# Contribution to the taxonomy of the southern African species of *Ampulex* Jurine (Hymenoptera: Sphecidae: Ampulicinae)

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CONTENTS



ABSTRACT

Descriptions are given of four new species of southern African *Ampulex*, namely *bantuae*, *lesothoensis*, *montivaga* and *nigrisetosa*. *A. cyanura* Kohl is redescribed. The female of *A. mutilloides (sensu* Arnold) is shown to be specifically distinct from that of *A. mutilloides* Kohl and is renamed *A. timulloides*. A key is provided to the females of those southern African species of *Ampulex* in which the pronotum is not posteriorly raised into a conical tubercle.

## INTRODUCTION

The writing of the present paper was occasioned in the first place by the need to provide a name for an undescribed species of *Ampulex*, aspects of the ethology of which are the subject of a paper shortly to be published. Initially the species in question was believed to be *A. cyanura* Kohl or a species closely allied to it and consequently was cited in print either as *A. cyanura* Kohl or as *A.* sp. near *cyanura* Kohl. When the author was subsequently enabled to compare his specimens with the type of *A. cyanura* Kohl it was immediately apparent that

though superficially similar they were specifically distinct. Characters of importance in distinguishing between the two species received no or at best scant attention in both Kohl's original description of *A. cyanura* and Arnold's subsequent rediscription. It has been found necessary therefore not only to describe the new species but also to redescribe *A. cyanura*. At the same time it has been considered relevant to describe three further species represented in the Albany Museum collection, all of which are seemingly allied to *A. cyanura* and all of which are apparently new.

*A. cyanura* and the four new species are all medium-sized (length of females 10–16 mm) and are predominantly blue or green lustred (sometimes purple lustred in death). All are further characterized as belonging to that group of species in which the pronotal collar is not posteriorly raised into a conical tubercle. In order to facilitate the identification of the new species a revision was undertaken of that part of Arnold's 1928 key dealing with those species belonging to the above indicated group. It was therefore pertinent to deal also with a confusion in the literature concerning two species known under the name *A. mutilloides*.

Characters found useful in distinguishing species have largely been concerned with the head—its overall shape and more particularly details of the frontal lobes, frontal carinae, mandibles, clypeus and labrum. These features have all been figured.

## TAXONOMIC DESCRIPTIONS AND DISCUSSIONS

### *Ampulex cyanura* Kohl

*Ampulex cyanura* Kohl, 1893: 471, 493, fig. 48, ♀; Arnold, 1928: 206–207, figs 7,7a–d and f, Pl.VIII, fig. 5, ♀, ♂; Callan, 1976: 232 [*partim*, Callan's material only].
*Ampulex capensis* Cameron, 1905: 254, ♀(?)
*Ampulex africana* Cameron, 1905: 256, ♂.
[*non*] *Ampulex cyanura* Kohl, Callan, 1976: 232, Gess' prey record [applies to *Ampulex bantuae* **sp. nov.**].

FEMALE (Figs 1, 8, 13 and 18)

Length 14–16 mm (Holotype 15,5 mm)

Head, thorax, abdominal tergites 1–3 and corresponding sternites, coxae partially (especially outer lateral aspect of fore-coxae and dorsal aspects of meso- and metacoxae, not ventral aspects), fore and hind femora and under surface of middle femora, dorsal aspect of hind tibiae *black with metallic blue or green lustre* (purplish in long dead specimens).

Anterior edge of frontal lobes, antennae, median part of clypeus distally, undersides of all coxae, dorsal and lateral aspects of middle femora, fore and middle tibiae, hind tibiae (other than for dorsal aspect), tarsomeres of all legs (other than for ferruginous parts) shining *black without metallic blue or green lustre.*

Mandibles, labrum, apices of first three tarsomeres, most of fourth tarsomere, apex of fifth tarsomere, hind margins of second and third tergites and sternites laterally, normally hidden parts of rest of abdominal segments *ferruginous.*

Wings almost hyaline or somewhat browned (in which case the forewings are darker than the hindwings), beset with semi-erect brown setae the density of which is proportional to the amount of brown pigment in the darker areas of the the wing. Dark areas include: the distal end of the medial cell at RS and the distal end of the submedial cell and the surrounds of the junction of M and Cu-A; in ill-defined cloud extending over the marginal (= radial) cell, the distal half of the first submarginal (= cubital) cell, the entire second submarginal cell, the proximal half or less of the third submarginal cell, and the middle of the second discoidal cell.

The vestiture consists of short decumbent and semi-decumbent white hairs and of longer upright hairs of two distinct types: stiff coarse black hairs and soft white hairs.

The black pilosity occurs on the anterior margin of the clypeus (where forwardly pointing), the antennal scape, the frontal lobes, the frons, vertex and occiput, the pronotal collar, the scutum, scutellum, disc of the metanotum, the pleura and ventral surface of the mesothorax, the coxa, trochanter, femur, tibia and tarsomeres of all the legs, and sternite 2 (where very sparse).

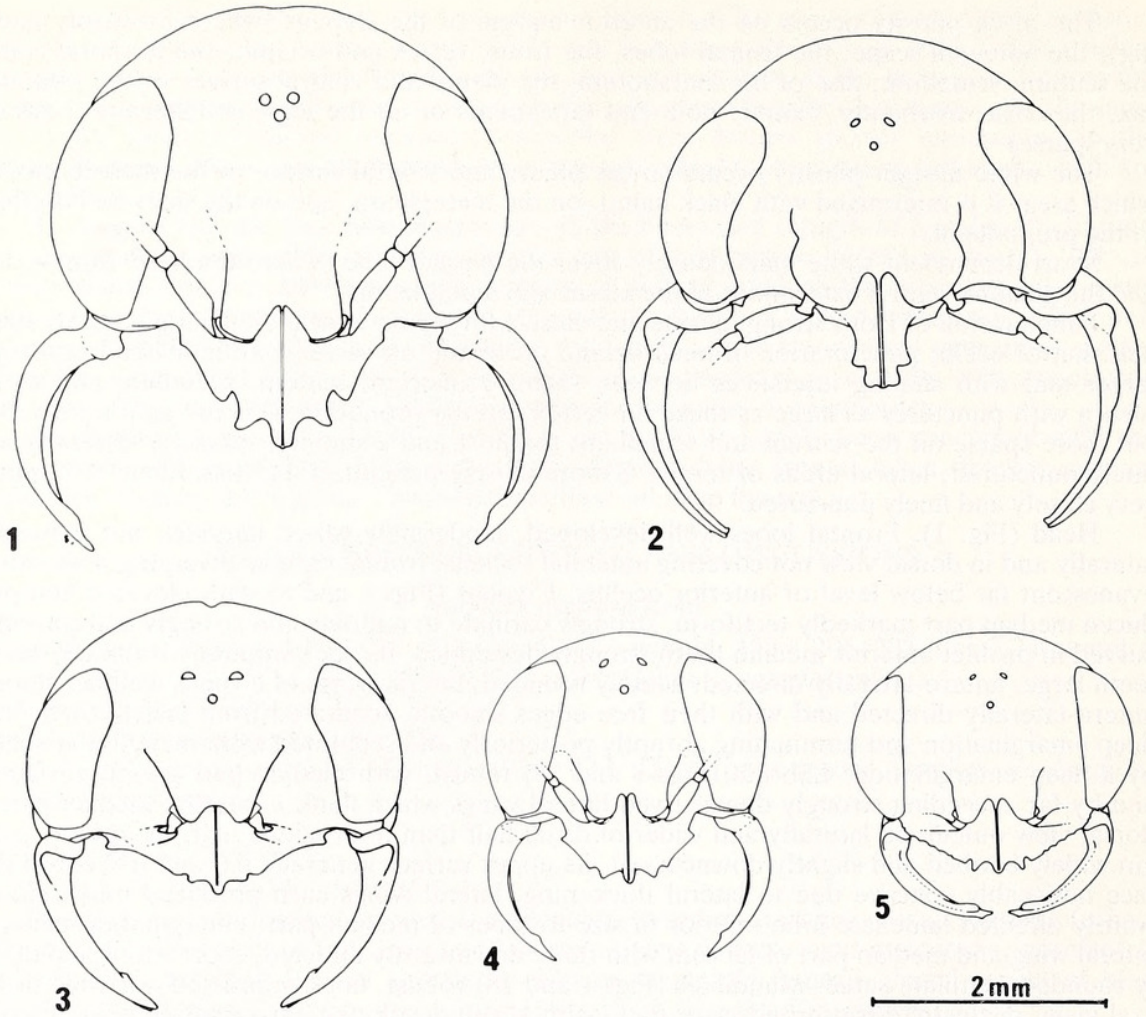
The white upright pilosity occurs on the pleura and ventral surface of the mesothorax (in which areas it is intermixed with black hairs), on the metapleura, and on the sides and declivity of the propodeum.

Short decumbent white hairs densely cover the basalar lobe (where the hairs form a tuft) and the postero-ventral extremities of the meso- and metapleura.

Puncturation of frons strong, coarse and close with diameter of individual punctures about half that of ocelli; puncturation of head behind ocelli and on vertex with individual punctures larger and with shining interstices between them; pronotum, scutum, scutellum and mesopleura with punctures as large as those on vertex, on the pronotum as dense as on the vertex but more sparse on the scutum and scutellum; tergite 1 and 2 shining, sparsely, shallowly and finely punctured; lateral areas of tergite 2 more closely punctured and basal half of tergite 3 very closely and finely punctured.

Head (Fig. 1). Frontal lobes well developed, moderately raised laterally, not expanded laterally and in dorsal view not covering antennal sockets; frontal carinae diverging posteriorly, evanescent far below level of anterior ocellus. Clypeus (Figs 1 and 8) with elevated and produced median part markedly tectiform, strongly carinate in mid-line and strongly and smoothly curved in profile; anterior median tooth strongly developed, its apex smoothly rounded; lateral teeth large, antero-laterally directed, acutely rounded; lateral wings of clypeus well developed, antero-laterally directed and with their free edges smooth, separated from lateral teeth by a deep emargination and terminating abruptly posteriorly and separated from mandibular socket by a deep emargination. Labrum (Figs 8 and 13) robust, with median part greatly produced and by far exceeding strongly downcurved lateral wings which flank it basally; median part in dorsal view outcurved laterally and wider in distal half than in proximal half, its anterior margin widely bilobed and slightly downcurved, its upper surface generally flat and its ventral surface noticeably concave due to lateral thickening; lateral wings each produced into a downwardly directed lamellate lobe inferior in size to lobes of median part; emargination between lateral wing and median part of labrum with three downwardly directed, short, stout and bluntly rounded spatulate setae. Mandibles (Figs 1 and 18) robust, not compressed nor wide in lateral view, distinctly downturned near apex, with a well developed emargination or notch dorsally at the base, with a bluntly triangular lamelliform projection of lower edge just beyond mid-length, with a small tooth immediately below and behind bluntly rounded apex and with a small subapical lamellate cusp on inner surface near upper edge, with a row of short setae below cusp and at base of lamelliform projection and few longer setae on inner surface near base.

Pronotal collar broader than long, *less than twice* (1,5–1,7) as wide behind as long in the mid-line, shorter than scutum; dorsum of collar plain, without a conical elevation but with a moderate and anteriorly deepened and widened longitudinal sulcus in mid-line; scutum with notauli extending to posterior margin; scutellar disc less than twice as wide basally as long in the mid-line; metanotal disc moderately raised, not expanded posteriorly; propodeum *less than twice* (1,8) as wide across base as long in the mid-line of its dorsal face, narrowed posteriorly (0,8 times as wide across postero-lateral teeth as across base); propodeal dorsum with a median longitudinal carina (only evident proximally) and four pairs of posteriorly converging lateral carinae; first (innermost) pair moderately lamelliform, inwardly sloping, shagreened, not attaining hind end of dorsum; second pair not joining nor attaining hind end of dorsum; third pair joining posteriorly across propodeal angle and marking end of dorsum; fourth pair not lamelliformly produced below spiracles.




Figs 1–5. Frontal view of head of: 1, ♀ *A. cyanura* Kohl; 2, ♀ *A. bantuae* sp. nov.; 3, ♀ *A. lesothoensis* sp. nov.; 4, ♀ *A. montivaga* sp. nov.; 5, ♀ *A. nigrisetosa* sp. nov..

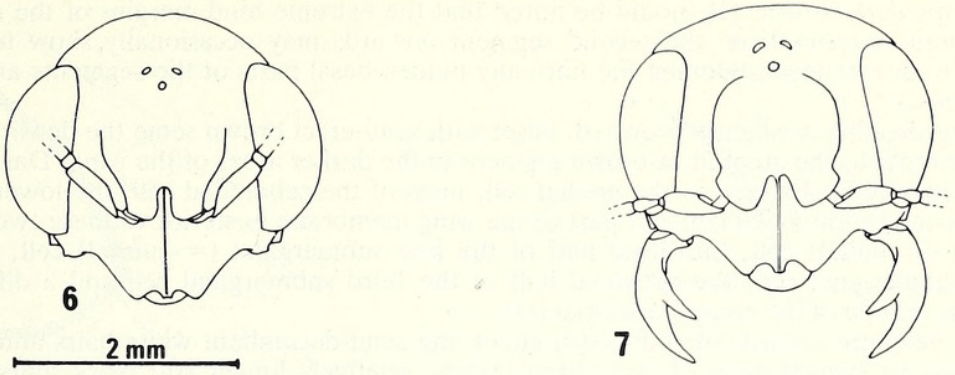
Tergite 1 widest in posterior half, *less than twice* (1,8–1,9) as wide there as long in the mid-line; tergite 2 about as wide in the anterior half (where widest) as long in the mid-line, less than twice (1,8) as long as tergite 1 and only marginally wider.

Forewing with three submarginal (= cubital) cells, with second submarginal cell clearly longer (1,4–1,5) on the media than on the radius.

MALE (Fig. 6)

Length 9,8–10,6 mm

Easily associable with the female by the following shared characters: the form of the frontal lobes and frontal carinae; the form of the pronotal collar; the absence on the metanotal disc of any upright white pilosity and of a dense covering of decumbent white hairs; the simple (non-lamelliform) nature of the fourth pair of lateral carinae of the propodeal dorsum; the proportions of the second submarginal cell of the forewings.




Figs 6–7. Frontal view of head of: 6, ♂ *A. cyanura* Kohl; 7, ♂ *A. bantuae* sp. nov..

MATERIAL EXAMINED: Cape Province: K.b.sp. [= Cap bonae spei], no date (no collector), Holotype ♀ (bearing label: '*cyanura* det. Kohl Type') (Zool. Mus. Berlin); Addo, 19.iv.1896 (Dr Brauns) ♀ (bearing label in Brauns' handwriting: '*Ampulex cyanura* Kohl ♀ confirmed by Kohl himself') (South African Museum ex National Museum Bulawayo 1981); Addo, 19.iv.1896 (Dr Brauns) ♀ (South African Museum ex National Museum Bulawayo 1981); Addo, 19.iv.1896 (Dr Brauns) ♀ (bearing label in Brauns' handwriting: '*A. cyanura* Kohl ♀') (Albany Museum); Grahamstown, Howison's Poort, 7–14.ii.1972 (F. W. Gess, Malaise trap) ♀ (Albany Museum); Grahamstown, Hilton, 5–9.xi.1970, ♂, 12–30.xi.1970, 2♂♂ (all F. W. Gess, Malaise trap) (Albany Museum); Grahamstown, Kudu Reserve (33° 08'S, 26° 42'E), 28.xii.1981 (P. G. Hawkes & P. M. C. Croeser) ♀ (In dry river bed bordered by flowering *Acacia karroo*) (Albany Museum).

Zululand: Mfongosi, viii.1911 (W. E. Jones) ♀ (bearing label in Arnold's handwriting: '*Ampulex cyanura*') (South African Museum); Mfongosi, i.1917 (W. E. Jones) ♀ (bearing label in Arnold's handwriting: '*Ampulex cyanura* Kohl (= *capensis* Cam.) (= *africana* Cam.) ♀ A. Tr. Mus. XII III 1928, 206') (South African Museum).

### *Ampulex bantuae* sp. nov.

*Ampulex cyanura* (*non* Kohl) Callan, 1976: 232 [*partim*, Gess' prey record only].
*Ampulex* sp. near *cyanura* Kohl, Gess, 1981: 29, 72–77, fig. 36; Gess & Gess, 1981: 27–30, fig. 2.

FEMALE (Figs 2, 9, 14 and 19)

Length 11,5–14,5 mm (commonly 13,0–13,3 mm; Holotype 14,5 mm)

Head, thorax, abdominal tergites 1–4 and corresponding sternites, coxae, femora and tibiae of all legs, first tarsomere of metathoracic leg, usually first tarsomere of mesothoracic leg and occasionally first tarsomere of prothoracic leg, *black with metallic blue lustre* (sometimes purplish in dead specimens).

Anterior edge of frontal lobes, antennae, nasiform median part of clypeus basally, tarsomeres other than those listed above, basal half of claws, exposed parts of terminal abdominal segments, *shining black without metallic blue lustre.*

Mandibles *bright ferruginous*, sometimes darker at edges, contrasting strongly with metallic blue cheeks. Apical half of nasiform portion of clypeus (usually), clypeal teeth and narrow lateral parts of clypeus, labrum and apical half of tarsal claws *dark ferruginous*. Maxillary and

labial palps *dark brown*. (It should be noted that the extreme hind margins of the abdominal tergites and sternites from the second segment onwards may occasionally show ferruginous colour. In an extended abdomen the normally hidden basal parts of the segments are likewise ferruginous.)

Wings hyaline or slightly browned, beset with semi-erect brown setae the density of which is proportional to the amount of brown pigment in the darker areas of the wing. Dark areas include: a longitudinal streak in the medial cell, most of the submedial cell, the lower proximal corner of the subdiscoidal cell and part of the wing membrane posterior to these two cells; the marginal (= radial) cell, the distal half of the first submarginal (= cubital) cell, the entire second submarginal cell, the proximal half of the third submarginal cell and a diffuse band across the middle of the second discoidal cell.

The vestiture consists of short decumbent and semi-decumbent white hairs and of a mixture of longer upright hairs of two distinct types: relatively longer stiff black hairs and relatively shorter soft white hairs.

The black pilosity occurs on the frons and vertex, the dorsal aspect of the pronotum, the scutum, scutellum, posterior margin of the metanotal disc and parts of the legs (notably the dorsal and outer aspects of the tibiae and first tarsomeres).

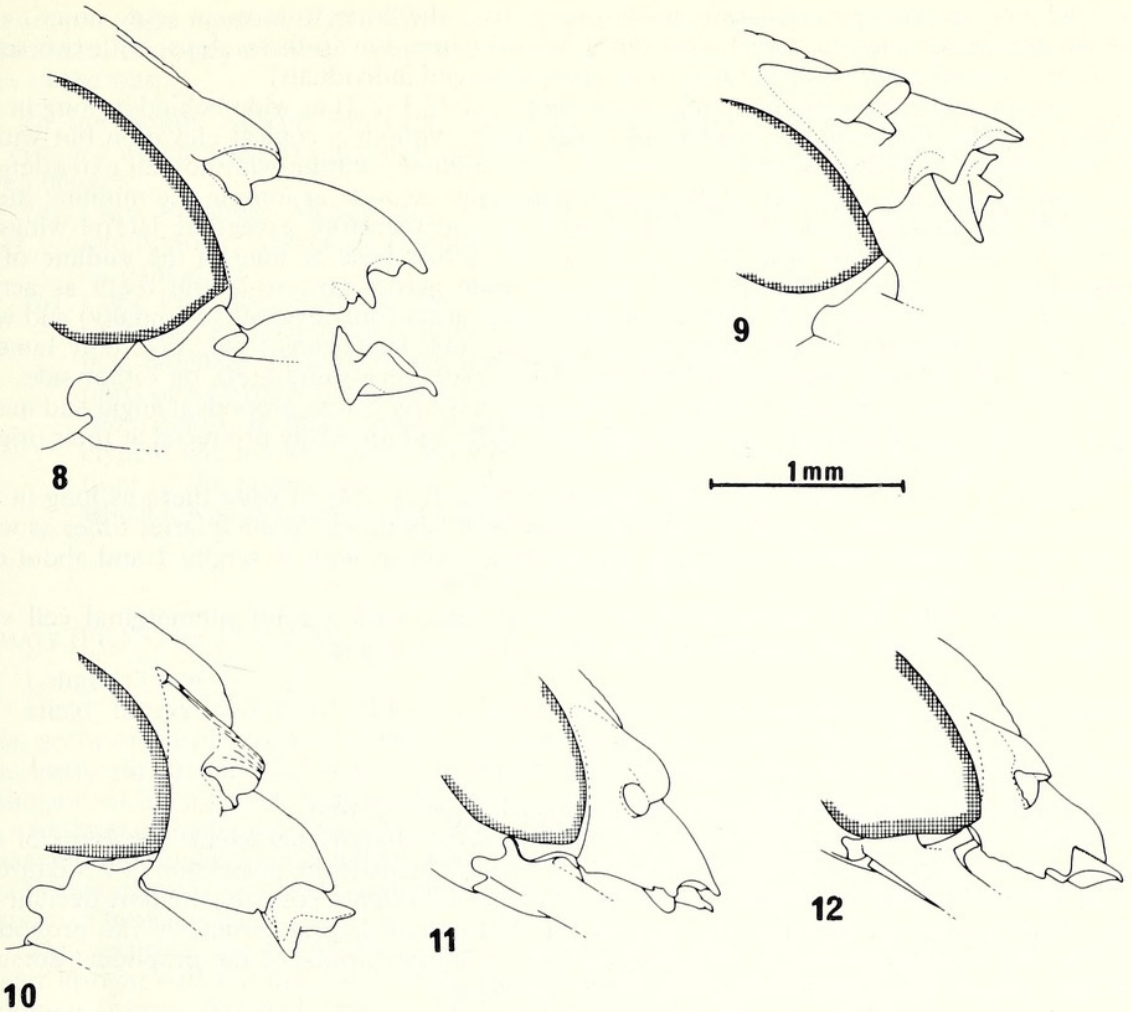
The white pilosity occurs on the occiput, sides and underside of the head, the anterior declivity, sides and ventral surface of the prothorax, the metanotal disc, the pleura of the meso- and metathorax and the ventral surface of these segments, the sides of the propodeum, the lower half of the propodeal declivity (particularly towards the sides), tergites 1-3 (where sparse and mostly on the sides and posterolateral corners) and sternite 2. It is also present on the coxa, trochanter, femur, tibia and first tarsomere of each leg.

Long stiff forwardly-pointing ferruginous hairs are present on the clypeus; shorter ferruginous hairs occur on the labrum and mandibles. Black hairs shorter than those described above are present on the antennal scapes and first five or six flagellar segments; common on the scape and second flagellar segment, the hairs become progressively shorter and sparser with each succeeding segment.

Short decumbent white hairs densely cover the disc of the metanotum, the basalar lobe (where the hairs form a tuft), the posteroventral extremities of the meso- and metapleura, the dorsal aspect of the metacoxae, the posterior margin of tergite 2 laterally and the adjacent lateral part of the hind margin of sternite 2. Similar hairs but a lot less dense occur laterally on the hind margins of tergite 3 and sternite 3 and may occasionally form a small patch situated on the posterior third of the pronotum in the midline.

Puncturation of frons and vertex reticulate, very coarse and close with diameter of individual punctures about $\frac{3}{4}$ that of ocelli and without interstices between punctures; gena with smaller oval punctures and smooth interstices; pronotum, scutum, scutellum and mesopleuron with oval punctures similar in size to those of gena and separated by shining interstices equalling or exceeding the punctures in size; tergite 1 and most of 2 highly polished and shiny with small punctures separated by 2–4 times their diameter and with midline of the segments almost inpunctate; postero-lateral areas of tergite 2 and whole of tergite 3 very closely and finely punctured and with a scattering of larger punctures; dorsal aspect of tergites 4 and 5 with minute punctures, tergite 6 virtually impunctate.

Head (Fig. 2). Frontal lobes well developed, only weakly raised laterally, arcuately expanded laterally and in dorsal view completely covering antennal sockets; frontal carinae parenthesis-like, evanescent well below level of anterior ocellus. Clypeus (Figs 2 and 9) with elevated and produced median part markedly nasiform, carinate in mid-line and only weakly curved in profile; median part sub-parallel-sided distally, apically not tooth-like but wide and somewhat flattened, subtruncate and very weakly trilobed; lateral teeth large, downwardly directed, acutely rounded; lateral wings of clypeus poorly developed, downwardly rather than




Figs 8–12. Lateral view of anterior part of head of: 8, ♀ *A. cyanura* Kohl; 9, ♀ *A. bantuae* sp. nov.; 10, ♀ *A. lesothoensis* sp. nov.; 11, ♀ *A. montivaga* sp. nov.; 12, ♀ *A. nigrisetosa* sp. nov..

antero-laterally directed and thus appearing to be strongly receding when seen from above, with a slight angle in region below antennal socket and with free edge thinly lamelliform. Labrum (Figs 9 and 14) robust, triangular in overall shape, greatly but regularly widened from base to apex and with extensive lateral wings exceeding median part, almost three times as wide across acute antero-lateral angles (i.e. apices of lateral wings) as long in the middle; median part raised above level of lateral wings over its entire length and strongly conically produced in basal half where furnished with a high pointed tubercle, its apical margin weakly bilobed with a small backwardly pointing median tooth; emargination between lateral wing and median part of labrum with a pair of forwardly directed, short, stout and bluntly rounded spatulate setae.

Mandibles (Figs 2 and 19) robust, compressed, wide in lateral view, widest a little beyond midlength but lacking any lamelliform projection of lower edge and neither downturned near apex nor having a subapical tooth, with a well developed emargination dorsally at the base but

with the part basad to emargination not produced over the latter to form an acute notch, with the interior upper edge in dorsal view not a smooth curve but in three steps, with two small inwardly directed cusps on apex (at least in newly emerged individuals).

Pronotal collar broader than long, *more than twice* (2,1–2,3) as wide behind as long in the midline, shorter than scutum: dorsum of collar plain, without a conical elevation but with a narrow, shallow and even longitudinal sulcus in the midline; scutum with notauli extending to posterior margin; scutellar disc slightly more than twice as wide as long in the midline; metanotal disc moderately raised, expanded posteriorly and therefore exceeding lateral wings in breadth; propodium *more than twice* (2,3) as wide across base as long in the midline of its dorsal face, narrowed posteriorly (0,7 times as wide across postero-lateral teeth as across base); propodeal dorsum with a median longitudinal carina (only evident proximally) and with four pairs of posteriorly converging lateral carinae; first (innermost) pair markedly lamelliform, inwardly sloping, shagreened and contrasting with very shiny areas on either side, not attaining hind end of dorsum; second pair joining posteriorly across propodeal angle and marking end of dorsum; fourth pair lamelliformly outwardly and upwardly produced at their origins below spiracles.

Tergite 1 widest in posterior half, *more than twice* (2,1–2,4) as wide there as long in the midline; tergite 2 evenly curved laterally in dorsal view, about one and a quarter times as wide in the middle (where widest) as long in the midline, twice as long as tergite 1 and about one and one-tenth as wide.

Forewing with three submarginal (= cubital) cells, with second submarginal cell subquadrate and only one and one-fifth as long on media as on radius.

MALE (Fig. 7)

Length 7,8–12,0 mm (commonly 10–11 mm; Allotype 11,3 mm)

Easily associable with the female by the following shared characters: the form of the frontal lobes and frontal carinae; the form of the pronotal collar; the possession of a mixture of longer upright hairs of two distinct types; the presence of a dense covering of short decumbent white hairs on the metanotum; the form of the first pair of lateral carinae of the propodeal dorsum; the lamelliform nature of the fourth pair of lateral carinae of the propodeal dorsum; the subquadrate second submarginal cell of the forewings.

MATERIAL EXAMINED: Cape Province: Grahamstown, 29.iv.1966 (C. Jacot-Guillarmod) ♀,♂; Grahamstown, Hilton, 19–23.xi.1975, ♀, 16.xi.1977, ♂ (both F. W. Gess, Malaise trap), 27.xii.1973, ♀, 26.ii.1974, ♀, 15.iii.1974, ♀, 19.xi.1976, ♀, 9.xii.1976, ♀ (all F. W. & S. K. Gess) (all captured in the field, in association either with natural nests or with trap-nests), 10.xi.1977 (F. W. Gess) ♂ (on flowers of *Lasiospermum bipinnatum,* Compositae). In addition to the above specimens, all of which were collected as adults, there are in the Albany Museum collection a further 32♀♀ and 49♂♂ which were reared from eggs, larvae or pupae obtained from natural nests at Hilton, from trap-nests at Hilton, and from laboratory-based trap-nests which had been utilized by caged wasps of the Hilton population. Both the Holotype ♀ and the Allotype ♂ belong to the reared material.

Holotype ♀: Reared from the cockroach *Bantua dispar* (Burmeister) collected (dead) during April, 1975, at Hilton from an old gallery of *Ceroplesis hottentota* (F.) (Cerambycidae) in *Acacia karroo.* Wasp emerged 18.xii.1975.

Allotype ♂: Reared from the cockroach *Bantua dispar* (Burmeister) collected (live) on 25.xi.1973 at Hilton from a trap-nest in *Acacia karroo.* Wasp emerged 21.i.1974.

Paratypes: 38♀♀, 51♂♂ (the bulk of the above listed material).

ETYMOLOGY: The name is derived from a southern African cockroach genus, *Bantua* Shelford (Blattariae: Derocalyminidae), a species of which, *B. dispar* (Burmeister), is the only known prey of the wasp.

In the South African Museum collection were found two specimens determined as *A. cyanura* which upon examination proved to be *A. bantuae*. Label data and comments are given below:

*(a)* Cape Province: Mossel Bay, i.1899 (T. W. Overbeek) ♂ (bearing label in Brauns' handwriting: '*Ampulex cyanura* Kohl ♂'). The specimen is without any doubt an *A. bantua* ♂.

*(b)* Cape Province: Vryburg, 190? (E. Jons) ♀ (bearing label in Arnold's handwriting; '*Ampulex cyanura* Kohl r. *rhodesianus* Arn. ♀'). The specimen is definitely not what it is labelled. Though in the ferruginous colouration of its clypeus, of the anterior parts of its frontal lobes and of its first antennal segment it is similar to the subspecies *rhodesianus*, it differs from it and from *A. cyanura sensu stricto* in the shape of the clypeus and labrum, in the form of the frontal lobes and the mandibles, in the proportions of the pronotum *etc.* In all these characters it agrees closely with *A. bantuae* of which it would appear to be a slight geographical variety.

### ***Ampulex lesothoensis* sp. nov.**

FEMALE (Figs 3, 10, 15 and 20)

Length 13 mm

Head, thorax, abdomen, all legs to end of femur, hind tibiae dorsally *black with metallic blue, green or purple lustre*. (As with other species also, it appears that not only does the metallic lustre turn from blue or green to purple but the underlying basic black fades to a rich mahogany or ferruginous. It is possible that in a live specimen all the tibiae may be lustred.)

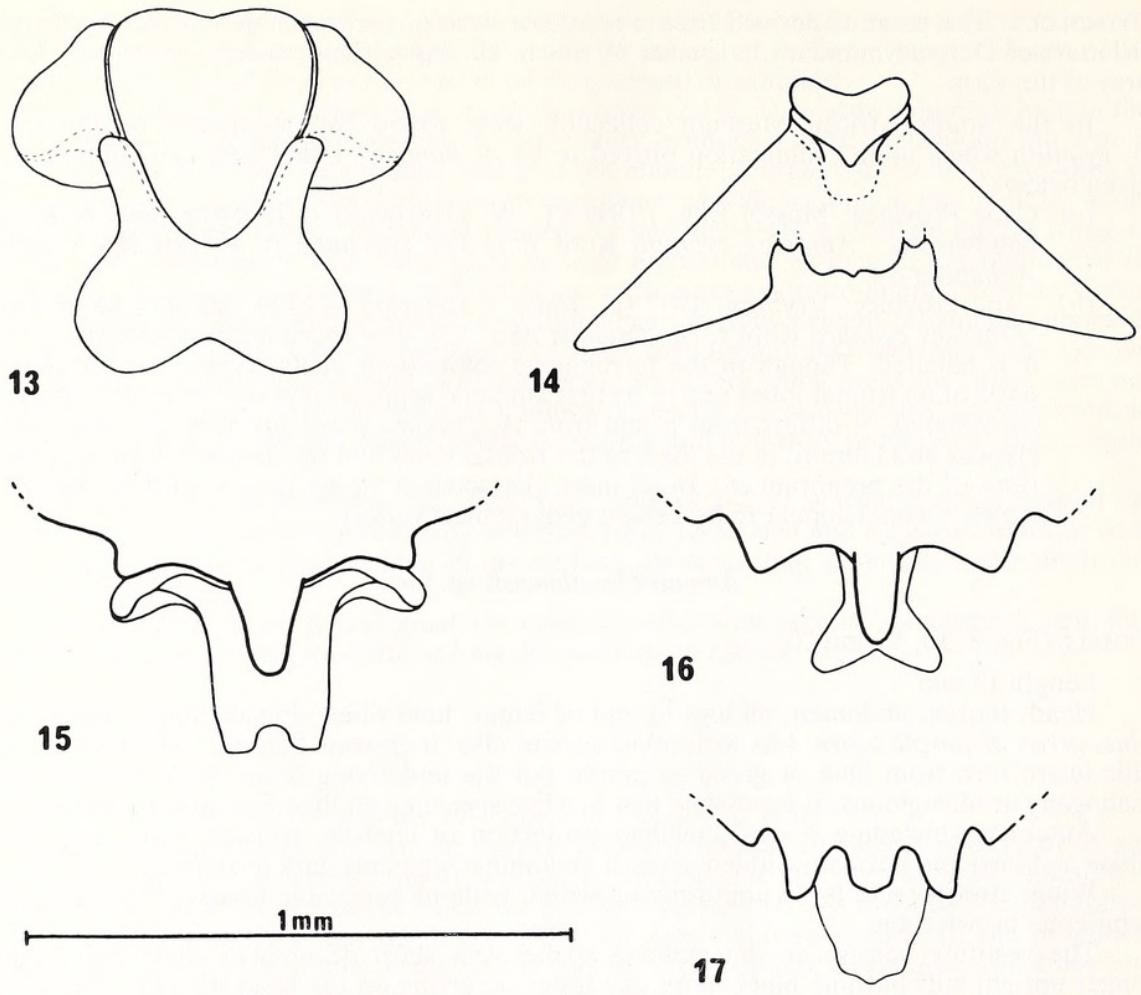
Antennae (including scapes), median projection of clypeus, labrum, palps, mandibles, tibiae and tarsi and normally hidden parts of abdominal segments dark *ferruginous*.

Wings strongly and fairly uniformly browned, without noticeable fasciae, beset with short semi-erect brown setae.

The vestiture consists in the main of sparse very short decumbent white hairs and of longer upright stiff but fine black hairs, the latter occurring on the head, thorax, propodeum, abdomen (where extremely sparse), antennal scapes and first two flagellar segments. Somewhat longer coarser forwardly directed ferruginous hairs are present on the clypeus; shorter ferruginous hairs are present sparsely upon the mandibles. Short decumbent white hairs densely cover the posterovental extremities of the meso- and metapleura.

Puncturation of frons and vertex reticulate; reticulum on frons fine and without interstices between punctures, becoming less fine at level of ocelli and course with moderately shining interstices between elongate punctures on vertex; punctures on gena large and elongate with shining interstices; pronotum, scutum, scutellum and mesopleuron with large coarse punctures similar in size to those of gena; tergites and sternites highly polished and shiny all over and fairly uniformly covered with small shallow and widely separated punctures.

Head (Fig. 3). Frontal lobes well developed, very strongly raised laterally, not expanded laterally and in dorsal view not covering antennal sockets; frontal carinae strongly divergent posteriorly, strongly raised over their entire length and ending abruptly far below level of anterior ocellus. Area between frontal carinae somewhat elevated medially. Clypeus (Figs 3 and 10) with elevated and produced median part tectiform, weakly carinate in mid-line and moderately curved in profile; anterior median tooth moderately developed, its apex acutely rounded; lateral teeth moderately developed, antero-laterally directed, rounded, well separated




Figs 13–17. Frontal view of entire labrum (Figs 13–14) or of anterior part of labrum (Figs 15–17) of: 13, ♀ *A. cyanura* Kohl; 14, ♀ *A. bantuae* sp. nov.; 15, ♀ *A. lesothoensis* sp. nov.; 16, ♀ *A. montivaga* sp. nov.; 17, ♀ *A. nigrisetosa* sp. nov..

from median tooth; lateral wings of clypeus well developed, antero-laterally directed and with their free edges smooth and slightly upturned, weakly separated from lateral teeth by narrow and shallow emargination and terminating abruptly posteriorly and separated from mandibular socket by a deep emargination. Labrum (Figs 10 and 15) robust, with median part greatly forwardly produced and by far exceeding strongly downcurved lateral wings which flank it basally; median part more or less square in crosssection, in dorsal view with sides subparallel (converging very slightly anteriorly) and with upper apical margin pointedly bilobed, with apical face concave and ventral face flat; downcurved lateral wings lamelliform distally, widely rounded and superior in size to apical lobes of median part; emargination between lateral wing and median part of labrum with a pair of downwardly directed, short, stout and bluntly rounded spatulate setae. Mandibles (Figs 3 and 20) robust, not compressed, narrowed towards apex and slightly downturned, with a poorly developed emargination dorsally at the base and with part basad to emargination not produced over the latter and not forming an acute notch, with a

very low longitudinal lamelliform ridge projecting from near mid-length to shortly before apex, without a small tooth immediately below and behind apex but with two low cusps on outer surface apically and with apex itself incurved to form a sharp cusp on inner surface, with a large pointed subapical cusp on inner surface near upper edge.

Pronotal collar broader than long, *more than twice* (2,2) as wide behind as long in the mid-line, shorter than scutum; dorsum of collar plain, without a conical elevation but with a wide and deep longitudinal sulcus in the mid-line; scutum with notauli deep and wide and extending to posterior margin; scutellar disc less than twice as wide basally as long in the mid-line; metanotal disc very strongly raised throughout and especially laterally where subtuberculate, not expanded posteriorly; propodeum less than twice (1,9) as wide across base as long in the mid-line of its dorsal face, narrowed posteriorly (0,8 times as wide across postero-lateral teeth as across base); propodeal dorsum with a median longitudinal carina and four pairs of posteriorly converging lateral carinae; first pair moderately developed, sublamelliform, inwardly sloping, not shagreened, not attaining hind end of dorsum; second, third and fourth pairs somewhat indistinct due to coarse reticulate surface sculpturing; second pair not joining nor attaining hind end of dorsum but third pair doing so and continuing around and margining hind edge; fourth pair not lamelliformly produced below spiracles.

Tergite 1 widest in posterior half, *less than twice* (1,8) as wide there as long in the mid-line; tergite 2 about one and one-tenth as wide in the anterior half (where widest) as long in the mid-line, less than twice (1,6) as long as tergite 1 and of the same width.

Forewing with three submarginal (= cubital) cells, with the second submarginal cell clearly longer (1,6) on the media than on the radius.

MALE Unknown.

MATERIAL EXAMINED: Lesotho (formerly Basutoland): Mahlatsa, 30.xii.1951 (A. Jacot-Guillarmod), Holotype ♀ (Albany Museum).
Mahlatsa (29° 11′S, 27° 58′E) is situated in the Berea district of Lesotho in the foothills at an altitude somewhat in excess of 1 800 m. The vegetation is sparse and consists mostly of grass.

ETYMOLOGY: The name, an adjective, is derived from the geographical name, Lesotho, and refers to the provenance of the described specimen.

### *Ampulex montivaga* sp.nov.

FEMALE (Figs 4, 11, 16 and 21)

Length 10–13 mm (Holotype 10 mm)

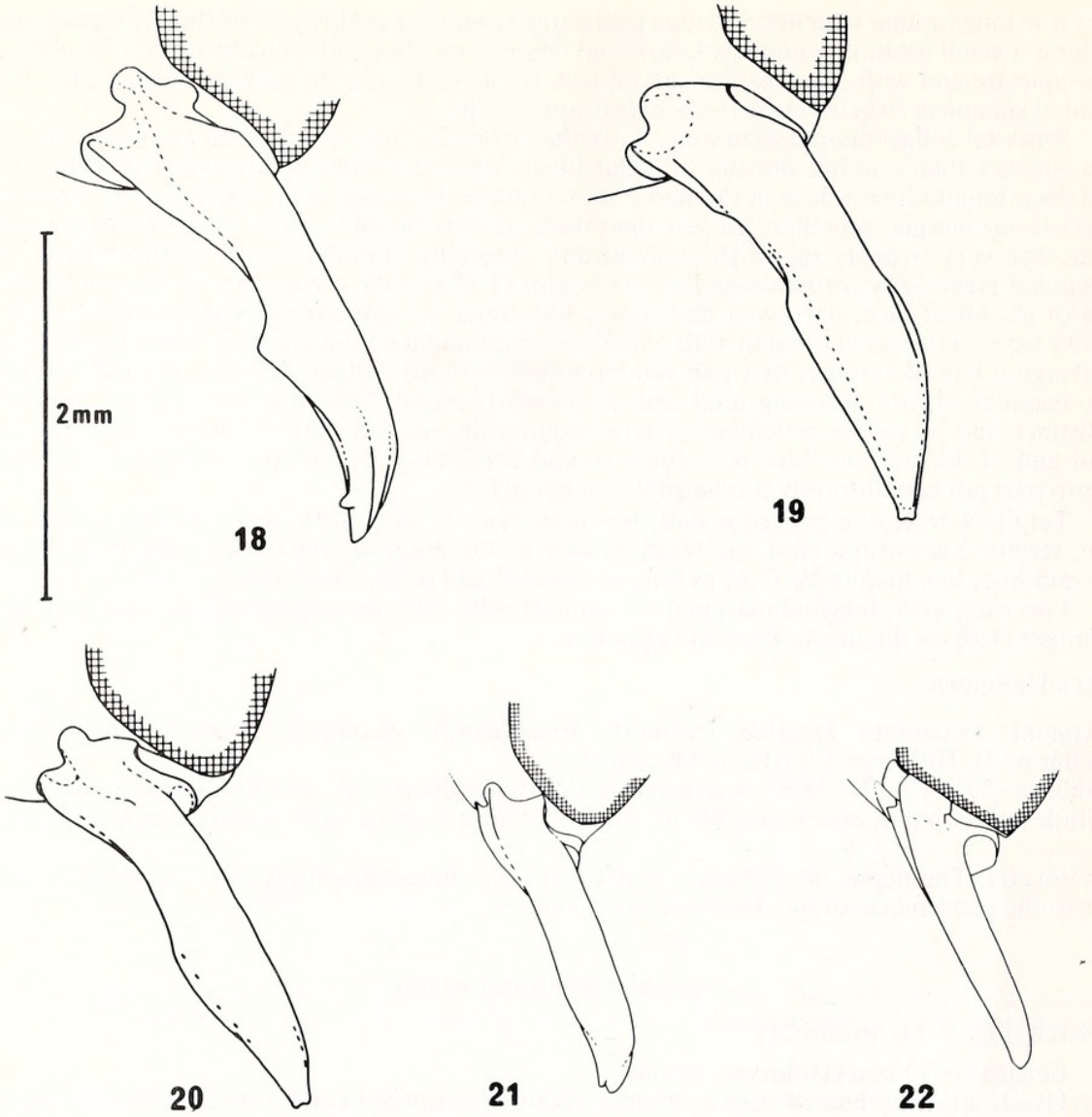
Head, upper surface of scapes, thorax, abdomen, all legs to end of tibia, first tarsomere of metathoracic leg, *black with metallic blue, green or purple lustre.*

Antennae (except for upper surface of scapes), mandibles to a variable extent, tarsomeres (other than blue first tarsomere of metathoracic leg and ferruginous apices of all tarsomeres) *black.*

Mandibles at base and apex, parts of tarsomeres and normally hidden parts of abdominal segments *dark ferruginous.*

Wings subhyaline, very lightly browned, without noticeable fasciae, beset with short semi-erect brown setae.

The vestiture consists in the main of sparse very short decumbent white hairs and of longer upright stiff but fine black hairs, the latter occurring on the head, thorax, propodeum, abdomen (where extremely sparse), legs, antennal scapes and first two flagellar segments. Somewhat longer coarser forwardly directed black hairs are present on the clypeus; shorter




Figs 18–22. Lateral view of right mandible of: 18, ♀ *A. cyanura* Kohl; 19, ♀ *A. bantuae* sp. nov.; 20, ♀ *A. lesothoensis* sp. nov.; 21, ♀ *A. montivaga* sp. nov.; 22, ♀ *A. nigrisetosa* sp. nov..

coarse black hairs are common upon the mandibles. Short decumbent white hairs densely cover the basalar lobe and the postero-ventral extremities of the meso- and metapleura.

Puncturation of frons and vertex reticulate; reticulum on frons close with very narrow shining interstices between punctures, becoming less close at level of ocelli and on vertex coarse with wider shining interstices; pronotum, scutum, scutellum and mesopleura with large coarse punctures similar in size to those of vertex; tergites and sternites of first two abdominal segments highly polished and uniformly covered with small shallow widely separated punctures; tergite 3 more closely punctured expecially basally.

Head (Fig. 4). Frontal lobes well developed, strongly raised laterally, not expanded laterally and in dorsal view not covering antennal sockets; frontal carinae diverging posteriorly, evanescent far below level of anterior ocellus. Clypeus (Figs 4 and 11) with elevated and produced median part markedly tectiform, strongly carinate in the mid-line and weakly but smoothly curved in profile; anterior median tooth well developed, its apex rounded; lateral teeth moderately developed, antero-laterally directed, acutely rounded, well separated from median tooth; lateral wings of clypeus well developed, antero-laterally directed and with their free edges smooth, well separated from lateral teeth by a wide but shallow emargination and terminating abruptly posteriorly and separated from mandibular socket by a narrow but deep emargination. Labrum (Figs 11 and 16) robust, with median part greatly produced and by far exceeding strongly downcurved lateral wings which flank it basally; median part in dorsal view with sides diverging anteriorly and with anterior margin widely bilobed (lobes antero-laterally pointing and noticeably bent down anteriorly), its upper surface more or less flat and its ventral surface concave due to lateral thickening; lateral wings lobate but not lamellately downwardly produced; emargination between lateral wing and median part of labrum with a pair of downwardly directed short, stout and bluntly spatulate setae. Mandibles (Figs 4 and 21) robust, neither compressed nor wide in lateral view and lacking a lamelliform projection of the lower edge, narrowed at apex and distinctly downturned, with a poorly developed emargination or notch dorsally at the base, with a small tooth immediately below and behind apex and with a large pointed subapical lamellate cusp on inner surface near upper edge.

Pronotal collar broader than long, *twice as wide* behind as long in the mid-line, shorter than scutum; dorsum of collar plain, without a conical elevation but with a narrow and shallow longitudinal sulcus in mid-line; scutum with notauli extending to posterior margin; scutellar disc less than twice as wide basally as long in the mid-line; metanotal disc moderately raised, not expanded posteriorly; propodeum less than twice (1,6) as wide across base as long in the mid-line of its dorsal face, narrowed posteriorly (0,8 times as wide across postero-lateral teeth as across base); propodeal dorsum with a median longitudinal carina and four pairs of posteriorly converging lateral carinae; first pair moderately developed, sublamelliform, shagreened, not attaining hind end of dorsum; second, third and fourth pairs indistinct (particularly posteriorly) due to weak development and coarse surface sculturing; second pair not joining nor attaining hind end of dorsum but third pair doing so and continuing around and margining hind edge; fourth pair not lamelliformly produced below spiracles.

Tergite 1 widest in posterior half, less than twice (1,75) as wide there as long in the mid-line; tergite 2 about one and one-tenth as wide in the anterior half (where widest) as long in the mid-line, less than twice (1,75) as long as tergite 1 and about one and one-tenth as wide.

Forewing with three submarginal (= cubital) cells, with the second submarginal cell clearly longer (1,5–1,8) on the media than on the radius.

MALE Unknown.

MATERIAL EXAMINED: Lesotho (formerly Basutoland): Haha-la-Sekhonyana, 30.xii.1946 (N. C. Mokhehle), Holotype ♀, same locality and date (A. Jacot-Guillarmod), Paratype ♀ (both Albany Museum).

Haha-la-Sekhonyana (29° 22′S, 28° 19′E) is situated in the Maseru district of Lesotho in the mountains at an altitude of 2 450–2 750 m. The vegetation, on basalt, is sparse and consists mostly of grass.

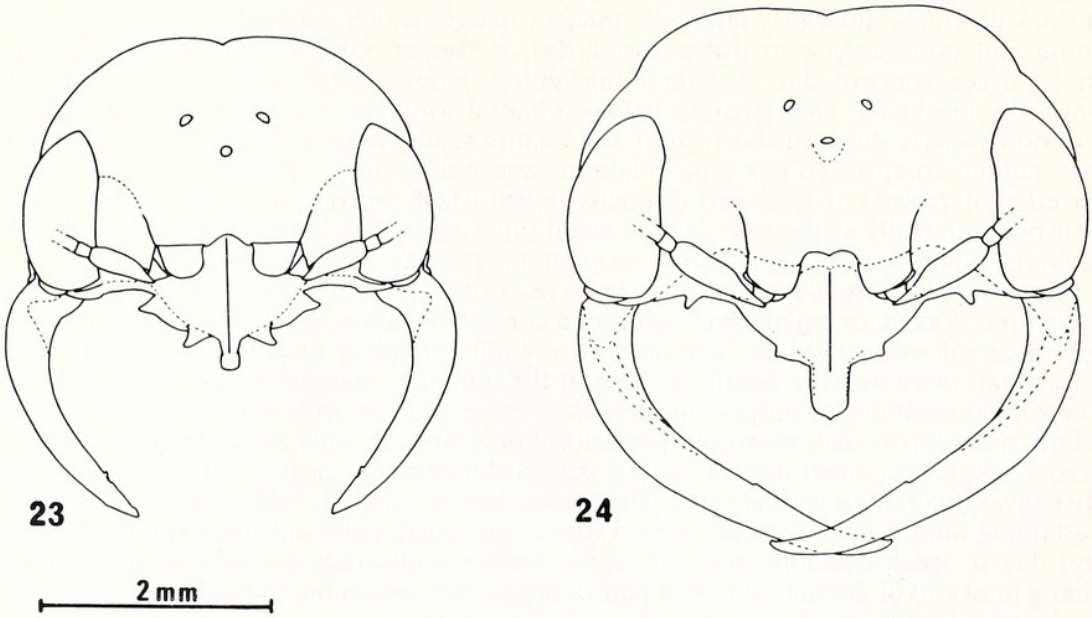
ETYMOLOGY: The name, derived from the word *montivagus -a -um*: wandering over the mountains, refers to the species' occurrence in a mountainous situation.

### *Ampulex nigrisetosa* sp. nov.

FEMALE (Figs 5, 12, 17 and 22)

Length 10–13 mm (Holotype 10,7 mm)

Head, thorax, abdominal tergites 1—3 and corresponding sternites, coxae and femora of all legs and dorsal aspect of tibiae of hind legs *black with metallic blue lustre* (sometimes purplish in dead specimens). (The metallic lustre is poorly developed on the abdomen and legs and is not apparent in all the specimens; sometimes the entire abdomen is lustreless black.) Tibiae of all legs (except for dorsal aspect of hind tibiae) *black*, apparently without metallic lustre; tarsomeres varying from black to dark ferruginous as is the case also with the antennal flagellum.




Figs 23–24. Frontal view of head of: 23, ♀ *A. mutilloides* Kohl; 24, ♀ *A. timulloides* sp. nov..

Mandibles, antennal scapes (at least on underside) and normally hidden parts of abdominal segments *ferruginous*.

Wings lightly browned, beset with semi-erect brown setae the density of which is proportional to the amount of brown pigment in darker areas of the wing. The dark areas include: a longitudinal streak in the medial cell, most of the submedial cell, the proximal edge of the subdiscoidal cell and part of the wing membrane posterior to these two cells; the marginal (= radial) cell, the distal half of the first submarginal (= cubital) cell, the entire second submarginal cell, the proximal half of the third submarginal cell and a diffuse band across the middle of the second discoidal cell.

The vestiture consists in the main of very short sparse decumbent white hairs and of black upright hairs. Long, very coarse and stiff black pilosity occurs on the frons and vertex, on the dorsal surfaces of the pronotal collar, the scutum, scutellum and metanotal disc, and on the hind femora and tibiae; shorter and finer black pilosity occurs on the mesopleura, underside of the pro- and mesothorax, pro- and mesothoracic legs and sternite 2 (where very sparse). Short decumbent white hairs densely cover the basalar lobe and the postero-ventral extremities of the meso- and metapleura.

Puncturation of frons, vertex, genae, pronotum, scutum, scutellum and mesopleura coarse with shining interstices; interstices on dorsum and sides of pronotum strongly raised and fused to form pronounced longitudinal rugae; abdominal tergites moderately covered with small shallow punctures.

Head (Fig. 5). Frontal lobes well developed, moderately raised laterally, not expanded laterally and in dorsal view not covering antennal sockets; frontal carinae low, diverging posteriorly, evanescent far below level of anterior ocellus. Clypeus (Figs 5 and 12) with elevated and produced median part markedly tectiform, strongly carinate in mid-line and strongly curved in profile; anterior median and lateral teeth of equal size, strong and acutely rounded, separated by a deep but narrow emargination; lateral wings of clypeus well developed, antero-laterally directed and with their free edges serrate, separated from lateral teeth by a small emargination and extending posteriorly without interruption and without emargination the entire distance to the mandibular socket. Labrum (Figs 12 and 17) robust, with median part greatly produced and by far exceeding downcurved lateral wings which flank it basally; median part in dorsal view with sides converging anteriorly, with distal end widely rounded (not bilobed) and slightly bent down, with its upper surface more or less flat but its ventral surface progressively raised in the mid-line from apex to base; lateral wings small, not separated from median part as situated underneath base of latter rather than to each side, without lamellate projections but each with three downwardly and slightly inwardly directed, short, stout and bluntly rounded spatulate setae. Mandibles (Figs 5 and 22) robust, not compressed nor wide in lateral view and lacking any lamelliform projection of lower edge, very slightly downturned near apex, with a well developed emargination dorsally at the base but with part basad to emargination though raised hardly produced over the latter and not forming a deep acute notch, with at most a small, low and rounded cusp immediately below and behind apex, with an elongate subapical lamelliform cusp on inner surface near upper edge.

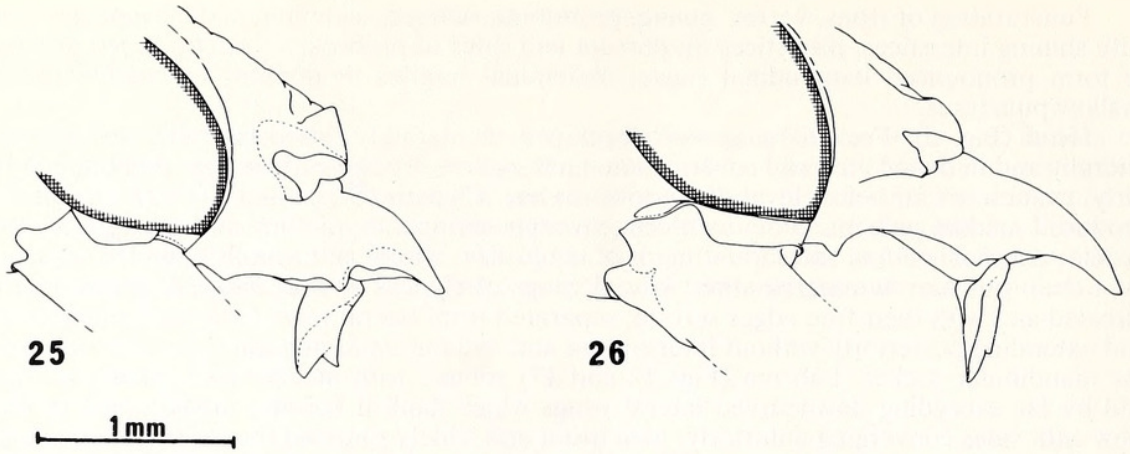
Pronotal collar broader than long, *less than twice* (1,3–1,4) as wide behind as long in the mid-line, *of same length* as scutum; dorsum of collar plain without a conical elevation but with a narrow and mostly shallow longitudinal sulcus in the mid-line; scutum with notauli extending to posterior margin; scutellar disc less than twice (1,75) as wide basally as long in the mid-line; metanotal disc moderately raised, not expanded posteriorly; propodeum less than twice (1,6) as wide across base as long in the mid-line of its dorsal face, narrowed posteriorly (0,8 times as wide across postero-lateral teeth as across base); propodeal dorsum with a median longitudinal carina and four pairs of posteriorly converging lateral carinae; first pair well developed but not lamelliform nor shagreened, not attaining hind end of dorsum; second, third and fourth pairs somewhat indistinct due to coarse reticulate surface puncturing; second pair not joining nor attaining hind end of dorsum but third pair doing so and continuing around and margining hind edge; fourth pair not lamelliformly produced below spiracles.

Tergite 1 widest in posterior half, *less than twice* (1,7) as wide there as long in the mid-line, tergite 2 as wide in anterior half (where widest) as long in the mid-line, almost twice (1,9) as long as tergite 1 and about one and one-tenth as wide.

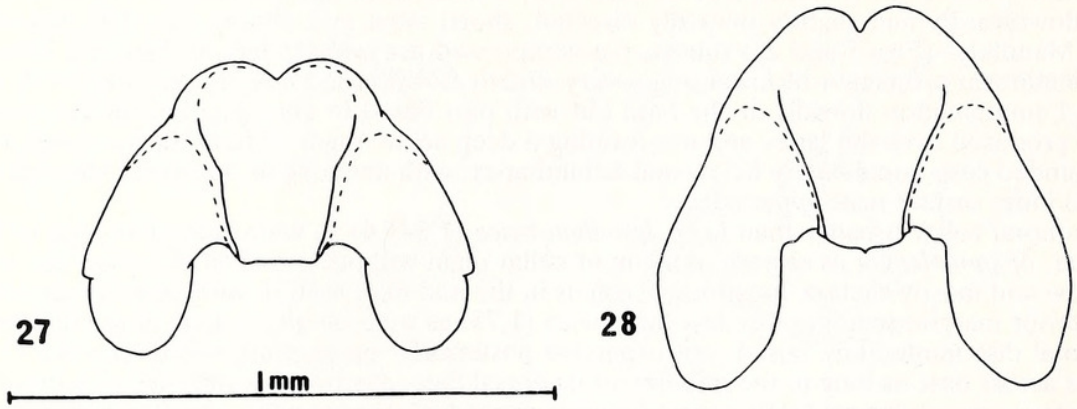
Forewing with three submarginal (= cubital) cells but loss of the first intersubmarginal veinlet (= first transverse cubital vein) in some wings results in only two submarginal cells being present. (In the four specimens examined, one has the veinlet present but weak in both wings, two have the veinlet absent in both wings, and one specimen, the Holotype, has it present in the left-hand wing and absent in the right-hand wing.) Second submarginal cell when present clearly longer (1,5) on the media than on the radius.

MALE Unknown.

MATERIAL EXAMINED: Cape Province: Grahamstown, Avenue Park, 23.iv.1967 (D. Brothers), Holotype ♀ (with prey) (Albany Museum); Grahamstown, Hilton, 21–31.x.1970, 1–16.i.1971




Figs 25–26. Lateral view of anterior part of head of: 25, ♀ *A. mutilloides* Kohl; 26, ♀ *A. timulloides* sp. nov..




Figs 27–28. Frontal view of entire labrum of: 27, ♀ *A. mutilloides* Kohl; 28, ♀ *A. timulloides* sp. nov..

and 17–31.i.1971 (all F. W. Gess, Malaise trap) 3 Paratype ♀♀ (all Albany Museum). The prey taken with the Holotype is a 9,2 mm long apterous female nymph, possibly a species of *Perisphaeria*.

ETYMOLOGY: The name, a combination of two words, is derived from *niger -ra -rum:* black and *setosus -a -um*: bristled, and draws attention to the characteristic setae.

### *Ampulex mutilloides* Kohl

*Ampulex mutilloides* Kohl, 1893: 456, 468–469, fig. 61, ♀; Arnold, 1928: 205–206, fig. 6 [*partim*, ♂ only]; Jacot-Guillarmod, 1951: 236 (plant visiting); Gess, 1981: 17, 53–54 (speculation re. nesting and prey).
*Ampulex sanguinicollis* Brauns, 1899: 394–395, ♂.
[*non*] *Ampulex mutilloides* Kohl, Arnold, 1928: 205, fig. 6a, ♀ [= *A. timulloides* **sp. nov.**].

*Ampulex mutilloides* was described by Kohl (1893: 468–469 and fig. 61) from a single female collected by Drége in South Africa (Afr. austr.). *A. sanguinicollis*, described by Brauns

(1899: 394–395) from a single male collected by himself at Uitenhage not far from Port Elizabeth, was sunk into synonomy with *mutilloides* by Arnold (1928: 205). Arnold's belief that *A. sanguinicollis* represents the male of *A. mutilloides* is supported by the study of material of both males and females collected by Jacot-Guillarmod at Mamathes in Lesotho where the species appears to be not uncommon. In his revision of the Sphecidae of South Africa Arnold (1928: 205–206, figs 6, 6a) in dealing with *A. mutilloides* gave new descriptions in English of both sexes, the original descriptions of both Kohl and Brauns having been in German. It is clear from Arnold's statement (1922: 104) that the material which he had at his disposal included Brauns' but not Kohl's types. Arnold's description of the female was therefore based not upon Kohl's type but upon new material believed by him to be *A. mutilloides* and consisting of two females from the Transvaal, one from Carolina and the other from Pretoria.

Comparison of Kohl's and Arnold's descriptions and figures pertaining to the female show considerable descrepancies of which the most immediately obvious involve the puncturation of the head and the form of the clypeus. Concerning the puncturation Kohl stated: "Kopf gross und wie der Thorax dicht und ungemein grob . . . punktirt; zwischen den Punkten verlaufen Runzeln" (head large and like the thorax closely and unusually coarsely punctured; between the punctures run wrinkles). Arnold, on the other hand, stated: "Head strongly and rather irregularly punctured; the punctures smallest on the middle of the face and on the temples, on the face fairly far apart; the sides of the face are closely punctured and somewhat rugose. The vertex and occiput have widely spaced, large and deep punctures, the spaces between them smooth and shining". With respect to the clypeus, that figured by Kohl (fig. 61) appears to be very different from that figured by Arnold (fig. 6a). The suspicion is therefore aroused that the females from Carolina and Pretoria purported to be *A. mutilloides* are not in fact conspecific with Kohl's female but rather represent a closely related but distinct species.

Examination of the specimens included under *A. 'mutilloides'* in the Albany Museum and in the South African Museum collections (the latter holding Arnold's material formerly belonging to the National Museum in Bulawayo) showed that, of the total of eighteen females, fourteen could be assigned to *A. mutilloides sensu* Kohl and four to *A. mutilloides sensu* Arnold and that the differences between the two groups of specimens were sufficient to warrent specific separation.

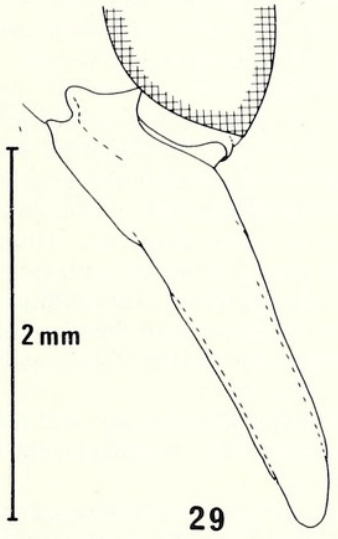



Fig. 29. Lateral view of right mandible of ♀ *A. mutilloides* Kohl.

The four females answering to *A. mutilloides sensu* Arnold are assigned to *A. timulloides* sp. nov.. Major differences between *A. mutilloides* and *A. timulloides* are discussed below under the latter species.

Figure citations, measurements and list of examined material given immediately below pertain to *A. mutilloides* Kohl.

FEMALE (Figs 23, 25, 27 and 29)

Length 10,5–16,5 mm (average of 15 specimens 13,4 mm)
Adequately described by Kohl (*loc. cit.*).

MALE

Length 7,1–11,1 mm (average of 15 specimens 9,1 mm)
Adequately described by Brauns and by Arnold (*loc. cit.*).

MATERIAL EXAMINED: Cape Province: Algoa Bay, no date (Dr Brauns) ♀ (South African Museum ex National Museum Bulawayo 1981); Aliwal North, x.1945 (N. C. Mokhehle) ♀ (Albany Museum); Grahamstown, 20.iii.1969 (J. Pringle) ♀ (Albany Museum); Grahamstown, Hilton, 25.i.1974 (F. W. & S. K. Gess) ♀ (Albany Museum). Lesotho (formerly Basutoland): Mamathes, Sept.–Jan., 1942–1953 (C., A. & F. Jacot-Guillarmod, D. Wickham and N. C. Mokhehle) 8♀♀, 14♂♂ (5♀♀, 12♂♂ in Albany Museum; 3♀♀, 2♂♂ in South African Museum ex National Museum Bulawayo 1981). Natal: Frere, iii.1891 (G. A. K. Marshall) ♂ (South African Museum). Zimbabwe (formerly S. Rhodesia): Salisbury, iv.1913 (no collector) ♀ (South African Museum). No locality, no date (no collector) 2♀♀ (Albany Museum).

### *Ampulex timulloides* sp. nov.

*Ampulex mutilloides* (*non* Kohl) Arnold, 1928: 205, fig. 6a [*partim*, ♀ only].

FEMALE (Figs 24, 26 and 28)

Length 14,8–18 mm (average of 4 specimens 16,2 mm; Holotype 18 mm)

Adequately described by Arnold (*loc. cit.*) (as *mutilloides*), it is very similar in colouration and general facies to *A. mutilloides* Kohl from which it may, however, be readily distinguished on the basis of the characters which follow.

The head (Fig. 24) is of relatively greater width than that of *A. mutilloides* (Fig. 23), its width across the eyes being equal to *c.* 0,29 of the total body length as opposed to *c.* 0,26. However, as accurate measurement of the total body length is complicated by factors such as varying degrees of body flexion and of abdominal telescoping, head width is better compared to a body measurement not subject to such variations. Thus in Fig. 30 the width of the head across the eyes is plotted against the length from the anterior margin of the scutum to the brink of the propodeal declivity measured along the dorsal midline. Regression lines fitted to the sets of points show that whereas the relationship of head width to scutum-propodeal declivity length is consistent within each species, the relative head width of *A. timulloides* is consistently greater.

The vertex and occiput have widely spaced, large and deep punctures, the spaces between them being smooth and shining whereas in *A. mutilloides* the vertex and occiput have close and coarse punctures separated by rugae.

The lateral wings of the clypeus are poorly developed and receding (Figs 24 and 26). Anteriorly they are in the same plane as the lateral teeth from which they are not separated but from which they extend in a smooth, very shallow and extremely wide curve to their weakly or

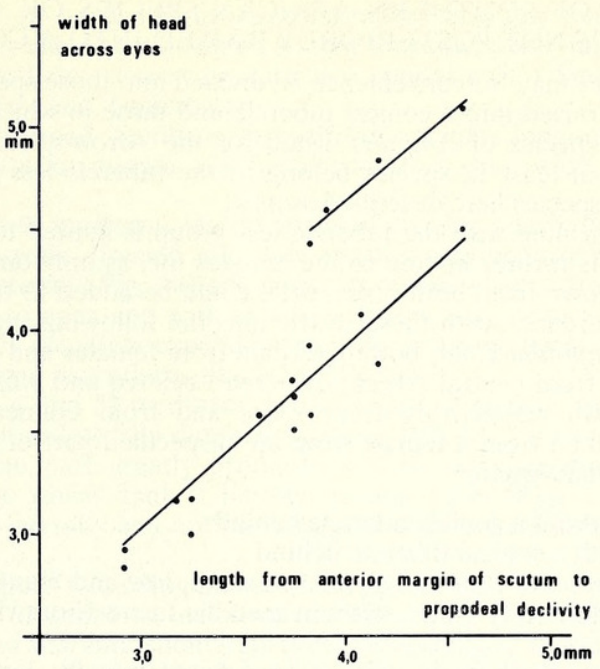



Fig. 30. Regression lines fitted to width, in mm, of head across eyes (vertical axis) plotted against length, in mm, from anterior margin of scutum to brink of propodeal declivity measured along dorsal midline (horizontal axis) for 4 females of *A. timulloides* sp. nov. (above) and 14 females of *A. mutilloides* Kohl (below).

only moderately produced tooth-like postero-lateral extremities. In *mutilloides*, by contrast, the lateral wings (Figs 23 and 25) are well developed and produced. Anteriorly they are in a plane distinct from that of the lateral teeth from which they are also clearly separated. Arising from behind and slightly below the level of the lateral teeth they are relatively short and moderately straight and are increasingly strongly produced and flange-like towards their postero-lateral extremities where they are abruptly truncated.

The median part of the labrum (Figs 26 and 28) is only weakly raised above the level of the lateral wings and is also only weakly concavely dished whereas in *A. mutilloides* the median part of the labrum (Figs 25 and 27) is both strongly raised and strongly concavely dished.

MALE Unkown.

MATERIAL EXAMINED: Transvaal; Carolina, 13.i.1917 (G. A. H. Bedford) Holotype ♀ (South African Museum ex National Museum Bulawayo 1981); Pretoria, 24.x.1914 (no collector) Paratype ♀ (South African Museum ex National Museum Bulawayo 1981); Rustenb[urg], iii. [18] 85 (L. Schunck) Paratype ♀ (South African Museum ex National Museum Bulawayo 1981) (bearing two additional labels: 127; *Ampulex/ mutilloides/* Kohl ♀/ determ/ Dr. Brauns); Ermelo, 21.xi.1948 (N. C. Mokhehle) Paratype ♀ (Albany Museum).

ETYMOLOGY: The name *timulloides*, suggested to the author by his colleague, the late Mr C. F. Jacot-Guillarmod, is an anagram of *mutilloides* and thereby draws attention to the similarity shown by these two species.

## KEY TO FEMALES OF SOUTHERN AFRICAN SPECIES OF *AMPULEX* IN WHICH THE PRONOTUM IS NOT POSTERIORLY RAISED INTO A CONICAL TUBERCLE

The genus *Ampulex* may for convenience be divided into those species in which the pronotal collar is posteriorly raised into a conical tubercle and those in which such a conical tubercle is lacking. Of the 42 species of *Ampulex* listed for the Afrotropical Region by Bohart and Menke (1976: 77–78) at least 12 species belong to the tubercle-less group. To their number may be added the five species here described as new.

The present key dealing with the tubercle-less group is limited to those species occurring in southern Africa. It is further limited to the females for, as only one of the newly described species, *bantuae*, is known from both sexes, little could be added to the key to males given by Arnold (1928). In accordance with these restrictions the following species have been omitted: *honesta* Kohl and *splendidula* Kohl, both described from females and known respectively from Gabon and Zaire and from central Africa; *overlaeti* Leclercq and *pilipes* Kohl, both described from males and known respectively from Zaire and from Guinea and Mozambique. *A. chalybea* Smith, described from a female from an unspecified part of Africa, is omitted as the description is entirely inadequate.

1. Pronotal collar without a conical tubercle behind ..... 2
— Pronotal collar with a conical tubercle behind ..... See Arnold (1928: 200)
2. Pronotal collar with two transversely placed small, low and blunt teeth at about or a little behind middle; body black, without metallic lustre (Forewing with two cubital cells) ..... 3
— Pronotal collar unarmed; body with at least some metallic lustre (blue, green or purple) ..... 4
3. Legs with coxae and femora fusco-ferruginous and tibiae and tarsi ferruginous (occasionally legs are entirely ferruginous); abdomen dull, microscopically reticulate-punctate (Cape Province, Natal, Swaziland, Transvaal and Zimbabwe) ..... ***denticollis*** Cameron
— Legs with coxae, femora and tibiae black and last three tarsal segments brownish-black; abdomen smooth and shining, second tergite with a few very small scattered punctures (Malawi, Mozambique and Urundi) ..... ***lugubris*** Arnold
4. Head (to a varying degree), pronotal collar, scutum and scutellum bright ferruginous and without metallic lustre ..... 5
— Head, pronotal collar, scutum and scutellum without ferruginous colour ..... 6
5. Head width across eyes equal to or slightly less than length from anterior margin of scutum to brink of propodeal declivity measured along dorsal midline (see Fig. 30); vertex and occiput with close and coarse punctures separated by rugae; lateral wings of clypeus (Figs 23 and 25) well developed and produced and anteriorly separated from lateral teeth; median part of labrum (Figs 25 and 27) strongly raised above lateral wings and strongly concavely dished (Cape Province, Lesotho, Natal and Zimbabwe) ..... ***mutilloides*** Kohl
— Head width across eyes exceeding by a mean factor of 1,14 length from anterior margin of scutum to brink of propodeal declivity measured along dorsal midline (see Fig. 30); vertex and occiput with widely spaced, large and deep punctures, the spaces between them smooth and shining; lateral wings of clypeus (Figs 24 and 26) poorly developed and receding, anteriorly not separated from lateral teeth; median part of labrum (Figs 26 and 28) only weakly raised above lateral wings and only weakly concavely dished (Transvaal) ..... ***timulloides*** sp. nov.
6. Clypeus produced into a broad, subquadrangular and transversely convex plate, not carinate longitudinally in middle and without a median tooth on anterior margin; fun-

damental sculpture on head and pro-mesonotum exceedingly fine, consisting of a microscopic and very close puncturation, so that those parts are dull; fourth carina of epinotal dorsum obsolete. (Forewing with two cubital cells.) Small species, 8 mm long (Griqualand West and Zimbabwe) ..... ***arnoldi*** Brauns

— Clypeus differently formed, tectiform or nasiform, carinate longitudinally in middle, carina ending on anterior margin in a distinct tooth or on a wide, subtruncate lobe (*bantuae*) ..... 7

7. Clypeus (Figs 2 and 9) nasiform; lateral wings of clypeus poorly developed and like lateral teeth downwardly directed and thus appearing to be strongly receding when seen from above; labrum (Fig. 14) triangular in overall shape, greatly but regularly widened from base to apex and with extensive lateral wings exceeding median part; frontal lobes (Fig. 2) arcuately expanded laterally and completely covering antennal sockets; frontal carinae parenthesis-like (Cape Province) ..... ***bantua*** sp. nov.

— Clypeus (Figs 1, 3, 4 and 5) tectiform; lateral wings of clypeus well developed and like lateral teeth antero-laterally directed; labrum (Figs 13, 15, 16 and 17) differently formed, with median part greatly produced and by far exceeding strongly down-curved lateral wings which flank it basally; frontal lobes (Figs 1, 3, 4 and 5) not arcuately expanded laterally and not covering antennal sockets; frontal carinae diverging posteriorly ..... 8

8. Lateral wings of clypeus extending postero-laterally without interruption and without emargination entire distance to mandibular sockets (Fig. 5); forewings with a tendency towards loss of first intersubmarginal veinlet leading to frequent coalescence of first and second submarginal cells; (head, thorax and legs with sparse, very coarse black pilosity) ..... 9

— Lateral wings of clypeus not extending postero-laterally without interruption but terminated abruptly and separated from mandibular sockets by an emargination (Figs 1, 3 and 4); forewings not showing this tendency and therefore always with three submarginal cells ..... 10

9. Claws of all legs bifid (inner ramus of claws apically pointed, wider than outer ramus and only slightly shorter); body metallic blue and green, last three tergites and apical half of third, last four sternites, clypeus, mandibles, scapes and pedicels ferruginous (Cape Province and Natal) ..... ***apicalis*** Smith

— Claws of all legs toothed (tooth acutely pointed, situated midway along length of claw and at right angles to it); body metallic blue (sometimes abdomen is lustreless black) with only mandibles and antennal scapes ferruginous (Cape Province) ..... ***nigrisetosa*** sp. nov.

10. Small species, 7,5 mm or less in length (mandibles, apex of clypeus, antennae, apical segment of abdomen, legs various shades of brown; wings hyaline, forewing with a transverse fuscous band) (Cape Province) ..... ***nebulosa*** Smith

— Larger species, 10–16 mm in length ..... 11

11. Labrum (Figs 10 and 15) with median part more or less square in cross-section, in dorsal view with sides subparallel and with apical margin pointedly bilobed, with apical face concave and ventral face flat; wings strongly and fairly uniformly browned, without noticeable fasciae; (frontal lobes very strongly raised laterally; frontal carinae strongly divergent posteriorly; puncturation of head and thorax coarse) (Lesotho) ..... ***lesothoensis*** sp. nov.

— Labrum (Figs 8 and 13; 11 and 16) with median part flattened, in dorsal view with sides diverging anteriorly and with anterior margin widely bilobed and slightly down-curved, with ventral face concave; wings subhyaline, lightly browned, with fasciae (*cyanura*) or without fasciae (*montivaga*) ..... 12

12. Mandibles black (except for tips), other than for absence of metallic lustre not contrasting with colouration of genae (mountains of Lesotho) ..... ***montivaga*** sp. nov.
— Mandibles ferruginous, contrasting markedly with colouration of genae ..... 13
13. Mandibles in lateral view with a pronounced bluntly triangular lamelliform projection of lower edge (Fig. 18); punctures of first two tergites shallow, fine to moderate in size ..... 14
— Mandibles in lateral view with only a very low lamelliform projection of lower edge; punctures of first two tergites deep, very distinct, moderate in size; clypeus ferruginous (mountains of eastern Zimbabwe) ..... ***cyanura monticola*** Arnold
14. Clypeus, scapes and frontal lobes black (Cape Province and Zululand) ..... ***cyanura cyanura*** Kohl
— Clypeus, scapes and anterior portions of frontal lobes ferruginous (Zimbabwe) ..... ***cyanura rhodesiana*** Arnold

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