

ADDITIONS TO THE CYRTOSIINAE (BOMBYLIIDAE) OF SOUTH AFRICA

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(With 8 figures in the text)

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INTRODUCTION

Since the publication of my revision of the Cyrtosiinae as a constituent section of my revision of the Bombyliidae of Southern Africa in 1938, members of the South African Museum staff have collected some new species of this subfamily. In addition Mr. and Mrs. B. Stuckenberg of the Natal Museum have recently submitted certain new forms obtained by them in Natal, Zululand, Lesotho, in the eastern Cape, and in the western Cape. Of more biological importance is the interesting cyrtosiine predator or parasite in egg-packets of the brown swarm locust, represented by a remarkable new genus submitted by Mr. R. J. Mansfield of the Department of Agriculture at Pretoria, and which probably plays some role in the biological control of this pest. To this must be added the interesting new genus collected in South West Africa by Professor Per Brinck of the Zoological Institute of Lund, which I described as a new genus *Euanthobates* in *South African Animal Life* in 1965, and of which genus another new South African representative was subsequently discovered in the collections of the South African Museum.

As a supplementary contribution to my original revision of this subfamily a revised key to the known African genera is given below, the new forms are described, and the taxonomic position of others is commented upon.

Representatives of this subfamily, of which most of the forms are small,

often minute, usually with characteristic dark and yellow markings, and in most cases adapted to flower feeding, are mainly characterized by a reduction of the wing-venation; presence of only one submarginal cell; absence or reduction of the marginal cell in many forms; the quadri-articulate antennae; the presence of a slight indentation in the inner margin of the eyes opposite antennae in many of the forms; the markedly convex, humped or arched thorax; the more or less poorly developed vestiture and the absence of bristly elements or macrochaetae on the body; absence of spines and distinct spicules on the legs; the spine-like, or sometimes clasper-like, process on each side of the last sternite in ♂♂ of some genera; and the tendency for the telomeres of the paramere in the hypopygium to be flattened and to be leaf-shaped in quite a number of forms.

REVISED KEY TO ALL THE KNOWN AFRICAN GENERA

1. (a) Proboscis well developed, stoutish, often long; ocellar area more triangular, not separated from frons by a distinct depressed line, and lateral ocelli much nearer together; thorax, though humped, not so globular, not punctured or sculptured above, usually with a distinct lateral depression on sides above wing-base; abdomen more normally ovate or cylindrical, tergite 1 not or only slightly depressed discally, and dorsum of abdomen not relatively coarsely punctured or sculptured; venter not, or scarcely, depressed; wings either with a normal marginal cell or, if with a reduced marginal cell, the latter is smaller or even absent, its posterior vein joining costal cell, not costal margin; discoidal cell present or absent and, if present, distinctly more elongate; mostly very small or small forms, not exceeding 3.4 mm., the body not resembling that of acrocerid genera; flower-feeding forms 2
- (b) Proboscis very much reduced, rudimentary, minute, vestigial, or almost absent; ocellar area more transverse, broader, distinctly separated from frons by a depressed line, and lateral ocelli very widely separated; thorax more globular, more markedly humped, punctured or sculptured above, without any distinct lateral depression on each side above wing-base; abdomen much arched or convex above, very much broader, at broadest part, than thorax, markedly depressed discally on tergite 1 and dorsum of abdomen comparatively coarsely punctured or sculptured; venter markedly hollowed or excavate; wings with a reduced more scalene-triangular or irregularly rhomboidal marginal cell, its posterior vein ending in costal margin near or a little beyond apex of costal cell; discoidal cell present, shorter, hexagon-like; slightly larger forms, 2.6-4.4 mm., the body resembling that of the acrocerid genus *Psilodera*; non-feeding forms *Psiloderoidea* n. gen.
2. (a) Wings with a distinct and normal marginal cell, its bounding vein ending in anterior margin of wings; hairs on body and legs, even if sparse, usually longer, more conspicuous; integument of body, especially of dark or black parts, tending to be more shining or sometimes even brilliantly so; slightly larger forms, usually more than 2 mm. in length 3
- (b) Wings either without a marginal cell, or with a much reduced, abnormal and small, triangular one, of which the bounding vein ends in lower vein of costal cell, not in anterior margin; hairs on body and legs very short or minute, almost imperceptible; integument of body usually duller; very small forms, usually not more or much more than 2 mm. in length 7
3. (a) Head usually more elongated, the eyes situated more forwards and postocular part longer, more convex, not flattened; head below longer, either produced behind to a variable extent, or it is sulcate, depressed, or grooved below, ending in a process or spine behind, or on each side behind in a blunt prominence or even subangular prominence; frons usually depressed to a variable extent; buccal cavity usually much

- narrower or smaller; antennal joint 3 broader, more conical, elongate-ovate or leaf-shaped; body narrower, more laterally compressed, the thorax more conspicuously roundly convex or humped; first basal cell in wings usually longer than, or at least subequal in length to, second; anal cell narrowly or broadly open apically; axillary lobe narrower, not or scarcely much broader than anal cell; hind tarsi in ♂♂ normal 4
- (b) Head more globular, the eyes normally situated, and postocular part short, flattened; head below broad, shorter, not sulcate, not produced behind below; frons, if slightly depressed, then so only anteriorly; buccal cavity much broader, more gap-like or normally broad; antennal joint 3 more cylindrical or rod-like, even if broadened basally; body more plump, the thorax less roundly and conspicuously humped; first basal cell distinctly shorter and narrower than second; anal cell acute and stalked apically; axillary lobe more broadly lobe-like, broader than anal cell; base of basal joint of hind tarsi in ♂♂ sometimes produced into a curved, hook-like process *Onchopelma* Hesse
4. (a) Head below broader, not distinctly longitudinally depressed or sulcate, sometimes even slightly ridged or ending medially behind in a slight or blunt prominence; postocular part usually shorter or much shorter, the head less elongate; inner margins of eyes opposite antennal insertions without even an indication of an indentation; thorax usually more highly convexly humped; wings without a discoidal cell *Cyrtosia* Perris
- (b) Head below, especially anteriorly, very much narrower, distinctly more longitudinally depressed or sulcate, either slightly heel-like prominent behind (side view), or ending medially behind in a spine-like process or in a subangular prominence on each side behind; postocular part usually longer, the head appearing more elongate and the eyes usually situated more forwards; inner margins of eyes usually with a distinct indentation or an indication of one opposite antennae; thorax slightly less convexly humped; wings with or without a discoidal cell 5
5. (a) Head below more broadly depressed or grooved longitudinally, ending behind in a heel-like prominence (side view), or in a blunt or subangular prominence on each side behind; occipital part comparatively shorter, either shorter than, as long as or not longer than frons, more rounded or convex, less sloping to neck, and there distinctly broader; wings with a discoidal cell; body usually less, or less extensively, shining; hypopygium of ♂♂ armed with more strongly developed, or at least more visibly protruding, clasper organs (process on each side of last sternite) 6
- (b) Head below narrowly sulcate, at least anteriorly, produced posteriorly, ending behind in a longish, median, spine-like process; occipital part relatively longer, longer than frons, usually more sloping to neck and there more narrowed; wings without a discoidal cell; body more extensively shining or polished in appearance; hypopygium of ♂♂ armed with much feebler, smaller, not so visibly protruding and only shortly spine-like clasper organs (processes of last sternite) *Ceratolaemus* Hesse
6. (a) Head more subglobular, less elongate, the postocular part more convex or rounded, usually relatively shorter, the distance between hind margin of eye and posterior angle below head being much shorter, at most only about half, or a little more than half, length of eye; head below less produced posteriorly, in side view appearing only heel-like; proboscis comparatively shorter, less stout, usually not much longer, often shorter, than head; antennal segment 4 comparatively longer relative to length of 3; vestiture more strongly developed, and microtrichial fringe, and microscopic hairs on membrane, of wings usually also more developed; wings relatively longer, usually much longer than head and body; last sternite in ♀♀ distinctly larger, more elongate; clasper organs of last sternite of ♂♂ less strongly developed, only their apices visibly protruding *Platypygus* Lw.
- (b) Head distinctly more elongate, the postocular part less rounded, more sloping to neck, relatively longer, the distance between hind margin of eye and posterior angle below head longer, usually more or much more than half length of eye; head below more conspicuously produced behind, in side view ending in a more conspicuous prominence on each side posteriorly below; proboscis relatively longer, stouter, usually distinctly longer than head; antennal joint 4 relatively much shorter relative to length of 3; vestiture much shorter, sparser, and with much finer or without any microtrichial

- fringe and membranous microscopic hairs on wings; wings relatively shorter, not very much longer than head and body; last sternite in ♀♀ shorter or much shorter; clasper organs (processes of last sternite) of ♂♂ usually more strongly developed, more conspicuously visible and protruding *Cyrtisopsis* Séguéy
7. (a) Marginal cell in wings much reduced, represented as a small triangular cell, the bounding vein of which ends directly, sometimes at right angles, in costal cell . . 8
 (b) Marginal cell entirely absent, its place being occupied by the submarginal cell . . 11
8. (a) Wings with the veins and cells less reduced, two basal cells normally present, and four posterior cells normally delimited by longitudinal veins, the fourth vein entire, either joining directly on to enlarged second basal cell, or its basal half forming the division between basal cells; fourth posterior cell very much shorter, its base forming apical cross vein of second basal cell; coxae sometimes rather strongly developed, stout and thick 9
 (b) Wings with the veins and cells much reduced, only one basal cell (first) being normally developed, the second being entirely absent or only indicated as a vestige below apex of first, with the four posterior cells not all normally delimited by continuous longitudinal veins, the normal fourth vein of other Bombyliidae being only represented in apical part of wings, the basal parts of normal first and second (or third) posterior cells being confluent and undivided; fourth posterior cell very much longer, its base forming lower vein of first basal cell; coxae normally developed . . . *Doliopheryx* Hesse (1956: 936)
9. (a) Discoidal cell in wings absent; submarginal cell much shorter or very short, ending much before apex of wing; first posterior cell also very much shorter, very much less than twice length of first basal cell; third posterior cell longer, not parallelogram-shaped; anal cell usually more gradually narrowed apically, either fairly broadly open or roundly sessile on hind margin; terminal element (joint 4) of antennae much shorter, not more than $\frac{1}{2}$ length of 3 or even minute; head below only shallowly, or scarcely, or not deeply, grooved below 10
 (b) A distinct discoidal cell present; submarginal cell long, extending round to near apex of wings; first posterior cell long, nearly or quite twice length of first basal cell; third posterior cell shorter, quite or very nearly a parallelogram; anal cell rapidly and acutangularly narrowed apically, very shortly stalked; terminal element (joint 4) of antennae much longer, much more than $\frac{1}{2}$ length of 3; head below more distinctly and very deeply grooved *Aetheoptilus* n. subgen. of *Empidideicus*
10. (a) First basal cell in wings shorter or much shorter than second, the latter evidently formed by the fusion of a discoidal and a second basal cell, and from it radiate 4 longitudinal veins delimiting the four posterior cells; first posterior cell much broader, opening very broadly on apical margin; thorax distinctly more convexly humped; face much longer; antennal joint 3 ending in a distinct longish terminal element or joint *Glbellula* Bezzi s. str.
 (b) First basal cell much longer than second, the latter not formed by fusion of a discoidal and second basal cells, a discoidal cell being entirely absent, and from the second basal cell radiate only 3 longitudinal veins, the fourth vein forking to form the triangular second posterior cell; first posterior cell distinctly very much narrower, narrowed and curving anteriorly apically, and only narrowly opening on anterior margin, not at apex; thorax distinctly less humped; face markedly short; antennal joint 3 ending apically in a minute, almost imperceptible, terminal element . . . *Pseudoglbellula* n. gen.
11. (a) Face much longer; antennal joint 3 proportionally shorter, ending in a conspicuous, longish, slender fourth joint; head below without any downwardly-projecting processes in the groove; proboscis, if extruded, usually shorter; thorax more convexly humped; first posterior cell in wings much broader, widely or broadly divergent apically, its lower or posterior vein ending much behind apex of wings; first basal cell only a little longer than second; part of fourth vein between first basal and second posterior cells long; anal cell narrower 12
 (b) Face markedly short; antennal joint 3 proportionally longer, more spear-blade- or leaf-shaped, ending in a minute, scarcely perceptible, fourth joint; head below sometimes with conspicuous, downwardly-projecting, finger- or caeca-like processes from the

groove; proboscis, if fully extruded, sometimes very long, or even longer than head and body; thorax less convex, not so humped; first posterior cell much narrowed, much narrowed apically, its posterior vein ending before apex of wings; first basal cell distinctly much longer than second; part of fourth vein between apex of first basal and the second posterior cells markedly short, very much shorter than latter cell; anal cell much broader, sometimes very acute apically *Euanthobates* Hesse

12. (a) Discoidal cell in wings absent; fourth vein forking to form second posterior cell; process or spine-like process on each side of last sternite in ♂♂ shorter, less developed.

Empidideicus Beck. s. str.

- (b) Discoidal cell present; fifth vein forking, its anterior (upper) branch, together with basal part of fourth and base of second posterior cells, forming the discoidal cell; process on each side of last sternite in ♂♂ more triangularly spine-like, larger, more developed *Anomaleptilus* Hesse subgen. of *Empidideicus* Beck.

DESCRIPTIVE

Genus CYRTOSIA Perr.

Cyrtosia Perris, 1839: 55. Bezzi, 1925: 256. Séguy, 1930: 79. Engel, 1933: 103.

This Palaearctic genus, described by Perris in 1839 and more comprehensively redescribed by Engel in 1933, is represented by quite a number of known species, at least 16, in Europe, the Mediterranean, Asia Minor and north Africa, but has not been recorded from Africa south of the Sahara. Two representatives of it, belonging to two distinct species, have now been collected in South Africa since my revision of the Cyrtosiinae. The discovery of representatives of this genus in South Africa extends the geographical range of the genus and, together with representatives of the other Palaearctic genera *Platygyus* Lw. and *Cyrtisiopsis* Séguy which have also been found in South Africa in the interim, completes the list of Palaearctic cyrtosiine genera extending so far south in the African continent.

The characters distinguishing this genus from nearly related genera have been listed by Engel in his revision (1933). From *Platygyus*, which also has a distinct and normal marginal cell in the wings, representatives of *Cyrtosia* may at once be distinguished by the head which is broader below, not distinctly grooved or sulcate below, not prominently projecting posteriorly below; by the postocular part which is shorter, the head being less elongate; by the entire absence of a slight indentation in inner margins of eyes opposite antennal insertions; by the distinctly more convexly humped thorax; and by the absence of a discoidal cell in the wings.

From the genus *Cyrtisiopsis* Séguy, which is very near *Platygyus*, it differs, apart from the absence of a discoidal cell, by the more globular or subglobular head which is not sulcate or grooved below and which is not angularly or subangularly conspicuously produced on each side of the groove behind and below; by the absence of indentations in inner margins of eyes; by the shorter proboscis; and by the usually less prominent, less sharply hook-like clasper organs (processes on last sternite). The two new South African species are:

Cyrtosia namaquensis n.sp.

Unfortunately represented in the collections by a single ♀ specimen only which is characterized as follows:

Body mainly black, the following parts pale yellowish: face, buccal rim, anterior part of frons, a large humeral spot, extending down anteriorly on each side to transverse suture between mesonotum and pronotum, and also includes anterior spiracle and is confluent with the yellow propleural sclerite, notopleural connection and area just in front of wing-bases, postallar calli and a broadish fascia extending forwards from it to opposite level of wing-base, a prosternal spot above front coxae, area below wing-bases, sutural part between pteropleuron and sternopleuron, posterior part of hypopleuron, hind margin of metapleural part, halteres and their knobs, narrow hind margins of tergites, becoming slightly broader posteriorly and on sides, hind margins of sternites, a spot at base of hind femora below, apical parts of femora, greater part of tibiae (excepting a brownish infusion before middle on inner hinder faces of front and middle ones and the apical parts of hind ones), and basal joint of tarsi; integument subshining, covered with a faint greyish whitish bloom.

Vestiture with the hairs on body and legs fine, very short, slightly longer on abdomen posteriorly, entirely pale, gleaming slightly sericeous yellowish, especially on thorax above.

Head with the frons centrally and longitudinally deeply depressed, as wide anteriorly at level of antennae as ocellar tubercle on head behind; face shorter than frons, about as long as wide at level of antennae, narrowed anteriorly; part of buccal cavity in head in front narrow, vertical, sulcus-like; antennal joint 1 longer than 2, quite 1.5 times as long; joint 3 elongate, about 1.6 times as long as joints 1 and 2 combined and about 2.3 times as long as broad and also about 2.3 times as long as the rather stoutish joint 4 which itself is about as long as joint 1; proboscis relatively stout, much longer than head, about 0.88 mm. long; palps very short, inconspicuous; head below not produced posteriorly, medially appearing slightly, but distinctly, ridged, with a distinct, conspicuous, pore-like puncture on each side of ridge a little beyond middle.

Wings hyaline, but with a very feeble whitish subopacity, more perceptible basally; veins yellowish brownish, becoming more yellowish at base of wing and darker brownish in apical half of costal vein and in basal veins of the cells; veins between basal cells and anal and axillary cells very pale, almost whitish; second posterior cell a little more than twice as long as distance between it and first basal cell, and this latter distance distinctly less than twice distance of the same vein to base of third posterior cell; first basal cell much longer than second; squamae pallid; halteres yellowish whitish, their knobs relatively large.

The ♀ holotype in the South African Museum.

Length of body: about 2.24 mm.

Length of wing: about 2.4 mm.

Locality: Bushmanland: Aggenys between Springbok and Pella (Mus. Staff, Oct. 1939).

This species resembles the Palaearctic (Mediterranean) species *obscuripes* Lw. in coloration. From the latter it may however at once be distinguished by the very much longer proboscis which is much longer than the head, the more extensively yellow tibiae, and the much longer basal part of fourth vein (between base of third posterior cell and apical cross vein of first basal cell) relative to the rest of it to base of second posterior cell.

Cyrtosia stuckenbergi n.sp.

Another specimen of *Cyrtosia*, a single ♂, which, though resembling the ♀ *namaquensis* in colour-pattern and notwithstanding the similarity of colour-patterns among species of *Cyrtosia*, I think belongs to a different species which is characterized as follows:

Body mainly black, the integument dulled by fine greyish whitish tomentum; the following parts yellowish whitish: extreme apex of frons, greater part of face, extending down along upper half of buccal rims on each side, anterior margin of head below, a narrowish streak on mesonotum anteriorly on each side from humeral angle down to pronotal part and also extending spot-like down anterior margin of mesopleuron to include a propleural vertical streak, a triangular dorso-lateral thoracic spot, just above and in front of wing-bases, a streak on each side of thorax above to scutellum, the notopleural fold and area in front of and just below wing-bases, to a certain extent pleural sutures, an infusion above middle and hind coxae, to a slight extent posterior metapleural margin, hind margins of tergites and sternites, to a certain extent apices of coxae, bases and apical parts of femora, to a variable extent inner faces of front tibiae, the outer exterior faces of middle ones, to a feeble extent bases and distal halves of hind tibiae, and basal parts or halves of tarsi.

Vestiture with the hairs on body and legs fine, very short, fairly dense, entirely pale, those on disc of thorax appearing slightly more yellowish, and those on abdomen slightly longer, more whitish, and longest (tuft-like) on each side of last tergite above hypopygium; hairs on tibiae very fine, short, dense and whitish.

Head with the frons slightly depressed, slightly narrowed anteriorly, there narrower than space between two posterior ocelli; face shorter than frons, also slightly narrowed anteriorly; part of buccal cavity in head in front vertical as in *namaquensis*; antennal joint 1 (as far as can be seen) as long as 2; joint 3 ovate, slightly longer than broad, broadest before middle, about as long as 1 and 2 combined, about a fourth longer than terminal joint; proboscis about 0.56 mm. long; palps not perceptible; head below slightly longitudinally raised ridge-like, and also with a minute pore on each side posteriorly.

Wings hyaline, with a very feeble whitish subopacity; veins brownish; costal margin slightly sagging downwards opposite level of base of submarginal cell; second posterior cell a little more than twice as long (along upper vein) as distance between it and first basal cell; vein between apex of second basal cell and base of second posterior cell equal or subequal in length to lower vein

of second posterior cell; first basal cell much longer than second; alula narrowish; squamae whitish; halteres yellowish, their knobs white.

Hypopygium with the claspers or processes of last sternite (text-fig. 1) fairly large, broad, rather sharply bent inwards to apical part, bluntly pointed.

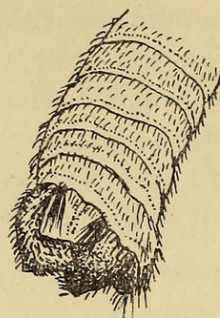


FIG. 1. Dorso-posterior view of abdomen of ♂ *Cyrtosia stuckenbergi* n. sp. showing the processes (one on each side) of last sternite.

The ♂ holotype in the Natal Museum.

Length of body: about 1.52 mm.

Length of wing: about 1.6 mm.

Locality: Karoo at junction of Calvinia and Sutherland roads near Inverdoorn, Ceres Div. (B. and P. Stuckenberg, 2-3 Oct. 1959).

Apart from its smaller size, the ♂ of this species differs from the ♀ of *namaquensis* in the much smaller and less extensive yellowish whitish markings on body, presence of a distinct triangular yellowish whitish spot on sides of thorax above (just above wing-bases) which is absent in *namaquensis*; narrower yellowish whitish hind margins of tergites; narrower yellowish apical parts of femora; more darkened tibiae and basal joints of tarsi; much darker and entirely dark veins in wings; different proportions of antennal joints 3 and 4, the former being proportionally distinctly much shorter, more ovate and only a fourth longer than 4 (in *namaquensis* it is quite 2.3 times length of 4); and more slender proboscis, its labella nearly $\frac{1}{5}$ length of entire proboscis (in *namaquensis* proportionally longer, nearly $\frac{1}{3}$ this length).

Genus PLATYPYGUS LW.

Platypygus Loew, 1844: 127. Bezzi, 1925: 259. Paramonow, 1929: 197 (135). Engel, 1933: 120.

At the time of my revision of the Cyrtosiinae of southern Africa in 1938 no species of *Platypygus* s. str. had been recorded from this part of Africa. The only representative of what at the time I took to be a *Platypygus* was the species *xanthogrammus* which I then referred to a new subgenus *Ceratolaemus* of the latter genus. As stated below there are now sufficient reasons for raising my subgenus to the status of a distinct and separate genus. Recently Mr. and Mrs. B. Stuckenberg of the Natal Museum submitted a single ♀ specimen from Natal which obviously belongs to the genus *Platypygus* s. str. This is apparently the first record of a true *Platypygus* species from southern Africa. As in the case of *Cyrtosia*, this genus is well represented in southern Europe, the Mediterranean, North Africa and Asia Minor.

In his revision of the Palaearctic forms Engel has given an adequate redescription of this genus which is chiefly characterized by the presence of a distinct discoidal cell in the wings; the rather longish wings, usually much longer than head and body; a conspicuous groove on head below of which the

rims posteriorly project backwards rather heel-like; the relatively longish antennal joint 4; relatively shortish proboscis which is usually not much longer than the head, often shorter; the rather long and conspicuous, more scoop-like, last sternite in ♀♀; and the distinctly visible, or slightly protruding, claspers (processes on sides of last sternite) of the hypopygium of the ♂♂. The new species from South Africa is:

Platypygus natalensis n.sp.

The ♀ of this species is characterized as follows:

Body mainly yellowish, the anterior part of frons, the face and legs paler yellowish; postvertical and occipital part, antennal joints 3 and 4, apical halves of tarsi and the claws black; eyes blackish brownish; proboscis darkened laterally to a variable extent; disc of thorax above with 3 broadish, longitudinal, brownish streaks, narrowed posteriorly, and with the lateral ones extending only from just before middle on each side, and the lateral ones also flanked on each side above level of wing-bases by a roundish brownish spot; dorsum of abdomen also brownish, especially discally on tergites 1-3, fading out more posteriorly; hind margins of tergites paler, more pale yellowish, becoming slightly broader posteriorly and on sides.

Integument of head, especially occiput, body above and to a certain extent pleurae, especially mesopleural part, more or less shining.

Vestiture rather well developed and dense, though shortish, fairly dense on abdomen above, mainly dark or blackish brownish; dark hairs on dark apical halves of tarsi more blackish.

Head subglobular; frons gradually, but slightly, narrowed anteriorly, medially longitudinally depressed; face above subequal in length to frons; occipital part rounded, slightly less than half axial length of eyes along sides; head below broadly grooved, hind margin of the sulcus distinctly projecting heel-like behind; antennae with joint 1 scarcely longer than 2, with 3 about $1\frac{1}{4}$ longer than 1 and 2 combined, ovate, somewhat flattened, and with 4 rather long, quite as long as 1 and 2 combined or $\frac{3}{4}$ length of 3, cylindrical; proboscis subequal in length to that of head, about 0.72 mm. long, its labral part about 0.48 mm. long.

Wings much longer than body, very faintly, but distinctly, infuscated; veins dark brownish; membrane with distinct, microscopic hairs, and hind margin with a distinct microtrichial fringe, longer along alular and axillary margins; first posterior cell parallel-sided; middle cross vein a little before middle of discoidal cell; knobs of halteres yellowish, but darkened above along base.

The ♀ holotype in the Natal Museum.

Length of body: about 2.48 mm.

Length of wing: about 3.28 mm.

Locality: Natal: Lilani, Ahrens Dist. (B. and P. Stuckenberg, Apr. 1962).

Genus *CYRTISIOPSIS* Séguy

Cyrtisiopsis Séguy, 1930: 80, fig. 1.

Cyrtisiopsis subgen. of *Platypygus* Lw. Engel, 1933: 120, 125, fig. 58.

This is another Palaearctic genus very near *Platypygus* which Séguy established to accommodate the new species *singularis* he described from north west Africa and Spain. Subsequently Engel however maintained that the species *Platypygus melleus*, described by Loew from Egypt in 1856, was specifically identical with *singularis*, and at the same time relegated *Cyrtisiopsis* to the status of a subgenus only of *Platypygus*. From the descriptions and illustrations of species of *Platypygus* it is however quite evident that the latter genus differs from *Cyrtisiopsis*, as defined and figured by Séguy, in certain important respects. These distinguishing characters appear to me to be of sufficient importance to merit the retention of *Cyrtisiopsis* as a separate and distinct genus as maintained by Séguy. Moreover a series of both ♂♂ and ♀♀ of a South African cyrtosiine species, collected by me in the Koup Karroo in 1945, agree with Séguy's description and figure of *Cyrtisiopsis* in most of these distinguishing features. It not only supplements the validity of this genus, but at the same time extends the geographical distribution of this genus to the far South.

Both the north African and the South African representatives of *Cyrtisiopsis* appear to differ from *Platypygus* s.str. in the distinctly more elongated head, with the occipital part relatively longer, less convexly rounded, more sloping to neck; the deeper, more distinct and longer sulcus below the head, which ends behind in a distinctly longer, more conspicuous, blunt, subangular prominence on each side; the distinctly longer, stouter or even incrassate proboscis, which is much longer than the head and longer than in known species of *Platypygus*; the relatively shorter antennal joint 4 (relative to length of joint 3); the much shorter and sparser vestiture on head, body and legs; the apparently shorter wings, without or with much finer microtrichial fringe and also without or with very much finer microscopic hairs on the membrane; the comparatively shorter and smaller last sternite in ♀♀; and the distinctly more strongly developed and more conspicuously protruding clasper organs (or hook-like processes of last sternite) of the hypopygium of the ♂♂. The new species from South Africa is:

Cyrtisiopsis crassirostris n.sp.

The series of both ♂♂ and ♀♀ of this species (text-fig. 2) was collected on the yellowish flowers of a Composite *Tripteris sinuata* growing in the Koup Karroo. This species is characterized as follows:

Body and legs mainly black; the following parts however very pale yellowish, ivory yellowish, or pallid: antennal sockets, narrow notopleural ridge from shoulder to a broader area surrounding wing-bases, postalar calli, a small propleural spot below shoulders, a spot above front coxae, another prosternal one on each side anterior to front coxae, a narrow sutural line below meso- and pteropleurae, a spot on pleurae just above middle coxae joining on with a larger spot posterior to it astride hind margin of pteropleuron

and anterior margin of hypopleuron, a spot just anterior to base of halteres, narrow hind margin of metapleural part, narrow hind margins of tergites and usually slightly broader hind margins of sternites, and in ♀ often also the visible integumentary membranes between tergites and sternites on sides below.

Integument of head behind ocellar tubercle, thorax and scutellum above scarcely or only shining a little, duller, and with very fine microsculpture; integument of frons, pleurae, and abdomen however smooth, polished in appearance, brilliantly shining; legs also shining; head below on each side of sulcus and on sides of head behind eyes finely, transversely striolate and shining.

Vestiture with the hairs, where present, very minute, not perceptible, the body and legs being mainly smooth and shining, and only very minute hairs perceptible on tibiae.

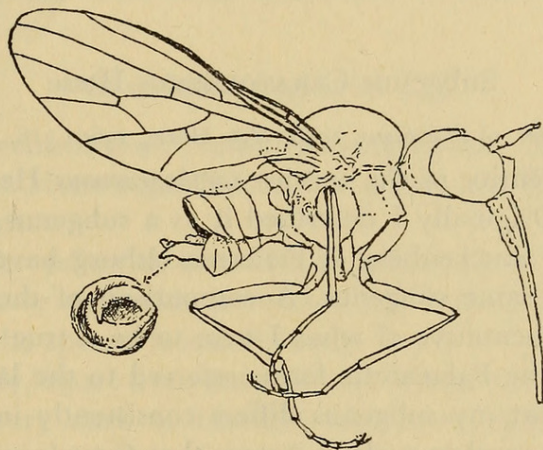


FIG 2. Side view of ♂ *Cyrtisiopsis crassirostris* n. sp., showing processes of last sternite in side view and separately below in posterior view.

Head with the sulcus below fairly deep, not produced medially behind as in next genus *Ceratolaemus*, but the sides of head bluntly and tumidly produced posteriorly into a rounded, slightly knob-like prominence, the hind margin below and posterior to sulcus being fairly deeply emarginate; eyes above slightly more broadly separated in ♀ than in ♂; frons foveately depressed; face narrow, convex, smooth and shining, about as long as frons from anterior ocellus to antennae; antennal joint 1 a little longer than 2, even quite 1.5 times length of 2; joint 3 elongate, slightly flattened, about twice (or a little more) length of 1 and 2 combined, about or nearly, or even a little more than, 3 times as long as broad, its terminal element cylindrical, subequal in length to, or a little longer than, transverse joint 2; proboscis comparatively stout and long, stouter in ♀, much longer than head, about 1.12–1.68 mm. (to 2.2 mm. when extended); palps not discernible.

Pronotum not much developed, not so prominent and lobe-like as portrayed in the Palaearctic species.

Wings vitreous hyaline, highly iridescent; veins dark reddish brownish; first basal cell distinctly much longer than second; middle cross vein a little beyond middle of discoidal cell; latter subspindle-shaped, markedly narrowed apically, its apical cross vein very much shorter than base of third posterior cell, usually shorter or much shorter than middle cross vein; anal cell fairly broadly open apically; knobs of halteres usually entirely pallid or whitish in both sexes, but sometimes with the outer edge slightly infuscated basally.

Hypopygium of ♂ (text-fig. 2) with the inwardly curved forceps-like processes of last sternite very conspicuous, markedly and strongly developed, very stout, entirely black, gripping over each other like the jaws of a pair of pliers.

From 32 ♂♂ and 15 ♀♀, including the types, in the South African Museum.

Length of body: about 1.76–3 mm.

Length of wing: about 2–3 mm.

Locality: Koup Karoo: Prince Albert Road Station (A. J. Hesse, July–Aug. 1945).

Subgenus CERATOLAEMUS Hesse

Ceratolaemus Hesse, subgen. of *Platypygus*, 1938: 969. Hesse, 1960: 316.

The generic identity of the species *xanthogrammus* Hesse (1938) has now become confused. Originally I described it as a subgenus of *Platypygus*. Since then Mr. and Mrs. Stuckenberg of Pietermaritzburg have submitted 3 other new species of this same subgenus. A comparison of these species with the South African representative of what I take to be a true *Platypygus* and with the descriptions of the Palaearctic forms referred to the latter genus however makes it evident that my subgenus differs consistently in certain characters from *Platypygus* s.str. and to such an extent that *Ceratolaemus* can no longer be retained as a subgenus of *Platypygus*.

It appears to represent a distinct and separate taxon which differs from *Platypygus* s.str. chiefly in the absence of a discoidal cell; rather elongated head of which the groove or narrow sulcation below ends in a distinct, single, median spine or spine-like process and not in only a heel-like prominence or, as in *Cyrtosiopsis*, in two prominences; the the more brilliantly shining or polished head and body; the much longer and stouter proboscis; and in the much smaller, more reduced and hidden claspers of the hypopygium of the ♂♂.

To make matters worse Bowden recently (1965: 203–4) relegated the subgenus provisionally as a synonym of *Cyrtosia* Perris, referring it to the Palaearctic *Cyrtosia nitens* group, a group which appears to differ much from the generotypical or *marginata* group and to which the two South African representatives, described in this paper, appear to belong.

From the latter and from descriptions of other Palaearctic forms of *Cyrtosia*, not belonging to the *nitens* group, the *Ceratolaemus* forms differ consistently in certain cephalic characters such as the head below, especially anteriorly, which is very much narrower, distinctly more longitudinally sulcate, ending medially behind in a more spine-like or subangular prominence; the distinctly

longer postocular part, the head appearing more elongate and the eyes usually situated farther forward; the inner margins of the eyes have a distinct indentation opposite the antennae; and the thorax is less convexly humped.

From all this it appears that the genus *Cyrtosia* in the Palaearctic region, as at present constituted, is by no means homogeneous and that a comprehensive revision would necessitate its subdivision. Until the true generic identity of *Cyrtosia* is established I provisionally retain the South African forms of *Ceratolaemus* as belonging to a separate genus.

From *Cyrtisiopsis*, as redefined in this paper and which it resembles superficially even more than species of *Platyptygus*, it differs, apart from the singular spine on head below already mentioned, in the longer occipital part, absence of a discoidal cell, more shining body, and the very much smaller, more reduced telomeres of the ♂♂.

The other species of *Ceratolaemus* are:

Ceratolaemus longirostris n.sp.

A unique ♀ specimen from Natal which resembles ♀♀ of the other Natal species *xanthogrammus* Hesse superficially, but agrees and differs from the latter in the following respects:

Body paler, paler yellowish brownish or more yellowish, the head mainly very pale yellowish or yellowish brownish, not mainly dark castaneous- or blackish brownish, the apex of face and buccal rims however not pale yellowish; thorax above discally, apart from anterior and lateral yellowish markings, not mainly uniformly very dark or blackish, but more dark reddish brownish, replaced discally by two submedial yellowish streaks, becoming broader in hinder half, and anteriorly medially by a faint narrow central yellowish line; sides of thorax above also more broadly yellowish; scutellum also entirely yellowish as in typical *xanthogrammus*; pleurae and legs more extensively and mainly yellowish, the lower pleural parts not darkened to a variable extent; abdomen above paler, paler reddish brownish, not dark castaneous or blackish brownish, and yellowish hind margins of tergites comparatively broader yellowish, not so contrasting with the darker rest as in *xanthogrammus*; entire body similarly shining.

Vestiture with the fine and shortish hairs very similar, as dense, also dark or brownish, but those towards end of abdomen above also dark, not tending to be paler, and distinctly slightly shorter.

Head with the antennae very similar, but with joint 4 proportionally shorter; proboscis distinctly very much longer (even if much extruded in specimen), its labral part slightly more slender, smoother, quite 1.32 mm. long, and entire proboscis from theca to apex about 1.88 mm. (in *xanthogrammus* only about 0.76–0.8 mm. and 0.92–1.008 mm. respectively, and labral part distinctly finely punctured), the proboscis, unlike that of *xanthogrammus*, without any perceptible hairs, especially on sides.

Wings very similar; halteres however more uniformly yellowish, the knobs not tending to be entirely or mainly whitish.

Holotype in the Natal Museum.

Length of body: about 2.6 mm. (excl. proboscis).

Length of wing: about 2.68 mm.

Locality: Natal: Tugela Valley, Kranskop Dist. (B. and P. Stuckenberg, May 1960).

Ceratolaemus bilineatus n.sp.

A single ♂ specimen from the Cape in the collections before me resembles both *xanthogrammus* and *longirostris* from Natal, more especially the latter, but may be distinguished as follows:

Body with the head, thorax above and abdomen above mainly very dark castaneous brownish or blackish brownish as in *xanthogrammus*; narrow sides of frons and face yellowish whitish; sides of thorax above broadly yellowish as in *longirostris*, but with a more distinct and conspicuous blackish spot above opposite wing-bases; disc of thorax as in *longirostris*, with two submedial yellowish streaks which broaden in posterior half, but without an indication of a narrow central yellowish line; pleurae with the lower sternal parts also darkened as in *xanthogrammus*; scutellum entirely yellowish; hind margins of tergites narrowly yellowish discally, broadish on sides; legs also mainly yellowish as in the other two species, but at least apical halves of basitarsi (as in some forms of *xanthogrammus*) and rest of tarsal joints darkened.

Vestiture very similar, also darkish; hairs towards apex of abdomen appearing slightly paler as in *xanthogrammus*.

Head with the antennae very similar, but joint 4 comparatively longer, appearing more slender, quite $\frac{2}{3}$ length of 3 (in the other two forms distinctly less than this); proboscis about 1.2 mm. long, slightly longer than in *xanthogrammus*, but much shorter than in *longirostris*, without any perceptible hairs as in the former species, the labral part also dullish due to very fine microscopic puncturation as in *xanthogrammus*, about 1 mm. long, shorter than in *longirostris*.

Wings as in the other two species, also slightly greyish yellowish, but relatively slightly broader; second posterior cell distinctly much longer, more parallel-sided than in the other two species, its lower vein nearly twice as long as part of vein between base of this cell and apex of first basal cell (in the other two forms these lengths are subequal or lower vein of the cell only a little longer); halteres and knobs yellowish whitish.

Holotype in the Natal Museum.

Length of body: about 2.8 mm. (excl. proboscis).

Length of wing: about 2.88 mm.

Locality: Southern Koup Karoo: Sevenweekspoort, Laingsburg Dist. (B. and P. Stuckenberg, 19–22 Sept. 1959).

Ceratolaemus montanus n.sp.

Still another smaller Cape species which resembles *xanthogrammus* more than *bilineatus*. Apart from being comparatively smaller, it agrees and differs from the three described species in the following respects:

Body with the head, thorax above and abdomen above mainly very dark or blackish as in *xanthogrammus*; thorax above with the same pattern of yellowish markings as in latter species, but with the anterior yellowish shoulder spot larger; disc of thorax entirely black, without submedial yellowish streaks as in *longirostris* and *bilineatus*; pleurae with more blackish or dark parts than in even *xanthogrammus*, not only the sternal parts being dark but also parts of meso- and pteropleurae, especially in ♂, where even the greater parts of these are sometimes darkened; scutellum mainly yellowish in ♀, darkened basally, in ♂ more extensively so; hind margins of tergites yellowish whitish, broader posteriorly, discally narrower than in *xanthogrammus*, broadened on sides, especially in ♀, the hind margins in ♂ narrowish, narrower than in ♀; venter darkened more than in the other species, especially in ♂, and yellowish hind margins of sternites more contrastingly evident; legs, excepting yellowish coxae, bases and apical parts of femora and, in ♀, to an obscure extent bases of tibiae, more darkened, especially in ♂, than in the other three forms, being either more infused with brownish, or in ♂, almost darker brownish.

Vestiture with the hairs on head and thorax distinctly very much shorter and sparser than in the other species, scarcely perceptible, also dark; those on abdomen also sparser, but scarcely shorter, appearing slightly paler, even towards base; those on legs also palish, but apparently even shorter than in the other forms.

Head with the antennae similar to those of the other species, but joint 4 relatively longish and slender as in *bilineatus*, also quite $\frac{2}{3}$ length of 3, in ♂ apparently even a little longer; proboscis comparatively shorter than in any of the other forms, shorter in ♂ than in ♀, the labral part about 0.32–0.68 mm. and entire proboscis from theca to apex about 0.4–0.88 mm., the labral part also minutely microscopically punctured, and sides of proboscis appearing hairless, not conspicuously hairy as in *xanthogrammus*.

Wings as in the other species, also appearing very faintly greyish yellowish; veins dark brownish; second posterior cell distinctly more divergent and broader apically than in the other forms, comparatively shorter, its lower vein usually longer than vein between base of the cell and apex of first basal cell: knobs of halteres white.

From 2 ♂♂ and 2 ♀♀ (♂ holotype and ♀ paratype in the Natal Museum, and ♀ allotype and ♂ paratype in the South African Museum).

Length of body: about 1.4–2.72 mm.

Length of wing: about 1.72–2.84 mm.

Locality: Southern Koupe Karroo: Sevenweekspoort, Laingsburg Dist. (B. and P. Stuckenberg, 19–22 Sept. 1959).

The four known species of *Ceratolaemus* may be separated as follows:

1. (a) Disc of thorax above, apart from yellowish markings anteriorly and on sides, entirely uniformly dark castaneous brownish, blackish brownish or black, and sides less extensively or not continuously, yellowish; abdomen above darker, more dark castaneous brownish to blackish brown or even black 2
- (b) Disc of thorax above, apart from yellowish markings anteriorly and on sides, with two submedial yellowish lines or streaks which broaden posteriorly, and sides more extensively continuously yellowish; abdomen above paler brownish 3
2. (a) Proboscis slightly longer, usually 0.88 mm. and more, with longer, more conspicuous fine hairs perceptible on sides, and with longer labral part, longer than 0.68 mm.; antennal joint 4, relative to 3, much shorter and stouter, distinctly less than $\frac{2}{3}$ length of 3; hairs on head and thorax distinctly longer; second posterior cell in wings relatively longer, appearing less divergent apically; yellowish spot anteriorly on thorax above humeral angles smaller, linear or even wanting; pleurae and legs with more yellowish, the meso- and pteropleurae being usually entirely yellowish or pale, and femora and tibiae either entirely yellowish or very pale yellowish brownish ♂ ♀ *xanthogrammus* Hesse (and forms of it)
- (b) Proboscis shorter, only about 0.4–0.88 mm., with only very fine, not very perceptible, hairs on sides, and with a shorter labral part, only about 0.32–0.68 mm.; antennal joint 4 distinctly longer, more slender, about or scarcely less than $\frac{2}{3}$ length of 3; hairs on head and thorax minute and sparser; second posterior cell appearing shorter, more broadly divergent apically; yellowish spot above humeral angles larger, more triangular; pleurae and legs more darkened, the meso- and pteropleurae also darkened to a variable extent, and femora and tibiae appearing darker, the paler base and apex of femora and base of tibiae contrasting more with the darker rest ♂ ♀ *montanus* n. sp.
3. (a) Proboscis longer, quite 1.88 mm. long, with longer labral part, quite 1.32 mm., the latter more shining above, without or with scarcely perceptible microscopic puncturation; antennal joint 4, relative to 3, much shorter, stouter, distinctly less than $\frac{2}{3}$ length of 3; second posterior cell in wings broader, more divergent apically; head mainly pale yellowish brownish; sternal part of pleurae pale like rest of pleurae; abdomen above paler brownish, and tarsi darkened only from joint 2 ♀ *longirostris* n. sp.
- (b) Proboscis shorter, only about 1.2 mm., with a relative shorter labral part, about 1 mm. long, the latter duller above, due to minute more perceptible puncturation; antennal joint 4 distinctly longer, more slender, quite $\frac{2}{3}$ length of 3; second posterior cell more subparallel-sided, appearing narrower and longer; head mainly dark castaneous or reddish brownish; sternal parts of pleurae darkened; abdomen above darker brownish, and tarsi darkened from near or about middle of joint 1 ♂ *bilineatus* n. sp.

Genus ONCHOPELMA Hesse

Onchopelma Hesse, 1938: 973.

This genus which I described for the first time in 1938, and based on two South West African species, *pulchella* and *trilineata* (pp. 976 and 978), has since been enriched by still another species, a new one from South Africa, which is described below. This genus is chiefly characterized and different from the other South African cyrtosiine genera in having a distinct and normal marginal cell in the wings, a condition found only in *Cyrtosia*; the first basal cell distinctly shorter and narrower than the second; the acute and stalked anal cell; relatively broad, more lobe-like, axillary lobe which is broader than anal cell; more globular head, with the eyes more normally situated, and occipital part short and flattened, and with the head below broad, short, not grooved, or ridged, or produced posteriorly into a process or processes; more cylindrical or rod-like antennal joint 3, even if broadened basally; longer and denser vestiture,

even in ♀♀; and the presence of a hook-like, curved process at base of basal joint of hind tarsi in some ♂♂.

The new species is:

Onchopelma karooana n.sp.

This species, based on a single ♀ specimen from the Koup Karoo in the South African Museum, is apparently nearer to *pulchella* Hesse than *trilineata* Hesse.

From *pulchella* it differs in having the greater part of pleurae, excepting only black or dark sternal part and very pale yellowish band above it, yellowish and sides of thorax (excepting only three black bands on disc and oblique spot above wing-bases) broadly yellowish, without a notopleural black stripe; entire pale yellowish scutellum; abdomen above with broad yellowish to ivory yellowish hind margins, broad black transverse basal bands across tergites 1-6, narrow on 5 and 6, with central black spots on 7 and 8, and a row of black segmental spots decreasing in size on sides of 3-8; the entirely yellowish tarsi, with only claws dark; and the more sericeous yellowish hairs on body, especially the abdomen above.

From *trilineata* it may be distinguished by the more extensively darkened head, the three black streaks on thorax above confluent posteriorly, not entirely yellowish pleurae, broader frons, longer face, longer antennal joint 3 which is much longer than 1 and 2 combined, shorter labella of proboscis, longer and denser hairs on body and legs, etc.

Length of body about 3.4 mm.

Length of wing: about 3.4 mm.

Length of proboscis: about 0.8 mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Staff, Feb. 1938).

Genus GLABELLULA Bezz.

Glabellula Bezzi, 1902: 191. Bezzi, 1925: 255. Engel, 1933: 116.

The genus *Glabellula* Bezzi s.str., as redescribed and defined by Engel (1933), has up to now apparently never been recorded from South Africa. One specimen from Natal, in a collection of Cyrtosiinae submitted by Mr. B. Stuckenberg and described below, is however referable to this genus and constitutes the first authentic record of this genus from southern Africa.

The species *Glabellula mellea*, described by Bezzi (1908: 180) from Namaqualand and referred to by me (1938: 985), is not a *Glabellula* but an *Empidideicus* (see Bezzi, 1925: 254).

Representatives of this genus cannot be confused with other cyrtosiines and may be easily recognized by the presence of a distinct, small, rudimentary, triangular, marginal cell in the wings; by the relatively large second basal cell which suggests the fusion of a discoidal and a normal second basal cell, and from which there radiate 4 longitudinal veins to demarcate the four posterior cells; and by the rather narrowish, almost parallel-sided anal cell. Other dis-

tinguishing features are the rather convexly humped thorax, the relatively long face, absence of a projecting pronotal lobe, and the longish antennal joint 4.

The only other South African genera which may be confused with it are the two new ones *Euanthobates* and *Pseudoglabellula*, described below. They however differ in the markedly narrow first posterior cell which is much narrowed apically and which opens before apex of wings, by the much longer first basal cell, the much broader anal cell, the markedly short face, and the very minute, scarcely perceptible joint 4 or terminal element of antennal joint 3.

Glabellula natalensis n.sp.

As stated above a single ♀ specimen submitted by Mr. Stuckenberg is referable to the genus *Glabellula* and it is characterized as follows:

Body mainly dark blackish brownish, with the following parts pale yellowish or yellowish: rim of buccal cavity, a spot on humeral angles of thorax, a streak on each side above wing-base, extending to and including postalar calli, sides and narrow hind margin of scutellum, narrow upper margin of mesopleuron along notopleural suture, a subtriangular spot on posterior half of mesopleuron, propleurae above front coxae, upper margin of sternopleuron, a spot above middle coxae and to a certain extent posterior part of metapleurae, narrow hind margin of tergite 1 discally, narrow hind margin of tergite 2 (broader on sides), hind margins of 3 and 4 (broader on sides below), broader hind margins of 5 and 7 (broader on sides below), sides of 8, upper parts of genital segments, hind margins of sternites, apical margins of coxae, greater basal part of trochanters, extreme base of femora, quite apical third of femora, greater part of tibiae (though the middle part along outer and inner faces slightly darkened), and greater part of tarsi, excepting their blackish or dark apical segments and claws; thorax above with 2 faint, palish, submedial streaks.

Integument of entire head and body dull, only that of venter slightly shining.

Vestiture very short and rather dense, especially on thorax above, greyish yellowish; hairs across hind margins of tergites, especially posteriorly, longer; face and frons and to a certain extent thorax above, especially along the slightly paler submedial discal streaks and to a certain extent pleurae with slight greyish tomentum; hairs on legs also very short, minute, appearing more whitish or sericeous in certain lights.

Head subglobular; eyes large, distinctly, though slightly, indented on inner margin opposite antennae; face about as long as frons, narrower than latter and slightly narrower apically than basally; frons also narrowed apically, medially depressed; buccal cavity longer than face; antennae with the two basal joints together about subequal in length to terminal joint, the first being very short, small, not distinctly perceptible, the second much longer, more cup-shaped, quite as broad as joint 3, the latter oval, the terminal element or joint 4 slender, rod-like, very much narrower than 3, nearly half (about $\frac{3}{8}$) length of 3 (the proportions of 1+2, 3 and 4 being about 3:8:3); proboscis relatively stoutish, slightly upcurved, about 0.24 mm. long.

Wings distinctly longer than body, greyish hyaline, the costal cell and triangular marginal cell appearing slightly darker, the extreme base yellowish; veins with the more thickened ones in anterior part and upper one of anal cell dark reddish brownish, the rest paler; first posterior cell subequal in width across apical margin to that of third; alula almost wanting, narrow, linear; knobs of halteres yellowish whitish, the upper basal two-thirds and inner face however brownish.

Abdomen (in this specimen) depressed above up to apical margin of tergite 3; tergites 1-3 each longer than posterior ones and 3 the longest, about as long as 4-6 together.

Legs rather stoutish, the front and middle tibiae slightly longer than femora, but hind ones subequal in length to hind femora.

From 1 ♀ (holotype) in the Natal Museum.

Length of body: about 1.6 mm.

Length of wing: about 1.48 mm.

Locality: Natal: From grassland (1,500 m. alt.), Royal Natal National Park, Drakensberg Mts. (B. and P. Stuckenberg, 15/9/1963).

Genus EMPIDIDEICUS Bezz.

Empidideicus Becker, 1907: 97. Bezzi, 1908: 180. Bezzi, 1925: 254. Engel, 1933: 100. Hesse, 1938: 979.

Glabellula Bezzi (nec Becker) in part (*mellea*), 1908: 180. Bezzi, 1925: 254.

This is one of the genera of the subfamily which, according to the various authors, is chiefly characterized and distinguished by the entire absence of a marginal cell in the wings, its place being occupied by the submarginal cell. Much confusion however appears to exist as to the true identity of the genus, which is probably due to the paucity of material on which to base a proper comparison of the various species referred to it. At present the genus seems to be very unstable, not only in other wing-characters, but in certain cephalic and body peculiarities. As pointed out by Engel (1933), who revised the genus, some Palaerctic species placed in it belong to *Cyrtosia*, a genus which however has a distinct normal and unreduced marginal cell in the wings, non-grooved head below, and a rather prominent pronotal lobe. Engel referred only three Palaearctic forms to *Empidideicus* and one (*efflatouni*) he placed in a distinct subgenus *Cyrtoides* which has a distinct indentation in the inner eye margins opposite the antennae.

The South African species which constitute this genus appear to have a similar generic instability. The single species *beckeri* assigned to it by Bezzi (1908: 180) is not represented in the collections before me, but judging from the description it is doubtfully an *Empidideicus*; in fact Engel himself maintained that it does not belong to *Empidideicus* s.str. The other species *mellea* which Bezzi described at the same time and in the same publication he at first referred to *Glabellula*, but subsequently (1925: 254) transferred it to *Empidideicus*. This latter species too I have not seen and can only attempt to deduce its generic

identity from the description. The short terminal element of antennal joint 3, the markedly long palps, and certain wing characters however appear to exclude it from *Empidideicus* s.str. Of the other two South African species *turneri* and *celluliferus*, described by me (1938: 982, 983), the second one, which has a distinct discoidal cell present in the wings and the last sternite in the ♂ produced on each side into a larger spine-like process (directed inwards behind and slightly below the telomeres), is also anomalous. To accommodate it I erected the subgenus *Anomaloptilus*, to which the Egyptian species *completus* Bezzi (1925: 254), of which I was unaware at the time, should probably also be assigned.

The number of South African representatives of *Empidideicus* s.str. is thus reduced to two species, *melleus* (Bezzi) and *turneri* Hesse, if the doubtful former be included in the genus. In the interim three other new species of the subgenus *Anomaloptilus* have however been collected in the Republic and Lesotho. In addition another specimen from Zululand has been discovered which agrees with both *Empidideicus* s.str. and the subgenus *Anomaloptilus* in essential generic characters, but differs from both in having a distinct, though much reduced, marginal cell. In this respect it upsets the definition of *Empidideicus* as based on wing-venation. To accommodate it a new subgenus *Aetheoptilus* is proposed. This new subgenus as well as the three new forms of *Anomaloptilus* are described below.

Empidideicus turneri Hesse

Empidideicus turneri Hesse, 1938, p. 982.

This species which was described from Mossel Bay is apparently more widely distributed. A ♀ specimen from Ndumu Reserve in the Ingwavuma District of Zululand, collected by B. and P. Stuckenberg (1-10 Dec. 1963), obviously belongs to it even though the pale or yellowish whitish hind margins of the tergites are comparatively narrower. No other specific differences are apparent.

Empidideicus (Anomaloptilus) notatus n.sp.

A species very similar if not merely an aberrant variety of *celluliferus* and from the same locality, but as it appears to show certain consistent differences and in view of the fact that species of Cyrtosiinae show a remarkable similarity in colour-patterns, it is considered to be a separate and distinct species which is characterized as follows:

Body, apart from the dark, dark reddish brownish or dark blackish brown on body above, distinctly very much paler than in *celluliferus*, more pale yellowish whitish; facial and buccal parts anteriorly and groove below head distinctly more extensively pale yellowish whitish; thorax discally above dark reddish brownish or blackish brown, in ♂ almost black, this dark in both sexes, but more so in ♂, however resolved more in three broadish longitudinal streaks of which the lateral ones have a more conspicuous spot-like extension above wing-bases, and the pale yellowish on sides of the thorax above broader than

in *celluliferus*; anterior humeral yellowish spots comparatively larger (in *celluliferus* the disc of thorax is more uniformly dark reddish- or blackish brownish and in addition with 5 more conspicuous dark longitudinal lines); pleurae paler, more extensively very pale yellowish or even yellowish whitish (not mainly reddish yellowish or reddish brownish), the dark along lower part of sclerites and sternal parts less extensive; hind margins of tergites paler, more yellowish whitish, distinctly more broadened on sides and, in ♂, more so in posterior half of abdomen, with a distinct and rather conspicuous shining blackish spiracle-like spot on each side of the tergites (not evident in *celluliferus*); legs on the whole paler, more yellowish whitish or very pale yellowish, the femora not with much reddish brownish or reddish, and, if slightly darkened along middle, this is much less than in *celluliferus*, and more blackish than reddish.

Vestiture very similar, also pale, but apparently slightly less dense, especially on abdomen above.

Head very similar; terminal element of antennal joint 3 also longish and slender, but comparatively a little longer, distinctly much more than half length of joint 3.

Wings very similar, but fourth posterior cell distinctly much broader apically than third, as 7:5 (in *celluliferus* as 6:5).

Last sternite in ♂ with a larger spine-like inwardly-directed process on each side (cf. text-fig. 3, left).

From 1 ♂ and 5 ♀♀, including types, in the South African Museum.

Length of body: about 1.08–1.6 mm.

Length of wing: about 1.08–1.56 mm.

Locality: Southern Cape: Mossel Bay (R. Turner, Nov. 1938).

Empidideicus (Anomaloptilus) basutoensis n.sp.

This is a highland species which is characterized as follows:

Body mainly blackish; eyes dark reddish brownish; anterior part of frons, face, buccal part to a variable extent, and to a variable extent also groove below head and base of proboscis below pallid or pale yellowish whitish; following parts pale yellowish to yellowish whitish: large triangular humeral spot and down anterior thoracic declivity, a triangular spot on each side of thorax anteriorly, mainly down declivity (slightly larger in ♂ and in ♀ more linear down the declivity), a broadish streak on each side of thorax above notopleural groove, interrupted just above wing-base and extending posteriorly

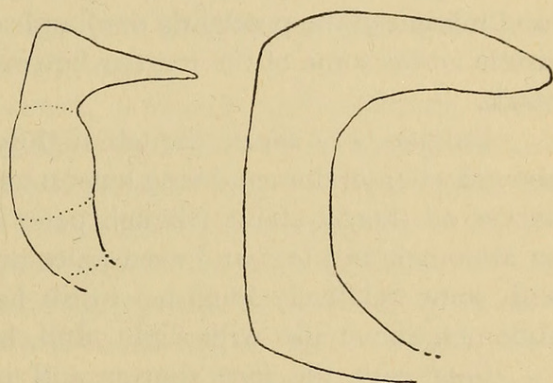


FIG. 3. Left: Posterior view of left process on left side of last sternite of ♂ *Empidideicus (Anomaloptilus) notatus* n. sp. Right (same proportions): Posterior view of left process on left side of last sternite of ♂ *Empidideicus (Anomaloptilus) basutoensis* n. sp.

to occupy postalar calli and to a duller (more variable and more brownish yellowish) extent apex or hind margin of scutellum, propleural tubercles, anterior, upper and greater hinder part of mesopleuron, upper half or greater part of pteropleuron, upper parts of sterno- and hypopleurae, metapleurae, apical half or greater part of front coxae, narrow anterior margin of tergite 1, hind margins of tergites, becoming broader posteriorly and very much so on sides (the entire extreme sides beyond a blackish shining longitudinal linear impression being yellowish whitish and tergites 5-7 in ♂ and 6 and 7 in ♀ being also very broadly or almost entirely yellowish), processes of last sternite in ♂, broad hind margins of sternites or even greater part of venter, trochanters of legs, and greater part of latter, excepting variable dark or blackish infusions on femora above and a smaller infusion on their anterior basal part and across the middle, to a fainter extent across basal part of tibiae and more than blackened apical half of tarsi; telomeres of ♂ blackish.

Integument mainly dull, the extreme base of tergites (under the overlapping hind margin of the preceding one) and some scattered smallish spots sometimes visible across some of the tergites however shining; telomeres of ♂ also shining black.

Vestiture very short, though slightly longer in ♂, fairly dense on thorax above and on abdomen, being longest across hind margin of tergites, appearing darker on thorax above (though paler in ♂), paler, more sericeous yellowish on abdomen and legs and even paler or more whitish in ♂; face in front in ♂ with some relatively longish whitish hairs; head, thorax above, pleurae and abdomen above also with slight, dull, but not very dense, greyish tomentum.

Head with the face shorter and narrower than frons; latter distinctly depressed, more so towards anterior part, the margins appearing almost rim-like, especially in ♀; antennae with the combined joints 1 and 2 short, joint 3 oval and its terminal element (or joint 4) slender, rod-like, longish, only a little shorter than 3 and tending to be slightly curved; head below rather deeply grooved; proboscis relatively stoutish, more slender in ♂, narrowed apically, about 0.36-0.6 mm. (extruded about 0.48-0.72 mm.), ending in the two rather pointed labellar lobes.

Wings longer than the head and body, greyish hyaline, appearing very slightly darker in ♀ than in ♂; veins dark reddish brownish, the lower one of anal cell and vein between basal cells transparent (in ♂ holotype the upper vein of discal cell also transparent); microtrichial fringe along hind margin distinct, appearing dark; first basal cell slightly, but distinctly, longer than second; upper vein of second posterior cell distinctly longer than part of it above discal cell; fourth posterior cell apically much broader than any of the other cells; apex of discal cell either truncate (with cross vein) or sharply acutangular (without a cross vein); halteres, including knobs, yellowish whitish to almost white.

Abdomen with the process on each side of last sternite in ♂, as shown in posterior view in text-fig. 3 (right), relatively broadish, directed inwardly and

in its apical part bent anteriorly (or towards apex of abdomen).

From 2 ♂♂ and 7 ♀♀ (♂ holotype, ♀ allotype and 5 ♀ paratypes in Natal Museum, and a ♂ and ♀ paratype in the South African Museum).

Length of body about 0.92–1.56 mm. (in natural humped condition).

Length of wing: about 1–1.8 mm.

Locality: Lesotho (Basutoland): Roma Mission, Maseru Dist., upper Cave Sandstone level (6,000 ft.) (B. and P. Stuckenberg, 4–13 Jan. 1913).

This species resembles *notatus* superficially, but differs in not having a yellowish infusion basally on thorax above, only the apex discally of the scutellum yellowish or yellowish brownish, the pleurae less extensively and not so uniformly yellowish, with more dark infusions on femora, darker wing-veins, and in the ♂ the much larger, broader, less sharply spine-like processes of last sternite (cf. text-fig. 3, right and left).

Empidideicus (Anomaloptilus) brevistilus n.sp.

This species from Zululand, with relatively shortish terminal element of third antennal joint, is characterized as follows:

Body mainly dark above; head above, proboscis and abdomen above blackish; basal colour of thorax above dull yellowish brownish, with 4 blackish longitudinal lines, the lateral ones broader; the following parts pale yellowish to yellowish whitish: face anteriorly and to a certain extent its sides, to a variable extent sides of head below and rims of gular groove, rim of buccal cavity below, anterior part of thorax in declivity, extending upwards on each side to include humeral angles and an anterior, submedial, triangular spot on each side, contiguous with humeral spot, sides of thorax above, continuous to include postalar calli and broken only in notopleural part in front of wing-base, greater part of scutellum (excepting a variable, medial, basal, dark infusion), greater upper part or half of pleurae (lower part being very dark or almost black), basal and hind margins of tergite 1 and hind margins and sides of rest of tergites (the sides more extensively so in ♀, isolating the lateral shining black spot on each from tergites 2–5, which in ♂ is still in the blackish part), hind margins of sternites, more broadly so in ♀ or even entire venter in ♀, apical parts of upper and lower parts of genitalia in ♀, lower part of process of last sternite in ♂, halteres (excepting the dark brownish upper surface of knobs), anterior and antero-lateral parts of front coxae and sides of rest of coxae, and greater part of legs (excepting the obscure darkish or brownish infusions along upper surface and across base and a little beyond middle of femora, to a feebler extent upper surface and subbasal part of tibiae and the little less than apical half of the blackish tarsi).

Integument of body mainly dull, only the dark spots on sides of tergites 2–6 and the less distinct ones (more evident in ♀) in a row across the tergites shining graphite-like; hypopygial parts of ♂ also more shining.

Vestiture with the hairs very short as in the two preceding species, fairly dense on thorax above and on abdomen above, being longest across hind

margins of tergites, appearing pale or pale sericeous yellowish in certain lights, though appearing dark on thorax above, without any longish ones discernible on face in front in ♂; hairs on legs pale, minute, scarcely perceptible, less so than in the preceding two forms.

Head with the frons and face relatively narrow, even allowing for post-mortal shrinkage, slightly depressed, subequal in length; antennae with joint 3 rather longish, distinctly longer than in preceding two species, more elongate-conical, relatively narrower, more gradually narrowed apically, its terminal element (or joint 4), relative to 3, distinctly very much shorter than in other two species, scarcely $\frac{1}{3}$ length of 3; head below shallowly grooved; proboscis relatively short, stoutish, shorter than, or as long as, head, about 0.24–0.4 mm. long, pointed apically.

Wings much longer than head and body, greyish hyaline; veins brownish to dark brownish or slightly reddish brownish; microtrichial fringe along hind margin minute, but distinct, appearing dark; first basal cell distinctly longer than second and vein between them transparent; anterior vein of second posterior cell longer than anterior vein of discoidal cell; fourth posterior cell broader apically than any of the others.

Abdomen in ♂ with the hypopygial structures withdrawn in both ♂ specimens and difficult to make out without dissecting and damaging the abdomen, but last sternite apparently like that of *notatus*, but the projecting process shorter and blunter.

From 2 ♂♂ and 2 ♀♀ (♂ holotype and ♀ allotype in the Natal Museum and a ♂ and ♀ paratypes in the South African Museum).

Length of body: about 0.92–1.32 mm.

Length of wing: about 1.12–1.48 mm.

Locality: Zululand: Ndumu Reserve, Ingwavuma Dist. (B. and P. Stuckenberg, 1–10 Dec. 1963).

This species may at once be distinguished from the other three known South African species of the subgenus *Anomaloptilus* by the distinctly more elongate-conical antennal joint 3 and, relative to length of latter, the proportionally much shorter terminal element (which in this case is about $\frac{1}{3}$ length of 3, whereas in the others it is quite, or nearly, half length of 3); the relatively narrower frons and face; proportionally shorter proboscis, which is not longer than head; and the knobs of halteres which are dark or blackish above.

AETHEOPTILUS n.subgen. of EMPIDIDEICUS Becker

The deviation from the normal wing-venation of *Empidideicus* s.str., as described by Becker (1907) and Engel (1933) and as is present in the South African species *Empidideicus turneri* Hesse, has gone a step further in a single ♀ specimen from Zululand in which, in addition to the presence of a discoidal cell as in the subgen. *Anomaloptilus* Hesse there is also present a reduced or vestigial marginal cell (cf. text-fig. 4) as in species of *Glabellula* Bezzi, *Doliopteryx* Hesse and the new genus *Pseudoglabellula* described below.

To accommodate it a new subgenus *Aetheoptilus* of *Empidideicus* is proposed provisionally, pending the discovery of more material of both sexes.

This new subgenus, as typified by this single ♀ specimen, agrees with *Empidideicus* s.str. in most of its generic characters, but differs, apart from the presence of a distinct discoidal cell and a narrowish reduced marginal cell, in having the anal cell angularly acute apically and very shortly stalked, and in its broader frons, face and groove in head below.

From the subgenus *Anomaloptilus*, which also has a discoidal cell, it differs in the presence of a vestigial marginal cell, the apically acute and very shortly stalked anal cell, the more S-curved anterior vein of second posterior cell, more parallelogram-shaped third posterior cell, and in the cephalic characters mentioned above. As far as the wing-venation is concerned this subgenus appears to be even more primitive than *Anomaloptilus*. If the type of wing-venation of *Empidideicus* s.str. be considered as a specialization on an ancestral type in which reduction has taken place, a step nearer this ancestral condition is represented by *Anomaloptilus* where a discoidal cell still persists. On this assumption *Aetheoptilus* represents an even more primitive condition in which not only the discoidal cell is still found, but in addition there is also a vestige of the normal marginal cell of the ancestral type.

The type-species of this new subgenus is the new species *zuluensis* described below.

Empidideicus (*Aetheoptilus*) *zuluensis* n.sp.

This species is characterized as follows:

Body, including legs, mainly yellowish; medial occipital part blackish, the sides of occiput behind eyes more reddish yellowish than yellow; proboscis and eyes blackish; antennae dark reddish brownish; the following spots and markings on body very dark reddish brownish or dark chocolate brownish: a broad central streak on thorax above, not reaching base, a large submedial

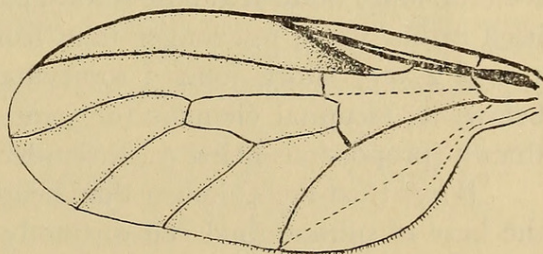


FIG 4. Wing of *Empidideicus* (n. subgen. *Aetheoptilus*) *zuluensis* n. sp.

subquadrate spot on each side almost midway between shoulder and wing-base, extending laterally as a narrow line to notopleural fold, an ovate spot on each side above wing-base and of which the inner anterior part is continuous (or in juxta-position) with a broadish, shortish, submedial, outwardly dilated streak, not reaching base, but extending more posteriorly than broad middle streak, a narrow central streak on scutellum, broadening posteriorly, an elongated vertical spot or streak on sternopleuron and above middle and hind coxae respectively, a broadish subbasal transverse band across tergite 1, indented

medially and slightly less so submedially along its hind margin, a large \sqcap -shaped mark submedially on each side basally of rest of visible tergites 2-6 (the inner limb of each mark being broader than outer one and the mark on tergite 2 basally also extending down to sides), a small shiny spot on each side of tergites 2-4, greater part of venter, front and hinder parts of middle and hind coxae, trochanters to a variable extent, a variable infusion subapically and subbasally on front and middle femora (more distinct on hind surface), a more distinct and less faint, subbasal and subapical infusion on hind femora and also to a certain extent along upper and lower surfaces of the same femora, a faintish subbasal infusion on tibiae, and apex and claws of tarsi (which are more blackish).

Integument of head and body dull, only the dark spots on sides of tergites shining graphite-like.

Vestiture very short, fairly dense, especially on thorax above, longer across hind margins of tergites and posterior sternites, pale yellowish, appearing dark on disc of thorax in certain lights, and gleaming yellowish on abdomen, with some distinct longish dark hairs in a row on each side of thorax above wing-base and shorter ones anteriorly above notopleural fold; hairs on legs very short, gleaming yellowish whitish to yellowish in certain lights.

Head subglobular; occiput somewhat flattened; frons rather broad, quadrate, about as broad as long, deeply depressed, its sides and base raised rim-like, not longer than face; the latter also relatively broad, but narrower than frons, depressed at base, but more convex apically where the apical margin is even raised; buccal cavity vertical; head below rather broadly and deeply grooved, with relatively sharp edges; proboscis as long as head, about 0.8 mm. long, stoutish at base (labral part), more slender in apical $\frac{2}{3}$, the labrum itself rather short, not longer than frons; palps minute; antennae with joints 1 and 2 very short, joint 3 somewhat conical, narrowed apically, more so below, its terminal element (or joint 4) comparatively long, only $\frac{1}{4}$ shorter than 3 (proportions being 3:4), slender, rod-like.

Wings (text-fig. 4) longer than head and body, faintly tinted smoky greyish, the base of submarginal cell distinctly infuscated brownish and the posterior veins with very faint fuscous borders; veins dark reddish brownish, but lower vein of anal cell and vein between basal cells transparent; microtrichial fringe along hind margin very short and scarcely perceptible; reduced marginal cell represented at base of submarginal cell as a narrowish, elongated, triangular, clearish area; first basal cell slightly longer than second; anterior vein of second posterior cell slightly S-curved; third posterior cell parallelogram-shaped; anal cell acutely angular and very shortly stalked apically; axillary lobe broadish, about as broad as broadest part of anal cell; halteres dirty yellowish, the knobs slightly brownish on sides basally, extreme base above and on base below.

From a single ♀ in the Natal Museum.

Length of body: about 1.2 mm. (in natural humped condition).

- (b) Antennal joint 3 more elongate, more elongate-conical, its terminal element distinctly shorter, distinctly less than half, or only about $\frac{1}{3}$ length of 3; proboscis relatively shorter, less than, or as long as or scarcely longer than head; frons and face more compressed, relatively narrower; knobs of halteres conspicuously darkened or blackened above
 $\delta \quad \eta$ *brevistilus* n.sp., Zululand
6. (a) Scutellum entirely and extensively yellowish; base of thorax also distinctly extensively yellowish; disc of thorax paler, more reddish brownish to dark reddish brownish, with the pale and dark submedial longitudinal lines more distinct, in $\eta\eta$ at least; dark infusions on femora scarcely evident or less distinct; veins in wings paler, more yellowish brownish or paler reddish brownish; process on each side of last sternite in $\delta\delta$ narrower, more spine-like 7
- (b) Scutellum pale, yellowish, or yellowish reddish only at apex medially; base of thorax dark like rest of disc; disc of thorax much darker, very dark blackish brownish to black, without, or with scarcely evident, dark longitudinal lines; dark infusions on femora darker, distinctly more conspicuous; veins in wings darker, blackish brown; process on each side of last sternite in δ distinctly broader, larger, less spine-like
 $\delta \quad \eta$ *basutoensis* n.sp., Lesotho
7. (a) Facial part anteriorly less extensively yellowish; thorax above darker, more dark reddish brownish, with four narrowish dark lines and even a fifth central one, its sides above less extensively yellowish; pleurae darker, the yellowish less extensive; tergites with the yellowish hind margins less broadened on sides, without conspicuous spiracle-like marks; middle parts of femora or even greater part of latter darker, more reddish brownish; fourth posterior cell in wings only a little or scarcely much broader apically than third (as 6 : 5); halteres more reddish or yellowish reddish, with more yellowish knobs; hairs on body, especially on abdomen, slightly denser, longer $\delta \quad \eta$ *celluliferus* Hesse, S. Cape
- (b) Facial and buccal parts, as well as groove on head below, more extensively pale yellowish; thorax above mainly reddish brownish to dark reddish brownish (δ), this dark however more resolved into 3 broadish, longitudinal streaks, the lateral ones extending more spot-like above wing-base, the sides of thorax above more broadly yellowish; pleurae more extensively very pale yellowish whitish, the dark sternal parts less extensive; tergites with the very pale yellowish whitish hind margins more broadened on sides and there with conspicuous shiny black spiracle-like markings; legs much paler, the femora less extensively darkened medially; fourth posterior cell distinctly much broader apically than third (as 7 : 5); halteres very pale yellowish whitish, their whitish knobs only slightly darkened above across base; hairs, especially on abdomen, apparently slightly less dense and shorter $\delta \quad \eta$ *notatus* n.sp., S. Cape

Genus EUANTHOBATES Hesse

Euanthobates Hesse, 1965: 482.

This genus was erected to accommodate a new species of a peculiar flower-feeding cyrtosiine collected by the Swedish Expedition in the arid western part of South West Africa in 1951.

It resembles the genera *Empidideicus* and *Cyrtosia*, especially the former, differing from it in the markedly short face; the more elongate, leaf-shaped third antennal joint which ends in a minute, scarcely perceptible, terminal element or joint; more protrusible proboscis; the presence (in the type-species at least) of remarkable, downwardly-projecting, finger-like or strap-like processes arranged irregularly comb-like along the sulcus on head below (cf. text-fig. 5, top); the longer first basal cell (longer than second) in wings (cf. text-fig. 5, bottom); the markedly narrow first posterior cell which is also narrowed apically and which opens on apical margin of wing (not posterior

to it); the markedly short part of vein between first basal and second posterior cells and which is considerably shorter than in *Empidideicus*; comparatively broader anal cell; and the apparently denser and shorter vestiture, especially on abdomen.

Since the description of this new genus and its type-species *pectinigulus* (1965: 483) two ♀ specimens of still another species, obviously belonging to the same genus, but without the gular structures, have been discovered among some other insects in the South African Museum caught on flowers in the Koup Karoo. This Cape species is described below.

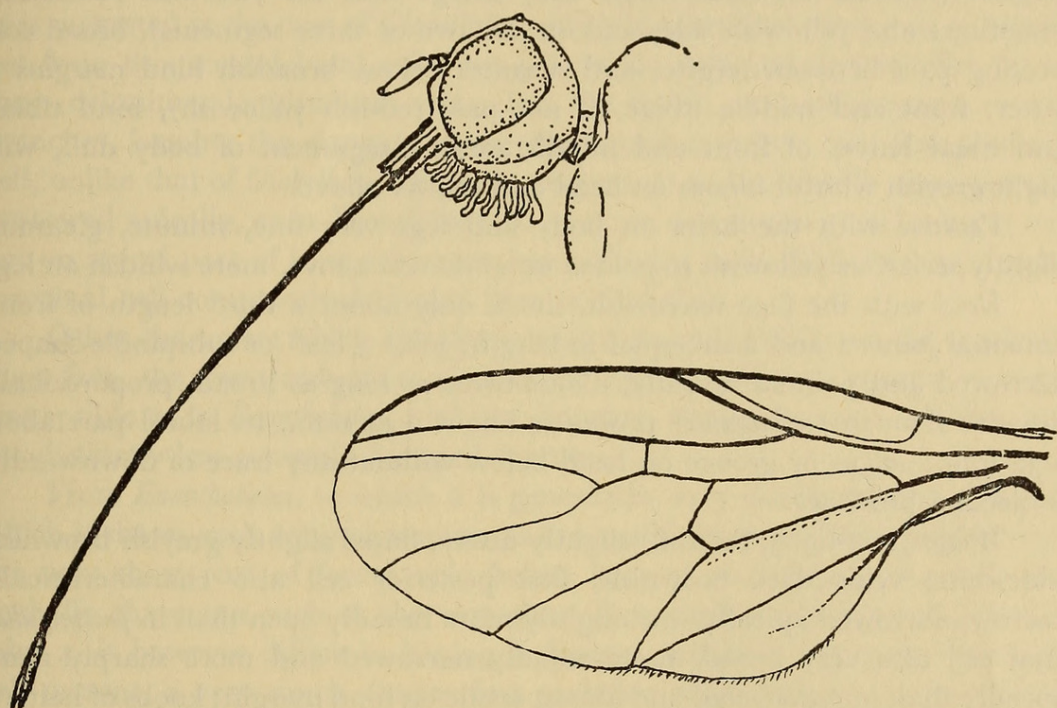


FIG. 5. Top: Composite drawing of the head of *Euanthobates pectinigulus* Hesse. (Head of ♀ paratype + extruded proboscis of ♀ holotype.) Bottom: Left wing of ♀ of *Euanthobates mellivorus* n. sp.

Euanthobates mellivorus n.sp.

This other, rather larger, species from the Koup Karoo, also represented by the ♀ only, and which may at once be distinguished from *pectinigulus* by the entire absence of any processes in the gular groove, is characterized as follows:

Body mainly black above; narrow sides of frons, face, lower half of broadish occipital part behind eyes, a broadish humeral spot confluent with anterior spiracular area just below it, notopleural ridge and sides of thorax along it, sides of abdomen from tergite 2, upper parts of pleurae to a variable extent, prosternal part above front coxae, front coxae, apical parts and narrowish sides of middle and hind coxae to a variable extent, front femora (or their anterior lower parts), bases and apices of middle and hind femora, front and

middle tibiae, basal halves of front and middle tarsi, and to a variable extent venter reddish brownish to reddish yellowish, sometimes inclining to more yellowish; more distinctly yellowish to pale yellowish are: a small spot on each side of frons basally at level of front ocellus, buccal rim, upper anterior part of mesopleuron, area in front of and below wing-bases, ridge on sides of thorax above wing-bases and postalar calli, scutellum, a large subelongate spot on each side at base of thorax (sometimes more whitish or lemon yellowish), a propleural spot, a streak along middle of pleurae, metapleural part below and around base of halteres, hind margin of metapleural part, hind margins of tergites (broader on sides where they merge into the yellowish reddish or sometimes also yellowish sides and on last two or three segments), broad connecting part between tergites and sternites below, broadish hind margins of latter, front and middle tibiae (if not pale reddish yellowish), hind tibiae, and basal halves of front and middle tarsi; integument of body dull, with slight greyish whitish bloom on head and thorax above.

Vestiture with the hairs on body and legs very fine, minute, gleaming slightly sericeous yellowish to golden on abdomen above, more whitish on legs.

Head with the face narrowish, short, only about a third length of frons; antennal joints 1 and 2 subequal in length; joint 3 leaf- or subspindle-shaped, narrowed and pointed apically, about twice as long as broad, proportionally broader than in *pectinigulus*; proboscis about 0.44 mm., its labral part about 0.32 mm.; sulcus or groove on head below without any trace of downwardly-projecting processes.

Wings (text-fig. 5, bottom) slightly dusky, tinted slightly greyish brownish, iridescent; veins dark brownish; first posterior cell also characteristically narrow, narrowed apically, but slightly more broadly open than in *pectinigulus*; anal cell also very broad, more rapidly narrowed and more sharply acute apically than in *pectinigulus*, and almost sessile on hind margin; knobs of halteres entirely pale yellowish.

From 2 ♀♀ in the South African Museum (the paratype with the head unfortunately missing).

Length of body: about 2.32–2.5 mm.

Length of wing: about 1.56–1.68 mm.

Locality: Koup Karoo: Laingsburg Div. (Mus. Staff, Feb. 1938). Collected together with other insects by sweeping flowering shrubs.

PSEUDOGLABELLULA n.gen.

A ♀ specimen from the Koup Karoo in the collections before me and which was obtained together with other insects by sweeping flowering shrubs, cannot be allocated to any of the known genera of Cyrtosiinae. It appears to represent a new and as yet undescribed genus. Certain wing-characters seem to suggest a relationship to the genus *Glabellula*, but in most of the other venational characters it shows even closer affinity with the preceding genus *Euanthobates*. If the presence of a distinct, though much reduced, marginal cell be taken as

a group character, it is referable to the group of cyrtosiine genera, such as *Cyrtosia*, *Platypygus*, *Cyrtisiopsis*, *Ceratolaemus* and *Glabellula*, in which a marginal cell is present in the wings, even though sometimes much reduced. On the other hand the rest of its wing-characters, as well as certain antennal and cephalic characters, place it in close proximity to *Euanthobates*.

By comparing it with the descriptions and illustrations of species of the Palaearctic *Glabellula*, which also has a similarly reduced marginal cell, its wings (text-fig. 6), like those of *Euanthobates*, differ in having the first basal cell distinctly very much longer than the second, and this second basal cell is apparently not formed by the fusion of a discoidal and a second basal cell as is suggested in the case of *Glabellula*; only 3 longitudinal veins, not 4, radiate out from this second basal cell; the 4 posterior cells not formed directly by these delimiting longitudinal veins, but the fourth vein bifurcates into two branches, forming the elongate triangular second posterior cell; first posterior cell, unlike that of *Glabellula*, distinctly very much and markedly narrower and narrowed apically, as in *Euanthobates*, to open on anterior or costal margin and not on apical part of it or very near apex of wing as in *Glabellula*; triangular marginal cell comparatively larger than in *Glabellula*.

Other characters which also distinguish it from *Glabellula* are the markedly short face, the great reduction of antennal joint 4, which is minute, scarcely perceptible as in *Euanthobates*, and not elongate, slender or even rod-like, and the distinctly less convexly humped thorax.

From *Euanthobates*, to which it is generically very closely related and with which it shares such wing-characters as the much narrowed first posterior cell, the very short part of fourth vein before base of second posterior cell, and cephalic characters such as the very short face, and much reduced antennal joint 4, it however differs in having a distinct, reduced, triangular marginal cell present, a very much shorter first posterior cell which curves anteriorly, opening on anterior costal margin at a much longer distance before apex of wings, thus reducing the length of the combined marginal and submarginal cells; a much narrower, more parallel-sided anal cell, more like that of *Glabellula*; a very much broader frons, and even shorter face; much larger antennal sockets; comparatively shorter and broader, truncated, vertical, anterior part of head, with the buccal cavity directed more obliquely forwards; and the head below broadly hollowed out or excavated, without a well-defined or delimited, central sulcus.

In other characters, such as the absence of a projecting pronotal lobe, it agrees with *Glabellula*, *Empidideicus* and *Euanthobates*, and differs from *Cyrtosia*, *Platypygus*, and *Ceratolaemus* where this lobe is present. The type-species of the genus is *Pseudoglabellula meridionalis* n.sp. described below.

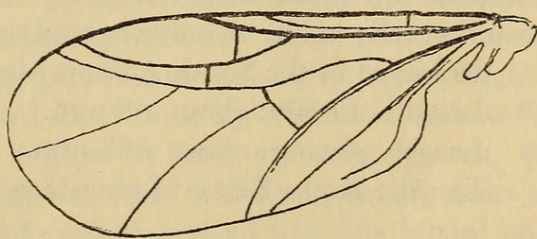


FIG. 6. Wing of *Pseudoglabellula meridionalis* n. gen. et n. sp.

Pseudoglabellula meridionalis n.sp.

The ♀ of this species is characterized as follows:

Body mainly black above and on venter; antennae, proboscis, dark parts of pleurae, coxae, femora, apical halves of front tarsi, entire middle and hind tarsi, and more or less apical parts of hind tibiae dark castaneous brownish; the following parts yellowish or pale yellowish: a broadish streak on each side of frons from level of front ocellus to antennal sockets, narrow rims of these sockets, a quadrate spot behind each eye at level of humeral tubercles, humeral tubercles and anterior spiracular prominences, notopleural ridge and less definitely sides of thorax above it, area anterior to wing-bases and that just below these bases, postalar calli and faint streak extending from them forwards above wing-base, discal part and central hind border of scutellum, connection between squamae and posterior basal part of scutellum, infusions on upper parts of meso- and pteropleurae, propleural spot above front coxae, prosternal part in front of front coxae, a broadish streak across upper part of sternopleuron, metapleural part below halteres, hind margin of metapleural part, narrowish hind margins of tergites, passing into the broader sides of abdomen, becoming broader across tergites 6 and 7, hind margins of sternites obscurely, apical margins of front coxae, to a fainter extent those of middle and hind coxae, and also anterior trochanters, extreme bases of hind femora, apices of all the femora, the tibiae (excl. the slightly darkened apical parts of hind ones), and bases of front tarsi; integument of body mainly dull.

Vestiture with the hairs on body and legs very fine, sparse, almost imperceptible, and, where perceptible, apparently dark on dark parts above and pale on yellowish parts.

Head about as long as broad, but distinctly longer than high; frons slightly longitudinally and centrally depressed, slightly narrower anteriorly than basally at level of front ocellus; face perpendicular in front, much shorter than frons; antennal sockets rather conspicuous, relatively large; antennal joints 1 and 2 very short, transverse, subequal in length, the first sunk in the socket; joint 3 almost ovate, but more pointed apically, about $\frac{2}{3}$ of its length at broadest part (at about middle), its apical or terminal joint minute; proboscis short, markedly stoutish, about 0.4 mm. long; palps not detectable.

Wings (text-fig. 6) distinctly somewhat dusky, infused brownish; veins dark brownish in costal region, more yellowish in rest of wings; triangular marginal cell rather large; long first basal cell about as long as narrow first posterior cell; knobs of halteres entirely pallid.

Holotype in the South African Museum.

Length of body: about 1.8 mm.

Length of wing: about 1.68 mm.

Locality: Koup Karoo: Laingsburg Dist. (Mus. Staff, Feb. 1938).

PSILODEROIDES n.gen.

This new genus, of which the known representatives have a striking resemblance to species of the genus *Psilodera* of the spider parasites (dipterous family Acroceridae), is established to accommodate a remarkable bombyliid submitted by Mr. R. J. Mansfield and of which the adults were reared in a laboratory of the Department of Agriculture in Pretoria from a batch of bombyliid larvae found both in egg-packets of the brown trek locust (*Locustana pardalina*) and in loose soil in association with such egg-packets.

This bombyliid cannot be referred to any other subfamily of the Bombyliidae but to the Cyrtosiinae. With the latter it agrees in certain characters, such as the reduction of the wing-venation, the presence of only one submarginal cell, the peculiar reduced and somewhat triangular marginal cell, the characteristic quadri-articulate antennae, the slight indentation in the inner margin of the eyes opposite the antennae, the absence of distinct spines and spicules on the legs, absence of macrochaetae on body, the arched or humped and convex thorax, broad and arched abdomen, and rows of small shiny depressed black spots on abdomen (present in some cyrtosiines).

In certain other characters, such as the very much reduced, rudimentary or vestigial proboscis, the widely separated ocelli of which the middle, slightly anterior, one is remarkably large, the less developed occiput, the sculptured or punctured thorax and abdomen, the excavate venter, and even more convexly humped or arched thorax and abdomen, it however differs from other known genera of the Cyrtosiinae to such an extent that at least a distinct section or tribe of the latter is indicated to include it.

As the life histories of all the other known South African cyrtosiine bombyliids (if not of the world) are unknown, the discovery of this genus and its host is of great importance.

The genus is characterized as follows:

Body (text-fig. 7) arched and humped, with a striking and marked resemblance to that of the genera *Psilodera*, *Terphis* and *Thyllis* of the spider parasites (fam. Acroceridae), its widest part across between tergites 2 and 3.

Head (text-fig. 7, upper left) almost spherical; occiput more flattened, not very prominent, more like that of *Onchopelma*, medially not depressed behind ocellar prominence; eyes large, not tending to be situated far forwards, separated on vertex in both sexes, apparently more widely so in ♀♀, their inner margin slightly indented opposite antennae, in ♀♀ somewhat uneven, not uniformly convex, but slightly shallowly depressed groove-like from ocellar corner obliquely down to near middle; ocellar prominence relatively broad, slightly more raised in ♂♂, transverse, delimited from frons by a distinct, forwardly-curved, depressed line or suture, not evident in other cyrtosiine genera, the lateral ocellar part higher than middle, the ocelli widely separated, more so than in the other genera, in a slightly forwardly-curved line, the lateral ones very near or at upper corner of eyes and thus very broadly separated, the ocelli relatively large, especially the middle one which is also more elongated trans-

versely; frons with a slight central depressed line, slightly raised on each side basally in front of each lateral ocellus, broader in ♀♀, broader basally than at antennae, and slightly broader than long; face in side view curving down to buccal cavity to the same extent as eyes, longer and narrower than frons, basally separated from antennal insertions by a transverse depression or depressed line, slightly narrowing from base to apex (beginning of buccal cavity); buccal cavity gradually widening to head below, the interocular space on head below being as wide as, or slightly wider than, base of face, the buccal depression not very deep, as long as, or slightly longer than, face; proboscis much reduced, minute or vestigial, represented by a small finger-like lobe or minute nipple; antennae (cf. text-fig. 7, extreme left) situated close together, quadri-articulate, joint 4 elongate, slender, rod-like, narrower than rest, armed with a terminal style or short bristle, joint 2 cup-shaped; head below and behind broadish, slightly depressed, not sulcate.

Thorax almost globular, very convex above, in side view semicircularly arched or humped above and high above level of vertex, almost or about as high above latter as depth of head itself; anterior sloping part behind head very steep, slightly hollowed and prothoracic part not distinctly separately discernible or prominent as in genus *Cyrtosia*; prothoracic humeral lobes broad, rounded, reminiscent of those of the Acroceridae; sides of thorax above notopleural fold a little anterior to wings not distinctly transversely depressed as in the other genera; postalar calli, owing to convexity of thorax, not so prominently ridge-like; dorsum or discal part of thorax above areolately punctured, more rugulose posteriorly; scutellum relatively broad, with a slight, but distinct, arcuate depression across basal part; pleurae slightly more convex or bulging than in the other genera, the mesopleuron more triangular and with some setiferous puncturation.

Wings (text-fig. 7, left) either clear as in ♂♂ or slightly infuscated as in ♀♀; marginal cell reduced, the posterior vein of which joins the costal margin much before apex of wing; one submarginal, a discoidal and four posterior cells present; first basal cell longer than second; anal cell open apically; axillary lobe narrowish, not lobe-like; alula much reduced, narrowish and linear; knobs of halteres tetrahedral in shape.

Abdomen (text-fig. 7, left and right) broad, ovate, at broadest part (between tergites 2 and 3), much broader than thorax, arched or humped in appearance; discal part of tergite 1 flattened, slightly depressed, areolately punctured; rest of tergites above in ♀♀ also areolately punctured or sculptured, but only discal basal three-quarters of tergite 2 and to a certain extent narrow discal basal part of 3 (under apical margin of 2) in ♂♂, in addition to flattened discal part of 1, areolately sculptured; rest of tergites in ♂♂ very finely transversely rugulosely sculptured; dorsum of abdomen in both sexes with two rows of segmental, slightly depressed, shiny, dark or blackish spots on each side from tergite 2 to apex as in some other Cyrtosiinae, each spot nearer base of the tergite, and in some ♂♂ often also with an extra central pair on tergite 2; venter

markedly and characteristically hollowed or excavated, the sides of tergites and plate-like hinder part of metapleurae much inflexed and overhanging venter, and middle of venter with two longitudinal ridge-like elevations.

Legs relatively stoutish and shortish, without any spines on hind femora and without distinct spicules on tibiae; apex of tibiae without distinct spurs, but apparently ending in a minute spine-like point on each side of tarsal insertion.

Vestiture without any macrochaetal elements, the hairs distinctly more developed than in other genera, excepting *Onchopelma*, even the hairs in ♀♀, though much shorter than in ♂♂, still denser and more evident than in most cyrtosiine genera; hairs on thorax above, scutellum and mesopleuron situated in the areolar crater-like punctures, comparatively dense, longer in ♂♂ than in ♀♀, in latter however apparently equally dense; those on abdomen, sides of tergite 1, greater part of 2 and on rest of tergites in ♂♂, though shorter than on thorax, markedly dense, shining silvery whitish, arranged transversely and directed towards centre along the middorsal line of which they form a sort of ridge composed of hairs; hairs on abdomen above in ♀♀ situated in the crater-like punctures, very much shorter than in ♂♂, minute, but also directed towards midline; posterior and lower parts of pleurae bare; hairs on legs relatively longer and denser than in the other genera, slightly longer and finer in ♂♂ than in ♀♀.

Hypopygium of ♂♂ (text-fig. 8, right, drawn upside down, the upper part being ventral in position in the specimens) with the last sternite (LS) not spined or very sharply produced at its posterior apical angle as in most other cyrtosiine genera; the basimere (B) of the paramere rather broadish, more saddle-shaped, not shell-like as in the other genera; the telomeres (T) of paramere leaf-shaped, flattened, without any hook or hook-like structure; aedeagal apparatus with the aedeagus proper (Ae) appearing double at its

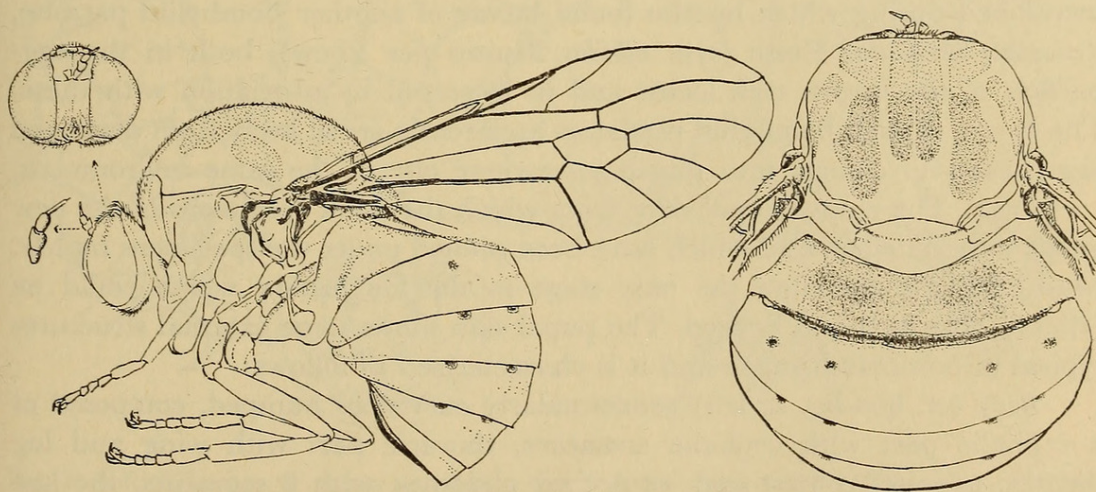


FIG. 7. Side view (left) and dorsal view (right) of ♀ *Psiloderoides mansfieldi* n. gen. et n. sp., and also front view of head and enlarged left antenna.

end, reversed in position, bending towards dorsum instead of towards venter or downwards as in most bombyliids; posterior end of the apodeme of the aedeagal apparatus bulb-like or vesicular, not flattened as in most bombyliid genera; and the paraphyses of the apparatus in form of a ventral hood-like extension of which the hind margin is slightly emarginate medially.

Biology: According to Mr. Mansfield of the Agricultural Department, bombyliid larvae were collected by field staff at a farm 'Sidi Berani' in the Kenhardt District during May 1964 (10th-15th instant). The larvae were already in an advanced state of development and some were found in the egg-packets of the brown trek locust. Others however were collected in loose soil in association with egg-packets. Representatives of such bombyliid larvae, from this batch collected at Kenhardt, were however also submitted to me; at first some preserved in spirit by Mr. J. E. van Someren Gréve and subsequently some other dead and live specimens by Mr. Mansfield.

From all these specimens it is quite obvious that at least three different species of Bombyliidae are represented. It is therefore impossible to state which of these three kinds of larvae represent those of this new genus. The specimens forwarded by Mr. Mansfield and stated by him to have been found in loose soil in association with egg-packets of the locust and from representatives of which adults of the new genus were supposed to have been bred, however appear to me to represent those of some other bombyliid genus, possibly those of some *Systoechus* species. Pending the result of a breeding experiment conducted at the South African Museum with the three live larvae among those submitted by Mr. Mansfield, the supposition that they represent larvae of this new genus cannot be corroborated*. It is however quite evident that the larvae of this new genus are in fact parasites or predators in egg-packets of the brown trek locust even if they were represented among those found loose in egg-packet infested soil samples.

In support of this the investigations of Potgieter (1929: 32-3) may be mentioned during which he also found larvae of another bombyliid parasite, *Systoechus xerophilus* Hesse (syn. *albidus* Munro nec Loew), both in the egg-packets of the brown trek locust and in loose soil in association with these. The larvae of such bombyliid predators apparently crawl away from destroyed egg-packets to change into pupae somewhere else in the same environment.

Pupa: The empty pupal skins from which the adult specimens of the new genus were hatched, and which have been pinned under the specimens by Mr. Mansfield, are therefore the only stage in the life history which could be reliably described and figured. The pupal skin shows some external structures typical of bombyliid pupae and it is characterized as follows:

Body (cf. text-fig. 8, left) semicircularly curved or humped, composed of a cephalic part with cephalic armature, thoracic part with wing and leg sheaths, a scutellar part and an arched abdomen with 8 segments, the last with caudal armature.

* These have since died without developing any further.

Cephalic part with anterior armature (see also separate drawing below) on each side consisting of a slightly obliquely situated basal part, ending apically in a forwardly-projecting, slightly dorso-ventrally flattened, slightly upcurved, blunt, chitinous spine, the inner basal part of which is carinately prominent step-like; outer part of the spine-bearing basal part ending in a chitinous half cup-like or scoop-like process; ventral part of head showing sheath knob of vestigial proboscis.

Thorax with sheath lobes of wings and sheaths of legs below, but without any bristles or spines; scutellar part with 3 long, flagellar bristles on each side.

Abdomen humped or arched in side view, with segment 1 the shortest dorsally, its hind margin medially dorsally slightly emarginate, with 2 bristles on extreme side below, one above and the other below ridge-like side below; segment 2 with a row of 3 bristles on each side in upper half across more or less the middle and 2 on extreme side (above and below lateral ridge); segments 3-6 each with a row of 3 bristles in upper half and 2 below on each side of lateral ridge, but beyond the middle, the bristles decreasing in size posteriorly and those across segment 6 the shortest; segment 7 with a row of 6 (3 on each side of midline) posteriorly-directed, curved, embedded, chitinous hooks on upper part beyond middle (see separate drawing of caudal part) as well as the usual 2 bristles below on each side of lateral ridge; segment 8 larger in ♀♀ than in ♂♂, armed on each side of middle with a strong, upwardly-curved, chitinous hook which arises from a vertically-embedded sole- or slipper-shaped basal part, the dorsal part of which projects freely as a flattened, lobe- or

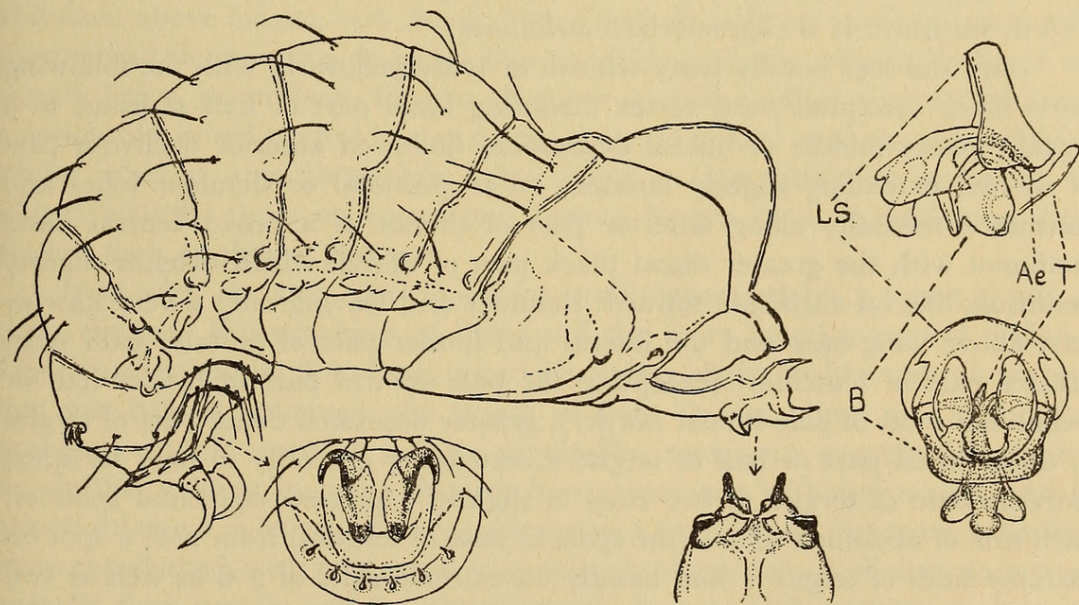


FIG. 8. Left: Side view of empty pupal skin of a ♂ *Psiloderoides mansfieldi* n. gen. et n. sp., also showing separately ventral view of cephalic armature and posterior view of caudal armature. Right: Side and posterior (dorsal) views (drawn upside down) of hypopygium of ♂ of the same species. Ae = aedeagus proper; B = basimere; LS = last sternite; and T = Telomeres.

tongue-shaped, chitinous process on each side of midline; sides of segments above the lateral ridge each also with a small semicircular, backwardly-projecting lobe; venter with sternites 1-5 without any bristles, but 6 and 7 each with a row of 6 slender, whip-like bristles (3 on each side of midline) beyond middle, with sternite 6 narrow, almost ridge-like medially, the part between it and 5 being deeply sunk in, causing the posterior part of abdomen to be characteristically bent or curved downwards and which, in conjunction with the strong upwardly-curved caudal hooks, probably acts as a strong fulcrum in the living pupa with which to facilitate forward and upward progression through soil or sand to enable the adult to escape.

The duration of both the larval and pupal stages has not been recorded.

Length of pupal skin in the natural humped state: about 4-5.75 mm.

Deepest part in side view, between tergite 3 (or part of 3) and venter: 47-74 mm. (53-74 mm. in case of ♀♀).

Only one, and apparently slightly variable, species of this new genus is represented in the material submitted by Mr. Mansfield which I wish to name *Psiloderoides mansfieldi* in appreciation of this investigator's contribution, and which is to be considered as the type-species of this new genus.

Psiloderoides mansfieldi n.sp.

This type-species is represented by 4 ♂♂ and 2 ♀♀ of which 2 ♂ paratypes and the ♀ allotype are in the South African Museum and the ♂ holotype, and a ♂ and ♀ paratypes in the Department of Agriculture in Pretoria.

The ♂ differs markedly from the ♀ in size, colour, integumental sculpture and in vestiture. It is characterized as follows:

Body and legs mainly ivory whitish or ivory yellowish, with the following parts black: occipital part, vertex including basal part or half of frons, to a certain extent middle of buccal depression, hollowed anterior declivous part of thorax, extending slightly laterally on to pronotal or shoulder lobes and continued medially along anterior part of thorax as a broad central band confluent with the greater discal black part of thorax which extends slightly peninsula-like on each side towards shoulder and leaving only a very narrow part above wing-base and the lateral and hinder part of postalar calli pale, greater part of scutellum (excepting the pale central part in hinder half or sometimes most of pale hinder border), greater depressed discal part of tergite 1, discal basal part or half of tergite 2, extending centrally to near its apex, extreme base of tergite 3, two rows of slightly depressed segmental spots on each side of abdomen above (the spots at base of tergites) from 2-6, a spot on extreme sides of tergite 1 and basally on extreme sides of 2-6 as well as two spots on mesopleuron, greater part of pteropleuron, excepting its posterior border, a large spot on sternopleuron, excepting its upper and anterior borders, a spot on hypopleuron, two spots on metapleural parts, hinder part of front coxae, rest of coxae, a subbasal infusion and spot beyond middle on anterior

lower aspect of front femora as well as their posterior face from near base, upper surface, upper anterior surface and a streak from near base to middle on anterior face of middle femora, upper and posterior surfaces from near base, a lateral anterior streak from near base to beyond middle and a subapical spot on hind femora, sometimes inner lower face of tibiae to a variable extent, and apices of claws; antennae reddish brownish; eyes reddish brownish to blackish brown; front ocellus yellowish or brownish, the lateral ones darker, more brownish.

Integument of head dull; that of thorax above punctured in anterior and antero-discal part, more rugulosely so discally and posteriorly, more or less shining anteriorly, especially on ivory yellowish parts, but dull discally and posteriorly; scutellum more distinctly punctured across base, somewhat shiny there; mesopleuron punctured and somewhat shining; pteropleuron and sternopleuron sometimes duller on black parts and former finely longitudinally striate, the pale borders more shining; metapleural part also somewhat shining; abdomen mainly dull, the discal depressed part of tergite 1 and blackened discal basal part of 2 areolarly punctured; integument of rest of abdomen above very finely, more or less transversely, rugulosely sculptured.

Vestiture with the hairs on head, the dense and longish ones on thorax above, scutellum and mesopleurae gleaming sericeous snow whitish, those on thorax above directed towards the middorsal part and those on sides of scutellum also directed upwards and forwards; hairs in crater-like areolar puncturation on depressed discal part of tergite 1 and on basal sculptured discal part of 2 minute, scarcely perceptible, appearing yellowish or yellowish brownish in certain lights; those on sides of latter tergites silvery whitish; those on rest of abdomen above longer, very much denser than discally on 1 and 2, but much shorter and denser than those on thorax, shining silvery whitish, brilliant in certain lights, decumbent, fur-like, directed towards midline where they form a carina-like raised central line or mane; those on genital segment also whitish; venter without any discernible hairs; hairs on legs gleaming sericeous or silvery whitish, those on coxae and femora longer than on abdomen, but shorter than on thorax above.

Head with the two more posterior ocelli separated by a space about 3 times distance between each of them and the more anterior central ocellus; frons broader basally than long, anteriorly with a slight pit-like central depression just behind antennae, the length of frons to face about as 5:9 (or 8); proboscis entirely vestigial, minute, nipple-like, sometimes scarcely detectable, its position evident by some shortish hairs; antennae with segments 1 and 2 almost subequal in length, segment 2 however a little longer, but much broader, more cup-shaped, with 3 subequal to or scarcely longer than 2, slightly narrower apically than basally and basally narrower than 2, with segment 4 slender, rod-shaped, about as long as or only very little longer than 3, ending in a short more or less clear seta-like style.

Wings transparent, tinted slightly milky whitish; veins brownish or

yellowish brownish, but greater part of costal vein to beyond level of base of triangular marginal cell, greater part of vein between basal cells and entire posterior vein of anal cell whitish transparent; microtrichial fringe minute, more evident along axillary lobe and alula; marginal cell rather elongate, scalene-triangular; first posterior cell rather rapidly broadened divergently near apex; discoidal cell more or less 2 times as long as broad, the middle cross vein at about, or a little beyond, middle of the cell; squamae opaquely whitish; knobs of halteres white.

Hypopygium as shown in text-fig. 8 (right) and as described for genus.

The ♀ (text-fig. 7) differs considerably from the ♂ and, apart from being distinctly much larger, it differs in the following respects:

Body and legs mainly yellowish; occipital part, including ocellar part, blackish or black; entire frons yellowish like face and buccal part, head below and behind eyes; antennae reddish brownish; thorax mainly yellowish, with the following parts brownish or reddish brownish (cf. text-fig. 7, right): a broad longitudinal, central streak (separated by a yellowish line) extending to near base (darker in last part), an irregular quadrate spot on each side discally near middle, an oblique oblong spot on each side just above wing-base, extending towards quadrate spot, a large oblong and darker (more blackish brownish) spot on each side beyond middle, beginning at (or narrowly confluent with) posterior narrow part of quadrate spot and extending to near postalar calli and separated from broad central streak on each side by a yellowish longitudinal line; prescutellar basal part in one ♀ also tending to be slightly darkened; scutellum mainly yellowish, its transverse depression across base partly brownish; pleurae mainly yellowish, the margins of the sclerites more yellowish whitish, the anterior part of mesopleuron infused slightly yellowish brownish and pteropleuron, sternopleuron and hypopleuron infused with reddish brownish to a variable extent, especially towards anterior part; abdomen, unlike the almost entirely yellowish white abdomen of ♂, more or less dirty yellowish to greyish yellowish brownish, variegated with irregular dark infusions or streaks more or less across middle of tergites and on extreme sides, the depressed discal part of tergite 1 and some basal discal parts of 2 blackish brown and, as in ♂, with two rows of blackish shiny depressed spots on each side above and a row of fainter, more indistinct, ones on extreme sides; venter mainly yellowish, the two medial ridge-like elevations more yellowish whitish and space between them more pale yellowish brownish like the genital parts; legs mainly yellowish, with more or less the same parts as in ♂ darkened, but much fainter, more yellowish brownish than black, the entire tibiae however yellowish, not darkened along inner lower face as in some ♂♂.

Integument also mainly dull, only the apex of shoulder lobes, pleurae, especially darkened parts, metapleural parts and legs, especially coxae, and apical part of femora somewhat shining; integument of thorax above, scutellum and mesopleuron sculptured as in ♂, but more coarsely so; that of entire abdomen above, unlike that of ♂, fairly coarsely areolarly punctured (crater-

like punctures) throughout, only slightly more coarsely so in depressed discal part of tergite 1, the suture between tergites 1 and 2 rather deep, furrow-like, especially across middle part.

Vestiture, unlike that of ♂, very much shorter; hairs on ocellar part appearing dark, those on pale parts (frons and face) more yellowish or golden yellowish, not whitish as in ♂, though apparently not much shorter and sparser; those on thorax above, though arranged in same way and more or less equally dense, distinctly very much shorter, gleaming more yellowish or golden yellowish discally, not silvery whitish; hairs on abdomen above, located in the crater-like punctures, minute, appearing less dense, yellowish, not silvery, but also directed obliquely towards the midline; those on legs longer than on body, but relatively shorter than in ♂, distinctly gleaming more golden yellowish.

Head (text-fig. 7, left and upper left) with the fronto-facial part distinctly much broader than in ♂, the frons across base also much broader than long, length of frons to face about as 6 : 8; face about as broad across base as long (to beginning of buccal cavity) which in ♂ is distinctly much narrower across base than long; proboscis, though also vestigial or rudimentary, very slightly longer than in ♂, slightly more finger- or lobe-like; posterior ocelli separated by a space a little more than 3 times distance between them than between each and middle ocellus, the latter distinctly larger than in ♂; eyes in the two specimens not equally convex as in ♂, but uneven as described under the genus; antennae with segments 1–3 proportionally similar to those of ♂, but slender segment 4 distinctly longer than 3.

Wings (text-fig. 7, left) distinctly infuscated, somewhat opaquely brownish; veins darker than in ♂; middle cross vein distinctly beyond middle of discoidal cell; knobs of halteres yellowish brownish, not whitish as in ♂.

Length of body: about 2.6–3.2 mm. (♂♂) and 4.2–4.4 mm. (♀♀) (in natural condition).

Length of wing: about 3.2–3.88 mm. (♂♂) and 4.36–4.96 mm. (♀♀).

Width of widest part of abdomen: about 1.92–2.52 mm. (♂♂), 3.2–3.6 mm. (♀♀).

Locality: North-western Cape: Farm 'Sidi Berani' in Kenhardt District (Dept. of Agriculture, Pretoria, from larvae collected 10–15 May 1964 and hatched out during Sept.–Oct. 1964).

SUMMARY

Following an introductory note a revised key to all the known African genera, both old and new, of the Cyrtosiinae is given. Six genera not previously recorded from South Africa, of which two are new, are dealt with, a new subgenus and 16 new species are described. Keys to the known species of genera, which contain several species, are also given. To supplement the descriptions 8 text-figures are given.

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REFERENCES

- BECKER, T. 1907. Die Ergebnisse meiner dipterologischen Frühjahrsreise nach Algier und Tunis, 1906. *Z. syst. Hym. Dipt.* **7**: 97-128.
- BEZZI, M. 1902. Neue Namen für einige Dipteren-Gattungen. *Z. syst. Hym. Dipt.* **2**: 191.
- BEZZI, M. 1908. Simuliidae, Bombyliidae, . . . *Denkschr. med.-naturw. Ges. Jena* **13**: 179-201.
- BEZZI, M. 1925. Notes additionnelles sur les bombyliides (Dipt.) d'Égypte. *Bull. Soc. ent. Égypte* **9**: 244-273.
- BOWDEN, J. 1965. Diptera of Nepal: Bombyliidae. *Bull. Brit. Mus. (nat. Hist.) Entom.* **17**: 203-208.
- ENGEL, E. O. 1933. Bombyliidae. *Flieg. pal. Reg.* **69**: 97-192.
- HESSE, A. J. 1938. A revision of the Bombyliidae (Diptera) of southern Africa. *Ann. S. Afr. Mus.* **34**: 1-1053.
- HESSE, A. J. 1955. Diptera: Bombyliidae. In Hanström, B., Brinck, P. & Rudebeck, G., eds. *South African animal life*. **2**: 382-401. Stockholm: Almqvist & Wiksell.
- HESSE, A. J. 1956. A revision of the Bombyliidae (Diptera) of southern Africa. Part III. *Ann. S. Afr. Mus.* **35**: 465-972.
- HESSE, A. J. 1960. Diptera, Bombyliidae. Mission zoologique de l'I.R.S.A.C. en Afrique centrale (P. Basilewsky et N. Leloup, 1957). *Ann. Mus. Congo belge* 8vo (Sci. zool.) **88**: 315-317.
- HESSE, A. J. 1965. Diptera (Brachycera): Bombyliidae, Cyrtosiinae, *Euanthobates*, a remarkable new genus. In Hanström, B., Brinck, P. & Rudebeck, G., eds. *South African animal life*. **11**: 482-484. Stockholm: Swedish natural science research council.
- LOEW, H. 1844. Beschreibung einiger neuen Gattungen der europäischen Dipterenfauna. *Stettin. ent. Ztg.* **5**: 114-130.
- PARAMONOW, S. J. 1929. Beiträge zur Monographie einiger Bombyliiden-Gattungen. *Trav. Mus. zool. Acad. Sci. Ukr.* **6**: 1-161, I-V.
- PERRIS, E. 1839. Notice sur quelques diptères nouveaux. *Ann. Soc. ent. Fr.* **7**: 45-57.
- POTGIETER, J. T. 1929. A contribution to the biology of the brown swarm locust *Locustana pardalina* (Wlk.) and its natural enemies. *Sci. Bull. Dep. Agric. S. Afr.* **82**: 1-48.
- SÉGUY, E. 1930. Risultati zoologici della missione inviata dalla R. Società geografica italiana per l'esplorazione dell'oasi di Giarabub (1926-1927). Insectes diptères. *Ann. Mus. Stor. nat. Genova* **55**: 75-93.



Hesse, A J. 1967. "Additions to the Cyrtosiinae (Bombyliidae) of South Africa." *Annals of the South African Museum. Annale van die Suid-Afrikaanse Museum* 50, 89–130.

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