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A NEW ANT GENUS
FROM SOUTHERN AFRICA
(HYMENOPTERA, FORMICIDAE)

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(With 4 figures)

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ABSTRACT

A new genus and its two new species, *Agraulomyrmex meridionalis* and *A. wilsoni*, are described and a key to the workers of the genera of the subfamily Formicinae present in this subregion is provided.

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INTRODUCTION

In 1969 surveys of ants present in citrus orchards were conducted throughout South Africa. During the cooler winter months and early spring one sample of small, brownish hypogaecic ants was collected among some citrus trees in the veld near Velddrif, a small fishing village about 200 km north-west of Cape Town. As these ants looked very much like *Technomyrmex albipes* (F. Smith), which shared the same habitat, they were noted as such in the collection records. This same species of ant was also at the time observed in a small citrus orchard near Citrusdal, about 60 km north-east of Velddrif. In this case they were tending the aphid *Hyadaphis coriandri* (Das) on warm days, about 4 to 7 cm above ground level on the low-growing weeds. They were, however, never observed during the summer and autumn months.

Three years later a sample received from the Ministry of Agriculture of Zimbabwe (formerly Rhodesia) proved to be a different species of this new genus, which includes the only southern African formicine ants of which the workers have ten-segmented antennae.

Genus *Agraulomyrmex* gen. nov.

Type species *Agraulomyrmex meridionalis* sp. nov.
by original designation herein

Diagnosis

Small ants with ten-segmented antennae, flagella incrassate towards apices without distinct club; first and last segments of flagella longer than wide, the remaining segments as long as or wider than long. Mandibles triangular with four to six teeth; frontal carinae short, antennal fossae situated close to posterior border of clypeus. Eyes large, placed in front of middle of sides of head; ocelli absent. Maxillary palpi five- to six-segmented, labial palp three- to four-segmented. Labrum bilobed, widely and shallowly emarginate in middle. Frontal area clearly indicated.

Alitrunk with promesonotal and mesonotal-propodeal sutures well developed, mesometanotal suture absent; propodeum rounded from front to back, unarmed. Petiole with very small or rudimentary scale overhung by base of abdomen. Legs moderately long.

Although the ten-segmented antennae point to a myrmelachistine relationship, these ants share characters with the plagirolepidines, viz. the absence of a distinct antennal club, the structure and form of the alitrunk (the absence of a distinct metanotum as in certain members such as the genus *Acropyga*), as well as the structure of the asepalous proventriculus (Fig. 4A-D). The new genus is therefore included in the tribe Plagirolepidini.

Workers of these ants bear a close resemblance to those of the genus *Acropyga* (Prins 1982); however, they are much smaller and darker in colour, and the eyes are much larger. In members of *Acropyga* the eyes are very small, consisting of only a few facets. The petiolar scale is also much more reduced than in *Acropyga*.

Derivation of name

The name *Agraulomyrmex* (masculine gender) is derived from the Greek word *agraulos*, which refers to the mode of living (in the fields).

Agraulomyrmex meridionalis sp. nov.*Description**Worker* (Fig. 1A-C)

Specimens collected at Velddrif from which the type material was selected: TL 2,10-2,20 mm; L0,90-1,0 mm; HL 0,48-0,52 mm; ED 0,26 mm; CL 0,08-0,10 mm; FL 0,40-0,42 mm; SL 0,32-0,36 mm; WL 0,48-0,50 mm; MFL 0,28-0,30 mm; HFL 0,32-0,36 mm; PL 0,10 mm; CI 76,9-79,2; FI 61,9-65,0; SI 84,2-90,0; CLI 320,0-355,6; TI 58,0-58,3; PI 100,0; HFI 66,7-72,0.

Dark brown, tarsi and mandibles paler. Smooth and shiny all over, especially declivity of propodeum and petiole. Finely sculptured with piliferous punctures.

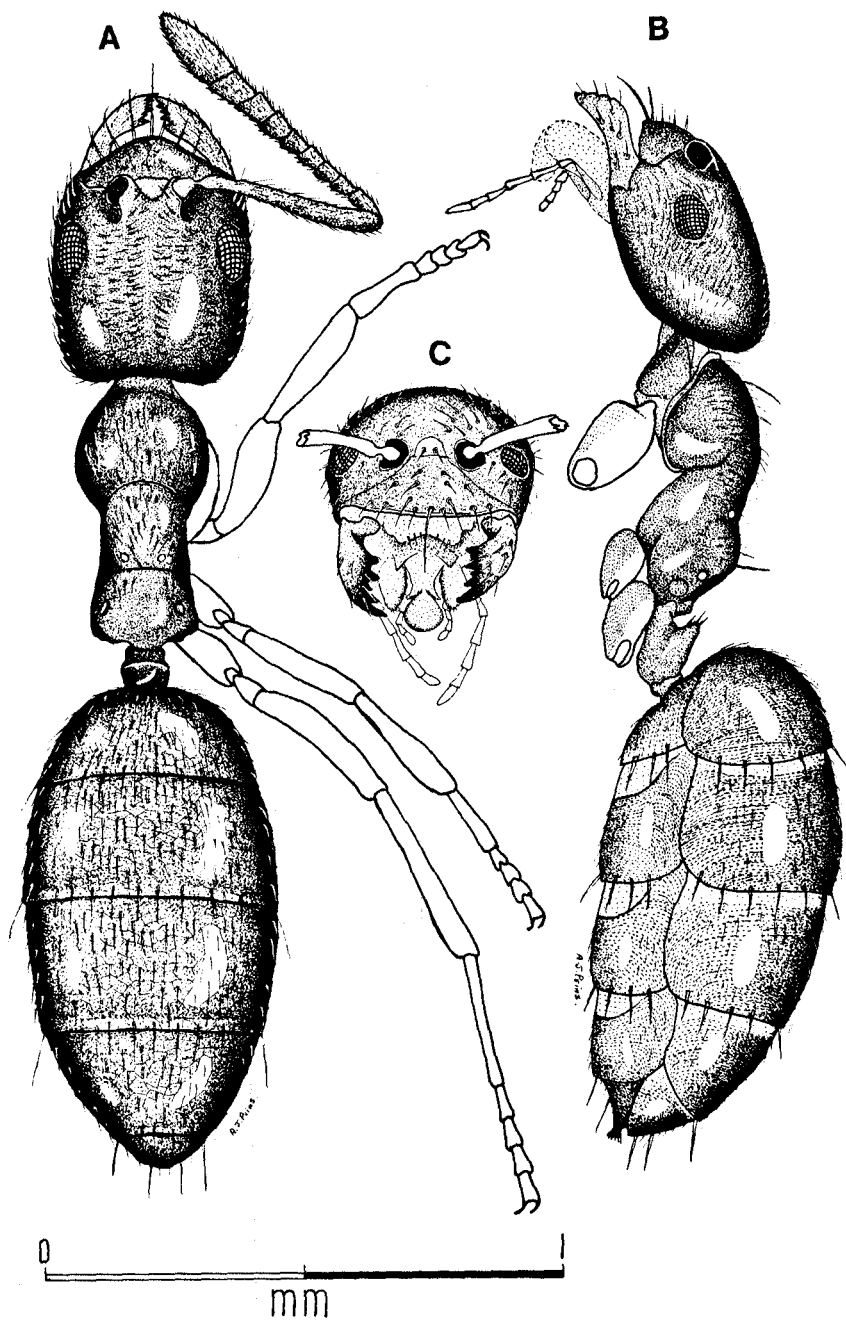


Fig. 1. *Agraulomyrmex meridionalis* sp. nov.
 A. Dorsal view of worker. B. Left lateral view of worker. C. Head of worker seen from the front.

Pubescence fairly long, decumbent and yellowish, dense all over except on petiole and declivity. Pilosity yellowish, long, evident only on mandibles, clypeus, petiole, and apical margins of abdominal segments.

Head quadrate in dorsal view, about one-fifth to one-sixth longer than wide, and about one-third wider than pronotum, sides feebly convex, hind margin almost straight. Clypeus convex in middle, not carinate, its anterior margin arcuate as in the genus *Acropyga*. Scapes about two-thirds as long as head (excluding mandibles) and reaching hind margin; flagellum about two-fifths longer than scape, first segment as long as the second and third taken together, apical one slightly longer than three preceding segments taken together; rest as wide as, or wider than, long. Eyes large, oval, occupying nearly one-fourth of the length of head (dorsal view—mandibles excluded), and situated in front of middle of sides. Mandibles shiny, with few large, oval punctures, each bearing erect or semi-erect seta, and with five to six alternate large and small teeth. Maxillary palp six-segmented, labial palp four-segmented.

Alitrunk similar to that of the genus *Acropyga*, slightly more than three-eighths longer than wide over pronotum; seen in profile propodeum is on lower level than promesonotum, declivity almost flat and longer than dorsum of propodeum. Scale of petiole rudimentary, inclined forward and about as long as wide and slightly higher than long; seen from behind almost as wide above as below, dorsum feebly convex.

Legs moderately long. Abdomen oval in dorsal view. Acidopore on conical projection of hypopygium, orifice surrounded by fringe of hairs.

Specimens which do not form part of the type material and which were collected at Citrusdal have the following representative measurements:

TL 2,0–2,20 mm; L 0,94–1,0 mm; HL 0,44–0,48 mm; ED 0,22–0,26 mm; CL 0,09–0,10 mm; FL 0,34–0,39 mm; SL 0,32–0,34 mm; WL 0,46–0,52 mm; MFL 0,26–0,28 mm; HFL 0,32–0,34 mm; PL 0,10–0,11 mm; CI 77,3–83,3; FI 64,1–68,4; SI 85,0–94,1; CLI 320,0–355,6; TI 53,8–56,5; PI 80,0–90,0; HFI 65,3–69,61.

In most of the specimens examined the head is somewhat shorter than the alitrunk and the scale of the petiole slightly longer than wide, otherwise similar in all respects to the Velddrif specimens.

Holotype

1 ♀, Velddrif, Cape Province (32°47'S 18°10'E), collected by A. J. Prins 7 July 1959, South African Museum specimen.

Paratypes

4 ♀♀, as above, South African Museum specimens.

Other material

Not included in the type material: 4 ♀♀, Citrusdal, Cape Province (32°37'S 18°58'E), collected by A. J. Prins 17 March 1960, South African Museum specimens.

Derivation of name

The name *meridionalis* is derived from the Latin word *meridionalis*-, which refers to the southerly distribution of this species.

Agraulomyrmex wilsoni sp. nov.*Description**Worker* (Fig. 2A–C)

TL 1,5–1,90 mm; L 0,66–0,7 mm; HL 0,34 mm; ED 0,20–0,21 mm; CL 0,05–0,06 mm; FL 0,28–0,29 mm; SL 0,20–0,21 mm; WL 0,34 mm; MFL 0,14 mm; HFL 0,18 mm; PL 0,07–0,08 mm; CI 88,2–94,1; FI 68,9–75,0; SI 65,6–73,3; CLI 336,7–440,0; TI 57,8; PI 87,5–114,3; HFI 52,9.

Brown; antennae, mandibles, legs and mesonotum paler in colour, almost brownish white in some individuals; eyes black. Fairly shiny all over. Finely sculptured with piliferous punctures as in *A. meridionalis*, giving integument an almost fine reticulate or reticulate-punctate appearance; in some specimens head somewhat duller than in *A. meridionalis*. Pubescence and pilosity as in *A. meridionalis*.

Head quadrate in dorsal view, about one-sixth (or slightly more) longer than wide and three-eighths wider than pronotum, sides and hind margin almost straight. Clypeus and mandibles as in *A. meridionalis*, latter with four sharp teeth. Scapes slightly more than three-quarters as long as head (dorsal view—mandibles excluded) and falling short of hind margin by about one-fourth of their length; flagellum about one-half longer than scape; the first segment as long as second to fourth taken together; apical one about as long as four preceding ones taken together; remaining segments as wide as or wider than long. Eyes about one-fourth the length of the head (dorsal view—excluding mandibles) and situated in front of middle of sides. Maxillary palp five-segmented, labial palp three-segmented.

Alitrunk as in *A. meridionalis*, about three-eighths longer than wide over pronotum, sutures clearly indicated. Scale of petiole much more reduced, about as long as wide and about as high as long or slightly higher; seen from behind almost as in *A. meridionalis*. Otherwise as in latter species.

Female (Fig. 3A–B)

Somewhat damaged, both flagella broken off.

TL 3,60 mm; L 1,48 mm; HL 0,48 mm; ED 0,32 mm; LO 0,26 mm; OD 0,13 mm; CL 0,09 mm; FL 0,39 mm; SL 0,34 mm; WL 0,94 mm; MFL 0,26 mm; HFL 0,41 mm; PL 0,12 mm; CI 91,7; FI 82,1; SI 77,3; CLI 377,8; TI 53,2; PI 133,3; HFI 43,6.

Brown, legs, antennae and mandibles paler in colour, eyes black, moderately shiny. Finely and superficially punctate or reticulate-punctate, especially on legs and antennae. Pubescence and pilosity as in worker, except for some pilose hairs on scutellum.

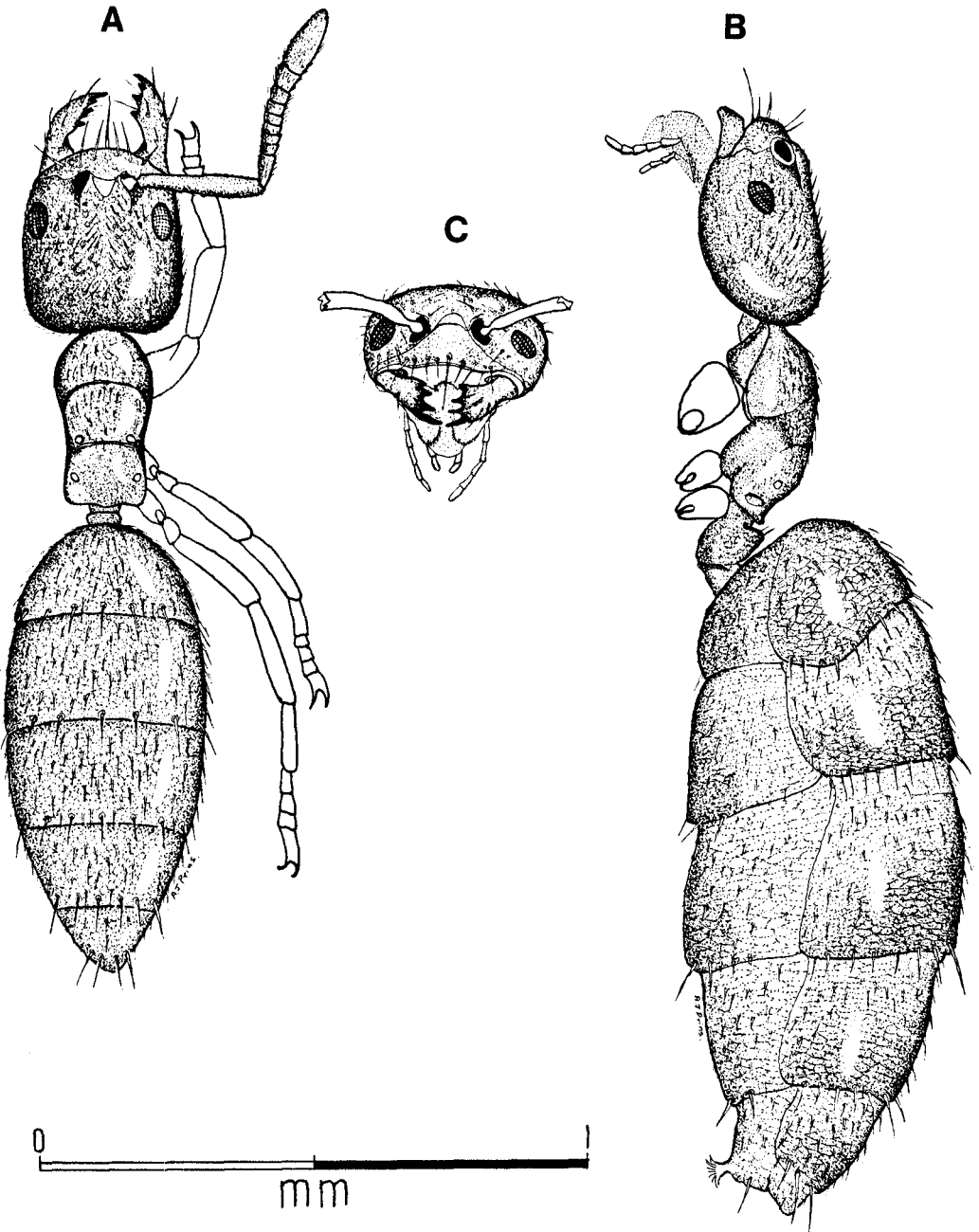


Fig. 2. *Agraulomyrmex wilsoni* sp. nov.
A. Dorsal view of worker. B. Left lateral view of worker. C. Head of worker seen from the front.

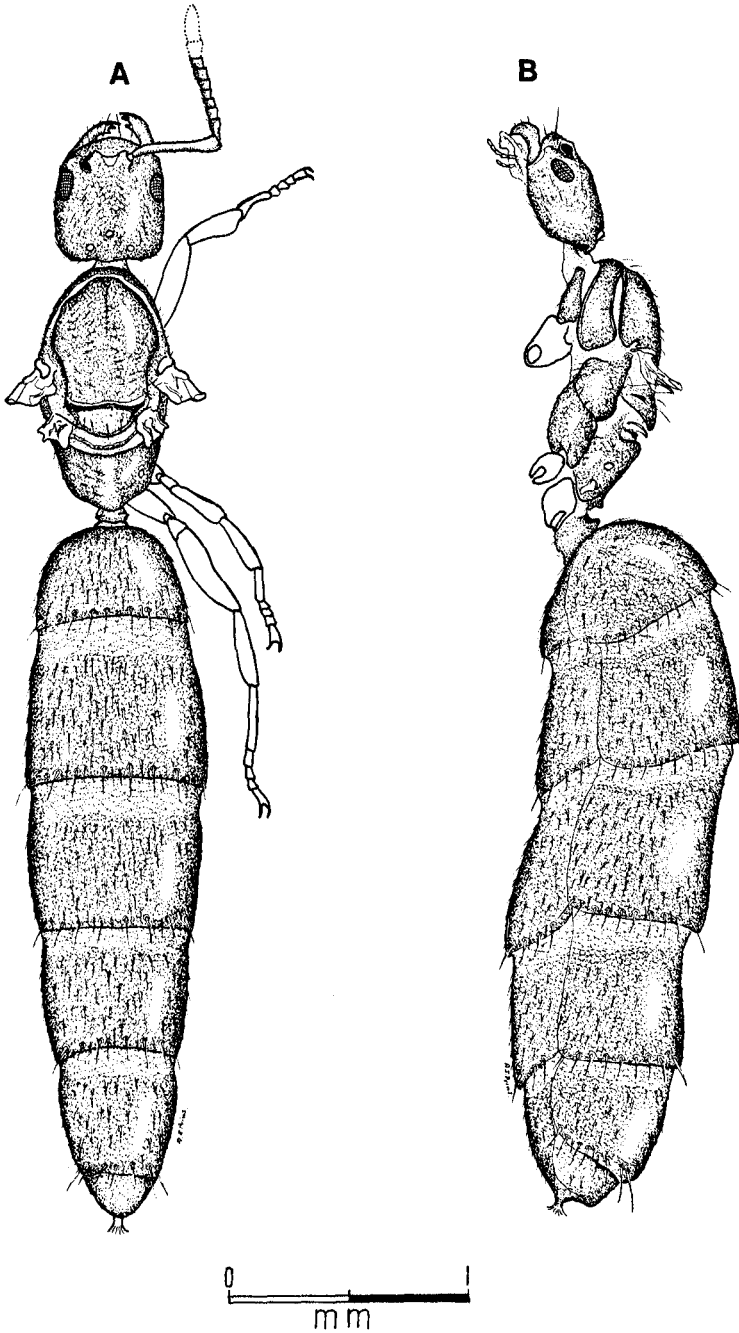


Fig. 3. *Agraulomyrmex wilsoni* sp. nov.
A. Dorsal view of female. B. Left lateral view of female.

Head quadrate in dorsal view, nearly one-sixth longer than wide, and slightly narrower than truncus; sides and hind margin almost straight. Frontal carinae, frontal area, mandibles, and clypeus as in worker. Eyes large, occupying about one-fourth the length of the head (dorsal view—mandibles excluded). Scapes about three-fourths as long as head (dorsal view—mandibles excluded) and falling short of hind margin by about the length of the second segment of flagellum.

Alitrunk slightly less than twice as long as wide, parapsidal furrows indicated, scutellum one-fourth the length of the scutum; seen from above alitrunk appears oval in outline; in profile propodeum slopes down fairly steeply towards junction of petiole. Latter with almost obsolete scale which is slightly wider than long and about one-fourth higher than wide. Abdomen in specimen examined nearly twice as long as head and alitrunk taken together, oval at base. Legs moderately long, femora somewhat swollen.

These ants are much smaller than *A. meridionalis*, much paler in colour, and more repletes were present.

Holotype

1 ♀, Gwebi, Zimbabwe (17°40'S 30°40'E), collected by K. J. Wilson December 1972, South African Museum specimen.

Paratypes

1 ♀, 7 ♂♂, as above, South African Museum specimens.

Derivation of name

This species has been named after Dr K. J. Wilson of the Ministry of Agriculture, Harare, Zimbabwe (formerly Salisbury, Rhodesia), who collected the sample.

KEY TO THE WORKERS OF THE GENERA OF THE SUBFAMILY FORMICINAE IN SOUTHERN AFRICA

Bolton's (1973) key should be altered as follows to accommodate the genera of the southern African subregion (south of the Zambesi River). According to his key the acidopore is not borne on a conical projection of the hypopygium in the genus *Camponotus*, and the orifice is usually not surrounded by a fringe of hairs. However, in some of our southern African species the acidopore is raised to a certain extent above the surface of the hypopygium on a somewhat conical area, and is surrounded by hairs on at least the anterior edge of the orifice. This is particularly the case in some species of the subgenera, *Myrmespera*, *Mayria* (see Prins 1973), *Orthonotomyrmex*, *Myrmopsamma*, *Myrmopiromis*, and even in some members of *Tanaemyrmex*. It is definitely on a conical projection of the hypopygium in this new genus *Agraulomyrmex*.

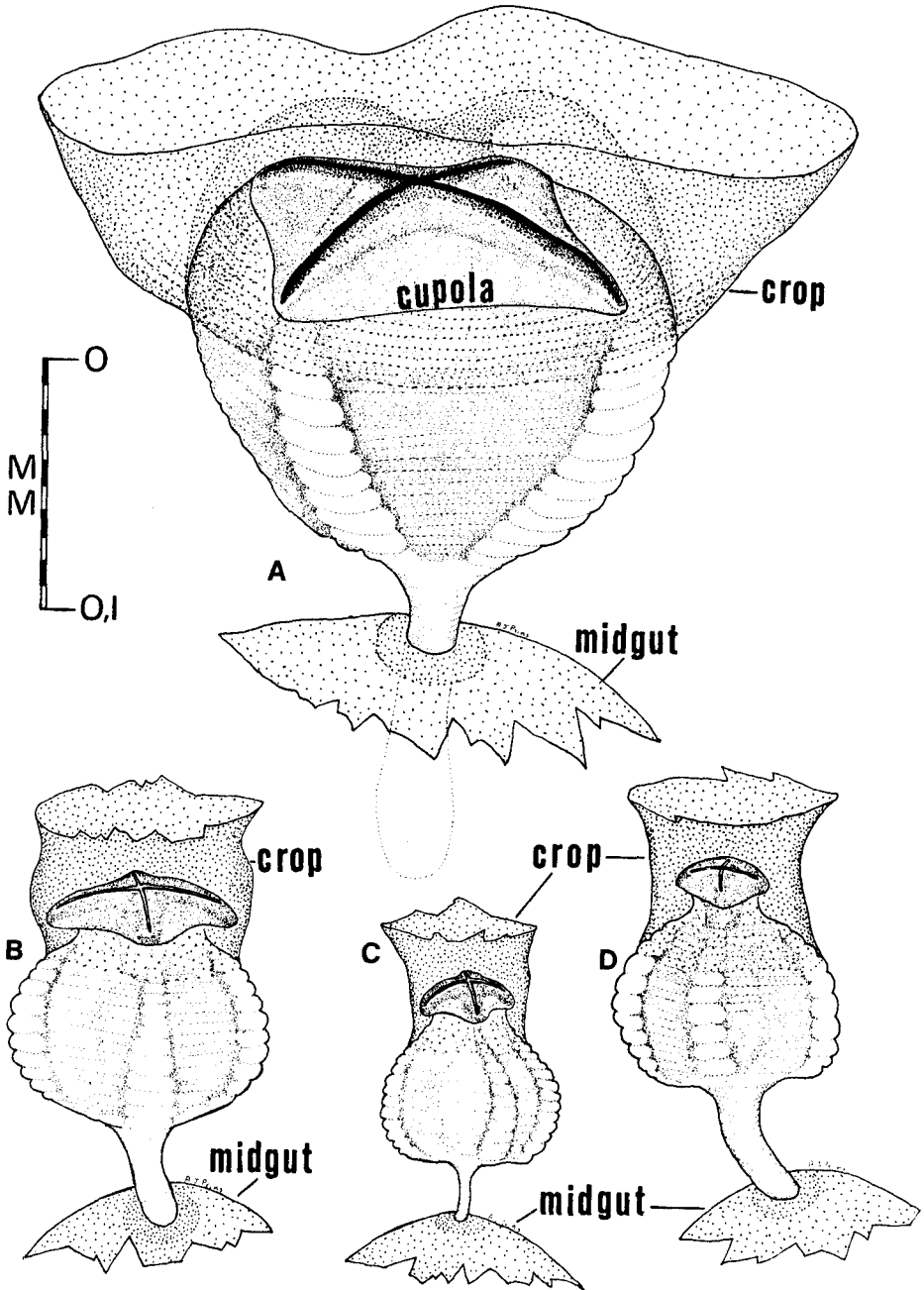


Fig. 4. Lateral view of the proventriculus of the workers of three species of plagiolenid ants, compared with that of *Agraulomyrmex meridionalis* sp. nov.

- A. *Anoplolepis steingroeveri* Forel. B. *Acantholepis capensis* Mayr.
 C. *Agraulomyrmex meridionalis* sp. nov. D. *Acropyga arnoldi* Santschi.

1. Antennae 9- or 10-segmented	2
— Antennae 11- or 12-segmented	3
2. Antennae 9-segmented	<i>Aphomomyrmex</i>
— Antennae 10-segmented	<i>Agraulomyrmex</i>
3. Antennae 11-segmented	4
— Antennae 12-segmented	7
4. Maxillary palp 6-segmented, labial palp 4-segmented. Eyes distinct and fairly large; ocelli may be present	5
— Maxillary palp 4- or 5-segmented, labial palp 3-segmented. Eyes minute	<i>Acropyga</i>
5. Propodeum bidentate or bituberculate; petiole usually bispinose or bidentate above, occasionally only with upper border strongly emarginate	<i>Acantholepis</i>
— Propodeum unarmed; petiole neither armed nor deeply emarginate above	6
6. Metanotum small, much less than half as long as the mesonotum, the mesometanotal suture feeble or obsolete, at least in the minor workers. Propodeum slightly to strongly convex and often higher than the mesometanotum	<i>Anoplolepis</i>
— Metanotum at least half as long as the mesonotum. Metanotum usually fairly prominent and separated from the mesonotum and propodeum by fairly distinct sutures. Propodeum about as high as or sometimes higher than metanotum	<i>Plagiolepis</i>
7. Petiole reduced to an elongate, low node, allowing the gaster to be reflexed over the alitrunk. Mandibles elongate triangular, broad, apical tooth long. Maxillary palp 5-segmented, labial palp 4-segmented	<i>Oecophylla</i>
— Petiole a node or scale, never as above; mandibles not as above. Maxillary palp 6-segmented, labial palp 4-segmented, or the palp formula rarely reduced to 3,4 or 3,3, but never 5,4	8
8. Antennal insertions very close to, or contiguous with, the posterior clypeal margin. Acidopore borne on a conical projection of the hypopygium, forming a nozzle, the orifice surrounded by a fringe of hairs	9
— Antennal insertions some distance (usually greater than basal width of scape) behind the posterior clypeal margin. Acidopore either not borne on a conical projection, the orifice not surrounded by a fringe of hairs, or orifice borne on a conical projection or raised above level of hypopygium on a somewhat conical area, without a fringe of hairs or with at least some hairs on ventral edge; or the acidopore hidden by a projection of the pygidium	10
9. Dorsum of alitrunk with very coarse setae arranged in distinct pairs. Eyes at or in front of midlength of the head	<i>Paratrechina</i>
— Dorsum of alitrunk with fine setae, not definitely paired. Eyes placed behind midlength of the head	<i>Prenolepis</i>
10. Anterodorsal pronotal angles usually projecting as spines or teeth, at least strongly marginate. Propodeum usually bispinose or bidentate; petiole with sharp angles, spines or teeth above. Monomorphic	<i>Polyrhachis</i>
— Anterodorsal pronotal angles rounded, unarmed. Propodeum unarmed although may be truncate posteriorly. Petiole a node or scale, never with teeth or spines. Polymorphic	<i>Camponotus</i>

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REFERENCES

- BOLTON, B. 1973. The ant genera of west Africa: A synonymic synopsis with keys (Hymenoptera: Formicidae). *Bull. Br. Mus. nat. Hist.* **27**: 319–368.
- PRINS, A. J. 1973. African Formicidae (Hymenoptera) in the South African Museum. Description of four new species and notes on *Tetramorium* Mayr. *Ann. S. Afr. Mus.* **62**: 1–40.
- PRINS, A. J. 1982. Review of *Anoplolepis* with reference to male genitalia, and notes on *Acropyga* (Hymenoptera, Formicidae). *Ann. S. Afr. Mus.* **89**: 215–246.

ABBREVIATIONS

CI	cephalic index (head width/HL × 100)
CL	clypeal length
CLI	clypeal index (clypeal width/CL × 100)
ED	distance between compound eyes
FI	frontal index
FL	frontal length
HFI	hind femur index (HFL/WL × 100)
HFL	hind femur length
HL	head length
L	length of anterior margin of clypeus to base of abdomen
MFL	middle femur length
PI	petiolar index (petiolar width/PL × 100)
PL	petiolar length
SI	scape index (SL/head width × 100)
SL	scape length
TI	thoracic index (thoracic width/WL × 100)
TL	total length of body
WL	length of alitrunk