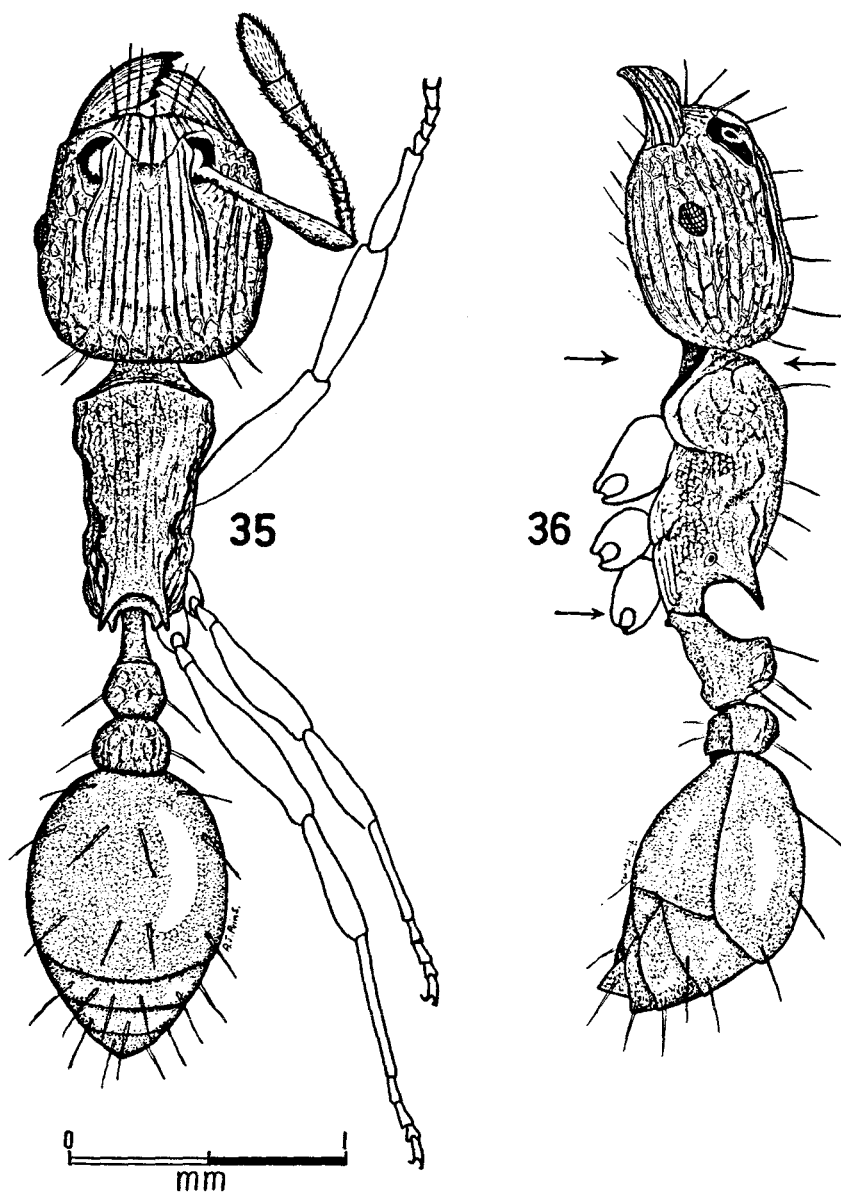


34A

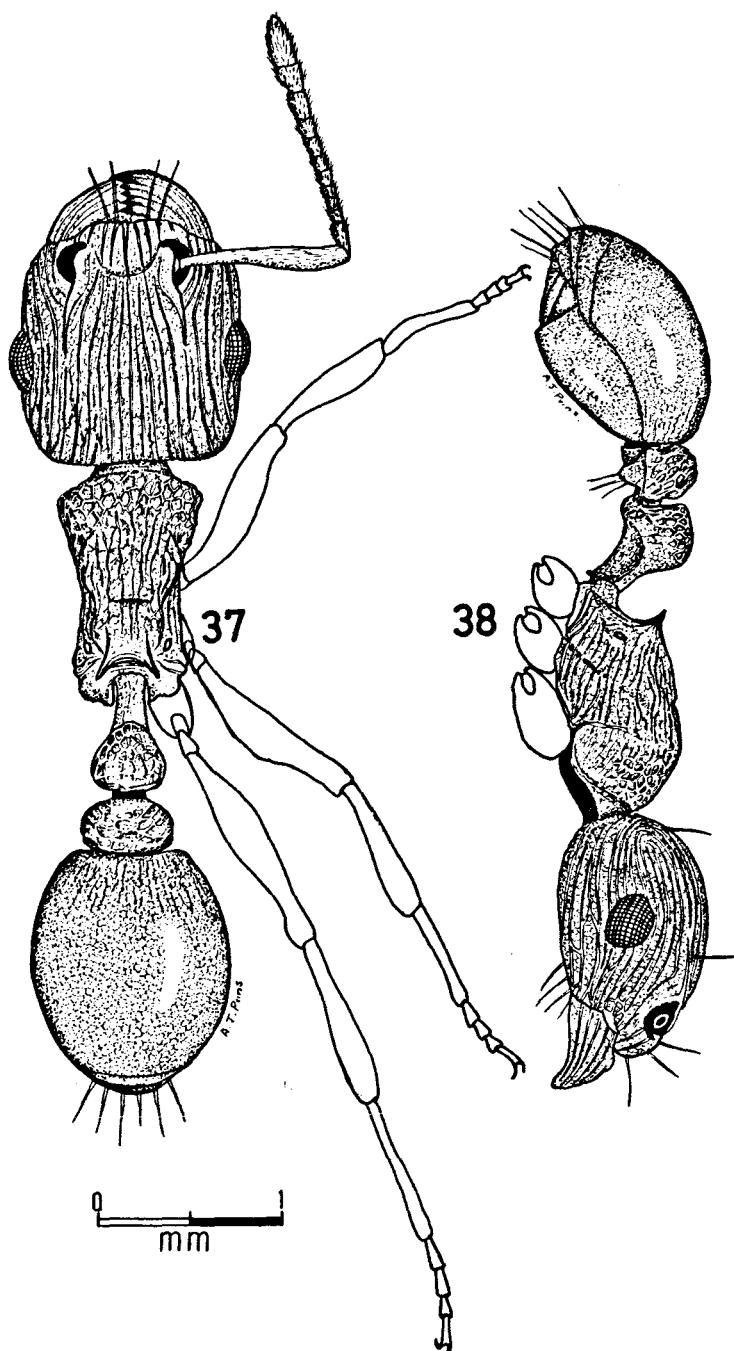


34B

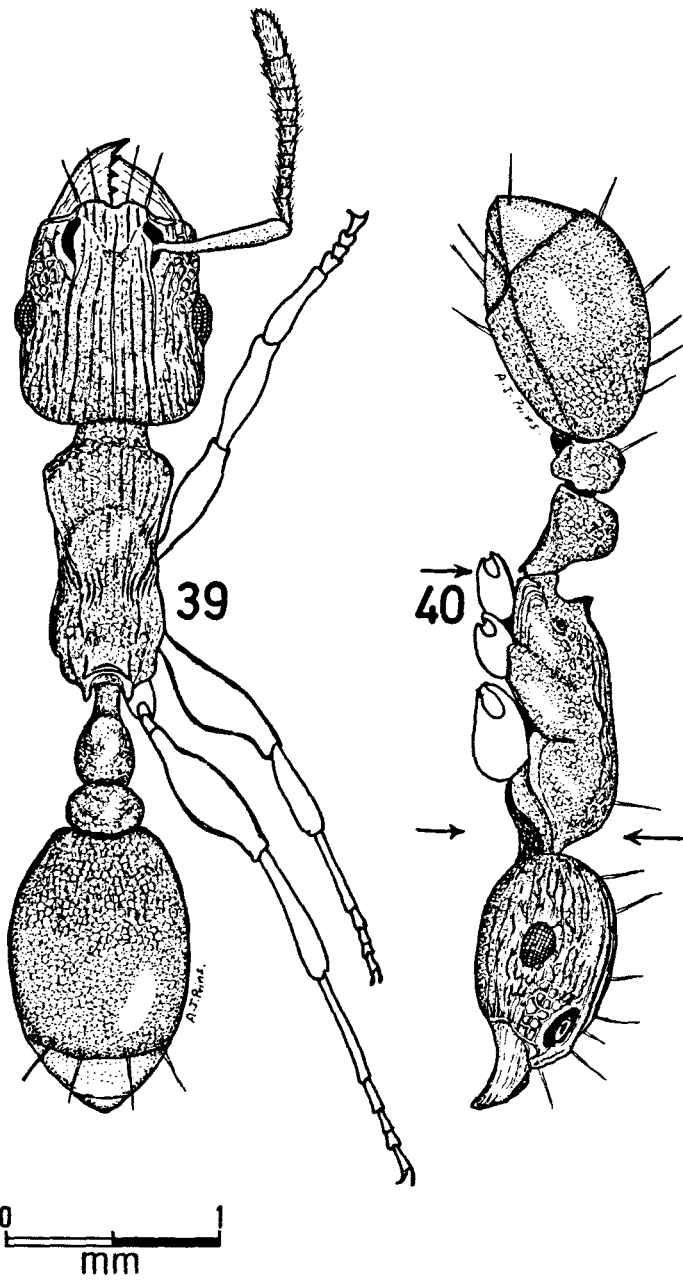
Figs 31-34. 0.5 mm² of (A) the vertex of the head and (B) the middle of the 1st abdominal segment to show the sculpture and the position of the setae. 31. *T. peringueyi* Arnold; 32. *T. peringueyi* Arnold *dichroum* Santschi; 33. *C. namaculus* n.sp.; 34. *C. sellidorsatus* n.sp.



Figs 35-36. *Tetramorium capense* Mayr ♀.



Figs 37-38. *Tetramorium solidum* Emery *signata* Emery ♀.



Figs 39-40. *Tetramorium jauresi* Forel ♂.

INSTRUCTIONS TO AUTHORS

Based on

CONFERENCE OF BIOLOGICAL EDITORS, COMMITTEE ON FORM AND STYLE. 1960.

Style manual for biological journals. Washington: American Institute of Biological Sciences.

MANUSCRIPT

To be typewritten, double spaced, with good margins, arranged in the following order: (1) Heading, consisting of informative but brief title, name(s) of author(s), address(es) of author(s), number of illustrations (figures, enumerated maps and tables) in the article. (2) Contents. (3) The main text, divided into principal divisions with major headings; sub-headings to be used sparingly and enumeration of headings to be avoided. (4) Summary. (5) Acknowledgements. (6) References, as below.

Figure captions and tables to be on separate sheets.

ILLUSTRATIONS

To be reducible to 12 cm × 18 cm (19 cm including caption). A metric scale to appear with all photographs.

All illustrations to be termed figures (plates are not printed; half-tones will appear in their proper place in the text), with arabic numbering; items of composite figures to be designated by capital letters (A, B, C etc.).

REFERENCES

Harvard system (name and year) to be used: author's name and year of publication given in text; full references at the end of the article, arranged alphabetically by names, chronologically within each name, with suffixes *a*, *b*, etc. to the year for more than one paper by the same author in that year.

For books give title in italics, edition, volume number, place of publication, publisher.

For journal articles give title of article, title of journal in italics (abbreviated according to the *World list of scientific periodicals*, 4th ed. London: Butterworths, 1963), series in parentheses, volume number, part number (only if independently paged) in parentheses, pagination.

Examples (note capitalization and punctuation)

BULLOUGH, W. S. 1960. *Practical invertebrate anatomy*. 2nd ed. London: Macmillan.

FISCHER, P.-H. 1948. Données sur la résistance et de la vitalité des mollusques. *J. Conch., Paris* **88**: 100-140.

FISCHER, P.-H., DUVAL, M. & RAFFY, A. 1933. Etudes sur les échanges respiratoires des littorines. *Archs Zool. exp. gén.* **74**: 627-634.

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KOHN, A. J. 1960b. Spawning behaviour, egg masses and larval development in *Comus* from the Indian Ocean. *Bull. Bingham oceanogr. Coll.* **17** (4): 1-51.

THIELE, J. 1910. Mollusca: B. Polyplacophora, Gastropoda marina, Bivalvia. In: SCHULTZE, L. *Zoologische und anthropologische Ergebnisse einer Forschungsreise im westlichen und zentralen Süd-Afrika*. **4**: 269-270. Jena: Fischer. *Denkschr. med.-naturw. Ges. Jena* **16**: 269-270.

ZOOLOGICAL NOMENCLATURE

To be governed by the rulings of the latest *International code of zoological nomenclature* issued by the International Trust for Zoological Nomenclature (particularly articles 22 and 51). The Harvard system of reference to be used in the synonymy lists, with the full references incorporated in the list at the end of the article, and not given in contracted form in the synonymy list.

Example

Scalaria coronata Lamarck, 1816: pl. 451, figs 5 *a*, *b*; Liste: 11. Turton, 1932: 80.